M. A. METZGER.

DOOR.

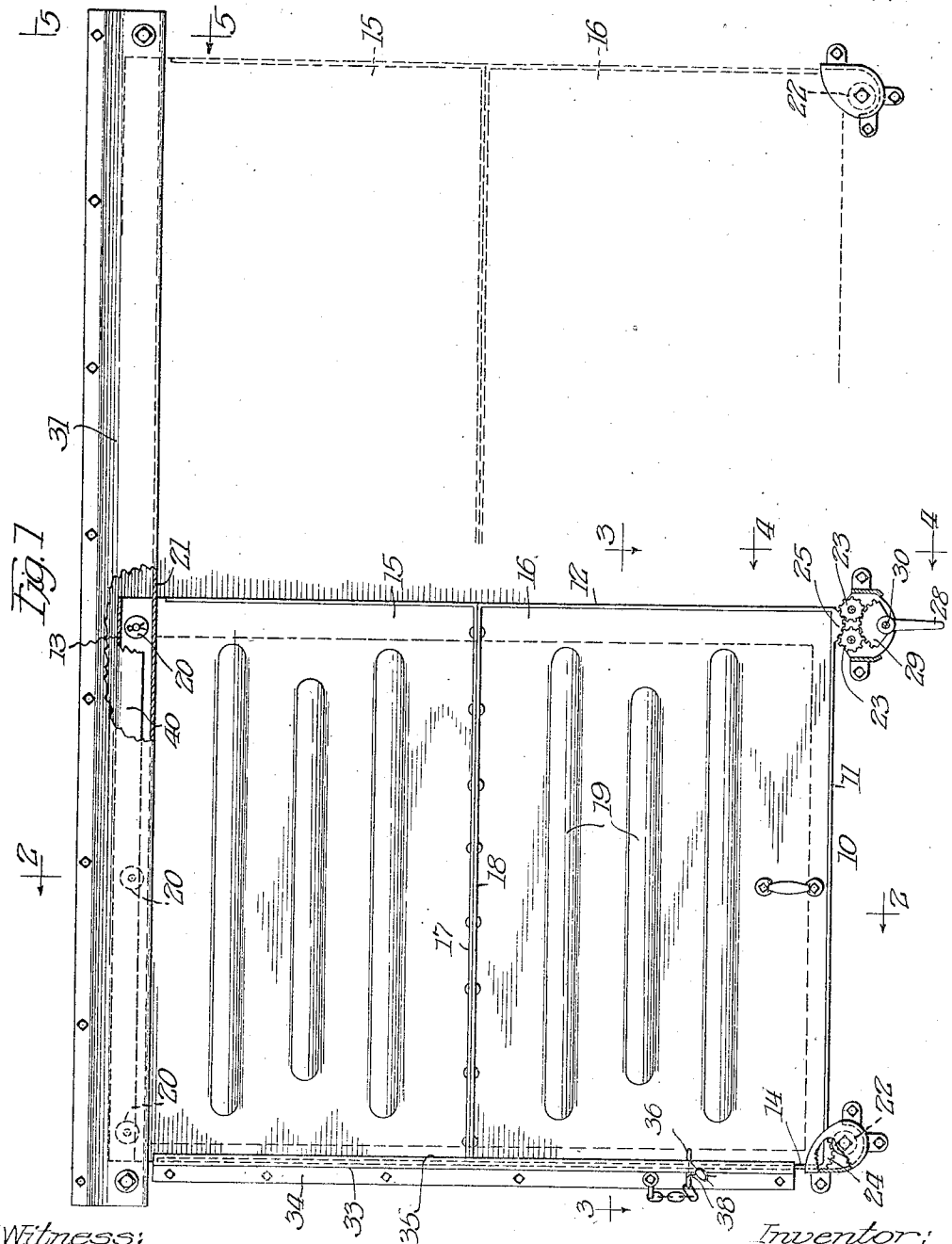
APPLICATION FILED APR. 14, 1919.

1,353,176.

Patented Sept. 21, 1920.

2 SHEETS—SHEET 1.

Fig. 1



Witness:

L. W. Novander.

Inventor:

Modeste A. Metzger,

By E. J. Andrews

Atty.

M. A. METZGER.

DOOR.

APPLICATION FILED APR. 14, 1919.

1,353,176.

Patented Sept. 21, 1920.

2 SHEETS—SHEET 2.

Fig. 3

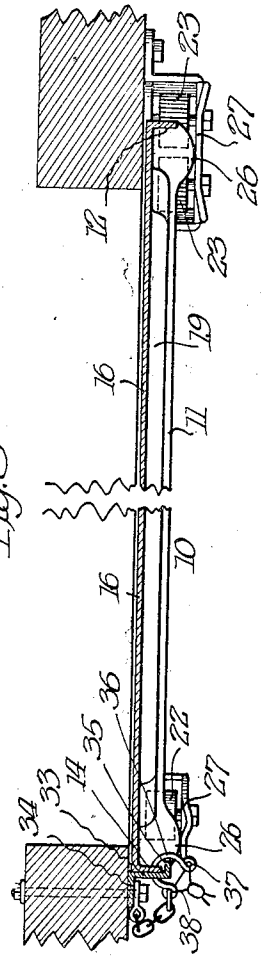


Fig. 5

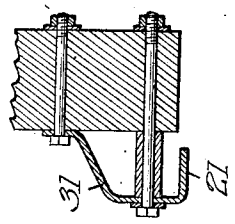


Fig. 4

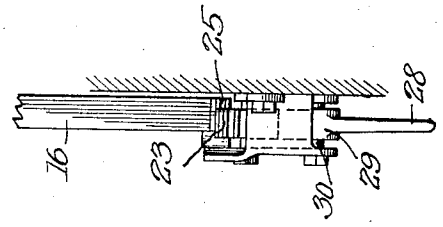
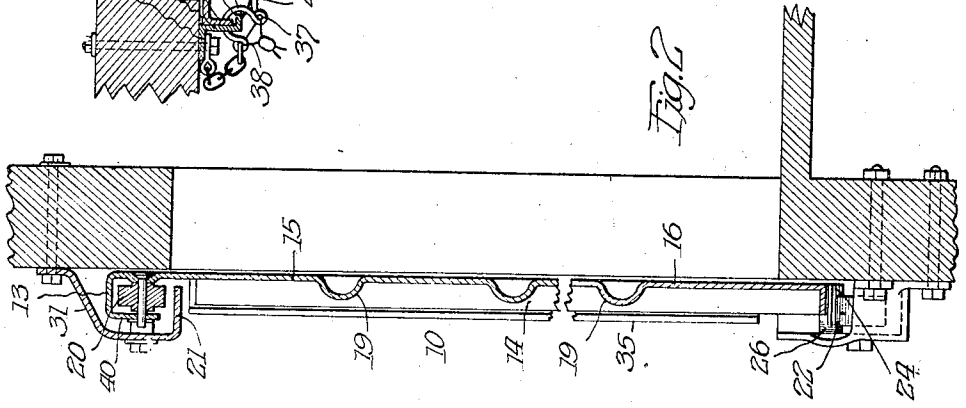


Fig. 2



Witness:

L. W. Novander.

Inventor:

Modeste A. Metzger,

By E. J. Andrews

Atty.

UNITED STATES PATENT OFFICE.

MODESTE A. METZGER, OF CHICAGO, ILLINOIS.

DOOR.

1,353,176. Specification of Letters Patent. Patented Sept. 21, 1920.

Application filed April 14, 1919. Serial No. 289,999.

To all whom it may concern:

Be it known that I, MODESTE A. METZGER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Doors, of which the following is a specification.

This invention relates to improvements in sliding doors, and has for its object the production of a door so made and arranged that it can be easily opened and closed, and will be held snugly in place when either opened or closed; this being the result of the construction of the door itself, the manner in which the door is supported, and also the special means provided for manipulating the door. It has for a further object improved means for sealing the door in its closed position; and other objects will be apparent from a consideration of the accompanying drawings and description thereof.

Of the accompanying drawings Figure 1 is an elevation of the door and the supporting means which embody features of my invention. Figs. 2, 3, 4 and 5 are enlarged sections along the respective lines 2—2, 3—3, 4—4, and 5—5 of Fig. 1.

The door itself may be constructed in any suitable manner, so far as certain features of my invention are concerned; but as a part of my invention I prefer a door 10 composed of sheet steel having flanges 11, 12, 13 and 14, on its respective edges; these flanges being partly to stiffen the door and being also for purposes hereinafter specified. I also prefer to make the door out of two pieces, 15 and 16, the upper piece 15 being of somewhat thinner gage than the lower piece, so as to decrease the expense, and also the weight of the door; this being possible because ordinarily the strain on the upper portion is somewhat less than on the lower portion. In making the door I provide other flanges 17 and 18 along the adjacent edges of the two portions of the door, and fasten these together in any suitable manner, such as by means of rivets or by welding. I also provide other stiffening means such as the corrugations 19 pressed in the metal, these corrugated portions extending outwardly, as indicated in Fig. 2.

The door may be suspended in any suitable manner, but I prefer to have the door suspended from the upper edge by the rollers 20, supported by the track 21 when the door is being opened or closed, so as to reduce the tendency of the door to bind, and for other reasons. At the same time I prefer to have the door supported on the rollers 22 and 23 when the door is either opened or closed, in order to take the weight of the door off from the upper portion of the framework of the building. For this purpose I provide the elevating flanges 24 and 25, projecting downwardly from the flange 11 on the lower edge of the door. These flanges 24 and 25 pass upon the respective rollers 22 and 23 when the door is either in its closed or opened position, as indicated; thus removing the weight of the door from the upper rollers. At the same time, the position of the flanges 24 and 25, with reference to the rollers, is such that the weight of the door tends to hold it in the closed or the open position.

In order to hold the door still more snugly in place when opened or closed, I provide the additional flanges or projections 26, which, when the door is in the closed or open position, wedge against the inner surface of the roller supporting brackets 27.

I also provide means, if desired, for starting the door from its open or its closed position, comprising the arm 28 fixed to the gear segment 29, which is pivoted at the point 30, and which is geared to the rollers 23; the lower portion of the flanges 24 and 25 comprising gear segments, which also mesh with the rollers 23, according to whether the door is in its closed or opened position. It is evident that by moving the lever arm in one direction or the other, depending upon the position of the door, the door will be forced, in the direction desired, off from the lower elevating rollers, and on to the upper supporting rollers.

In order to prevent any tendency of the door to bind, and also to eliminate weather effects and other weaknesses of the upper supporting means, I provide the upper rollers 20 journaled in the door and the overhanging flange 40, the rollers having flat peripheries, instead of grooved peripheries as is common, running upon the flat track 21, which is an integral portion of the track supporting means 31; the entire track supporting means being of a continuous rolled or pressed strap of steel firmly bolted by its upper edge and by its ends to the framework of the building. By this arrangement there will be no tendency for the rollers to run off of the track, as the arrangement is

such that this is substantially impossible. Also moisture and dirt cannot work down through the upper portions of the support because of the integral arrangement of the supporting track; and the relative arrangement of the supporting track cannot be deranged under any ordinary circumstances.

Also I provide, for more snugly holding the door in place when closed, a stop 33 composed of a Z-shaped piece of strap iron, the flange 34 being adapted to be bolted firmly to the framework, and the flange 35 extending over the flange 14 of the door when the door is closed, and thus holding the door snugly in place. It will be apparent that a track support, such as shown, and the Z-shaped stop may be cheaply made, and also that they will be very efficient and effective in fulfilling their functions.

In order to form suitable and effective sealing means, I provide in the flange 14 of the door, and in the central portion of the stop 33, registering openings through which sealing means may be inserted; and to remove the strain entirely from the seal I provide the U-shaped sealing member 36, having eyes 37 at the ends of its arms; and by passing one of the arms of this member through the registering openings, when the door is closed, an ordinary seal 38 may be sealed across the two arms, as indicated, and the door will be locked firmly closed, in a very simple and effective manner.

I claim as my invention:

1. A door having supporting rollers on the upper edge thereof, rollers positioned beneath said door, a track fixed under the upper rollers which supports said upper rollers when the door is partly opened, means fixed to said door which pass upon said lower rollers when the door is entirely closed or open, and a flange projecting upwardly from said upper track outside of said upper rollers.

2. The combination of a door frame and a door, means for supporting said door when the door is partly opened, two rollers adjacent the lower rear corner of said frame, and means projecting downward from the lower rear corner of said door, said latter means resting on said two rollers when said door is closed thereby supporting the rear edge of said door.

3. A door having supporting rollers on the upper edge thereof, rollers positioned beneath said door when it is either open or closed, a track fixed under the upper rollers which supports said upper rollers when the door is partly open, and flanges depending from the lower edge of said door which run upon said lower rollers and raise the door from said upper rollers as the door is entirely closed.

4. A door having supporting rollers on the upper edge thereof, rollers positioned beneath said door when it is either open or fully closed, a track fixed under the upper rollers which supports said upper rollers when the door is partly open, and flanges depending from the lower edge of said door which run upon said lower rollers and raise the door from said upper rollers as the door is entirely closed, said depending flanges being spaced apart slightly unlike the said lower rollers.

5. A sliding door, means adjacent the upper edge of said door for supporting said door when said door is partly open, and rollers beneath said door for supporting it when it is in its closed or open position.

6. The combination of a door frame and a door, means for supporting said door by its upper edge when the door is partly open, two adjacent rollers adjacent the lower rear corner of said frame, and a flange projecting downward from the lower rear corner of said door, said flange resting on said two rollers when said door is closed and thereby supporting the rear edge of said door.

7. The combination of a door frame and a door, means for supporting said door by its upper edge when the door is partly open, two adjacent rollers adjacent the lower rear corner of said frame, and a flange projecting downward from the lower rear corner of said door, said flange resting on said two rollers when said door is closed and thereby supporting the rear edge of said door, the lower edge of said flange being convex.

8. The combination of a door frame and a door, means for supporting said door by its upper edge when the door is partly open, two adjacent rollers adjacent the lower rear corner of said frame, and a flange projecting downward from the lower rear corner of said door, said flange resting on said two rollers when said door is closed and thereby supporting the rear edge of said door, the lower edge of said flange being convex and having teeth thereon, said rollers having teeth on their peripheries, a toothed segment pivoted adjacent said rollers and meshing therewith, and a handle fixed to said segment, the teeth on said flange meshing with the teeth on said rollers when said door is closed, whereby said door can be started open by operating said handle.

9. A sliding door, means adjacent the upper edge of said door for supporting said door when said door is partly open, and means beneath said door for supporting it when it is in its closed or open position, and means for binding said door snugly in place when it is in its closed position.

10. A door having supporting rollers on the upper edge thereof, rollers positioned beneath said door, a track fixed under the upper rollers which supports said upper rollers when the door is partly opened, means fixed to said door which pass upon

said lower rollers when the door is entirely closed or open, and a flange projecting upwardly from said upper track outside of said upper rollers and extending to and secured to the wall.

11. The combination of a door frame and a door, means for supporting said door when the door is partly open, a roller adjacent the lower rear corner of said frame, and means projecting downward from the lower rear corner of said door, said latter means resting on the forward side of said roller when said door is closed.

In testimony whereof, I hereunto set my hand.

MODESTE A. METZGER.