



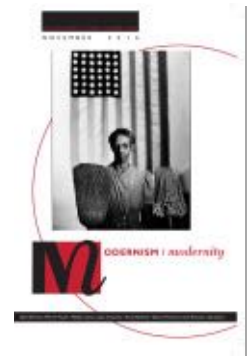
Moving Pictures: Magic Lanterns, Portable Projection, and Urban Advertising in the Nineteenth Century

Ellery E. Foutch

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Moving Pictures: Magic Lanterns, Portable Projection, and Urban Advertising in the Nineteenth Century

Ellery E. Foutch

In 1896, bodybuilder Eugen Sandow sat at a desk to devote himself to a mental task, rather than a physical one. He had recently returned to England from a trip to the United States, where he had collaborated with inventor W. K. L. Dickson on a mutoscope reel, an early moving-picture technology, and had posed for X-ray photographs after indicating his interest in the subject to Thomas Edison, who was proudly advertising his patented process for X-rays and fluoroscopes.¹ Now, though, Sandow was working on his own invention. Self-consciously identifying himself as a “Professional Athlete,” he drafted a patent application for what he called a “novel and effective portable method of advertising” (figs. 1, 2).² This mobile moving-picture device was to be mounted on a human body that would walk the streets while projecting lantern slides or films, bringing novel meaning to the newly developing media and the bandied-about terms of “moving pictures” and “living pictures.” Sandow’s device for portable projection engaged with and re-conceptualized contemporary issues of mobility, technology, consumption, and urban spectacle. Although the proposed machine was never brought into mass production, this patent transforms our understanding of the history of “screen practice,” as articulated by Charles Musser, by proposing a mobile screen borne on the body of a pedestrian, meant to circulate through the city at night; it also expands our view of broader practices of urban advertising, media experimentation, and perception.³ The patent specification, emerging only a few

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Ellery E. Foutch is an Assistant Professor in the American Studies program at Middlebury College. Her work explores nineteenth-century fascinations with perfection and its preservation, and she has recently published an article about nineteenth-century glass ballot boxes and political transparency.



734 months after the first successful projection of enlarged motion pictures (rather than the prior reliance on the kinoscope and peep-box viewing), reveals the way the practice of viewing film might have developed.⁴ This article examines the circulating image of embodied advertising and corporeal technologies in the nineteenth and early twentieth centuries, positing a proto-cyborg whose interaction with machines and commodities superseded his interaction with other humans.⁵

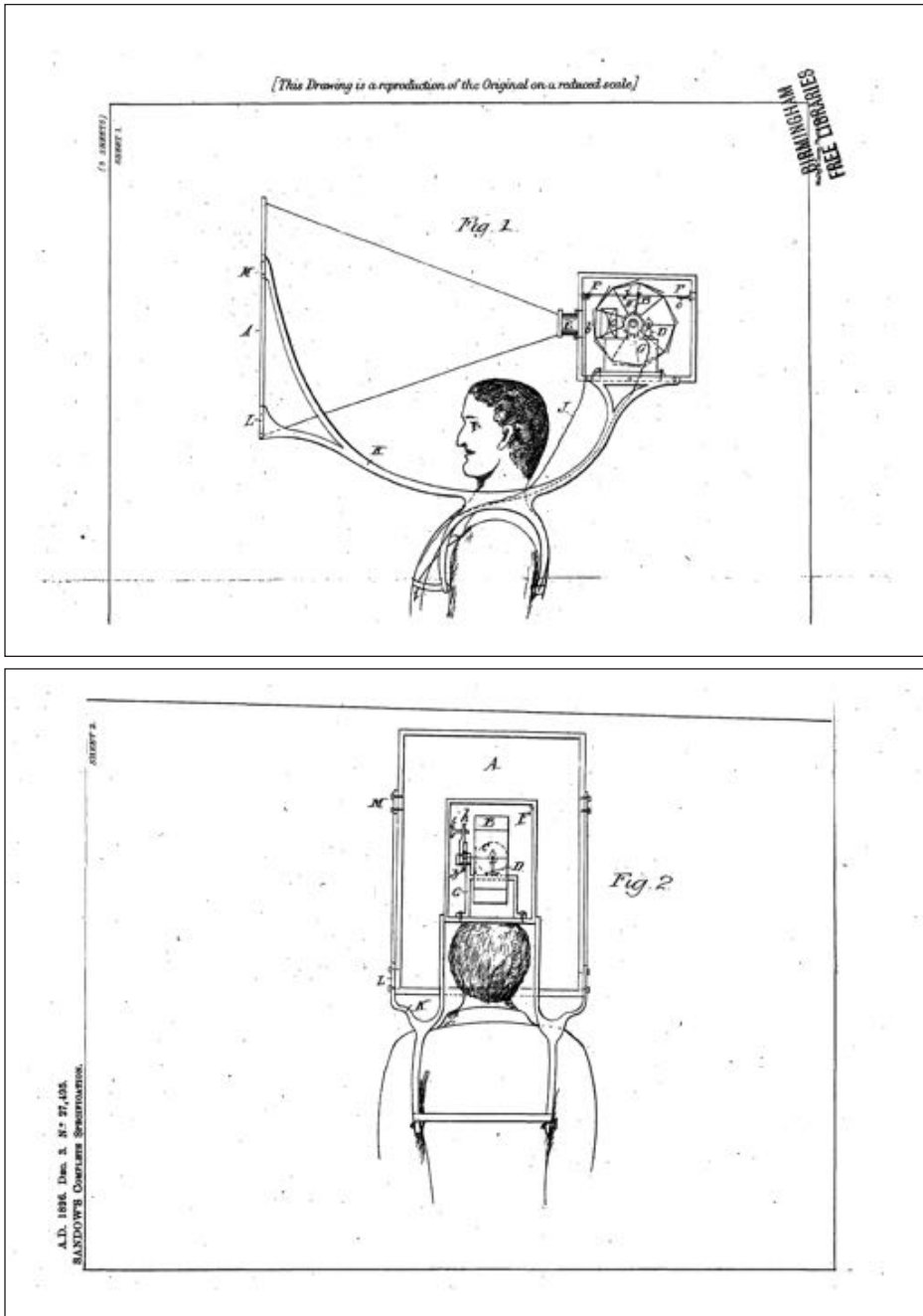
As Sandow specified in his proposal,

In carrying out my Invention I construct a frame or screen combined with a projecting (or magic) lantern which may be easily carried on a man's shoulders. . . . By means of the lantern I project upon the screen, advertisements of any desired character. The lantern is provided with a train of wheels arranged as in clockwork which control and cause to pass in front of the condenser at desired intervals, an endless transparent film, upon which may be photographed or printed in any desirable manner the various advertisements [or] . . . show moving pictures along with the advertisements.⁶

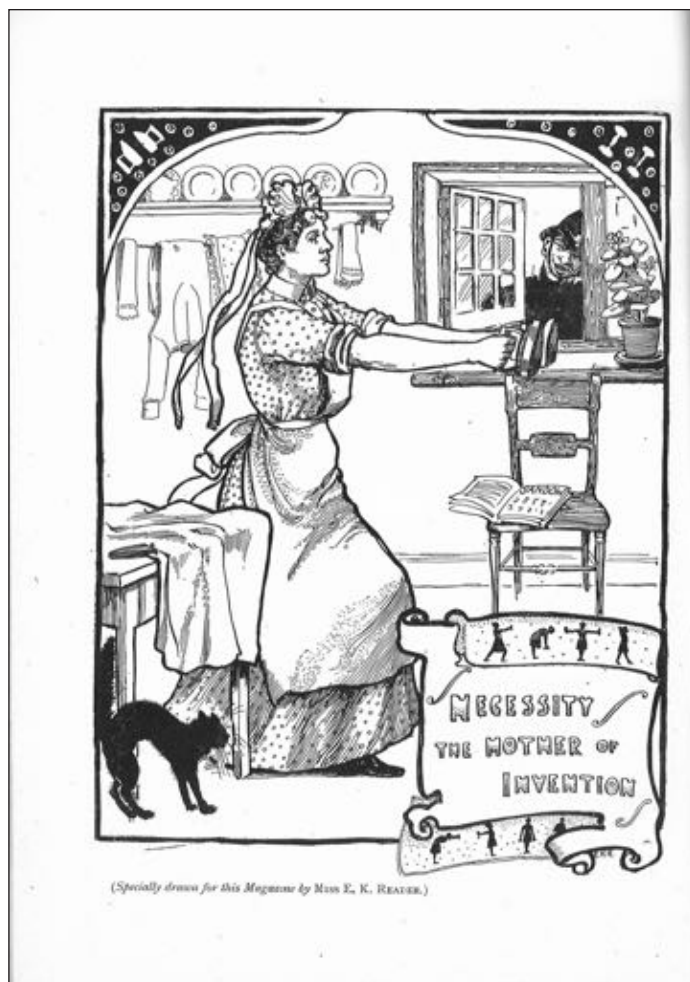
The bearer was literally weighed down with the burden of modern technology, the projector mounted over his head and strapped to his shoulders and his field of vision obstructed by the screen. The patent raises important issues for our understanding of the turn of the century imagined urban dweller and the possibilities that people foresaw for street life and visual consumption—and for the social interactions, or lack thereof, between people mediated by technology and machines. While the apparatus did not achieve the ubiquity of the stereoscope or the panopticon, it is nonetheless a revealing conceptualization of the period's urban spectator and consumer.⁷ Sandow's invention is an "evocative object" with which to consider laboring bodies and their uneasy immersion in the realms of commerce, technology, and wonder, while it also highlights and complicates the often-overlooked urban figure of the sandwich man and his relationship to showmanship.⁸

Sandow: Image, Embodiment, and Invention

Sandow's self-promotion had already revealed an awareness of the intertwined issues of embodiment and mobility. Born in Prussia, Sandow garnered attention in 1889 with showy stage performances and feats of strength in London; he also became renowned in the United States during a tour that coincided with the 1893 Columbian Exposition in Chicago, where his skills of aesthetic posing were applauded.⁹ His image was disseminated through photographs, cabinet cards, and illustrations in popular journals, thanks to innovations in printing technologies and photomechanical reproduction. In addition to his roles as performer and model, Sandow proved himself to be an ambitious entrepreneur. He developed a physical culture empire of sorts; beyond his eponymous gymnasiums, he began publishing the monthly *Sandow's Magazine*, and he designed an extensive line of barbells, strength training apparatuses, and a cocoa "health drink," all of which were emblazoned with his image.¹⁰



▲
Figs. 1 and 2. Eugen Sandow, "Improvements in Portable Methods of Advertising," GB Patent 27,495, filed December 3, 1896, and issued November 6, 1897. Image courtesy of European Patent Office, Espacenet.com.



▲
Fig. 3. Miss E. K. Reader, "Necessity the Mother of Invention," *Sandow's Magazine*, January 1902, 2. Collection of the author.

Sandow's very medium was his body, which he molded and sculpted through exercise into a statuesque form that he believed served as the embodiment of classical ideals and might allay concerns about the modern world's impact upon physical and mental health. To predominantly white audiences who were thought to be experiencing health epidemics related to the ills of modernity and who lived in urban centers that were undergoing rapid demographic changes, Sandow provided a reassuring example of the strength and virility of white "gentlemen."¹¹

Sandow's body—his flexing bicep and mustachioed profile—became one of the most recognizable images in popular culture, and he consistently sought new media in which to circulate his image. He was one of the first subjects to pose for Thomas Edison's kinetoscope and x-ray devices, and he also collaborated with W. K. L. Dickson on an early mutoscope performance that was used to advertise the possibilities

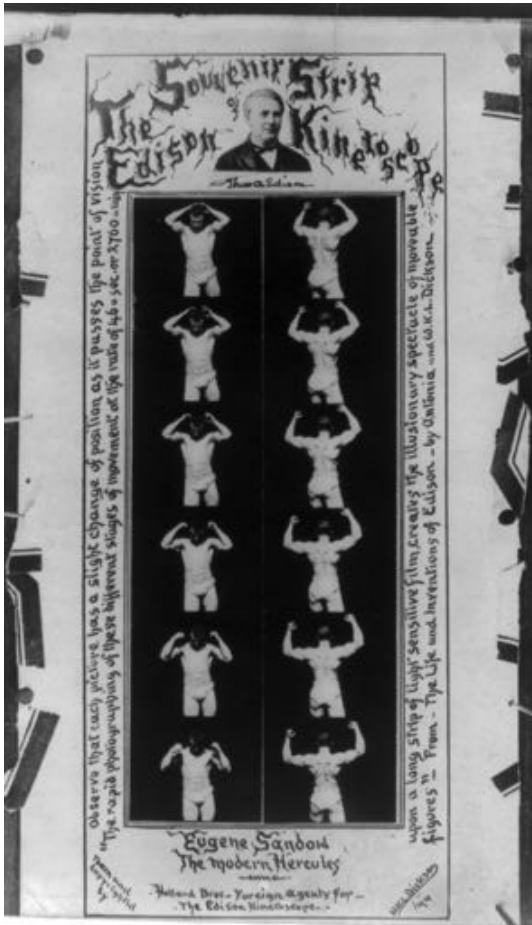


Fig. 4. William Kennedy Laurie Dickson, *The Souvenir Strip Edison Kinetoscope: Eugene [sic] Sandow, The Modern Hercules*, 1894. Photographic print on card. Courtesy of the Library of Congress,

◀ Washington, D.C.

of the new technology.¹² Sandow's choreographed routines of poses drew audience attention to specific muscles and his fluidity of movement; as one audience member noted, "Sandow shows his extraordinary command over his entire muscular system by making his muscles dance, keeping correct time with the orchestra."¹³ The strongman made audiences acutely aware of his corporeality, and he encouraged them to exercise and transform their own bodies. His advertisements proclaimed, "Make a Sandow of Yourself!"¹⁴ Sandow's directions for exercises explicitly guided readers and viewers of his performances to become aware of their own embodiment, both in physical appearance and practical, haptic strength, felt when one lifted weights, performed sit-ups with one's feet under a heavy wardrobe, or ironed clothing (fig. 3).

Sandow's understanding of and engagement with advertising media and new technologies transcend more traditional interpretations of the bodybuilder as the *subject* of contemporary imaging, proving him to be an active participant in *constructing* modern vision and translating these new media to viewers. The "Souvenir Strip" of Edison's Kinetoscope and Sandow's publication of his X-rays in his magazine, for example, were meant to explicate these technological processes for his reader (fig. 4). His interests went

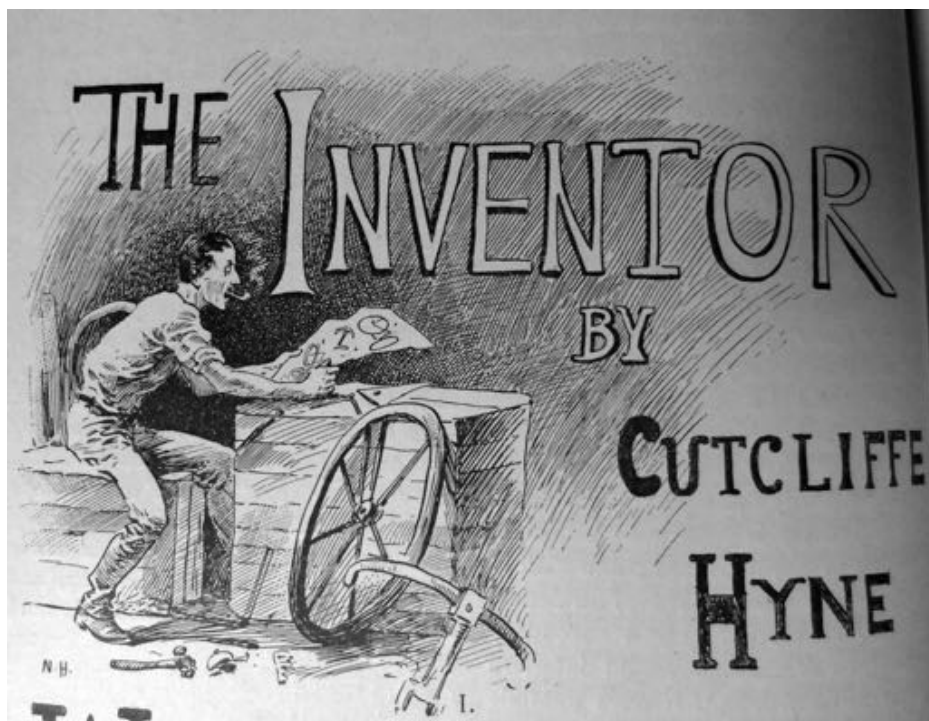


Fig. 5. N. H. (unknown illustrator), "The Inventor by Cutcliffe Hyne," *Sandow's Magazine*, July 1898, 16. Courtesy of the H. J. Lutchter Stark Center for Physical Culture and Sports, The University of Texas at Austin.

beyond the physical and included the visual, the haptic, and the optic, as demonstrated in his 1896 patent application.

This was not the first time Sandow had submitted a patent application. When the bodybuilder filed his first patent for an "Exercising Apparatus" during his American tour in November 1893, manager and stage impresario Florence Ziegfeld, Jr. signed as one of his official witnesses, making an explicit link between invention and publicity.¹⁵ Sandow subsequently filed several applications for his name-brand spring-grip dumbbells and exercise equipment in multiple countries.¹⁶ This interest in patents and invention was also seen in stories and advertisements published in *Sandow's Magazine*. In its inaugural issue, the magazine published a short story by Cutcliffe Hyne titled "The Inventor," in which a man dreams of ensuring his family's comfort by securing the financial rewards of a patent: "it's got to be patented and bring in a fortune for me and Sylvia" (fig. 5).¹⁷ The magazine also promised to help readers secure their own patents:

We have no doubt that many of our readers are from time to time devising some new and useful improvements, which, if properly introduced and handled, might prove very remunerative. As there seems to be a large field for inventors just now, we shall be pleased to place our inventive readers in communication with our Expert on this subject.¹⁸

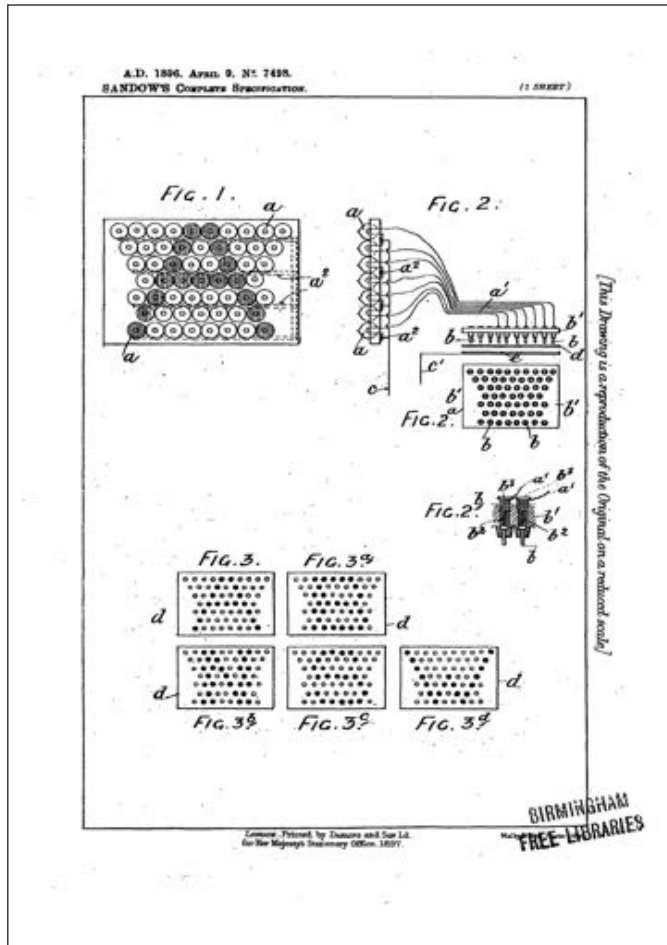
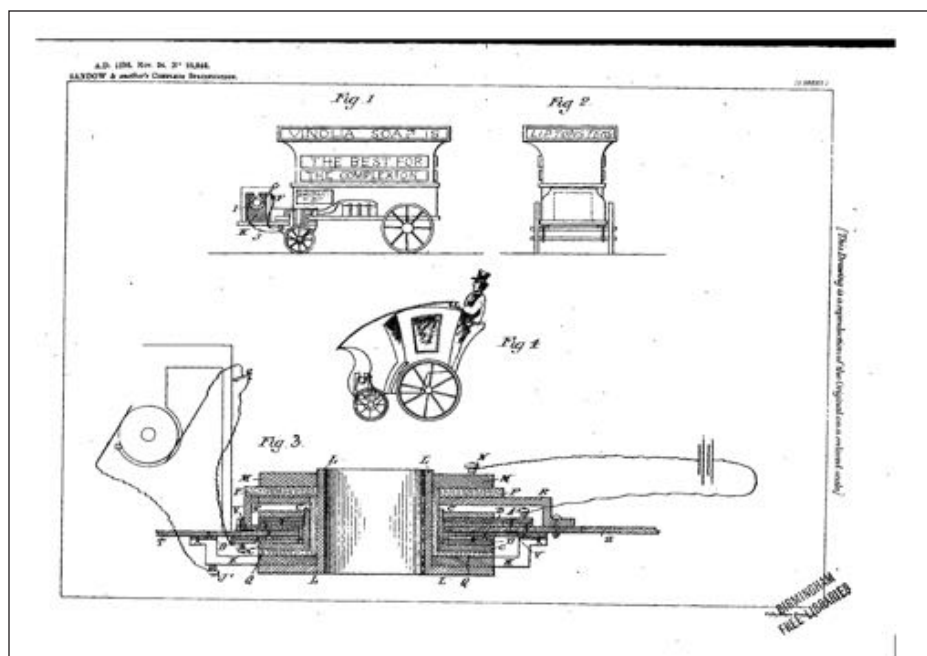


Fig. 6. Eugen Sandow, "Improved Means for Forming or Displaying Words, Letters, Figures, Pictures, or other Designs or Devices for Advertising or Signalling Purposes," GB Patent 7,498, filed April 9, 1896, and issued March 13, 1897. Courtesy of Espacenet.com.

Indeed, Sandow's interest in patents was not limited to those for exercise equipment. Earlier in 1896, he had submitted two other patent specifications that built upon technologies of electricity, the mobility of modern urban life, and their possible applications for advertising. "Improved Means for Forming or Displaying Words, Letters, Figures, Pictures, or other Designs or Devices for Advertising or Signalling Purposes" (submitted April 9) and "Improvements in Motor Carriages, and the adaptation of same to Electrical Advertising" (submitted on November 24, less than two weeks before "Improvements in Portable Methods") each used a complex system of incandescent light bulbs and circuits in order to form letters and numbers, spelling out the advertiser's name in lights and carrying it throughout the city (figs. 6, 7).¹⁹ For "Improvements in Motor Carriages," Sandow collaborated with self-identified "Electrical Engineer"



▲ Fig. 7. "Eugen Sandow and Andrew George Adamson, Improvements in Motor Carriages, and the Adaptation of Same to Electrical Advertising," GB Patent 26,546, filed November 24, 1896, and issued November 13, 1897. Courtesy of Espacenet.com.

Andrew George Adamson of London, who had previously submitted several patent applications for electric light and illumination for photographs.²⁰ Despite the innovative nature of this invention, the drawing of the device adapted to a hansom cab still looks traditional, the top-hatted driver awkwardly holding reins that lead nowhere. Yet this mobile advertising vehicle presages the spectacle Sandow was soon to patent, with a crucial difference: the portable projector was to be carried on a man's shoulders, rather than a horse-drawn or motorized carriage.

The Mobile Screen

This portable projector was self-consciously designed to circulate and attract attention in the urban sphere, when it would be dark enough for the images to be visible on the screen. Sandow perhaps also meant for viewers to admire the strength of the carrier who balanced the bulky contraption, a tactic that might further promote his gymnasias and exercise apparatuses. Although unwieldy, the apparatus would have been less bulky and more mobile than the standing wooden and metal cabinets of mutoscopes or kinetoscopes; it also offered its views to any bystander, unlike the peep show or street cinematograph, which required viewers to peer into an eyepiece.²¹ Sandow's device offers simultaneity of movement and spectatorship, without viewers entering a separate theatrical space or interrupting their traversal of the city.

In addition to its outward-projecting function, this portable projector could also serve as an auto-entertainment apparatus, its images meant to fill the view of the bearer. In keeping with these possibilities, the patent was registered in two very different categories in the *Patents for Inventions. Abridgements of Specifications*: in class 3, “Advertising & Displaying,” but also in class 132, “Toys, Games, and Exercises,” suggesting its potential application in both advertising and entertainment.²² In the accompanying illustrations, the beam of light emanating from the projector creates compelling formal parallels to optical diagrams, representations of theories of vision so often executed with Euclidean geometric precision to demonstrate the visual triangle of perception (Figs. 1 and 2).²³ But the apparatus—and especially its screen—blocks the bearer’s view of the city around him. The screen fills his field of vision, precluding interactions with other people.

What was visible on that turn-of-the-century screen? The specification calls for “advertisements of any desired character” to be projected, with a proto-slide carousel arranged with “clockwork” to change the advertisement on display. Thus, the burden of the bearer grows heavier—not only must he carry the apparatus, but he also is subjected to a series of advertisements exhorting him to purchase the latest products and keep up with current trends—commodities that would have been beyond his reach if he were a hired advertising man. The device was outfitted with a cord, labeled “J,” that would allow the bearer to advance the slide and thereby change the image shown, exercising some agency over the changing succession of images. Yet this changing sequence of illuminated images uncannily recalls ideas of the nineteenth-century city itself as, in Charles Baudelaire’s words, “the ephemeral, the fugitive, the contingent,” always changing and unstable, and described by Georg Simmel as a “rapid crowding of changing images . . . and the unexpectedness of onrushing impressions” (Simmel, “The Metropolis,” 410).²⁴ One view dissolves into the next, the clarity of its text or image dependent upon surrounding inflections of light or shadow on the projected slide and moving screen.

Sandow also proposed showing “moving pictures,” introducing the potential for entertaining both nearby spectators and the carrier, a prescient image to those of us today who walk through cities surrounded by people staring at the screens of their smartphones, tablets, or other mobile devices. If this were meant as an auto-entertainment device, the nocturnal *flâneur* would no longer view the city, its lit shop windows, or his fellow passers-by, but rather the programmed screen ahead. In this way, the projector can be understood as a device of conspicuous consumption, one that quite visibly broadcasts the viewer’s status.

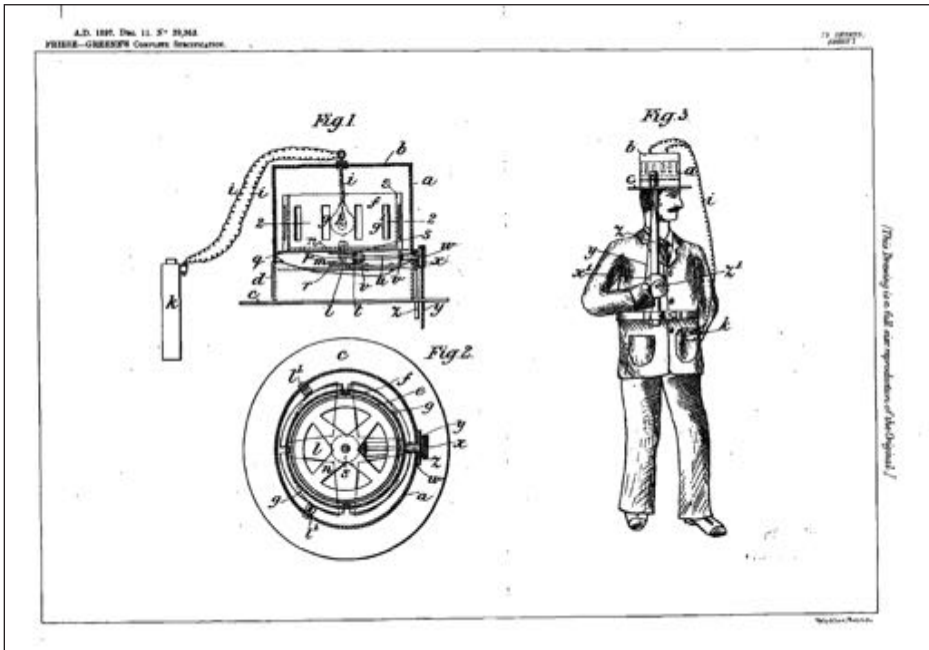
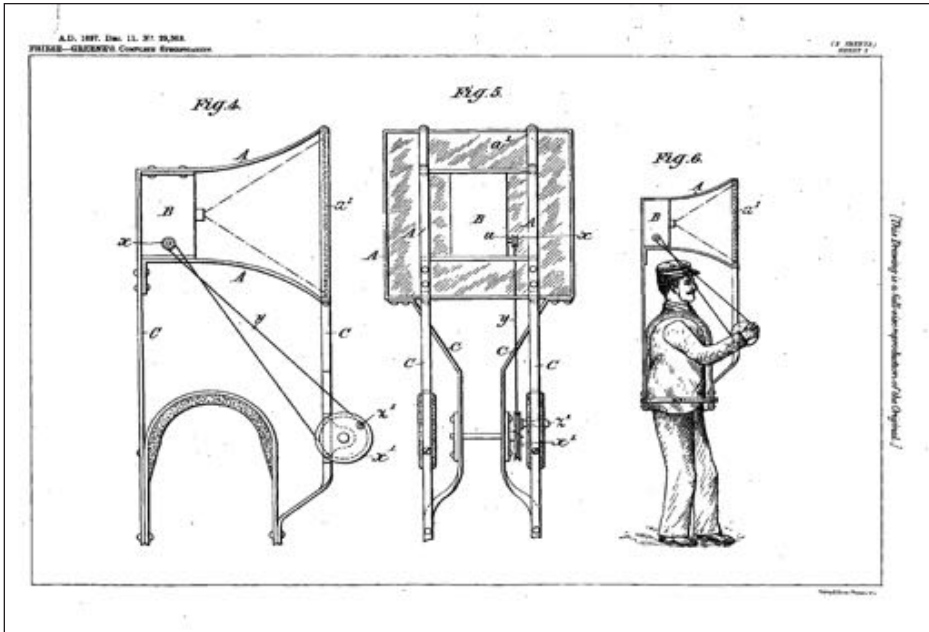
This apparatus posits an ideal—or dystopian—embodied spectator: absorbed in a series of advertising images that pass through his field of vision, potentially out of his control and changed by clockwork, this figure is given the mobility to circulate through the urban landscape yet cannot navigate his path or engage with others due to his preoccupation with the screen in front of him.²⁵ This hybrid man-machine himself becomes a spectacle, luring potential consumers to the changing images and to his own strange contraption, moving the “cinema of attractions” to the street.²⁶ However, Sandow was not the only person to envision such a bizarre apparatus for portable projection.

742 **Mobile Screens and Translucent Hats**

A patent application strikingly similar to Sandow's was registered in December of 1897 by photographer and inventor William Friese-Greene. Entitled "Means or Apparatus for Producing and Exhibiting Animated or Changing Pictures on Advertising and like Appliances Carried on the Person," it provided two different designs and specifications: a shoulder-mounted contraption that the subject would carry overhead, and a surreal hat with a cylindrical, translucent screen above the brim, much like a zoetrope (figs. 8, 9).²⁷ Although "novelty" was an important aspect of the US patent process, there were no such stipulations for British patent applicants until 1902; thus Friese-Greene's patent, with its striking similarity to Sandow's of the previous year, was still considered and accepted.²⁸ Whereas Sandow was known primarily as a stage performer and pin-up, Friese-Greene was established as an inventor and experimenter in a wide variety of photographic media, including early moving pictures and color photography.²⁹

Friese-Greene's devices subtly but notably differ from Sandow's: the screen is raised above the head of the man, making it difficult for him to see the images the machine projects; in the case of the hat, the man would be unable to watch the flashing images overhead. As Friese-Greene described his invention, "its chief object is to adapt kinetoscopic apparatus to the purpose of advertising upon appliances carried upon and above the shoulders of men in a similar manner to advertising boards, or carried upon his head." The benefit of the animated hat, its message beamed around the circumference of its brim, went beyond its spectacular appearance, which surely would draw the gaze and attention of other pedestrians; the cylindrical form of the hat further provided a panoramic view accessible to all within the range of visibility, so as Friese-Greene noted, "onlookers, no matter on what side of the hat they are, can see the picture," unrestricted by the head-on view necessitated by both framed devices ("Means or Apparatus"). Alternatively, Friese-Greene allowed, "the kinetoscope may be arranged . . . to throw a succession of pictures on the screen at such a slow speed that each picture is distinctly visible separately for any desired length of time."³⁰ This suggests a playfulness with the images to be shown, the possibility of extending duration familiar to us now as slow motion, yet then seeming a magical, if awkward, suspension of movement. As with Sandow's device, then, Friese-Greene's machine and its specification raise parallels with contemporary descriptions of the city and the changeable appearance of modernity. Joe Kember and Ben Highmore have described the ever-changing tempos and rhythms of urban life that were experienced by city dwellers. Rather than evoking a constant flood of high-speed freneticism, their work demonstrates the punctuation and variability of the urban experience, a variability echoed by Friese-Greene's proposal of changing the speed at which moving pictures could be exhibited.³¹

Sandow and Friese-Greene were not the first to think of projecting illuminated images in the city streets at night; this practice had been explored for decades with various magic lantern technologies and transparencies. Carolyn Marvin has extensively discussed the nineteenth- and early-twentieth-century excitement about electric illumination for both entertainment and advertising, with (stationary) changing and blinking lights or



▲
Figs. 8 and 9. William Friese-Greene, "Means or Apparatus for Producing and Exhibiting Animated or Changing Pictures on Advertising and like Appliances Carried on the Person," GB Patent 29,363, filed December 11, 1897, and issued December 10, 1898. Courtesy of Espacenet.com.

744 images attracting the attention of nocturnal spectators and city dwellers; even before urban electrification, many inventors experimented with alternative means of creating illuminated spectacles.³² In 1824, George Samuel Harris had patented a “royal ambulatory advertiser” designed to feature lit transparencies on a moving carriage, but this was criticized both for being difficult to read and for obstructing traffic.³³ The magic lantern was also adapted for advertising in the city streets, not as a mobile device but rather for projecting upon the sides of buildings. Advertising historian T. R. Nevett cites an 1876 controversy over a traffic jam on the Strand caused by

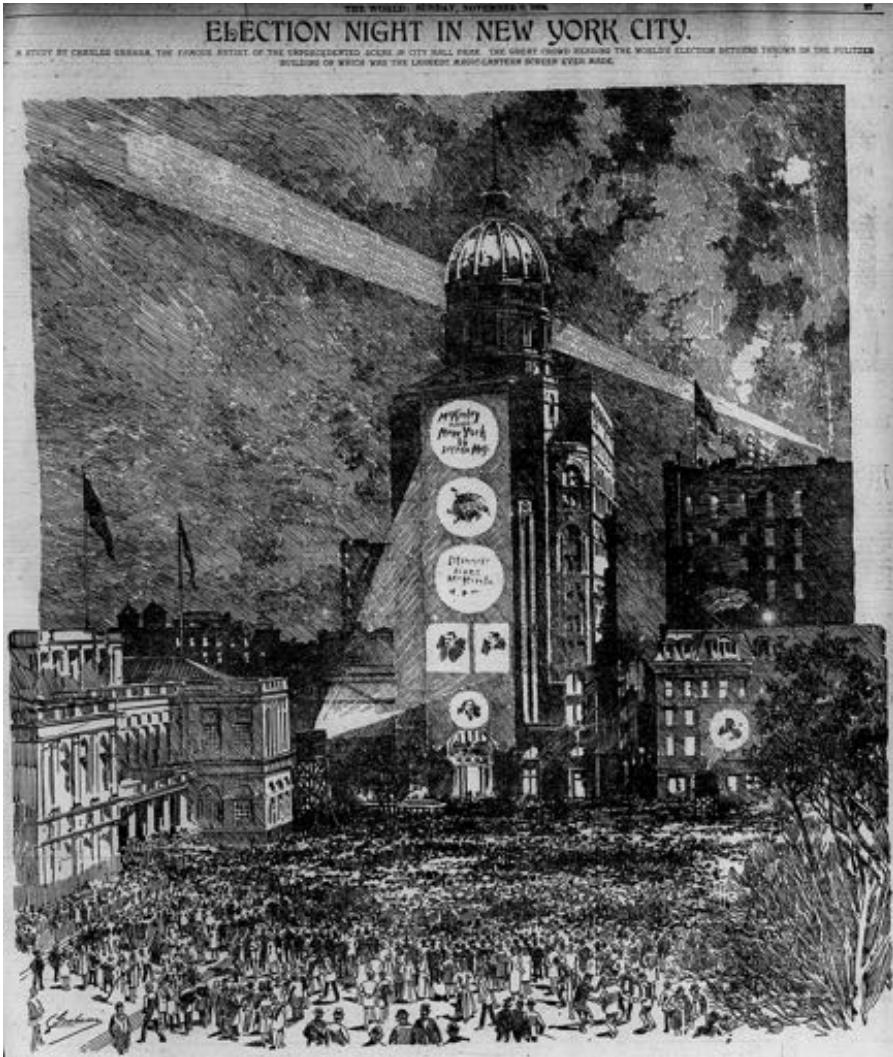
a gratuitous exhibition of dissolving views, exhibited on a large screen on the second floor of a house. . . . The subjects exhibited have been facsimiles, on an enlarged scale, of the posters which appear on street-hoardings, and give in attractive forms, rapidly succeeding each other, gratuitous advice as to the best sewing machine, the cheapest hatter . . . &c. (quoted in *Advertising in Britain*, 96)

The repeated disparagement of the views as “gratuitous” suggests their unwelcome status, not merely for the distraction and congestion they caused, but also as to the content of the advertisements. Similarly, in 1883, legal complaints were filed against a London tailor “who had lately from his second floor window after dark exhibited a large magic lantern with moving slides, which attracted a large number of persons who stood on the pavement close to Mr. Kelsey’s window and prevented the access of his customers.”³⁴ Although the advertisements attracted many viewers, they prevented actual sales by blocking access to the shop.

Such illuminated advertising was not limited to London; Steven Bunker has noted this as a widespread practice in Mexico, with commercial establishments projecting their advertisements onto the walls of the Alameda Park, the Teatro Nacional, or the Municipal Palace. The Australian National University also has a working group devoted to investigating the practice of outdoor magic-lantern slide projection in that country from 1840 to 1930.³⁵ In New York, a lantern at the intersection of Broadway and Fifth Avenue was singled out in 1880 as one that

never fails to hold up a crowd. Up there, on the roof of a small building, magic-lantern pictures are cast upon a screen, the disinterested ones alternated by advertisements. Niagara Falls dissolves into a box of celebrated blacking, and the celebrated blacking is superseded by a jungle scene, which fades into an extraordinarily cheap suite of furniture. On very cold and unpleasant nights the stereopticon has spectators, and, though it is no longer a novelty, its attractiveness continues.³⁶

While this author seems to look with disdain upon the juxtaposition of natural wonders and “extraordinarily cheap” commodities, he admits that the technique proves popular to spectators, even on blustery nights when loitering outside would not be pleasant. Despite the assembled crowd’s assumed fascination with the projections, others complained that the omnipresence of advertising never gave city dwellers respite: “When daylight fails the magic lantern throws advertisements on large screens in conspicuous



▲
Fig. 10. Charles Graham, "Election Night in New York City," *The World's Sunday Magazine*, November 8, 1896. Courtesy of the Library of Congress, Newspaper microfilm 1363.

places in N.Y. and other cities. The eye and the ear are attacked by the indefatigable advertiser."³⁷

Beyond advertising, magic lanterns and stereopticon projectors were also used in public for informative and instructional purposes. For many years, the technology was used in New York to broadcast election results, as seen in both a *New York World* illustration from 1896 and in George Bellows's *Election Night* of 1906 (fig. 10).³⁸ Theologians and reformers also hoped the lantern could be used for mission work and outreach, edifying and inspiring illiterate worshippers the way that stained glass windows once had, moving beyond the chapel or the lecture hall and into the streets and sidewalks:

The lantern is in constant use at the Polytechnic, Regent Street, both for education and amusement . . . When the Magic Lantern Mission is in full working order there will not be a single squalid slum in any great city which will not have its weekly visit from the peripatetic magic-lantern missionary, who for an hour or two in the evening will throw upon a sheet hung on some blank wall radiant shapes of grace and beauty.³⁹

Advertisers of the late 1880s moved beyond projecting images onto the sides of buildings and aimed their spotlights skyward.⁴⁰ In 1889, the journal *Electrical World* heralded this “novel application” of electricity: “A Western inventor is endeavoring to interest capital in his electrical magic lantern for casting or reflecting advertisements on the dark clouds that often hang low over a city. The inventor claims to have secured contracts from several well-known firms for displaying their cards in this manner, [which] we may shortly expect to see reflected on the overhanging clouds, in gigantic letters of gold.”⁴¹ Although this writer seemed to imagine the prospect as a picturesque one (“letters of gold” against “dark clouds”), others were disturbed by this overtaking of every available space; *Printers’ Ink* lambasted the technology as a “truly awful prospect.”⁴² Awareness of this potential phenomenon was so widespread as to merit a cartoon in *Funny Folks*, with a “prophetic sketch of London as it is likely to appear in the future,” medallions of advertisements including one for “Day’s Night Lights” ironically wishing the viewer a “Good Night!” from the frenetically illuminated sky (fig. 11).⁴³

Portable Projectors and the History of Screen Practice

Both Sandow’s and Friese-Greene’s devices represent a startling intervention into the history of screen practice.⁴⁴ Although research on turn-of-the-century cinema and stage entertainment continues to evolve, a few assumptions about viewership for projected entertainments still dominate: moving images are projected on a fixed, flat, two-dimensional screen, with an immobile audience.⁴⁵ In the midst of rapidly expanding technologies of varying temporalities and mobilities, from the train and the automobile to the telegraph and the phonograph, early technologies of cinema have been seen as providing merely a “virtual mobility,” the *image* or *illusion* of movement in a “mobilized virtual gaze” (Friedberg, *Window Shopping*, 2–3). As Anne Friedberg has written:

The cinema provided a virtual mobility—the illusion of transport to other places and times—for its spectators, but it did so within the confines of a frame. As the conventions of moving picture exhibition settled on theatrical projection and display, a key paradigm emerged. The cinema camera recorded moving images by framing them through the lens of the camera and then replaying them as moving pictures in a framed viewer or on a screen. Movement was captured but at the same time confined. . . . The visuality here is compensatory along the lines of the paradox: as the mobilized gaze became more virtual, it grew to involve less physical mobility, and became located within the confines of a frame. (“Trottoir Roulant,” 273)⁴⁶



Fig. 11. "Our Artist gives a prophetic sketch of London as it is likely to appear in the future," *Funny Folks*, April 9, 1892, 116. (c) British Library Board General Reference Collection 1896 PENP.NT152.

Even in studies that feature the corporeality of a film or screen viewer, such as Vivian Sobchack's *Carnal Thoughts: Embodiment and Moving Image Culture*, the projector and screen are still assumed to be in a dark room, the members of the audience restricted to their seats and engaging in imagined mobility rather than actual movements.⁴⁷

Yet Sandow's portable projector and Friese-Greene's devices, like the kinetoscope or peep show, defy these conventions. In their inventions the screen becomes a highly visible, three-dimensional entity, not a two-dimensional wall or surface upon which

748 images are projected in front of a seated audience. Film scholarship and criticism have long understood the screen and the image as conflated; as John Plunkett writes,

it is the function of the screen to have no active existence . . . we hardly ever see the screen. Our attention is occupied by the picture that is, as we still say, *on* the screen rather than *in* it. The screen itself disappears beneath the image that is overlaid upon it . . . [it has an] ambiguous tactility. One the one hand, it has to be a solid surface able to bear an image. Yet, equally, it has a transparency, even an invisibility, that points through and past itself. The screen thus embodies a constant tension between the concrete and the transparent, the present and the absent.⁴⁸

Sandow's and Friese-Greene's screens were anything *but* invisible or transparent. Their bulky frames bore a visible weight upon their bearer, whose vision and visage were obscured. Steven Connor has considered this contradictory aspect of screens, which can both conceal and reveal; as he has observed, "The primary meaning of a screen is in fact something that blocks, separates or filters . . . [I]t is a permeable membrane, not a locked door. Screens cover and conceal: but in presenting a secondary or fictitious surface, they also partially disclose."⁴⁹ Although the screen in these devices announces its own presence and materiality, it nonetheless bears the image projected through the device. Isobel Armstrong observes that in the magic lantern show or diorama display (and especially with the practice of rear projection), "Light and screen are one and indivisible. It is impossible to say what exactly constitutes the 'view' and how the viewer has seen it."⁵⁰ Sandow's and Friese-Greene's apparatuses radically reconceive the concept of the screen at a pivotal moment in projection history, eliminating a projection booth or separation of the apparatus from the audience. In their portable projection devices, members of the public would jostle about and around the screen-bearer, seeing all sides of the apparatus. The screen obtains material presence, especially with its projecting frame and tethered support to the bearer's body. In their conflation of man and machine, each competing for attention in an uneasy coexistence, the devices suggest a proto-cyborg.

The Sandwich Man and the Cyborg, Visibility and Invisibility

The proto-cyborgs created in conjunction with these devices can be usefully compared to their predecessors: "sandwich men" and related forms of embodied imagery and urban spectacle. As Susan Buck-Morss has noted, Walter Benjamin deemed the sandwich man a culturally significant figure, comparing his nineteenth- and twentieth-century roles and their relationship to *flânerie* and capitalism: "Flâneur—sandwich-man—journalist-in-uniform. The latter advertises the state, no longer the commodity."⁵¹ Buck-Morss interprets the *flâneur* as the writer, the observer of modern life, who becomes the sandwich man, advertising himself and modern commodities to a "mass audience," a prostitute of sorts. Even before his patented advertising apparatus, Sandow was the ultimate sandwich man of himself, selling his own image and reputation alongside his exercise manuals and dumbbells.



Buck-Morss is one of the few historians to consider the sociopolitical and historical context of the figure of the sandwich man, his social status, omnipresence on the streets, and relationship to commodities, sparked by the fact that Benjamin's notebooks contained many references to sandwich men and at least one image of the figure, a print by Marlet from 1828 entitled "L'homme affiche sur la Place des Victoires."⁵² In the 1820s and 1830s the elaborate appearances and colorful costumes of sandwich men attracted British artists' attention as well.⁵³ By the 1860s, they had become a topic of fascination and debate, a highly visible means of advertising that often relied upon the labor of the urban poor.⁵⁴ Like those in Sandow and Friese-Greene's patent illustrations, these sandwich men not only bore placards over their shoulders and across their chests, but also on frames mounted above their heads (figs. 12, 13). William Smith's *Advertise! How? When? Where?* of 1863 offered a variety of suggestions for merchants and advertisers wishing to promote their products, to increase their visibility in an often-crowded and chaotic urban environment. One of the early pages of Smith's book demonstrates new possibilities for the sandwich men: sequential messages, rather than single messages



Fig. 14. W. McConnell, "Sandwich Men," from William Smith, *Advertise: How? When? Where?* (London: Routledge, 1863), opposite page 5. Courtesy, The Winterthur Library: Printed Book and ◀ Periodical Collection.

on each board (fig. 14). Yet this illustration of unruly sandwich men who gather to spell out the word "ADVERTISE" points to the potential illegibility and possible subversion of the intended message by the bodies hired to do the marketer's bidding. In this image, the sandwich men bunch together at the beginning of the word, while the end of the word—the letter E—rushes to catch up. Their close proximity and nonlinear arrangement cause the reader some confusion; if following the traditional left-to-right arrangement of letters, they seem to spell out TREVDA. Yet this initial perplexity draws all the more attention to the image, forcing readers to interpret and parse out the meaning of the signs. As this drawing demonstrates, a popular tactic had been to hire multiple men to march in order, either assaulting the eye with repetition of the same sign or telling a sequential story by way of their spatial procession. In Sandow's and Friese-Greene's inventions, however, the narrative progression is dependent not upon a succession of men, but rather on the advance of slides, a temporal unfolding;

one man can offer many messages, linked or independent, with the pull of a cord. With these portable projection devices, narrative could be conveyed by a single bearer wearing the apparatus, whether through the display of a series of lantern slides or by the projection of a moving picture.

In executing their messages, sandwich men faced many challenges. Various irregularly enforced laws proscribed their movement, insisting that they not walk on the sidewalk or on the main road where they might obstruct traffic, so they were limited to the dangerous curb zone and gutters.⁵⁵ The mistakes and foibles of failed advertising campaigns appealed to Smith and his readers, serving almost as a “what-not-to-do” lesson that occasionally renders the employees the butt of the joke; the illustration “Windy Day,” for example, demonstrates the impracticality of sending out sandwich men, particularly those with overhead signs, on windy days (fig. 15). Here, the woebegone sandwich man is picked up by a gust of wind, his sign impaled upon a lightpost as fashionable women, potential consumers, walk past unsympathetically and lean into the wind, pointedly *not* paying attention to his sign and the wares it might advertise, now rendered illegible.⁵⁶ Indeed, many etiquette manuals suggested women avoid looking at most men—or at least, those with whom they were unacquainted—when out in public. As one manual explicitly exhorted, “Never stare at any one, even if they have peculiarities, which make them objects of remark.”⁵⁷ These matters of decorum made the sandwich man’s mission of attracting attention all the more difficult, as respectable ladies would have been advised to shun the “remarkable” or “peculiar” men bearing signs and strange contraptions.

Reform literature empathized with these overworked and underpaid laborers, emphasizing their extremely low status; advertisers themselves realized they had a conundrum in the public perception of their brands when scruffy or undernourished men carried signs advertising their wares.⁵⁸ These stooped laborers contrast with the muscular and erect carrier of Sandow’s apparatus; in the illustration accompanying his patent application, a young, clean-shaven man, whose arms are disproportionately large, comfortably bears the apparatus upon his broad shoulders, showing no indication of the exhaustion or malnourishment seen so commonly among sandwich men. While cartoons often exaggerated their bedraggled visage and illustrations from reform literature or contemporary journalism usually hewed to conventions of urban realism in depicting sandwich men’s down-on-their-luck appearance, the bearers depicted in Sandow’s and Friese-Greene’s patent applications are only schematically rendered, giving the reader tantalizingly few hints as to their class or social position and instead lavishing detail on the mechanics of the featured machine, as befitting the patent priority.⁵⁹ This emphasis on the device, not the bearer, points to the relative unimportance of the anonymous man carrying the machine. Sandow and Friese-Greene’s magic lantern carriers are merely perfunctory, diverging from the showy appearance of magic lantern lecturers or entrepreneurial showmen, whose fashionable appearance, emphasized by a stylish suit or animated expression, radiated authority and class in the case of the former, and an outgoing liveliness that cultivated celebrity on the part of the latter.⁶⁰

Some marketing men advised would-be advertisers to adopt some of the tactics of lecturers and showmen by designing special wardrobes for their sandwich men.



▲
Fig. 15. W. McConnell, "Windy Day," from William Smith, *Advertise: How? When? Where?* (London: Routledge, 1863), 151. Courtesy, The Winterthur Library: Printed Book and Periodical Collection.

Advertise: How? When? Where? illustrated two versions of advertisers (figs. 16, 17): the man bearing the sign of the "Great Sensation" is decidedly downcast, a caricature of an ill-clothed man, down on his luck and possibly hard-drinking, with shading to suggest his ruddy nose and unshaven face—the kind of man that fashionable women would *avoid* looking at. In contrast, Smith suggested another possible model: a nattily dressed, healthy sandwich man whose body fills out his well-fitting coat; his sideburns are well-groomed, his pants the proper length, his coat of a good fashion, and he confidently offers passers-by his handbills. The importance of acceptable appearance and visibility was similarly the focus of an 1894 illustration "Sandwich Men: The Accepted and the Rejected," in which the "presentable" men are selected for the job (figs. 18, 19). After their selection, the "Accepted" sandwich men march away into the background, leaving behind the "Rejected," the most downtrodden of the men.

The contradictory emphasis upon visibility, spectacle, and bedraggled appearance was also the focus of an 1880 article entitled "Curiosities of Advertising," which examined

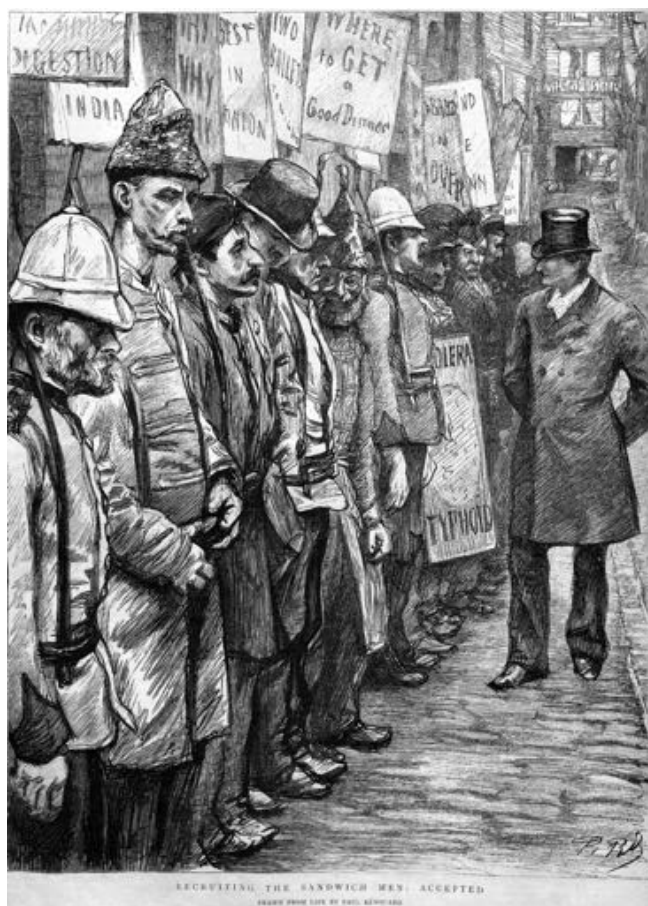


▲
Figs. 16 and 17. W. McConnell, "The Present Sandwich-Man," and "Smith's Model" from William Smith, *Advertise: How? When? Where?* (London: Routledge, 1863), 137 and 138. Courtesy, The Winterthur Library: Printed Book and Periodical Collection.

the effectiveness of what it termed "perambulatory advertisements," an elision that bypassed the humanity of the sandwich man and abstracted him to a mobile banner:

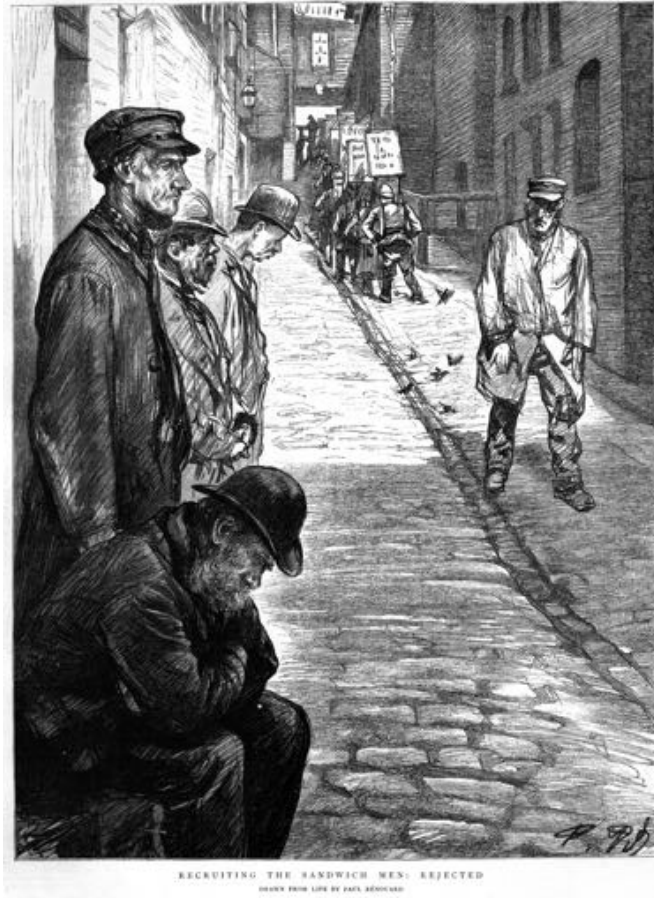
The strong element of human interest which the peripatetic "sandwich man" excites is often supplemented by the grotesqueness of his apparel. Caring little for what his announcement is, there is a disposition on the part of most pedestrians to look into the face of the unfortunate, who, with all his emotion and immortality, is reduced to the level of a billboard, and from the face, which often enough is sad and worn, the glance is continued to the big lettering which emphasizes the fame of Brown's shirts or Kydd's indestructible pen-wipers. The sandwich man, so far from being a purveyor of any kind . . . is a bill-board, or, more properly speaking, two bill-boards, between which he is braced and set adrift in the crowded streets early in the morning, to confront the public with his employer's advertisement . . . solitary and uncommunicative, he marches hither and thither; . . . when his eye falls upon any vacant wall covered with posters, . . . he is forced to exclaim: "That wall is as much as I am, and that automatic bear, in the toy-shop window, is a more versatile creation than *me!*" (Rideing, "Curiosities of Advertising," 606)⁶¹

In this passage, the observer imagines a sandwich man who feels himself transformed into an automaton, or at least, a creature even less animated than the "automatic bear" he spies in a display window; he is dehumanized, isolated, and flattened, finding a parallel in a poster-covered "vacant wall." The satirical magazine *Judy* even more explicitly conflated man and wall, defining a "Man-Sandwich" as "a human being reduced to the level of a dead wall."⁶² Sandow and Friese-Greene's inventions promised to add animation at least to the *images* carried by sandwich men, who were so often described in terms of deadness, contrasted with the vibrancy of the placards they carried.



▲
Fig. 18. Paul Renouard, "Recruiting The Sandwich Men: Accepted," as published in *The Graphic*, January 27, 1894, 98. Courtesy, The Winterthur Library: Printed Book and Periodical Collection.

In an attempt to enhance visibility, advertisers sought greater novelty and variety, spectacles that would draw attention in the midst of a chaotic city scene, despite the forlorn character of the men carrying them and admonitions to women not to look at strangers. The need for ever-increasing novelty is succinctly demonstrated in the 1904 cartoon "Why Not Do It Right," in which pedestrians are nearly assaulted by an overwhelming array of advertisements, all competing for their attention from nearly every possible surface (fig. 20); one figure in the lower left corner rears back against the spectacle, his hat and umbrella flying into the air as he recoils from billboards, smartly-dressed men who spell out an advertisement for "Posolio," shop signs, offers for advertising space on the "third rail" (with discounts for undertakers and insurers), and sandwich men who bear messages on both their chests and on boards that project above their heads. While the cartoon is likely hyperbolic in exaggerating the density of urban advertising, it nonetheless provides a context for the nearly unbelievable proposals



▲
Fig. 19. Paul Renouard, "Recruiting The Sandwich Men: Rejected," as published in *The Graphic*, January 27, 1894, 99. Courtesy of the Nimitz Library, United States Naval Academy.

of Sandow and Friese-Greene, in which sandwich boards metamorphosed into magic lantern screens and hats became moving picture devices, tactics in this ongoing battle for attention and novelty.

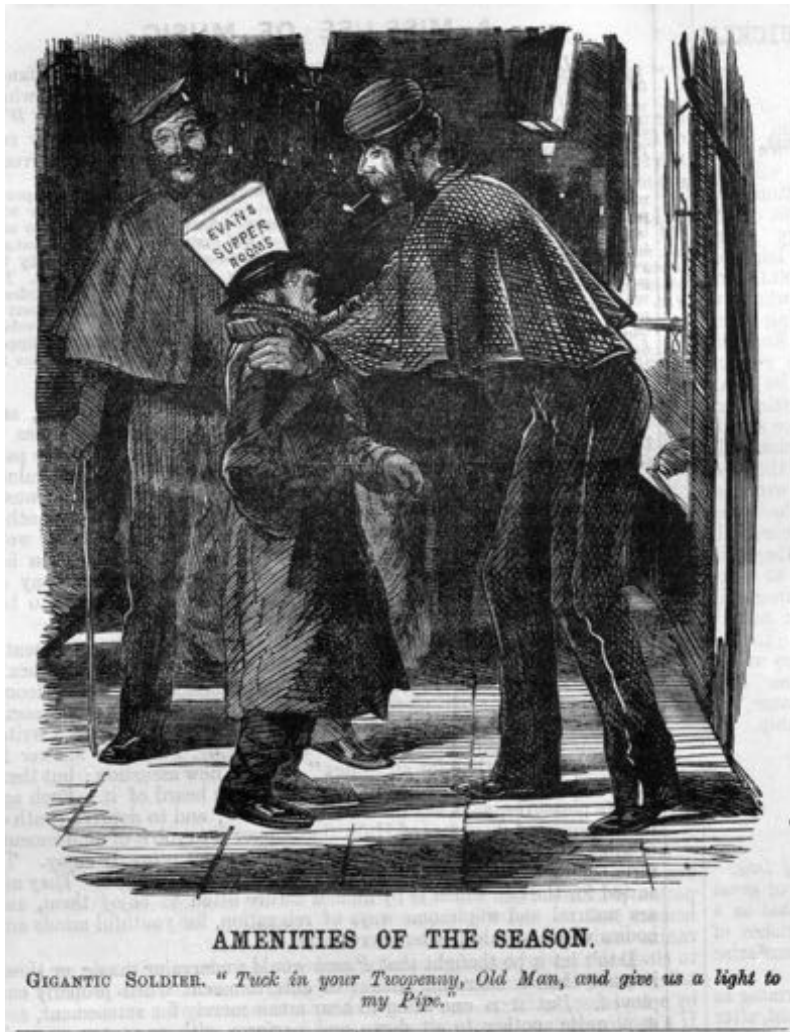
Although it might seem unprecedented, Friese-Greene's hat design hearkened back to earlier advertising ploys of the 1860s, when *Punch* lampooned a form of advertising in which hired men roamed the streets at night, their hats ablaze with transparencies touting music hall entertainments or restaurants (figs. 21, 22, 23).⁶³ One such design was patented by Iowan Sol Kuh, who included a padded head-rest and flaps to hold the lantern steady in his 1872 specification (fig. 24).⁶⁴ The *Punch* cartoons indicate the social status of the bearers of these advertisements in a way not addressed by the patent application drawings, with their blandly-drawn figures that stare straight ahead so matter-of-factly. In "Amenities of the Season," a tall, well-dressed soldier towers over the petite advertising man who wears an illuminated hat for "Evans Supper Rooms,"



Fig. 20. H. G. D. [Harry Grant Dart], "Why Not Do It Right," *Life*, December 8, 1904, 599. Courtesy of the Nimitz Library, United States Naval Academy.

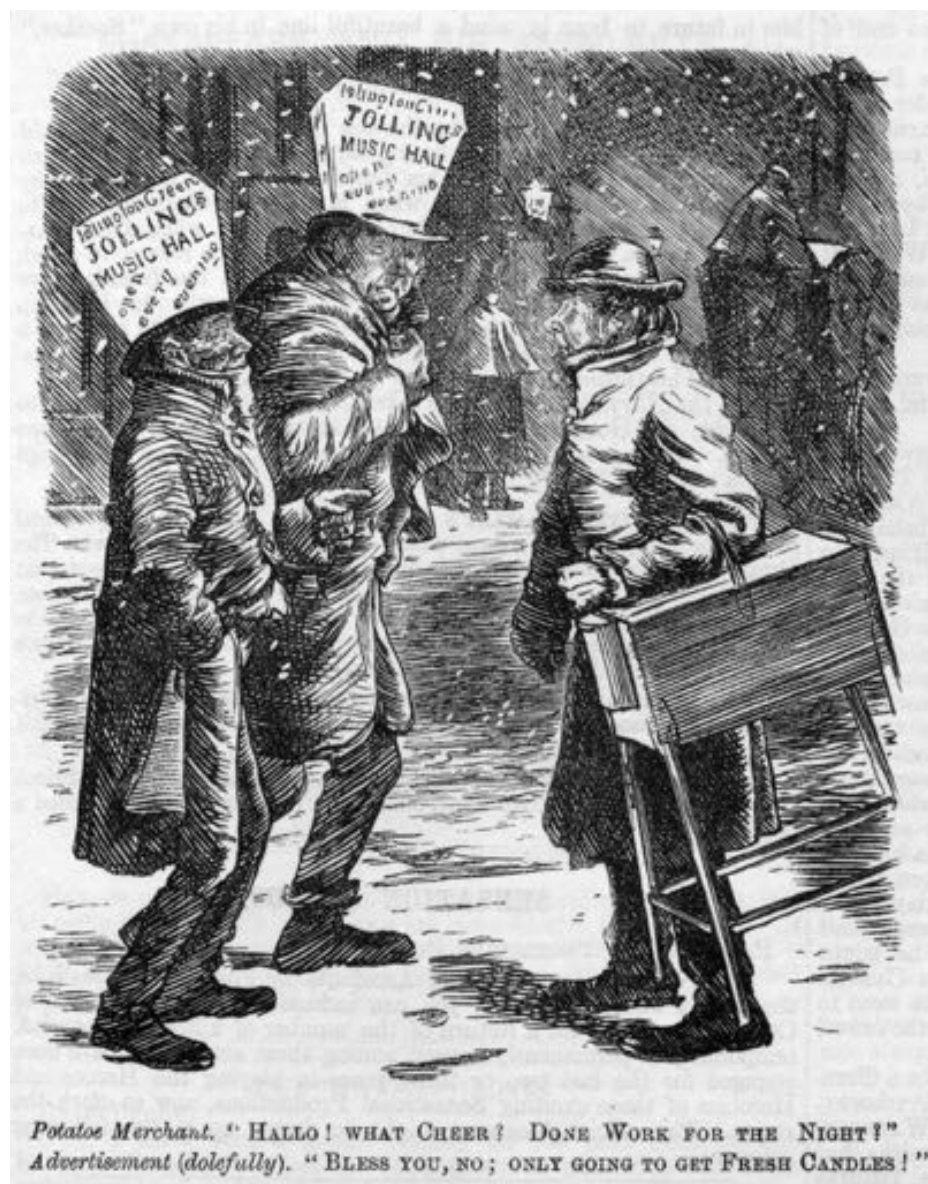
demanding a light for his pipe. The class implications are most explicitly on display in "The Lowest Depth," in which an "Inebriated Snob" recognizes his old friend Jim. Expressing surprise, he asks, "How the dooce [*sic*] did you come to this?" Jim, now advertising risqué *Poses Plastiques*, admits, "Well—all along o'them Night Publics. And Here I am—an 'Illuminated Advertisement!'" In these cartoons, the reader is meant to feel sympathy for the "Illuminated Advertisements," reduced from human beings into "Advertisements," lights for pipes, and commercial messages. Friese-Greene's hat apparatus updated this principle with the latest technology.

These devices indeed transformed their bearers into spectacles wandering the city streets, beams of light and images circulating amongst the crowds. These gadgets might have caused fellow pedestrians literally to overlook their carriers in favor of the brightly lit images above their heads, paying no heed to the social status or discomfort of the poorly-paid man carrying them.⁶⁵ Instead, the technological hybrid of man-and-machine would distract with flashing lights and changing pictures, creating a spectacle of consumption. Although some feared that technology would bring about depersonalization and devaluation of the individual, these creations brought technology to a human scale and served to distract potential consumers from the all-too-close face of human poverty.⁶⁶ These patent applications suggest an audience eagerly embracing machinery, one that preferred to look at the spectacle of illuminated technology rather than another human face, as well as an interest in the hybridity of man and machine that later came to be referred to as the cyborg.



▲
Fig. 21. "Amenities of the Season," *Punch*, January 4, 1862, 8. Courtesy of National Gallery of Art Library, Washington, DC.

I use the term "cyborg" advisedly, to signify an amalgamation of man and machine to capitalist ends, distinct from Donna Haraway's deployment of the term, which suggested the utopian possibilities of technology in forming relationships surpassing the limits of (organic) bodies.⁶⁷ This linking of man and machine is useful in its concept of a prosthetic "supplement" that hampers human interaction and engagement with one another while ostensibly providing new means for communication and mobility; Sandow's and Friese-Greene's inventions propose illuminated, wearable technologies before the computer age.⁶⁸ Their cyborgs embody turn-of-the-century obsessions not only with the moving image and consumption, but also with nocturnal social interactions in the modern urban environment. In this way, the cyborgs envisioned by Sandow and Friese-Greene propose a navigation of the changing urban landscape, saturated by commodities and consuming bodies yet avoiding human interaction.



▲
 Fig. 22. "Illuminated Advertisements," *Punch*, March 5, 1864, 91. Courtesy of National Gallery of Art Library, Washington, DC.

Sandow's and Friese-Greene's cyborgs, however, depart in important ways from conventional understandings of the cyborg. While the cyborg (in both fictional and nonfictional experiments) is often deployed to authoritarian ends—those of the state, the military, and medical or pharmaceutical research—Sandow and Friese-Greene's magic lantern machines are instead reliant upon corporate sponsorship and funding; theirs is a cyborg of capital rather than the state. Furthermore, many applications of cyborg technology are invested in the concept of communication, of enabling a human

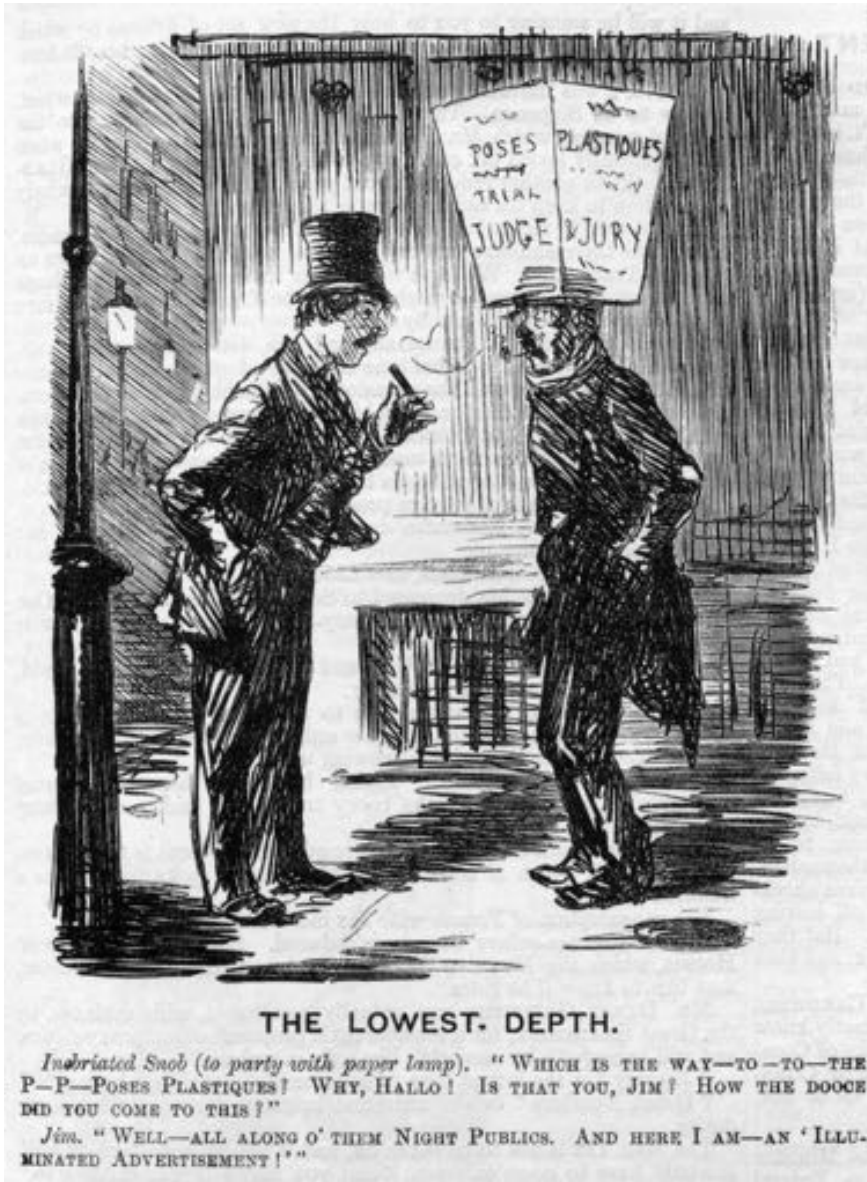
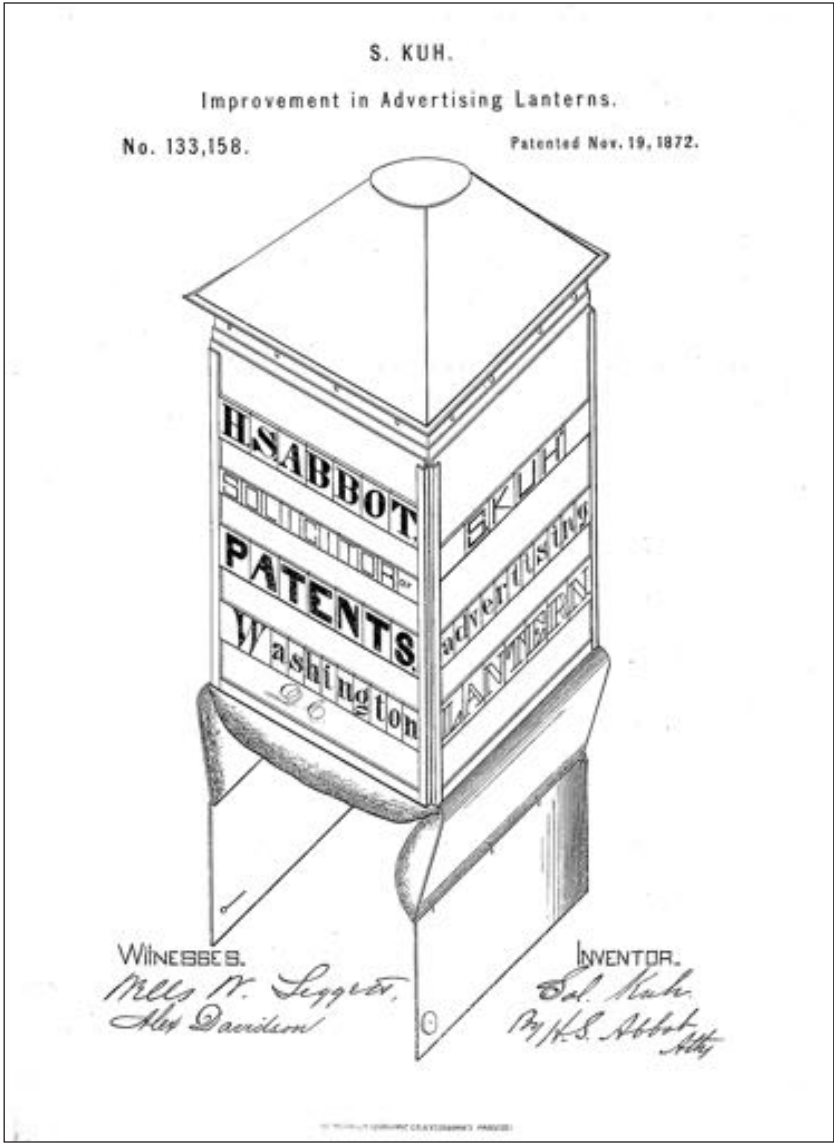


Fig. 23. "The Lowest Depth," *Punch*, April 16, 1864, 155. Courtesy of National Gallery of Art Library, Washington, DC.

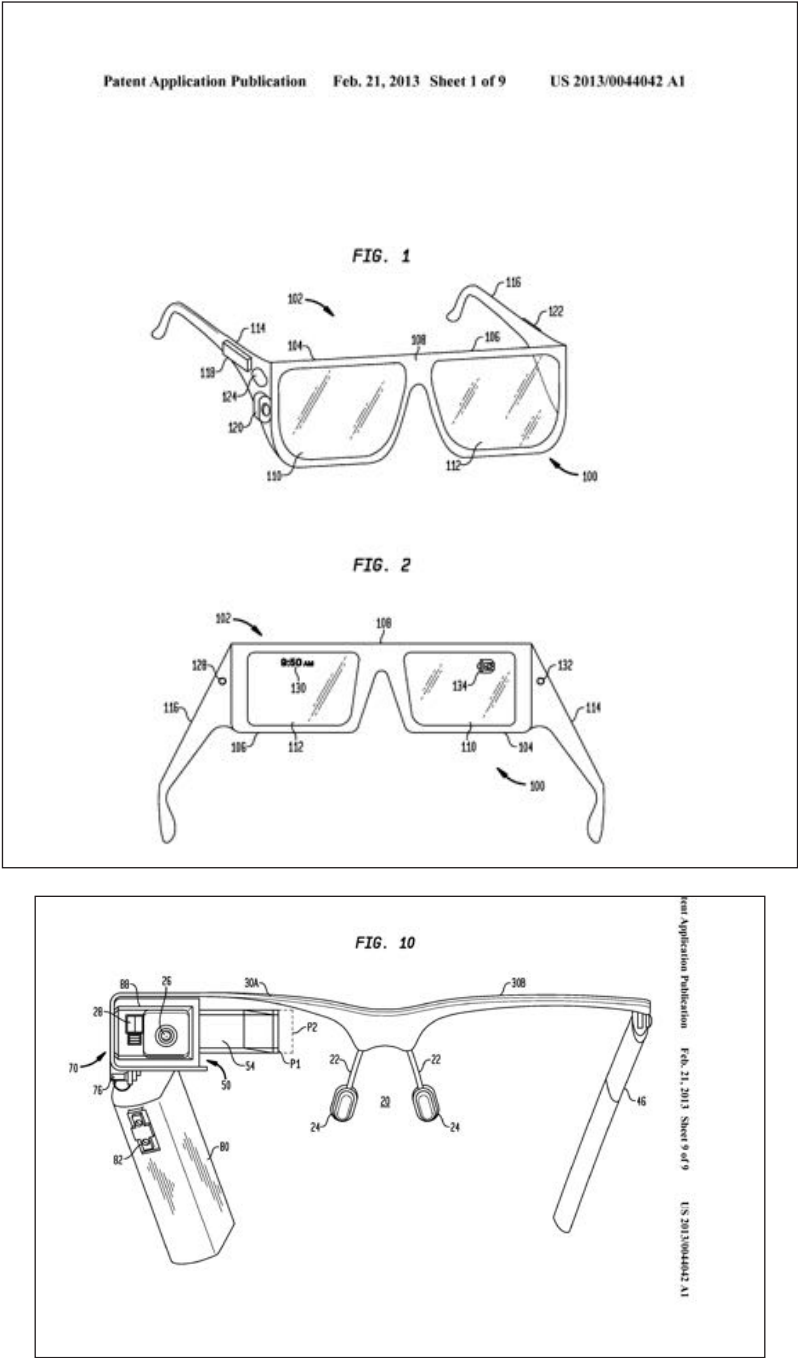
to communicate via machine interaction. Yet while the magic lantern cyborg is enhanced to allow him to *transmit* or broadcast a message, he is unable to receive one himself; in the case of Sandow's design, the screen prohibits his interaction with others, blocking his view and further isolating the cyborg-sandwich man. These inventions speak to the desire for circulating, nocturnal images that would attract and enchant, uneasily mixing wonder and commerce while at the same time exploiting a laboring body, a cyborg who must walk the night with no respite in sight, isolated with his technological apparatus.



▲
Fig. 24. Sol Kuh, Improvement in Advertising-Lanterns, US Patent 133,158, November 19, 1872.
Courtesy of the U.S. Patent and Trademark Office.

Conclusion

Today, new technologies have transformed the unwilling bearer of images into an eager consumer of the latest status symbols and assistive technologies: people seem unable to resist the glowing screens of their smartphones or mobile devices. While we might laugh at the image of an illuminated hat, we think nothing of walking down the street peering at the small screens before us, often typing as we go. Mobility, visibility, and communications continue to be sites of competing inventions; beyond smart-



▲
Fig. 25. Images from Olsson et al., United States Patent Application Publication, “Wearable Device with Input and Output Structures,” filed August 18, 2011, and issued February 21, 2013. Courtesy of the U.S. Patent and Trademark Office.

762 phones and mobile devices, this fascination can be seen in Google's experiments with "street view"-enabling, self-driving cars, as well as their own device to be "carried on a person": Google Glass, now abandoned (fig. 25).⁶⁹ What might Benjamin say about these new flâneur-sandwich men? While the magic lantern allowed the broadcasting of a message without the ability to receive one, Google Glass instead encouraged an interactive flow of data, with the bearer both accessing information and posting it via social media (e.g., taking a photo and uploading it, dictating and sending a message). Yet each of these devices seemed to encourage social isolation by precluding or at least hampering interaction with the people in the immediate vicinity of the cyborg. Like Sandow's magic lantern carrier, the Google Glass spectator would presumably be subject also to "advertisements of any desired character," given the ubiquity of pop-ups and sponsored searches, as well as the revelation of their possible adaptation via hackers. Although the device was more lightweight and the user given the illusion of control via voice activation, the device nonetheless reminds us of Sandow's portable projector and Friese-Greene's illuminated hat, all devices that demonstrate the contemporary and historical issues of mobility and consumption, offering a dystopian step further along the isolated cyborg path.

Notes

The majority of the research and writing of this project was completed as a Mellon Postdoctoral Fellow at the University of Wisconsin-Madison Center for the Humanities; further research was conducted with the support of the Terra Foundation for American Art and Middlebury College. I am grateful to the staff of the British Library Business & IP Centre and to colleagues who read drafts of this work, including Melissa Haynes, Elizabeth Johnson, Ervin Kosta, Trevor Pearce, and Kristoffer Whitney. I wish to thank the anonymous readers for *Modernism/modernity* and, as always, Michael Leja. Lacey Baradel's assistance in securing images and Middlebury College's Scholarly Publication Subvention Fund helped to make this publication possible.

1. Eugen Sandow to Thomas Edison, March 24, 1897, the Thomas Edison Papers, Rutgers University, 136:573; Medicus, "Sandow Under the X-Rays," *Sandow's Magazine* 6, no. 6 (1901): 452–54; Cleveland Moffett, "Fin du Siècle Electric Science," *Atlanta Constitution*, April 26, 1896, 30; "Hear Roar of Niagara," *Chicago Daily Tribune*, May 5, 1896, 2. For Sandow's collaboration with Dickson and the resulting American Mutoscope & Biograph films, see Kemp R. Niver et al., *Early Motion Pictures: The Paper Print Collection in the Library of Congress* (Washington, D.C.: Library of Congress, 1985), 286; and Paul C. Spehr, *The Man Who Made Movies: W. K. L. Dickson* (Hertfordshire, UK: John Libbey, 2008).

2. Eugen Sandow, "Improvements in Portable Methods of Advertising," GB Patent 27,495, filed December 3, 1896, and issued November 6, 1897. Only a few years earlier, Sandow had identified himself as a "scenic artist" on a ship manifest. Sandow was listed as a cabin passenger, manifest number 00042695, arriving in New York on June 6, 1893 (Germans to America Passenger Data File, 1850–1897, National Archives, aad.archives.gov).

3. Charles Musser, "Toward a History of Screen Practice," in *The Emergence of Cinema: The American Screen to 1907* (Berkeley: University of California Press, 1990), 15–54.

4. For more on the competing attempts to refine the motion picture projector, and the race to a solution in 1896, see Musser, *The Emergence of Cinema*, especially 91–108; Deac Rossell, *Living Pictures: The Origins of the Movies* (Albany: State University of New York Press, 1998), especially 103–63; Douglas Gomery, *Shared Pleasures: A History of Movie Presentation in the United States* (Madison: University of Wisconsin Press, 1992); Laurent Mannoni, *The Great Art of Light and Shadow: Archaeology of the Cinema*, trans. Richard Crangle (Exeter: University of Exeter Press, 2001), 416–67.

5. On period distraction, see Jonathan Crary, *Suspensions of Perception: Attention, Spectacle, and Modern Culture* (Cambridge, MA: October Books, 1999); Linda M. Shires, *Perspectives: Modes of Viewing and Knowing in Nineteenth-Century England* (Columbus: Ohio State University Press, 2009); Lynda Nead, *Victorian Babylon: People, Streets and Images in Nineteenth-Century London* (New Haven: Yale University Press, 2005). Period sources include George Simmel, "The Metropolis and Mental Life" (1903), in *The Blackwell City Reader*, ed. George Bridge and Sophie Watson, 2nd ed. (West Sussex, UK: Wiley-Blackwell, 2010), 103–10; and Siegfried Kracauer, "Cult of Distraction: On Berlin's Picture Palaces" (1926), in *The Mass Ornament: Weimar Essays*, trans. and ed. Thomas Y. Levin (Cambridge, MA: Harvard University Press, 1995), 323–28.

6. Sandow, "Improvements in Portable Methods of Advertising."

7. Some of the most influential literature that explores these questions of vision, visibility, and the urban experience includes Jonathan Crary, *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century* (Cambridge, MA: MIT Press, 1992); Crary, *Suspensions of Perception*; Anne Friedberg, *Window Shopping: Cinema and the Postmodern* (Berkeley: University of California Press, 1994); Anne Friedberg, *The Virtual Window from Alberti to Microsoft* (Cambridge, MA: MIT Press, 2009); Anne Friedberg, "Trottoir Roulant: The Cinema and New Mobilities of Spectatorship," in *Allegories of Communication: Intermedial Concerns from Cinema to the Digital*, ed. Jan Olsson and John Fullerton (Bloomington: Indiana University Press, 2004), 263–76; Vivian Sobchack, *Carnal Thoughts: Embodiment and Moving Image Culture* (Berkeley: University of California Press, 2004); Rebecca Zurier, "Seeing New York: The Turn-of-the-Century Culture of Looking," in *Picturing the City: Urban Vision and the Ashcan School* (Berkeley: University of California Press, 2006); Nead, *Victorian Babylon*; and Lynda Nead, *The Haunted Gallery: Painting, Photography, Film c. 1900* (New Haven: Yale University Press, 2008).

8. See *Evocative Objects: Things We Think With*, ed. Sherry Turkle (Cambridge, MA: MIT Press, 2007).

9. A thorough biography is included in David Chapman, *Sandow the Magnificent: Eugen Sandow and the Beginnings of Bodybuilding* (Champaign: University of Illinois Press, 1994) and the more recent David Waller, *The Perfect Man: The Muscular Life and Times of Eugen Sandow, Victorian Strongman* (Brighton, UK: Victorian Secrets, 2011). Sandow's own "authorized" biography, published during his lifetime, reveals many of his goals and attempts at self-fashioning: see G. Mercer Adam, *Sandow on Physical Training* (New York: J. Selwin Tait and Sons, 1894). John F. Kasson examines Sandow's self-mythologizing and cultural significance far more critically in "Who Is the Perfect Man?: Eugen Sandow and a New Standard for America," in *Houdini, Tarzan, and the Perfect Man: The White Male Body and the Challenge of Modernity in America* (New York: Hill and Wang, 2001), 21–76. Although Sandow's body and life have been examined in depth by these biographers and other scholars, none have documented the existence of his 1896 "Improvements in Portable Methods of Advertising" patent or explored its significance.

10. Other scholars have illuminated Sandow's expanding business acumen and marketing of vaguely health-related products from dumbbells to cocoa, but I wish here to emphasize his ubiquitous appearance and the dissemination of his own body and image, as well as his practice of making viewers or readers aware of their bodily movements. For more on Sandow's various entrepreneurial schemes, see especially Chapman's chapter "A Growing Business" in *Sandow the Magnificent*, 100–28; and Waller's chapter "Sandow's System—Bodily Perfection for All" in *The Perfect Man*, 127–50; Dominic G. Morais, "Branding Iron: Eugen Sandow's 'Modern' Marketing Strategies," *Journal of Sport History* 40, no. 2 (2013): 193–214.

11. For more on this "crisis of masculinity" and the perceived perils of modernity and class divisions, see Kasson, *Houdini, Tarzan, and the Perfect Man*; Gail Bederman, *Manliness and Civilization: A Cultural History of Gender and Race in the United States, 1880–1917* (Chicago: University of Chicago Press, 1995); Alan Trachtenberg, *The Incorporation of America: Culture and Society in the Gilded Age* (New York: Hill and Wang, 1982); Sarah Burns, "Revitalizing the 'Painted-Out' North: Winslow Homer, Manly Health, and New England Regionalism in Turn-of-the-Century America," *American Art* 9, no. 2 (1995): 21–37. On whiteness, see also Richard Dyer, *White: Essays on Race and Culture* (New York: Routledge, 1997); Martin A. Berger, *Sight Unseen: Whiteness and American Visual Culture*

764 (Berkeley: University of California Press, 2005); Julian B. Carter, *Heart of Whiteness: Normal Sexuality and Race in America, 1880–1940* (Durham: Duke University Press, 2007).

12. The Sandow mutoscope reel was used to illustrate and demonstrate the operation of the mutoscope in several publications including International Mutoscope Syndicate, *The Age of Movement* (London: International Mutoscope Syndicate, ca. 1901), 6–8. It was also used in various promotional pamphlets in the George E. Van Guesling Collection of the Seaver Center, Natural History Museum of Los Angeles County, including “The Mutoscope,” A.2925–64B, 3, and American Mutoscope & Biograph Company, “Directions for Operating and List of Parts, Type E. Mutoscope,” A.2925–71. That his relationship with W. K. L. Dickson, or at least their conversations, extended beyond the simple act of posing is suggested by his inscription in an autographed copy of *Sandow’s System of Physical Training*, “To my dear friend, Mr. Dickson” (quoted in Chapman, *Sandow the Magnificent*, 77).

13. “The Stage,” *Los Angeles Times*, June 3, 1894, 17.

14. One version of this advertisement that exhorted readers to “Make a Sandow of Yourself by Using the Famous Sandow Latest Patent Spring-Grip Dumb-Bells” was printed in *The North American Review Advertiser* 171, no. 529 (1900), 1001.

15. Eugen Sandow, “Exercising Apparatus,” US Patent 552,971, filed November 13, 1893, and issued January 14, 1896.

16. Sandow’s exercise apparatus patent has been cited in at least eight other patent applications for exercise equipment, including as recently as 2006. See, for example, Alexander Barrie and Jeffrey James, “Exercise Device,” US Patent 7,993,252, filed September 12, 2006, and issued March 22, 2007. Sandow’s grip dumbbells have been cited even more extensively (over thirty times); as of this writing, the most recent patent application citing Sandow’s was filed in 2010. See Chris Roney, US Patent 20,100,279,828 A1, filed July 16, 2010.

17. Cutcliffe Hyne, “The Inventor,” *Physical Culture* 1, no. 1 (July 1898): 16–26, 24.

18. “Patents,” advertisement, *Sandow’s Magazine* 7, no. 5 (November 1901): 356.

19. Eugen Sandow, “Improved Means for Forming or Displaying Words, Letters, Figures, Pictures, or other Designs or Devices for Advertising or Signalling Purposes,” GB Patent 7,498, filed April 9, 1896, and issued March 13, 1897; Eugen Sandow and Andrew George Adamson, “Improvements in Motor Carriages, and the Adaptation of Same to Electrical Advertising,” GB Patent 26,546, filed November 24, 1896, and issued November 13, 1897.

20. For example, see Andrew George Adamson, “Improvements in the Application of Electric Light for Photographic Purposes,” GB Application 189,321,379, filed on November 10, 1893, and issued April 28, 1894.

21. For an excellent overview of the wide variety of exhibition practices and varying audiences for early films and moving pictures, see Simon Popple and Joe Kember, “Exhibition and Reception,” in *Early Cinema: From Factory Gate to Dream Factory* (London: Wallflower Press, 2004), 64–84. On the long history of the peep show, sometimes carried on the back of its itinerant showman, see Richard Balzer, *Peepshows: A Visual History* (New York: Harry N. Abrams, 1998); for more on the street cinematograph, see Joe Kember, *Marketing Modernity: Victorian Popular Shows and Early Cinema* (Exeter: Exeter University Press, 2009), 119–20; and Andrew Horrall, *Popular Culture in London c. 1890–1918: The Transformation of Entertainment* (Manchester: Manchester University Press, 2001), 23–24.

22. Great Britain Patent Office, *Patents for Inventions. Abridgments of Specifications. Class 3, Advertising and Displaying, Period—A.D. 1893–1896* (London: Darling and Son, 1899), 134; Great Britain Patent Office, *Patents for Inventions. Abridgments of Specifications. Class 132, Toys, Games, and Exercises, Period—A.D. 1893–1896* (London: Darling and Son, 1899), 318. Other advertising patents that involved magic lanterns were not automatically included in the latter category, indicating the possibilities of reading the device as a toy, although some have argued that the use of a magic lantern would have led to its categorization as a toy. The inventor was not charged with specifying in which categories the specifications would be published; rather, this task might have been done by an administrator.

23. See, for example, David C. Lindberg, *Theories of Vision from Al-Kindi to Kepler* (Chicago: University of Chicago Press, 1976) and Cray, *Techniques of the Observer*.

24. These terms were applied to the figure of the prostitute but also to the ephemeral nature of urban interactions (Benjamin, *Charles Baudelaire*, 13). This variability is also discussed in Deborah Epstein Nord, *Walking the Victorian Streets: Women, Representation, and the City* (Ithaca: Cornell University Press, 1995), especially her introduction, "Rambling in the Nineteenth Century" (1–15).

25. For further explorations of the powerful aspects of walking through nineteenth-century urban spaces, see Nancy Forgiione, "Everyday Life in Motion: The Art of Walking in Late-Nineteenth-Century Paris," *Art Bulletin* 87, no. 4 (2005): 664–87, and *The Invisible Flâneuse? Gender, Public Space, and Visual Culture in Nineteenth-Century Paris*, ed. Aruna d'Souza and Tom McDonough (New York: Manchester University Press, 2006).

26. Tom Gunning, "The Cinema of Attraction: Early Film, Its Spectator and the Avant-Garde," *Wide Angle* 8, no. 3 and 4 (1986): 63–70.

27. William Friese-Greene, "Means or Apparatus for Producing and Exhibiting Animated or Changing Pictures on Advertising and like Appliances Carried on the Person," GB Patent 29,363, filed December 11, 1897, and issued December 10, 1898; it was indexed in Great Britain Patent Office, *Patents for Inventions. Abridgments of Specifications. Class 3, Advertising and Displaying, Period—A.D. 1897–1900* (London: Darling and Son, 1902), 36. Friese-Greene's design was also granted a US patent ("Means or Apparatus for Producing and Exhibiting Animated or Changing Pictures on Advertising Appliances," US Patent 623,242, filed July 7, 1898, and issued April 18, 1899.)

28. The "Act of 1902" required British inventors to establish that no similar patents had been sealed in the previous fifty years. The means for searching and verifying this novelty were put into practice in 1905, when abridgement volumes were published. For more on these patent regulations, see Stephen van Dulken, *British Patents of Invention, 1617–1977: A Guide for Researchers* (London: British Library, 1999), especially 27–28; Moureen Coulter, *Property in Ideas: The Patent Question in Mid-Victorian Britain* (Kirkville, MO: Thomas Jefferson University Press, 1991); Neil Davenport, *The United Kingdom Patent System: A Brief History with Bibliography* (Hampshire, UK: Kenneth Mason, 1979).

29. Friese-Greene's actual accomplishments have been somewhat obscured by his self-promotion and overly enthusiastic early biographers, but he did file several patent applications and was frequently included in news accounts of media experimentation. Some of this is due to the very complimentary biography by Ray Allister [Muriel Forth], *Friese-Greene: Close-up of an Inventor* (London: Marsland Publications, 1948). See also Raymond Spottiswoode, "The Friese-Greene Controversy: The Evidence Reconsidered," *Quarterly of Film, Radio, and Television* 9, no. 3 (1955), 217–30 and Brian Coe's series on Friese-Greene in *Screen*. See Brian Coe, "William Friese Greene and the Origins of Cinematography," *Screen* 10, no. 2 (1969): 25–41; Brian Coe, "William Friese Greene and the Origins of Cinematography II," *Screen* 10, no. 3 (1969): 72–83; and Brian Coe, "William Friese Greene and the Origins of Cinematography III," *Screen* 10, no. 4–5 (1969): 129–47. Allister's biography asserts that the device was actually manufactured and greatly entertained Friese-Greene's wife and daughter, but it seems likely that this is another instance of the author's exaggeration, as I have been unable to find any other source that suggests the contraption was ever constructed or used. Selected illustrations from the patent application are reproduced with the caption "The Walking Cinema. Drawings from the 1897 patent" with the following anecdote: "[T]he patent of 1897, reduced Edith and Ethel to helpless laughter whenever they saw the apparatus in use. A man walked about the streets wearing a tall, excessively tall, hat, round the crown of which went motion pictures advertising some commodity. The projector was inside the hat, and the man quietly turned a handle at his side to operate it" (Allister, *Friese-Greene*, 86). This is the entirety of the description or analysis of the device, whose illustrations actually depict both the portable screen projector and the kinetoscopic hat.

30. Friese-Greene, "Means or Apparatus for Producing or Exhibiting Animated or Changing Pictures."

31. See Kember, *Marketing Modernity*, 18–22; Ben Highmore, "Street Life in London: Towards a Rhythmanalysis of London in the Late Nineteenth Century," *New Formations* 47 (2002): 171–93.

32. Carolyn Marvin, "Dazzling the Multitude: Original Media Spectacles," in *When Old Technologies Were New: Thinking About Electric Communication in the Late Nineteenth Century* (New York: Oxford University Press, 1988), especially 158–62 and 164–90.

33. T. R. Nevett, *Advertising in Britain: A History* (London: Heinemann, 1982), 56–59. Richard Altick explores a wide variety of early-nineteenth-century visual spectacles for advertising and entertainment in *The Shows of London* (Cambridge, MA: Harvard University Press, 1978).

34. “Advertising by Magic Lantern,” *Pall Mall Gazette*, January 26, 1883. Similar complaints emerged in 1894 when advertisements were projected on Nelson’s Column and the pillars of London’s National Gallery. See E. S. Turner, *The Shocking History of Advertising!* (London: Michael Joseph, 1952), 126–27.

35. Steven B. Bunker, *Creating Mexican Consumer Culture in the Age of Porfirio Díaz* (Albuquerque: University of New Mexico Press, 2012), 74–79. “The Projected Image Heritage of Australia and New Zealand” working group is sponsored by the Australian National University School of Art, as delineated at soa.anu.edu.au/projected-image-heritage.

36. William H. Rideing, “Curiosities of Advertising,” *Scribner’s Monthly*, August 1880, 609. Magic lantern projection in New York is also discussed in Marvin, “Dazzling the Multitude,” 182.

37. “Advertisements,” in *Library of Useful Knowledge* (New York: American Book Exchange, 1880), 1:113.

38. Charles Graham, “Election Night in New York City,” *The World’s Sunday Magazine*, November 8, 1896.

39. “The Magic Lantern Mission,” *Review of Reviews* 2, no. 12 (1890): 561–67, 566.

40. These advertising spectacles (proposed, realized, and speculative) are also discussed in Marvin, “Dazzling the Multitude,” 185–90 and Turner’s chapter “The Sky’s the Limit,” in *The Shocking History of Advertising!*, 263–72.

41. “Novel Applications of Electricity,” *The Electrical World*, November 16, 1889, 319. “Advertising Pointers” quoted the Watertown, NY *Times*, which noted that in England, “the ingenuity of man has combined the power of the flash light with the reproduction of the magic lantern and used it to throw a legible advertisement on the passing clouds” (in *Business* 12, no. 12 [December 1892]: 276).

42. “Advertising in the Sky,” *Printers’ Ink*, June 1, 1892, 719. The importance of *Printers’ Ink* as an advertising journal (and its founding by George P. Rowell, a dealer in ink) is discussed in Frank Presbrey, *The History and Development of Advertising* (New York: Doubleday, Doran, and Company, 1929), 319–23.

43. “Our Artist gives a prophetic sketch of London as it is likely to appear in the future,” *Funny Folks*, April 9, 1892, 116. This practice of advertising and exhibiting lantern shows or moving pictures out of doors would continue after the turn of the century; see the discussion of cinematographic buskers in Kember, *Marketing Modernity*, 118–19.

44. Musser, “Toward a History of Screen Practice.” See also *Realms of Light: Uses and Perceptions of the Magic Lantern from the 17th to the 21st Century*, ed., Richard Crangle, Mervyn Heard, and Ine van Dooren (London: Magic Lantern Society, 2005); John Fullerton, introduction to *Screen Culture: History and Textuality*, ed. John Fullerton (Bloomington: Indiana University Press, 2004), vii–xv; Barbara Maria Stafford and Frances Terpak, *Devices of Wonder: From the World in a Box to Images on a Screen* (Los Angeles: Getty Research Institute, 2001); Erkki Huhtamo, *Illusions in Motion: Media Archaeology of the Moving Panorama and Related Spectacles* (Cambridge, MA: MIT Press, 2013); Mannoni, *The Great Art of Light and Shadow*; and Rossell, *Living Pictures*.

45. See especially Musser’s *The Emergence of Cinema* and his essay “Towards a History of Theatrical Culture: Imagining an Integrated History of Stage and Screen,” in Fullerton, *Screen Culture*, 3–20, most pertinently 4–5. See also Gomery’s *Shared Pleasures* and Friedberg’s *Window Shopping* and *The Virtual Window*. Some recent works that complicate this model of viewership are wonderfully explored and encapsulated in the introduction of *Cinema, Audiences, and Modernity: New Perspectives on European Cinema History*, ed. Daniel Biltereyst, Richard Maltby, and Philippe Meers (New York: Routledge, 2012), 1–16.

46. Lynn Spigel has investigated the technologies and implications of portable televisions, but this study begins when the technology became widely available in the 1960s. See Lynn Spigel, “Portable TV: Studies in Domestic Space Travels,” in *Allegories of Communication: Intermedial Concerns from Cinema to the Digital*, ed. John Fullerton and Jan Olsson (Bloomington: Indiana University Press, 2004), 55–80.

47. Similarly, Pelle Snickars's essay, "'Berlin Under the Sign of the Cinematograph': Urban Mobility and Cinema Location in Wilhelmine Berlin," focuses on mobility outside the cinema itself, in the many urban connections made possible by Berlin's public transportation and infrastructure, rather than audience mobility while watching programs (in *Film 1900: Technology, Perception, Culture*, ed. Klaus Kreimeier and Annemone Ligensa [Bloomington: Indiana University Press, 2009], 125–40).

48. John Plunkett, "Optical Recreations, Transparencies, and the Invention of the Screen," in *Visual Delights Two: Exhibition and Reception*, ed. Vanessa Toulmin and Simon Popple (Bloomington, Indiana University Press, 2005), 176, emphasis mine.

49. Steven Connor, "Screens," January 23 and 26, 2000, transcript of BBC Radio Talk, *Rough Magic*, stevenconnor.com/magic/screens.htm.

50. Isobel Armstrong, "Dissolving and Resolving Views: From Magic Lantern to Telescope," in *Victorian Glassworlds: Glass Culture and the Victorian Imagination, 1830–1880* (Oxford: Oxford University Press, 2008), 272–316, 303.

51. Walter Benjamin, quoted in Susan Buck-Morss, "The Flaneur, the Sandwichman and the Whore: The Politics of Loitering," *New German Critique* 39 (1986): 99–140, 115.

52. This print and its inscription, from *Nouveaux Tableaux de Paris* (Paris: Pillet aine, 1828), are described in Walter Benjamin, *The Arcades Project*, trans. Howard Eiland and Kevin McLaughlin (Cambridge, MA: Harvard University Press, 1999), 179nG3a, 2.

53. Examples of early-nineteenth-century renderings include watercolors by George Scharf, "Sketched this from the coach whilst the Horses were being changed on Cambridge Road, 24 November," ca. 1825, The British Museum, 1862,0614.1187 and "In Regents Street," 1834, The British Museum, 1862,0614.1188. For more on Scharf, see Peter Jackson, *George Scharf's London: Sketches and Watercolours of a Changing City, 1820–1850* (London: Murray, 1987); and Susan Palmer, Caroline Arscott, and Jerzy Kierkuc-Bielinski, *George Scharf: From the Regency Street to the Modern Metropolis* (London: Sir John Soane's Museum, 2009). Sandwich men were also described and drawn in *Punch* in the 1840s; see, for example, "A Novelty in Advertising," and "Fashions for Advertisers," *Punch*, May 9, 1846, 219 and May 23, 1846, 236. For more on nineteenth-century practices of outdoor advertising, see Bunker, *Creating Mexican Consumer Culture in the Age of Porfirio Díaz*; Anne M. Cronin, *Advertising, Commercial Spaces, and the Urban* (London: Palgrave Macmillan, 2010); Anne M. Cronin, *Advertising Myths: The Strange Half-Lives of Images and Commodities* (New York: Routledge, 2004); "Curiosities of Advertising," *Scribner's Monthly*, August 1880, 601–613; Leonard de Vries, *Victorian Advertisements* (London: John Murray, 1968); W. Hamish Fraser, *The Coming of the Mass Market, 1859–1914* (Hamden, CT: Archon, 1981); Diana Hindley and Geoffrey Hindley, *Advertising in Victorian England, 1837–1901* (London: Wayland, 1972); Michael Jubb, *Cocoa & Corsets: A Collection of Late-Victorian and Edwardian Posters and Showcards* (London: Her Majesty's Stationery Office, 1984); Jackson Lears, *Fables of Abundance: A Cultural History of Advertising in America* (New York: Basic, 1995); Carolyn Marvin, *When Old Technologies Were New: Thinking About Electric Communication in the Late Nineteenth Century* (New York: Oxford University Press, 1988); Nevett, *Advertising in Britain: A History*; Presbrey, *The History and Development of Advertising*; Thomas Richards, *The Commodity Culture of Victorian England: Advertising and Spectacle, 1851–1914* (Stanford: Stanford University Press, 1990); William Smith, *Advertise: How? When? Where?* (London: Routledge, Warne, and Routledge, 1863); and Turner, *The Shocking History of Advertising!*

54. Although there were occasional "banner ladies" who also advertised commodities with signs on their dresses and hand-held banners, these were the exception. For an online image gallery of carte-de-visite examples of these "banner ladies," see *Luminous-Lint*, luminous-lint.com/app/contents/fra/_advertising_banner_ladies_01/. (Thanks to Hélène Valance for bringing this to my attention.) Most frequently, however, sandwich men were depicted and discussed in reform literature as indigent men. The rarity of "sandwich-women" is further suggested by a mention of the National Union of Women Workers "raising protest against the employment of girls as 'sandwich men,' or street-advertisement carriers" (Sybil, "Ladies' Page," *Illustrated London News*, April 30, 1898, 636); or the fact that American and British publications found the practice exceptional enough to remark upon in 1885 articles: "We have, and not so very long ago, seen girls employed as 'sandwiches'" ("An American View of Our Sandwiches," *Pall Mall Gazette*, February 2, 1885, 12).

55. Such legislation includes, for example, the London Hackney Carriage Act of 1853 and the Metropolitan Streets Act of 1867, which was subjected to greater scrutiny and reinforced in 1893; see Nevett, *Advertising in Britain*; and "Regulating London's Sandwich Men: From the London Telegraph," *New York Times*, December 25, 1893, 2.

56. The dangers of high winds to sandwich men were also noted in George R. Sims, "Some Familiar Things in London," *Living London* (New York: Cassell, 1903), 3:216–21: "the sandwich men who walk the gutters of the principal thoroughfares from morning to night with their boards high above their heads, secured to their shoulders by iron clips and a strap . . . the weird picture these men present when a violent gust of wind sweeps suddenly down a broad thoroughfare, and compels them to hold on to pillars and lamp-posts to save themselves from being capsized" (217).

57. Florence Hartley, "Conduct in the Street," in *The Ladies' Book of Etiquette, and Manual of Politeness: A Complete Hand Book for the Use of the Lady in Polite Society* (Boston: Lee and Shepard, 1872), 114. See also Annie Randall White, *Polite Society at Home and Abroad* (Chicago: Monarch, 1891), 28.

58. One journalist who had interviewed sandwich men and urban vagrants remarked upon the extremely low status of the sandwich men: "board-carrying . . . is . . . about the last stopping-place on the down grade from respectability to vagrancy. . . . Sandwich work is wounding to pride and hopelessly irregular. It involves little strength of muscle and not an iota of skill of hand or alertness of brain. . . . The work of the sandwich-man is lonesome, monotonous, depressing, and, as has been said, affords a bare living withal" (Alvan F. Sanborn, "Sandwich-Men," *The Youth's Companion*, September 11, 1896, 469). This article seems to derive from Sanborn's chapter "Among the Sandwich Men," published in *Moody's Lodging House and Other Tenement Sketches* (Boston: Copeland and Day, 1895), 161–75. In the 1880s, sandwich men were also the beneficiaries of several fundraisers, such as Londoner Howard Paul's fundraising dinner for sandwich men. See *Penny Illustrated Press*: "Mr Howard Paul's Appeal for the Sandwich Men," *Penny Illustrated Press*, December 10, 1887, 378 and "Mr Howard Paul's Dinner to the 'Sandwich Men,'" *Penny Illustrated Press*, December 31, 1881, 454.

59. For more on the simultaneously stylized and style-less aesthetics of patent drawings, see William J. Rankin, "The 'Person Skilled in the Art' Is Really Quite Conventional: U.S. Patent Drawings and the Persona of the Inventor, 1870–2005," in *Making and Unmaking Intellectual Property: Creative Production in Legal and Cultural Perspective*, ed. Mario Biagioli, Peter Jaszi, and Martha Woodmansee (Chicago: University of Chicago Press, 2011), 55–75.

60. See, for example, the popularly-reproduced image of Muybridge lecturing by watercolorist Thomas Walter Wilson, reproduced on the cover of the May 25, 1889 *Illustrated London News*. For more on the role of the slide lecturer, see Joe Kember, "Expertise and Trust: Popular Lecturing Traditions and Early Film," in *Marketing Modernity*, 44–83, especially 52–55, 63; Tom Gunning, "The Scene of Speaking: Two Decades of Discovering the Film Lecturer," *Iris* 27 (1999): 67–79; Kaveh Askari, "From 'The Horse in Motion' to 'Man in Motion': Alexander Black's Detective Lectures," *Early Popular Visual Culture* 3, no. 1 (2005): 59–76; and Richard Crangle, "'Next Slide Please': The Lantern Lecture in Britain, 1890–1910," in *The Sounds of Early Cinema*, ed. Richard Abel and Rick Altman (Bloomington: Indiana University Press, 2001), 39–47. For the figure of the street-based or fairground showman, see Kember's "Knowing Better: Traditions of Showmanship and Early Film," in *Marketing Modernity*, 84–49.

61. Emphasis in original.

62. "The Nation of Shopkeepers, As Viewed Through Parisian Spectacles," *Judy, or the London Serio-comic Journal*, November 29, 1871, 47.

63. I am grateful to Caitlin Silberman for bringing these to my attention. Although they might seem fantastical, these lantern hats are similar in design to the transparencies and lanterns carried in torchlight parades of the 1860s, such as surviving examples in the collection of the Smithsonian National Museum of American History. See "Lincoln Parade Transparency, 1860," *Smithsonian: The National Museum of American History*, americanhistory.si.edu/collections/search/object/nmah_513759. Some of these illuminated lanterns can be seen in the photographic feature "Adornments of Old Torchlight Parades," *Life*, July 4, 1960, 90–91. For more on these nighttime spectacles, see Herbert R. Collins, *Contributions from the Museum of History and Technology*, vol. 45, *Political Campaign Torches*

(Washington, DC: Smithsonian Institution, 1964), repository.si.edu/bitstream/handle/10088/21317/USNMB-241_45_1964_480.pdf. Beyond campaigns, many advertising lanterns were also produced and patented, such as a popular one featuring None Such products (“‘None Such’ Advertising Lantern,” *Skinner Auctioneers and Appraisers*, skinnerinc.com/auctions/2824T/lots/1538). Although these illuminated lanterns, and those worn as hats, reached their peak in the mid-nineteenth century, a 1903 article still observed that “the night side of advertising offers a strong contrast to the devices of the day . . . the men who wear a lighted lamp in the place of a hat” (Sims, “Some Familiar Things,” 217).

64. Sol Kuh, “Improvement in Advertising-Lanterns,” US Patent 133,158, issued November 19, 1872.

65. For more on debates about and the plight of sandwich men, see Smith, *Advertise*, especially 135–39; Rideing, “Curiosities of Advertising,” especially 605–08; Besant, “East London Types,” 220–32; and Henry Sampson, *A History of Advertising from the Earliest Times* (London: Chatto and Windus, 1874), 31, 261. On the use of magic lanterns in advertising, see “Advertisements,” 1:113–14; Rideing, “Curiosities of Advertising,” 609; “Advertising by Magic Lantern”; “Novel Applications of Electricity,” 319; “Advertising in the Sky,” 719; “The Magic Lantern Mission,” 561–67. The class implications are also on heightened display in the cartoon “An Incident from Life: The Crumbs of the Rich,” in which a trio of sandwich men jostle one another in pursuit of the remains of a cigar cast aside by a pedestrian, whose title evokes the parable of the rich man and Lazarus (S. H. B., “An Incident from Life,” *Illustrated London News*, June 5, 1897, 795).

66. See Julie Wosk, “Art, Technology, and the Human Image,” in *Breaking Frame: Technology and the Visual Arts in the Nineteenth Century* (New Brunswick: Rutgers University Press, 1992), 67–104.

67. Donna J. Haraway, “A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century,” in *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, 1991), 149–81; Jennifer González has also argued for the concept of the “proto-cyborg,” as a figure that emerges “at moments of radical social and cultural change. . . . [I]maginary representations of cyborgs take over when traditional bodies fail. . . . The cyborg body thus becomes the historical record of changes in human perception” (“Envisioning Cyborg Bodies: Notes from Current Research,” in *The Cyborg Handbook*, ed. Chris Hables Gray [New York: Routledge, 1995], 267–80, 270). See also Klaus Benesch, *Romantic Cyborgs: Authorship and Technology in the American Renaissance* (Amherst: University of Massachusetts Press, 2002); and *The Gendered Cyborg: A Reader*, ed. Gill Kirkup, Linda Janes, Kathryn Woodward, and Fiona Hovenden (New York: Routledge, 2000).

68. See also Susan Elizabeth Ryan, *Garments of Paradise: Wearable Discourse in the Digital Age* (Cambridge, MA: MIT Press, 2014); Steve Mann and Hal Niedzviecki, *Cyborg: Digital Destiny and Human Possibility in the Age of the Wearable Computer* (Toronto: Doubleday Canada, 2001).

69. Olsson et al., United States Patent Application Publication, “Wearable Device with Input and Output Structures,” filed August 18, 2011, and issued February 21, 2013, United States Patent and Trademark Office, pdfaiw.uspto.gov/aiv?docid=20130044042. On early hopes for the technology, see Darrell Etherington, “New Google Glass Patent Is Most Comprehensive Yet for Google’s Face-Based Wearable Computer,” *TechCrunch*, February 21, 2013, techcrunch.com/2013/02/21/new-google-glass-patent-is-the-most-comprehensive-yet-for-googles-face-based-wearable-computer/; Pete Pachal, “Google Glass and the Future of Head-Mounted Displays,” *Mashable*, March 21, 2013, mashable.com/2013/03/21/google-glass-technology/; and Pete Pachal, “New Google Glass Patent Shows Future Designs,” *Mashable*, March 21, 2013, mashable.com/2013/02/21/google-glass-patent/. On the failure and end of Google Glass, see Nick Bilton, “Why Google Glass Broke,” *New York Times*, February 4, 2015; and Frederic Lardinois, “Google Glass Explorer Program Shuts Down,” *TechCrunch*, January 15, 2015, techcrunch.com/2015/01/15/google-glass-exits-x-labs-as-explorer-program-shuts-down-team-now-reports-to-tony-fadell/.