(No Model.)

2 Sheets—Sheet 1.

J. W. KINCAID.

SHUTTER WORKER.

No. 566,188. Patented Aug. 18, 1896.

Fig. 1.

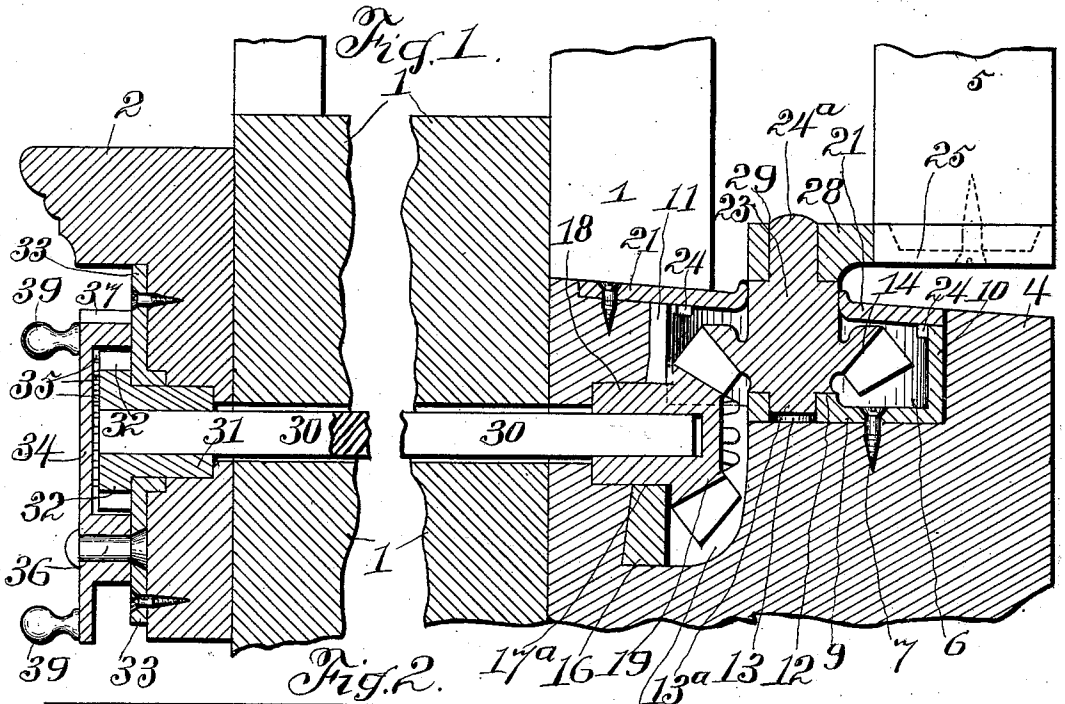


Fig. 2.

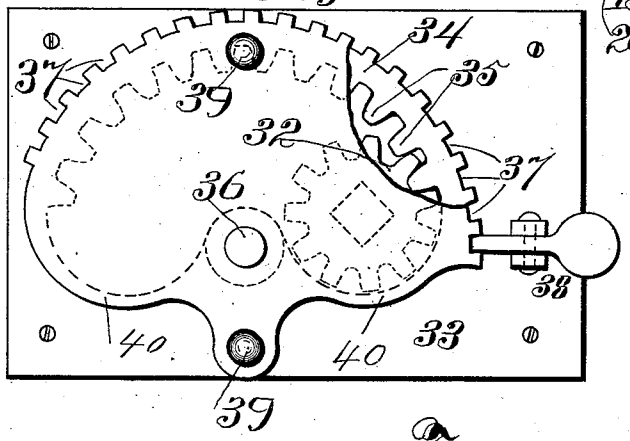


Fig. 3.

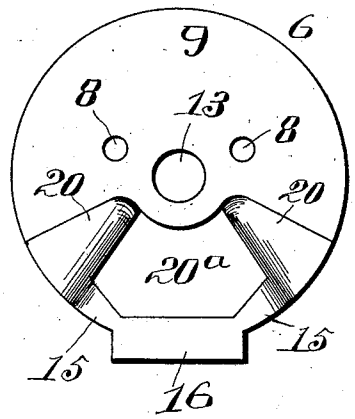
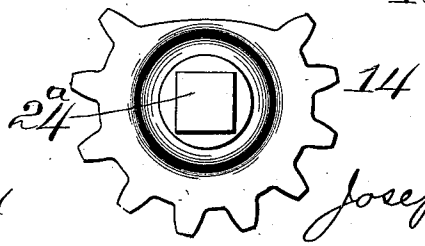


Fig. 5.



Witnesses.

Claude Crawford

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By C. F. Pelz

Attorney.

(No Model.) 2 Sheets—Sheet 2.

J. W. KINCAID.

SHUTTER WORKER.

No. 566,188. Patented Aug. 18, 1896.

Fig. 4

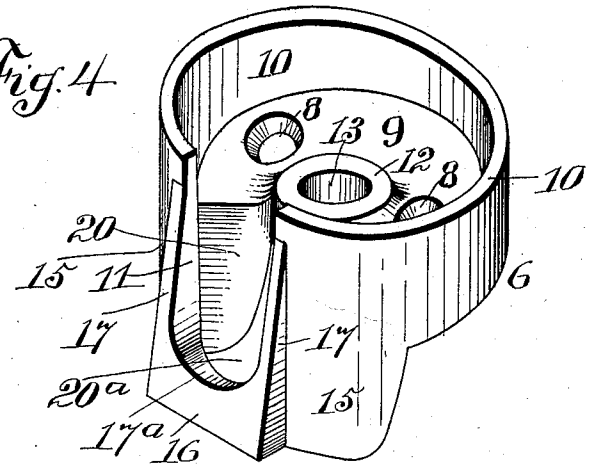


Fig. 6.

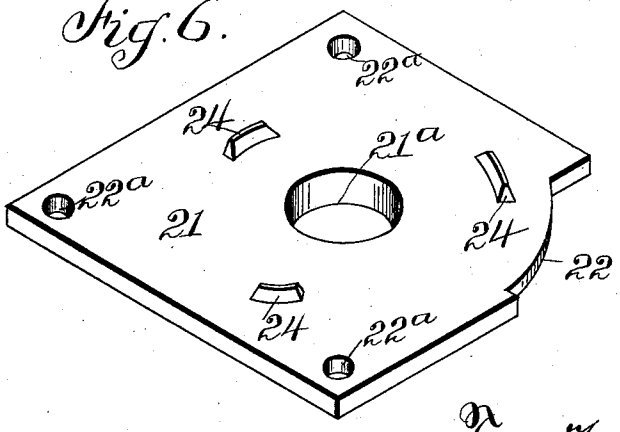
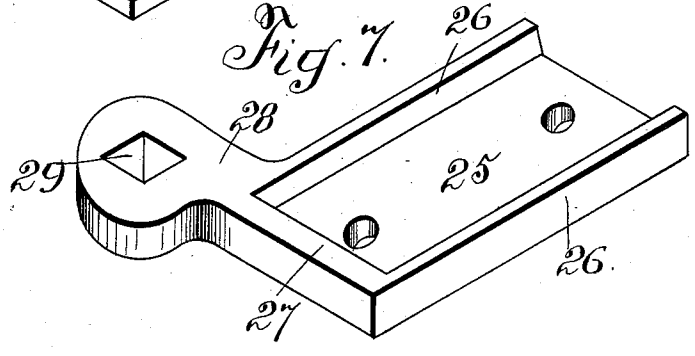


Fig. 7.



Witnesses.
Claude Swafford
[illegible]

Inventor.
Joseph W. Kincaid
By C. J. Pelt
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UNITED STATES PATENT OFFICE.

JOSEPH W. KINCAID, OF READING, PENNSYLVANIA.

SHUTTER-WORKER.

SPECIFICATION forming part of Letters Patent No. 566,188, dated August 18, 1896.

Application filed December 5, 1895. Serial No. 571,140. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH W. KINCAID, a citizen of the United States, residing at Reading, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Shutter-Workers, of which the following is a specification.

This invention relates to shutter-workers, and particularly to the class of rotary shutter-workers, and its novelty, advantages, and resultant effects will be fully understood from the following description and claims when taken in connection with the annexed drawings.

The object of the invention is to provide an improved shutter-worker adapted to be operated from the inside of a building to completely open or close the shutter or to lock the same at any desired angle.

A further object of the invention is to provide a housing for the working parts of the device of novel and peculiar construction and of such special shape and form that the shutter-worker will occupy the least possible space in an outer window-sill and be firmly supported by the latter.

A still further object of the invention is to provide a simple and inexpensive and ornamental means upon the inside of a window for giving the parts of the shutter-worker upon the outside of the window a positive and certain action without the least lost motion or friction of any of the parts, and to provide a novel means for locking the parts in any desired position.

The invention consists in the novel construction and arrangement of parts and essentially in the special forming of housing.

In the accompanying drawings, forming parts of the application, Figure 1 is a section of the device in position for operating, with main shaft, wall, and shutter partly broken away. Fig. 2 is a plan view, partly broken away, of the operating mechanism upon the inside of a window. Fig. 3 is an inverted plan view of the gear-housing. Fig. 4 is a perspective view of the gear-housing. Fig. 5 is a top view of the segmental cog-wheel. Fig. 6 is an inverted perspective view of the cap or sill plate for the housing. Fig. 7 is a perspective view of the shutter-iron.

The same numeral references denote the same parts throughout the several figures of the drawings.

1 denotes a house-wall; 2, the inside sill of the window; 4, the outside window-sill, and 5 an ordinary shutter.

A portion of the outer sill 4 is removed or countersunk sufficient to allow the housing 6, carrying the outer working parts of the device, to be placed therein and secured by screws 7, projecting downwardly through holes 8 in the bottom 9 of the housing. This housing consists of a cup-shaped casting having a rim 10, which diminishes in depth from the slot 11 to give the top edge of the rim a slant or angle equal to that of the surface of the outside window-sill. The center of the cup-bottom 9 has a seat 12 and a journal-bearing 13 for the bottom spindle 13^a of the segmental cog-wheel 14. The cup has a downwardly-projecting apron 15, into which the slot 11 extends, and ends in a thickened portion 16, provided with upwardly-projecting flanges 17 upon each side of the slot 11 to form a bearing 17^a for the hub 18 of the pinion 19 at right angles to the seat 12 and bearing 13 of the segmental cog-wheel 14. This apron 15 is joined to the bottom 9 by inclined flanges 20, which reach from the seat 12 and bearing 13 of the end of the said apron, and forms substantially a double **V** or diamond shaped opening 20^a, in which the pinion 19 revolves in mesh with the segmental cog-wheel 14. The whole of this cup or housing is set in the outer window-sill and secured there, as hereinbefore described, with the inclined rim edge 10 sufficiently below the surface of said sill to allow the cap or plate 21 to cover the cup or housing and be secured to and flush with the surface of the said sill. The cap-plate 21 is triangular-shaped, with an edge portion 22 to conform with the curve of the rim 10, has screw-holes 22^a, a central opening 21^a, forming a bearing for the top or hub 23 of the wheel 14, and upon its under side is formed a series of lugs or projections 24 to engage the inner side of the rim 10. Said hub 23 has a square projection 24^a.

The shutter-iron 25 has side and end flanges 26 and 27, which converge into a projecting arm 28 at one corner of the iron, which is provided with a square opening 29 to fit the square projection 24. This iron is secured

to the under inner corner of a shutter and makes a direct and rigid connection between the latter and the cup-gearing, and at the least movement of such gearing the same is imparted to the shutter without friction or lost motion.

The rotary shaft 30 is square and engages at one end the hub 18 of the pinion 19 and at the other end the hub 31 of the toothed wheel 32, working through a plate 33, secured to the wall under the inside window-sill and operated by the sector 34. This sector 34 is heart-shaped upon its inner side, has teeth 35, engaged by the toothed wheel 32, and is pivoted at 36 to the plate 33. Opposite the teeth 35 upon the sector are notches 37, which are engaged by a latch 38 upon the plate 33 to lock the sector and therefore the connected parts of the shutter in any desired position. The teeth 35 of the sector terminate in semicircular flanges 40, which form a stop to limit the rotary movement of the sector.

The outside of the sector 34 is ornamented by one or more hand-knobs 39 for turning the sector.

The operation of this class of shutter-workers is so well known that a detail description thereof is here deemed unnecessary; but it will be understood that the least movement of the sector will impart motion to the shutter and that the operating mechanism is entirely concealed by the wall and window-sill.

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

1. The combination with a shutter-worker, of the cup-shaped gear-housing having a depending apron, an open slot in said apron forming a journal-bearing for one gear, flanges joining the apron with the bottom of the housing, and a raised seat in the said housing bottom for the other gear, as set forth.

2. The combination with a shutter-worker, of means for operating and controlling the same, comprising the pivoted toothed sector having a solid closed front, and notches in its periphery, the toothed wheel housed by the sector in mesh with the teeth of the latter, and the latch engaging the said notches, substantially as set forth.

3. The combination with a shutter-worker, of means for operating and controlling the same, comprising the pivoted sector having internal teeth terminating in semicircular flanges, which stop the rotary movement of the sector, notches upon the periphery of the sector opposite the teeth, the toothed wheel housed by the sector, and the latch adapted to engage the said notches, as set forth.

In witness whereof I hereunto set my hand in the presence of two witnesses.

JOSEPH W. KINCAID.

Witnesses:
ALEXANDER HURST,
WALTER B. CRAIG.