No. 708,205. Patented Sept. 2, 1902.

J. F. CLIFT.

DOOR HANGER.

(Application filed May 10, 1902.)

(No Model.)

Fig. 1.

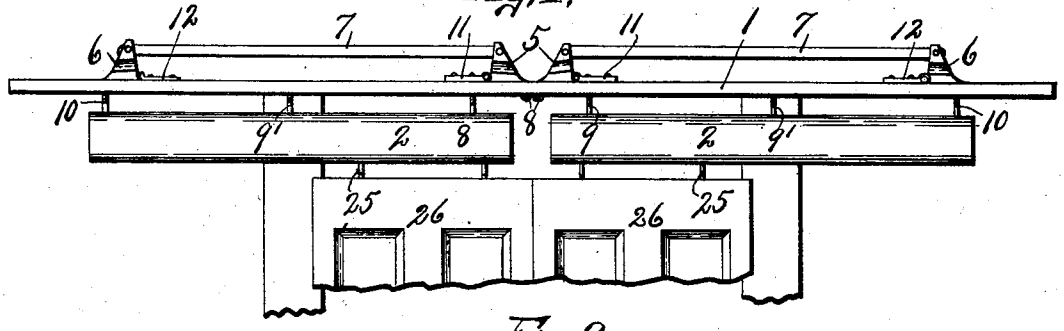


Fig. 2.

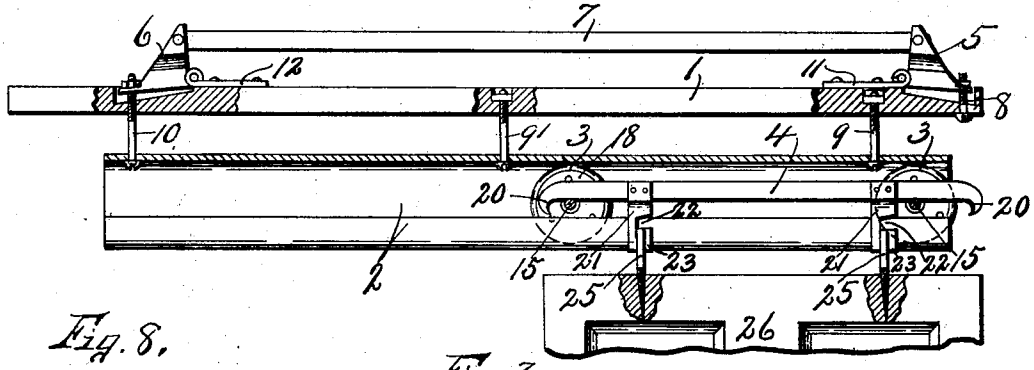


Fig. 8.

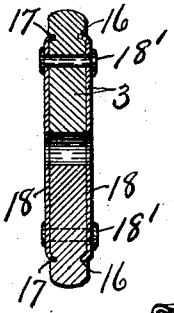


Fig. 3.

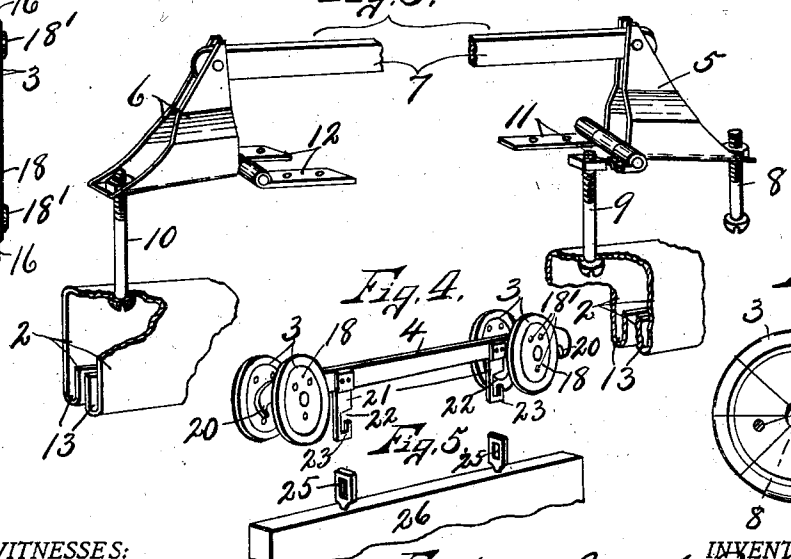


Fig. 4.

Fig. 5.

Fig. 7.

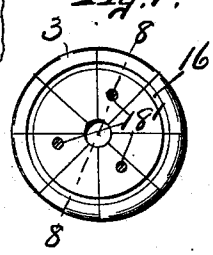
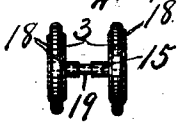


Fig. 6.



WITNESSES:

W. T. Brewer

H. E. Chase

INVENTOR

Joseph F. Clift

BY

Smith & Driscoll

ATTORNEYS.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOSEPH F. CLIFT, OF SYRACUSE, NEW YORK.

DOOR-HANGER.

SPECIFICATION forming part of Letters Patent No. 708,205, dated September 2, 1902.

Application filed May 10, 1902. Serial No. 106,809. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH F. CLIFT, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Door-Hangers, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to improvements in door-hangers.

The object of my invention is to enable any one, skilled or unskilled, to readily adjust the door vertically without removing the door or any of the structure adjacent thereto.

To this end the invention consists in the combination, construction, and arrangement of the component parts of a door-hanger, as hereinafter fully described, and pointed out in the claims.

Referring to the drawings, Figure 1 is an elevation of the upper portion of a door-frame, showing the upper portions of a pair of sliding doors in their closed position and my improved door-hangers connected thereto. Fig. 2 is an enlarged elevation, partly in section, showing the upper portion of a single door and one of my improved door-hangers in operative position. Fig. 3 is a perspective view of portions of the track and the means for adjusting the opposite ends of the track. Fig. 4 is a perspective view of the detached supporting-bar for the door and the opposite pairs of rollers upon which said doors are mounted. Fig. 5 is a perspective view of the upper portion of a door, showing particularly the eyes to which the bar seen in Fig. 4 is detachably secured. Fig. 6 is an elevation of the pair of rollers used in connection with my door-hanger. Fig. 7 is an enlarged face view of one of the rollers, composed of a series of segments and showing particularly the grooves for receiving one of the clamping-plates. Fig. 8 is an enlarged sectional view taken on line 8 8, Fig. 7.

Similar reference characters indicate corresponding parts in all the views.

In carrying out the objects of my invention I provide a support 1, a track 2, rollers 3, mounted on the track, a bar 4, mounted upon the axles of the rollers, bell-crank levers 5 and 6, pivotally mounted upon the support 1 at opposite ends of the track 2, a link 7, connecting corresponding ends of the levers 5 and 6, and adjusting-screws 8, 9, and 10.

The support 1 may be of any desired form, size, or material and is usually secured to the studding directly over the heading or door-opening, said support being generally concealed from view by the structure of the door-casings and header, except that the lower face is exposed when the doors are thrown back or open. This is preferably provided with hinge-sections 11 and 12, which are secured to the upper faces of the support 1 before the same is placed in operative position and receive and support the levers 5 and 6, which are also pivotally mounted upon said hinge-sections 11 and 12 before the support is placed in operative position. The track 2 may also be of any desired form or material, but preferably consists of a single piece of sheet-iron of suitable gage having its opposite longitudinal edges bent downwardly and then inwardly and upwardly for forming grooves or ways 13 to receive the rollers 3 and guide the same in their movement along the track. This track is suspended from the support 1 by the adjusting-screws 9 and 10, and I usually provide an intermediate adjusting-screw 9′, which sustains the central portion of the track.

The rollers 3 are of special construction, hereinafter described, and are preferably arranged in pairs, one pair for each end of the bar 4, the rollers of each pair being connected by a suitable axle 15, upon which the opposite ends of the bar 4 normally rest while the peripheries of the rollers travel in the ways 13 as the doors are moved back and forth. The special construction of these rollers previously referred to consists in constructing the same from a series of sectors of wood arranged edge to edge to form a complete circular disk, each sector being cut from the wood in such manner that the grain runs substantially radial in order that the rollers may ride upon the end of the grain, thereby giving more strength to the roller and adding to its durability. In order to secure these sectors in operative position, a suitable annular groove 16 is cut or turned in the opposite faces of the roller, in which are inserted the flanged edges 17 of the metallic disks 18, said metallic disks being further secured in position by

clamping bolts or rivets 18', which are passed through apertures provided in both the metallic disks and in two or more of the sectors. The axles uniting the rollers of each pair are preferably provided with a suitable central annular groove 19, which receives the adjacent end of the bar 4 and prevents lateral displacement of said bar, or, rather, to prevent friction of the bar with the adjacent faces of the rollers, which might occur if the axle was of uniform diameter between the rollers. The bar 4 is usually formed of metal, its opposite ends being mounted upon the axles of the rollers 3 and provided with shoulders 20 at its opposite extremities for preventing the displacement of the bar and rollers one from the other. The portion of the axles upon which the bar 4 rests is of considerably less diameter than the diameter of the rollers, and it is therefore apparent that the rolling movement of the axles upon the bearing-faces of the bar 4 is much less than the rolling movement of the rollers upon the ways 13, and therefore the bar 4 may be and is very much shorter than the track. The intermediate portion of this bar 4 is provided with depending straps 21, having open-sided slots 22 at the same side of the straps for forming hooks 23, which hooks and slots receive and support suitable eyes 25, which are preferably screw-threaded at their lower ends and screwed into the upper edge of a door, as 26. By forming these eyes with screw-threads I am enabled to adjust the door more carefully at the first setting, and if any great inequality exists in the height of the opposite edges of the door said door may be readily detached from the hooks 23 and the eyes suitably adjusted to bring the door to a substantially level position.

As previously stated, the bell-crank or rock levers 5 and 6 are pivotally mounted to the straps or hinge-sections 11 and 12, respectively, upon the support 1 and are provided with vertical and horizontal arms, the upper ends of the vertical arms being connected by a link 7, and the horizontal arm of the lever 5 is engaged by one end of the adjusting-screw 8, the opposite end of said adjusting-screw being engaged with the lower face of the support 1 and is formed with a slot or head adapted to be engaged by a screw-driver or equivalent tool for the purpose of rotating the screw and rocking the lever 5 upon its pivot. This adjustment of the lever 5 transmits similar motion to the lever 6, the horizontal arm of which is connected by a screw 10 to the inner end of the track 2. Although I have shown this screw 10 as being adjustably connected to the lever 6, it is evident that the outer end of the track may be otherwise suspended from the lever 6, the object being to adjust the outer end of the track vertically by means of a screw 8 and the connections 5, 6, 7, and 10.

The adjusting-screw 9 serves to suspend the inner end of the track 2 from the support 1, one end of the screw being engaged with a nut seated in the support 1, and its other end is provided with a head engaged with the inner face of the top wall of the track 2 in alinement with the opening between the upturned flanges of the guides 13, it being understood that said flanges are sufficiently separated to permit the insertion of a suitable tool for operating or turning the screw 9, whereby said inner end of the track is adjusted vertically when desired.

In the operation of my invention the support 1, with the various mechanisms connected thereto, is placed in operative position above the door-opening, with the track depending therefrom, the bar 4 and its supporting-rollers being previously mounted in the guides 13. The door 26 is then hooked in position upon the straps 21 and together with the bar 4 and its supporting-rollers is moved to its open position or at least until the meeting edge of the door is back a sufficient distance to reveal the adjusting-screws 8 and 9, both of which are at the same end of the track. If the door is not level, a screw-driver or other instrument is applied to the adjusting-screws 8 or 9, or both, and any inequality of the height of the opposite edge of the door is readily adjusted.

The operation of my invention will now be readily understood upon reference to the foregoing description and the accompanying drawings, and it will be noted that some change may be made in the detail construction of the track, as well as other parts of the device, without departing from the spirit thereof.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a door-hanger, the combination with a track, rocking members located at the ends of the track, a link connecting the members, one of said members being connected to one end of the track, means for rocking the other member, separate means for raising and lowering the other end of the track, and a carriage for the door mounted on the track.

2. In a door-hanger, a bell-crank, a track having one end connected to one arm of the bell-crank, means at the other end of the track connected to the other arm of the bell-crank for rocking the bell-crank, and a carriage for the door mounted on the track and separate means for adjusting said other end of the track.

3. In a door-hanger, two bell-cranks and supports therefor, a link connecting corresponding arms of the bell-cranks, a track having one end connected to the adjacent bell-crank and raised and lowered thereby, adjusting means connected to rock the other bell-crank, separate adjusting means for the other end of the track, and a carriage for the door mounted on the track.

4. In a door-hanger, a fixed support and a track beneath the support, in combination with a bell-crank hinged to the support at one end of the track and having one arm adjustably connected to the opposite end of the track for raising and lowering the same, adjusting means connected to the other arm of the bell-crank for rocking the same, separate means for adjusting said one end of the track vertically, and a carriage for the door mounted on the track.

5. In a door-hanger, the combination of a support, a track, bell-cranks pivotally mounted on the support, at opposite ends of the track, a link connecting corresponding arms to the bell-cranks, adjusting-screws connected to the other arms and engaged respectively with the support and track, separate means engaged with the support and track for adjusting the same vertically, and a carriage for the door mounted on the track.

6. A door-hanger, the combination of a support, levers mounted on the support, an adjusting-screw connecting one of the levers to the support for rocking the lever, a link connecting the levers to transmit rocking motion from one to the other, a track having one end adjustably connected to the other lever and its other end adjustably connected to the support in proximity to the former adjusting-screw, and a carriage for the door mounted on the track.

In witness whereof I have hereunto set my hand this 24th day of April, 1902.

JOSEPH F. CLIFT.

Witnesses:
H. E. CHASE,
HOWARD P. DENISON.