(No Model.)

F. E. BROWN.

SHUTTER WORKER.

No. 375,439. Patented Dec. 27, 1887.

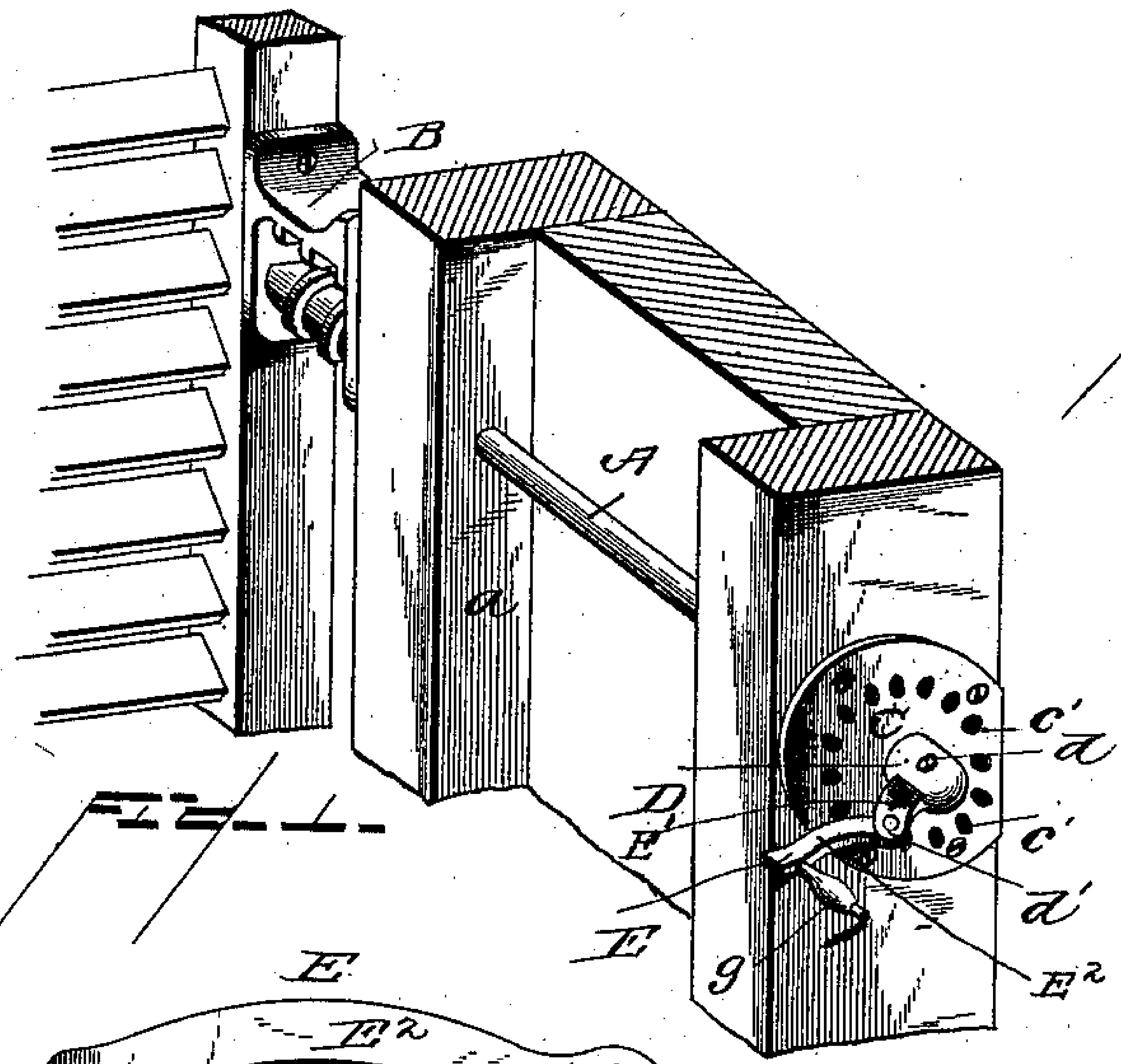
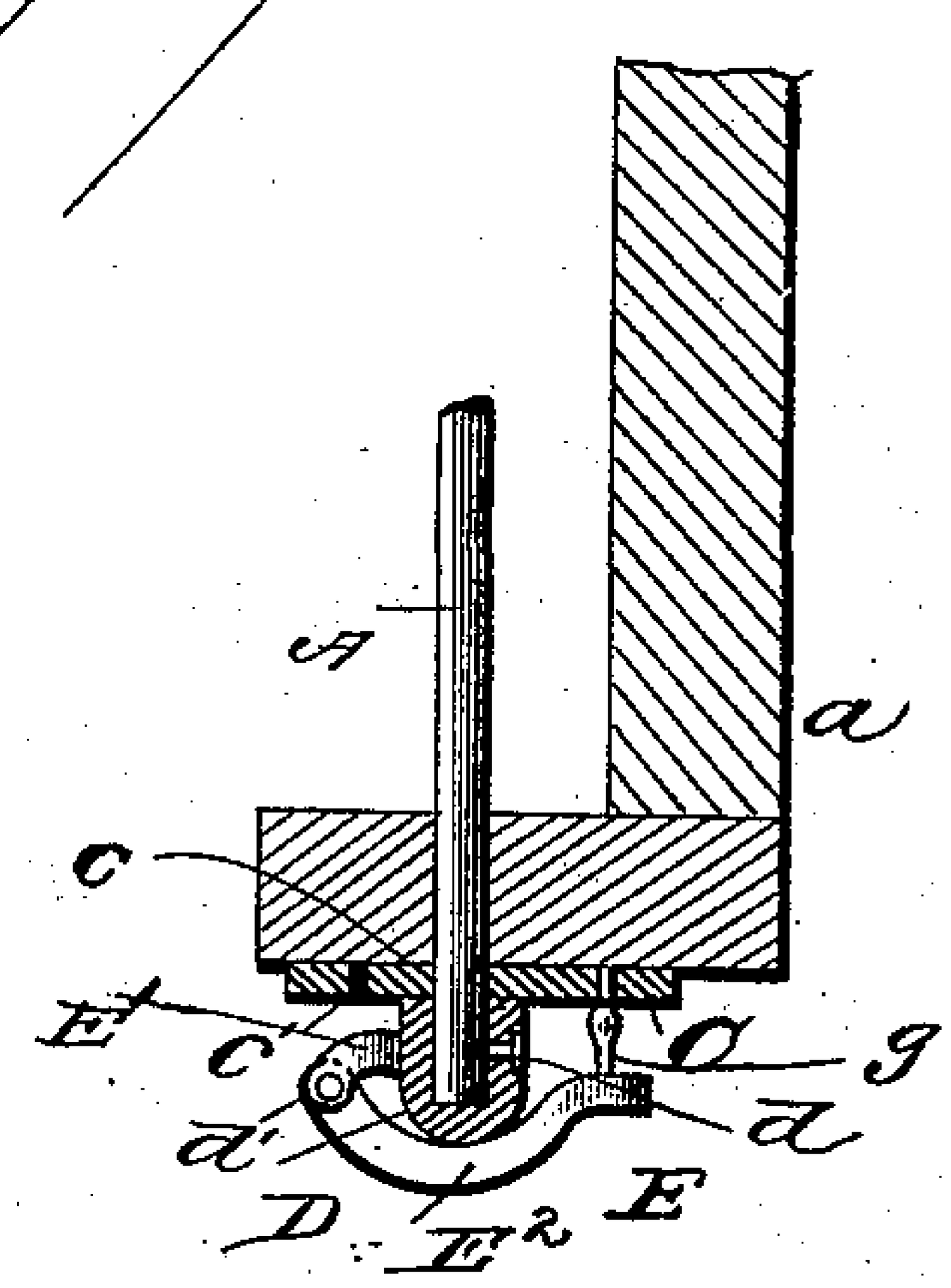


Fig. 1.

Fig. 2.



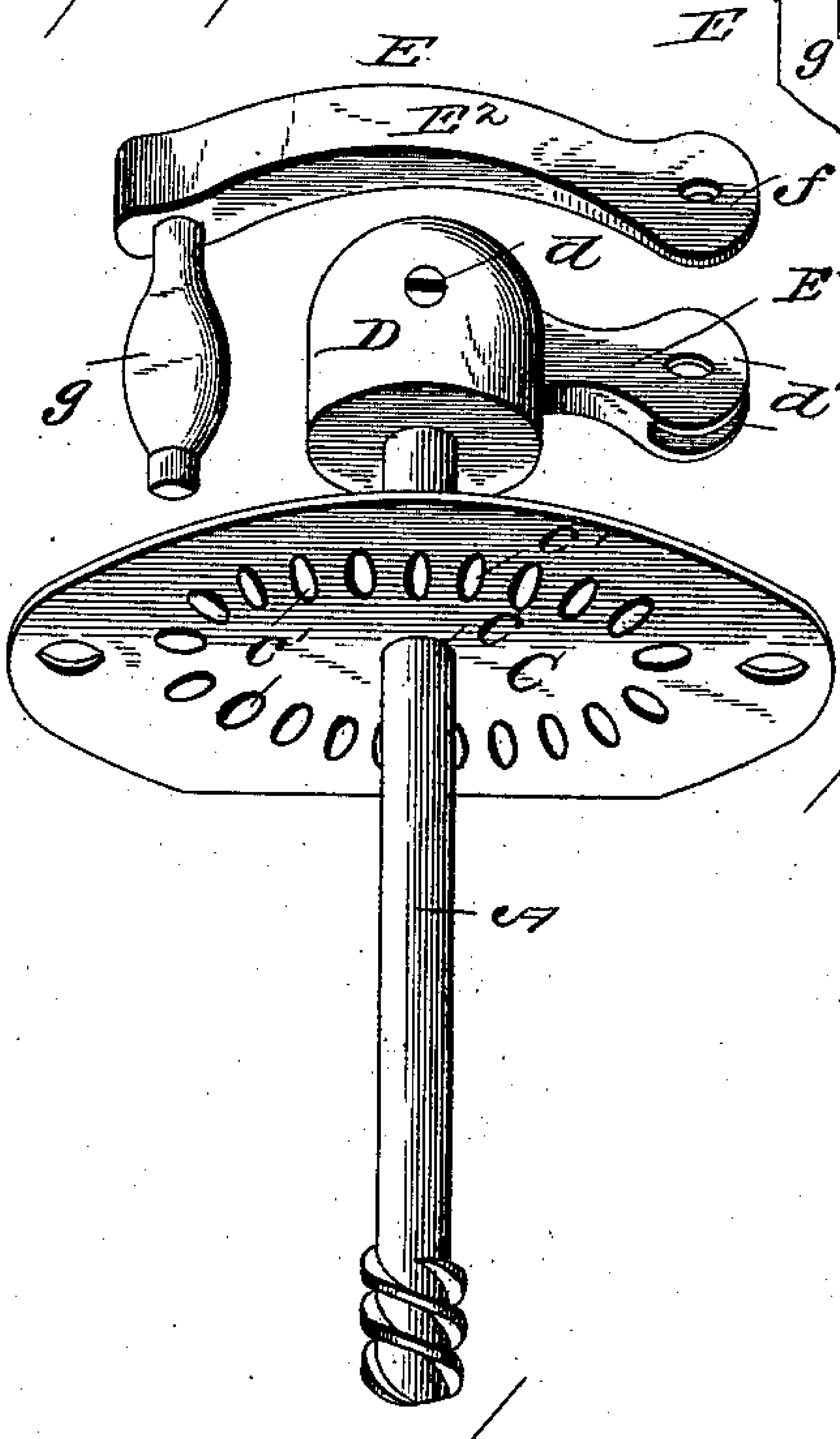
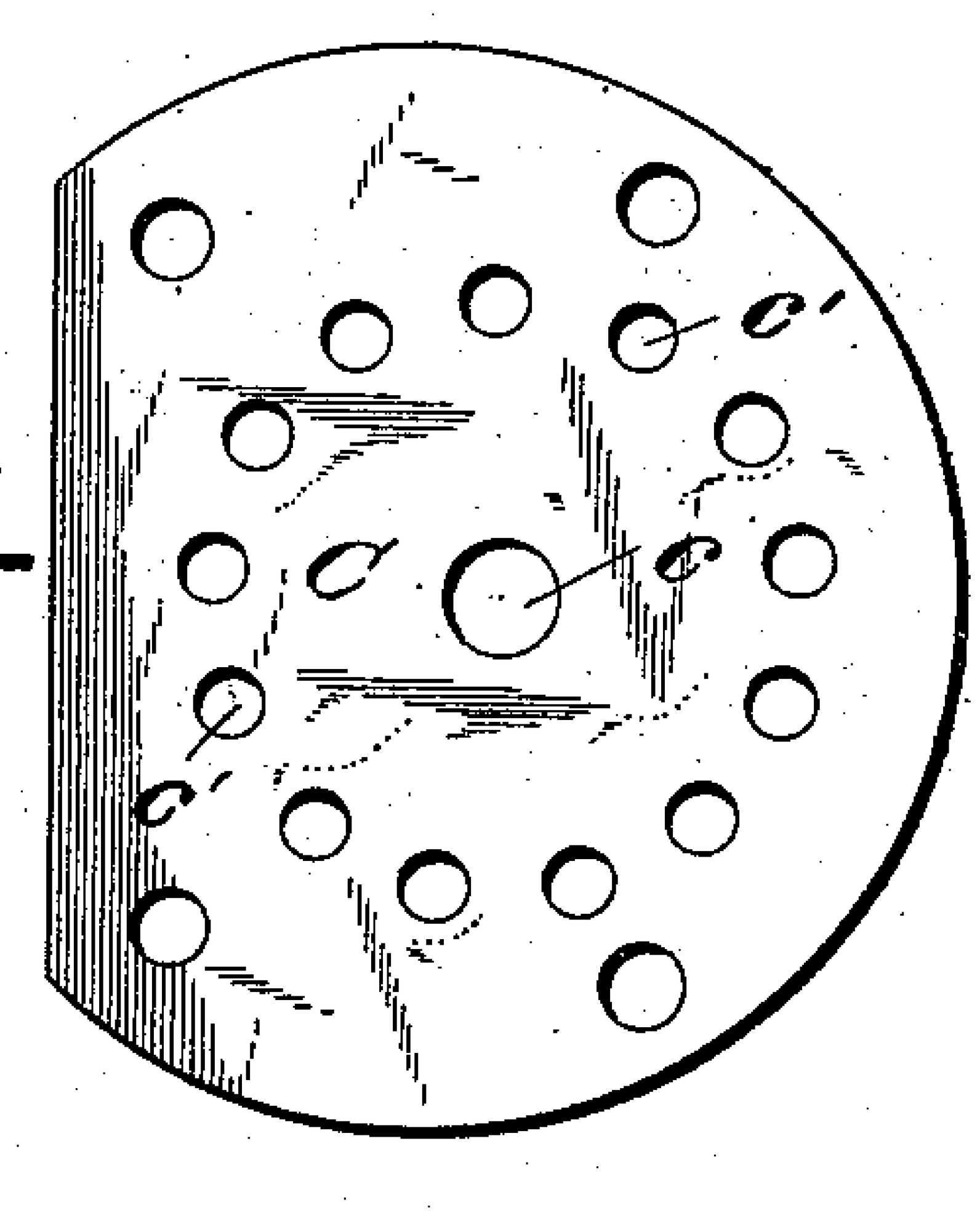


Fig. 3.

Fig. 4.



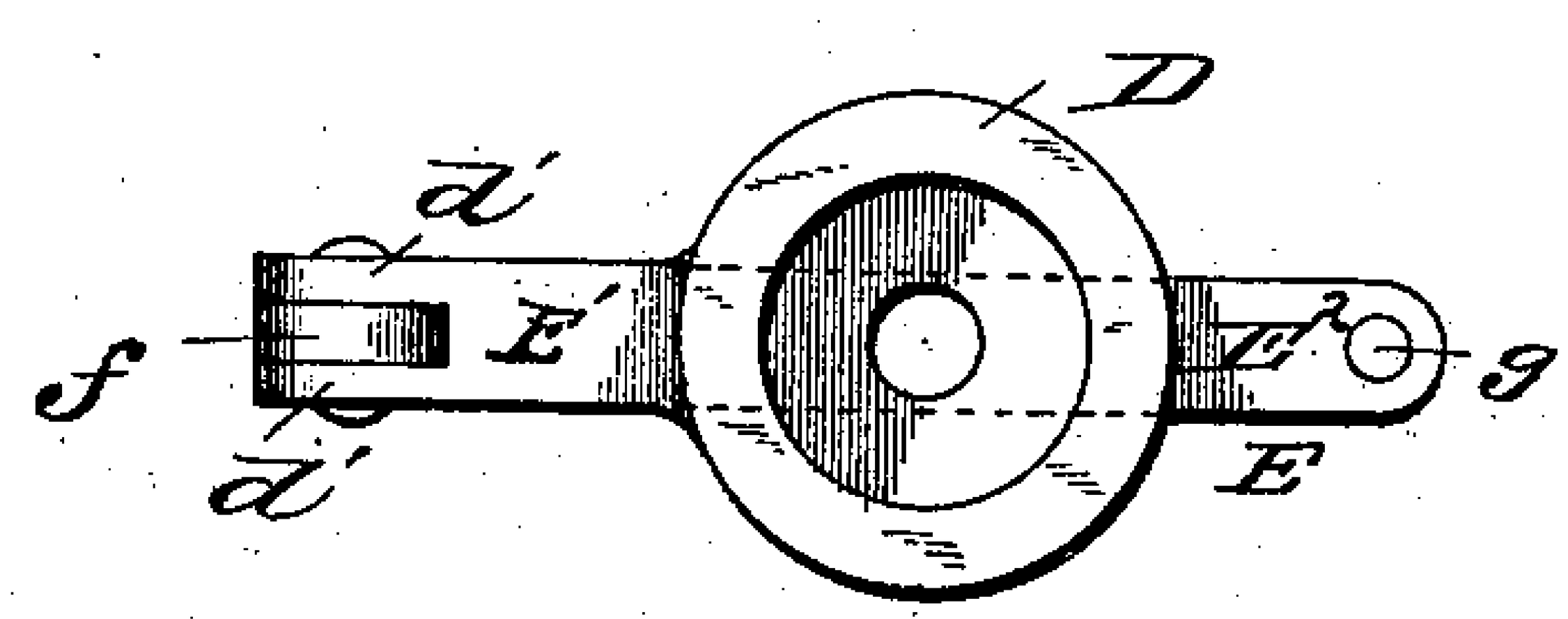


Fig. 5.

Witnesses:

[illegible]

[illegible]

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UNITED STATES PATENT OFFICE.

FRANK. E. BROWN, OF WEBSTER CITY, IOWA.

SHUTTER-WORKER.

SPECIFICATION forming part of Letters Patent No. 375,439, dated December 27, 1887.

Application filed April 29, 1887. Serial No 236,550. (No model.)

To all whom it may concern:

Be it known that I, FRANK. E. BROWN, a citizen of the United States, residing at Webster City, in the county of Hamilton and State of Iowa, have invented certain new and useful Improvements in Shutter-Workers; and I do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My present invention relates to improvements in that class of shutter-workers for which Letters Patent were issued to me on December 29, 1885, No. 333,442; and it consists in the peculiar combination of devices and novel construction and arrangement of parts, as will be hereinafter fully set forth, and particularly pointed out in the claims.

The primary object of my invention is to provide a shutter-worker of the class shown in my prior patent with means for easily rotating or turning the shaft from the inside of the dwelling, which can be compactly folded together, so as to be out of the way and present an ornamental appearance.

A further object of my invention is to provide means for locking the crank-arm and the shaft to which it is attached against rotation when the arm is folded, and thereby the shutter may be locked in any position, either when it is closed, or partially open, or thrown wide open, as may be desired.

I have illustrated an embodiment of my invention in the accompanying drawings, in which—

Figure 1 is a perspective view showing a portion of the window jamb and sash and the crank-arm unfolded for use. Fig. 2 is a like view with the crank-arm folded and locked. Fig. 3 is a sectional view taken through the shaft with the parts in the position shown in Fig. 2, and Fig. 4 is a detail view of the several parts of my improvement detached from each other.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A designates the shaft or rod, which extends through and is suitably supported in the jamb or casing *a*. The outer end of the shaft is provided with a worm-gear, which meshes with a toothed bracket-plate, B, affixed to the shutter and pivoted on the jamb, all constructed and arranged for operation in the manner fully set forth in my prior patent.

To the inner face of the jamb *a*, I affix a flat plate, C, having a central opening, *c*, through which the inner end of the shaft or rod A is extended, said fixed plate having a series of slots or apertures, *c'*, arranged in a circle concentric with the central opening, the slots or openings being equidistant from one another and the central opening, for a purpose presently described.

On the inner extremity of the shaft or rod I fix a sleeve, D, which is clamped rigidly to the shaft, so as to turn or rotate therewith, by a binding-screw, *d*, which works in a threaded opening in the sleeve and impinges or binds upon the shaft. The shaft can be extended entirely through the sleeve, if desired, and by loosening the binding-screw the sleeve can be adjusted longitudinally on the shaft to accommodate shafts of varying lengths in fitting them to the window-jambs.

E designates the crank-arm, which is made in two sections, $E' E^2$, which arm is constructed to fold compactly upon itself and be locked against rotation when so folded. One of the sections or members, E', of the crank-arm is formed integral with the fixed sleeve, and at its outer end it has spaced lugs *d'*, to which is pivoted the other section of the crank-arm. The outer section of the crank-arm is adapted to unfold in line with the other section connected to the sleeve, so that the crank-arm is given greater leverage when unfolded and it can be readily grasped to turn or rotate it by hand, and thus operate the shaft to open or close the shutter, as may be desired; or the outer section of the arm can be folded compactly over the sleeve and end of the shaft, so that a post or stud thereon, presently described, will take into one of the slots or apertures in the fixed jamb-plate, and thus lock the crank-arm and shaft against rotation. The inner section of the arm connected to the sleeve is curved or inclined outwardly slightly, and the inner end of the outer section of the crank-arm has an ear, *f*, which curves inwardly toward the

ears of the inner member of the arm, so that the pivot connecting the said ears is arranged near the outer end of the shaft and sleeve, but at one side of the same, so that the crank-arm can readily fold over the ends of the sleeve and shaft without difficulty. The free end of the crank-arm has a post or stud, *g*, rigidly affixed thereto or formed integral therewith. The post is to be grasped by hand when the arm is unfolded, in order to rotate the arm and shaft to open or close the shutter, and the arm is so proportioned that its free extremity will enter one of the series of apertures or slots in the fixed jamb-plate C when the crank-arm is folded, and thereby lock the arm in place. The sleeve on the rotary shaft or rod is so proportioned in diameter that it will lie within a circle described through the inner edges of the slots or apertures in the fixed jamb-plate C, and thereby permit the post on the folding crank-arm to readily enter any one of the slots or openings.

In use the crank-arm unfolds by merely drawing on its free end to turn the same on its pivot and withdraw the post from the fixed jamb-plate. The arm can now be rotated with ease by hand to turn the sleeve and shaft, and thus move the shutter to any desired position, when the arm is again turned on its pivot over the ends of the sleeve and shaft to cause the post thereon to enter the necessary opening in the fixed jamb-plate, thereby locking the shutter against movement.

It will be noted that the arm folds upon itself and in a line at right angles to its plane of rotation when in use for operating the shutter, and by thus constructing the parts to fold in this peculiar manner I am enabled not only to compactly dispose them, but also to adapt the crank-arm to its two offices, that of a handle for rotating the shaft and for locking itself and the shaft against rotation.

The parts of my improvement are exceedingly simple and durable, and can be ornamented to any desired extent.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a shutter-worker, the combination of a shaft, a fixed jamb-plate, and a sectional foldable crank-arm having its inner end rigidly connected to the shaft, the outer member of the crank-arm being adapted to fold upon the other member, a fixed pin or stud on one side thereof, whereby when the crank-arm is folded the pin or stud engages the jamb-plate to lock the arm and shaft against rotation, and when the crank-arm is unfolded the stud can be grasped to turn the same, substantially as described.

2. In a shutter-worker, the combination of a shaft, a fixed jamb-plate having a series of perforations, an adjustable sleeve fitted on the shaft, and having a binding-screw for clamping the sleeve rigidly to the shaft, a foldable crank-arm made in two sections or members pivotally connected together, one member being rigidly connected to the adjustable sleeve and the other member having a fixed stud or pin at its free end, which is adapted to fit in one of the apertures of the jamb-plate when the members of the crank-arm are folded together, substantially as and for the purpose described.

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

FRANK. E. BROWN.

Witnesses:

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S. P. BROWN.