

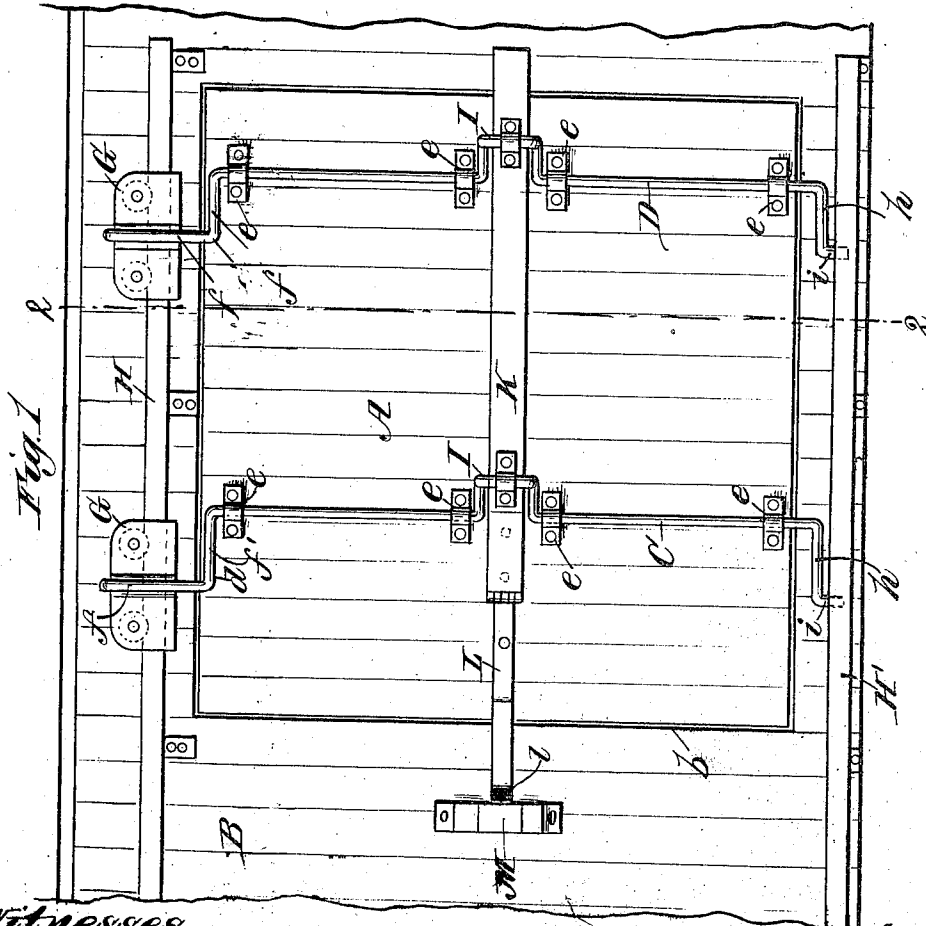
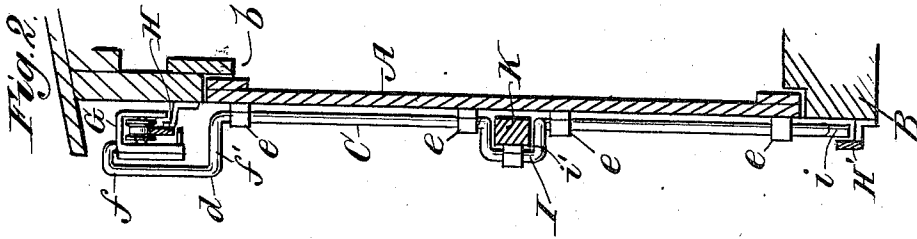
T. M. COLE.
DOOR.

APPLICATION FILED SEPT. 1, 1909.

948,690

Patented Feb. 8, 1910.

2 SHEETS—SHEET 1.



Witnesses:
Robert G. Smith,
John W. Ball

Inventor:
Thomas M. Cole.
By W. R. Stevens
Att'y

T. M. COLE.

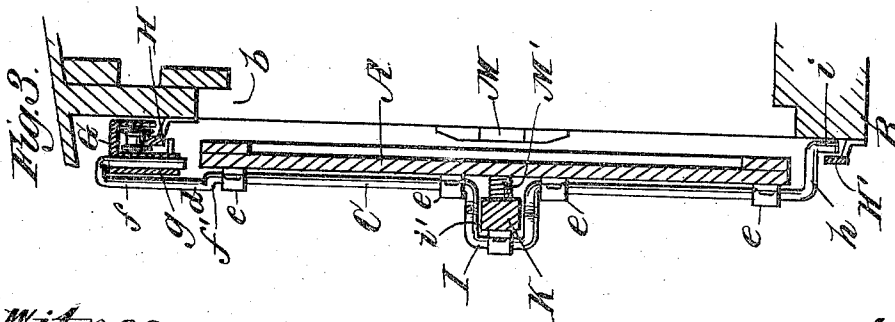
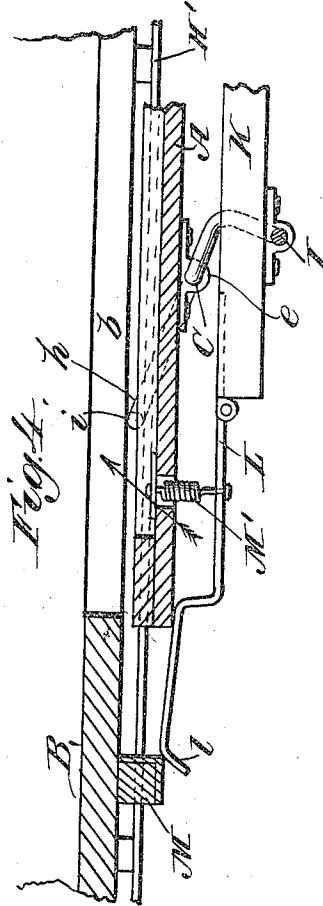
DOOR.

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2 SHEETS—SHEET 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

THOMAS M. COLE, OF CONWAY, IOWA.

DOOR.

948,690.

Specification of Letters Patent.

Patented Feb. 8, 1910.

Application filed September 1, 1909. Serial No. 515,630.

To all whom it may concern:

Be it known that I, THOMAS M. COLE, a citizen of the United States, residing at Conway, county of Taylor, State of Iowa, have invented certain new and useful Improvements in Doors, of which the following is a specification.

My invention relates to that class of doors which lie, when closed, flush with the wall or side of the structure to which they are applied, and which are opened by two movements—first, bodily, outward from the side of the structure, and secondly, a sliding movement backward, in a plane parallel with the sides of the structure.

The object of the invention is to provide a door of this class with operating means of simple and novel construction, and positive and easy action.

With these objects in view, my invention consists of the novel construction and arrangement of parts as hereinafter fully described, particularly pointed out in the claims and illustrated in the drawings.

In said drawings—Figure 1 is a side elevation of a portion of a structure, showing a door applied thereto constructed in accordance with this invention. Fig. 2 is a vertical sectional view on line 2—2, Fig. 1, the door being in closed position; and Fig. 3 is a similar view, showing the door in open position. Fig. 4 is a detail view of certain parts of the invention shown in Fig. 1.

A designates a sliding door fitted to an opening *b* in the side of the structure B. To the door, at suitable distances from the front and rear thereof, are journaled two rock shafts C and D. These rock shafts are securely held to the door by means of bearing clips *e*, in which they are free to turn. Each rock shaft is provided at its upper end with an L-shaped crank bend *d*. The continuation of the vertical arm or portion *f* of the crank bend is bent downwardly and passes into a vertical recess or bearing *g* formed in each hanger G by which the door is suspended. These hangers are provided with rollers, and are adapted to move upon the upper track H. They may be of any ordinary or suitable construction. The lower end of each rock shaft is bent to form a horizontal portion *h* and a vertical depending portion *i* extending downward from the horizontal shaped portion and engaging the lower track H', as hereinafter described. Thus far the

arrangement specified is not broadly new with me.

At approximately midway its length, each rock shaft is bent, first, in a horizontal plane for a short distance, then outwardly to form a substantially U-shaped seat *i'*—the whole forming a crank I. A bar K, extends across the door and rests in the seats *i'*, *i'* of the rock shafts, being pivotally connected thereto by means of bearing clips, as shown in Fig. 1. The function of this bar is to operate the rock shafts through the instrumentality of the crank and thus effectuate the opening and closing movements of the door. To the rear end of the bar K is pivotally attached an arm or extension L. This arm projects beyond the rear end of the door, and is bent outwardly at *l*, as shown in Fig. 4. When the door is in closed position, the end of arm K projects against a stop or post M, secured to the door facing or other portion of the building adjoining the door. The arm is held firmly against the door and facing by a spring M', attached to the door. This arm L serves a two-fold function, as will hereinafter appear.

When the door is closed, the parts will lie in the position shown in Fig. 2. The portions *h* and *i* of the lower crank-shaped portion of each rock shaft lie in the same plane as the door; while the horizontal portion *f'* of the upper crank bend of each rock shaft extends outwardly and backward in an oblique line from the door. It will be noted that the vertical portion *f* of the upper crank-bend does not fit close to the hanger, but extends outward for a short distance. This is necessary in the construction illustrated for the reason that the outward movement of the bar K swings the vertical portion *f* backward until (at the extreme outward position of the door) it rests against the hanger, as shown in Fig. 3. However, this may be obviated by passing the vertical portion *f* upward through the hanger, and securing it by means of a bolt or other device, while at the same time leaving it free to rotate therein.

The door is operated as follows: With the parts in the position shown in Figs. 1 and 2, the bar K is pulled outwardly, thus turning the cranks I I, in the seats of which it rests, in a direction toward the rear of the door. This movement, by means of the upper and lower crank-bends, carries each rock

shaft, and consequently the door attached thereto, outwardly, until the door has advanced sufficiently to clear the walls of the structure. Owing to the position of the bearing points of the lower crank bends, the door, while moving outward, is simultaneously given a backward movement, causing the hangers to slide upon the upper track, and giving a slight backward momentum to the door, which greatly aids the operator in immediately sliding the door backward to expose the opening. The bar K in its outward movement, carries with it the arm L, thus enabling the latter to clear the stop or post M. On the return movement of the door, the latter slides along the upper track until it reaches a position a little to the rear of the opening b, when its further forward movement is prevented by stops which contact with the upper forward hanger and the portion i of the lower forward crank bend, as shown. At this point, the base of the outwardly turned portion l of the arm L, rests upon the stop or post M, as shown in Fig. 4. Now when the bar K is pressed inwardly, this portion l of the arm comes into contact with the side of the post M and exerts a pressure upon the end of the bar, thus aiding the rock shafts to turn and the door to assume its closed position. The arm L may be provided with an aperture to engage a staple

fastened to the structure to which the door is applied, and thus act as a fastening means for the door.

What I claim and desire to secure by Letters Patent is—

1. In a device of the character described, a sliding door; rock shafts journaled thereto, said rock shafts being bent, intermediate their length, twice in a horizontal plane at right angles to each other, and the last bend extending outwardly, to form crank seats 2'; and an operating bar fitting in and secured to said crank seats, substantially as described.

2. In a device of the character described, a sliding door; rock shafts journaled to said door; cranks formed in said rock shafts intermediate their length; an operating bar connected to said cranks; and an arm or extension L connected to said bar, having an out turned portion l adapted to engage a post M and exert a pressure upon the end of said bar as the door is moved inward to closed position, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS M. COLE.

Witnesses:

G. H. CHILES,
GEO. R. JOHNSON.