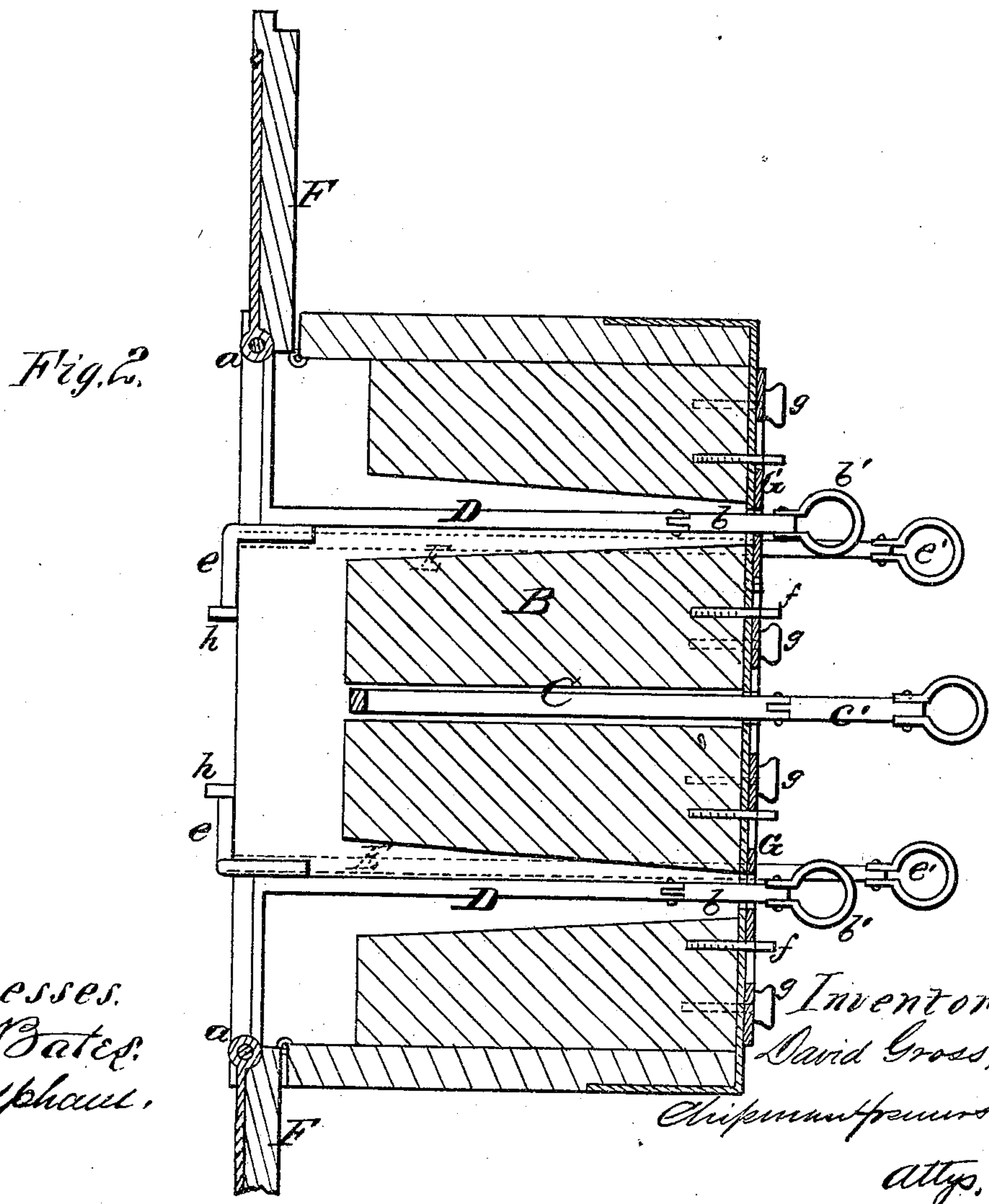
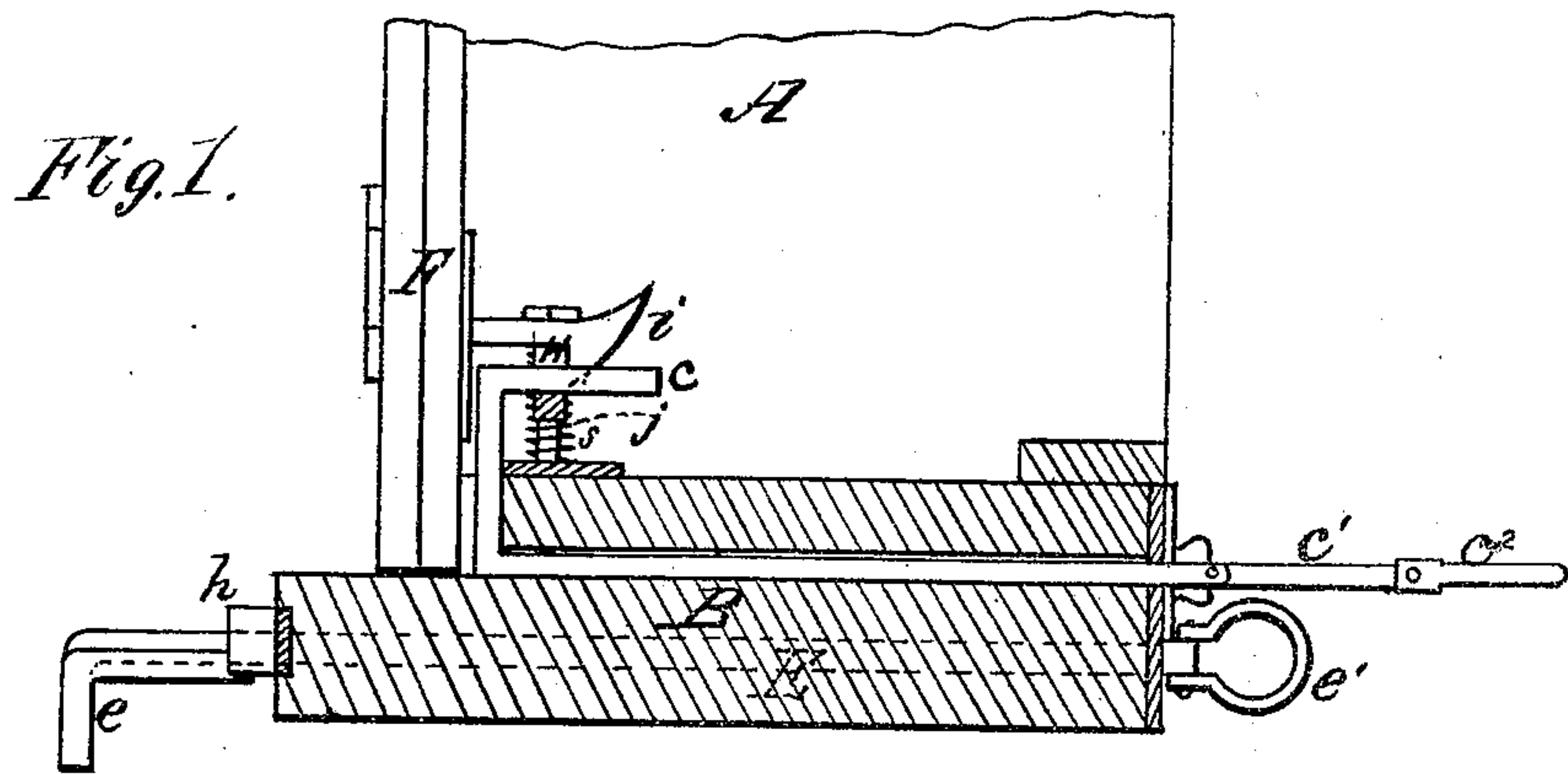


D. GROSS.
Shutter-Workers.

No. 152,485.

Patented June 30, 1874.



Witnesses:
E. H. Bates.
Geo. C. Upham.

Inventor,
David Gross,
Chipman & Fenner, Co.,
attys.

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Fig. 3.

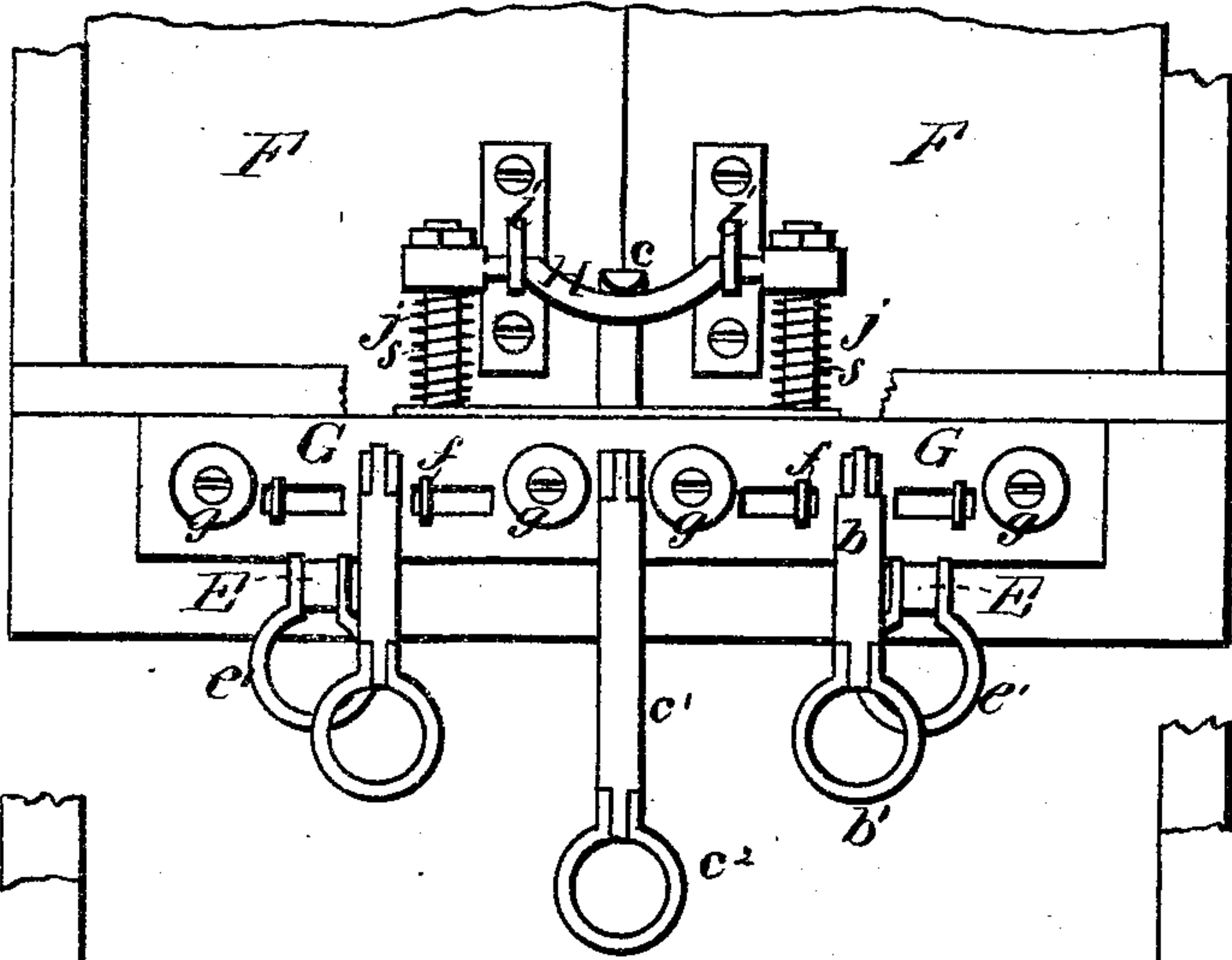


Fig. 4.

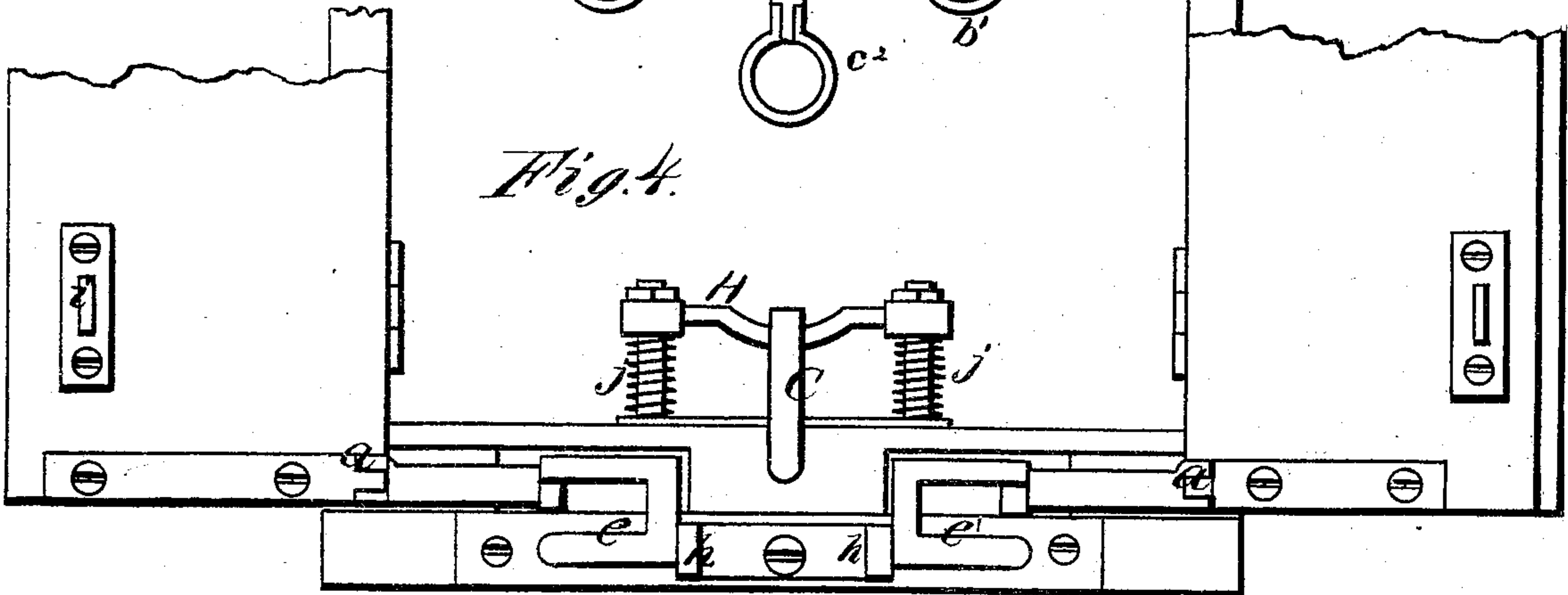
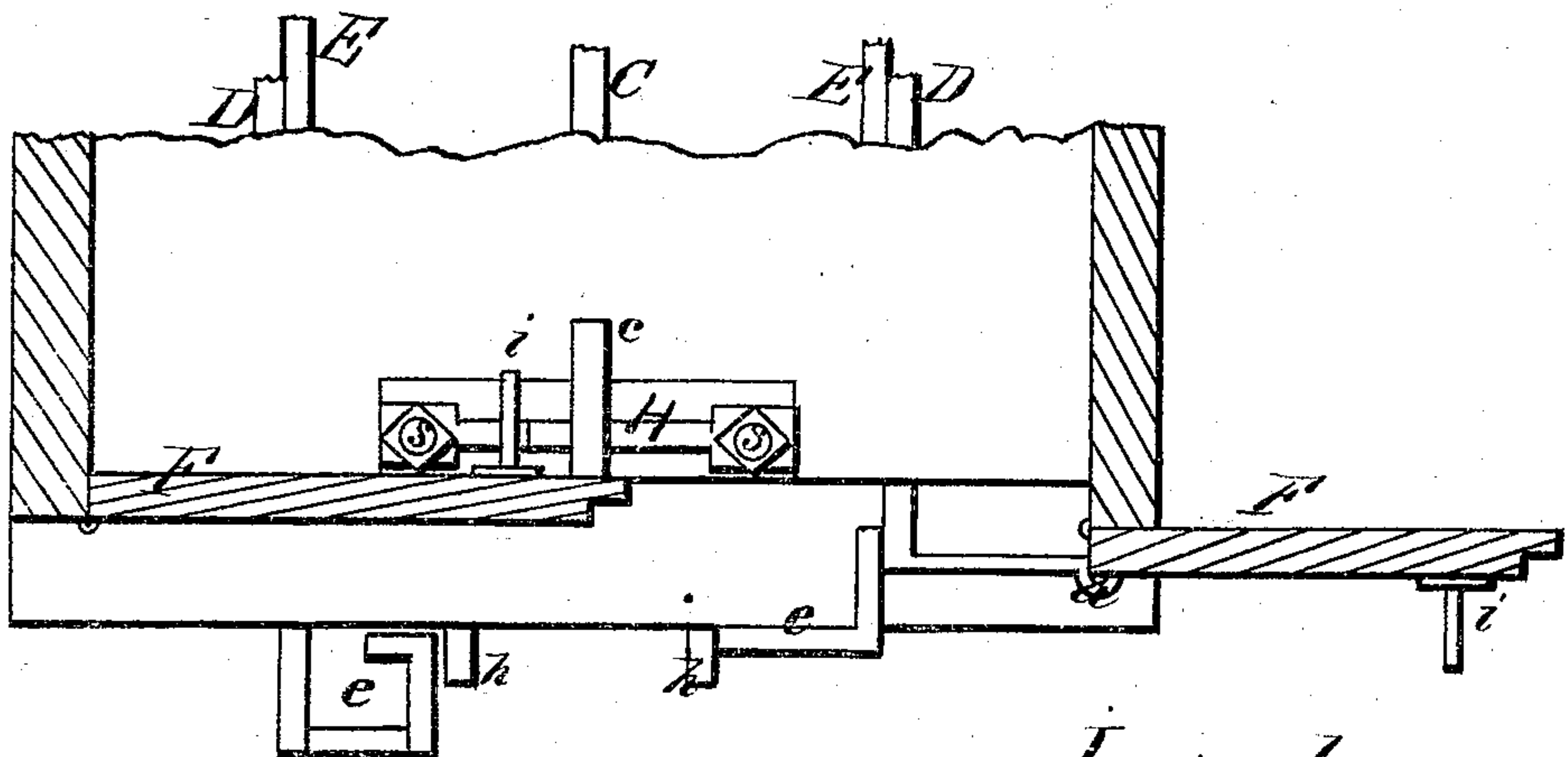


Fig. 5.



Witnesses.
C. H. Bates
Geo. C. Upham.

Inventor.
David Gross,
Chipman, Hosmer & Co.,
Attys.

UNITED STATES PATENT OFFICE.

DAVID GROSS, OF MAXATAWNY, PENNSYLVANIA.

IMPROVEMENT IN SHUTTER-WORKERS.

Specification forming part of Letters Patent No. **152,485**, dated June 30, 1874; application filed May 9, 1874.

To all whom it may concern:

Be it known that I, DAVID GROSS, of Maxatawny, in the county of Berks and State of Pennsylvania, have invented a new and valuable Improvement in Window-Shutter-Operating Devices; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figures 1 and 2 of the drawings are representations of sectional views; and Figs. 3, 4, and 5 are detail views of my improved window-shutter-operating devices.

This invention has relation to means for opening and closing window-shutters without the necessity of raising the sash. It consists in an angular push and pull rod composed of two sections and a handle, jointed together and hinged to each shutter, said rod being passed through the sill of the window-frame, and adapted for opening and closing the shutter. It also consists in combining, with said opening and closing rod, another rod having a crook on its outer end, which crook serves, in combination with a stop on the outer edge of the window-sill, to lock the shutter in place when it is fully open. It also consists in a hooked rod, in combination with a spring-catch bar and a latch on the shutter, for the purpose of releasing the shutter when it is closed, and a sliding plate to allow the jointed handles to pass each other, as will be hereinafter explained.

In the accompanying drawings, A designates a window-frame, the sill B of which has holes in it to receive five rods, C D D E E, which are allowed to receive free endwise movements, and also to be turned about their axes. F F designate the shutters, to the hinged edges of which the angular ends of the rods D D are connected by hinges *a a*. (Shown in Fig. 2.) The inner ends of the rods D D have sections *b b* and handles *b' b'* jointed to them. The sections *b b* pass freely through two horizontally-movable slides, G G, which are provided with knobs *g g*, and at-

tached to the inner edge of the sill B by means of buttons *f f*.

The rods D D are designed for forcing the shutters fully open, and also for drawing them closed.

Beneath the rods D D are the rods E E, which have angular crooks *e e* on their outer ends, and handles *e' e'* on their inner ends. The crooks *e* are adjusted between the angular ends of rods D D and lugs *h h* when the shutters are open, thus securely holding the shutters in this position, as shown in Fig. 2.

When the shutters are closed, they are fastened by means of hooked catches *i i*, which are rigidly secured to the shutters, and which catch over a latch-bar, H, which is supported upon springs *s s*. The ends of bar H receive through them vertical guide-posts *j j*, which are fixed into the window-sill, and which have heads on their upper ends.

By depressing the bar H it will become disengaged from the catches *i i*, and allow the shutters to be pushed open.

The depression of the latch-bar H is effected by means of an angular hook, *c*, which is formed on the outer end of a rod, C, before referred to, which rod extends freely through the sill, and is provided with a jointed section, *c'*, and a handle, *c''*, on its inner end. After releasing the bar H from the catches *i i*, the shutters can be pushed partly open by means of the rod C.

The jointed sections *b b* on the rods D D and the jointed section *c'* on the rod C can be dropped down vertically when the shutters are closed.

The slides G G are for the purpose of allowing the sections *b b* to fall past the handles *e' e'* when the shutters are closed.

What I claim as new, and desire to secure by Letters Patent, is—

1. For opening and closing the shutters, the angular push and pull rods D D, hinged to the shutters, and provided with jointed sections *b b* and handles *b'*, as described.

2. The angular crooks *e e* on jointed rods E E, combined with the studs *h h* and the angular jointed rods D D, for the purpose described.

3. The angular hook *c* on jointed rod C, combined with the spring-latch rod H and catches *i i*, substantially in the manner and for the purpose described.

4. The slides G G, combined with the jointed rods D D and E E, constructed and arranged as described, for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

DAVID GROSS.

Witnesses:

JONATHAN GERNEST,
J. S. BREINIG.