

B. K. HUSSEY.
SLIDING DOOR CONSTRUCTION.
APPLICATION FILED OCT. 31, 1907.

937,810.

Patented Oct. 26, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

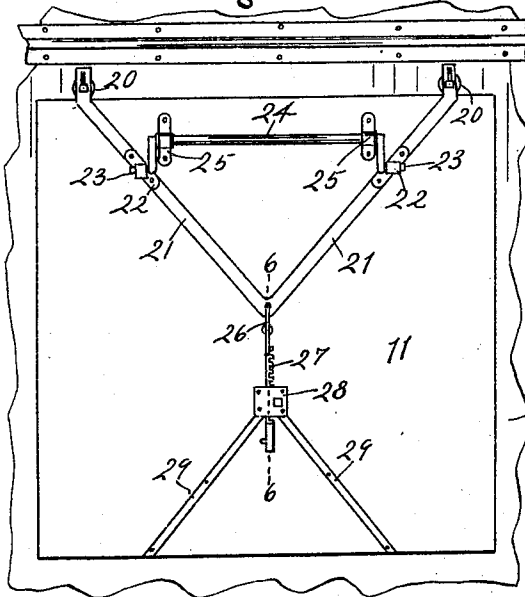


Fig. 3.

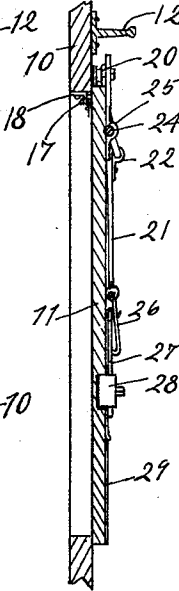


Fig. 4.

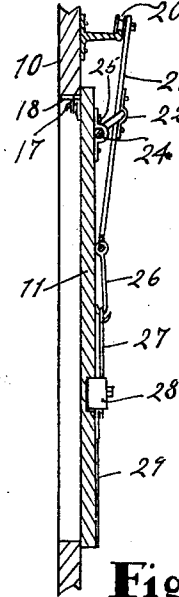


Fig. 2.

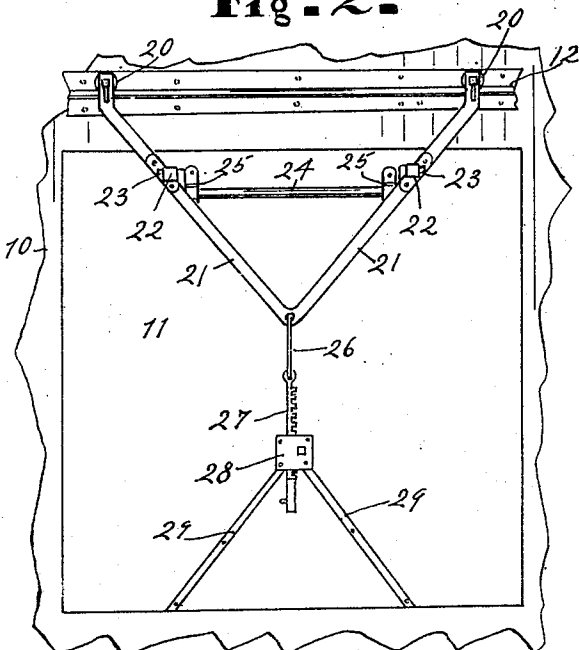


Fig. 5.

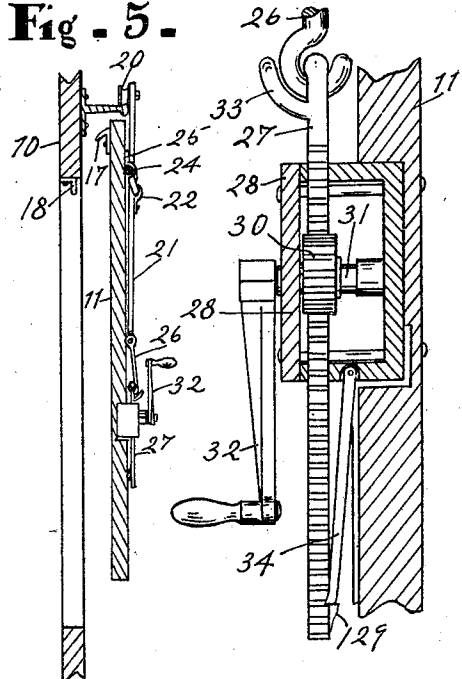


Fig. 6.

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2 SHEETS—SHEET 2.

Fig. 7.

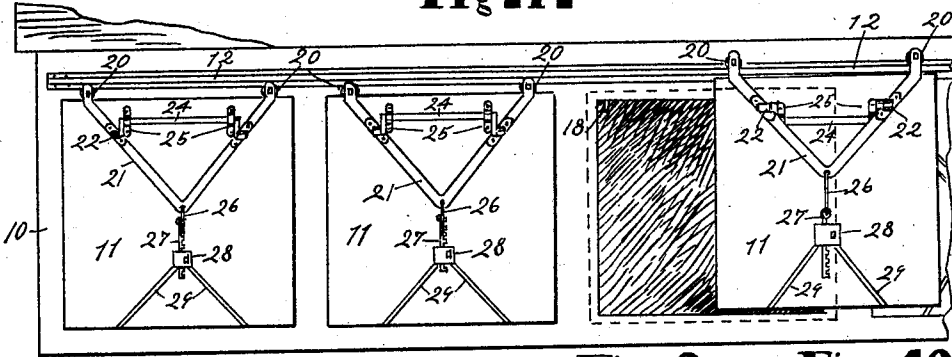


Fig. 8.

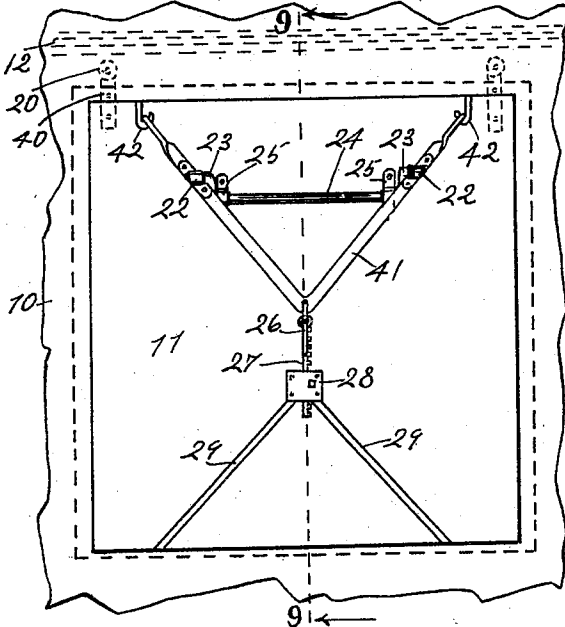


Fig. 9.

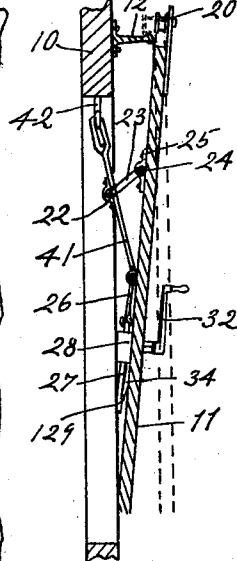


Fig. 10.

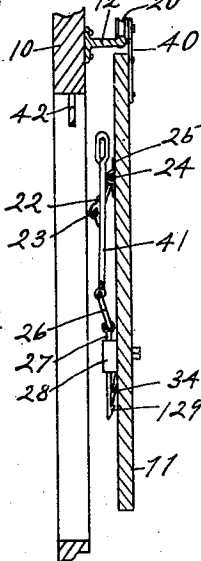


Fig. 12. Fig. 13.

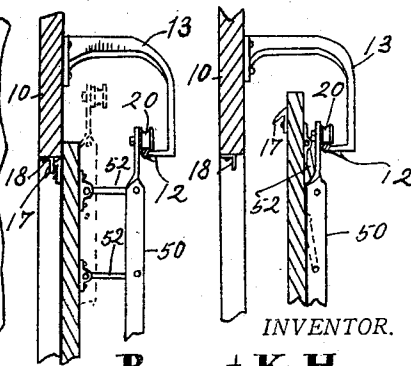
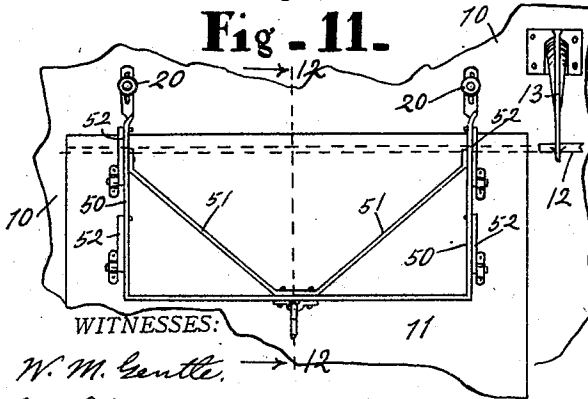


Fig. 11.



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BRYANT K. HUSSEY, OF INDIANAPOLIS, INDIANA.

SLIDING-DOOR CONSTRUCTION.

937,810.

Specification of Letters Patent.

Patented Oct. 26, 1909.

Application filed October 31, 1907. Serial No. 400,073.

To all whom it may concern:

Be it known that I, BRYANT K. HUSSEY, of Indianapolis, county of Marion and State of Indiana, have invented a certain new and useful Sliding-Door Construction; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like numerals refer to like parts.

The object of this invention is to provide an improved construction for sliding doors for dry kilns or any other structure where it is desired to remove a door from the opening and slide it out of the way or where there are a number of doors and it is desired to slide them past each other as the needs of the case may require.

One feature of my invention consists in such a combination of the hanger and the means for operating the hanger with the door that the hanger may first be placed upon the track and the door subsequently moved from its seat to a suspended position under the track. When closing the door, it can first be moved to a closed position and then the hangers removed from the track.

There are various possible ways for carrying out the general feature of my invention, three of which are here shown, but I do not wish my invention to be limited to any particular means or manner of carrying it out.

The full nature of my invention will be understood from the accompanying drawings and the following description and claims.

In the drawings Figure 1 is a side elevation of a door and a portion of the structure with which it is mounted, parts of the latter being broken away. Fig. 2 is the same as Fig. 1 with the hanger elevated and placed upon the track above the door. Fig. 3 is a central vertical section through Fig. 1, showing the door closed and the hanger off the track. Fig. 4 is the same with the door closed and the hanger on the track. Fig. 5 is the same showing the door open and elevated in suspended position. Fig. 6 is a section on the line 6—6 of Fig. 1 and on a larger scale. Fig. 7 is a side elevation of the structure provided with a plurality of doors and door openings, one door being shown in open position and two being shown closed. Fig. 8 is a side elevation like Fig. 1 but showing a modified form, the door being

closed. Fig. 9 is a central vertical section on the line 9—9 of Fig. 8, showing the door in process of being opened and suspended on the track. Fig. 10 is the same with the door completely opened and suspended. Fig. 11 is a side elevation of part of the door and structure with the door closed, the same being another modified form of the invention. Fig. 12 is a central vertical section of Fig. 11, showing the door closed but the hanger placed on the track. Fig. 13 shows the door open.

In the various figures 10 represents the side of a structure, such as a dry kiln, provided with suitable openings to be closed by doors 11. There is a track 12 secured to the structure above the doors and door openings, upon which the doors may be suspended. There is only one track for a plurality of doors, as seen in Fig. 7, said track being held out sufficiently far from the structure to permit a door suspended thereon being pushed by closed doors. In the first ten figures the track 12 is in a plane entirely above the door opening. In Figs. 11 to 13 the track is mounted on downwardly curved arms 13 secured to the structure so that the track is about on a level with the top of the door opening.

In the first five figures the door is held closed by downwardly curved fingers 17 secured to the inner surface of the door near the top and projecting through eyes or loops 18 secured to the structure 10 at the top of the door opening and extending downwardly slightly therefrom. In said Figs. 1 to 5 hangers 20, which are in the form of rollers, are mounted in the upper ends of two bars 21 that are connected at the lower ends and midway their ends are mounted on the bearings 22 on the crank ends 23 of the crank rod 24 mounted on the door in the bearings 25. The bars 21 are, therefore, not secured to the door directly but are mounted in connection therewith by said crank rod. The arrangement is such that the cranks of the crank rod turn downwardly when the bars 21 are in their downmost position. So that when said bars 21 are elevated the crank on the crank rod 24 will throw the upper ends of the bar 21 outwardly away from the door, and upward so that the hangers 20 will be immediately above the track 12. In this operation the cranks 23 of rod 24 move upwardly in the arc of a circle and the last part of that movement

causes the hangers 20 to move inwardly somewhat toward the track 12 until they are immediately over the track. After the hangers are thus placed above the track, as shown in Fig. 4, the doors still being unmoved or stationary, a reverse movement of the handle 32 will at first cause the hangers 20 to settle on the track 12, by reason of the slight play of the parts 21, 23, 26 and 27 in their mountings and connections. A further movement of the handle 32 will then elevate the door with reference to the hangers, that are resting on the track to the position shown in Fig. 5, which suspends the door on the track. The two movements just referred to are brought about by link 26 connected pivotally to the lower ends of the bars 21 and extending to the rack bar 27 mounted so as to be vertically reciprocable in the frame 28 secured to the door at the upper end of two brace bars 29. The rack bar is actuated by the pinion 30 on the shaft 31, the outer end of the shaft being formed to receive a removable crank or handle 32. By operating said crank 32, the rack bar 27 may be elevated; and at the upper end of said rack bar there is a rigidly secured brace 33 that braces against the lower end of the link 26 so that said rack bar will push said link upwardly in a manner to hold the upper end of the link against the door all the time, and such upward movement of the link 26 forces the bars 21 from their position in Fig. 3 to their position in Fig. 4.

By the means and in the manner just described the hangers are placed above the track, the doors still remaining closed. Then by reversing the movement of the handle 32, the hangers will be brought down upon the track and the door will be elevated with reference to the bars 21, to the position shown in Fig. 5, and that elevates the hook finger 17 out of the eyes 18, bringing the door to the suspended position shown in Fig. 5. In the movement of the hangers upwardly, the door is stationary and in the movement of the door upwardly the hangers are stationary. When the door is thus moved to the suspended position, it is locked in that position by the lock bar 34 pivoted to the lower end of the frame 28 and its lower end engaging the shoulder 29 on the inner surface of the rack bar 27. The rod 34 therefore, locks the rack bar down and holds it down and that holds the door in its elevated position.

When suspended, as shown in Fig. 5, the door can be pushed to one side or past the other doors without any interference. And it is observed that every door carries with it a complete mechanism for handling the door. To close the door, the above described operation is reversed, the handle 32 being actuated somewhat to release the locking rod 34 and then the door is moved down-

wardly to the position shown in Fig. 4, the downward movement by reason of the crank rod 24 forcing the door gradually inwardly so that the fingers 17 engage the eyes 18. When the door is closed, the handle 32 is reversed and the hangers brought down from the position shown in Fig. 4 to the position shown in Fig. 3 where they are entirely out of the way of passing doors.

The modified form shown in Figs. 8 to 10 is somewhat the reverse of that shown in the first seven figures. In Figs. 8 to 10 the hangers 20 are rigidly secured to the doors by the bars 40. On the inside of the doors there are plates 41 formed and arranged substantially like the plates 21 in Fig. 1, excepting that at their upper end they are hooked over the hooks 42 in the structure 10. There is a crank rod 24, like that shown in Fig. 1 except that it is secured on the inside of the door instead of the outside of the door, and when the door is closed, the cranks 23 of the rod 24 extend upwardly instead of downwardly, as in Fig. 1. The link 26 and rack bar 27, frame 28 and brace strips 29 are all the same in modified form as that shown in Fig. 1 except that they are on the inside of the door and with the further change that the shaft 31 in the frame 28 projects through the door so that the head thereof will be on the outside where it receives the handle 32. Therefore, in this modified form shown in Figs. 8 to 10, the most of the operating mechanism is on the inside of the door out of sight, there being on the outside of the door in view only the hanger bars 40 at the top and the exposed end of the shaft 31 at the middle.

The operation of the modified form shown in Figs. 8 to 10 is much the same as the other form. One movement of the handle 32 lifts the door with its hangers up on the track. The reverse movement of the handle 32 disengages the bars 41 from the hooks 42 and lets the door swing out to the position shown in Fig. 10. In closing the door, one movement of the handle 32 places the bars 41 upon the hooks 42 and the reverse movement lifts the door and brings it down into closing position.

In the modified form shown in Figs. 11, 12, and 13 the hangers 20 are secured upon the frame bars 50 that are braced by the braces 51 and said frame is carried by cranks 52 fulcrumed to the door. When the door in this last modified form is closed, the hangers and frame bars 50 are in the elevated position shown by dotted lines in Fig. 12. The means for elevating and lowering the frame 50 are the same as the means for elevating and lowering the bars 21 and 41 in the prior modified forms. One movement of the crank 32 moves the frame 50 outwardly from the door so that the hangers will ride upon the track 12. A further movement

of the crank 32 lifts the door to the position shown in Fig. 13. The reversal of the movement just described will close the door. All of the means in which the rollers or hangers 20 are mounted, shown in Figs. 1, 5, 11 and 13, are vertically slotted so that said rollers may be vertically adjusted. This appears in Figs. 1, 2 and 11.

What I claim as my invention and desire to secure by Letters Patent is:

1. The combination with a structure having a door opening and a track running above the middle thereof, of a door, hangers capable of engagement and disengagement from such track, and means connecting said hangers to the door capable of imparting a relative vertical movement to the hangers and door and so constructed and arranged that when the hangers engage the track and the door is suspended therefrom, the door may by the operation of such means be moved from a position under the track downward and laterally to a seating position, or when the door is in a seated position the hangers by the operation of such means may be raised and detached from the track.

2. The combination with a structure having a door opening and a track running above such opening, of a door, hangers capable of engagement and disengagement from such track, a rigid means for carrying said hangers on the upper end thereof, a pivotal crank rod connection between the hanger carrying means and door for forcing said hangers away from or toward the door as said hanger carrying means is moved vertically, and means connected with the door for giving said crank hanger means a

vertical movement, said parts being arranged so that when the hangers engage the track and the door is suspended therefrom, the door may by the operation of such means be moved from a position under the track downward and laterally to a seating position, or when the door is in a seated position the hangers by the operation of such means may be raised and detached from the track.

3. The combination with a structure having a door opening and a track running above said door opening, of a door, hangers, a frame mounted in connection with the door so as to have relative vertical movement and upon which said hangers are mounted, a pivotal crank rod connection between the door and the hanger carrying frame at a point between the ends thereof and capable of giving the hangers a relative movement from or toward the door, a frame secured to the door, a vertically movable rack therein connected with the hangers for giving them relative vertical movement, a pinion for actuating the rack, and a movable handle for operating the pinion, whereby the hangers may be moved upwardly to engage the track and suspend the door therefrom, or move the door from the position under the track to the seated position and as the door is seated the hangers may be removed from the track.

In witness whereof, I have hereunto affixed my signature in the presence of the witnesses herein named.

BRYANT K. HUSSEY.

Witnesses:

OLIVE BREDEW,
N. ALLEMONG.