May 16, 1933. J. W. KELLER ET AL 1,908,706

AUTOMATIC DOOR CLOSER

Filed Aug. 6, 1928

Fig. 1.

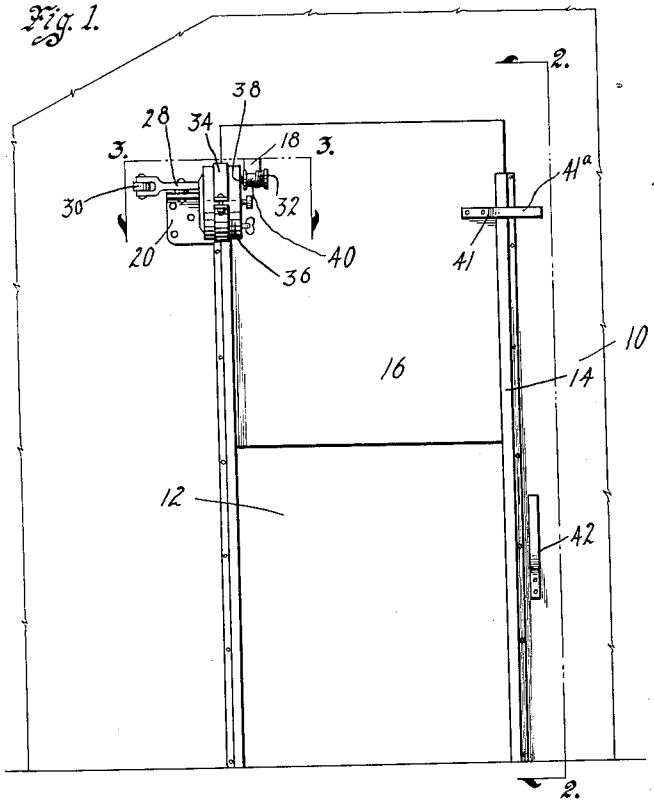


Fig. 2.

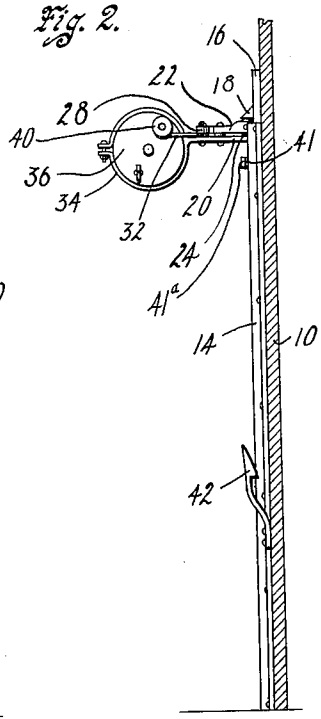
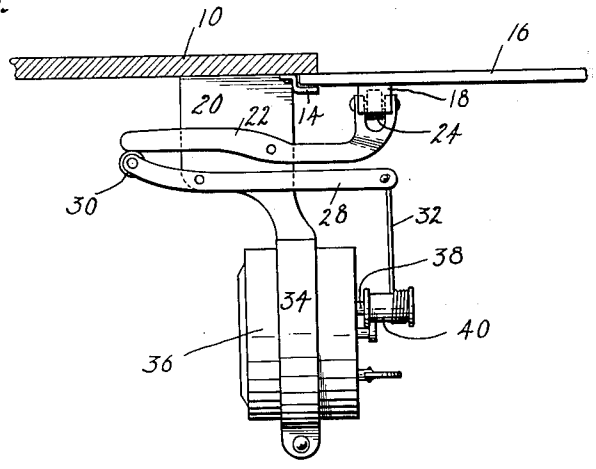


Fig. 3.



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UNITED STATES PATENT OFFICE

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AUTOMATIC DOOR CLOSER

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The object of our invention is to provide an automatic mechanism for closing doors of the kind used for instance in brooder houses and places where it is desirable to be able to set the mechanism for closing a door at a predetermined later time.

More particularly, our invention involves the use in combination with a door adjustable to open position and adapted to move by gravity to closed position of an apparatus so arranged in cooperative relation with the door for holding the door open.

Still a further purpose is to provide in such an apparatus time operated mechanism, such for instance as an ordinary alarm clock structure adapted to release the door at a future time determined by the setting of the mechanism.

Another purpose of the invention is to provide in a structure of the kind mentioned a suitable slidable mounting for the door together with a catch for automatically engaging and thus locking the door when the door shuts.

With these and other objects in view, our invention consists in the construction, arrangement and combination of the various parts of our automatic door closer, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in our claims, and illustrated in the accompanying drawing, in which:

Figure 1 shows a front elevation of a part of a brooder or the like having a vertically slidable door with our improved mechanism assembled in proper relation to the door and wall.

Figure 2 is a detail, sectional view taken on the line 2—2 of Figure 1; and

Figure 3 is a horizontal, sectional view taken on the line 3—3 of Figure 1.

In the drawing herewith, we have illustrated our door control in connection with the door of a brooder, but it is not our purpose to limit the device to any particular structure such as brooder houses. The door control may be used in a great variety of places.

As here illustrated, it is assembled with a brooder having the wall 10 in which is the door opening 12.

On the wall 10 inside the building, at the side of the door opening 12 are the vertical guides 14 in which travel the side edges of the vertically slidable door 16. On the door is a projecting trigger engaging member 18.

On the wall 10 is a bracket 20. Pivoted between its ends on the bracket 20 is a horizontal lever 22 one end of which carries the anti-friction roller 24 which is swung toward or from the plane of the door, in the pivotal movement of the lever 22. The parts are so arranged that the door may be raised and the lever 22 then swung on its pivot till the roller 24 stands under the trigger engaging member 18 for holding the door up. When the lever is moved in the other direction, the rollers is pulled out from under the member 18 and the door will drop and close by gravity. The lever 22 and roller 24 thus form a trigger device.

A second horizontal lever 28 is pivoted between its ends on the bracket 20. It carries a roller 30 at one end to engage the end of the lever 22 farthest from the roller 24. Connected with the other end of the lever 28 is a flexible cord or the like 32.

The bracket 20 carries a clamp 34 in which is gripped and supported a clock mechanism, for instance an ordinary alarm clock 36, having the winding stem 38 for the alarm mechanism. The stem 38 is rotated in one direction for winding the alarm and rotates in the other direction as the alarm mechanism runs down.

Detachably mounted on the stem to rotate therewith is a small drum 40 upon which the cord 32 is wound, so as to be taut when the lever 28 is in position for holding the lever 22 in door releasing position and the alarm mechanism is run down.

When the alarm is wound, the cord unwinds from the drum 40 and becomes slack.

On the door 16 is a flat bar 41 having an offset portion 41*a* which projects beyond the outline of the door. On the wall 10 is a spring catch 42 so arranged that when the door drops to closed position the catch 42 will engage the bar 41 and lock the door against opening movement till the spring catch is manually released.

In connection with the door of a chicken brooder or the like, a device of this kind is very useful. The alarm may be wound and set for the proper hour, say 9 P. M. The door 16 may be raised and the lever 22 adjusted to place the roller 24 under the trigger engaging member 18 for holding the door up. The clock mechanism will continue to operate and wind the cord 32 upon the drum 40. The parts are so arranged and proportioned that the alarm mechanism will serve to actuate the levers 22 and 28 for causing the roller 24 to clear the member 18 and permit the door to drop just at the time for which the alarm is set. In the instance assumed, this would be 9 P. M.

By using the two levers 22 and 28 as here arranged, there is provided such leverage and movement that the alarm stem can cause the door release at the proper time and with sufficient power.

The apparatus can be set at the convenience of the user to cause the door to be closed at any desired time in advance. Thus a brooder door can be set to close at the time when all the chickens will have come into the brooder. Other uses for the device will be obvious.

When the door is thus automatically closed, it will be locked against opening by animals or accident, so that the closing is positive.

Some changes may be made in the arrangement and construction of the various parts of our automatic door closer, without departing from the real spirit and purpose of our invention, and it is our intention to cover by our claims, any modified forms of structure or use of mechanical equivalents, which may be reasonably included within their scope.

We claim as our invention:

1. For use with a vertically slidable door mounted on a wall adjacent a door opening in the wall, a door releasing mechanism comprising a bracket, means for attaching the bracket to the wall adjacent the door, a door lever and a release lever pivoted on opposite sides of said bracket and a lug on said door, one end of said door lever being coactable therewith, the other end of said door lever being coactable with one end of said release lever whereby when the door is raised and the door lever is adjusted to coact with said lug, the release lever when moved to release position will cause the door lever to move and disengage from said lug thereby to allow the door to close.

2. For use with a vertically slidable door mounted on a wall adjacent a door opening in the wall, a door releasing mechanism comprising a bracket, means for attaching the bracket to the wall adjacent the door, a door lever and a release lever pivoted on opposite sides of said bracket and a lug on said door, one end of said door lever having a roller thereon coacting with said lug, one end of said release lever having a roller thereon coacting with the other end of said door lever, the other end of said release lever; when moved to release position after the door is raised and the door lever is adjusted to coact with said lug; causing said door lever to move and disengage from said lug thereby to allow the door to close.

3. For use with a door constrained to move to open position and mounted on a wall adjacent a door opening in the wall, a door releasing mechanism comprising a bracket, means for attaching said bracket to said wall adjacent said door, a door lever and a release lever pivoted to said bracket and a lug on said door, one end of said door lever being coactable therewith, the other end of said door lever being coactable with one end of said release lever whereby when the door is open and the door lever is adjusted to coact with said lug, said release lever when moved to release position will cause said door lever to move and disengage from said lug whereby to allow said door to close.

4. For use with a door constrained to move to open position and mounted on a wall adjacent a door opening in the wall, a door releasing mechanism comprising a bracket, means for attaching said bracket to said wall adjacent said door, a door lever and a release lever pivoted to said bracket and a lug on said door, one end of said door lever having a roller coacting with said lug, one end of said release lever having a roller, the other end of said door lever being coactable therewith, the other end of said release lever when moved to release position; after the door is opened and the door lever is adjusted to coact with said lug; causing the door lever to move and disengage from said lug whereby to allow said door to close.

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