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PATENTED JAN. 29, 1907.

W. W. KRAUSE.

DOOR LATCH.

APPLICATION FILED NOV. 12, 1906.

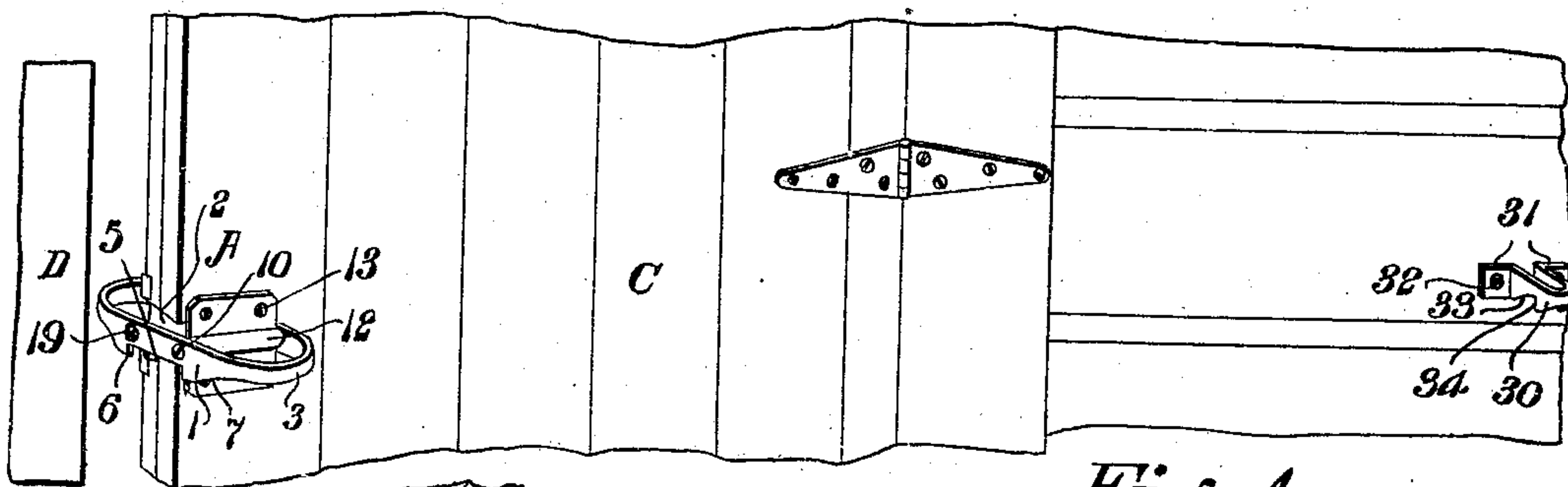


Fig. 1.

Fig. 2.

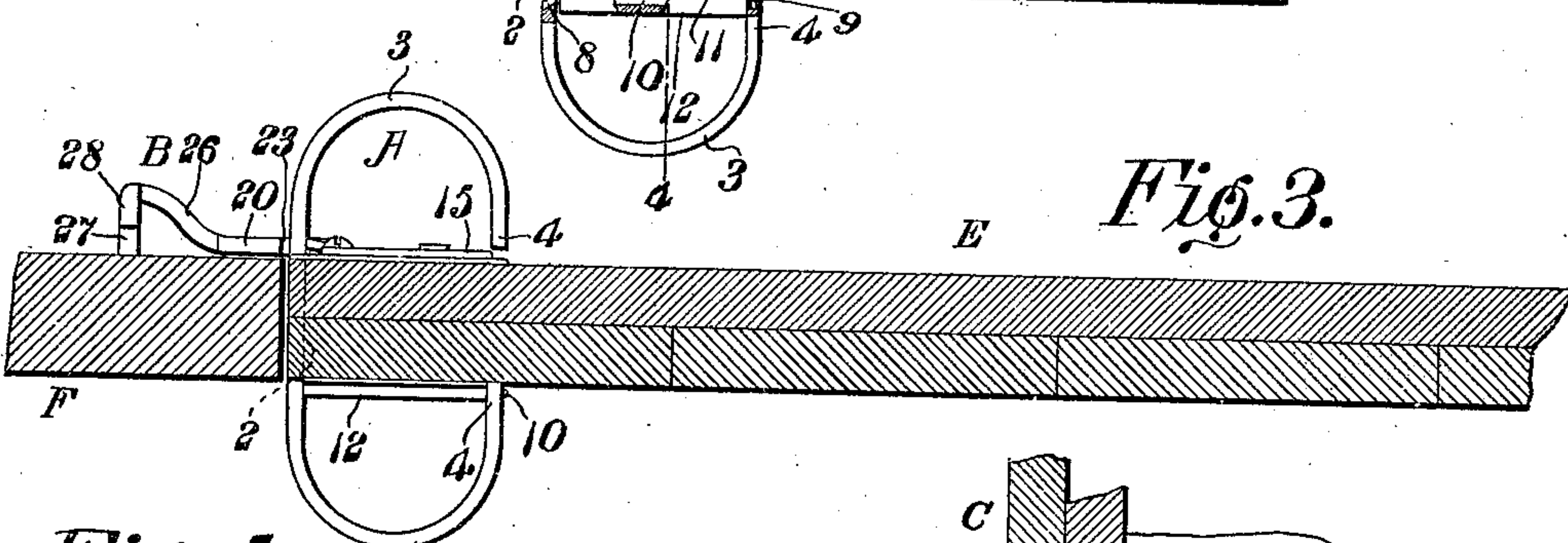
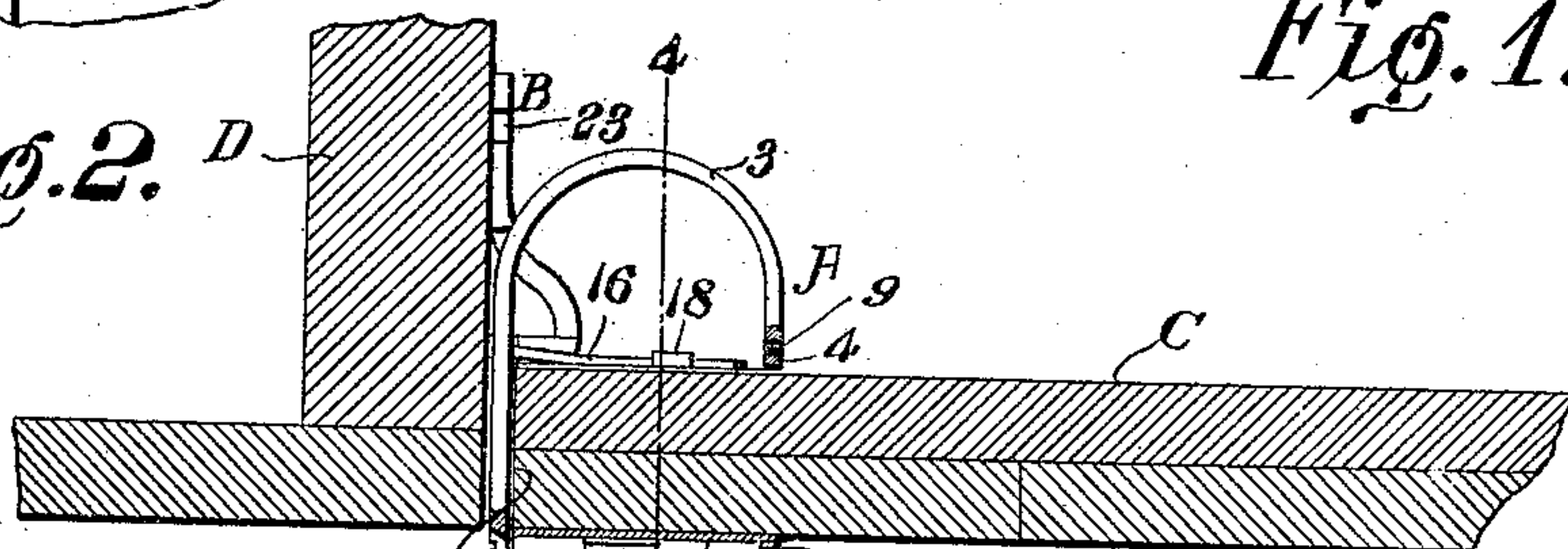


Fig. 3.

Fig. 5.

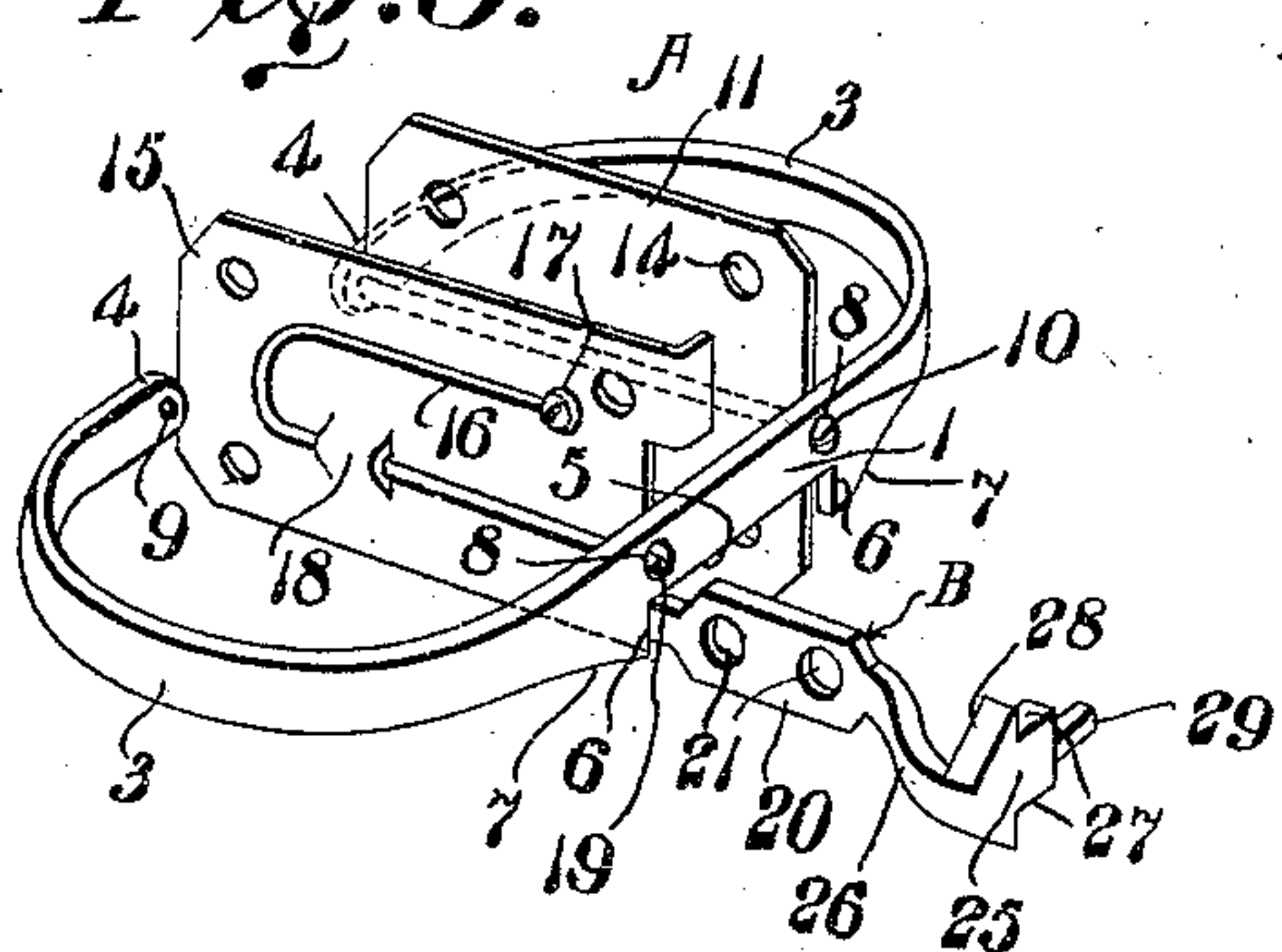
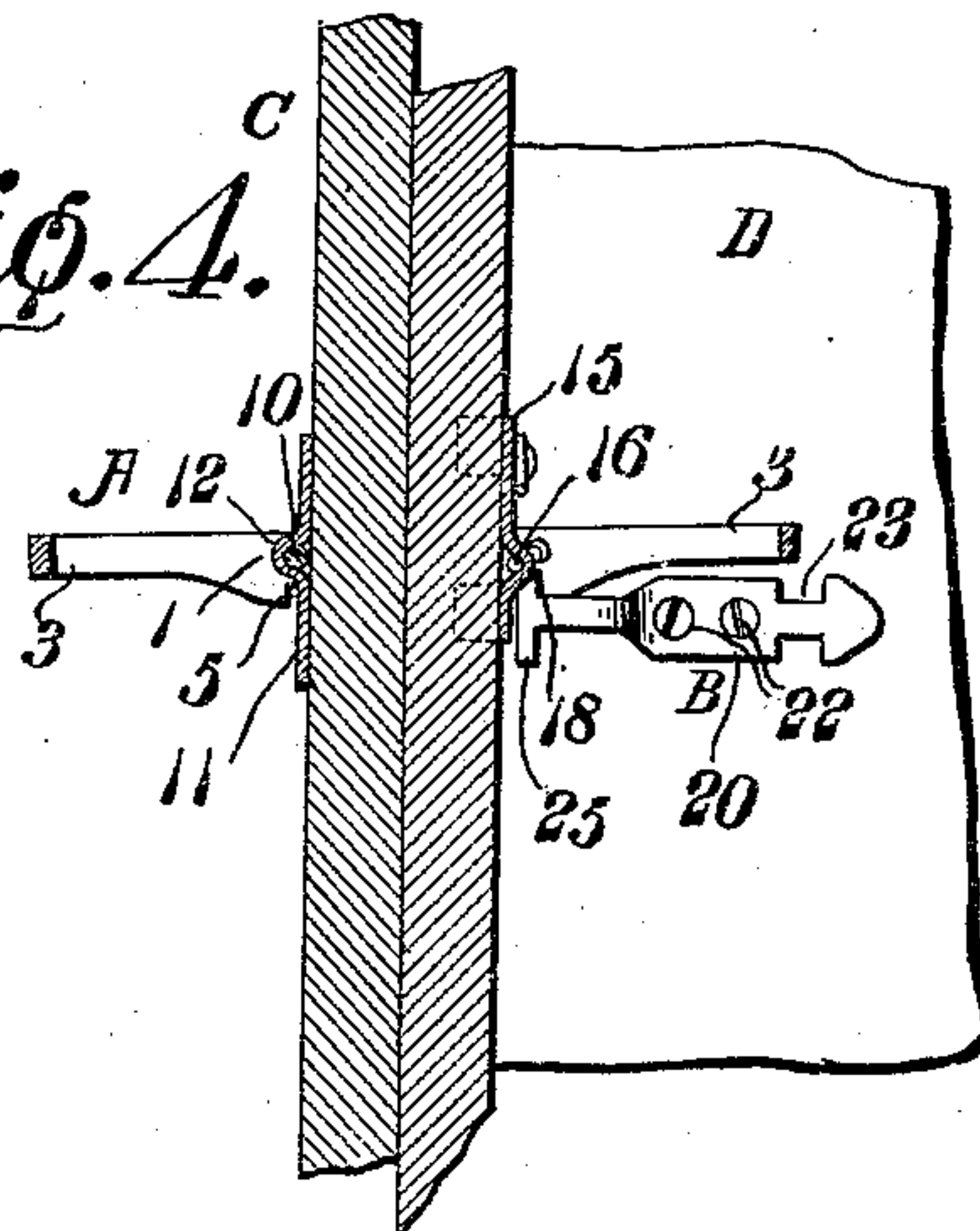


Fig. 4.



WITNESSES:

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DOOR-LATCH.

No. 842,562.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed November 12, 1906. Serial No. 343,096.

To all whom it may concern:

Be it known that I, WALTER W. KRAUSE, a citizen of the United States, residing at Greenleaf, in the county of Brown and State of Wisconsin, have invented a new and useful Door-Latch, of which the following is a specification.

This invention relates to a universal door-latch for barn-doors, which is adapted for use on a single swinging or a sliding door and on a double swinging or sliding door.

The invention has for one of its objects to provide a door-latch which can be applied with equal facility to any of the doors mentioned, and which will positively latch the door by merely slamming the latter closed, and which can be readily unlatched when it is desired to open the door.

A further object of the invention is to construct a latch of this character in which the catch and latch members are so designed as to be interchangeable for adapting the latch to either edge of the door.

Another object of the invention is the provision of a latch composed of parts which are of simple, inexpensive, and substantial construction, capable of being readily attached to a door, and reliable and efficient in use.

With these objects in view and others, as will appear as the nature of the invention is better understood, the invention comprises the various novel features of construction and arrangement of parts, which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate one of the embodiments of the invention, Figure 1 is a fragmentary perspective view of a single swinging door with the latch applied thereto. Fig. 2 is a horizontal section of portions of the swinging door and door-frame, showing portions of the latch broken away. Fig. 3 is a horizontal section through the adjacent portions of two swinging or two sliding doors, showing the latch mechanism in position. Fig. 4 is a vertical section on line 4 4 of Fig. 2. Fig. 5 is a perspective view of the latch mechanism detached from the door.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

Referring to the drawings, A designates generally the latch, and B the catch of the latch mechanism. The latch A is adapted to be mounted at the outer free edge of the

door C, which may be of the hinged or swinging type, as shown in Fig. 1, or of the sliding type, and the catch B is mounted on the door-frame D, as best shown in Fig. 2.

The door shown in Fig. 2 may represent a swinging or a sliding door, the arrangement of the latch and catch members being similar on each style of door. In applying the latch mechanism to the two sections of the double swinging or double sliding door the latch member A is arranged at the meeting edge of the section E, while the catch B is arranged at the meeting edge of the section F, as shown in Fig. 3. The latch A comprises a latch-bar 1, which extends transversely of the free edge of the door in a horizontal direction in the slot 2, provided in the said edge of the door. The ends of the latch-bar 1 are turned back on opposite sides of the door in a horizontal plane to form semicircular handholds 3, the ends 4 of which terminate a suitable distance from each other to permit the door to extend between them. Along the bottom edge of the latch-bar is a recess 5, the ends of which form vertically-extending locking-shoulders 6, as best shown in Figs. 1 and 5. The bottom edge of the latch-bar is beveled at 7 adjacent the locking-shoulders, so that as the latch member comes into engagement with the catch B during the swinging of the door to its closed position the latch-bar will be tilted, so as to permit the adjacent locking-shoulder 6 to hook over the catch. The latch-bar is provided with apertures 8, that are arranged to be at the opposite sides of the door when the latch is positioned thereon. The ends 4 of the handhold are provided with tapped openings 9, either of which receive a pivot-screw 10 on which the latch-bar 1 swings. The pivot 10, is held in position on the door by the plate 11, which is formed with an outwardly-extending bulge 12 for receiving the pivot 10. This plate is secured to the outside of the door by means of screws or other fastenings 13 passing through the apertures 14 and screwing into the door. On the opposite side of the door from the plate 11 is a second plate 15, which carries a U-shaped wire spring 16, which is anchored at 17 and 18 on the said plate and extends at its free end 19 in the adjacent aperture 8 of the latch-bar. By having both of the extremities 4 of the handholds 3 provided with tapped openings and by providing a pair of locking-shoulders 6 and apertures 8 the lock-bar can be used interchangeably.

ably on doors that swing on either the right or left vertical edges. All that is necessary is to reverse the position of the plates 11 and 15 and the screw-pivot 10.

5 The catch B comprises a plate 20, having apertures 21 for receiving screws or other fastenings 22, whereby the catch is secured to the door-frame in the case of a single swinging or sliding door or to one of the sections of a double swinging or sliding door. 10 One end of the plate is provided with oppositely-disposed notches 23 for engaging with the latch-bar when the latch mechanism is used on a double door, as shown in Figs. 3 and 5. 15 The extremity of the plate 20 beyond the notches 23 is provided with a double beveled portion 24 for engaging with the latch-bar to swing the latter on its pivot, so as to interlock with the notched portion 23 during 20 the closing of the door-sections. At the end of the plate opposite from the notches 23 is a second plate portion 25; disposed at right angles to the plate 20 and connected therewith by the curved portion 26. The portion 25 is provided with oppositely-disposed notches 27, which notches are adapted to interlock with the catch-bar when the latch mechanism is applied to a single swinging or sliding door, as shown in Figs. 1, 2, and 4. 25 At one side of the notches 27 the portion 25 is oppositely beveled at 28, which bevels are adapted to engage with the rack-bar to raise it, so as to engage one of the notches 27, as when the latch is applied to a single swinging door. 30 The opposite end of the portion 25 from the bevels 28 is provided with a tongue or lug 29, which is adapted to be driven into the door-frame, as shown in Figs. 2 and 4, or into one of the door-sections, as shown in Fig. 3. 35 The catch B is provided with a double set of notches 23 and 27 and bevels 24 and 28, so that the catch can be used interchangeably on doors having the latch A applied to either the right or left edge thereof.

45 In connection with a swinging door a suitable locking device is employed for fastening the door in its open position. This device comprises a member 30, having lugs 31, apertured to receive screws 32 for securing the device to the wall of the barn or other structure in such a position that the member 30 will be in the path of the outside handhold 3 of the latch. The projecting member 30 is beveled at 33 and notched at 24. 50 As the door swings open the outside handhold impinges on the bevel 33, so that the latch-bar is tilted on its pivot 10 against the tension of the spring 16 until the handhold passes off the bevel and snaps by virtue of the spring into the notch 34. 55 It will thus be seen that the door will be automatically locked open by swinging or slamming the door with sufficient force to cause the handhold to be hooked under the locking member 30. To 60 release the handhold, the inside handhold is

raised, so that the outside handhold will be moved out of the notch 34. With the latch-bar held in this position the door is swung forwardly on its hinges and latched closed on the catch B, whereby the door is locked in its 70 closed position.

In latching a swinging door the bevel 7 at the inside end of the latch-bar lies in the path of the upper notch 27 of the catch, and by the engagement of the bevel with the notch 75 the latch-bar is raised at its inner end against the tension of the spring 16, and as the bevel passes off the notch the latch-bar returns to its normal position by virtue of the spring and hooks over the catch. In the case of a 80 single sliding door the notch 5 of the latch-bar strikes upon the top bevel 28 of the catch, thereby causing it to move upwardly at its inner end about the pivot 10, and as the latch-bar moves off the bevel it snaps into 85 the top notch 27. To release the latch-bar, the outside handhold is depressed, so that the latch-bar is raised out of the top notch 27 to permit the door to be opened. In latching the sections E and F of a swinging 90 door of the double type the bevel 7 at one end of the latch-bar moves into engagement with the top notch 23, so that the latch-bar is tilted as the sections continue to close, and the adjacent locking-shoulder 6 snaps over 95 the catch B. When the sections E and F are mounted to slide, as by means of wheels at the top of the sections running on a guide-rail in the usual manner, the recess 5 of the latch-bar will strike against the top bevel 100 24, whereby the rack-bar is tilted, so as to snap into the top notch 23, and thus hold the sliding doors in locked position.

I have described the principle of operation of the invention, together with the apparatus 105 which I now consider to be the best embodiment thereof; but I desire to have it understood that the apparatus shown is merely illustrative and that various changes may be made when desired as are within the scope 110 of the invention.

What is claimed is—

1. In a latch mechanism, the combination of a latch member, with a catch member comprising two portions disposed at an angle to each other, each portion being provided with a bevel and a notch adjacent the bevel. 115

2. In a latch mechanism, the combination of a latch member, with a catch member 120 comprising two portions disposed at approximately right angles to each other each having a bevel and a notch adjacent thereto, and means on each portion for securing the catch to a support. 125

3. In a latch mechanism, a catch comprising two connected plate portions each having oppositely-disposed bevels and notches, one portion being provided with screw-receiving apertures and the other with 130

a projection adapted to be driven into a support for the catch, in combination with a latch member adapted to be arranged in cooperative relation with the catch to engage with one of the bevels and notches thereof.

4. In a latch mechanism, a catch comprising a plate having oppositely-disposed bevels and notches, in combination with a latch comprising a notched latch-bar, laterally-curved handholds at the ends of the latch-bar, a pivotal mounting for the latch-bar, and a spring connected with the latch-bar.

5. In a latch mechanism, the combination of a latch-bar provided with a recess forming a locking-shoulder at one end, a bevel on the latch-bar adjacent the said shoulder, handholds on the ends of the said bar, a pair of plates adapted to be secured on opposite sides of the door, a pivot mounted on one of the plates and extending through the rack-bar and secured to one of the handholds, and a spring mounted on the other plate and connected with the latch-bar.

6. In a latch mechanism, the combination of a single-piece structure comprising a latch-bar and laterally-curved handholds, said latch-bar being provided with locking-shoulders and bevels at opposite ends and apertures adjacent the said ends, a pivot adapted to engage in either of the apertures of the latch-bar, and a spring adapted to engage in either of the said apertures.

7. In a latch mechanism, the combination

of a single-piece structure comprising a latch-bar and laterally-curved handholds, said latch-bar being provided with locking-shoulders and bevels at opposite ends and apertures adjacent the said ends, a pivot adapted to engage in either of the apertures of the latch-bar, a spring adapted to engage in either of the said apertures, and a pair of supporting-plates adapted to be secured on the opposite sides of the door for supporting the spring on one and the pivot on the other.

8. In a latch mechanism, the combination of a single-piece structure comprising a latch-bar and laterally-curved handholds having tapped openings, said latch-bar being provided with locking-shoulders and bevels at opposite ends and having apertures arranged in alinement with the apertures of the handholds, a pivot adapted to engage in either of the apertures of the latch-bar and screw into the alining apertures of the handholds, a spring adapted to engage in either of the said apertures, and a pair of supporting-plates adapted to be secured on opposite sides of the door for supporting the spring on one and the pivot on the other.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WALTER W. KRAUSE.

Witnesses:

HELMUTH PRUST,
VIVETTE F. PRUST.