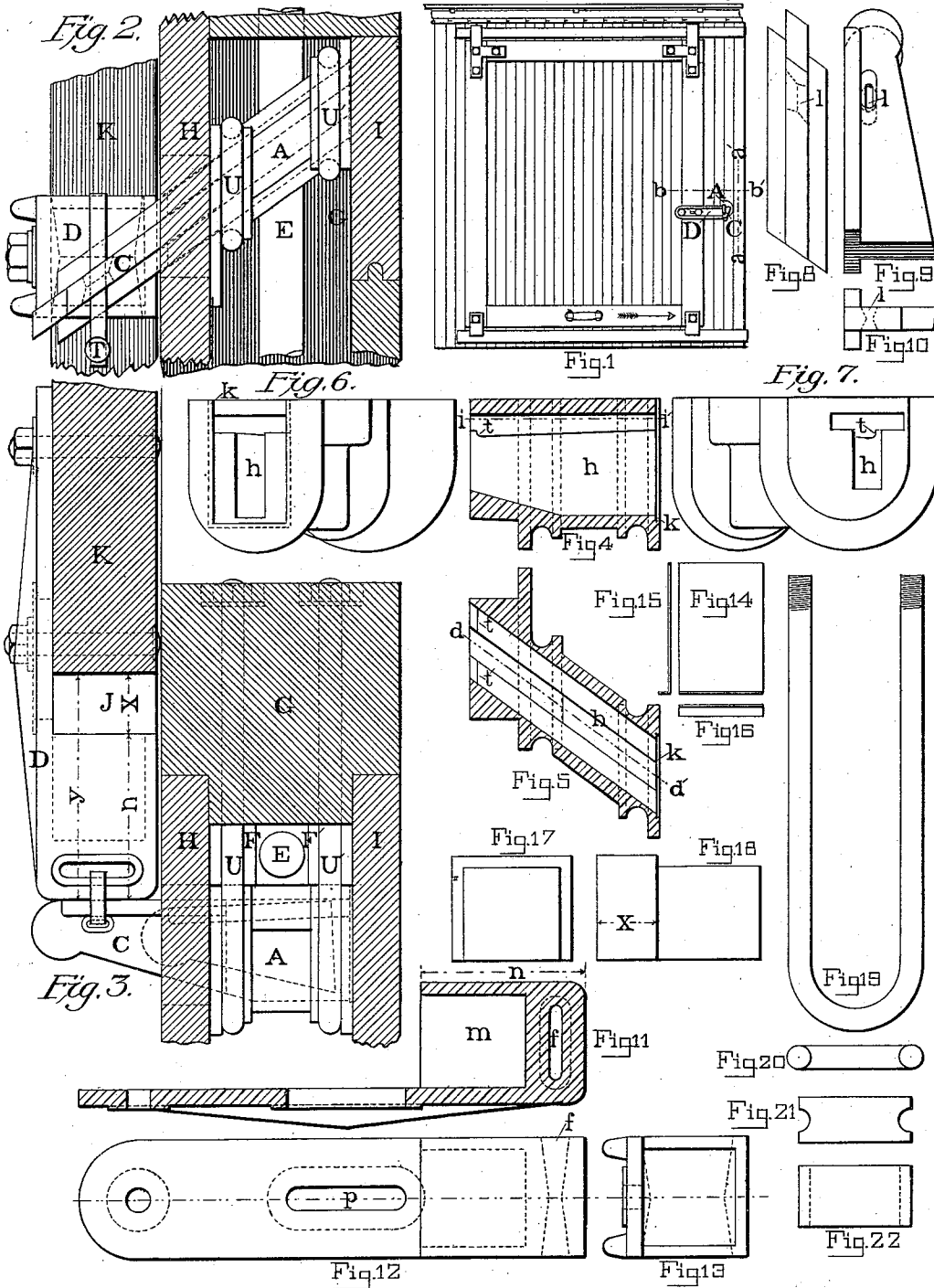


(Model.)

X. CAVERNO & W. E. FOWLER.
SLIDING DOOR LATCH.

No. 565,428.

Patented Aug. 11, 1896.



Witnesses
Robt Barrie
Robt Reynolds

Inventors
Xenophon Caverno
William E. Fowler

UNITED STATES PATENT OFFICE.

XENOPHON CAVERNO AND WILLIAM E. FOWLER, OF DENVER, COLORADO.

SLIDING-DOOR LATCH.

SPECIFICATION forming part of Letters Patent No. 565,428, dated August 11, 1896.

Application filed January 25, 1893. Serial No. 459,704. (Model.)

To all whom it may concern:

Be it known that we, XENOPHON CAVERNO and WILLIAM E. FOWLER, citizens of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented a new and useful Latch for Sliding Doors, of which the following is a specification.

Our invention relates to an improved latch for sliding doors—more especially for box and baggage cars—and the object of our invention is to provide an automatic latch that shall be certain in its action, simple and strong, and so placed as to be little liable to injury. The manner in which we attain these objects is illustrated in the accompanying drawings, in which—

Figure 1 is a part of the side elevation of a box-car, including the doorway and door when closed. The door opens in the direction shown by the arrow. Fig. 2 is detail section of the side of the car, taken on the line *a a'*, Fig. 1, looking toward and including the back edge of the door. Fig. 3 is a sectional plan of Fig. 2, or a section of the side of the car and back of the door, taken on the line *b b'*, Fig. 1. Figs. 4, 5, 6, and 7 show the case. Figs. 8, 9, and 10 show the bolt. Figs. 11, 12, and 13 show an extension-piece for filling the space between the back edge of the door when closed and the bolt. Figs. 14, 15, and 16 show a piece of sheet metal for closing the back of the case. Figs. 17 and 18 show a wooden block for varying the length of the extension-piece. Figs. 19 and 20 show a U-bolt for fastening the case to the door-post. Figs. 21 and 22 show a block to go between the case and the door-post to hold the case out, so that a tie-rod can pass between the case and the post. Similar letters refer to similar parts throughout the several views.

Our latch is composed, essentially, of two pieces, a case A (shown in detail in Figs. 4, 5, 6, and 7) and a bolt C. (Shown in detail in Figs. 8, 9, and 10.)

Fig. 4 is a section of the case on the line *d d'*, Fig. 5; Fig. 5, a section on the line *i i'*, Fig. 4; Fig. 6, the back or inner view, and Fig. 7 the front or outer view, of the case.

The location and position of the latch can readily be seen from Figs. 1, 2, and 3. The case A is bolted to the back face of the door-

post G, *i. e.*, the face opposite the doorway, by means of the U-bolts U U', (shown in detail in Figs. 19 and 20,) the case thus lying between the sheathing H and the lining I, the front or outer end fitting into a hole cut in the sheathing and coming flush with its outer face.

E is a tie-rod running the full height of the car through the plate and side sill, where it is set in a groove in the door-post G, as it frequently is, the face of the case is bolted up to the post G, where the tie-rod stands out from the back face of the post G, as shown in the drawings, the wooden blocks F and F' (shown in detail in Figs. 21 and 22) are placed between the case and the post, the legs of the U-bolts lying in the grooves in the ends of the blocks.

The bolt-chamber *h*, that runs through the case, is inclined at such an angle that the bolt C slides down the incline until the taper of the back web of bolt C fits the taper in the lower end of the case. This taper prevents the bolt from slipping out farther and holds it firmly in the position shown in Figs. 1, 2, and 3. The bolt in this position sticks out from the side of the car, back of the door K, so that the door cannot be opened.

When the door is to be opened, the bolt is pushed up into the case with one hand and the door is started back with the other. While the door is in front of the opening in the case, the bolt slides along on the inner face of the door till the door is closed, when it drops out behind the door, latching it in place automatically. Should the door stick, so that both hands are required to move it, the bolt is pushed up into the case and back till it catches in the notches *t* and *t'* of the case. The bolt is shown in this position by dotted lines in Fig. 3. The back edge of the door striking the curved end of the bolt readily pushes it up, and the door slides unhindered as before, the end of the bolt resting against its inner face.

When the door is closed, the bolt is carried by the friction of the door to the front of the case, so that it does not catch in the notches *t* and *t'*, and the bolt falls behind the door as before; but in ordinary construction the door will not reach back to the bolt when the latch is in the position shown. When this is the

case, an extension-piece D (shown in detail in Figs. 11, 12, and 13) is bolted to the back of the door in the manner shown. To allow for a variation in the distance y , Fig. 3, between the back edge of the door K and the face of the bolt C, the distance n is made less than the smallest value of y .

J is a wooden block, (shown in detail in Figs. 17 and 18,) its smaller end being cut to fit the pocket m , Fig. 11. The larger end is then cut to a length x , such that x plus n equals y . It will be seen that this gives a surface flush with the inner face of the door, along which the bolt slides and at the end of which it drops when the door is shut.

The sealing-strip with the lead seal T passes through the openings f and l in the extension D, Figs. 11 and 12, and the bolt C, Figs. 8, 9, and 10, thus sealing the door to the car. Figs. 14, 15, and 16 show a piece of sheet-iron which slips into the dovetail slot k in the back end of the case A after the bolt has been inserted. The shorter end is turned inward, so that it is held between the case A and the block F'. The bolt-chamber h is thus entirely inclosed, except on the outer face of the car where the bolt comes through.

The slot p , Fig. 12, in the extension-piece D allows the bolt which passes through it to be placed at a fixed distance from the back of the door for varying values of y .

When the case is designed for cars having the tie-rod E outside the door-post, as shown, the blocks F and F' may be dispensed with and lugs cast onto the case to take their place. Where doors are of a standard width, the block J may be dispensed with, n , Figs. 3 and 11, being the distance from the back of the door when closed to the face of the bolt. We rec-

ommend that the door be made so wide that n is only long enough to give a metallic bearing for the face of the bolt and provide the sealing-hole f .

The case may be so formed as to be attached to the belt-rail, the lining, or the sheathing, or it may be set into a mortise in the door-post. We consider the position shown and the method of fastening the best. The case, bolt, and extension are of cast-iron in the form shown. The space they occupy is not available for other purposes, and they are so thoroughly protected from injury that they can be made large enough to give the proper strength in common cast-iron. The sealing-hole l , Figs. 8, 9, and 10, may be made large enough to take a padlock.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination with a sliding door of a latch having a bolt sliding in a case or guide attached to, or back of, the back post of the doorway, the bolt being so inclined that the force of gravity causes it to press against the inner face of the door, when the door is open, and to extend out back of the back edge of the door when the door is closed, thus latching the door in its closed position.

2. The combination with a sliding door of an extension-piece attached to the door to fill out the space between the back edge of the door, when closed, and the bolt of a latch attached to, or back of, the back post of the doorway.

XENOPHON CAVERNO.
WILLIAM E. FOWLER.

Witnesses:

ROBT. BARRIE,
ROBT. REYNOLDS.