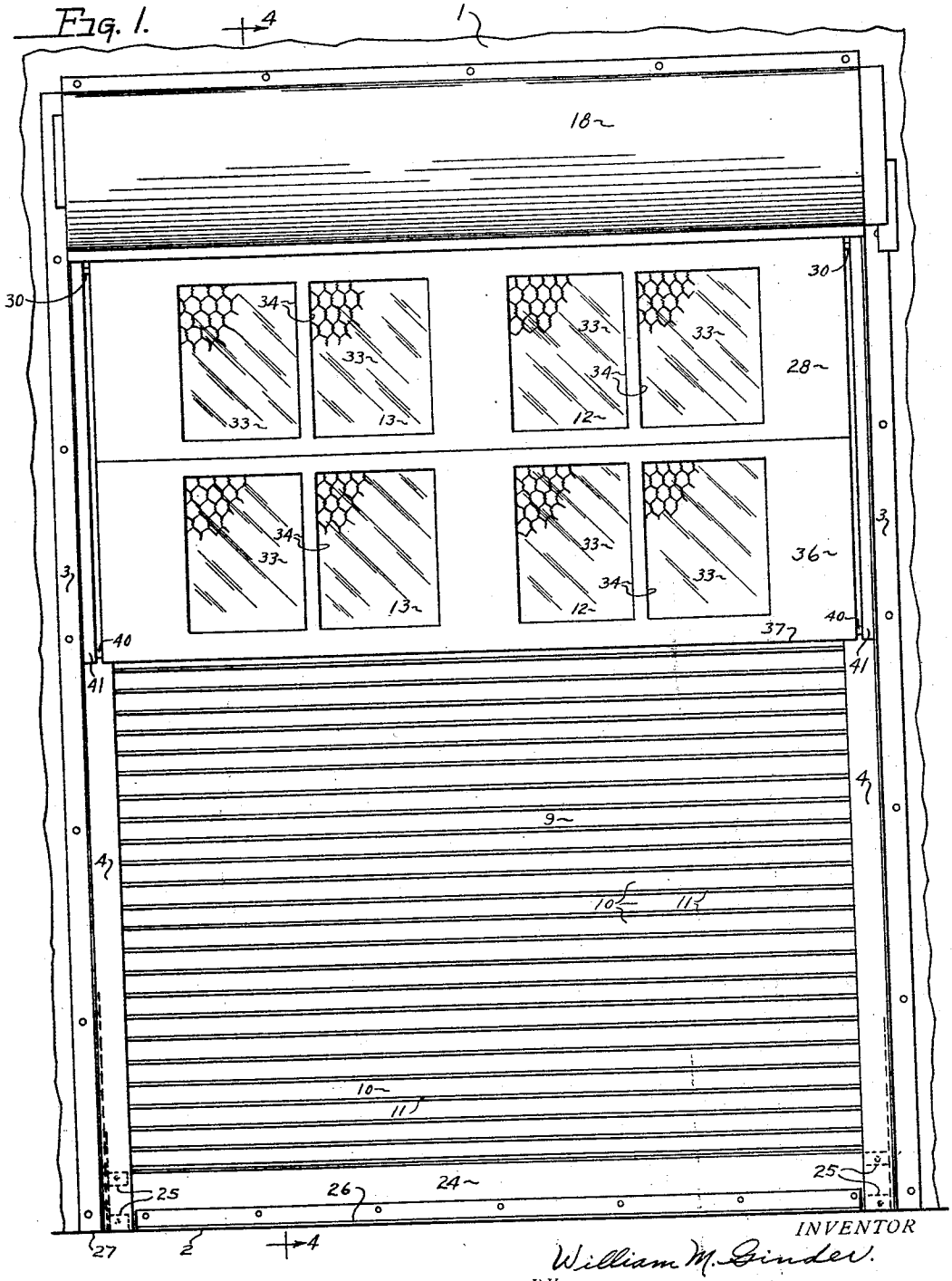
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ROLLING DOOR

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Fig. 1.



INVENTOR

William M. Ginder.

BY

Toulmin & Toulmin

ATTORNEYS

Dec. 27, 1932. W. M. GINDER 1,892,570

ROLLING DOOR

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Fig. 2.

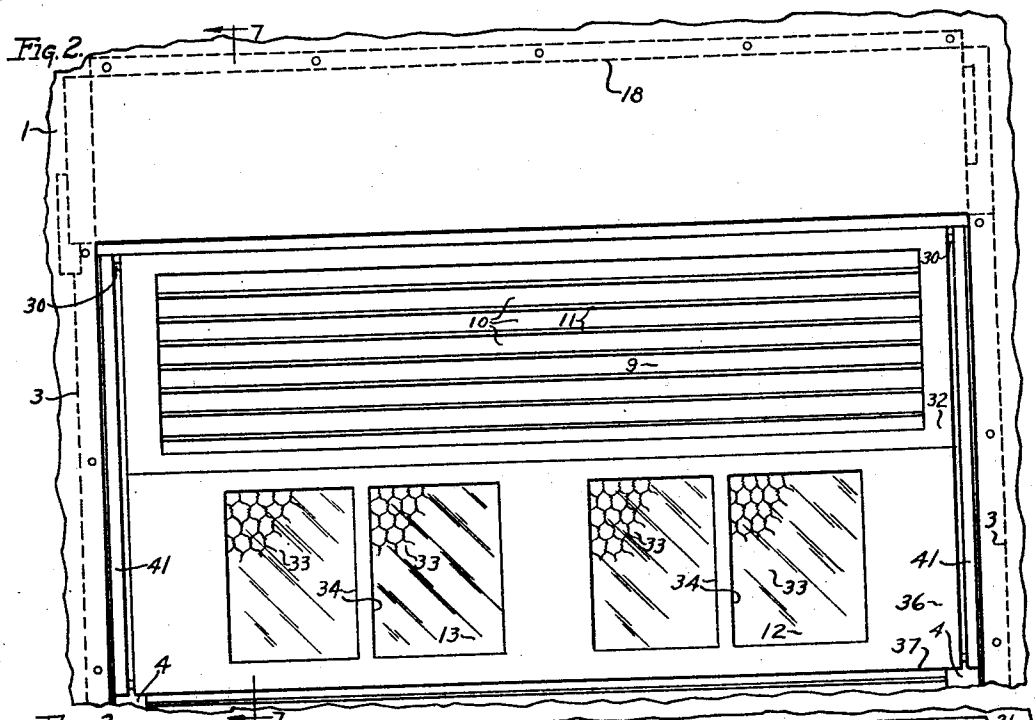
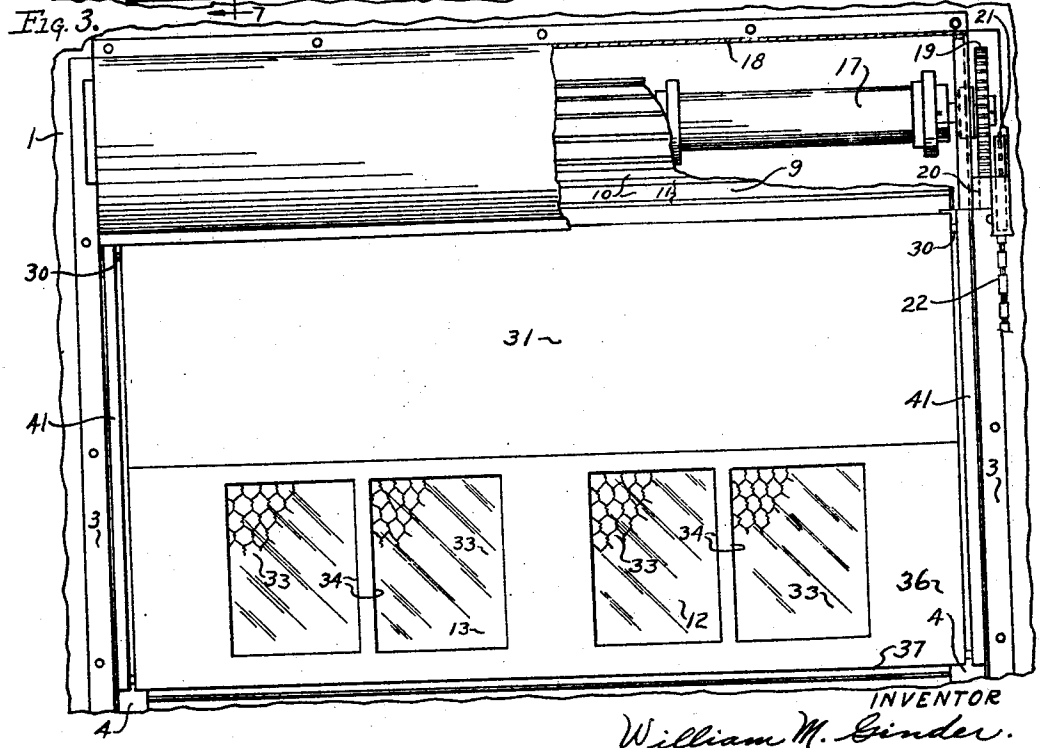


Fig. 3.



INVENTOR

William M. Ginder.

BY Taulmin & Taulmin

ATTORNEYS

Dec. 27, 1932. W. M. GINDER 1,892,570

ROLLING DOOR

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FIG. 4.

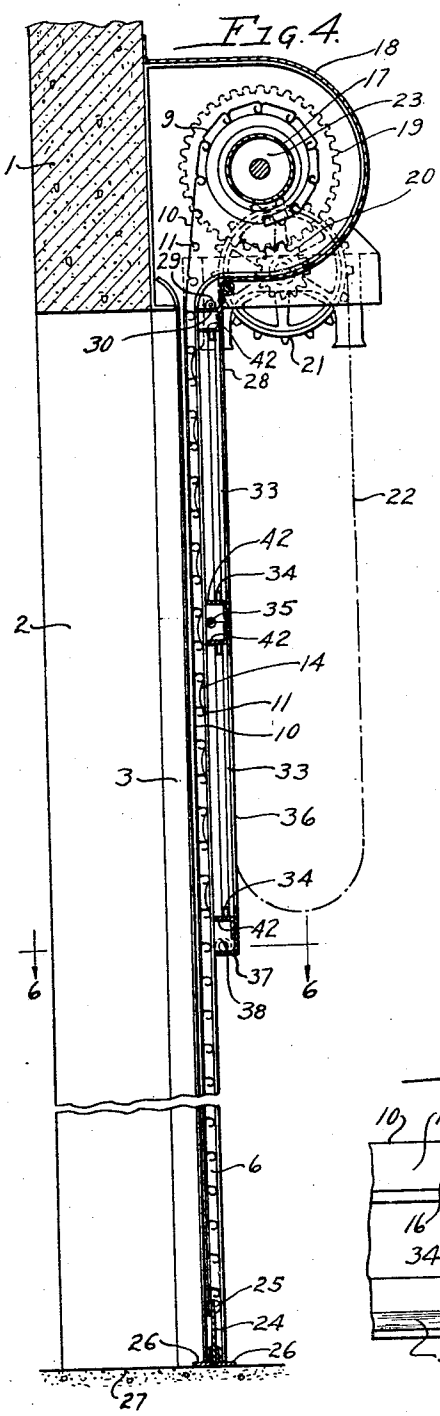


FIG. 5.

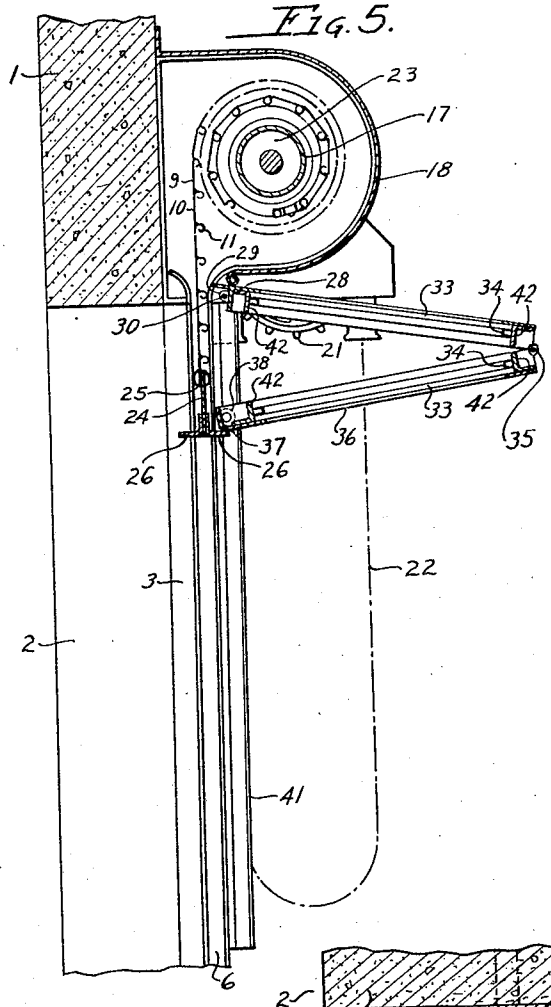
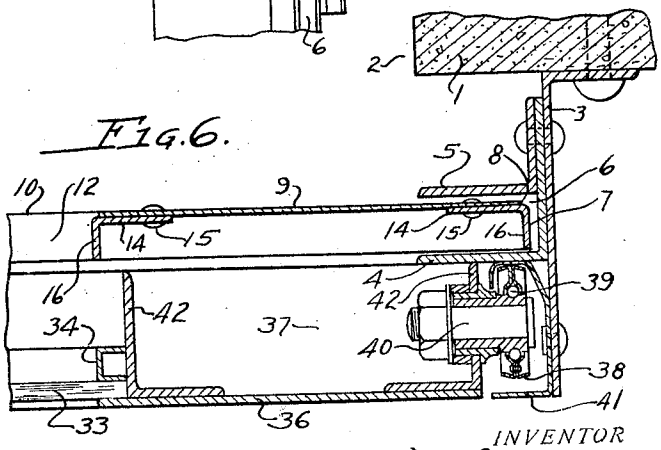


FIG. 6.



INVENTOR

William M. Ginder.

BY Taulmin & Taulmin

ATTORNEYS.

Dec. 27, 1932. W. M. GINDER 1,892,570

ROLLING DOOR

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Fig. 7.

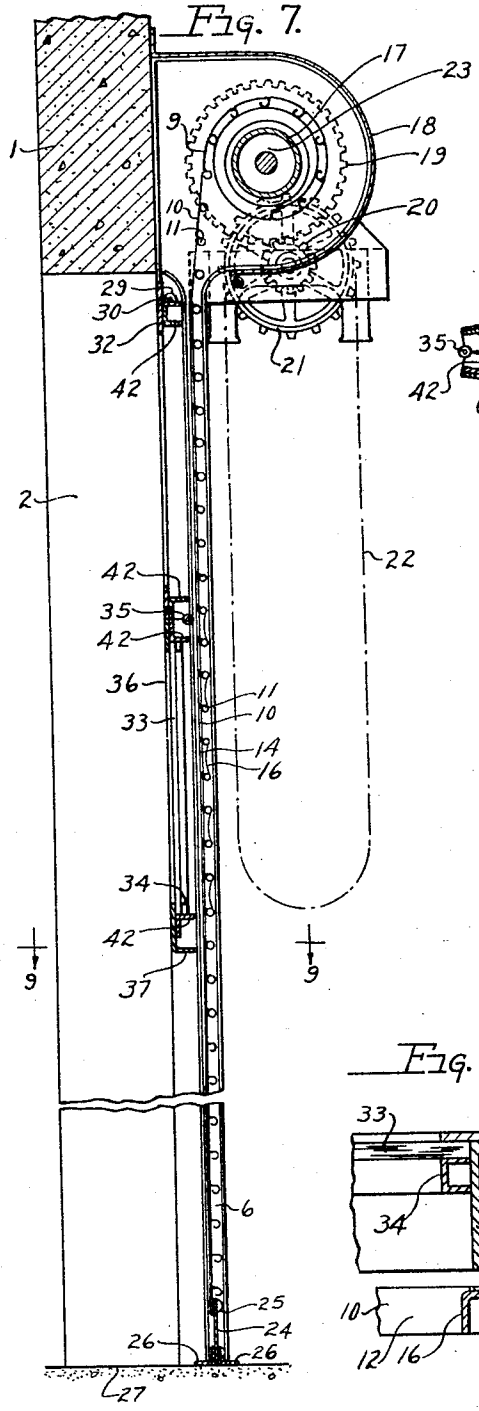


Fig. 8.

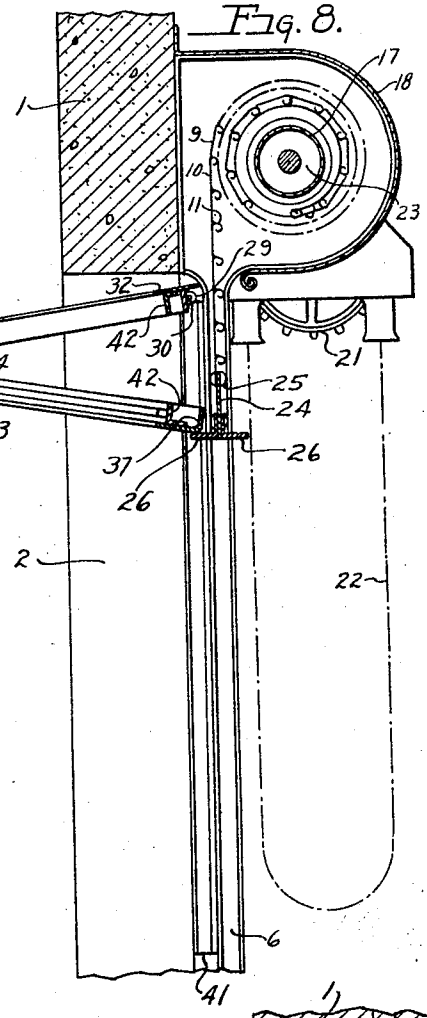
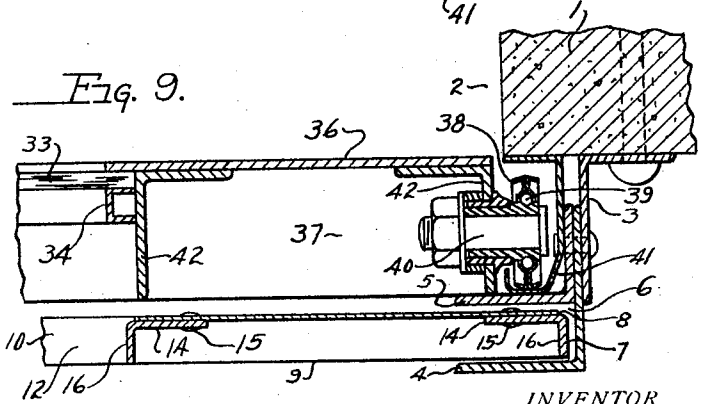


Fig. 9.



INVENTOR

William M. Ginder.

BY Faulmin & Faulmin

ATTORNEYS

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Fig. 10.

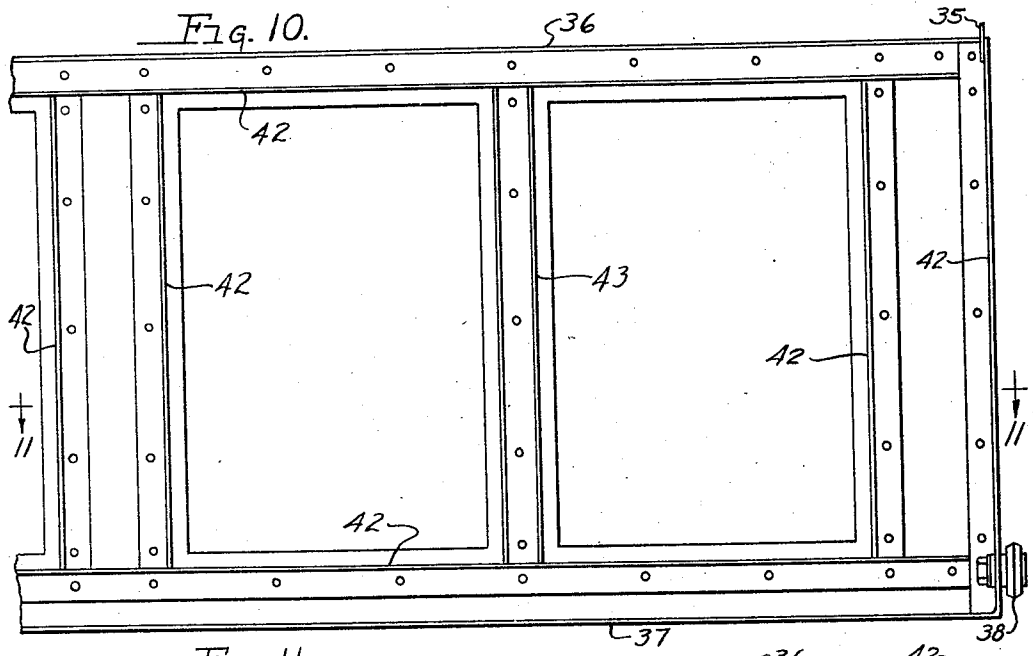


Fig. 11.

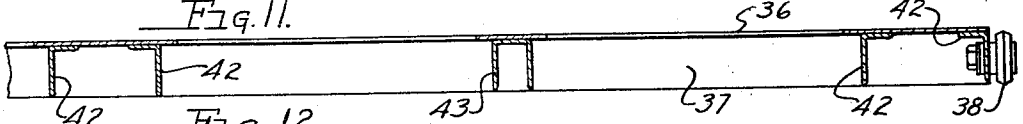


Fig. 12.

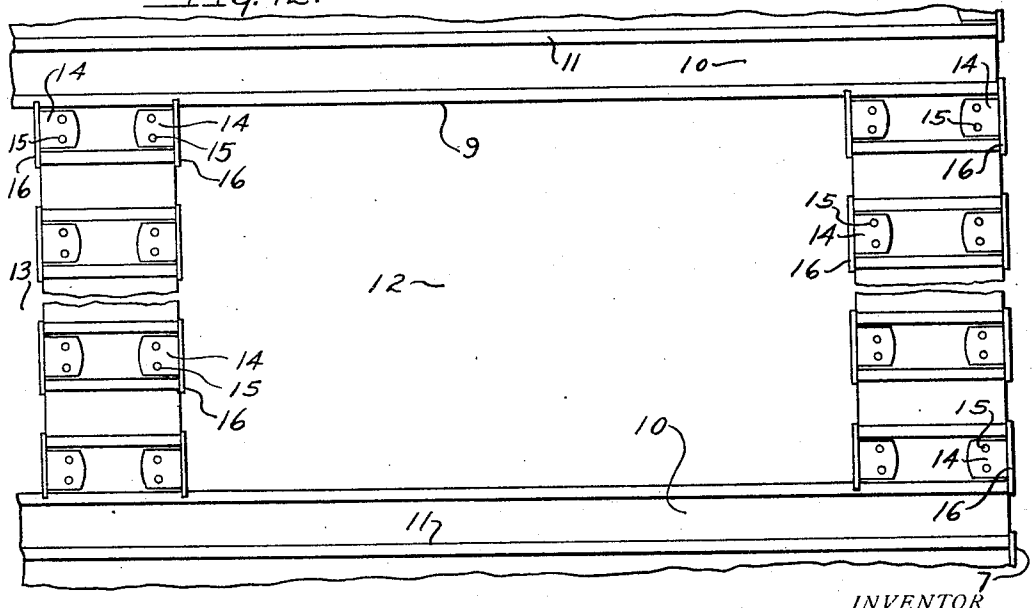
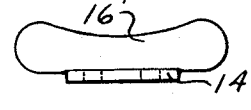


Fig. 13.



INVENTOR

William M. Ginder.

BY Paulmier & Paulmier

ATTORNEYS.

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ROLLING DOOR

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Fig. 14.

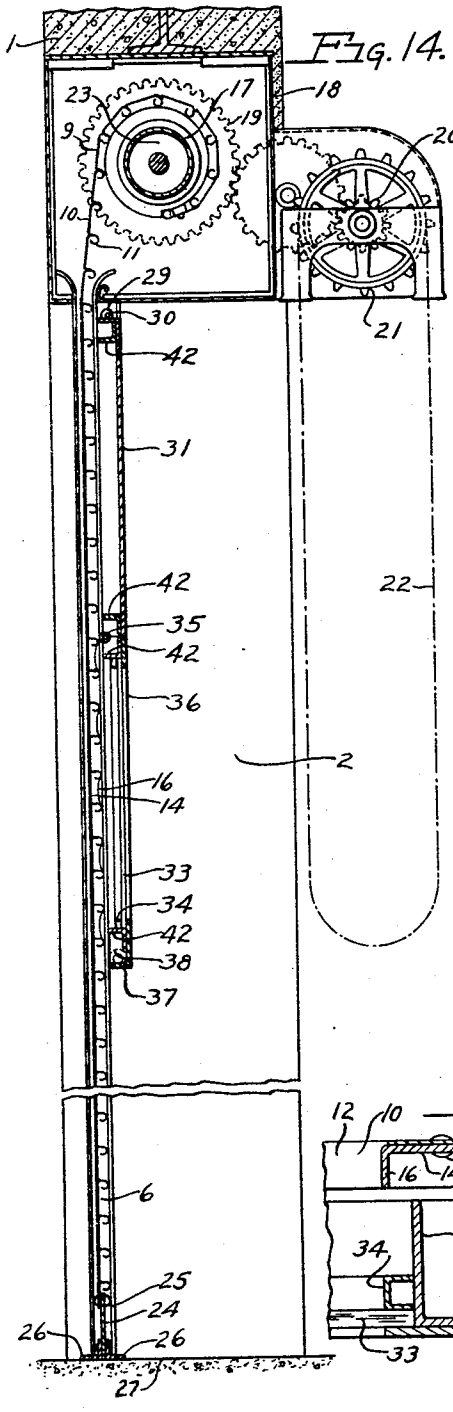


Fig. 15.

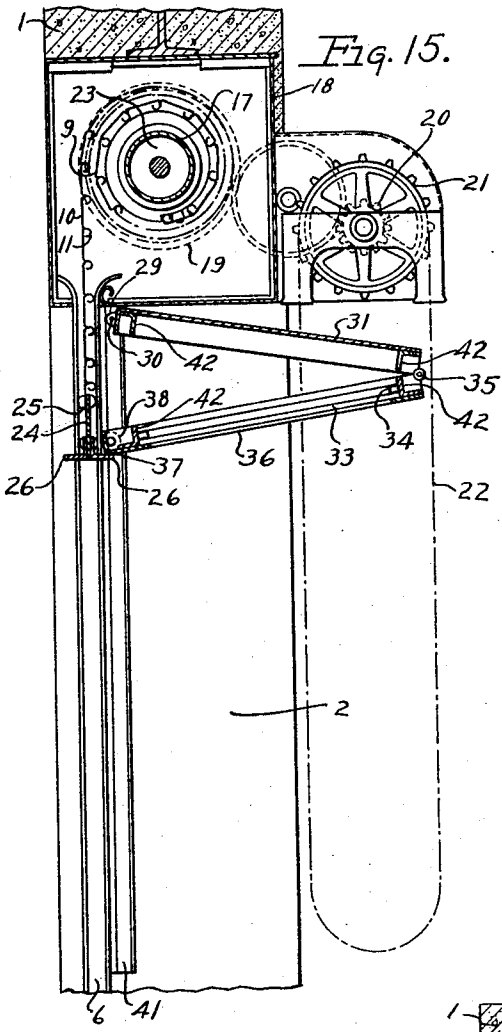
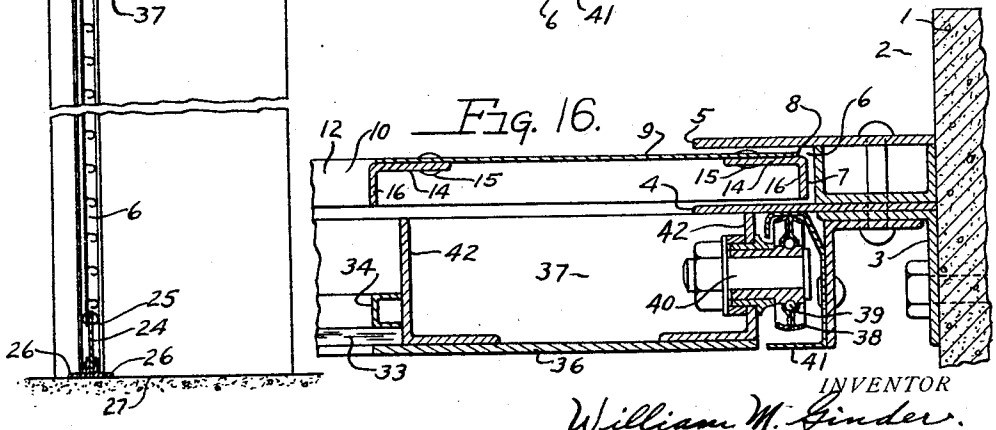


Fig. 16.



INVENTOR

William M. Ginder.

BY Taulman & Taulman

ATTORNEYS

Patented Dec. 27, 1932

1,892,570

UNITED STATES PATENT OFFICE

WILLIAM M. GINDER, OF COLUMBUS, OHIO

ROLLING DOOR

Application filed March 9, 1931. Serial No. 521,237.

My invention relates to rolling doors and particularly to rolling doors having windows therein.

It is the object of my invention to provide a rolling door in which the window can be folded into inoperative position so that the total height of the door is not increased by reason of storing the window sections.

It is a further object to provide a window which is opened and closed in unison with the opening and closing of the door but which does not require any counter balancing mechanism for the window structure, as the counter balancing mechanism of the door in combination with the window is sufficient according to my invention.

It is my object to provide a window that is moved to inoperative position by the movement of the door to inoperative position; and which moves to operative position as the door moves to operative position, such movement taking place through the effect of gravity upon the window sections.

Referring to the drawings:

Figure 1 is a front elevation of the door in closed position with the windows in closed position covering the window openings in the door; such view showing the use of an upper and lower sash, both of which have windows in them;

Figure 2 is a front elevation of the upper half of the door in closed position showing the use of a suspending sash frame and a lower sash with glass therein for closing the window opening cut within the door;

Figure 3 is a similar view showing the upper suspending sash formed in a continuous plate and with the door actuating mechanism partially broken away;

Figure 4 is a section on the line 4—4 of Figure 1 showing the door and windows in operative position;

Figure 5 is a similar view showing them in inoperative position;

Figure 6 is a section on the line 6—6 of Figure 4;

Figure 7 is a section on the line 7—7 of Figure 2;

Figure 8 is a similar view showing the parts in inoperative position;

Figure 9 is a section on the line 9—9 of Figure 7;

Figure 10 is a detail elevation of one of the sash carrying the windows;

Figure 11 is a section on the line 11—11 of Figure 10;

Figure 12 is a front elevation in detail of one part of the articulated door curtains showing the arrangement of the window openings therein;

Figure 13 is an end elevation of one of the retaining clips for retaining the articulated slats in relative position with respect to one another;

Figure 14 is a vertical section showing the arrangement of the window sash in the door jamb when the parts are in operative position and the door is in operative position;

Figure 15 is a similar view with the door and windows in inoperative position;

Figure 16 is a section on the line 16—16 of Figure 14.

Referring to the drawings in detail, 1 is a wall in which there is a door opening designated 2. Mounted adjacent this door opening or within it is a rolling door having a window opening which is adapted to be covered by a window when the door is closed.

For this purpose a bracket 3 is mounted upon the wall 1. This bracket consists of a vertical plate extending on either side of the door. Upon the plate 3 is mounted an angular bracket 4 and a second angular bracket 5 forming between the angular portions of brackets 4 and 5 a guide passageway 6 in which the margin 7 consisting of an angle iron and the outer edge 8 of the rolling door 9 travels. This rolling door is comprised of a plurality of interlocked hinged slats 10 hinged at 11. The exact detail construction of the door is not important. The door slats have one or more openings designated window openings such as 12 and 13 cut in the face thereof. The slats comprising the door are restricted in their lateral movement by the retaining plates 14 attached by the rivets 15 to the slats 10. These plates 14 have end plates 16 that overlap the hinges 11 and prevent lateral movement of the plates with respect to one another.

The door curtain is adapted to be wound on the drum 17 within the housing 18 in the usual manner. The drum is actuated by the gear 19, pinion 20, sprocket wheel 21 and actuating chain 22. The details of this mechanism are not important. Any form of winding and unwinding mechanism and associated counter balancing mechanism will be sufficient. The counter balancing mechanism is located within the drum 17 at 23.

The lower edge of the door is provided with a plate 24 having rounded guide members 25 to guide the lower end of the door in the slot 6. The base of the plate 24 is provided with angle irons 26 which serve to engage the floor 27 and also the bottom of the window sash for elevating the sash and controlling the lowering of the sash. The hinged sash may be made in one or two sections. The upper section of the sash, designated 28, is hinged with the brackets 29 at the upper corners thereof as at 30 at the top of the door beneath the top of the door opening 2. The upper sash may be either a plain plate as in Figure 3 at 31 or a frame as at 32 in Figure 2, or a sash 28 as in Figure 1, which contains the glass, preferably wire glass 33, which is mounted in the window frames 34 carried by the sash.

It is preferred to have the sash articulated at 35 to a lower sash 36 which may be either a frame, a glass-carrying sash, or a plate, or any equivalent means. The lower edge of this sash at 37 engages with one of the angle irons 26 when the door is being elevated, which causes the sash to fold into an inoperative, substantially horizontal position. When the sash is folded in this manner, it is out of the way, but, when the door is lowered, the effect of gravity will be to lower the sash into horizontal position closing the window opening in the door. The movement of the sash is controlled by the rollers 38 mounted on ball bearings 39 upon the shafts 40 in the sash side frames. These rollers are mounted within guideways 41 which are carried on the side plates 3. Thus, the lower end of the sash is guided in a parallel plane to the plane of movement of the door.

As the sash extends completely across the door, there is no restriction of the door opening by the guiding means for the sash.

An examination of Figures 10 and 11 will indicate the arrangement of the sash in which the window frames are preferably mounted with the windows so that the windows are of lesser dimensions laterally than the total width of the door.

The sash is reinforced transversely and vertically by the angle irons 42 or U-shaped reinforcing members 43. This presents a rigid structure which, when in its closed position, forms a tight closure over the window opening in the articulated rolling door.

In Figures 7, 8 and 9 the same parts are arranged in a slightly different manner so that the sash opens through the door opening rather than beyond it, while, in Figures 14 and 16 the curtain and sash are arranged within the door opening. These modifications embody the same principles of my invention.

It will be understood that I desire to comprehend within my invention such modifications as may be necessary to adapt it to varying conditions and uses.

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

1. In combination, a rolling door having a window opening, a pivoted sash and window adapted to close said opening, and means on said door to elevate said sash to inoperative position when said door moves to inoperative position.

2. In combination, a rolling door having a window opening, a pivoted sash and window adapted to close said opening, and means on said door to elevate said sash to inoperative position when said door moves to inoperative position, means to guide said sash and retain it in position when the window therein closes said opening.

3. In combination, a rolling door having a window opening, a pivoted sash and window adapted to close said opening, means on said door to elevate said sash to inoperative position when said door moves to inoperative position, means to guide said sash and retain it in position when the window therein closes said opening, said guiding means being arranged parallel to the plane of movement of said door.

4. In combination, a rolling door having a window opening, a pivoted sash and window adapted to close said opening, means on said door to elevate said sash to inoperative position when said door moves to inoperative position, means to guide said sash and retain it in position when the window therein closes said opening, said guiding means being arranged parallel to the plane of movement of said door, and means of guiding said door in said parallel plane.

5. In combination, a rolling door having a window opening therein, a swinging sash having a window for closing said opening, said sash extending across said door, and means for pivotally supporting said sash adjacent the sides of said door, and means on the door for swinging said sash to move the sash with the door from open to closed position, and vice versa.

6. In combination, a rolling door having a window opening therein, a swinging sash having a window for closing said opening, said sash extending across said door, means for pivotally supporting said sash adjacent the sides of said door, and means for guiding said sash in its pivotal movement, and means

on the door for swinging said sash to move the sash with the door from open to closed position, and vice versa.

7. In combination, a rolling door having a window opening therein, a swinging sash having a window for closing said opening, said sash extending across said door, means for pivotally supporting said sash adjacent the sides of said door, and means for guiding said sash in its pivotal movement in a plane parallel to the movement of the door, and means on the door for swinging said sash to move the sash with the door from open to closed position, and vice versa.

8. In combination, a rolling door having a window opening therein, a swinging sash having a window for closing said opening, said sash extending across said door, means for pivotally supporting said sash adjacent the sides of said door, means for guiding said sash in its pivotal movement in a plane parallel to the movement of the door, and means on the bottom of the door for engaging with the bottom of the sash for controlling the movements of the sash into and out of operative position.

9. In combination, a rolling door having a window opening and a folding sash operated by the door and having a window therein for closing said opening.

10. In combination, a rolling door having a window opening and a folding sash operated by the door and having a window therein for closing said opening, and means for guiding said sash in its folding movements.

11. In combination, a rolling door having a window opening and a folding sash having a window therein for closing said opening, means for guiding said sash in its folding movements, and means on said door for engaging the bottom of said sash to control its folding movements.

12. In combination, a rolling door having a window opening and a folding sash having a window therein for closing said opening, means for guiding said sash in its folding movements, means on said door for engaging the bottom of said sash to control its folding movements, and means for pivotally supporting said sash on either side of said door transversely of the door.

13. In combination, a rolling door, a folding sash pivoted relative thereto, said door having a window opening and said sash having a window for closing said opening, and means on said door for operating said sash, said door being adapted to move vertically relatively to said sash.

14. In combination, a rolling door, a folding sash pivoted relative thereto, said door having a window opening and said sash having a window for closing said opening, and means on said door for operating said sash, said door being adapted to move vertically relatively to said sash, and said sash being adapted to fold in a substantially horizontal plane with respect to the vertical movement of said door.

15. In combination, a rolling door adapted to move vertically into and out of operative position, said door having a window opening, a sash pivotally supported in a vertical position when operative over said window opening, said sash being operated by the door and adapted to fold into substantially horizontal position when in inoperative position.

16. In combination, a rolling door adapted to move vertically into and out of operative position, said door having a window opening, a sash pivotally supported in a vertical position when operative over said window opening, said sash being adapted to fold into substantially horizontal position when in inoperative position, said sash being arranged with hinged sections, the hinge thereof being adapted to move outwardly from the plane of the door as the sash folds, while the bottom of the sash is moved upwardly by engagement with the bottom of the door.

17. In combination, a rolling door, a hinged sash operated by the door and a common means for guiding said hinged sash and rolling door in substantially parallel planes.

18. In combination, a rolling door having window openings therein, a sash extending transversely of said openings and coextensive with the width of said door and operated by the door, said sash having openings corresponding to the window openings in said door, and a glass carried in said sash openings adapted to close the window openings in the door, and means for pivotally mounting said sash with respect to said door.

19. In combination, a rolling door, a plurality of articulated sash pivoted adjacent said door, means on said door for engaging said sash to cause the sash to fold when the door is moved to open position, said door having window openings therein and said sash having corresponding window openings therein closed by glass whereby when the sash are in closed position and the door is in closed position the window openings in the door will be closed by the sash and the glass therein.

20. In combination, a rolling door, a plurality of articulated sash pivoted adjacent said door, means on said door for engaging said sash to cause the sash to fold when the door is moved to open position, said door having window openings therein and said sash having corresponding window openings therein closed by glass whereby when the sash are in closed position and the door is in closed position the window openings in the door will be closed by the sash and the glass therein, and means for guiding the bottom of said door and the bottom of said sash.

21. In combination, a vertically movable door having window openings, and a piv-

otally supported folding sash operated by the door and adapted to close said openings.

22. In combination, an articulated door, an articulated sash having glass enclosed window openings and operated by the door, said door having window openings therein adapted to be closed by said sash and glass therein.

23. In combination, an articulated door, an articulated sash having glass enclosed window openings, said door having window openings therein adapted to be closed by said sash and glass therein, and means to actuate said sash mounted on said door whereby the opening of the door will move said sash into inoperative position.

24. In combination, an articulated door, an articulated sash having glass enclosed window openings, said door having window openings therein adapted to be closed by said sash and glass therein, and means to actuate said sash mounted on said door whereby the opening of the door will move said sash into inoperative position at substantially right angles to the movement of the door.

25. In combination, a rolling door, articulated members hinged to one another, a window opening cut therein of greater depth and of lesser width than the slats composing said doors, and a swinging sash having a glass filled opening adapted to close said opening in said door, and means on said door for actuating said sash.

In testimony whereof, I affix my signature.

WILLIAM M. GINDER.