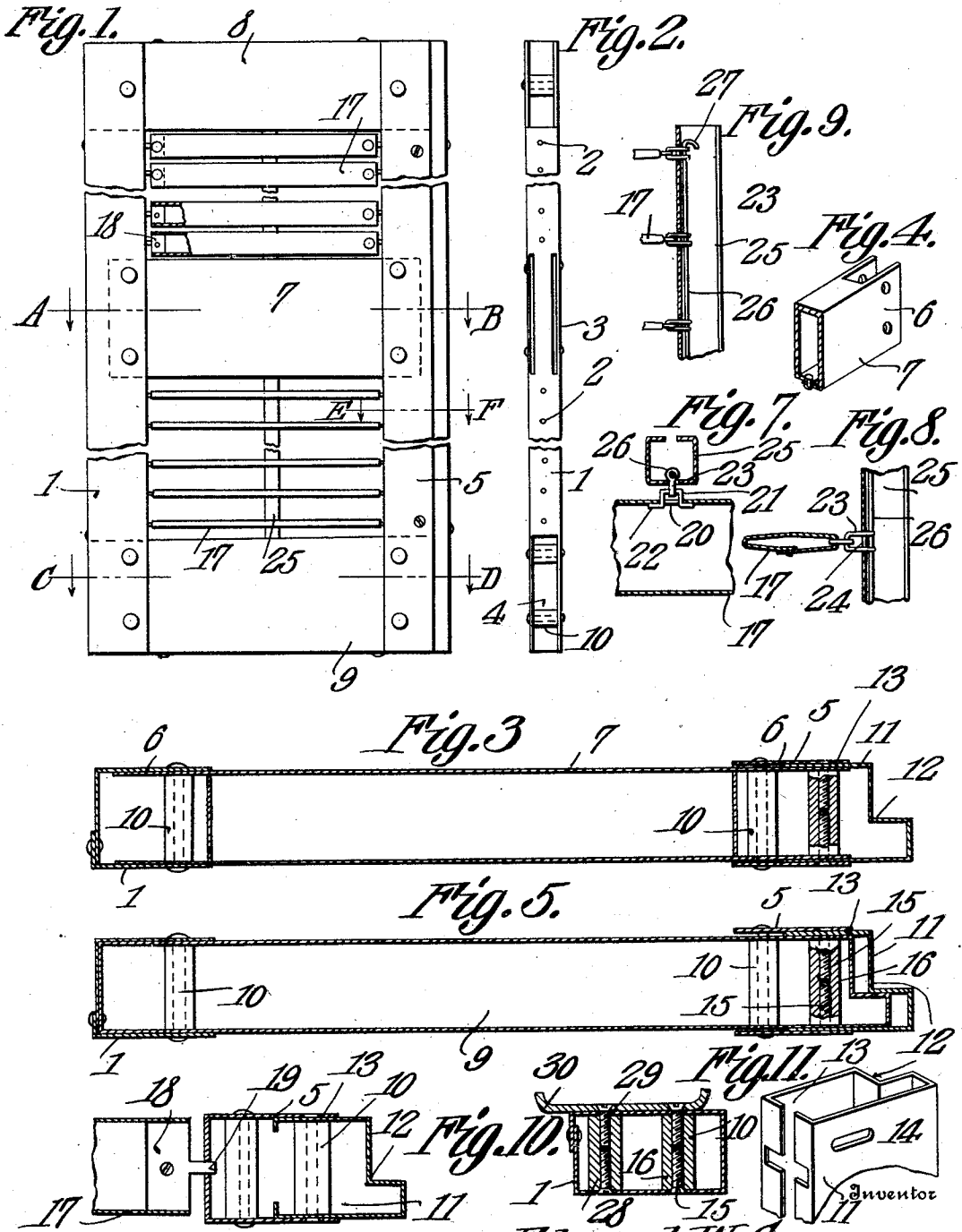


E. W. GRAY.
 METALLIC WINDOW SHUTTER.
 APPLICATION FILED APR. 21, 1909.

953,995.

Patented Apr. 5, 1910.



Witnesses

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METALLIC WINDOW-SHUTTER.

953,995.

Specification of Letters Patent.

Patented Apr. 5, 1910.

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To all whom it may concern:

Be it known that I, EDWARD W. GRAY, a citizen of the United States, residing at Windsor, in the county of Isle of Wight and State of Virginia, have invented a new and useful Metallic Window-Shutter, of which the following is a specification.

This invention relates to shutters and its object is to provide a simple, durable and inexpensive structure of this type, formed entirely of metal, the parts being so constructed as to be easy to assemble.

Another object is to provide a shutter having a series of slats pivotally mounted as ordinarily, said slats being likewise formed of metal and being provided with metallic means whereby they may be simultaneously actuated.

A further object is to provide a shutter which can be readily adjusted in the direction of its width so as to adapt it to window frames of different widths, and to permit it to conform with the shape of slightly distorted window frames.

With these and other objects in view the invention consists in certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is an elevation of a shutter embodying the present improvements, portions thereof being removed and other parts being shown in section. Fig. 2 is an elevation of the inner face of the side strip of the shutter located at the hinge side thereof. Fig. 3 is an enlarged section on line A—B Fig. 1. Fig. 4 is a perspective view of one end portion of the intermediate strip of the shutter, said strip being shown in longitudinal section in Fig. 3. Fig. 5 is a section on line C—D Fig. 1, the same being on an enlarged scale. Fig. 6 is an enlarged section on line E—F Fig. 1. Fig. 7 is a longitudinal section through the middle portion of one of the slats and showing the connection between it and the actuating rod, said rod being shown in section. Fig. 8 is a longitudinal section through a portion of said actuating rod and showing one of the slats in transverse section, the connection between the slat and rod being shown in elevation. Fig. 9 is a view similar

to Fig. 8, but showing several slats in elevation, and also disclosing the means for connecting a series of slats to the rod. Fig. 10 is a transverse section through one of the side strips of the shutter and showing the means employed for securing a hinge thereto. Fig. 11 is a perspective view of one end portion of the extension strip.

Referring to the figures by characters of reference 1 designates one of the side strips of the shutter, the same being in the form of a sheet metal tube rectangular in transverse section and open at its ends, one face of the strip being provided with a longitudinal series of apertures 2, while formed within said face at intermediate points are parallel slots 3 arranged close to opposed faces of the strip. This slotted and apertured face of the strip 1 has its end portions removed as indicated at 4.

The other side strip 5 is likewise formed of sheet metal rectangular in transverse section but having its ends, and one face open. That face of the strip opposite the open side thereof is provided with a series of apertures similar to those illustrated at 2 in Fig. 2, and is also provided with a pair of parallel slots similar to the slots 3. The slots in the two strips 1 and 5 are designed to receive wings 6 extending from the ends of the intermediate strip 7 of the shutter, said strip being in the form of a sheet metal tube rectangular in cross section and designed to fit snugly between the strips 1 and 5, the wings extending into the slots 3 being held in place by means of rivets or screws.

The apertured and slotted face of the strip 5 is cut away at its ends in the same manner as is the strip 1, the said cut away ends of the two strips 1 and 5 being disposed to receive the ends of the top and bottom strips 8 and 9 of the shutter, each strip being in the form of a sheet metal tube rectangular in transverse section and designed, when seated within the strips 1 and 5, to close the adjoining ends of said strips. The strips 8, 9, 1 and 5 are secured together by means of rivets, screws or the like. Spacing sleeves 10 are preferably mounted upon all of the screws or rivets so as to prevent the opposed walls of the various strips from being drawn too closely together.

Slidably mounted within the open face of

the strip 5 is a longitudinally extending extension strip 11, the opposed walls of which fit between the inserted portions of the strips 7, 8 and 9, and the side of the strip 5, and being provided in its outermost portion with a longitudinally extending recess 12 corresponding with the rabbet of an ordinary wooden shutter. Inwardly extending longitudinal flanges 13 are arranged at the free longitudinal edges of the extension strip 11, these flanges being cut away at certain points so as to receive the spacing sleeves in the path thereof and the strips 7, 8 and 9. Slots 14 are formed within the sides of the strip 11 and clamping screws 15 extend through them and into spacing sleeves 16 which are arranged transversely within the strip 5. Obviously by tightening the screws 15 the walls of the extension strip 11 can be bound tightly against the ends of the spacing sleeves 16 and the said strip 11 thus secured against displacement.

Each slat used in connection with the shutter consists of a sheet metal tube 17, substantially elliptical in transverse section and having its ends secured around correspondingly shaped metal cores 18 which are held in place by means of rivets or the like, each core being provided with a trunnion 19 designed to project into one of the apertures 2. Slots 20 are formed in the tubes at the centers thereof and have staples 21 extending therethrough, the terminals of the staples being projected in opposite directions within the tubes as indicated at 22 in Fig. 7. Each staple is designed to be loosely engaged by a U-shaped link 23 having eyes in the terminals thereof, said terminals being insertible into slots 24 formed within an actuating tube 25. A rod 26 is arranged longitudinally within the tube 25 and extends through the eyes in all of the links 23, the upper end of the rod being preferably formed with a hook 27 for preventing displacement of the rod downwardly.

It will be seen that a shutter such as herein described will have every appearance of an ordinary wooden shutter and the slats thereof can be simultaneously shifted by means of the tubes 25 so as to either shut out or admit light. Should the window frame be a little too wide for the shutter, or should said frame be slightly distorted, the extension strip 11 of the shutter can be adjusted outwardly so as to fit properly against the adjoining side of the window frame.

Any suitable form of hinges may be conveniently attached to the strip 1 simply by placing spacing sleeves 28 within said strip so as to extend transversely thereof, said spacing sleeves being engaged by screws 29 extending through the hinge members, one of which has been indicated in section at 30 in Fig. 10.

Obviously various changes may be made

in the construction and arrangement of the parts without departing from the spirit or sacrificing the advantages of the invention.

What is claimed is:—

1. The combination with a shutter having a side strip provided with an open face, of a longitudinally extending extension strip adjustably mounted in said face. 70

2. A shutter comprising metallic tubular side strips, one of said strips having an open longitudinal face, top and bottom strips projecting into and connecting the side strips and constituting closures for the ends of said side strips, and a rabbeted metallic extension strip extending longitudinally and adjustably within the open face of said side strips. 75 80

3. A metallic shutter consisting of connected tubular side strips, one of said strips having a longitudinal opened face, a rabbeted extension strip slidably mounted within the open face of said side strip, spacing means within said side strips, and means engaging said spacing means for securing the extension strip in adjusted position. 85 90

4. A metallic shutter having a tubular side strip, said strip being open along one longitudinal face, a rabbeted metallic extension slidably mounted within said strip and projecting beyond the open face thereof, said extension strip having two longitudinally extending reinforcing flanges at its inner edges, there being slots within the extension strips, spacing devices within the side strip and embraced by the extension strip, and means extending through the slots and engaging the spacing devices for securing the extension strip in adjusted position. 95 100

5. A metallic shutter consisting of tubular side strips having apertures in their adjoining faces, flat tubes interposed between said strips, cores within said tubes and trunnions extending therefrom and bearing within the apertures. 105 110

6. In a metallic shutter the combination with tubular side strips, of tubular slats interposed therebetween, trunnions projecting therefrom and bearing within the side strips, a tubular operating rod, and link connections between the slats and said rod. 115

7. A metallic shutter comprising tubular side strips, connections between them, metallic tubular slats interposed between and bearing within the side strips, a tubular operating rod, link connections between the rod and the slats, and means within the rod and engaging all of said connecting links to secure the tube to the links. 120

8. A metallic shutter consisting of connected tubular metallic side strips, rigidly connected at their ends, flat tubes interposed between the side strips and constituting the slats, trunnions extending from the slats and bearing within the side strips, connect- 125 130

ing members outstanding from the slats, an operating rod having openings therein, yoke-like links projecting into the openings and engaging said members, and a rod extending longitudinally within the operating rod and engaging all the links to hold them in engagement with said operating rod.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

EDWARD W. GRAY.

Witnesses:

DUKE P. DEANS,
CLIFFORD SAUNDERS.