

(No Model.)

T. N. FISHER.
LATCH FOR SLIDING GATES.

No. 525,682.

Patented Sept. 4, 1894.

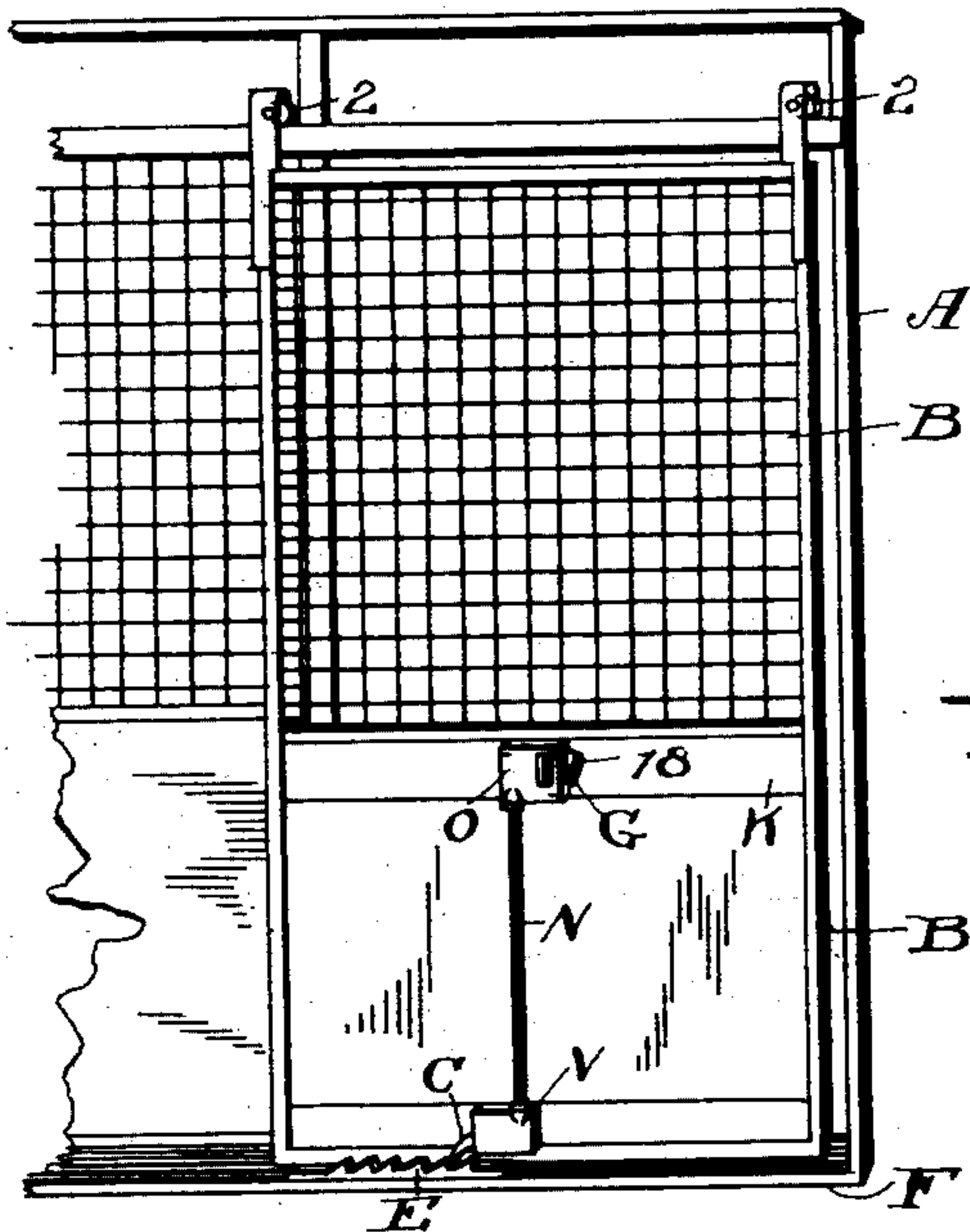


FIG. 1.

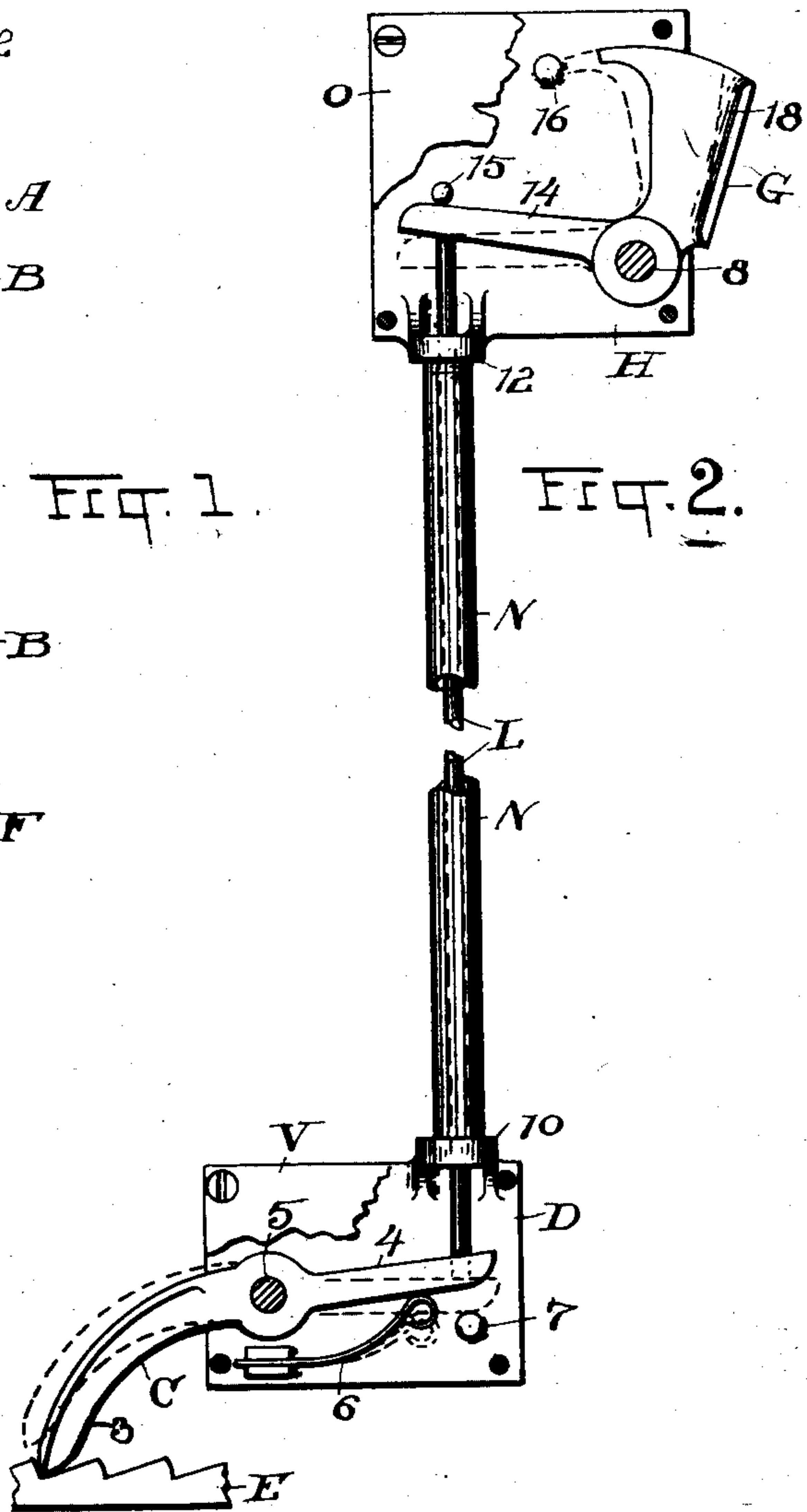


FIG. 2.

ATTEST.

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LATCH FOR SLIDING GATES.

SPECIFICATION forming part of Letters Patent No. 525,682, dated September 4, 1894.

Application filed March 15, 1894. Serial No. 503,675. (No model.)

To all whom it may concern:

Be it known that I, THOMAS N. FISHER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Safety-Locks for Elevator-Gates; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to safety locks for elevator gates, and the object of the invention is to provide a construction which is not only simple and convenient in point of construction and use, but which will overcome the more serious objections in mechanism employed for this purpose hitherto. Thus, for example, in former mechanisms it has been common to rely on the perfect closing of the gate before the latch or catch which was to hold it shut would make engagement. This very naturally led to the habit of pushing the gate shut with a slam and trusting to that to make the latch drop to its place, and then the elevator went on to the next gate and this action was repeated and so on gate after gate and trip after trip. Two things unavoidably followed, first, the frame work and the doors were slammed and battered so that sooner or later they become unusable and unsafe and had to be replaced by new ones at considerable expense; and, secondly, that gates or doors were frequently passed without really becoming latched, and were either left open more or less or were liable to be opened from the outside.

Now, my invention is pointed directly to these two common and grave defects in elevator gate locks or latches, and I wholly overcome and avoid the tendency and necessity to slam the doors to lock them and the constant racket and jarring noise which the practice everywhere produces, and provide a latch or lock which is not dependent on perfectly close shutting of the door for its efficiency and which will hold the door from being moved or opened even though it be only partly, but not wholly closed.

My invention, therefore, consists in the construction, substantially as shown and de-

scribed, and particularly pointed out in the claim.

In the accompanying drawings, Figure 1 is an inside view of an elevator gate and part of the frame forming the door-way and support therefor, and showing my improved safety locking or latching mechanism in operative position thereon. Fig. 2 is an enlarged detail of the locking mechanism itself and showing the construction and character of lock disclosed in Fig. 1, the outside plates above and below being removed so as to uncover the mechanism within and to show the form and arrangement thereof.

A represents the frame work about the door or entrance to the elevator, and this may be of any of the styles now in use, or which may hereinafter be designed, it being immaterial to my invention what the style may be since my invention concerns only the sliding or horizontally rolling door used therewith. The door B likewise may be of any desired form or fashion desired, and may be supported in casters below or suspended on sheaves or wheels—2—as here shown, or supported in some equivalent way. Now, having these parts provided substantially as described, I come with my very simple locking or latching mechanism, consisting primarily in a pawl or dog C, Figs. 1 and 3, pivoted between its ends on a stud on the plate D fixed firmly to the inside and bottom of the door or gate, and in this instance near the middle of the door, which is found to be the most convenient place for operation. This pawl curves downward at its engaging end—3—to catch in the ratchet teeth in the bar E, fastened to the door or gate sill or piece F. This bar has such length and is so arranged with respect to pawl E that though the door be left somewhat ajar, or is not quite closed, say, by three to six inches or more, it still is locked and cannot be moved from the outside. Hence, if the elevator man is careless or for any reason fails to entirely close the door, or leaves it open ten or twelve inches, it cannot be opened further by any one outside and danger of walking into the pit is avoided. When the pawl has passed the ratchet teeth in opening the door, it is permitted to drop, but in that case it will stand clear of the sill beneath

and will remain out of action until the gate is carried back again to closing position, when the pawl will automatically catch in the nearest ratchet tooth and effectually hold the gate from being opened.

The pawl C has one arm behind its pivot point —5— and a leaf spring —6—, arranged in this instance beneath the said arm, serves to keep the pawl in engagement and to give it quick response when operated. A different spring differently arranged might of course be used, and if the front end were sufficiently weighted the spring might be omitted. A stop —7— serves to limit the opening movement of the pawl and to prevent straining the spring. Now, to operate the pawl, I employ a substantially L shaped or bell crank lever G, pivoted in its angle on stud —8— on the plate H, fixed on the cross-bar K of the door. Between the inner arm —14— of this lever and the pawl is a rod L, supported in a pipe or tube N threaded at its ends in sockets —10— and —12— in the plates D and H. The said rod L is shown here as being free at both ends and resting on the arm —4— of the pawl and has the arm —14— of the operating lever constantly in touch at its top. This arm —14— may have a spring to keep it down or may depend on its gravity, as in this case. Normally, all the parts stand as seen in Fig. 3, and the spring —6— not only keeps pawl C down in working position, but also serves to keep the rod L up in touch with arm —14— of the lever. A stop —15— limits the upward movement of arm —14—, and a stop —16— limits the inward pressure of the lever. The handle part —18— of said lever extends without the box or casing formed by plate H and outside plate O, and the lever is arranged to operate the parts by pressing inward of the said arm —18—. This is convenient because the elevator man stands to the left in Fig. 1, and reaching out with his right hand grasps the handle —18— and finds it natural to pull the said handle toward him. This not only serves to open the pawl and release the door, but it also serves to draw the door open while at the same time it keeps the pawl raised until it passes the ratchet teeth. Indeed many elevator men do

not wait till they can reach handle —18— to open the door, but as they are coming up grasp the pawl C and have the door open by the time they reach the landing.

In Fig. 2 I show a modification of the foregoing arrangement, in which the lock or latch is at the top of the door and a spring pawl or dog S is used. This dog is operated by a rod or wire T, connected with the pivoted lever W on the cross-bar K of the door B. Either of these arrangements of parts, or the equivalent thereof, may be adopted, the invention being understood as comprising in a broad sense the use of a dog or pawl with a ratchet, or their equivalent, in connection with elevator gates.

The operation is fully disclosed in the preceding description and need not be repeated. There need be no perceptible noise in either opening or closing the doors, and there should be no slamming of doors at any time.

An outside plate V confines the pawl and mechanism below, and the same screws serve to fasten this plate and plate D to the door.

The tube or pipe N makes an effective guard or shield for the rod L and enables a comparatively light rod to be used without endangering the connections.

Having thus described my invention, what I claim is—

In elevators, a frame at the entrance to the elevator having a gate-way and a ratchet along the bottom of said gate-way, in combination with a sliding gate supported in said frame, a pawl to engage said ratchet and a box on the bottom of the gate in which said pawl is pivoted and a spring in said box to force the pawl into engagement, a pivoted lever on the gate at about its center and connections between the said lever and the said pawl to raise the pawl out of engagement when the gate is being opened, substantially as set forth.

Witness my hand to the foregoing specification.

THOMAS N. FISHER.

Witnesses:

H. T. FISHER,
GEORGIE SCHAEFFER.