R. G. CRISWELL.

DOOR HANGER.

APPLICATION FILED JULY 23, 1917.

1,266,922.

Patented May 21, 1918.

2 SHEETS—SHEET 1.

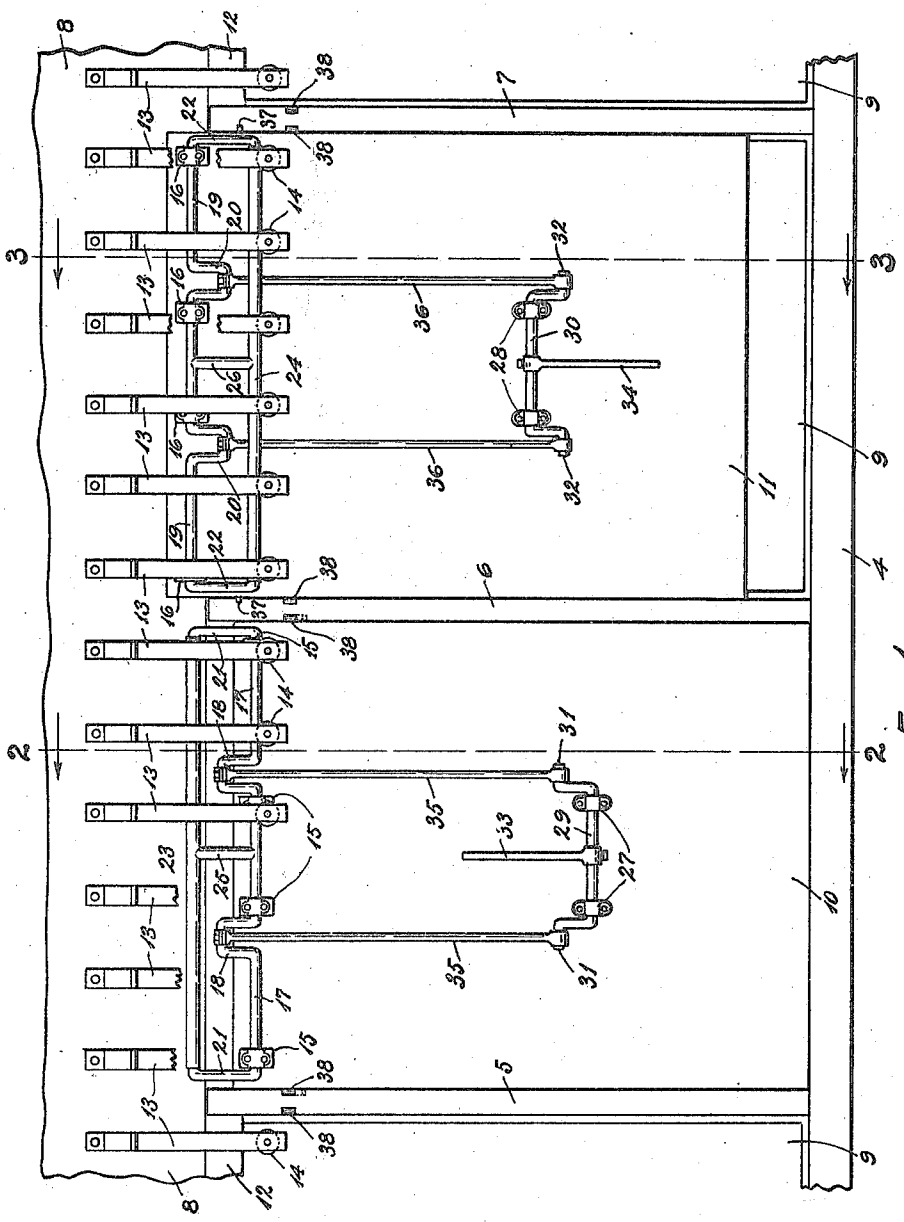


FIG 1

Inventor
Robert G. Criswell

By C. O. Hawkins Attorney

R. G. CRISWELL.

DOOR HANGER.

APPLICATION FILED JULY 23, 1917.

1,266,922.

Patented May 21, 1918.

2 SHEETS—SHEET 2.

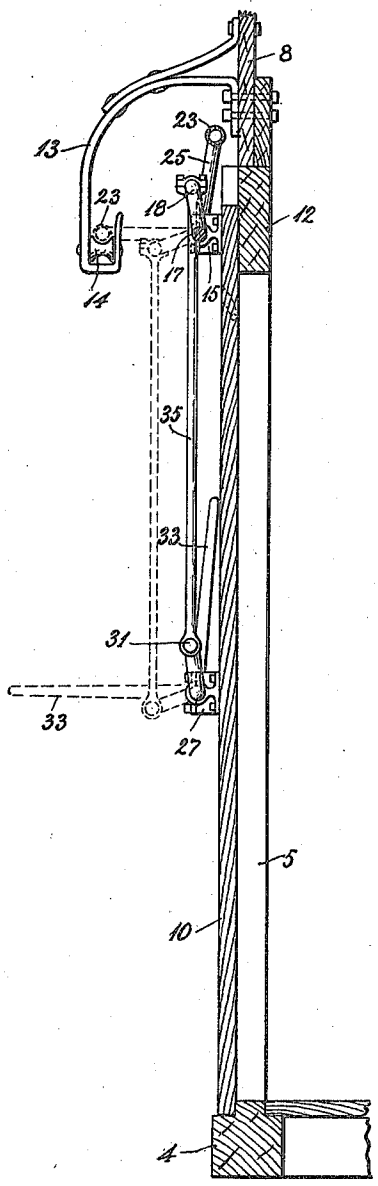


FIG. 2

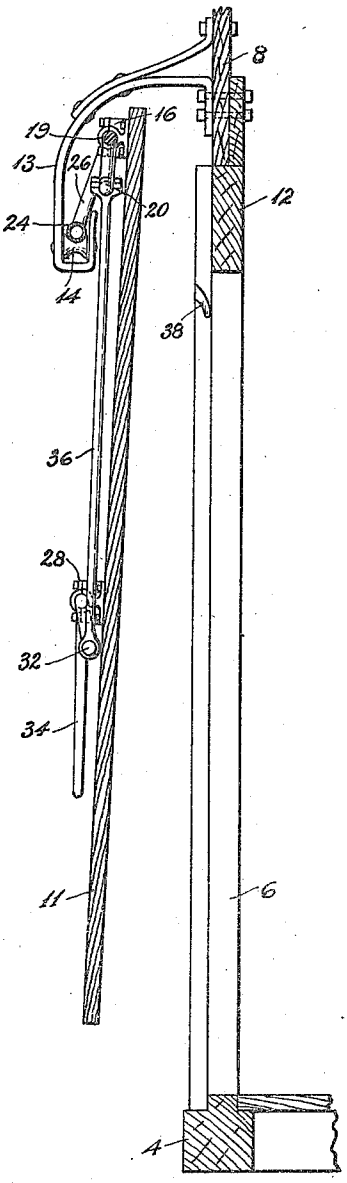


FIG. 3

Inventor
Robert G. Criswell

By Attorney
C. D. Hawkins

UNITED STATES PATENT OFFICE.

ROBERT G. CRISWELL, OF GRANITE FALLS, WASHINGTON.

DOOR-HANGER.

1,266,922. Specification of Letters Patent. Patented May 21, 1918.

Application filed July 23, 1917. Serial No. 182,368.

To all whom it may concern:

Be it known that I, ROBERT G. CRISWELL, a citizen of the United States, residing at Granite Falls, in the county of Snohomish and State of Washington, have invented a certain new and useful Improvement in Door-Hangers, of which the following is a specification.

My invention relates to improvements in door hangers for multiple doors, and the object of my invention is to provide hangers which shall be adapted for suspending the several doors of a series of contiguous doorways of a building in such manner that one or more of the doors independently may be moved bodily outward from its normally closed position and then be moved in edgewise directions in a vertical plane adjacent to the outer side of the closed doors for a required distance, whereby any or all of one-half of the number of doorways of the series may be opened at the same time.

A further object of my invention is to provide door hangers which may be operatively associated with a door in such manner that such door may be moved to open and shut a doorway with little physical effort and which shall operate to lock such door in response to the operation of shutting such door.

I accomplish this object by devices illustrated in the accompanying drawings wherein—

Figure 1 is a view in outer side elevation of door hangers embodying my invention as applied to two of the doors of a series of doorways of a building.

Fig. 2 is an enlarged view of the same in vertical section on broken line 2, 2 of Fig. 1; and

Fig. 3 is a like enlarged view of the same in vertical section on broken line 3, 3 of Fig. 1.

Referring to the drawings, throughout which like reference numerals indicate like parts, 4 is the sill from the top of which extends upwardly studs 5, 6 and 7 to a lintel 12 which supports a side wall 8 of a building, which studs 5, 6 and 7 also serve as the vertical sides of door frames of contiguous doorways 9, one of which doorways 9 is wholly closed by a door 10 which extends between the studs 5 and 6 and another of which doorways is partially closed by a door 11 which extends between the studs 6 and 7, only a fragment of the other doorways 9 being shown.

Secured to the outer side surface of the side wall 8, above the lintel 12 of each of the doorways 9, are a plurality of spaced brackets as the brackets 13, each of which brackets 13 extends outwardly and curves downwardly to a point opposite the bottom edge of the lintel 12 where it is provided with a grooved roller 14 rotatably mounted thereon, as shown in Figs. 2 and 3.

Secured to the outer side of the upper end portion of each of the doors 10 and 11 are four spaced bearing brackets, as bearing brackets 15 and bearing brackets 16, respectively.

Rotatably disposed in the bearing brackets 15 is a crank shaft 17 provided with two cranks 18, and rotatably disposed in the bearing brackets 16 is a crank shaft 19 that is provided with two cranks 20.

The opposite end portions of each of the crank shafts 17 and 19 are provided with integral arms 21 and 22, respectively, which extend at right angles therefrom to rigidly unite and support a trolley rod, as trolley rods 23 and 24, respectively, each of which trolley rods 23 and 24 is thus disposed parallel with the axis of its crank shaft and at such distance therefrom that, when the door with which it is associated is closed, a rotative movement of said crank shaft may cause said trolley rod to swing downwardly from a point near the wall 8 to rest in and be supported by the grooved rollers 14 of the brackets 13, as indicated in Fig. 3 wherein the trolley rod 23 is shown by full lines in cross-section in its normal position near the wall 8 and by dotted lines when resting on the rollers 14.

Extending between the central portion of each of the trolley rods 23 and 24 and its associated crank shaft is a cross brace, as cross braces 25 and 26 respectively.

Fastened to the outer side of the lower portion of each of the doors 10 and 11 are spaced bearing brackets 27 and 28, respectively, and within the bearing brackets 27 is rotatably disposed a shaft 29, and rotatably disposed in the brackets 28 is a shaft 30.

Each of the end portions of each of the shafts 29 and 30 terminates in a crank, as cranks 31 and cranks 32, respectively.

Rigidly fastened to the central portion of

each of the shafts 29 and 30 is a hand lever, as hand levers 33 and 34, respectively.

Articulated to each of the cranks 31 is the lower end of a connecting rod, as connecting rods 35, which extend upwardly to the cranks 18 of the crank shaft 17 with which their upper ends are articulated.

Likewise articulated to each of the cranks 32 is the lower end of a connecting rod, as connecting rods 36, which extend upwardly to the cranks 20 of the crank shaft 19 with which their upper ends are articulated.

Thus, when the hand lever 33 is moved to swing from its normal uppermost position, shown by full lines in Fig. 2, to a horizontal position, shown by broken lines in said Fig. 2, then the trolley rod 23 will swing downwardly to rest in the groove rollers 14 and a continued forcible downward movement of the hand lever 33 from its horizontal position to its lowermost vertical position would cause the door 10 to be lifted upwardly and in a curved course bodily away from the sill 4 and the lintel 12 to be suspended on the trolley wheels 14 in a vertical plane, to be disposed in a position similar to that of the door 11, as shown in Fig. 3, in which position said door 10 might then be easily moved edgewise in either direction from its doorway for any required distance therefrom, since in such position it would be at such distance from the outer side of other closed doors that it could pass such closed doors and their associated mechanisms without interference therewith.

To close a door, as the door 11, it is moved in an edgewise direction to a position opposite a doorway 9, whereupon its lever 34 is actuated to swing from its lowest vertical position shown in Fig. 3 to its highest position, that is similar to the position of the lever 33 in Fig. 2, whereby said door 11 will be caused to swing in a curved course downwardly into the doorway 9 to rest its bottom edge on the sill 4 and to engage the outer side surface of its upper end portion against the outer surface of the lintel 12.

The doors 10 and 11 are provided with locking pins, as locking pins 37 shown in Fig. 1, one of which projects from each of the edges of each of said doors at opposite points thereof, and the studs 5, 6 and 7 are provided with curved recesses 38 (one of which is shown more clearly in Fig. 3) so disposed that when a door is swung downwardly into its closed position then said pins 37 will enter respective ones of said curved recesses 38 in an obvious manner to lock said door in its closed position.

My invention as illustrated and described, is particularly well adapted for use in connection with doors of series of doorways of a kiln such as is used for drying lumber.

Obviously changes may be made in the forms, dimensions and arrangement of parts of my invention without departing from the spirit thereof.

What I claim is:

1. A door hanger of the class described which includes a plurality of suspension brackets; a grooved roller rotatably mounted on each of said suspension brackets; a crank shaft; means for rotatably mounting said crank shaft in a horizontal position on the surface of the upper end portion of a door with its axis parallel with the vertical plane of said door; a trolley rod rigidly associated with said crank shaft and disposed parallel therewith and spaced therefrom; a hand lever pivotally secured to the surface of said door; and means associated with said hand lever and said crank shaft whereby rotative movements may be communicated to said crank shaft in response to swinging movements of said hand lever.

2. The combination with a plurality of contiguous doorways of a building, of a door for each of said doorways; a contiguous series of suspension brackets fastened to the surface of the wall of said building in spaced positions on a horizontal line above the lintels of said doorways; a grooved roller rotatably mounted on each of said suspension brackets in a position to rotate in a vertical plane that is parallel with and spaced from the plane of said doors; a separate crank shaft rotatably mounted in suitable bearings secured to the surface of the upper end portion of each of said doors and horizontally disposed with its axis parallel with the plane of said doors; a separate trolley rod rigidly associated with each of said crank shafts and disposed with its axis parallel with and spaced from the axis of said crank shaft to adapt it to be swingingly moved to engage and disengage adjacent ones of said grooved rollers in response to rotative movements of said crank shaft; and manually operative means associated with each of said crank shafts and adapted to communicate rotative movements thereto, whereby each of said doors independently may be lifted from its closed position in its doorway and be suspended by its trolley rod and said grooved rollers thus to adapt it to be movable past other closed doors.

In witness whereof, I hereunto subscribe my name this 18th day of July, A. D. 1917.

ROBERT G. CRISWELL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."