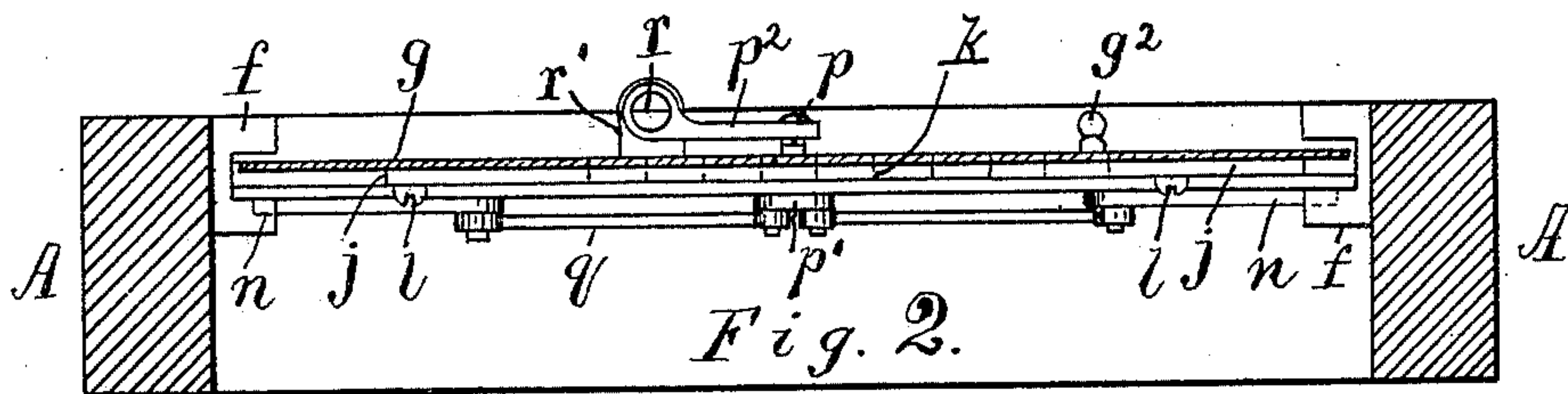
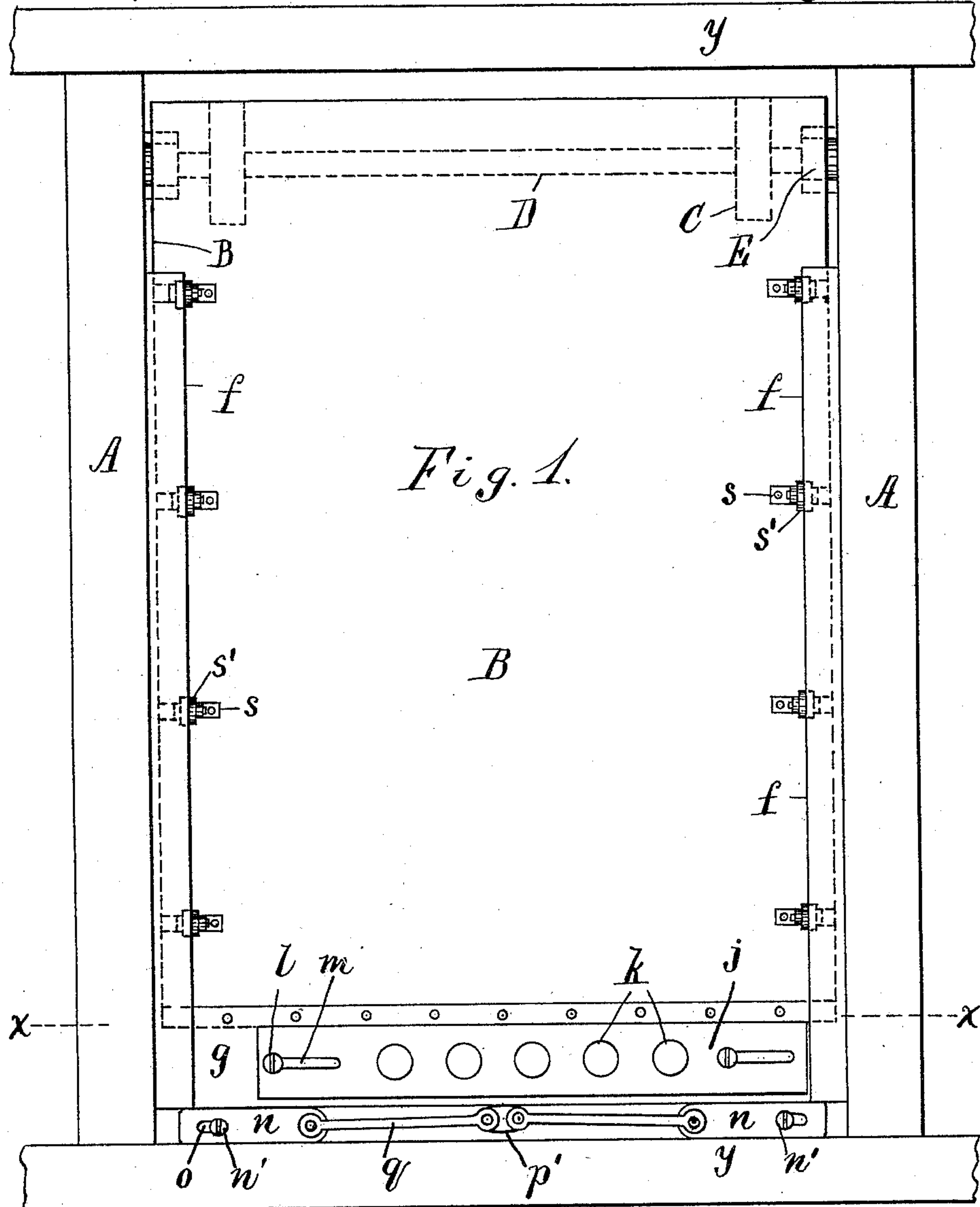


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ROLLING SHUTTER OR BLIND.

No. 433,694.

Patented Aug. 5, 1890.



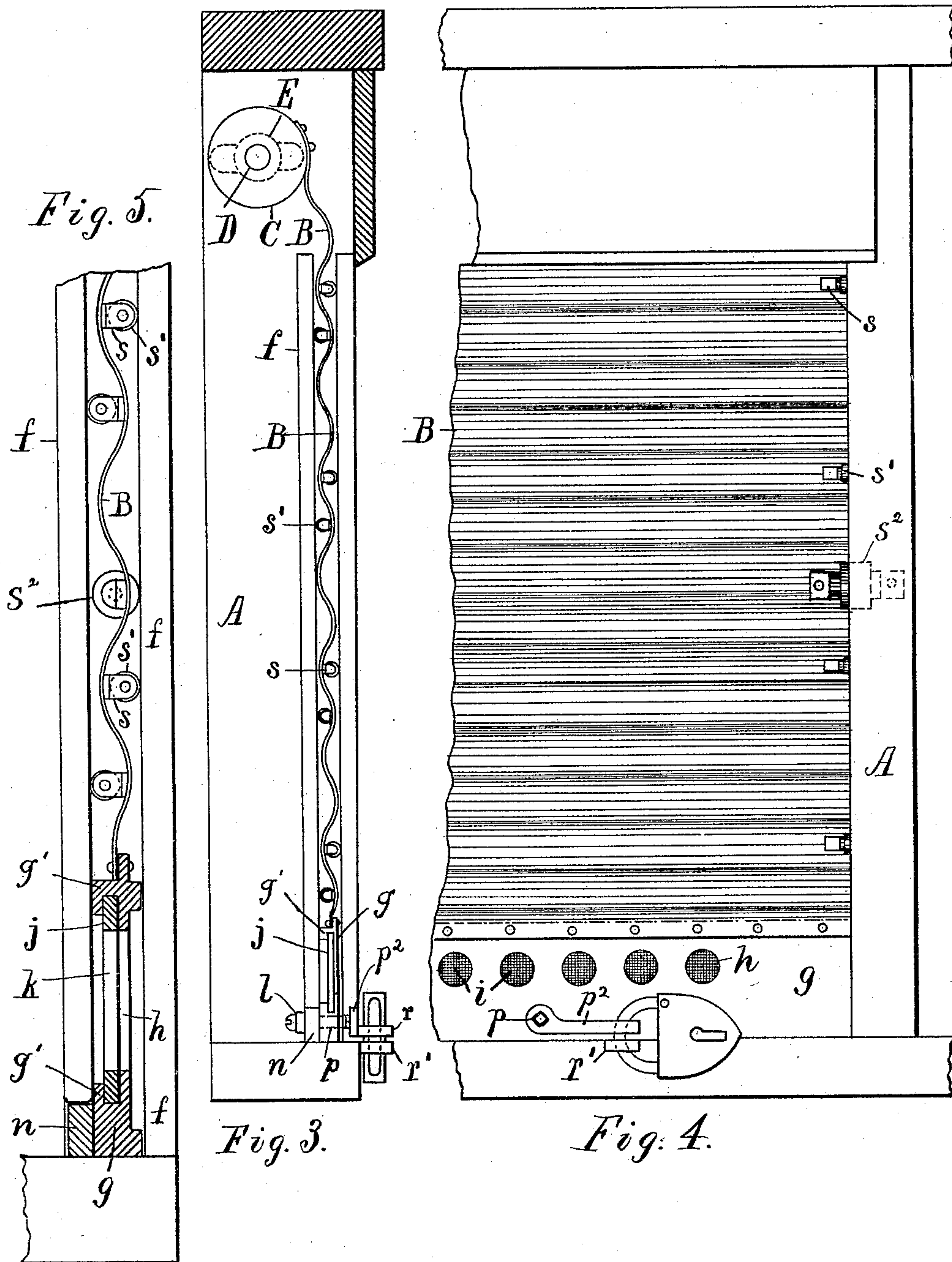
Attest:
H. N. Russell
J. C. Fischer.

Inventor.
George A. Ohl, per
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UNITED STATES PATENT OFFICE.

GEORGE A. OHL, OF NEWARK, NEW JERSEY.

ROLLING SHUTTER OR BLIND.

SPECIFICATION forming part of Letters Patent No. 433,694, dated August 5, 1890.

Application filed September 18, 1889. Serial No. 324,353. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. OHL, a citizen of the United States, residing at Newark, Essex county, New Jersey, have invented certain new and useful Improvements in Rolling Shutters or Blinds, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

10 The object of this invention is to furnish corrugated rolling shutters or blinds with a convenient means for opening and closing ventilating-apertures, with means for reducing the wear and friction upon the corrugated
15 sheet metal where it slides into guides, and in means for locking the same, when closed, from the exterior of the building. In such blinds corrugated sheet-steel is commonly used, and guides are provided at the opposite
20 edges of the blinds adapted to fit snugly against the ridges of the corrugations, and as such ridges rub against the inside of the guides they are liable to be worn and to become rusty and stick fast.

25 In my invention the guides at the edges of the blinds are made to embrace the edges of the blinds, but are provided with space enough to wholly clear the ridges upon their edges, and the latter are provided with anti-friction
30 rolls to prevent their touching the guides and to cause them to move more freely up and down within the same.

My improvement in the ventilating devices consists in re-enforcing the flexible
35 metal of the blinds with a rigid plate at the bottom provided with apertures, over which a perforated sliding plate is fitted, to close the apertures when the ventilation is not desired, as when cold drafts or snow blow through
40 the same in the winter.

Heretofore bolts have been applied to the inner sides of such blinds, so that they could be fastened only from the inside; and my improvement consists in attaching the bolts to
45 the rigid plate upon the bottom of the blind and actuating the bolts by a handle upon the outside of the blind, the handle being adapted to move the bolts, and to apply a padlock from the outside of the building to secure the same.

50 In the annexed drawings, Figure 1 is an inside view of a casing containing a blind closed and locked. Fig. 2 is a plan of the same in

section on line xx in Fig. 1. Fig. 3 is an edge view in section on line yy in Fig. 1. Fig. 4 is an outside view of one portion of the blind, showing the locking appliance; and
55 Fig. 5 is a view, similar to Fig. 3, of part of the casing, showing the anti-friction rolls upon a larger scale, and Figs. 4 and 5 showing an alternative form of the sliding venti-
60 lator.

My invention is particularly adapted for the shutters of markets and public places, which it is desired to throw entirely open in the day-time, and the drawings represent a
65 construction adapted for such location.

A are the posts, between which a blind B is shown, suspended from pulleys C by a shaft D. In practice such a shaft would be mounted in suitable bearings, (represented by the bosses
70 E,) and with a spiral spring to counterbalance the weight of the shutter, so as to wind up the same when lifted by hand; but no spring is shown, as the means of rolling up the shutter forms no part of my present invention. The
75 means for raising the blind or shutter is in such cases substantially the same as the spring shade-roller commonly employed upon window-shades, and the shaft D and pulleys C will, for convenience, be regarded as a sin-
80 gle element herein, and termed a "drum."

f are guides formed with a groove to receive the edges of the corrugated sheet metal forming the shutter.

Studs s are shown riveted between the ridges
85 of the corrugations adjacent to the edges of the blind at intervals and provided with rolls s' , adapted to fit inside the guides f , the rolls being proportioned to project slightly above the ridges upon the sheet metal, and thus hold
90 the ridges of the sheet metal in the center of the grooved guide to prevent rubbing and wear. The edges of the shutter may thus be inclosed in the guides in the usual manner, while they are prevented from rubbing against
95 the same.

The rolls are shown arranged in pairs in the hollows between the ridges adjacent to one another upon opposite sides of the blind at the same edge, and thus hold the blind
100 more rigidly in the center of the groove than if they were farther separated. By the use of the rolls the blinds may be moved up and down with less resistance arising from fric-

tion, and the wear resulting from the contact of the ridges upon the sheet metal with the inner sides of the guides is also avoided.

g is a rigid plate of metal riveted to the bottom of the flexible metal of the blind and provided with a series of holes h , covered by wire-netting i upon their inner side.

j is a slide secured to the plate g by means of bolts l , fitted in slots m , and is provided with a series of holes k , adapted to register with the holes h when the slide is suitably moved. The slide is shown in Fig. 1 moved to close the holes h , thus excluding the air when desired. When the ventilation is required, the slide would be moved (as to the left hand in Fig. 1) until the holes k coincide with the holes h , when the passage would permit the entrance of the air, as desired. Bolts n are secured by means of screws n' , passed through slots o , upon the lower part of the plate g at the opposite sides of the shutter, and are fitted to slide beneath the ends of the guides f to lock the shutter in its closed position, as shown in Fig. 1, which represents the inner side of the shutter. A shaft p is projected through the plate g , and is provided at its inner end with a double crank p' , attached to the bolts by links q , and the shaft is provided upon the outer side of the shutter with a handle p^2 , having a hole r in its end. A staple or eye r' is shown fixed upon the sill adjacent to the handle r in a position to coincide with the hole r when the handle is turned, as shown in Figs. 1 and 2, to lock the bolts, and a padlock may then be inserted through the holes in the handle and eye, as shown in Fig. 3, to hold the same locked. By connecting the bolts with an actuating-shaft extended to the outside of the blind the bolts may be moved after the blinds are closed. The blinds may also, by the use of the padlock, be secured from the outside after closing the same, and an inspector can readily perceive from the outside of the building whether all the blinds have been bolted or locked.

Heretofore it has been common to provide the rolling blinds of markets and similar buildings with bolts which could be operated only from the inside, and an inspection of the outside would not, therefore, show whether the blinds had been properly locked, nor could any one lock the blinds after leaving the building. By my improvement the position of the handle p^2 outside of the blind would indicate plainly whether the blind had been locked or not, and if they had not an operator from the exterior of the building could move the bolts and lock them, as desired.

It will be understood that the lock referred to in my invention is something more than a mere catch—like a lock upon a window-sash or frame—but would be a padlock, as shown in Fig. 4, which would require the use of a key to detach it.

Figs. 1 and 2 show a means of fitting the ventilating-slide movably upon a plate at the

bottom of the blind by screws l and slots m ; but Figs. 3 and 5 show an alternative construction, in which the plate g is provided with rabbeted strips g' , between which the edges of the slide j are fitted and the slide held movably upon the plate, as desired. It will be understood that in Figs. 1, 2, and 4 the plate g would be formed merely as a flat plate without rabbets, and that the ventilating-slide j would also be a flat plate held movably thereon by screws l , (fitted in the slots m ,) instead of by the rabbeted strips g' . (Shown in Figs. 3 and 5.) In either case it will be understood that the rigid plate g has its ends fitted within the guides, so as to wholly close the apartment when the blind is drawn down, and that the ventilating-slide being located upon the face of the plate is adapted to move back and forth only between the guides. Thus one end of the ventilating-plate is shown close to the right-hand guide in Fig. 1, and its left-hand end would be brought into contact with the left-hand guide when the slide is shifted. If desired, a handle g^2 may be extended through the plate to actuate the ventilating-slide from the outside of the shutter.

It is obvious that by notching the edge of the blind to admit the roll a single roll adapted to fill the groove in the guide f may be used in place of a pair of rolls adjacent to one another upon opposite sides of the blind, to hold the blind from contact with the guide. Such a construction is shown at s^2 in Fig. 5.

I am aware of United States Patent No. 45,366, dated December 6, 1864, which shows a shutter formed of vertical slats hinged together, and provided with rolls at their top or bottom ends to conduct the slats through a tortuous channel. In my construction the rolls perform a wholly different function, as there is no tortuous channel through which my blind is conducted; but the blind is formed of thin corrugated sheet metal instead of slats, and is inserted within its guides so as to wholly close the apartment when the blind is drawn down. The rolls in my construction must project positively above the ridges of the corrugated metal, to prevent the contact of the ridges with the guides, and thus prevent the friction from wearing out and cutting through the thin sheet metal.

I am also aware of United States Patents No. 327,414, dated September 29, 1885; No. 191,095, dated May 22, 1877; No. 254,752, dated March 7, 1882, and No. 313,888, dated March 17, 1885, which show locking devices and ventilators analogous to mine. I hereby disclaim all the said patents, as my locking device differs from those heretofore used in having the bolts projected under the ends of the guides when locking the blind, and in having the locking-lever p^2 upon the exterior of the blind provided with a fixed staple, so that it may be secured by a padlock, if desired.

My ventilating apparatus differs from others in not being attached to the blind, but to

a rigid plate (auxiliary thereto) which is inserted at its ends into the guides, so as to wholly close the apartment, while the ventilating-slide is only movable back and forth between the guides upon the surface of the plate.

Having thus set forth the nature of my invention, what I claim herein is—

1. The combination, with a corrugated sheet-metal blind and a drum to wind up the same, of vertical grooved guides extended downward from the drum, with the edges of the blind inserted therein, the rigid plate *g*, affixed to the bottom of the blind and projected within the guides and provided with a series of ventilating-holes *h*, and the slide *j*, provided with the holes *k*, adapted to register with the holes *h*, when desired, and fitted to move upon the plate *g* between the guides, as and for the purpose set forth.

2. The combination, with a corrugated sheet-metal blind and a drum to wind up the same, of vertical grooved guides extended downward from the drum, with the edges of the blind inserted therein, the rigid plate *g*, affixed to the bottom of the blind and projected within the guides and provided with a series of ventilating-holes *h*, the perforated slide *j*, fitted upon the plate between the guides, the bolts *n*, movable upon the plate and adapted to lock the blind by projection under the bottoms of the guides, the shaft *p*,

and connections for moving the bolts upon the inside of the blind and having a handle for turning and locking the bolts upon the outside of the blind, the whole arranged and operated substantially as herein set forth.

3. The combination, with a corrugated sheet-metal blind and a drum to wind up the same, of vertical grooved guides extended downward from the drum, with the edges of the blind inserted therein, studs secured upon the corrugated sheet metal adjacent to the edges of the blind, and rollers mounted upon the studs and projected above the ridges of the corrugations within the grooved guide to hold the corrugations from contact therewith, substantially as set forth.

4. The combination, with a corrugated sheet-metal rolling blind, of the studs *s*, secured thereon between the ridges of the corrugations adjacent to the edges of the blinds, the rolls *s'*, mounted upon the studs and projected above the ridges, and guides adapted to receive the rolls, as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GEORGE A. OHL.

Witnesses:

THOS. S. CRANE,
FRED. C. FISCHER.