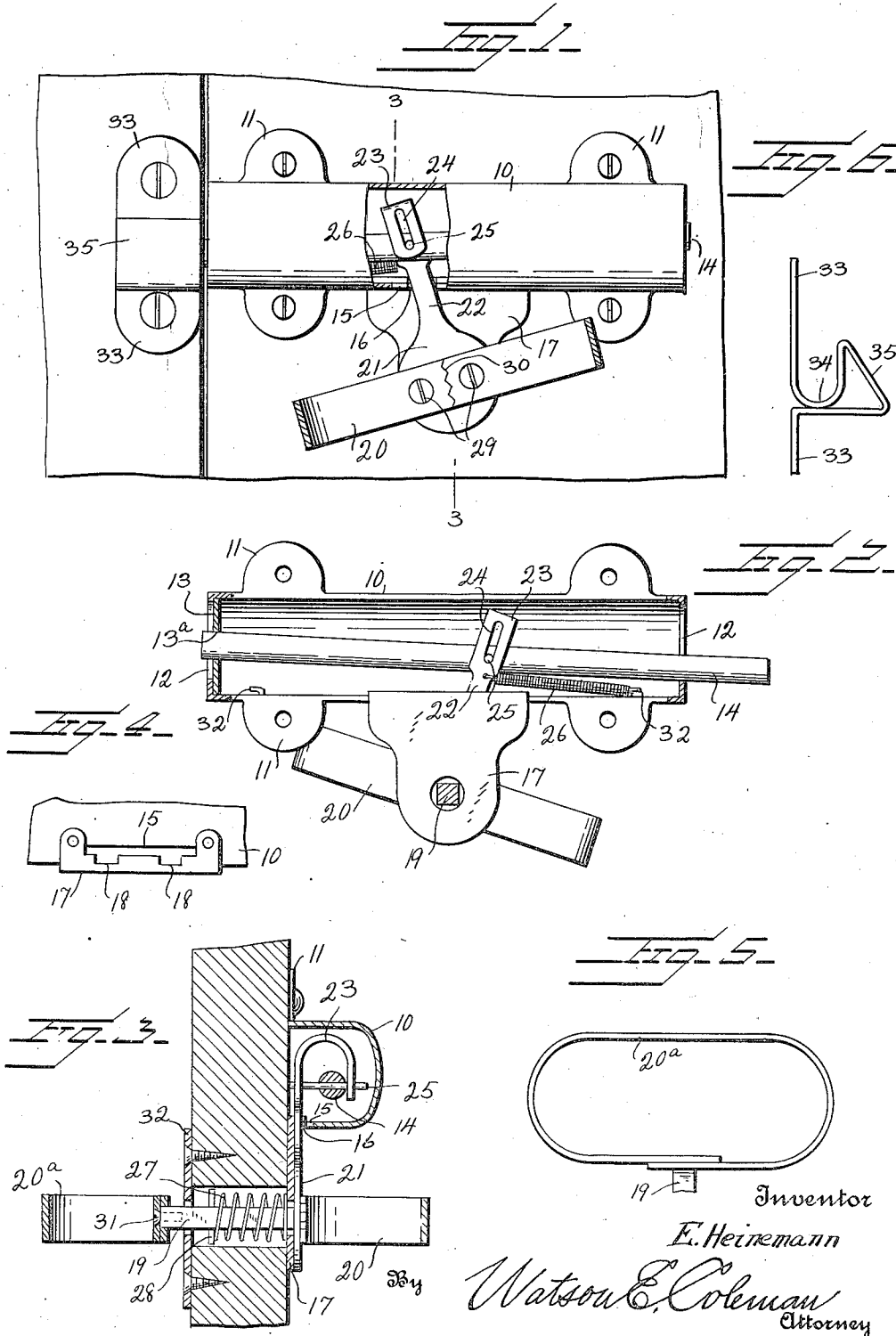


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AUTOMATIC LATCH FOR DOORS.
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AUTOMATIC LATCH FOR DOORS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ERNEST HEINEMANN, a citizen of the United States, residing at Alma, in the county of Buffalo and State of Wisconsin, have invented certain new and useful Improvements in Automatic Latches for Doors, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention relates to latches or locks, and particularly to latches designed for use on barn doors and doors for like purposes.

The general object of the invention is to provide a latch of this character which cannot be accidentally retracted or released by animals running against the latch or otherwise actuating the latch.

15 A further object is to provide a latch of this character wherein the locking bolt is normally held from retraction but is releasable to permit the locking bolt to be retracted by pulling upward on the handle of the locking bolt.

20 A further object is to provide a latch of this character which is very simple in construction, has relatively few parts, and which is very effective in operation.

Other objects will appear in the course of the following description.

30 My invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a front elevation of a portion of a door and its casing, with my lock applied thereto, the casing being partly broken away and the handle being in section;

35 Fig. 2 is an elevation of the lock casing looking from the inside, a portion of the casing being in section and the spindle being in section;

40 Fig. 3 is a vertical section on the line 3—3 of Fig. 1;

Fig. 4 is a fragmentary top plan view of a portion of the casing and the plate 17;

45 Fig. 5 is an edge view of one of the handles; and

Fig. 6 is a side elevation of the keeper.

Referring to these drawings, it will be seen that this latch comprises a housing 10, which is approximately semicircular in cross section and is disposed with its open side against the face of the door and is provided with the ears 11 whereby it may be attached by screws to the door. Each end of this housing is formed with a longitudinally extending slot 12 for the bolt, but at one end

is the plate 13 formed with a circular perforation 13^a for the bolt.

Disposed within the housing and extending longitudinally thereof and having a length greater than the housing is the bolt 14 designed to reciprocate within the housing and also to have a slight oscillating motion. The bottom of the housing is cut-away as at 15 and provides a longitudinally extending slot. Riveted or otherwise attached to the housing at the slot 15 is a plate 17, the upper margin of which is inwardly turned and engaged over the bottom of the housing and this upper margin is cut away as at 18 to form two notches or recesses as shown in Fig. 4.

Passing through the lower end of this plate 17 is the knob spindle 19 which is square in cross section and carries on its extremities the handles 20 and 20^a. It will be, of course, obvious that the plate 17 has an opening through it sufficiently large to receive the knob spindle and to permit its rotation. Disposed upon the exterior of the plate 17 is a plate 21, which has a square opening through it for the passage of the knob spindle, this plate being formed to provide an arm 22 which extends upward through the slot 15 and is bent over at its upper end to embrace the bolt 14, as at 23. This portion of the arm is provided with the oppositely disposed slots 24 and a pin 25 extending through the bolt operates within these slots. A spring 26 is connected at one end to the housing 10 and at its opposite end to this arm and acts to hold the bolt projected.

Bearing against the plate 17 is a coiled compression spring 27 which bears against a pin 28 on the knob spindle and thus urges the plate 22 which constitutes an arm, against the plate 17 and therefore urges the arm 22 into the recesses or notches 16.

Preferably the handle 20, as illustrated in Fig. 1, is fastened by a pair of screws 29 to the plate 21 and the abutting ends of the handle, which is formed of a strip of metal bent into an elliptical form, are notched as at 30 to interlock with each other. The opposite handle 20^a is formed of a strip of metal bent into elliptical form with its ends looped and held to the knob spindle by means of a screw 31 which extends into the spindle. A wear plate 32 is attached to the door, the knob spindle passing through this

wear plate and the handle bearing against this wear plate.

The keeper for the bolt preferably consists of a single strip of material bent to form oppositely projecting ears 33, a bolt receiving seat 34, and an inclined face 35 leading up to the upper edge of said seat. I, of course, do not wish to be limited to this particular form of keeper, however.

0 In the operation of this lock, it will be obvious that if the door be opened and the bolt projected, the arm 22 will be disposed in one of the recesses 18 and the bolt is held from any longitudinal movement which
5 would tend to retract it but because of the slot 12, the bolt may rise and ride up over the inclined face 35 and thus drop into the bolt seat 34. The door is then locked against any accidental opening movement, because
10 the arm 21 is resiliently held in the corresponding notch 18 and the handles cannot be turned nor the bolt otherwise shifted back unless the knob spindle be either pushed or pulled depending upon which
15 side of the door the person opening the door is at the time the door is actuated. When the knob spindle is shifted longitudinally against the force of the spring 28, the arm 21 is carried out of the recess 18 and into the
20 slot 15, whereupon the knob spindle may be turned to retract the bolt and the door may be opened. It will be understood that if the operator is on one side of the door, the handle is pulled and if on the other side of the door, the handle is pushed. In other words, the knob spindle is always forced in a direction against the action of the spring 28 in order to open the door. If it be desired to hold the bolt retracted, the arm 21 is engaged with the notch 18 farthest from the edge of the door, but if this is not done, then the spring 26 will always urge the bolt to a position where the arm 21 will engage with the notch 18 nearest the edge of the door and with the bolt projected.

It will be seen that this device is very simple, may be cheaply made and that it is very effective. It is obvious also that many changes may be made in the details of the invention, without departing from the spirit thereof, as defined in the appended claims.

It will be noted from Fig. 2 that both ends of the casing are formed with slots 12 and that a plate 13 is disposed in one end of the casing which is formed with a perforation 13^a. It will likewise be seen that the casing is provided with hooks 32 for the engagement of the spring 26. This construction permits the lock to be reversed and projected either from the righthand end of the casing or the lefthand end of the casing, as desired by merely shifting the spring 26 and shifting the plate 13.

I claim:—

65 1. A latch of the character described com-

prising a housing, a bolt mounted in the housing for longitudinal movement but having oscillation, a knob spindle, an arm extending from the knob spindle and engaging the bolt, and a spring urging the bolt to its projected position, the housing being provided with a notch with which said arm is adapted to engage when the bolt is projected, the knob spindle being longitudinally movable and being yieldingly urged in a direction to hold the arm in engagement with the notch.

2. A latch of the character described including a housing having a slot formed with a notch, a bolt mounted for longitudinal movement in the housing, a spring urging said bolt to a projected position, a knob spindle mounted on the housing for longitudinal movement and for oscillation and having an arm extending into the housing through said slot and connected to the bolt, and a spring urging the knob spindle in one direction to thereby urge the knob into the notch when the bolt is projected.

3. A latch of the character described comprising a housing having a longitudinally extending slot in its bottom formed with spaced notches, a bolt mounted in the housing, a spring urging the bolt to a projected position, a rotatable knob spindle having an arm operatively engaging the bolt and passing through said slot, and a spring urging the spindle in a direction to carry the arm into engagement with one or the other of the notches.

4. A latch of the character described comprising a bolt housing formed with a longitudinally extending slot in its bottom, a plate attached to the housing and extending downward therefrom, the upper margin of the plate being angularly bent and having a notch coincident with said slot, a spring urging the bolt to a projecting position, a knob spindle passing through the plate and carrying an arm extending upward through the slot, and a compression spring surrounding the knob spindle and urging it in a direction to yieldingly hold the arm in said notch, said knob spindle having longitudinal movement in a direction to carry the arm out of the notch and permit the oscillation of the knob spindle and arm.

5. A latch of the character described comprising a bolt housing formed with a downwardly extending plate, the bottom of the housing and the adjacent portion of the plate being formed to provide a longitudinally extending slot having a notch in its length, a bolt mounted in the housing and extending therethrough, a knob spindle passing through the plate and mounted for rotation and longitudinal movement therein, an arm carried by the knob spindle and extending through the slot and pivotally connected to the bolt, and a spring surrounding the

knob spindle and bearing at one end against a pin on the knob spindle and at the other end against said plate and urging said spindle in a direction to carry the arm into engagement with the notch.

6. A latch of the character described including a housing formed at one end with a bolt perforation and at the other end with a vertical slot, a bolt passing through the perforation and slot, a spring urging said bolt to a projected position, the bottom of the housing being provided with a longitudinally extending slot formed with a laterally extending notch, a knob spindle operatively mounted upon the housing for oscillation and longitudinal movement and carrying an arm, the arm being slotted at its upper end, a pin passing through the bolt and through said slot, a spring urging the bolt to a projected position, and a spring surrounding the knob spindle and urging it in a direction to carry the arm into the notch, and a keeper with which the bolt coacts having an upwardly opening bolt seat and an inclined face extending upward through the upper end of the seat.

7. A latch of the character described in-

cluding a housing, a bolt mounted in the housing for longitudinal movement and for oscillating movement, the housing at its opposite ends being formed with slots permitting the oscillation of the bolt, a keeper with which the bolt coacts having an upwardly opening bolt seat, and a downwardly inclined portion extending from the upper edge of the bolt seat, a spring yieldingly urging the bolt to a projected position and connected at one end to the housing, said spring being shiftable from one end of the housing to the other to thereby urge the bolt in one direction or the other, a plate adapted to be disposed in one end of the housing or the other having the perforations registering with the corresponding slot and through which the bolt passes, and manually operable means for retracting the bolt longitudinally against the action of the spring.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

ERNEST HEINEMANN.

Witnesses:

ARTHUR SCHILLING,
C. J. THIES.