

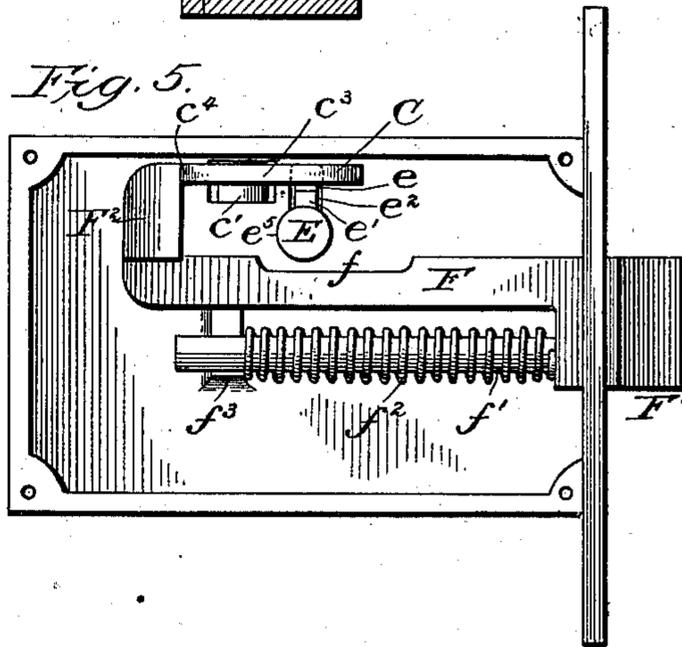
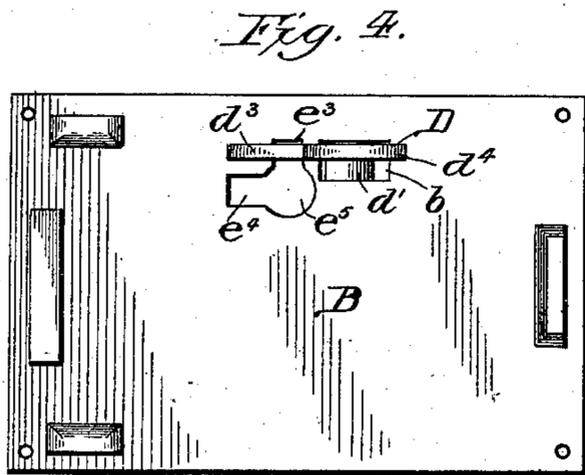
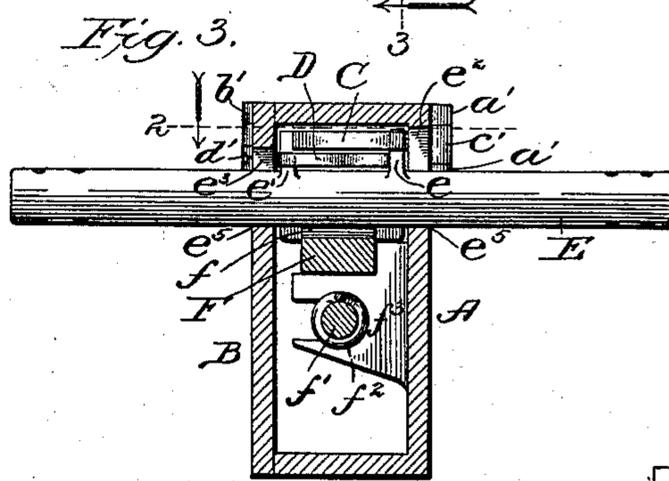
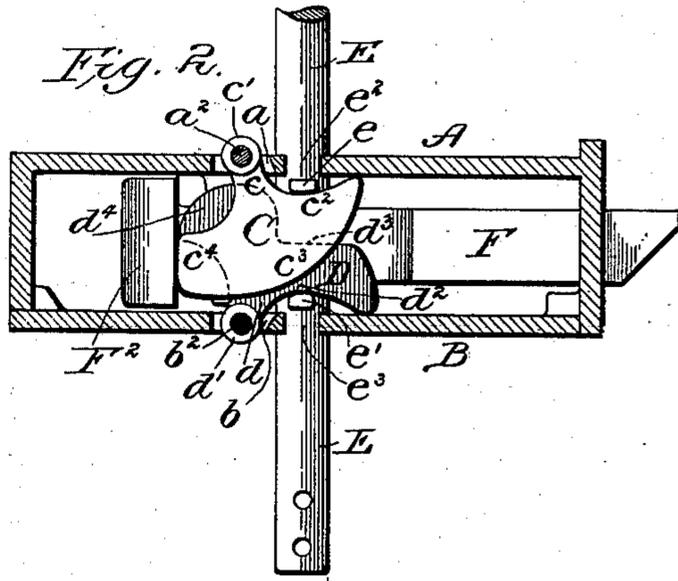
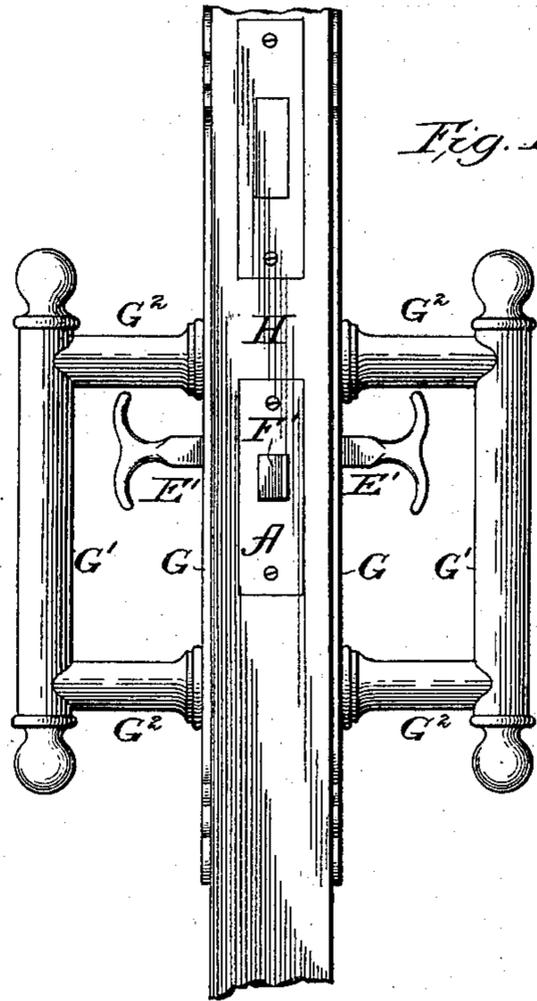
No. 657,345.

Patented Sept. 4, 1900.

W. F. HERDRICH.
LATCH.

(Application filed Apr. 18, 1900.)

(No Model.)



Witnesses:
Chas. E. Gaylord.
John Anders, Jr.

Inventor:
William F. Herdrich.
 By *Banning & Banning,*
Att'ys

UNITED STATES PATENT OFFICE.

WILLIAM F. HERDRICH, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO
SIMON LICHTENSTEIN, OF SAME PLACE.

LATCH.

SPECIFICATION forming part of Letters Patent No. 657,345, dated September 4, 1900.

Application filed April 18, 1900. Serial No. 13,295. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. HERDRICH, 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 Door Latches or Catches, of which the following is a specification.

This invention relates to latches or catches which are reciprocatingly retracted and advanced by the partial rotation or turning of a stem through the medium of an outside knob or handle, and has for its object to give the necessary retracting and advancing of the bolt by a direct draw or pull on the operating-stem instead of a partial rotation or turning of the stem, thereby improving the movements of the bolt in use; and the invention consists in the construction and combination of parts hereinafter described and claimed.

In the drawings illustrating the invention, Figure 1 is an elevation showing a portion of the edge of a door with the latch or catch of the invention applied thereto; Fig. 2, a longitudinal section through the case containing the operative parts of the latch or catch; Fig. 3, a transverse section on line 3 of Fig. 2, with the parts as in Fig. 2; Fig. 4, a plan view of the inner face of the cover of the case, showing one of the retracting-dogs in place; and Fig. 5, an elevation showing the inner face of the body of the case with a retracted dog and the bolt in place.

The casing for the reception of the bolt and the operating or retracting dogs and the return-spring has a main or body portion, with a face-plate A and end and side walls forming a chamber in which is located the operating parts, and this chamber after the parts are inserted has its open side closed by a face-plate or cover B. The face-plate A carries a retracting dog or tumbler C, formed to have a neck c , terminated in an ear c' , which neck is passed through an opening or slot a in the face-plate for the ear to come in alinement with ears a' on the exterior of the face-plate, so that a pivot a^2 can be passed through the alined ears and pivotally mount the dog or tumbler on the face-plate, so as to be free to oscillate or swing. The dog or tumbler has an engaging or contact edge c^2 and a curved edge c^3 and a heel or head c^4 for engagement

with the bolt of the latch or catch. The face-plate or cover B carries a retracting dog or tumbler D, which has a neck d , terminating in an ear d' , which neck is passed through an opening or slot b in the face-plate or cover for its ear to come in alinement with ears b' on the exterior of the face-plate, so that a pivot b^2 can be passed through the alined ears and pivotally mount the dog or tumbler on the face-plate or cover. The dog or tumbler D has an engaging or contact face d^2 and an edge d^3 , which is cut away as compared with the edge c^3 of its companion dog or tumbler, and has a heel or head d^4 for engagement with the bolt of the latch or catch. As shown, the tumbler C when the latch or catch is in the door is above the dog or tumbler D.

The stem E for moving the dogs or tumblers in the retracting direction is round in cross-section and is provided with a stud or projection e to cooperate with the dog or tumbler C by engaging the edge e^2 and with a stud or projection e' to cooperate with the dog or tumbler D by engaging the edge d^2 , and when the parts are together and normal the studs or projections e and e' have the dogs or tumblers located between them, as shown in Fig. 2. The face-plate A has a slot or opening e^2 to permit the withdrawal or recession of the stud e , and the face-plate or cover B has a slot or opening e^3 to permit the withdrawal of the stud e' in the direct or straight pull of the stem to retract the bolt of the latch or catch. The stem is inserted through an opening e^5 in each face-plate, and in order to permit of the insertion of the stem in the arrangement shown the face-plate or cover B has a slot or opening e^4 , standing at right angles to the slot or opening e^3 , so that the stem E can be turned for the stud or projection e to be passed through the slot or opening e^4 until the limit of its insertion is reached, at which time both studs e and e' will be within the chamber of the case, so that the stem can be turned and bring the studs in line with their respective recesses e^2 and e^3 to permit of the necessary straight-line movement of the stem to operate the dogs or tumblers and retract the bolt.

The bolt F has an outer end or catch portion F' of the usual construction and at its

inner end has a lateral extension F^2 , against which the heels or heads of the dogs or tumblers contact, so that with the vibration or swing of either dog or tumbler in the proper direction the bolt will be retracted and its catch disengaged. The body of the bolt, as shown, is cut away at f to permit of the insertion of the operating-stem and on the opposite side from the cut-away portion has a rearwardly-extended rod f' , around which is a coil-spring f^2 , which spring at one end engages with the face of a projection f^3 on the inside of the face-plate A, which projection is recessed to receive the rod f' and permit of the retraction of the rod with the retraction of the bolt. The spring f^2 serves to return the bolt after retraction to normal position with the catch end F' projected.

Each projecting end of the stem E has secured thereto a draw or pull E' , the attachment being by means of screws or otherwise as usual in attaching such parts. Each draw or pull E' , as shown, has at its extreme end finger-pieces, but could be otherwise formed so long as the construction was one to furnish a clasp for the fingers or hand to exert the required force to recede the stem in a direct line. As shown, a handle is provided on each side of the door for use, and each handle consists of an attaching-plate G, a grasping portion or handle proper, G' , and connecting-pieces G^2 , the plate being secured to the face of the door by screws or in any other usual or well-known manner. The stem E extends on each side through the door and the plate G, and the draw or pull for each projected end of the stem is located in the arrangement shown within the handle or grasping portion G' . The catch is to be inserted in the edge of the door in the usual manner of inserting mortise-locks, and, as shown, a mortise-lock is provided inserted in the edge of the door H. The dogs or tumblers are mounted on their respective face-plates, and the bolt is properly placed in the chamber of the casing, after which the face-plate or cover B is screwed or otherwise fastened in place, inclosing the dogs or tumblers and the bolt, with its returning-spring, in the casing as a whole. The casing as a whole is then inserted in the mortise formed therefor in the edge of the door H, with the body of the door bored transversely to have holes which coincide with the holes e^5 , but of larger diameter. The stem E is then inserted by first entering the end having the longer stud e thereon into the hole e^5 , with the stem turned for the stud to pass through the slot e^4 , and the stem is advanced until the stud has reached the limit of its inward passage, when the stem is turned for the studs to be in alinement with their respective slots e^2 and e^3 to permit the straight-line recession and return of the stem in either direction. The plates G, if a handle is used on each side of the door, are located in place, with the stem end projecting on each side. The pulls or draws E' are then attached to

the ends of the stem, one on each end, completing the assembling and attachment of the parts of the latch or catch ready for use. The pulls E' have their body or shanks each of a rectangular or other suitable shape in cross-section, which will prevent the turning of the stem in use, and for this purpose each guide-plate G is provided with a rectangular or other shaped opening corresponding to the shape of the body or shank of the pull, so that the pulls and stem will be held against turning and have a direct-line end thrust or movement, and, if desired, the inner ends of the body or shank of the pulls may be made to serve as stops to limit the extent of end thrust or movement of the stem, so as to prevent any accidental withdrawal of a stud in operation.

In use a straight-line movement of the stem E in the direction to carry the stud e inward causes such stud to bear against the edge c^2 of the dog C and swing or turn such dog on its pivot for its heel or head c^4 to be receded and by the engagement thereof with the end or projection F^2 of the bolt retract the bolt, and with the release of the draw or pull E' on that end of the stem the spring f' acts and returns the parts and the pull to normal position. A straight-line movement of the stem in the direction to carry the stud e' inward causes such stud to bear against the edge d^2 of the dog or tumbler D and swing or turn such dog or tumbler on its pivot to recede the heel or head d^4 for such recession by the engagement with the end or projection F^2 to retract the bolt F , and with the release of the draw or pull on that end of the bolt the spring f' will act and return the parts and the bolt to normal position. It will thus be seen that a straight-line movement of the stem in either direction endwise operates to move the dog or tumbler and retract the bolt, which is returned to normal position by the spring, thus enabling the bolt to be retracted from either side by simply drawing the stem in a straight line.

The dog or tumbler C being above the dog or tumbler D has the longest stud or projection e to coact therewith, and in order to permit the requisite inward movement of the stud the dog or tumbler D has the cut-away face d^3 , and this face and the face c^3 of the dog C provide sufficient clearance-space for both dogs or tumblers by which each can swing or turn on its pivot with the movement required to retract the bolt.

I claim—

1. In a door latch or catch, the combination of a casing, two pivoted dogs or tumblers each mounted on the casing, a reciprocating stem engaging both dogs or tumblers, and a retractable bolt in the casing contacted by both dogs or tumblers and retracted by the movement of a dog or tumbler in one direction from a straight draw or pull on the stem in either direction endwise, substantially as described.

2. In a door latch or catch, the combination of a casing having two face-plates, a pivoted dog or tumbler mounted on each face-plate, and a reciprocating stem engaging each dog or tumbler and operating for a straight draw or pull in one direction to move one dog or tumbler and for a straight draw or pull in the opposite direction to move the other dog or tumbler and have the movement of each dog or tumbler independent of the other, substantially as described.

3. In a door latch or catch, the combination of a casing having two face-plates, a pivoted dog or tumbler mounted on each face-plate, a reciprocating stem engaging each dog or tumbler and operating for a straight draw or pull in one direction to move one dog or tumbler and have a straight draw or pull in the opposite direction to move the other tumbler and have the movement of each dog or tumbler independent of the other, and a retractable bolt engaged by both dogs or tumblers for the movement of either dog or tumbler in

one direction to retract the bolt, substantially as described.

4. In a door latch or catch, the combination of a casing having two face-plates, a pivoted dog or tumbler mounted on each face-plate, a reciprocating stem engaging each dog or tumbler and operating for a straight draw or pull in one direction to move one dog or tumbler and have a straight draw or pull in the opposite direction to move the other dog or tumbler and have the movement of each dog or tumbler independent of the other, a retractable bolt engaged by both dogs or tumblers for the movement of a dog or tumbler in one direction to retract the bolt, and a spring for returning the bolt to normal position after each retraction, substantially as described.

WILLIAM F. HERDRICH.

Witnesses:

THOMAS A. BANNING,
THOMAS B. MCGREGOR.