

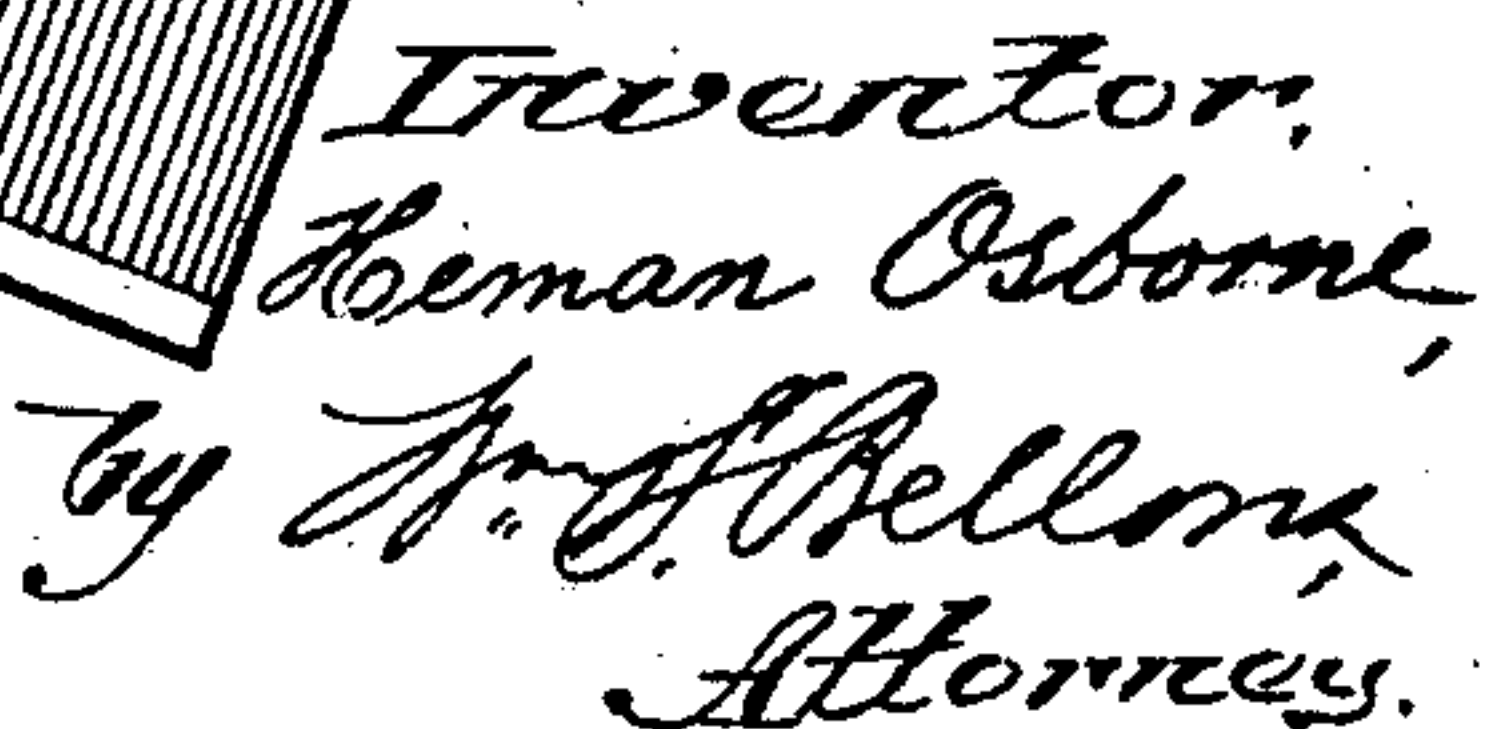
No. 795,644.

PATENTED JULY 25, 1905.

H. OSBORNE.
SHUTTER WORKER.

APPLICATION FILED MAY 17, 1904.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 3.

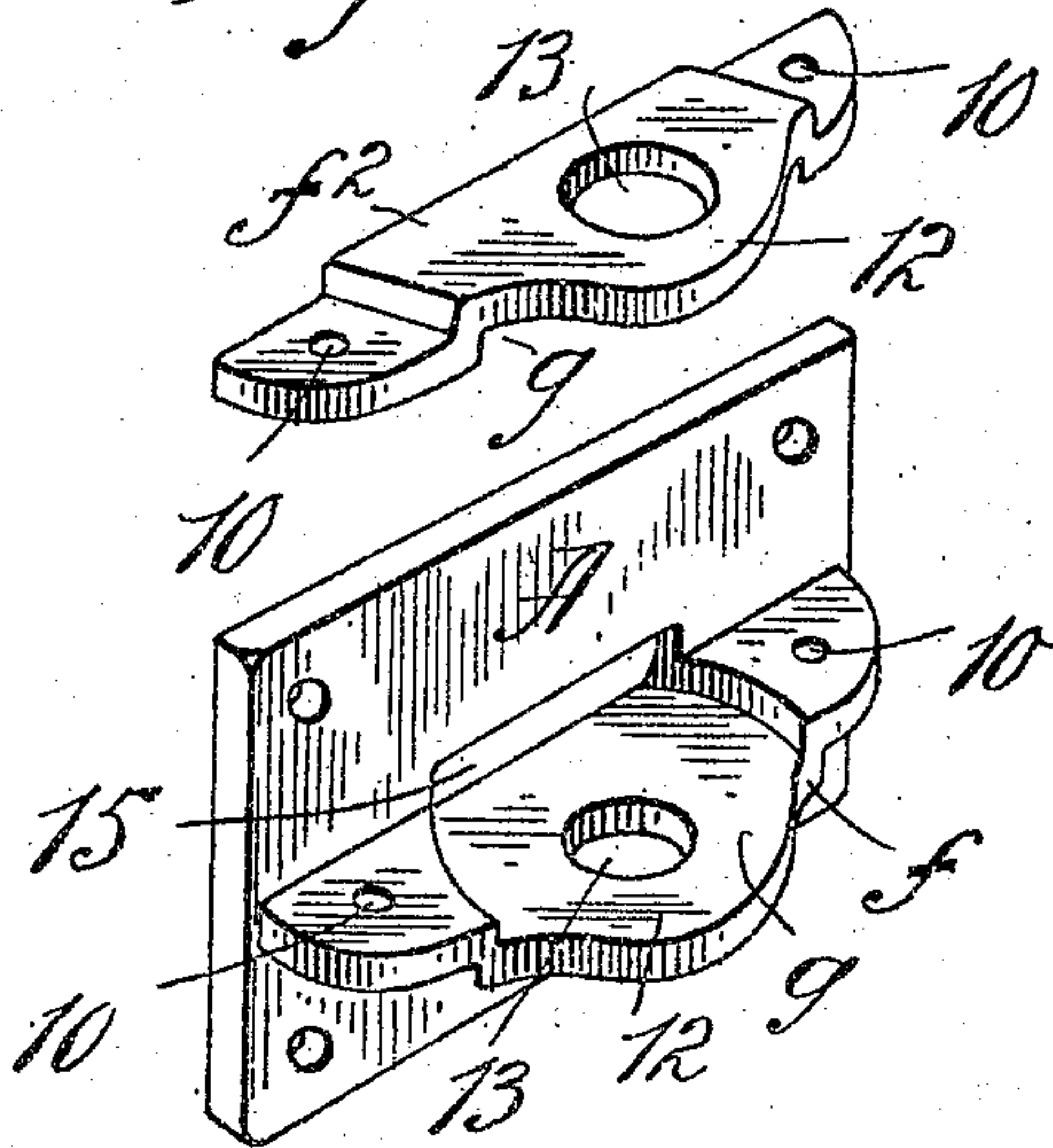


Fig. 4.

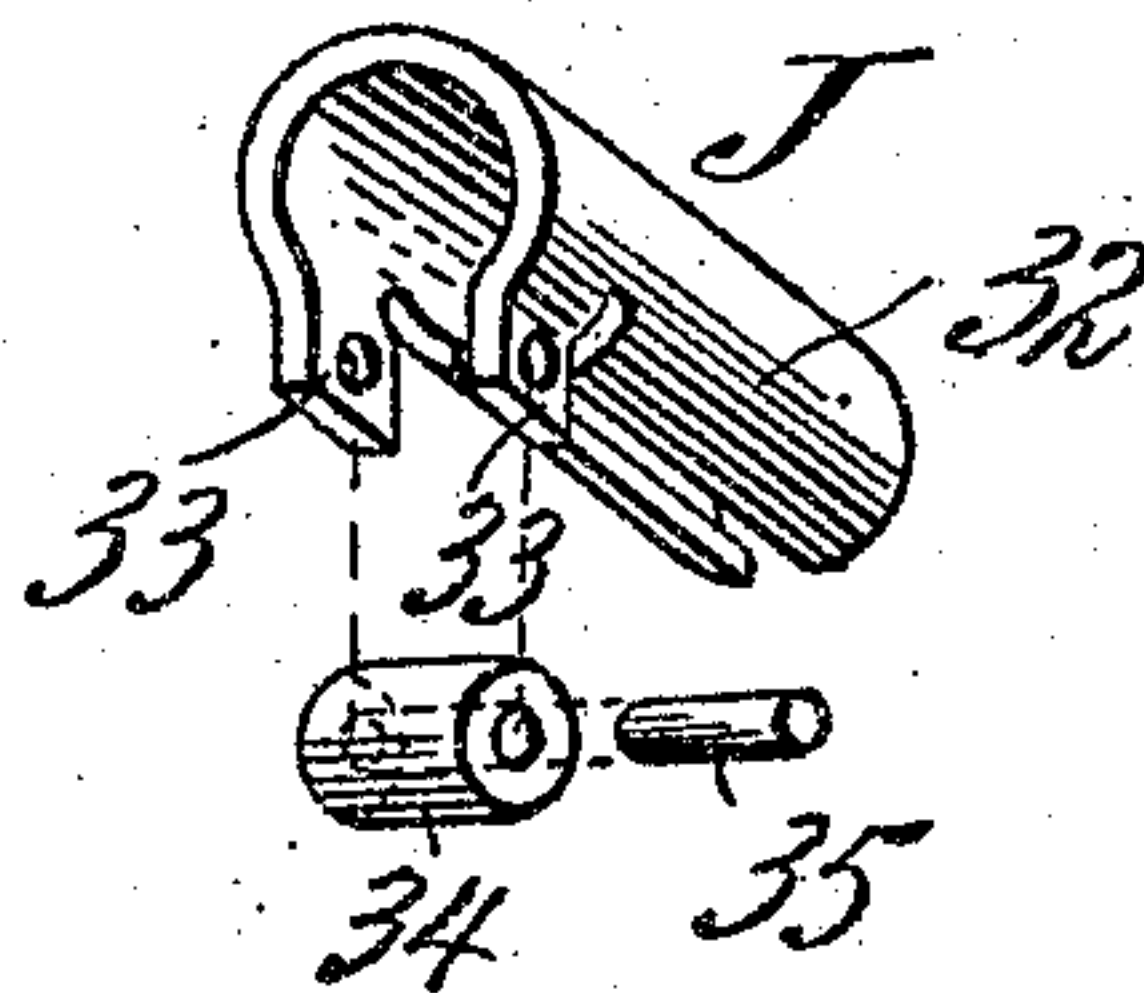
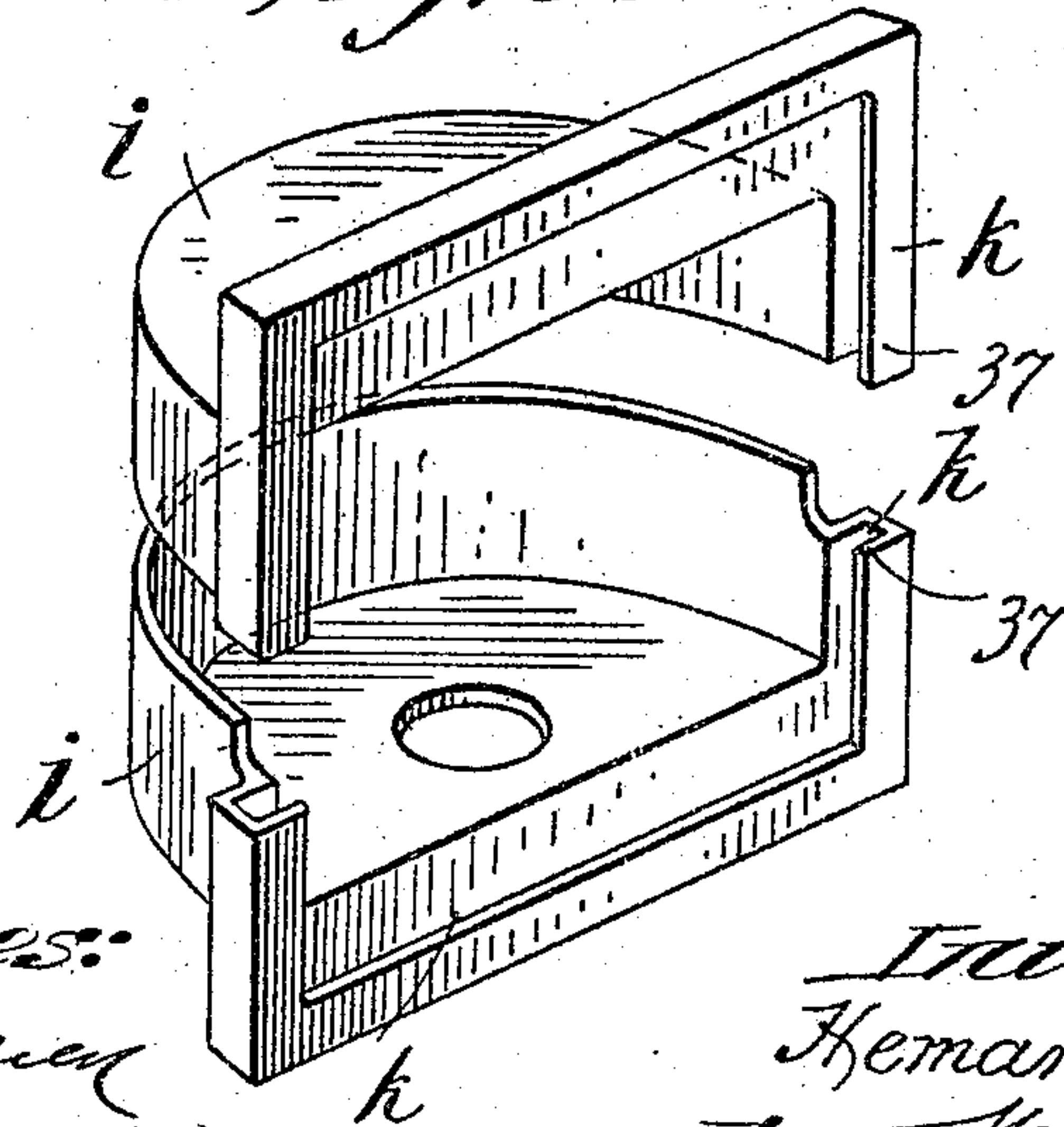


Fig. 5.



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UNITED STATES PATENT OFFICE.

HEMAN OSBORNE, OF SPRINGFIELD, MASSACHUSETTS.

SHUTTER-WORKER.

No. 795,644.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed May 17, 1904. Serial No. 208,404.

To all whom it may concern:

Be it known that I, HEMAN OSBORNE, a citizen of the United States of America, and a resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Shutter-Workers, of which the following is a full, clear, and exact description.

This invention relates to improvements in shutter-workers, the object being to improve the shutter-worker of the character described in Letters Patent of the United States issued to me March 17, 1903, No. 722,878, especially in respect of details of construction whereby the shutter-worker mechanism is more practicable of construction and convenient in the assemblage of the parts thereof, operative with greater nicety and smoothness, and with the entire avoidance of lost motion.

Another object is to provide a novel, simplified, and unusually - efficient inclosing means for the portion of the mechanism which is external of the window-casing at which the shutter-worker is applied.

The invention consists in forms, constructions, and combinations of parts, all substantially as hereinafter fully described, and set forth in the claims.

The improved shutter-worker is illustrated in the accompanying drawings, in which—

Figure 1 is a vertical sectional view through a portion of the window-casing at which the device is applied through an upper portion of the blind or shutter and about centrally through the shutter-operating mechanism. Fig. 2 is a horizontal sectional view through the casing and showing the improved mechanism in plan view, the outer casing therefor being represented in horizontal section. Fig. 3 is a perspective view of a bracket or supporting part of the device comprising separable sections and shown as separated from each other. Fig. 4 is a perspective representation of a fitting for the guidance of the operating-chain hereinafter referred to. Fig. 5 is a perspective view of the improved inclosing casing for the external part of the operating mechanism.

Similar characters of reference indicate corresponding parts in all of the views.

The shutter-operating devices are formed and adapted for application in relation to a window-casing which is suitably mortised or chambered for the reception of a portion thereof.

In the drawings, A represents the back

member of a bracket, which is adapted to be set against the outer side of the window-casing to overlie a mortise or chamber *a*, the same having inwardly-extended opposite integrally-formed lugs or bracket members *b b*, having suitably-alined holes in which are fitted the extremities of a pin or round bar *d*, about which rotates the worm-wheel B, having end hubs the distance between the ends of which corresponds to the distance between the inner faces of the bracket-lugs, and one of the hubs at one side of the worm-wheel has a sprocket-wheel C formed thereon or attached thereto.

At the outer side of the bracket-plate A are provisions or equipments of the form represented in Figs. 2 and 3, the same consisting of an integral right-angularly and outwardly extending section *f* and a separable similar shaped and matching section *f*², said sections being of stepped form or having the central rabbet *g* with the perforations 10 through their facewise-adjoined opposite ends, while the offset portions 12 12 have the alined circular holes 13 13 to constitute journals for the end gudgeons of a worm-wheel D. A space for occupancy is left between the matched-together bracket-sections *f* and *f*², as well also as provision for the edgewise extension of the worm-wheel into mesh with the worm B, by reason of the aperture 15 through the central portion of the bracket-plate A. One of the end hubs or gudgeons of the worm-wheel D is suitably extended and formed square, receiving connection rigidly thereon of the shutter-operating lever F. The end portion of this lever, at which connection with the worm-wheel shaft is made, as shown in Figs. 1 and 3, is shown as reinforced to give suitable length of bearing engagement by having the extremity of the comparatively thin strip from which the lever is made doubled on itself, the facewise-adjoined portions having the square hole 18 through both thereof, and a suitable flanged or headed screw 19 retains the lever in its connection with the worm-wheel. The outer extremity of the lever is angularly formed and provided with a neck and head 20 22, engaging through and under the slotted plate 23, affixed to an upper portion of the blind or shutter H. The means for turning the worm is here shown as a sprocket-chain G, an intermediate portion of which is in engagement around the sprocket-wheel C, which is as one with the worm, and the courses or extremities of the said chain

are extended through holes 26 26, suitably formed transversely through the window-casing. Fittings J J are provided for the guidance and easy running of the courses of the chains from the horizontal positions through the window-casing to the dependent positions therebelow, it being understood that the ends of the chains are extended to suitably low positions for convenient access. Each of the said fittings J, as represented in Fig. 4, consists of a split sleeve 32, having at its one end portion downwardly-turned ears 33 33, between which a roller 34 is located, the pin 35, engaged through the perforations therefor in the depending ears 33, forming the journal-support for the roller 34. The split-sleeve-like part is more or less elastic, so that it may be slipped into the orifices of the hole 26 through the window-casing and expanding be retained in place therein and without liability of accidental displacement.

The inclosing casing for the part of the mechanism externally of the building is shown as consisting of two semicylindrical shells *i i*, having dimensions to fit or telescope partially one within the other and having base return-bent flanges *k* and extending around three sides of the base portion of each casing-section *i*, the return-bent flanges being arranged to overlap or partially telescope one another, as well as the circular portions of the casing-sections. The underturned-flange portions 37, being under the inner or back edge of the bracket-plate and held confined thereat, insure the retention of the inclosing-casing section *i i* in their places and without necessity of screws or other fastening means, it being practicable to separate the parts one from another, as occasion may require, to get at the internal mechanism of the shutter-operator.

In this shutter-worker the worm is made double-threaded, as may be determined by following the courses of the separate threads, which are in part represented by dotted lines in Fig. 2, the parallel double threads being of wide pitch, while the threads are arranged comparatively closely together, so that the thread of the worm engaging in comparatively fine teeth of the worm-wheel enables on a comparatively slight degree of turning movement of the worm an extended and rapid movement of the worm-wheel and shutter-operating lever, and the double-thread formation of the worm in combination with teeth of the worm-wheel, which are quite fine, does away with lost motion and lash, so that upon a pull of either depending extremity of the operating-chain the shutter will be started instantly with the movement of the chain, and rattling or shaking of the shutter when placed in any of its given set positions will be prevented.

The worm-wheel D having only a fraction of its toothed edge brought into mesh with the worm need not be a complete wheel, but may be a sector worm-gear, as represented in Fig. 2 of the drawings, it being immaterial so far as the principle or capability of action is concerned whether or not the teeth are extended entirely around the part and at its portion which is never brought around into engagement with the worm, for the shutter making but half a revolution between its closing and opening movements necessitates only a range of movement of the worm-wheel of half a rotation.

By having the fittings and appliances made as specifically described the assemblage of the operative parts is easily accomplished, and detachment of the parts may be readily performed should occasion require in case replacement becomes at any time necessary.

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

1. In a shutter-worker, the bracket-plate A, having supporting members at opposite sides and the combined worm and sprocket wheel journaled at one side of the plate and the worm-wheel journaled at the other side of the plate and extending through the plate to mesh with the worm, means for rotating the worm, and a removable casing for inclosing the worm-wheel and its supporting members, said casing consisting of two sections each having a shell portion and a base provided with a marginal groove disposed at a right angle to the shell portion, the said two sections having their grooved portions slidably engaging the marginal edges of the bracket-plate at opposite sides thereof and their shell portions inclosing the worm-wheel, substantially as described.

2. In a shutter-worker, the combination of the supporting-bracket having mounted thereon a united worm sprocket-wheel and a worm-wheel in mesh with the worm, a shutter-operating lever carried by the worm-wheel, and a chain having an intermediate portion thereof running around the sprocket-wheel, and window-casing fittings for guiding the extremities of the sprocket-wheel chain each consisting of a split tube having separated depending ears, the journal-pins supported by and extending from one to the other of said ears, and a roller on the pin.

Signed by me at Springfield, Massachusetts,
in presence of two subscribing witnesses.

HEMAN OSBORNE.

Witnesses:

A. V. LEAHY,
WM. S. BELLWS.