

(No Model.)

C. E. WHIPPLE.
LATCH.

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No. 553,087.

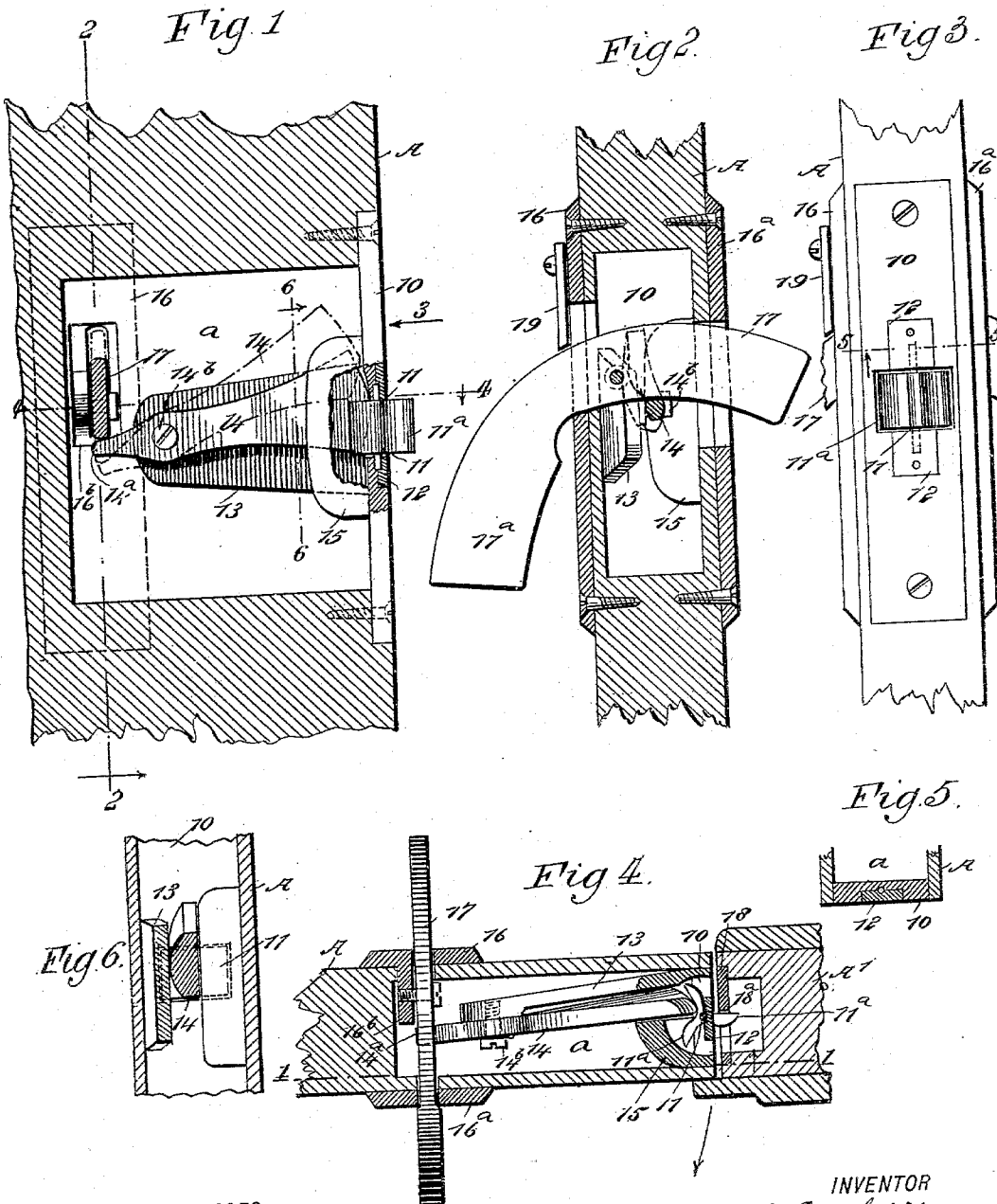


Fig. 6.

Fig. 4.

Fig. 5.

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LATCH.

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To all whom it may concern:

Be it known that I, CHARLES E. WHIPPLE, of North Charlestown, in the county of Sullivan and State of New Hampshire, have invented a new and Improved Door-Fastener, of which the following is a full, clear, and exact description.

This invention relates to improvements in door or gate fasteners of the gravity-latch type, and has for its objects to provide a simple door or gate latch that is adapted to be securely locked, which will be very cheap to produce, be strong and durable in all its parts, and when not designedly locked, be adapted for convenient release of the door or gate to which it is connected for retention of the same in a closed condition.

The invention consists in the construction and combination of parts, as is hereinafter described, and indicated in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional side view of a door in part, showing the improvements applied thereto, some portions of the device being represented in transverse section and other parts broken away to expose interior details of construction, the section being indicated by the line 1 1 in Fig. 4. Fig. 2 is a vertical transverse sectional view of the door portion and improvement thereon on the line 2 2 in Fig. 1. Fig. 3 is an edge view of the door portion and of the improved locking-latch, seen in direction of arrow 3 in Fig. 1. Fig. 4 is a sectional plan view of part of the door and the improved latching device, on the line 4 4 in Fig. 1. Fig. 5 is a transverse sectional view on the line 5 5 in Fig. 3, of a portion of the door near its free upright edge and of a detail of construction of the improved latch, showing one means for rotatably supporting a winged latch-dog, forming a part of the invention; and Fig. 6 is a vertical transverse sectional view of the door in part, and portions of the improvement on the line 6 6 in Fig. 1.

The improved locking-latch when applied for service on a gate or door is mainly located

in a mortise formed in said gate or door at a suitable point, the mortise, such as shown at *a* in the door A, being produced from the free upright edge of the swinging door in its vertical side stile, as is usually provided for mortise-locks.

Although the mechanism of the improved latch may be placed in a rectangular or other shaped case that will retain the parts of the device in proper relative positions and the case be inserted into the mortise *a*, or be secured on the side of the door-stile, it is preferred to dispense with a casing and place the working parts of the improvement directly within the mortise of the door or gate, as this reduces the expense of manufacture and affords a latch and locking device that is as reliable and equally as convenient to place in position on the door as if a casing were provided.

The working details of the improved latch are few in number and are readily cast into form by the usual methods employed in the production of light hardware castings, the particular features of construction comprising the following described parts:

A rectangular marginal face-plate 10 is provided, which is seated in a shallow recess formed in the edge portion of the door A opposite the mortise *a*, so as to cover said mortise, and the ends of the face-plate are secured to the door by screws, as shown in Figs. 1, 2 and 3.

At a proper point intermediate of the ends of the face-plate 10 it is apertured in rectangular form for the reception of the trunnioned latch-dog 11, which dog is furnished with a plurality of locking-wings 11^a. There may be a different number of wings used on the dog 11, but it is preferred to employ the lowest number available for effective service, which is three wings, as shown clearly in Fig. 4.

The trunnions of the latch-dog 11 are vertically disposed and are loosely secured in the face-plate 10 by any suitable means, one available method of retaining the journals or trunnions of the dog in rotatable connection with the face-plate being shown in Figs. 1, 3, 4 and 5, consisting of two small box-plates 12 that are each grooved to receive half the diameter of the trunnion to be supported, two

recesses being produced in the face-plate from its outer face, one above and the other below the aperture in which the dog is located.

There is a mating-groove formed in the bottom of each shallow recess of the face-plate, which grooves are adapted to receive half portions of the journals or trunnions of the latch-dog, and when the box-plates 12 are inserted in said recesses and therein secured by rivets or other means, the latch-dog will be retained in place on the face-plate free to receive a rotatable impulse in either direction. From the inner side of the face-plate 10 a bracket-arm 13 is projected, the said arm being located near one side edge of the face-plate, having clearance from the wings of the latch-dog 11, as shown in Fig. 4, and thence projects a suitable length and width, so that its free end will afford support for the locking-block 14.

The part 14 comprises an elongated block, which is preferably made wider at the end that is nearest to the face-plate 10, and a short distance from its other extremity 14^a, which may be blunt-pointed, as shown in Fig. 1, the locking-block is pivoted on the bracket-arm 13, as indicated at 14^b in said figure.

On the side of the locking-block 14 which is nearest to the arm 13 and at the forward end of the block, a swell is preferably produced, which thickens the block at said end and renders the lower edge portion tapering somewhat from the center of width downwardly, so that this side of the locking-block at the end nearest the dog 11 will have frictional contact with the adjacent side of the bracket-arm, and be adapted to stop its downward movement due to gravity of said end of the block, when the block and arm are about in the same horizontal plane, and rattling of the locking-block and dog will be prevented by such a contact of parts.

There is a cheek-flange 15 projected from the inner side of the face-plate 10, so as to have a loose contact with the opposite side of the locking-block near its front end, which flange serves to guide the block and enforce a contact of the swelled side of said locking-block with the adjacent surface of the bracket-arm, as before mentioned.

The locking-block 14 has its end nearest to the winged latch-dog 11 outwardly curved and also rounded in a similar manner from side to side, and the block is of such a length between its pivot-screw 14^b and the forward end that said end will be adapted to loosely impinge the hub of the latch-dog between any two of its wings when parts of the latching device are disposed as represented in Figs. 1 and 4.

There is a vertical slot cut oppositely in each side wall of the mortise *a*, near the rear end of said mortise, and over these slots two escutcheon-plates 16 16^a are secured by screws, as shown in Figs. 2 and 3, similar slots being longitudinally formed in the es-

cutcheon-plates, which are made to register with the slots in the walls of the mortise, so that the tripping-lever 17, which is of such a thickness as will allow its main portion to be inserted through the aligned slots and project beyond the escutcheons at each side of the door, will be located near the rear end 14^a of the locking-block 14, which may either project into a hole in the tripping-lever or lie below and in contact with it, as shown in Fig. 1.

To assure the proper vibratory movement of the tripping-lever 17, it is pivoted on an ear 16^b, that laterally extends into the mortise *a* from the escutcheon 16, as shown in Figs. 1 and 4, and to adapt the lever by its weight to have contact with the end 14^a of the locking-block 14 the extremity 17^a of the lever which is innermost in service when the device is applied to a door is made heavy and may be curved, as represented in Fig. 2.

To operate as a latch, the wings of the latch-dog 11 are sufficiently projected (one at a time) beyond the free edge of the door *A*, as shown in Fig. 4, so that the projected wing will be adapted to enter a recess in the door-jamb through a slotted hasp-plate 18, that is secured on said jamb of the door-frame *A'*.

As represented in Fig. 4, the wings of the latch-dog are convexly curved on like sides of said wings and have their opposite sides level and substantially radial from a common center, which is the axis of the aligned trunnions whereon the latch-block is pivoted. The level surface of any one of the latch-dog wings is designed to have contact with a vertical shoulder 18^a of the hasp-plate 18, when said wing is caused to enter the slot of the hasp-plate, as is shown in Fig. 4.

The arrangement of parts is such that when the door *A* is swung toward the casement-jamb *A'*, in closing the door, which movement is in direction of the curved arrow in Fig. 4, the wing of the dog 11, that is projected from the face-plate 10, will when brought into contact with the hasp-plate be rocked around so that all the wings will be within the mortise *a* and slot of the hasp-plate. When this disposition of parts is being effected, the impinge of the rounded face of one of the wings on the latch-dog against the rounded front edge of the locking-block will elevate the front end of said block, and this will permit the rotatable movement of the latch-dog and entrance of the door between the jambs of the casement, thus allowing the door to be completely closed, as is indicated in Fig. 4.

The construction of the latch-dog 11, bracket-arm 13 and locking-dog 14, as hereinbefore described, adapts the imposed weight of the heavy front end of the locking-block to cause an outward projection of one wing of the dog when the block assumes a nearly-horizontal position, and when the wing that is projected into the slot of the hasp-plate 18 has its level face in contact with the shoulder

18^a of said plate the pressure of the imposed heavy end of the locking-block on the rounded face of a wing of the latch-block will hold the projected wing of the dog in a locked condition, which will for its release require the manipulation of the pivoted lever 17 sufficiently to elevate the heavy front end of the locking-block above the wings of the latch-dog, as shown by dotted lines in Fig. 1.

10 The latch mechanism, when arranged as shown in Fig. 2, has the heavy end portion 17^a of the lever 17 projecting from the door on its inner side, providing the door is for closure of a passage leading to a hall or out of the building; and if it is desired to prevent the latch mechanism from being operated outside of the room, a pendent stop-block 19, which is pivoted on the escutcheon 16 above the lever projection 17^a, can be turned down, as indicated in Figs. 2 and 3, so that its lower end will loosely engage the upper edge of the tripping-lever, and thus prevent said lever from receiving an upward rocking movement at the end 17^a for the release of the latch-dog by removal of the front end of the locking-block 14 therefrom.

It will be seen that the improved latch is readily converted into a secure lock by the employment of the stop-block 19, along with other parts of the latch mechanism, which is an essential feature of the invention.

35 The several parts of the improved latch and locking device are very simple and cheap to produce and easy to assemble for service, the entire device being practical and adapted for general use on doors or gates, and affords a reliable latch and lock for either.

40 It is evident that the bracket-arm 13 and cheek-flange 15 may be formed in one piece, and project from the plate 10 above the locking-block 14, so as to loosely contact with opposite sides of the latter, as has been described, and this equivalent construction may be of advantage in production of the improvement.

45 Having thus described my invention, I claim as new and desire to secure by Letters Patent—

50 1. The combination of a frame or casing, a winged latch block pivoted therein, a bracket arm extending from the frame adjacent to said latch block, a locking dog pivoted near one end of the bracket arm with its other end arranged to engage between the wings of the

latch block, and a transverse lever mounted 55 to rock and lift the end of the locking dog from engagement with the latch block, substantially as set forth.

2. The combination with an apertured face plate securable over a recess in the edge of a door or gate, and a radially winged latch block pivoted to rotate in the aperture of the face-plate, of a bracket arm extending from the face-plate within the recess, a cheek flange on the face-plate and spaced from the bracket 65 arm, an elongated locking dog pivoted near one end on the bracket arm, and adapted to enter its opposite end between two wings of the latch dog, and a transverse lever supported to rock and lift the end of the locking block 70 from engagement with the latch dog, substantially as described.

3. The combination with an apertured face-plate securable over a recess in the edge of a door or gate, a radially winged latch-dog pivoted in the aperture of the face-plate, a bracket arm extending from the face-plate into the recess, and a cheek flange spaced from the bracket arm, of a locking block having a heavy end and pivoted on the bracket 80 arm near the light end of said block, a transverse lever pivoted on a support on the door or gate and adapted to lift the heavy end of the locking block when vibrated, and a stop block adapted to prevent the lever from vibrating, substantially as described. 85

4. The combination with an apertured face-plate securable over a recess in the edge of a door or gate, a radially winged latch dog pivoted in the aperture in the face plate, a bracket arm projected from the face-plate, a spaced cheek-flange opposite the bracket arm, and an elongated locking block heavier at one end than at the other, and pivoted near its light end on the bracket arm, of an escutcheon plate having an ear and secured at one side over the recess in the door or gate, a transverse lever pivoted to the ear and projecting free to rock at each side of the door or gate and adapted to impinge on the adjacent 100 end of the locking block, and a stop block hung above the lever at one side of the door or gate to prevent vibration of said lever, substantially as described.

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Witnesses:

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