

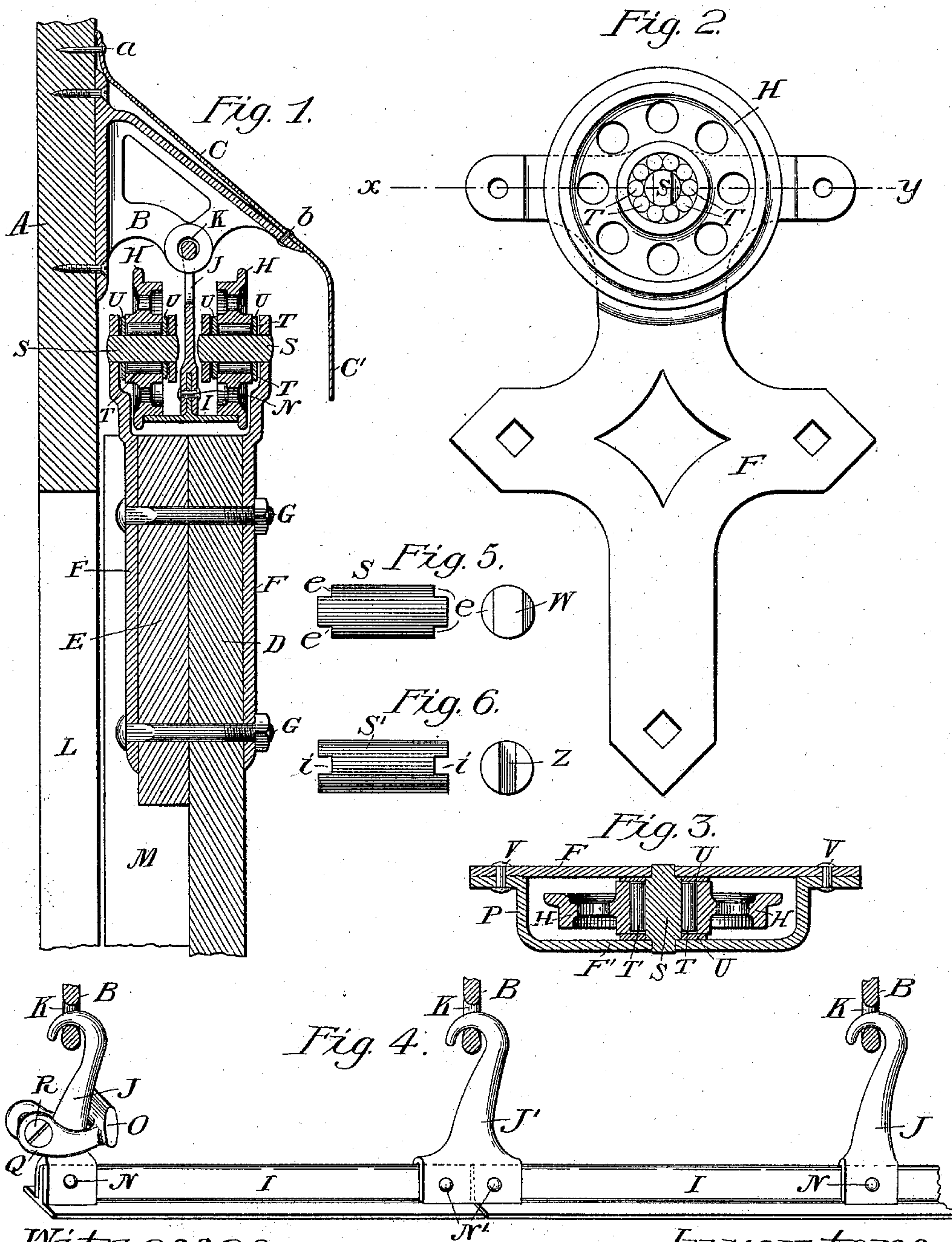
(No Model.)

W. & R. B. LOUDEN.

DOOR HANGER.

No. 591,235.

Patented Oct. 5, 1897.



Witnesses.
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UNITED STATES PATENT OFFICE.

WILLIAM LOUDEN AND ROBERT B. LOUDEN, OF FAIRFIELD, IOWA.

DOOR-HANGER.

SPECIFICATION forming part of Letters Patent No. 591,235, dated October 5, 1897.

Application filed August 3, 1896. Serial No. 601,658. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM LOUDEN and ROBERT B. LOUDEN, citizens of the United States, residing at Fairfield, in the county of Jefferson and State of Iowa, have invented a new and useful Improvement in Door-Hangers and Tracks for Same, of which the following is a specification.

Our invention relates to means for supporting sliding doors in position and providing for their necessary movement in opening and shutting; and it consists, first, of brackets adapted to be secured at one side to a wall and a track supported by said brackets, so as to leave an open space between it and the wall for the passage of door-hangers therein; second, of the combination, with said brackets, of a cover adapted to be secured to the outer ends of the brackets, and, third, of other details in construction hereinafter described, and specifically defined in the claims.

In the accompanying drawings, Figure 1 is a vertical section of the door, track-rail, brackets, and cover secured to the wall of the building. Fig. 2 is an enlarged inner side view of one of the hangers, the inner part of the frame being removed to show the bearings of the wheel. Fig. 3 is a transverse or cross-sectional view on line xy of Fig. 2. Fig. 4 is a perspective of the track-rail and track-hooks with cross-section views of lower portions of the brackets. Figs. 5 and 6 are detail views.

A represents the wall of the building, and B a bracket secured thereto.

C is the cover, which is secured to the outer end of the bracket and also to the wall above it.

D is the door, which is preferably constructed at its upper end with a cleat or tie-piece E. On opposite sides of the door-hanger frames F are attached by means of bolts G, and in the upper ends of said frames flange-faced wheels H are mounted.

The wheels H are adapted to run on the edges of a track-rail I, which is supported in position by track-hooks J, secured thereto at intervals and hooked into eyes K in the lower parts of the brackets B.

L is the opening in the side of the building which the door is designed to close, and M is a casing-board on the edge of the door to

close the space between it and the edge of the opening.

A pair of hanger-frames are secured to the door near each upper corner, so as to support it in proper position, and the wheels H, running on opposite edges of the track-rail, make the weight of the door central on the track and the hangers cannot get off, as they would be liable to do if they were all on one side. Should the bottom of the door be by any cause pushed out from the wall of the building, the door cannot run off nor the hanger-frames get bent or broken, because the hooks J are free to turn in the eyes K and will permit the track-rail to swing outward with the door.

If desired, the track may be rigidly secured to the brackets, but for the reason above stated it is considered preferable to pivotally connect the suspending devices to the brackets.

The lower ends of the track-hooks J are made forked to fit over the vertical web of the track-rail I and are secured thereto by rivets N. The extreme lower ends of these forks are preferably made to fit snugly against the horizontal flanges of the track-rail, especially at their corners, and by this means the rail will be held rigidly against longitudinal movement.

The door is held from running off the end of the track by the ends P of the inner parts of the hanger-frames F' striking against the stop O. (See Figs. 3 and 4.) The stop O has preferably forked ends Q, which are adapted to slip over the shank of the hook at the end of the track just above the web of the rail I and be clamped thereon by means of a bolt R. This is an inexpensive device and is easily adjusted upon the hook and forms an effective stop.

When two or more sections of rail are used, their ends are held together so as to form a continuous track by means of the splice-hook J', which has its forked end extended or made wide, and two rivets N' are used so as to pass through the web of each abutting section of rail and join them together and also connect them to the bracket, as shown in Fig. 4.

The cover C is preferably made of sheet metal bent so its upper edge will fit against the wall A, and its lower edge C' projects vertically downward while its central portion,

will rest on the top of the brackets B in an inclined position, so as to effectually protect the track and hangers from rain or snow. It is secured to the wall by nails or screws *a* at intervals along its upper edge, and is connected to the outer ends of the brackets B by means of bolts or rivets *b*. In this way the cover C is made to support the brackets B, both strengthening their attachment to the wall and preventing longitudinal displacement of their outer ends, to which the track-hooks J are connected. When a board is used for the cover, its upper edge should be beveled to fit the wall A and the outer ends of the brackets should be secured to the board by means of screws.

The wheels H are mounted in the hanger-frames F by means of shafts S, around which a series of antifriction-rollers T are arranged to revolve, and the wheels H turn upon these rollers. The outer ends of the shafts S are held by the main or outer frame-pieces F, while their inner ends are supported by the inner frame-pieces F', which are secured to the upper ends of the pieces F, so as to form a casing for the wheels H. The rollers T and the hubs of the wheels H are made substantially the same length, and in the spaces intervening between the ends of the rollers and hubs and said casing are inserted washers U, so as to entirely cover the ends of the rollers and partly, if not wholly, cover the ends of the hubs. The washers U are made to fit loosely between the ends of the hub and casing and to turn on the shaft S. The purpose of the washers U is to hold the rollers T in place and also to relieve the hub and the ends of the rollers T of friction against the frame-pieces forming the casing, the washers being free to turn on the shaft S with the rollers and hub when necessary to relieve them of friction, or remain stationary with the frame-pieces when the friction is less.

The shafts S are preferably formed with shoulders *e* on their ends, and the portions of the shafts outside of these shoulders are adapted to fit into elongated holes in the frame-pieces F and F' and to extend not more than flush with their outer sides. After the shaft and rollers are inserted in the wheel and the washers are placed on the shaft its ends are inserted in the holes in the frame-pieces and the pieces are then riveted or bolted together. The shoulders *e* will fit snugly against the frame-pieces F and F' and hold the shaft firmly in position, and the shaft S will occupy no more space laterally than that occupied by the frame-pieces F and F'.

The shape of the shafts may be modified by cutting slots *i* in their ends, as shown in Fig. 6, in which case the holes in the frame-pieces will have to be constructed with a bar Z across them to fit into slots *i* and hold the shafts in place.

What we claim is—

1. The combination of a track-rail adapted to carry a sliding door; track-suspending de-

vices secured at intervals to said track-rail, so as to permit the passage of door-hangers thereby, and brackets adapted to be secured at one side to a wall and pivotally support the suspending devices, substantially as described.

2. The combination of brackets adapted to be secured at one side to a wall; a track having wheel-supporting edges on its opposite sides, and adapted to be supported by the brackets so as to leave an open space between it and the wall; hangers adapted to be secured to opposite sides of a door, and wheels mounted on the upper ends of said hangers, and having an open space between them so as to pass the supports and run on the opposite wheel-supporting edges, substantially as described.

3. The combination of a track adapted to carry a sliding door; brackets adapted to be secured at one side to a wall; a cover adapted to be secured at its upper edge to the wall and to be connected to the outer ends of the brackets, and suspending devices secured to said track and connected to said brackets, substantially as described.

4. The combination of a track adapted to carry a sliding door; brackets adapted to be secured at one side to a wall; a metallic cover adapted to be secured at its upper edge to the wall and near its center to the brackets, while its lower edge projects outwardly and downwardly below said brackets, and suspending devices secured to said track, and connected to said brackets, substantially as described.

5. The combination of brackets adapted to be secured at one side to a wall; a track having wheel-supporting edges on its opposite sides; suspending devices secured at intervals to the central portion of the track, and connected to the brackets so as to leave an open space between the track and the wall; hangers adapted to be secured to opposite sides of a door, and wheels mounted on the upper ends of said hangers so as to pass the suspending devices and run on the opposite edges of the track, substantially as set forth.

6. The combination of a metallic track-rail comprising a vertical web and wheel-supporting flanges on the sides of said web; brackets adapted to be secured at one side to a wall and suspending devices adapted to be pivotally connected to said brackets, and having their lower ends bifurcated to straddle said web and be rigidly connected to the track, substantially as set forth.

7. The combination of a metallic track-rail having wheel-supporting flanges on each of its sides; brackets adapted to be secured to a wall, suspending devices secured to said track and pivotally connected to said brackets, and door-hangers provided with wheels and adapted to be secured to opposite sides of a door and to traverse said wheel-supporting flanges, substantially as described.

8. The combination of a sliding-door track

consisting of abutting sections of metallic track-rail; brackets adapted to be secured to a wall; suspending devices connecting the track-rail to the brackets, and a combined
5 suspending and splicing device adapted to join the abutting ends of the sections together and connect them to one of the brackets, substantially as set forth.

9. The combination of a track-rail comprising
10 horizontal flanges and a vertical upper web, suspending-hooks secured to said web, hangers secured to the opposite sides of the door and adapted to run on said horizontal flanges and a stop adjusted upon the shank
15 of one of the suspending-hooks above the rail and adapted to arrest the movement of the hangers substantially as set forth.

10. The combination of a track-rail comprising
20 horizontal flanges and a vertical upper web, suspending-hooks secured to said web, hangers secured to the opposite sides of the door and adapted to run on said horizontal flanges, and a forked stop clamped upon the shank of one of the suspending-hooks above

the rail and adapted to arrest the movement
25 of the hanger, substantially as set forth.

11. A sliding-door hanger having its lower end adapted to bolt to a door and its upper end to incase a wheel; a wheel-supporting
30 shaft mounted in said incasing part of the hanger; a series of rollers to revolve around the shaft; a wheel mounted on said rollers, and a washer placed on each end of the shaft between the hub of the wheel and the casing,
35 so as to entirely cover the ends of the rollers and more or less of the ends of the hub, and to revolve with the wheel and rollers or to remain stationary with the casing, substantially as set forth.

In testimony whereof we have signed this
40 specification in the presence of two subscribing witnesses.

WILLIAM LOUDEN.
ROBERT B. LOUDEN.

Witnesses:

JOHN BARTHOLOMEW,
F. M. DROZ.