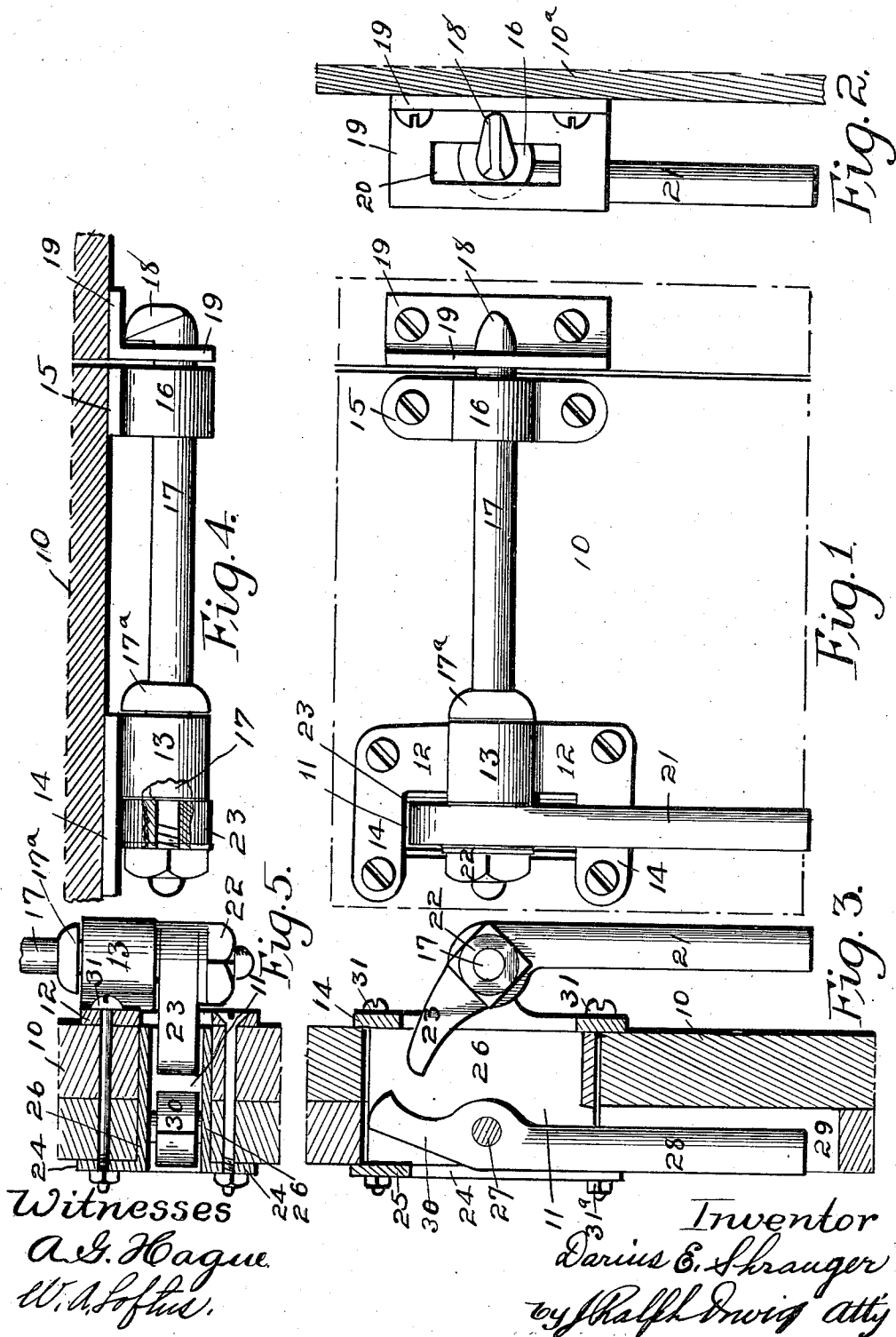


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SLIDING DOOR FASTENER.  
APPLICATION FILED NOV. 6, 1911.

1,034,395.

Patented July 30, 1912.



# UNITED STATES PATENT OFFICE.

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## SLIDING-DOOR FASTENER.

1,034,395.

Specification of Letters Patent.

Patented July 30, 1912.

Application filed November 6, 1911. Serial No. 658,841.

*To all whom it may concern:*

Be it known that I, DARIUS E. SHRAUGER, a citizen of the United States, residing at Atlantic, in the county of Cass and State of Iowa, have invented a certain new and useful Sliding-Door Fastener, of which the following is a specification.

It is the object of my invention to provide a fastener of simple, durable and inexpensive construction which may be easily and readily attached to any door or detached therefrom, parts of which do not extend to any considerable distance from the door when the door is closed.

More particularly, it is my object to furnish a fastener peculiarly adapted for sliding doors on barns where the inner side of the door, when said door is opened, slides close to the frame of the barn; my improved fastener being so arranged and constructed that the parts on the inner side of the door do not extend beyond the plane of the surface of said inner side.

A further object is to provide a fastener having parts which may be used as a handle for sliding a door and which when said parts are being so used, is in its unlocked or unlatched position.

More particularly, in this connection, it is my purpose to provide a fastener having handles which when raised will cause the fastener to unlock and may then be used to slide the door, which handles when dropped will by their weight cause said fastener to move to its closed or locked position.

My invention consists in certain details, in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows a side elevation of a latch for doors, embodying my invention as it appears on one side of a door. Fig. 2 shows an end elevation of same on one side of the door. Fig. 3 shows a central transverse, vertical, sectional view through my improved fastener and a portion of a door to which said fastener is secured. Fig. 4 shows a top or plan view of Fig. 1. Fig. 5 shows a horizontal, transverse, central sectional view of my improved fastener.

My improved fastener is designed especially for use with sliding doors and this fact should be kept in mind in the descrip-

tion which follows. The construction of the fastener is such as to make it peculiarly adaptable for a door, one side of which slides close to the wall or frame of a building.

In the accompanying drawings, I have used the reference numeral 10 to indicate the door of a barn or other building. In said door 10, I provide an opening 11 extending through the door. Adjacent to the opening 11 is a plate 12 having a horizontal bearing 13 formed near its middle and provided with lateral extensions 14. Adjacent to the edge of the door is a plate 15 having a central bearing 16. Rotatably mounted in the bearings 13 and 16 is a bolt 17 which extends beyond said bearings in both directions. At its end adjacent to the edge of the door, the bolt 17 is provided with a right angled extension 18 which forms a catch member.

Secured to the frame of the barn adjacent to the plate 15 is a keeper 19, preferably made of a short piece of angle iron, one side of which is in a vertical plane adjacent to the door and is provided with a substantially rectangular opening 20, designed to receive the catch member 18.

The bolt 17, the catch member 18 and the keeper 19 are so constructed and arranged that when the bolt 17 is rotated to position where the catch member 18 extends downwardly therefrom, it will pass through the opening 20 and when said bolt 17 is rotated to position where the catch member 18 extends at right angles thereto, inwardly toward the door, the catch member 18 engages the keeper 19 as shown in Fig. 2 and locks my fastener.

For purpose of clearness, I will call the end of the fastener adjacent to the edge of the door, the outer end thereof, and the other end of the fastener its inner end.

Mounted on the inner end of the bolt 17 adjacent to the bearing 13 is a handle 21. This handle may be mounted in any suitable way to turn freely with relation to the bearing 13 while being rigidly mounted on the bolt 17. In the construction shown, the inner end of the bolt 17 is reduced in size leaving a shoulder adjacent to the bearing 13 slightly spaced apart from said bearing. The handle 21 is provided with an opening in which is received the smaller inner end of the bolt 17. On the extreme inner end of the bolt 17 is a nut 22. When the nut 22 is

screwed tightly on the bolt 17, the handle 21 is held against the shoulder on said bolt. On the bolt 17 adjacent to the bearing 13 on the end thereof away from the handle 21, is an annular shoulder 17<sup>a</sup>.

In assembling the parts just described, I secure the handle 21 on the bolt 17 in such a position that when the catch member 18 is extended inwardly toward the door at right angles from the bolt 17, the handle 21 drops downwardly from said bolt 17 as shown in Figs. 1 and 3. On the upper end of the handle 21, is an inward and upward extension 23 which extends into the opening 11 in the door. The end and upper side of the extension 23 are rounded as shown in Fig. 3. The weight of the handle 21 is such that it will normally hang in vertical position and hold the catch member 18 in the position to engage the keeper 19 as shown in Fig. 2. It will be seen that when the handle 21 is grasped by the operator and drawn toward horizontal position, the catch member 18 will be turned to the position extending downwardly from the bolt 17, so that if the door on which the handle 21 and the bolt 17 are secured is slid open, the catch member 18 will be disengaged from the keeper 19 without difficulty. On the other side of the door, I provide a vertical plate having members 24 on each side of the opening 11 and having a cross member 25 at its upper end connecting the side members 24. On each of the side members 24, I provide a vertical extension 26 designed to rest in the opening 11 adjacent to the sides thereof. The length of the extensions 26 is such that their ends rest against the extensions 14. In this connection, it is to be noted that the thickness of doors may vary and it may be necessary in some cases to cut recesses in order to permit the extensions 26 to engage the extensions 14. Extending between the extensions 26 and preferably formed integral therewith, is a rod or short shaft 27 on which is rotatably mounted a handle 28, the weight of which is sufficient to normally hold said handle in vertical position. The shaft 27 is located in the opening 11 in the door at a point spaced apart from the inner edges of the side pieces 24. The door is provided with a recess 29 designed to receive the handle 28 when the latter is in its vertical position, so that the door may be slid past the side of a barn or other building without any interference from said handle 28.

The handle 28 is provided with an upward and slightly inward extension 30, the inner and lower surface of which is curved as shown in Fig. 3. The extension 30 is of sufficient length, and said extension and the extension 23, are so constructed, located and arranged that when the handle 28 is grasped and drawn toward horizontal position, the inner and under surface of the ex-

tension 30 will engage the inner and upper surface of the extension 23 forcing the extension 23 downwardly, raising the handle 21 and rotating the bolt 17 so that when the handle 28 is raised, the rotation of the bolt 17 will turn the catch member 18 to position in which it may be readily withdrawn from the opening 20 in the keeper 19. Where the thickness of the barn door is such that the extensions 26 do not rest firmly against the extensions 14, shallow recesses may be cut in the surface of the door to receive the side members 24. The extensions 14 and side members 24 are preferably secured to the door by means of bolts 31.

It will be noted that the parts of my fastener herebefore described, are so constructed that the fastener may be used for a right hand or a left hand door. The bolt 17 and the parts connected therewith may be placed on the other side of the door and the one change that it is necessary to make, is to turn the plate 12 the other side up.

In the practical construction, assembling and use of my improved fastener, the keeper 19 is preferably secured to the frame 10 of the barn adjacent to the door opening therein, as shown in Fig. 4. The plate 16 is then secured to the door 10 at a point where it will be adjacent to the keeper 19 when the door is closed. In this connection, it is noted that my fastener is designed especially for sliding doors and that the parts 15 and 19 are so located with relation to each other that when the bolt 17 is mounted in the bearing 16, and the door is slid open, or shut, the catch member 18 will pass readily through the opening 20 in either direction. The opening 11 and the recess 29 are cut in the door and the plate 12 is secured to the door adjacent to said opening 11 with the bearing 13 adjacent to and in line with the bearing 16. The extensions 26 are inserted into the opening 11 from the other side of the door and the bolts 31 are extended through the extensions 14 and the side members 24 and are secured by means of the nuts 31<sup>a</sup>. The handle 28 is rotatably mounted on the short shaft 27 before the extensions 26 are placed in position in the door and said handle hangs in the opening 11 and in the recess 29. The handle 21 is placed on the smaller, inner end of the bolt 17 and the nut 22 is secured tightly against the handle 21. It is thus seen that the handle 21 is rigidly mounted on the bolt 17. The handle 21 is mounted on the bolt 17 in such position that the handle hangs in vertical position when the catch member 18 is in horizontal position, as shown in Fig. 2. The short shaft 27 and the extensions 23 and 30 are so located and arranged that when the handle 28 is raised

toward horizontal position, the concave lower surface of the extension 30 engages the convex upper surface of the extension 23 and raises the handle 21, thereby rotating the bolt 17 to position where the catch member 18 extends downwardly from the bolt 17 and may be readily withdrawn from the opening 20 when the door is slid open. Whenever either of the handles 21 or 28 are raised, the catch member 18 is moved to proper position for passing through the opening 20. The handles 21 and 28 are also used for sliding or swinging the door. As soon as either of the handles are dropped, the weight of the handle 21 will turn the bolt 17 to position where the catch member 18 is in horizontal position. Thus when either of the handles is raised and the door is moved to its closed position, the catch member 18 will readily pass through the opening 20 and when the handle is dropped, the catch member 18 will engage the keeper 19 and the door will be secured.

My fastener device is especially adapted for use with sliding doors, on account of the construction of the handle 28 which normally rests in vertical position and on account of the location of the short shaft 27 at a point spaced inwardly from the vertical plane of the surface of the door, so that the handle 28 may be slid past the side of the barn without any projections to engage the barn frame.

My fastener is of simple, and very durable construction, is easy to operate, and does not readily get out of order. It may be packed in a small space, and is adapted for use with any kind of door.

I claim as my invention:

1. In a device of the class described, a catch member, a bolt, a coacting catch member formed thereon, and extending at right angles from one end thereof, a handle fixed on said bolt at right angles thereto, and at right angles to the plane in which the catch member on said bolt lies, said handle being of sufficient weight to normally hang in vertical position, an inward and upward extension on said handle, a second handle, pivotally mounted and designed to normally hang in vertical position on the other side of a door, an inward and upward extension on said second handle, said extension being designed to coact with said first extension so

that when said second handle is raised, the extension thereon will depress said first extension.

2. In combination with a door having an opening extending through it from side to side and a vertical recess below said opening on one side, a device of the class described, comprising a catch member, a bolt, a coacting catch member formed thereon and extending at right angles from one end thereof, a handle fixed on said bolt at right angles thereto, and at right angles to the plane in which the catch member on said bolt lies, said handle being of sufficient weight to normally hang in vertical position, an inward and upward extension on said handle, a second handle pivotally mounted and designed to normally hang in vertical position on the other side of a door, an inward and upward extension on said second handle, said extension being in the opening in said door and said second handle normally hanging in the recess in said door, said second extension being designed to coact with said first extensions so that when said second handle is raised, the extension thereon will depress said first extension.

3. In a device of the class described, coacting catch members, a handle pivotally mounted near one end, normally hanging in vertical position and operatively connected with one of said catch members, an upward and inward extension on the pivoted end of said handle, and having a convex upper surface, a second handle pivotally mounted near one end to normally hang in vertical position and designed to be on the opposite side of a door, an inward and upward extension on said second handle forming an obtuse angle, with the main body of said second handle, having a concave, lower surface, the upper end of said second extension being slightly higher than the upper end of said first extension and so arranged that when said second handle is raised, the concave lower surface of the extension thereon engages the convex upper surface of the extension on said first handle and depresses the same thus raising said first handle.

Des Moines, Iowa, October 25, 1911.

DARIUS EDGAR SHRAUGER.

Witnesses:

MARY GAFFNEY,  
CHAS. A. GRUBB.