

(No Model.)

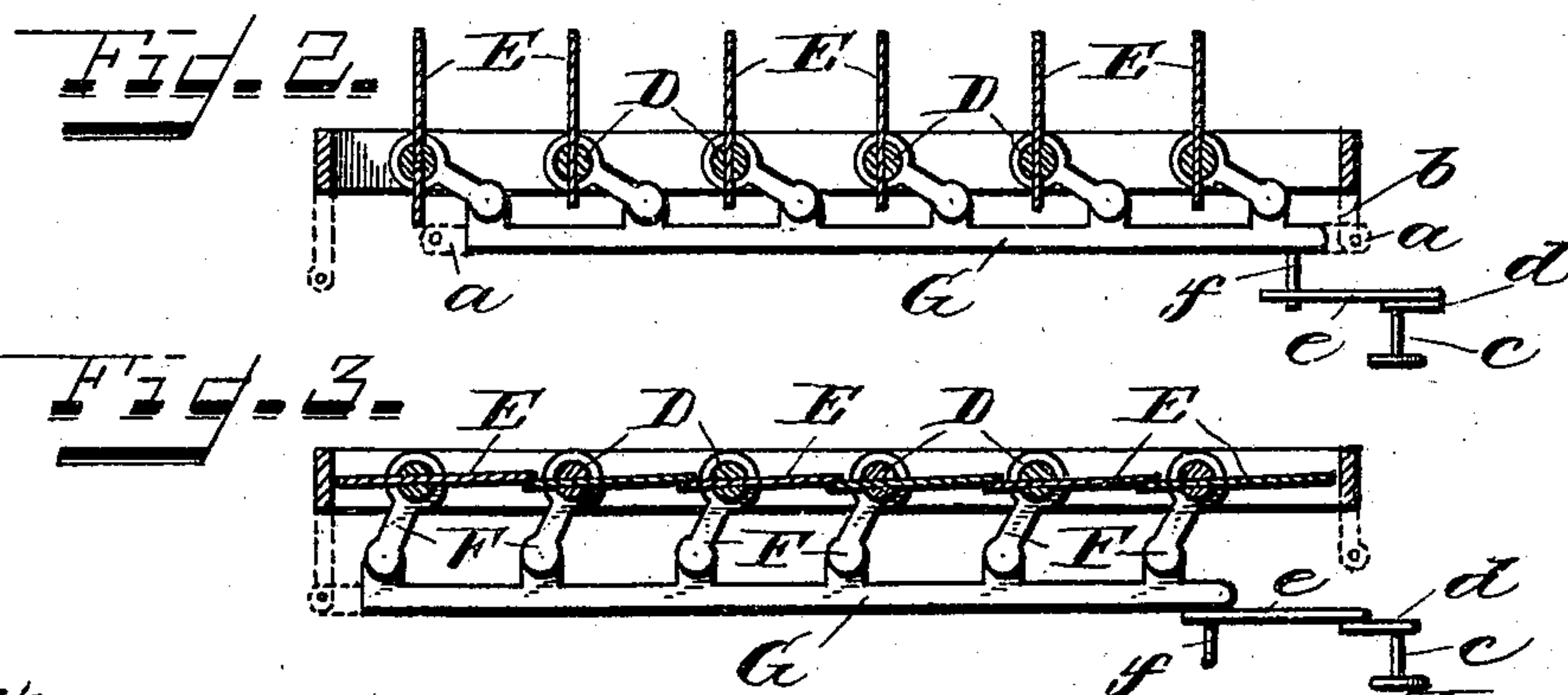
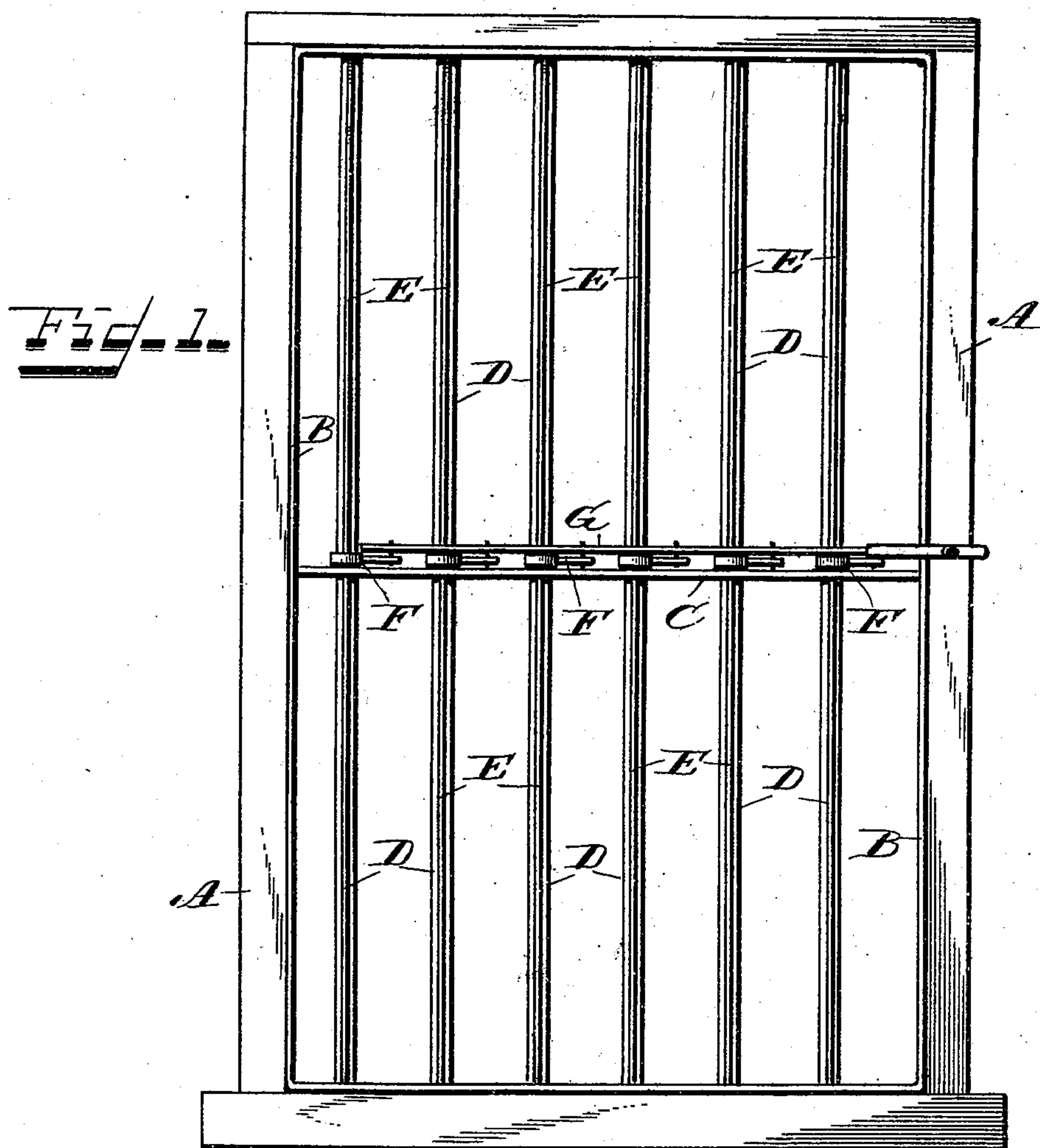
2 Sheets—Sheet 1.

E. H. LUNKEN.

## COMBINED BURGLAR AND FIRE PROOF SHUTTER.

No. 504,533.

Patented Sept. 5, 1893.



*Witnesses.*

J. Thomson Cross  
Bernard J Hausfeldt.

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his Attorney.

(No Model.)

2 Sheets—Sheet 2.

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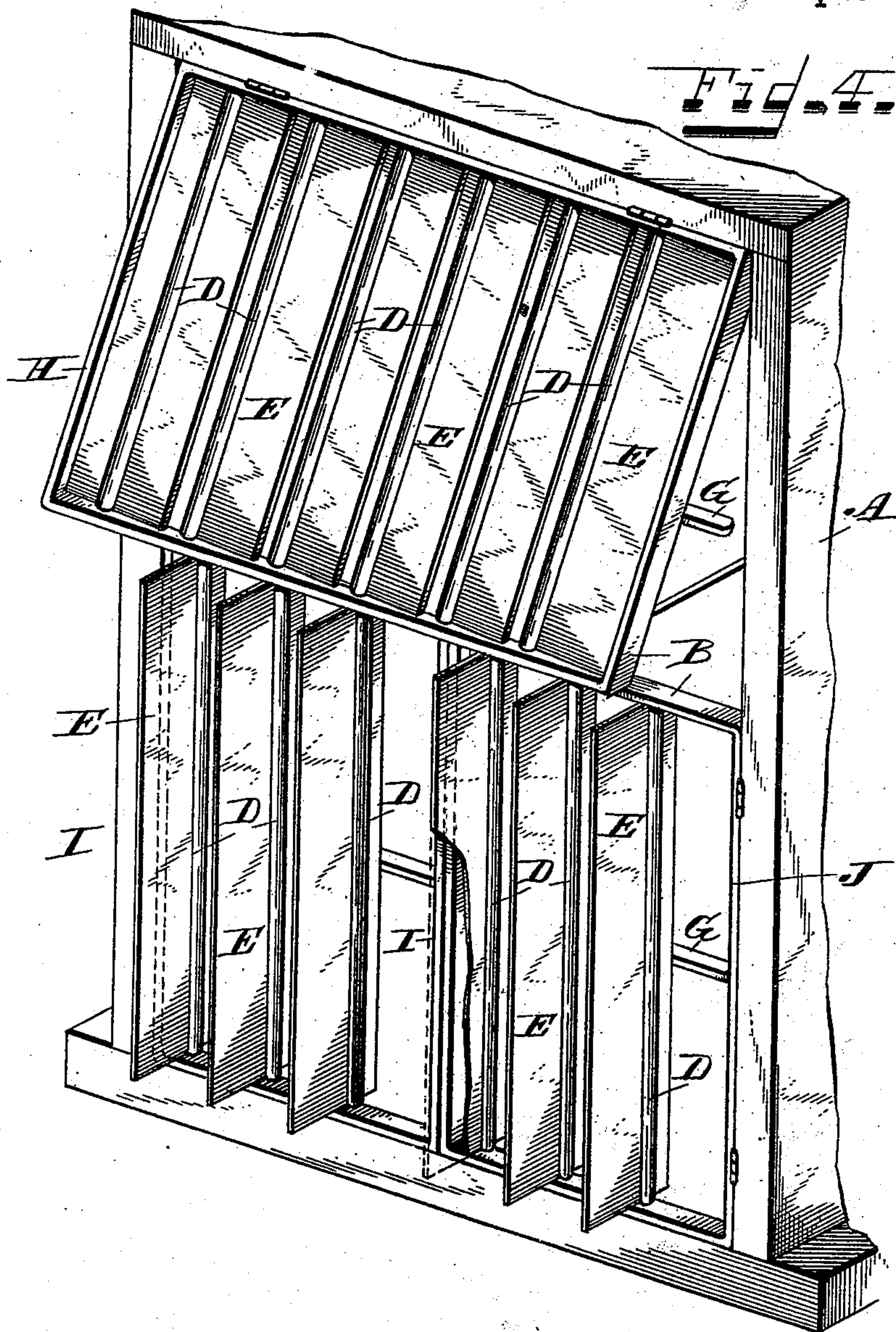


Fig. 5.

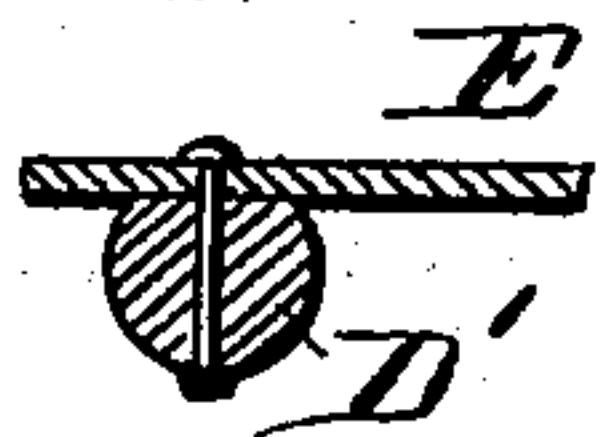


Fig. 6.

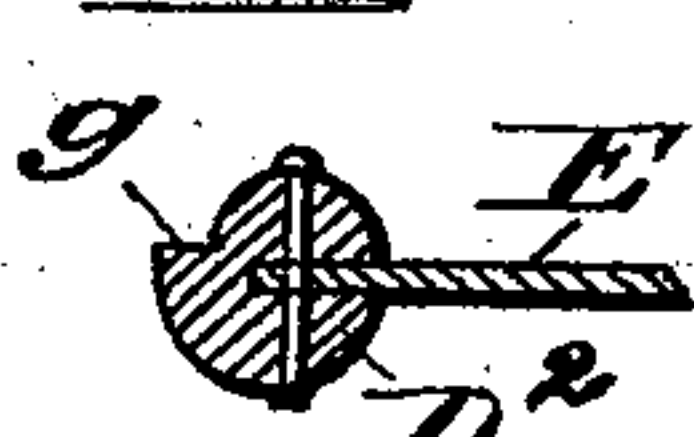


Fig. 7.

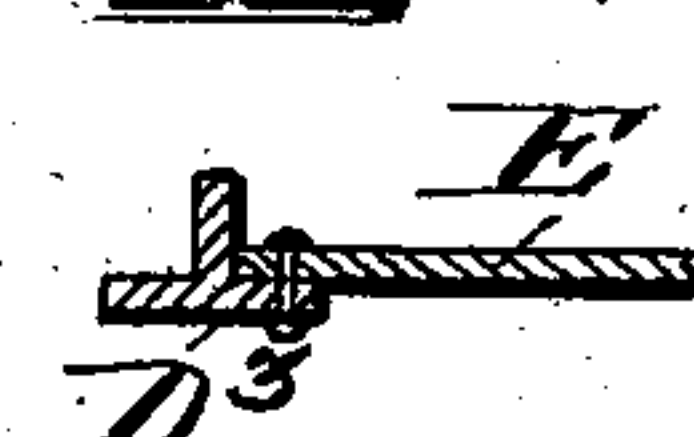
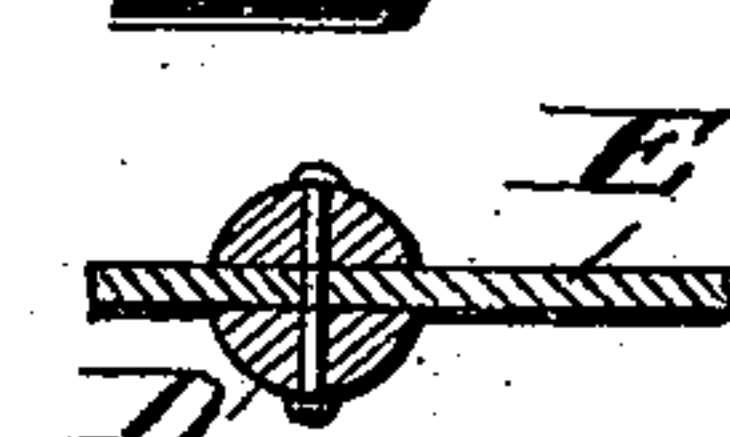


Fig. 8.



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# UNITED STATES PATENT OFFICE.

EDMUND H. LUNKEN, OF CINCINNATI, OHIO.

## COMBINED BURGLAR AND FIRE PROOF SHUTTER.

SPECIFICATION forming part of Letters Patent No. 504,533, dated September 5, 1893.

Application filed December 27, 1892. Serial No. 456,452. (No model.)

*To all whom it may concern:*

Be it known that I, EDMUND H. LUNKEN, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in a Combined Burglar and Fire Proof Shutter, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention has for its object the production of a shutter and grating for windows in which parallel metal bars, properly spaced and permanently secured, though free to be oscillated in the window frame outside of the window, form a burglar proof grating at all times; also the attachment to such oscillating bars of metal slats which are opened and closed by the oscillation of the bars; also the provision of means for oscillating said bars simultaneously to operate the slats; and other details and modifications to be specified.

The novelty of my invention will be hereinafter set forth, and specifically pointed out in the claims.

In the accompanying drawings:—Figure 1, Sheet 1, is an inside elevation of a window embodying my invention, under one form of construction, and with the sashes removed. Fig. 2, Sheet 1, is a sectional plan view of Fig. 1, with the slats open. Fig. 3, Sheet 1, is a sectional plan view of Fig. 1, with the slats closed. Fig. 4, Sheet 2, is a perspective view from the outside of a window embodying my invention under a modified form of construction. Figs. 5, 6, 7, and 8, Sheet 2, are transverse sections of a bar and its slat each representing a modification in the construction of the bar and manner of attaching the slats.

The same letters of reference are used to indicate identical parts in all the figures.

My invention while applicable to all windows is designed more particularly for stores, factories, and ware-houses, where it is desirable to have protection both from burglars and fires, and in Figs. 1, 2, and 3, A represents any window frame into which is fitted and secured a metal frame B with a horizontal cross piece C of metal, at or about the middle of the frame.

Journaled vertically in the top and bottom bars of the frame B and through the bar C is

a series of parallel and vertical metal bars D each, in this instance, being constructed of half round bars, preferably steel, between each pair of which is riveted a slat E of flat metal preferably aluminum or any substance having fire resisting qualities as prepared as bestus or vulcabeston. The slat projects on both sides of the bar but more on the outside than the inside, as seen in Fig. 2. For windows comparatively low in height the bar C may be omitted in which case the slat for each bar would be continuous, but where the bar C is employed the slats have to be divided at the bar making two for each bar D one above and the other below the bar C as will be readily understood. The bars D are placed so close together as to prevent the passage between them of a human form, so that when the slats are open to admit light as in Fig. 2 the window is still burglar proof.

Suitably secured to each of the bars D preferably at or near the middle is a crank arm F, each of which is pivoted to a horizontal bar G by moving which longitudinally all of the bars D will be simultaneously oscillated on their axes to open or close the slat E. The slats when open stand at right angles to the plane of the window as shown in Fig. 2, and when closed as shown in Fig. 3, they overlap each other and lie in a plane substantially parallel with the window, the long projecting side of one slat resting upon the short projecting side of the next slat as shown thus entirely closing the window frame and rendering the window both fire and burglar proof.

The bar G may be operated directly by hand to open or close the slats and it may have at each end a perforation *a* which will register with a perforation in the lug *b* at each side of the window frame when the slats are opened or closed and a pin inserted through these perforations will serve to hold the slats locked in either their open or closed position for instance, when the slats are open as in Fig. 2 the perforation *a* at the right will register with the perforation in the lug *b* at the right to receive the locking pin, and when the slats are closed as in Fig. 3 the perforation *a* at the left will register with the perforation in the lug *b* at the left to receive the locking pin, as will be readily understood.



While the above forms an effective operating and locking device, it necessitates the opening of the sash to get at the bar G, and I prefer a construction which enables me to operate the bar G to open or close the slats from the inside without necessitating the opening and closing of the window sash. The means for this is illustrated in Figs. 1, 2, and 3 where *c* is a handled rod journaled in the frame A, with the handle on the inside. On the inner side of the rod *c* is a short crank arm *d* to which is pivoted a link *e* having a perforation at its inner end through which passes a pin *f* projecting from the bar G. Upon turning the rod *c* the bar G is moved either to the right or left to oscillate the bars D and open or close the slats. The adjustment is such that when the slats are entirely open or entirely closed the pin *f*, link *e* and crank *d* are on a dead center so that a lock is thereby formed to prevent the slats from being either opened or closed from the outside or in any way except by turning the handled rod *c*, as will be readily understood.

The use of aluminum for the slats has the advantage that it not only resists a very high degree of heat but it is very light in weight, will not tarnish and is an excellent reflector so that the use of the bars and slats does not darken the window when the slats are open.

In Fig. 4 I have shown a modification adapted for windows inaccessible to burglars such as the upper windows of a building. Here the frame B is divided into an upper section H carrying the aluminum slats, which section is hinged at its upper edge to the frame of the window so that it can be swung out to form an awning or be closed and locked in any suitable manner. The lower part of the frame may have two sections I J with slats, hinged to the side of the window frame and arranged to be opened or closed and locked in any suitable manner.

In Figs. 1, 2, 3, and 8 I have shown the bars D, as each composed of two half round pieces with the slats secured between them, which is my preferred construction. In Fig. 7, the bars D<sup>3</sup> are of T shaped metal with the slats riveted to one flange, while the opposite flange serves as a ledge for the adjacent slat to rest on when the slats are closed. There would be no difficulty in journaling the ends of these T bars in the frame for the ends could be shaped to fit the apertures in the frame.

In Fig. 5 the bars D' are shown solid and flattened on one side against which flattened

portion the slats are riveted. In Fig. 6 the bars D<sup>2</sup> are cam shaped in cross section with the slats inserted in slots on one side and secured in place, and with a ledge or shoulder *g* on the opposite side for the adjacent slat to rest on when closed.

While I have shown the invention as applicable to windows it will be understood that it is also applicable to doors and while I have shown the bars D as journaled in the bars of the frame B such frame can be dispensed with in windows and the bars D can be journaled directly in the top and bottom sills of the window.

Having thus fully described my invention, I claim—

1. A combined grating and shutter, composed of a series of parallel oscillating metal bars to form the grating, and a series of slats secured to said bars and actuated by the oscillation of the bars to be opened or closed.

2. A combined grating and shutter, composed of a series of parallel oscillating bars to form a grating, means for oscillating them simultaneously and slats secured to said bars and actuated by the oscillation of the bars to be opened or closed.

3. The combination with a wall opening, of a series of parallel oscillating metal bars, slats secured thereto, means for oscillating said bars and slats simultaneously to open or close the slats, and means for locking the slats and bars when adjusted.

4. A combined grating and shutter, composed of a series of two part parallel oscillating metal bars to form the grating, and a series of slats secured to and between said bars and actuated by the oscillation of the bars to be opened or closed.

5. In a wall opening the combination of the parallel oscillating metal bars D the slats E secured thereto, the arms F secured to the bars D and pivoted to the cross bar G, the cross bar G, and means for locking the latter, substantially as described.

6. In a wall opening, the combination of the parallel oscillating metal bars D, the slats E secured thereto, the arms F secured to the bars D and pivoted to the cross bar G, the cross bar G, the link *e* the pin *f* and crank handle *c d*, substantially as described.

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Witnesses:

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BERNARD J. HAUSFELD.