

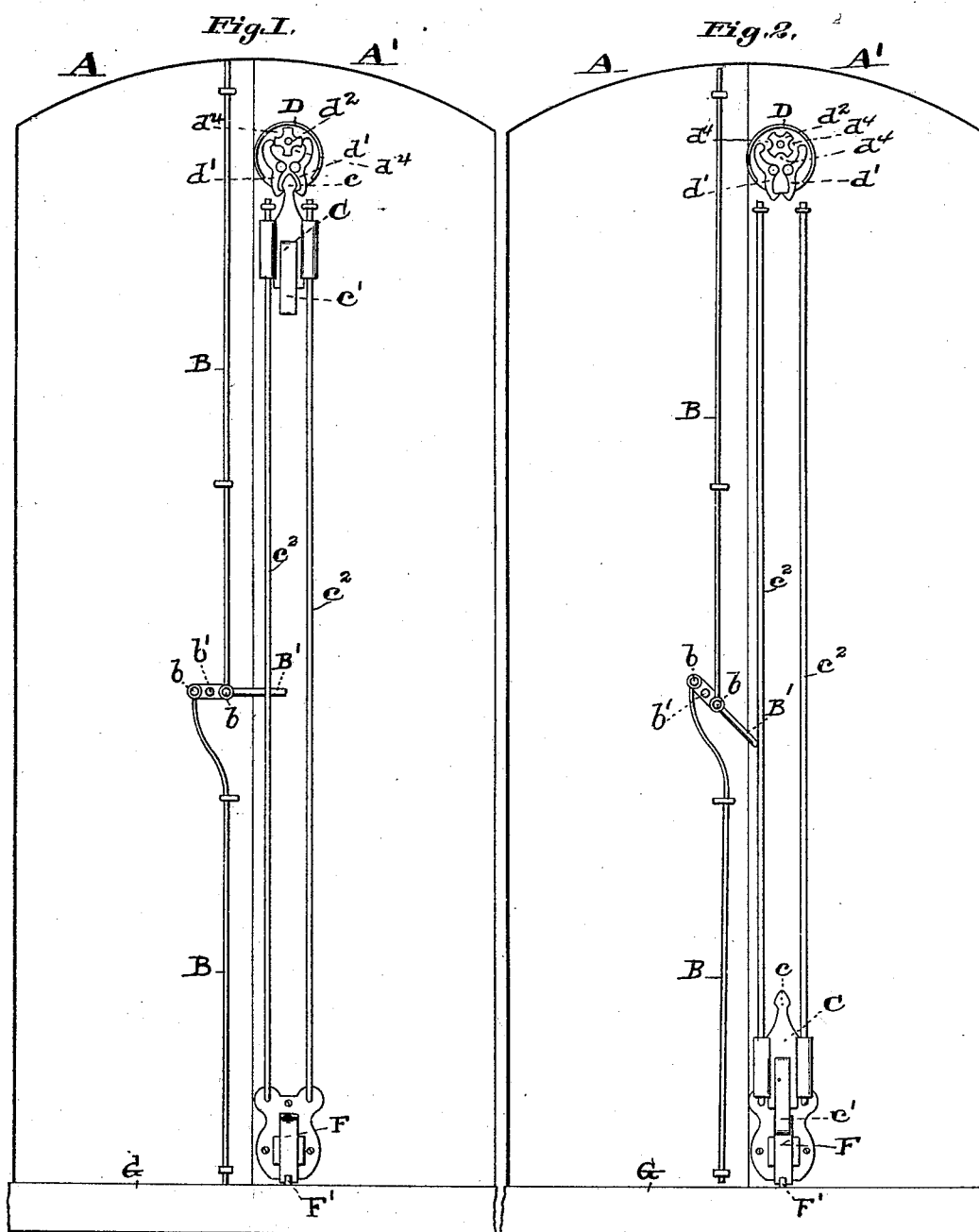
(No Model.)

2 Sheets—Sheet 1.

H. F. EDWARDS,  
SHUTTER FASTENER.

No. 422,338.

Patented Feb. 25, 1890.



Attest,  
*M. J. Corrain*  
*Witness*

Inventor,  
*Henry F. Edwards*  
by *C. P. Moody*  
*Att'y*

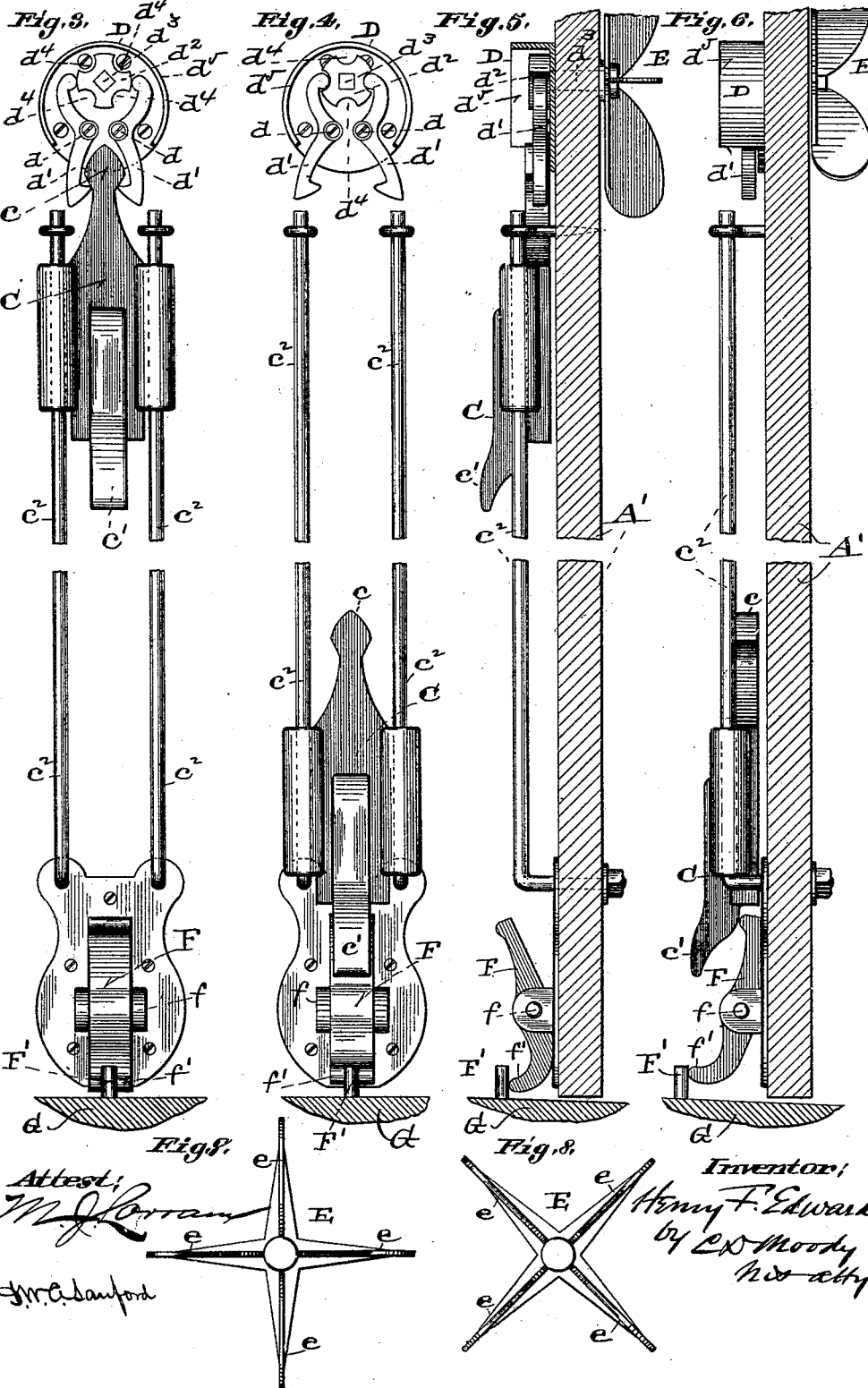
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# UNITED STATES PATENT OFFICE.

HENRY F. EDWARDS, OF ST. LOUIS, MISSOURI.

## SHUTTER-FASTENER.

SPECIFICATION forming part of Letters Patent No. 422,338, dated February 25, 1890.

Application filed June 5, 1889. Serial No. 313,192. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY F. EDWARDS, of St. Louis, Missouri, have made a new and useful Improvement in Shutter-Fasteners, of which the following is a full, clear, and exact description.

This improvement relates to shutters whose fastenings are adapted to be opened by a stream of water, as from a hose-pipe, directed against the outer side of the shutters when closed.

Ordinarily, in constructions of the class referred to, the devices which receive the impact of the water-stream are connected directly with the shutter-fastener, and the fastener and device move or turn as one part; but frequently, by reason of the friction of the parts of the fastener, the devices for moving the fastener are inoperative. In other cases, although the devices employed are sufficient for operating its fastening, the shutter still remains closed, and additional means are needed to swing the shutter open.

To obviate the above-mentioned difficulties and to provide an improved shutter-fastener is the aim of this invention, which is carried out by not operating directly on the fasteners of the shutter, as described, but by causing the movement of the stream-actuated device to release a suspended weight, which when free drops with sufficient momentum upon the shutter-fastener to insure the loosening thereof. The falling weight is further utilized to operate a device for prying the unfastened shutters open.

The improvement consists substantially as is hereinafter set forth and claimed, aided by the annexed drawings, making part of this specification, in which—

Figure 1 is an elevation, from the interior of the building, of a pair of shutters closed and having the improvement applied to them, and the parts being as when the shutters are fastened; Fig. 2, a similar elevation, but the parts being as when the shutters are unfastened; Fig. 3, an elevation of that portion of the improved mechanism which appears upon the inner side of one of the closed shutters, the parts being as when the shutter is fastened, the same being shown as in Fig. 1 on a smaller scale; Fig. 4, a view similar to that of Fig. 3, but showing the parts as when the shut-

ter is unfastened; Fig. 5, a side elevation of the mechanism as shown in Fig. 3, the upper part of the mechanism being in section and the shutter also being shown in section; Fig. 6, a side elevation of the mechanism as shown in Fig. 4, with the shutter in section; and Figs. 7 and 8, elevations of the device upon the outside of the shutters, and respectively showing the positions of the device as when the shutter is fastened and when it is unfastened.

The same letters of reference employed in the drawings denote the same parts.

A A' represent, respectively, the two shutters to which the improvement is applied. The shutter A when closed laps over and holds closed the shutter A'. The bolts B B, the fasteners proper, are attached to the shutter A, and when pushed out engage in recesses in the window-frame. They are pivoted at *b b* to the bolt-lever B', which is pivoted to the shutter A at *b'*. C, the unfastening and opening weight, constitutes the most peculiar feature of the improvement. It is provided with the upper projection *c* and the lower projection *c'*, and it is adapted to slide vertically on the guide-rods *c<sup>2</sup> c<sup>2</sup>*, which are attached to the shutter A', as shown. Also attached to the shutter A' is the plate D, to which are pivoted at *d d* a pair of nippers *d' d'*. These nippers are analogous to those used in pile-drivers, and their movement is regulated by a cam *d<sup>2</sup>*, which is attached to a shaft *d<sup>3</sup>*, journaled in the plate D and extending outward through the shutter A'; and having attached to the outer end a device E, adapted to be turned by the impact of a stream of water projected against it. The cam *d<sup>2</sup>* rotates with the device E. When the cam is in the position shown in Fig. 3, the upper ends of the nippers are pressed apart and the teeth of the nippers thereby pressed into engagement with the weight, and the weight is thereby suspended. When the cam is turned into the position shown in Fig. 4, the nippers are free to open apart and release the suspended weight. The weight in its descent is adapted to encounter the bolt-lever B', and also, by means of its lower projection *c'*, to encounter the upper end of what may be termed the "shutter-opening lever" F, which is pivoted at *f* to the shutter A'.

F' represents a shoulder upon the window-

sill G for the lower end  $f'$  of the lever F to bear against when the shutter is closed.

The operation of the device is as follows: Suppose the weight C to be down—that is, in the position shown in Figs. 2, 4, and 6—and the shutters unfastened and partly open, and that it is desired to close and fasten the shutters. First raise the weight C until its upper end  $c$  occupies the position shown in Figs. 1, 3, and 5, and then turn the cam  $d^2$  into the position shown in these views. The nippers  $d'$   $d''$  will in consequence be pressed into engagement with the upper end  $c$  of the weight C, and thereby hold the weight in suspension, as shown in Figs. 1, 3, and 5. Then close the shutters, the shutter A lapping upon the shutter A', and throw out the bolts B B into a locking position by placing the bolt-lever in the position shown in Fig. 1. The device E will then be in the position shown in Figs. 5 and 7 and the shutters will be in the closed and fastened position shown in Figs. 1, 3, and 5. The act of closing the shutters causes the lever F to assume the position shown in Fig. 5, with its point  $f'$  against the shoulder F', for purposes hereinafter stated.

When the weight C and the nippers  $d'$  are in the positions shown in Figs. 1, 3, and 5, the weight, by reason of the form of its end  $c$ , tends to spread the teeth of the nippers apart sufficiently to allow the weight to drop; but this tendency is resisted by the cam, which now operates to distend the upper ends of the nippers, and the weight is thereby prevented from dropping away from the nippers. If while the parts described are in the above-described condition a stream of water is thrown against the vanes  $e$  of the device E, on either side of the shaft, with sufficient force to turn the device into the position shown in Figs. 6 and 8, the cam  $d^2$  will be turned to bring the recesses  $d^4$  in the cam, respectively, opposite the upper ends of the nippers, whereupon the upper ends of the nippers will approach each other and the teeth of the nippers be spread apart. The weight C then, being released, drops, and in its descent it encounters the end of the bolt-lever, throwing the bolt-lever into the position shown in Fig. 2, whereby the bolts are disengaged and the shutters unfastened; but this is not always sufficient.

The shutters may require to be thrown open; and to this end the remaining parts of the device are brought into action as follows: The weight, after encountering the bolt-lever, continues to descend until the oblique under side of the projection  $c'$  of the weight encounters the upper end of the lever F, which is yet in the position shown in Fig. 5, and, by reason of the obliqueness of the said under side of the said projection, said lever end is forced toward the shutter and the lower point of the lever is forced against the shoulder F', and the shutters are thereby pried open and the parts assume the position shown in Fig. 6. The weight finally rests on the guide-rods,

which are bent at right angles at  $c^6$  and secured to the shutter, as shown, and thus serve as a stop to prevent the weight from dropping too far down.

Without departing from the essence of the improvement, all the described devices herein shown as applied to a pair of shutters may as effectively be applied to a single shutter. Either one of the described bolts may be employed on a shutter instead of both bolts shown. The device E on the outside of the shutter need not necessarily conform in shape and arrangement to that shown, provided it is arranged so that a stream of water operating upon the device, and from any direction, will turn the cam  $d^2$  and release the weight.

The device E is any suitable wheel having vanes or blades to receive the impact of the stream of water, and it is preferably made to turn around in either direction, as in practice the stream of water used to operate it may be directed sidewise or from above the device as well as from beneath it. The cam  $d^2$  has preferably two or more sets of recesses  $d^4$ , in order that a slight movement of the device E may effect the opening of the nippers. It is better for the two nippers to be movable, as shown; but I desire not to be restricted thereto, as in some instances a single movable nipper might suffice. The plate D is preferably furnished with a hood  $d^5$  to protect the cam. The shaft carrying the cam and the device E may be journaled in the shutter in any suitable manner. The plate D is merely one suitable mode of providing a bearing for said shaft and the other adjacent parts.

I claim—

1. A shutter having fastening mechanism and also a detachably-suspended weight, said weight when detached falling and encountering and moving some part of said fastening mechanism, for the purpose described.

2. The combination of the shutter, the weight, the nippers, and the adjustable cam, cam-shaft, wheel E, and bolt-lever, substantially as described.

3. The combination of the shutters, the bolt-lever, and the detachably-suspended weight and its releasing mechanism, said weight when released dropping and encountering and moving said releasing mechanism, substantially as described.

4. The combination of the shutters, the detachably-suspended weight and its releasing mechanism, the bolt-lever, the shutter-opening lever, and the shoulder upon the window-sill, substantially as described.

5. The combination of the shutters, the wheel E, the cam, the shaft carrying said wheel and cam, the nippers, and the weight, substantially as described.

6. The combination of the shutters, the wheel E, the cam, the shaft carrying said wheel and cam, the nippers, the weight, the

shutter-opening lever, and the shoulder upon the window-sill, substantially as described.

7. The combination of the shutters, the wheel E, the cam, the shaft carrying said cam and wheel, the nippers, the weight, the bolt-lever, the shutter - opening lever, and the shoulder upon the window-sill, substantially as described.

Witness my hand this 30th day of May, 1889.

HENRY F. EDWARDS.

Witnesses:

C. D. MOODY,  
D. W. A. SANFORD.