

(No Model.)

F. B. MALLORY.  
SHUTTER WORKER.

No. 362,168.

Patented May 3, 1887.

Fig 2.

Fig 3.

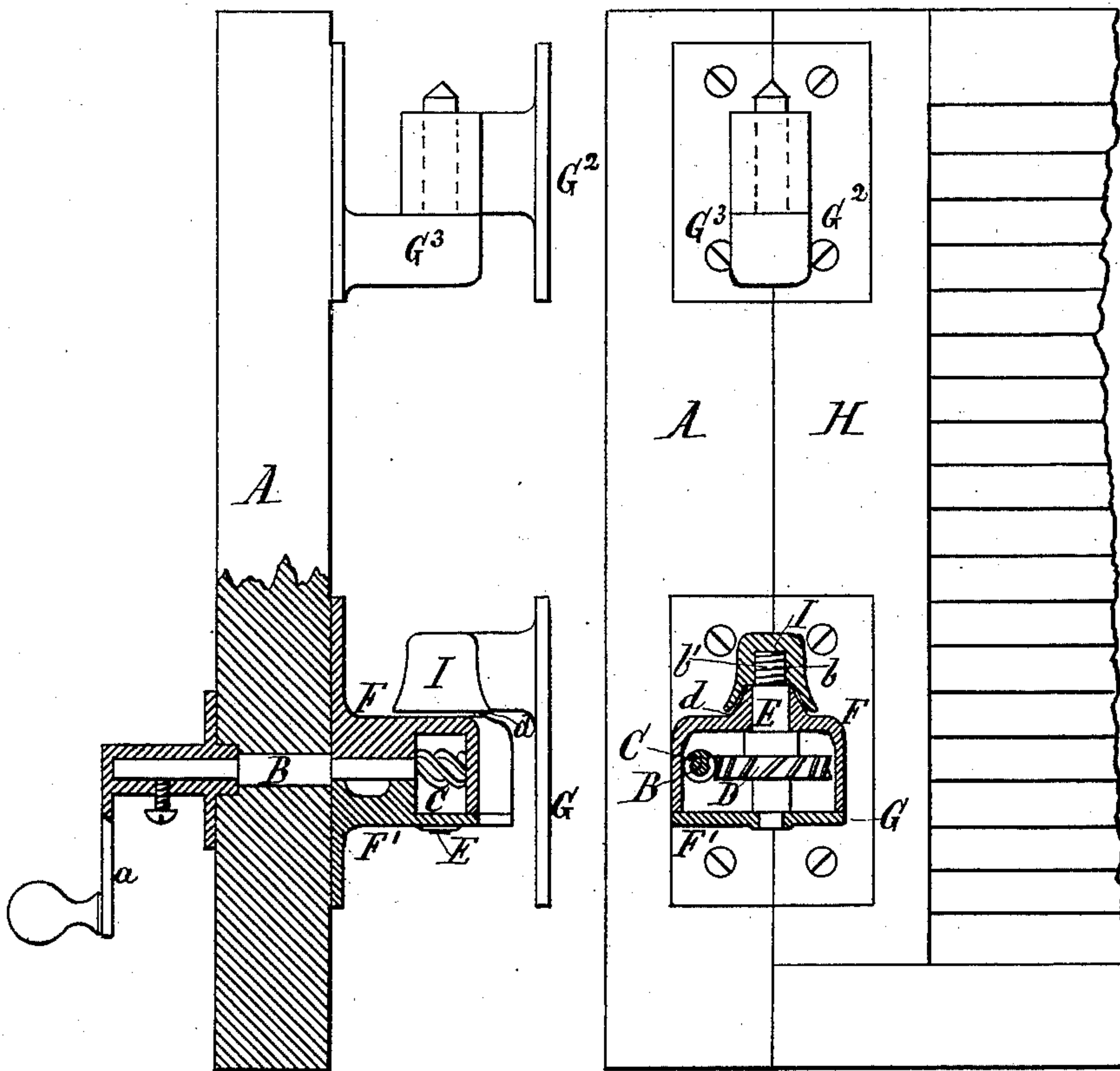


Fig 8.

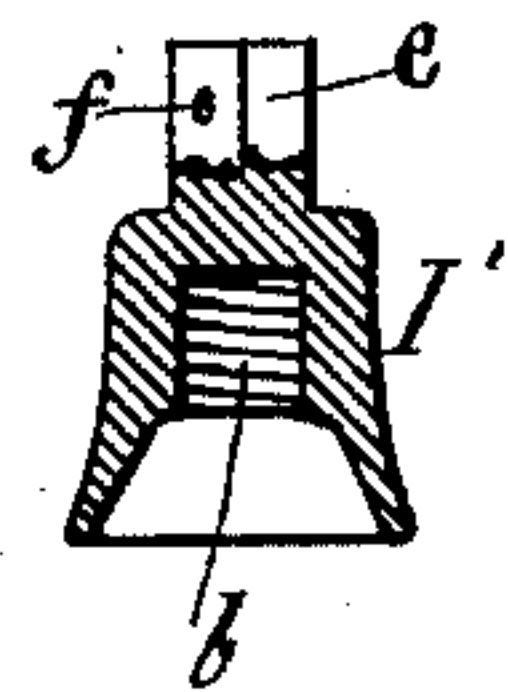


Fig 4.

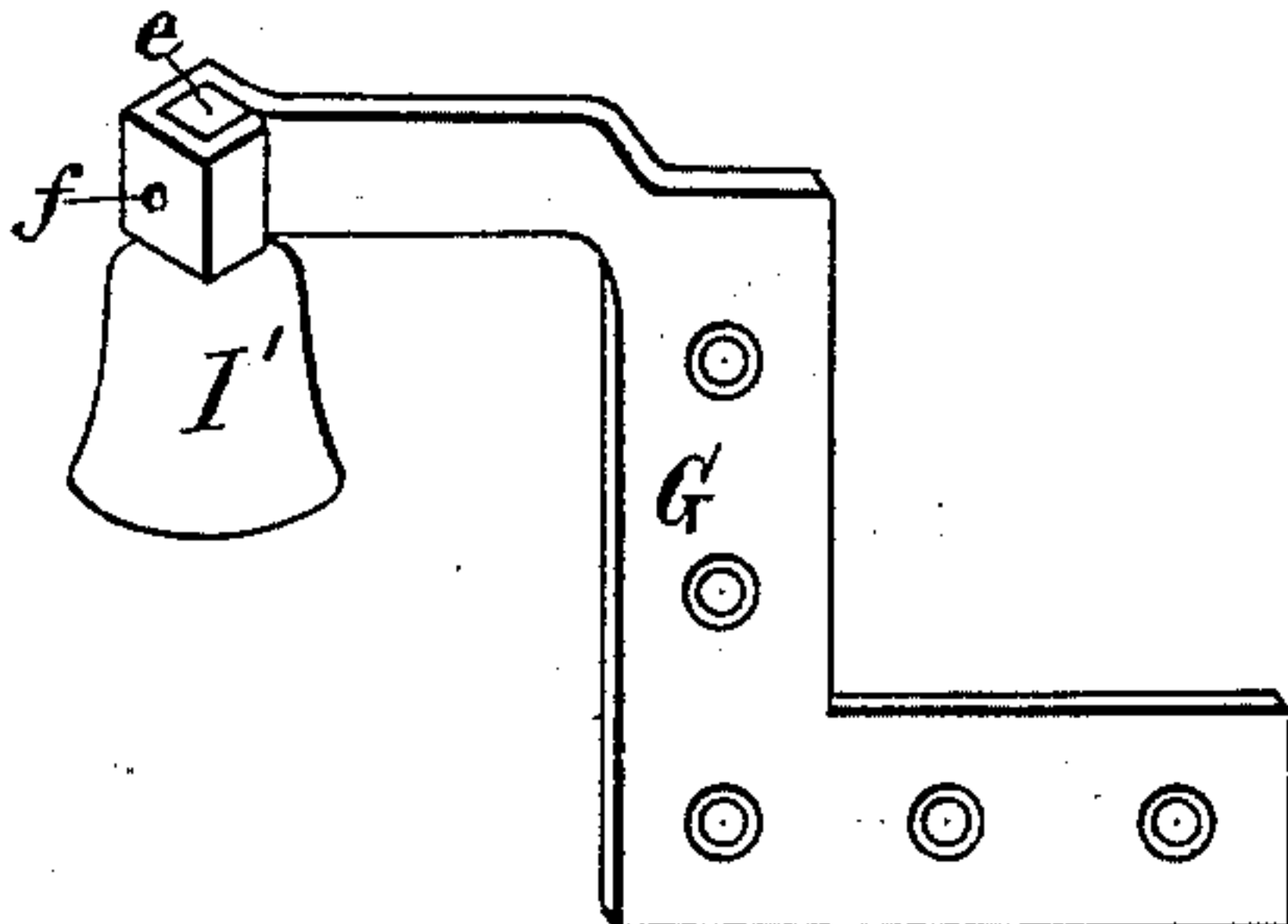


Fig 1.

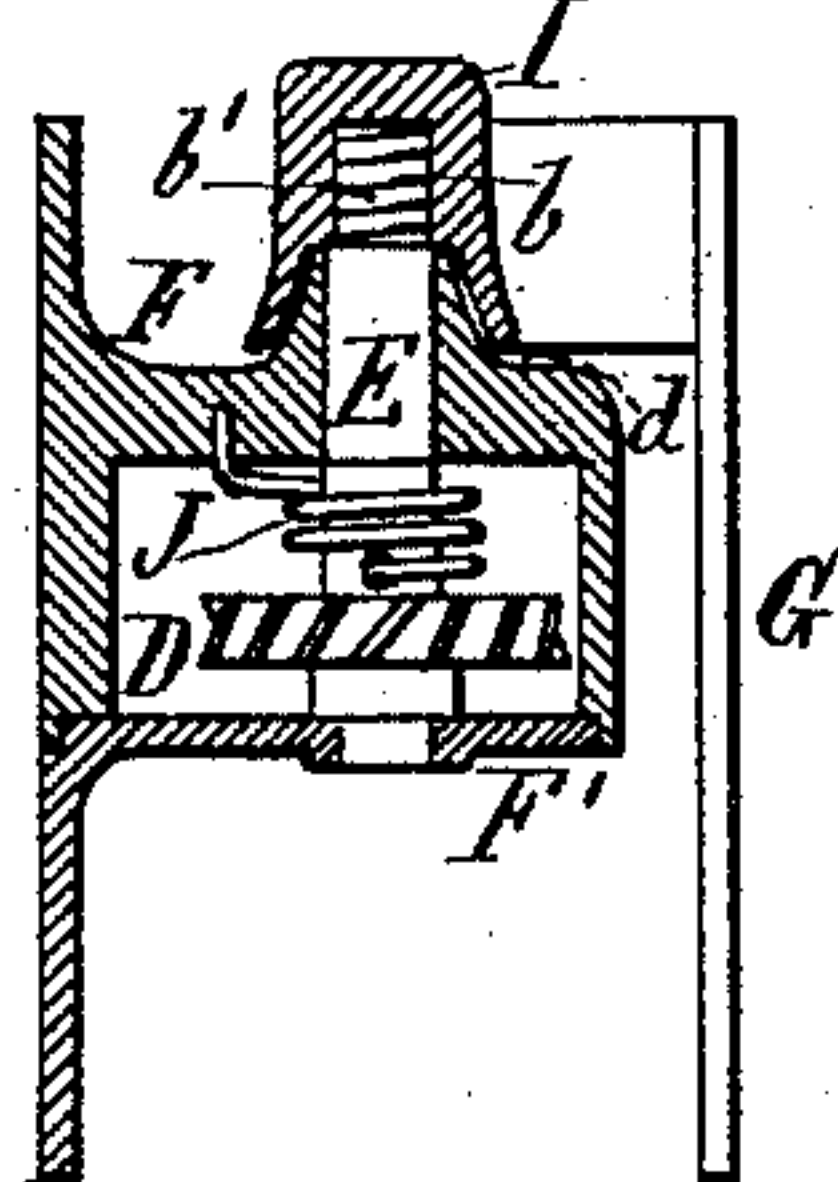


Fig 6.

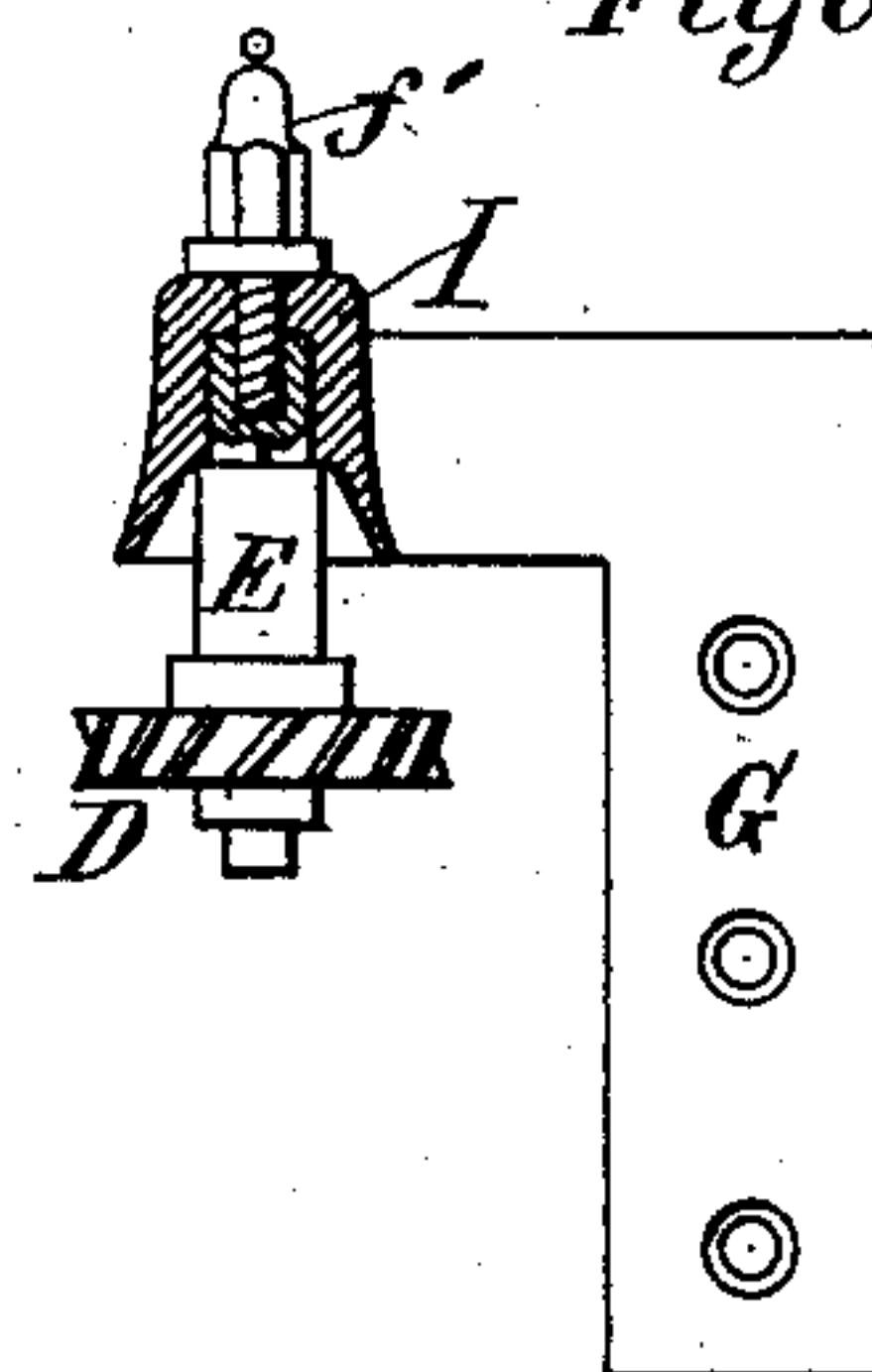


Fig 5.

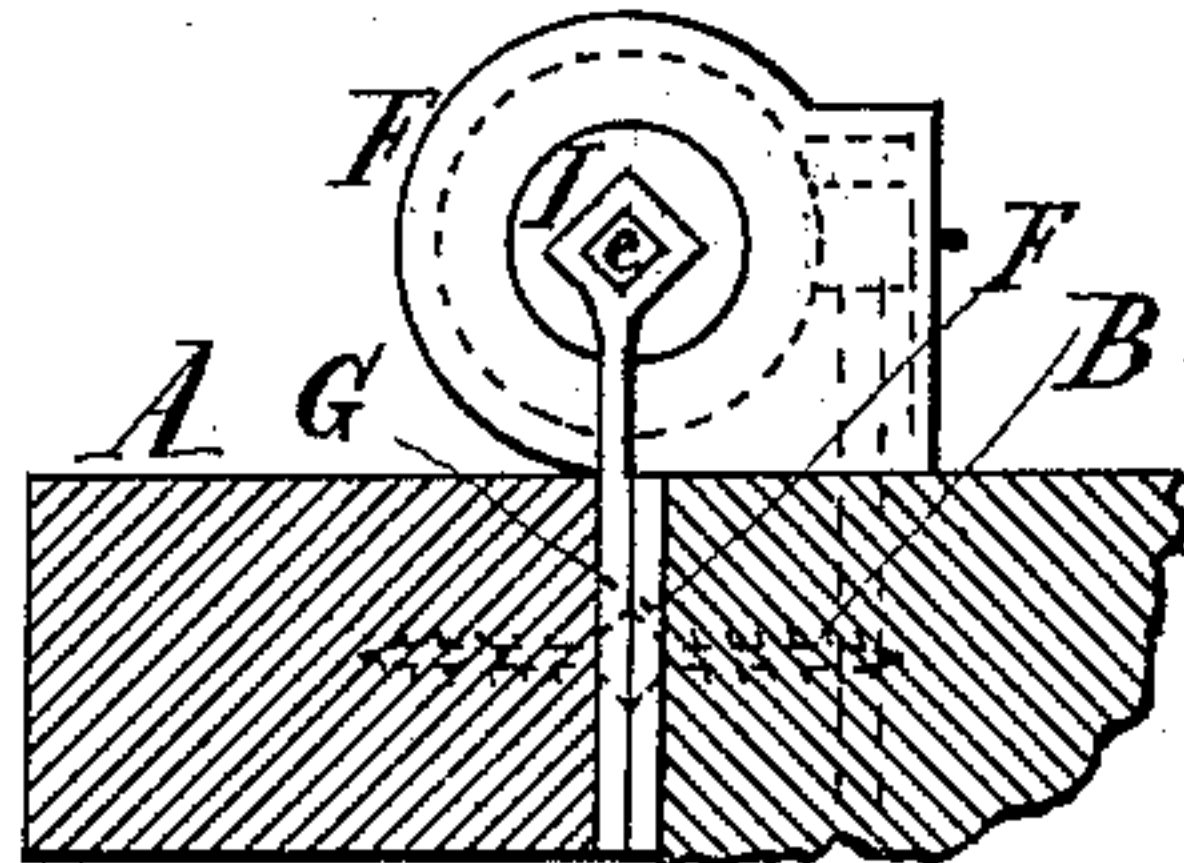
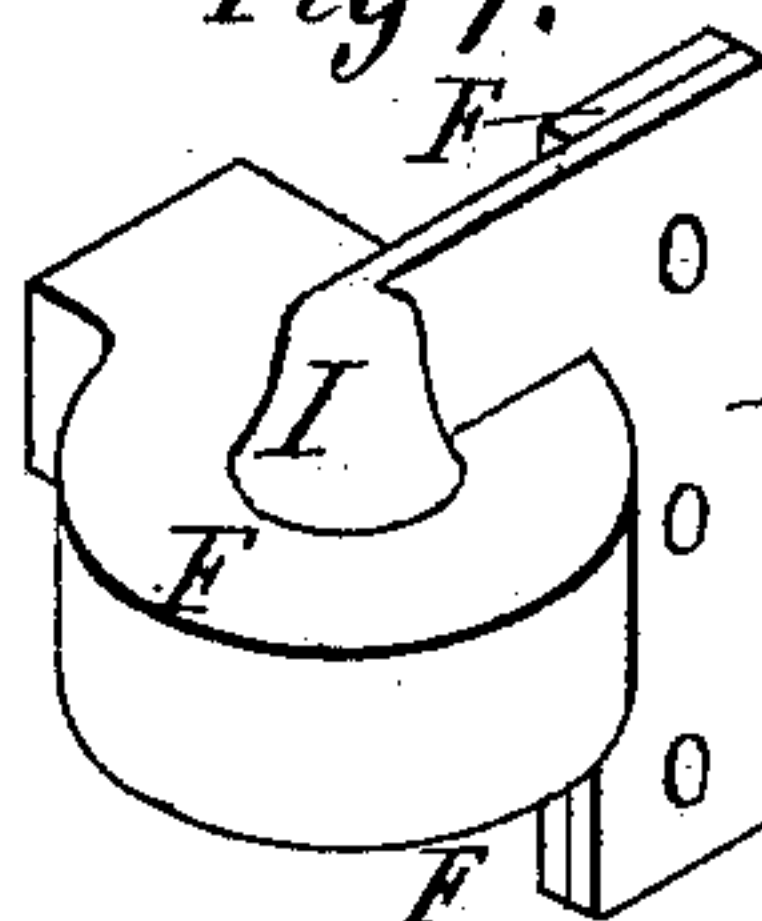


Fig 7.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

FRANK B. MALLORY, OF FLEMINGTON, NEW JERSEY.

## SHUTTER-WORKER.

SPECIFICATION forming part of Letters Patent No. 362,168, dated May 3, 1887.

Application filed December 23, 1886. Serial No. 222,384. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK B. MALLORY, a citizen of the United States, residing at Flemington, in the county of Hunterdon and State of New Jersey, have invented certain new and useful Improvements in Hanging and Working Shutters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention consists, first, in an improved water-shedding cap applied upon the lower turning pintle of shutter-workers, and in combination with the hinge-bracket housing, the lower hinge-leaf attached to the shutter and shutter-worker gearing, whereby the lower turning pintle may extend up through the top of the housing and yet water be directed away from the aperture through which the pintle is passed; second, in the combination, with the lower turning pintle, worm and its shaft, worm-wheel on the said pintle, and housing of the shutter-worker gearing, of a spring connected to the pintle and to the housing, whereby the gearing of the shutter-worker, while the shutter is resting upon the lower pintle and on the bracket of the upper pintle, can be kept in close contact, and is rendered capable of resisting ordinary incidental forces from wind when open, and thus noise and rattling at the gearing from slight vibrations of the shutter are prevented.

In the accompanying drawings, Figure 1 is a vertical section of the hinge-bracket, housing, and the water-shedding cap in the plane of the lower hinge-pintle, showing in elevation the said pintle, the worm-wheel thereon, the spiral spring, and the hinge-leaf which is to be attached to the shutter. Fig. 2 is a view, partly in section and partly in elevation, illustrating the way in which my invention is used on a window-frame or casing or wall of a building, the section being taken in the vertical plane of the bearings of the worm-shaft. Fig. 3 is a view partly in elevation and partly in section, the section being taken in the plane of the bearings of the lower pintle and the spiral spring being left off. Fig. 4 is a detail view of the hinge-leaf for attachment to the shutter, showing the cap cast separate from

the wrought-iron leaf and fastened by a pin thereto. Fig. 5 is a horizontal section of the window-frame casing or wall of a building, and a shutter above the lower hinge, and illustrating my invention and the special construction of cap shown in Fig. 4, in connection with parliament hinges. Fig. 6 is a detail view, partly in section and partly in elevation, showing the cap fastened to the pintle by a screw instead of by a pin. Fig. 7 is a perspective view of the hinge shown in Fig. 5, but showing the cap cast with the hinge-leaf; and Fig. 8 is a detail view of the cap shown in Figs. 4 and 5, but constructed to be fastened to the screw end of the pintle, as in Fig. 1.

A in the drawings may designate either a wall of a building or a window frame or case; B, the shaft of a shutter-worker, having a suitable handle, *a*. On shaft B is provided a worm, C.

D is a worm-wheel on the lower hinge-pintle shaft, E. The worm C and worm-wheel D are placed within a two-part bracket-housing, F F', in manner similar to that shown and described in my application filed December 15, 1886; but in this construction the pintle-shaft is passed up through and above the housing, instead of being extended below the same.

G is the hinge-leaf, which is attached to the shutter H and connected with the pintle E of the bracket-housing F F', as shown. The hinge-leaf G is cast with a cap, I, of bell form, and having a screw-thread, *b*, provided on its inner side, as shown. On the upper end of the pintle-shaft a screw, *b'*, is cut corresponding with and fitting the screw-thread *b*. On the top of the housing, around the pintle-shaft aperture, a tapering boss, *d*, a little smaller than but corresponding in form with the inside of the bell-shaped cap, is formed, and the bell-shaped cap, when screwed upon the screw-threaded end *b'* of the pintle-shaft, surrounds and overhangs this boss, as shown.

The upper hinge, G<sup>2</sup> G<sup>3</sup>, is of ordinary construction, and needs no description.

Instead of casting the cap I with the leaf G, the leaf may be of wrought metal and the cap, as I', cast separate therefrom, and provided with a square shank, *e*, as in Figs. 4, 5, and 8, said shank fitting a square eye in said hinge-leaf and being secured by a pin, *f*, so as to hold



the shutter on the pintle-shaft E. The cap may have a screw-threaded hole in its top, and a corresponding screw-threaded hole may be made in the square shank, and a fastening-screw, *f'*, passed through the hole in the cap and into the hole in the shank, as shown in Fig. 6. The cap in all of its constructions stands in relief from the housing, overhangs the pintle-shaft aperture and boss *d*, and conducts water away from said aperture, and thus prevents injury as well as avoids liability of water getting into the housing and freezing in cold weather. This cap is of importance in connection with shutter-workers which have a pintle-shaft opening in the top of the housing, but not necessary with underhung shutters, such as described in my application filed December 15, 1886.

It will be seen that the pintle-shaft E, with its worm-wheel D, turns in bearings of the housing, and that said shaft is rigidly connected with the hinge-leaf. With this construction and arrangement it is found that there is considerable noise and rattling between the worm-wheel and worm, resulting from the necessary slack or space existing between the thread of the worm and the teeth of the worm-wheel and the consequent incidental slight vibrations of the shutter under the influence of the wind. To avoid this, the spiral spring J, or its equivalent, is applied within the housing, one end of the spring being fastened to the pintle-shaft and the other end to the housing, as shown. With this arrangement of the spring the tendency of the shaft to turn with the movement or slight incidental vibration of the shutter is prevented, the power of the spring acting to prevent the shaft turning from such incidental causes; and the spring thus acting keeps the worm and worm-wheel in close contact, and rattling between these parts cannot take place.

Instead of making a screw-thread, *b*, in the socket of the water-shedding cap and a screw-

thread, *b'*, on the upper end of the pintle-shaft, the socket and upper end of pintle may be made square and the one fit the other, and a pin or screw may be provided, if desired, for fastening the cap and pintle together.

I am aware that it is not new to exert lateral pressure upon one of the gears of shutter-workers by means of an elastic cushion; and therefore I make no claim for any such device, as my invention comprises a spiral spring attached by one of its ends to the pintle or shaft of the worm-wheel and by its other end to the housing of the shutter-working gearing. I also am aware that gears of shutter-workers have been shielded by caps, as illustrated in Patents Nos. 251,609 and 308,057, and therefore do not claim such shield or cap, as my invention comprises an almost completely-inclosing housing, an auxiliary cap, and the pin or shaft of the worm-wheel, all constructed and arranged as shown and hereinbefore described.

What I claim is—

1. The combination of the bracket-housing formed with a perforation in its top, around which perforation is a water-shedding boss, the pintle E, extended up through the said perforation, the hinge-leaf G, and the shielding-cap extending down around and overhanging said boss, the said pintle-cap and hinge being connected with one another, substantially as and for the purpose described.

2. The combination, with the lower turning pintle, E, gearing of the shutter-worker, and a bracket-housing, of the spring J, attached to the pintle-shaft and to the housing, substantially as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK B. MALLORY.

Witnesses:

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T. M. STIGER.