

No. 631,484.

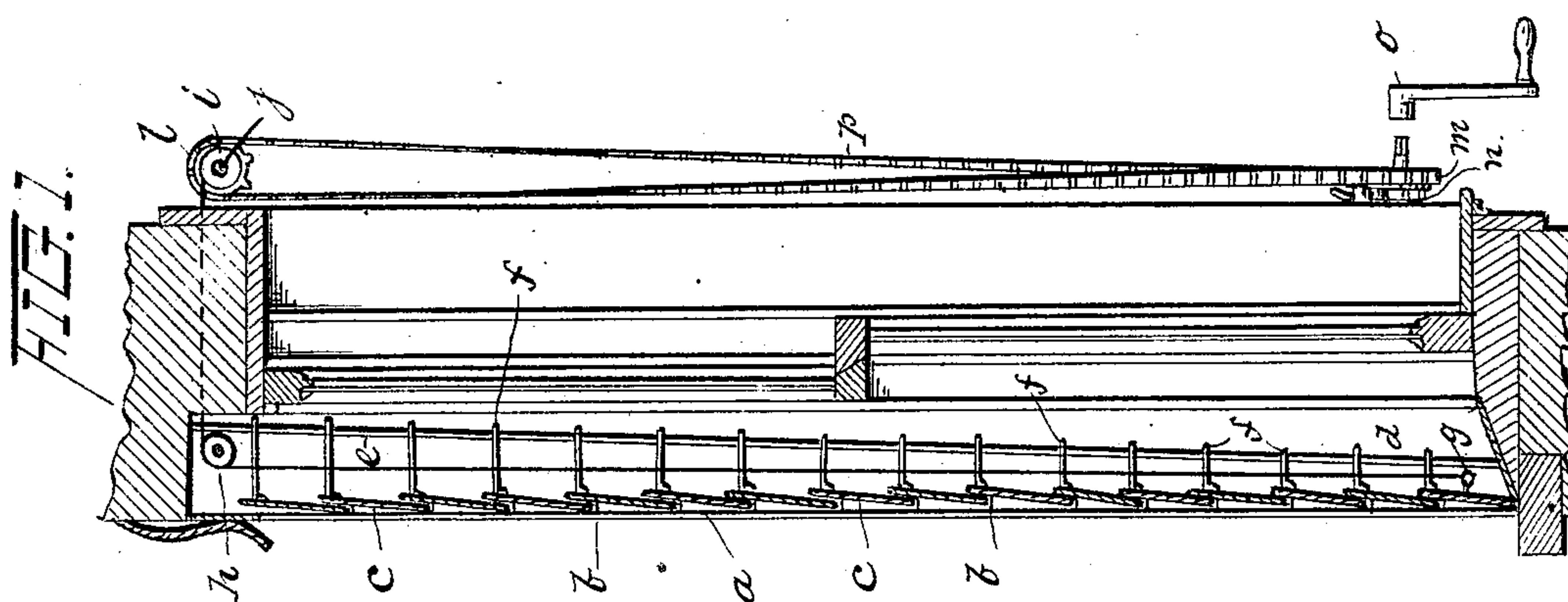
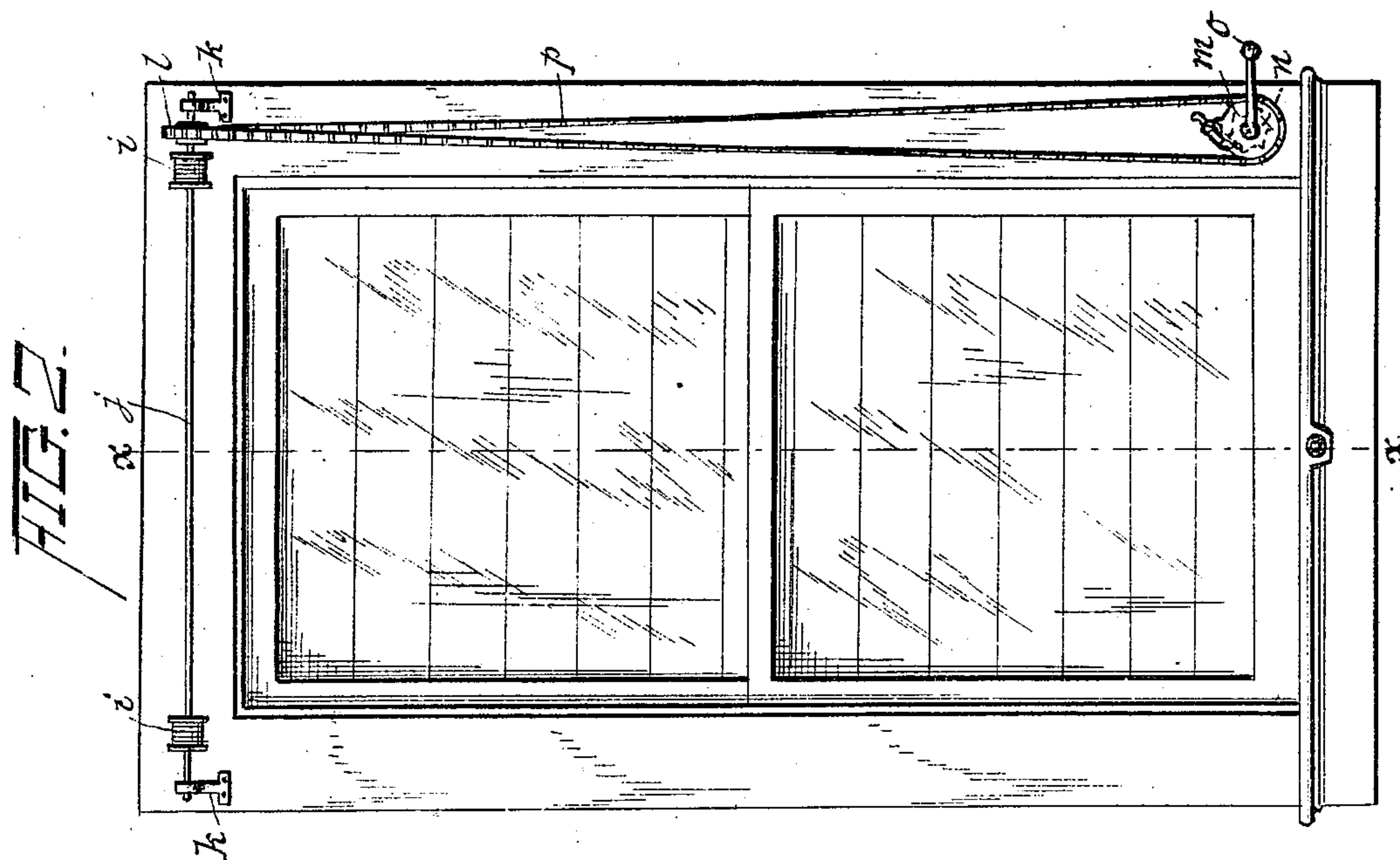
Patented Aug. 22, 1899.

L. F. G. BÖEKELMANN.
METALLIC WINDOW SHUTTER.

(Application filed Apr. 10, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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Arthur Turner

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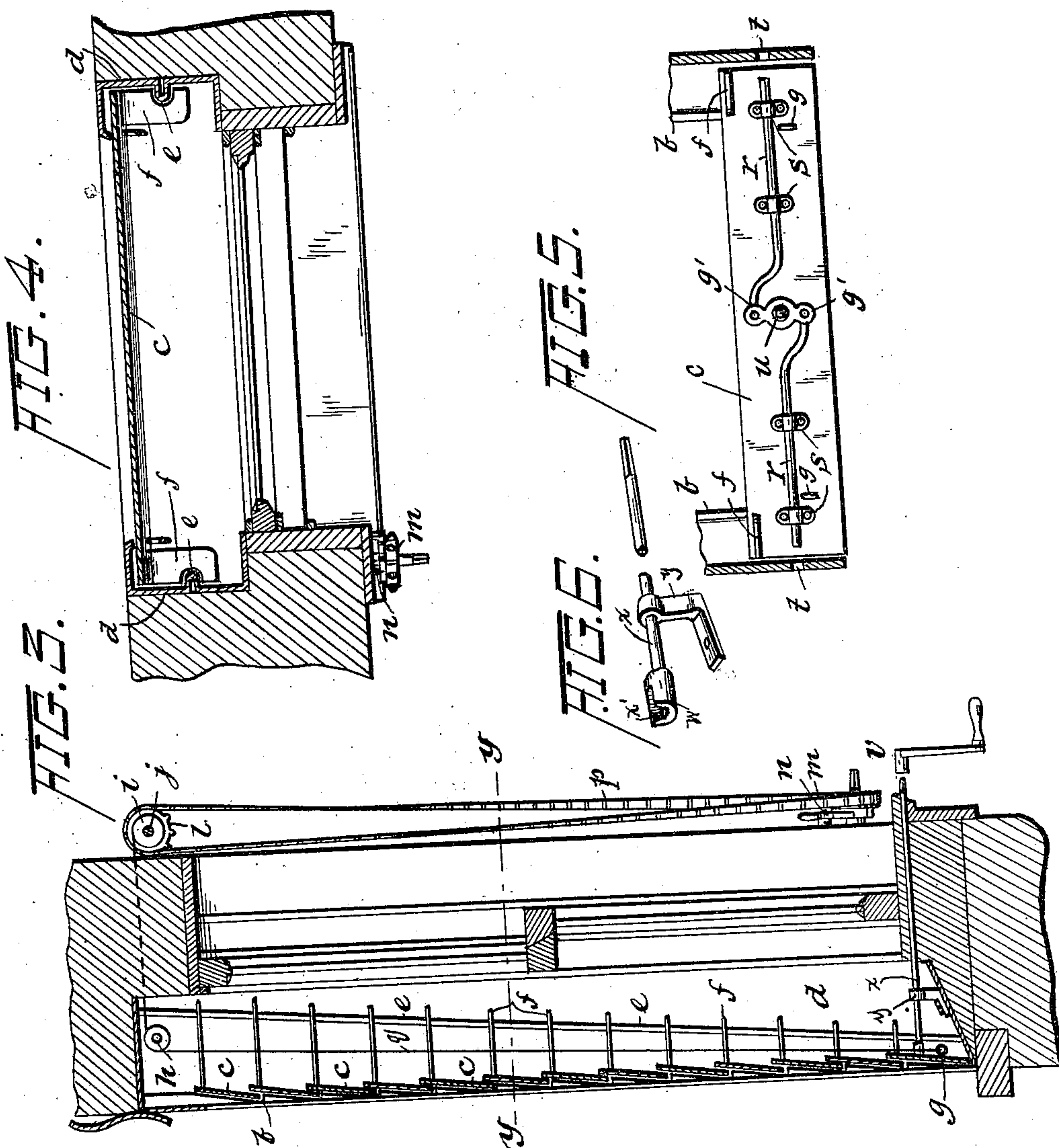
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UNITED STATES PATENT OFFICE.

LUDWIG F. G. BÖEKELMANN, OF DAVENPORT, IOWA, ASSIGNOR OF ONE-HALF TO ALBERT MIEKLEY, OF SAME PLACE.

METALLIC WINDOW-SHUTTER.

SPECIFICATION forming part of Letters Patent No. 631,484, dated August 22, 1899.

Application filed April 10, 1899. Serial No. 712,499. (No model.)

To all whom it may concern:

Be it known that I, LUDWIG F. G. BÖEKELMANN, a citizen of the United States, residing at Davenport, in the county of Scott and State of Iowa, have invented certain new and useful Improvements in Metallic Window-Shutters, of which the following is a specification.

This invention relates to certain new and useful improvements in metallic window-shutters, and particularly to that class of metallic shutters which are provided with a series of vertically-adjustable slats adapted to be raised one upon the other to open the shutter and to descend of their own weight when it is desired to close the shutter.

The invention has for its more immediate object the improvement upon the particular construction of shutters described and claimed in Patent No. 301,429, granted to me July 1, 1884. In the construction described and shown in said patent each slat slides in an independent groove constructed in the window-frame. In practical use this construction has been found to be objectionable owing to the trouble and expense in constructing these grooves in the frame and to the additional fact that the slats will bind in the grooves and render the shutter useless.

The essential object of this invention is to overcome these objections and to provide a shutter simple and economical in structure and sure and easy of operation, and, further, to provide a superior and efficient means for locking the shutter in a closed position.

To these ends and to such others as the invention may pertain the same consists in the novel construction and in the proper arrangement, combination, and adaptation of parts, all as more fully described, shown in the accompanying drawings, and specifically defined in the appended claims.

Referring to the drawings, Figure 1 shows a wall in section with my device fitted therein. Fig. 2 is a rear or inside elevation showing the inside operating parts. Fig. 3 is a section on the line *xx* of Fig. 2. Fig. 4 is a cross-section on the line *yy* of Fig. 3. Fig. 5 is a detail of the locking device. Fig. 6 is a detail of the shaft for operating the locking device.

In carrying out my invention I construct a metallic frame which shall fit within the open-

ing left in the wall by the builder or within the window-casing. The exposed portion of this frame may be as ornamental as desired.

The vertical side pieces *a* of the metallic frame are provided with notches *b*, adapted to form a seat for the slats when in a lowered position. (Best shown in Fig. 3.) The metallic plates or slats *c* are allowed to descend from the top. All of the slats *c* are of the same size and shape.

On the inside of each of the inner vertical frame-pieces *d* is provided a rib *e*, which may be pressed or struck in the side pieces *d*. These ribs are not truly perpendicular, but are made on a slant extending from the back of the upper portion of the frame to the front of the lower portion thereof, (about as shown in Fig. 3.)

Near the upper edge of the slats or plates *c* at each end are secured the horizontal rearwardly-extending arms or guides *f*, which are cut out or provided with a groove which corresponds with the rib *e* and fits around the same, as shown in Fig. 4. Thus the slats *c* are guided in their upward and downward movement by the arms *f* and the rib *e*.

On the inside of the lower corners of the bottom plate *c* are secured two rings or eyes *g*, in each of which is fastened the one end of a line or cable *q*. These lines then pass up and over small pulley-wheels *h*, secured to the under side of the upper part of the frame. The lines then pass horizontally through suitable holes in the window frame and casing and are secured to the spools *i*, which are rigidly secured upon the horizontal shaft *j*. This shaft is supported by suitable brackets *k*, secured to the window-casing. Near one end of the shaft *j* is rigidly secured a sprocket-wheel *l* with any desired number of teeth or cogs. Near the lower portion of the window-casing and on the inside is secured another similar sprocket-wheel *m*, placed at right angles to the one above, and between this sprocket and the window-casing is placed a small ratchet *n* with a pawl secured to the window-casing adapted to engage the same. The shaft or spindle to which the sprocket and ratchet are secured projects outward beyond the sprocket a suitable distance, and this protruding end is made square,

so that a key or crank may be applied thereto for operating the shaft. The two sprocket-wheels *l* and *m* are connected by an endless chain *p*, which owing to the relative position of the two sprocket-wheels necessarily has a quarter-twist.

Assuming that the shutter is closed—that is, each slat rests in one of the notches *b*, the bottom slat resting on the lower part of the metallic frame, as shown in Fig. 3—it will now be seen that by placing the key or crank *o* upon the shaft journaled in the window-casing and turning the same to the right the horizontal shaft *j* will rotate. The lines or cables will be wound upon the spools *i i* and being fastened to the lower slat *c* will raise such slat, the bottom slat will come in contact with the slat next above it, raising that one, and so on to the top one, if it is desired to entirely open the shutter, the slats or plates being guided by the arms *f*, which in turn are guided by the ribs *e*.

The parts may be held stationary at any point, as the pawl engaging the ratchet will prevent their descent until the pawl is thrown out of engagement with the teeth of the ratchet-wheel, and when this is done it will readily be seen that the parts will descend of their own weight, (but may be controlled by the crank or key *o*,) the upper slat dropping in the first notch, and so on to the bottom.

I provide a novel means of locking my improved shutter, which is as follows. To the bottom slat and at its center I journal the arm *u*, having its outer end preferably of a square shape for a purpose to be presently set forth. Rigidly secured to this arm *u* and adjacent to the slat is a flat piece of metal *g'*, provided with a hole in each end. Into these holes are fastened the ends of the bolts *r r*, which are curved at their inner ends about as shown in Fig. 5. These bolts are held in a horizontal position by the guides or eyes *s s s*. A hole *t* is provided in the sides of the frame *d*. Journaled in the window-casing and in a bracket *y*, secured to the sill of the window, is a shaft *x*. This shaft has an enlarged inner end *w* and the outer end squared, so that the key *v* can be readily attached to said outer end for rotating the shaft. A recess *x'* is cut in the enlarged portion *w* of the shaft *x*, corresponding to and adapted to receive the square end of the arm *u* when the slats are

lowered. It will thus be obvious that when the slats descend the square end of the arm *u* will readily enter the recess *x'*, and by turning the key *v* to the right the shaft and arm will rotate and the ends of the bolts *r r* will enter the holes *t* and securely lock the slats. To unlock the slats, it is only necessary to turn the key *v* in the opposite direction. It will also be apparent that by constructing the shaft *x* with the enlarged end *w*, having a recess *x'*, that when the slats are unlocked the arm *u* rests in the recess *x'* in such a position that it is capable of being withdrawn from said recess and ascending freely with the bottom slat.

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

1. In a shutter, a frame, notches in the opposite sides of the frame, a series of slats adapted to rest in said notches, rearwardly-extending arms at the upper corners of the slats, recesses in the outer side of each arm, inclined guide-ribs constructed in the sides of the frame and adapted to enter said recesses, whereby the slats are drawn inward when ascending so as to fall one within the other substantially as described.

2. In a shutter, a frame, notches in the opposite sides of the frame, a series of vertically-adjustable slats adapted to rest in said notches, a locking device consisting of an arm journaled in the lower slat at its center, a plate rigidly secured upon the arm adjacent to said slat, bolts pivotally secured to the ends of the plate and adapted to enter recesses in the frame, a shaft journaled in the window-casing and in a bracket secured to the sill of the window, an enlarged portion on the inner end of the shaft, a recess in said enlarged portion adapted to receive the outer end of the arm journaled to the center of the lower slat, when the slats are lowered, whereby said arm may be rotated by turning a key secured to the outer end of the aforesaid shaft, substantially as described.

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

LUDWIG F. G. BÖCKELMANN.

Witnesses:

T. A. MURPHY,
I. C. ANDERSON.