D. ANTHONY.

SHUTTER OR FIRE SHIELD WORKER.

APPLICATION FILED JULY 28, 1909.

979,244.

Patented Dec. 20, 1910.

2 SHEETS—SHEET 1.

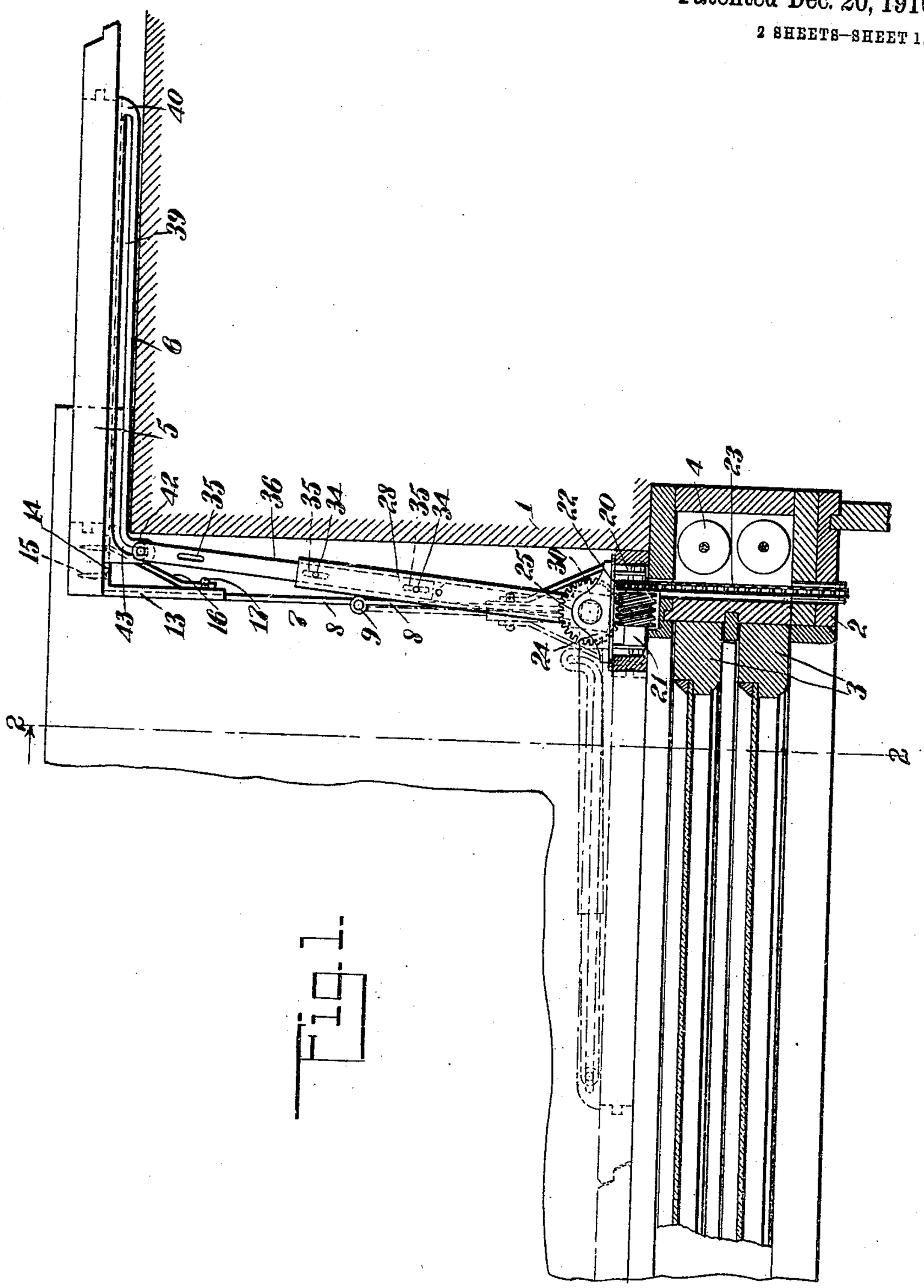

Fig. 1.

WITNESSES

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2 SHEETS—SHEET 2.

Fig. 2.

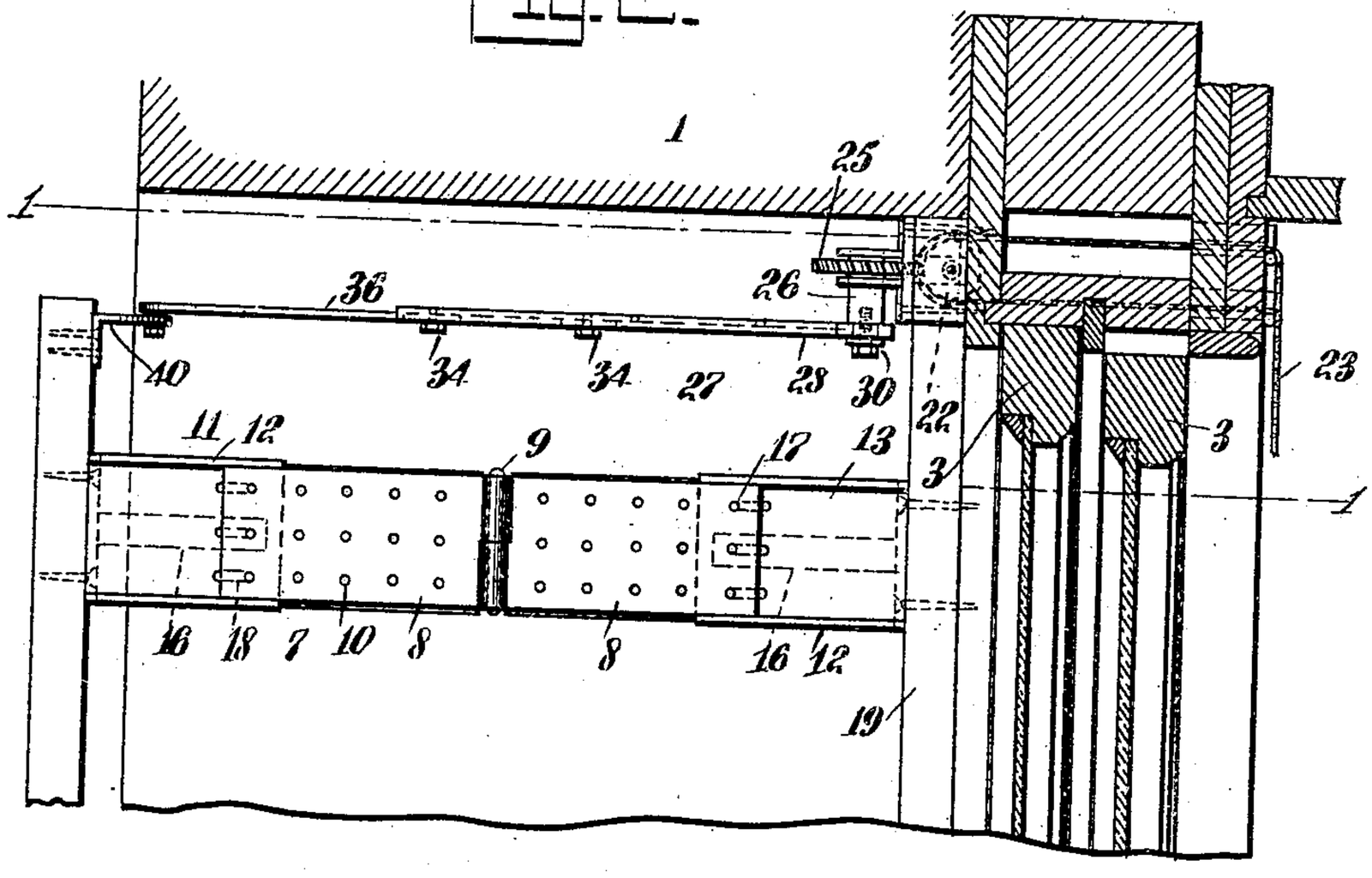


Fig. 3.

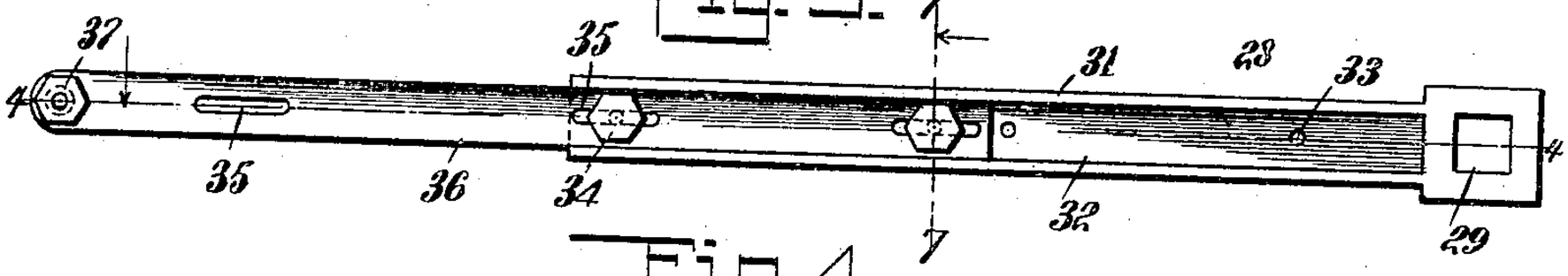


Fig. 4.

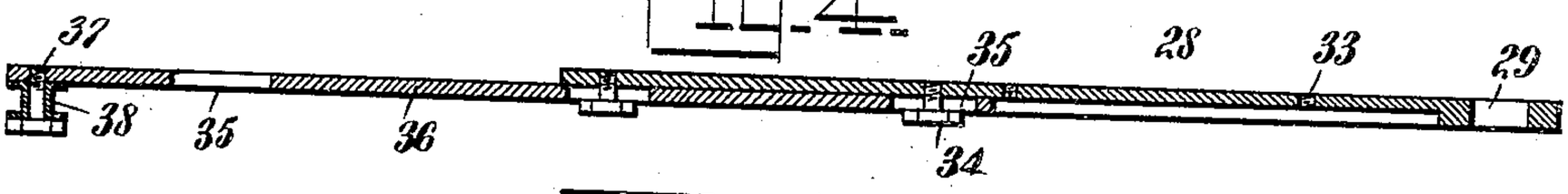


Fig. 5.

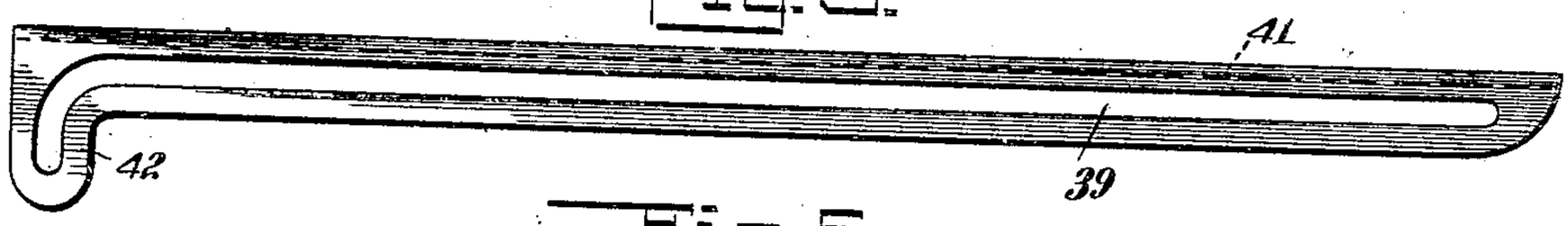
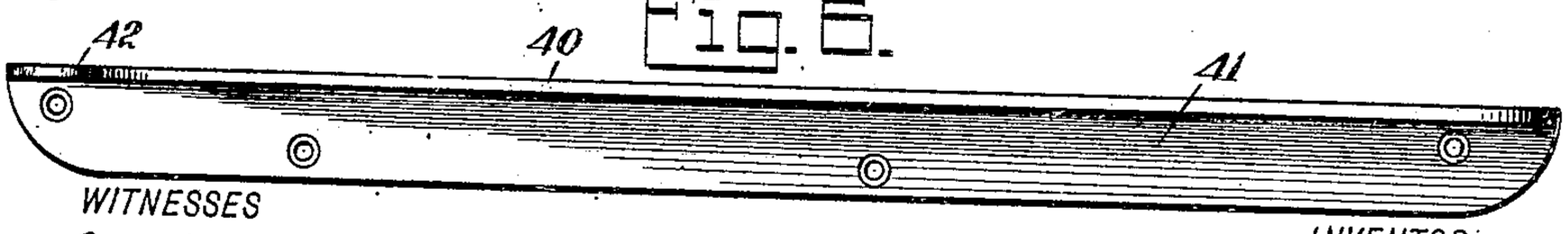


Fig. 6.



WITNESSES

L. Almquist

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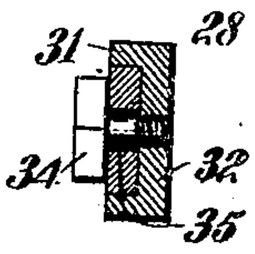
Fig. 7.



INVENTOR

Daniel Anthony

BY

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UNITED STATES PATENT OFFICE.

DANIEL ANTHONY, OF GREENWICH, CONNECTICUT.

SHUTTER OR FIRE-SHIELD WORKER.

979,244. Specification of Letters Patent. Patented Dec. 20, 1910.

Application filed July 28, 1909. Serial No. 509,994.

To all whom it may concern:

Be it known that I, DANIEL ANTHONY, a citizen of the United States, and a resident of Greenwich, in the county of Fairfield and State of Connecticut, have invented a new and Improved Shutter or Fire-Shield Worker, of which the following is a full, clear, and exact description.

This invention relates to certain improvements in workers for shutters or fire shields, and more particularly to certain features of construction, whereby the worker may be used in connection with shutters or fire screens on windows set deeply into the wall of the building.

My improved worker operates to swing the shutter or shield outwardly from the window casing, so that it can lie against the reveal of the wall near the window opening.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a horizontal section and partial plan indicating the construction and operation of the device, this section being taken approximately on the line 1—1 of Fig. 2; Fig. 2 is a vertical section taken on the line 2—2 of Fig. 1 and passing through the upper part of the window casement to indicate the manner of supporting the shutter; Fig. 3 is a plan showing one of the worker arms in detail; Fig. 4 is a vertical section through the worker arm shown in Fig. 3, this view being a section on the line 4—4 of Fig. 3; Fig. 5 is a plan of a guide cleat which is attached to the shutter or fire shield and which connects with the arm shown in Figs. 3 and 4; Fig. 6 is a side elevation of the guide cleat; and Fig. 7 is a cross section on the line 7—7 of Fig. 3.

Referring more particularly to the parts, and especially to Figs. 1 and 2, 1 represents the wall of a building near a window opening in which a window casement 2 is set. The window casement may be provided with vertically sliding sashes 3, as shown, which may be supported in the usual manner by counterweights 4 moving up and down in the casement. The outer side of the window is closed by a pair of shutters, such as the shutter 5 indicated in its open position and lying against the outer face or reveal 6 of the wall near the window opening.

My improved shutter worker may be used in connection with any form of shutter or fire shield, which is used with a deeply set window, and which is capable to swinging outwardly against the outer surface of the wall at one side of the window.

In the accompanying drawings, I have illustrated a form of worker in which the arm is extensible to fit shutters or shields set various distances back into the wall, and have also illustrated this form in connection with my improved extensible hinges constituting the subject-matter of my copending application, Serial No. 509,993, filed July 28, 1909.

By making both the hinges and the arms extensible, the shutter may be mounted and operated irrespective of the depth to which the shutter swings inwardly beyond the outer surface of the wall of the building. These hinges 7 have main leaves 8 connected by pintles 9, and each hinge has a plurality of threaded openings 10. The main leaves are mounted to slide in angle brackets 11, which latter have flanges 12, for engaging with the edges of the leaves. The brackets 11 have webs 13 which engage with the leaves, and in addition they have flanges 14 disposed at right angles to the web and attached by suitable fastening devices 15 to the shutter. Diagonal braces 16 connect the webs and flanges 14, and clamping screws 17 extend through slots 18 formed in the webs and into the openings 10. The hinges constitute no portion of the present invention, and are illustrated in connection with my improved worker only to bring out more clearly the advantage of forming my worker arm extensible.

At the inner extremity of the hinge the angle bracket is attached to a hanger seat 19 which is in the form of a strip attached to the side of the window casement. In the upper part of this strip 19 a pocket 20 is formed in which there is mounted rotatably a worm 21, said worm being arranged upon a horizontal axis. This worm is provided with a sprocket wheel 22, and a sprocket chain 23 passes over this sprocket wheel and passes through the window casement to the interior, at which point the chain hangs down, as indicated in Fig. 2, so that it will be within reach of a person in the interior.

On the outer side of the strip 19, a bracket 24 is mounted, on which there is mounted a worm wheel 25 on a vertical shaft or pintle 26. To the lower end of this pintle 26 an extension arm 27 is rigidly secured. The details of this arm are shown in Figs. 3 and 4. The arm is formed of a body piece or main piece 28 having a square socket 29 which is received on a square neck 30 formed on the lower end of the pintle or shaft 26. The body piece 28 is of channel form so that it presents flanges 31 on its edges connected by a web 32. The web is provided at suitable points with threaded openings 33 which are adapted to receive removable clamping bolts 34. These bolts are adapted to pass through slots 35 which are formed longitudinally in an extension piece 36, as will be readily understood.

I provide four of the threaded openings 33, and three slots, as shown. These threaded openings are arranged in pairs, and in Fig. 4 the clamping bolts are represented as placed in the outermost pair. The extension arm 36 in this view is shown in its mid-position with respect to this adjustment of the clamping bolts 34. The slots 35 will evidently permit the extension arm to be adjusted out farther until the inner ends of the slots come against the clamping bolts, or the extension arm may be adjusted inwardly in an opposite direction. If desired, the bolts 34 may be moved into the innermost pair of openings, when similar adjustments of the extension arm may be had. The outer end of the extension arm or bar 36 is provided with a pin 37 having a roller 38 which is received in a slot 39 which extends longitudinally in a guide cleat 40. This guide cleat is attached to the face of the shutter which is disposed adjacent to the wall when the shutter is open, as indicated in Fig. 1. The guide cleat is attached in a horizontal position by means of a flange 41 which extends throughout its entire length. At the end of the guide cleat which is adjacent to the hinge, the cleat is formed with a laterally projecting neck 42, and the slot 39 runs out into this neck, as shown. At the point where the slot 39 runs out into the neck it forms a gradual curve or arc 43 which guides the roller into the neck, as will be readily understood.

With the shutter in the open position shown in Fig. 1, it will be evident that if the chain 23 is pulled in the proper direction the worm 21 will rotate in such a way as to rotate the wheel 25. The shaft of the wheel 25 being rigid with the arm 27 will tend to swing the arm 27 inwardly. In this way the arm will be made to exert a pull upon the shutter tending to swing it in toward the window. In this way the hinges which support the shutter will be flexed and the shutter can then be further swung inwardly until it closes the window, as indicated by the dotted lines in Fig. 1. On account of the slots 35 of the extension bar of the arm 27, the arm can be adjusted so as to suit the particular building to which it is applied, that is, if the wall is unusually thick the extension arm can be further extended, and vice versa.

The laterally projecting neck 42 is very important, for if it were not present the roller 38 could not operate effectively to open the shutter, for in its outward swinging movement in opening the shutter the roller would tend to slide out in the slot and would simply become jammed. With the laterally projecting neck, however, the slot presents an edge disposed substantially at right angles to the plane of the shutter, and against this edge the roller exerts its opening force.

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

1. A worker for shutters, fire shields and the like, comprising an arm attached to the window casing and adapted to swing substantially in a horizontal plane, and a guide cleat attached to the outer surface of the shutter and connected to one end of said arm, said arm extending substantially at right angles to said shutter when the latter is in open position, and substantially parallel thereto when the shutter is in closed position, and means for swinging said arm to swing the shutter.

2. A worker for shutters and the like, comprising an arm pivotally supported at one end, a guide attached to the outer surface of the shutter and extending substantially horizontally and attached to the outer end of said arm, and means for swinging said arm to cause the outer end thereof to travel along said guide toward the hinged edge of the shutter to force the latter to open position.

3. In combination, a window casing, a hinged shutter, an arm, a pivotal support therefor disposed beyond the outer surface of the shutter when the latter is in closed position, means for swinging said arm in a horizontal plane about said pivotal support, and sliding connections between the outer surface of said shutter and the outer end of said arm, the length of said arm being substantially equal to the distance between the plane of the shutter when the latter is in open position and the plane of the shutter when the latter is in closed position.

4. In combination, a window casing, a hinged shutter, an arm, a pivotal support therefor disposed beyond the outer surface of the shutter when the latter is in closed position, means for swinging said arm in a horizontal plane about said pivotal support, and sliding connections between the

outer surface of said shutter and the outer end of said arm, said arm being disposed substantially parallel to said shutter when the latter is in closed position and substantially at right angles thereto when said shutter is in open position.

5. In combination, a window casing, a hinged shutter, an arm, a pivotal support therefor disposed beyond the outer surface of the shutter when the latter is in closed position, means for swinging said arm in a horizontal plane about said pivotal support, and sliding connections between the outer surface of said shutter and the outer end of said arm, said sliding connections being movable toward the hinged edge of the shutter during the opening movement of the latter.

6. In combination, a window casing, a hinged shutter, an arm, a pivotal support therefor, means for swinging said arm in a horizontal plane about said pivotal support, and sliding connections between said shutter and the outer end of said arm, the length of said arm being substantially equal to the distance between the plane of the shutter when the latter is in open position and the plane of the shutter when the latter is in closed position.

7. In combination, a window casing, a hinged shutter, an arm, a pivotal support therefor, means for swinging said arm in a horizontal plane about said pivotal support, and sliding connections between said shutter and the outer end of said arm, said arm being disposed substantially parallel to said shutter when the latter is in closed position and substantially at right angles thereto when said shutter is in open position.

8. In combination, a window casing, a hinged shutter, an arm, a pivotal support therefor disposed beyond the outer surface of the shutter when the latter is in closed position, means for swinging said arm in a horizontal plane about said pivotal support, and sliding connections between the outer surface of said shutter and the outer end of said arm, the length of said arm being substantially equal to the distance between the plane of the shutter when the latter is in open position and the plane of the shutter when the latter is in closed position, said sliding connections being movable toward the hinged edge of the shutter during the opening movement of the latter.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DANIEL ANTHONY.

Witnesses:

WILBUR S. WRIGHT,

ALFRED A. RUNDLE.