

E. C. PITCHER.
DOOR HANGER.

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941,095.

Patented Nov. 23, 1909.

2 SHEETS—SHEET 1.

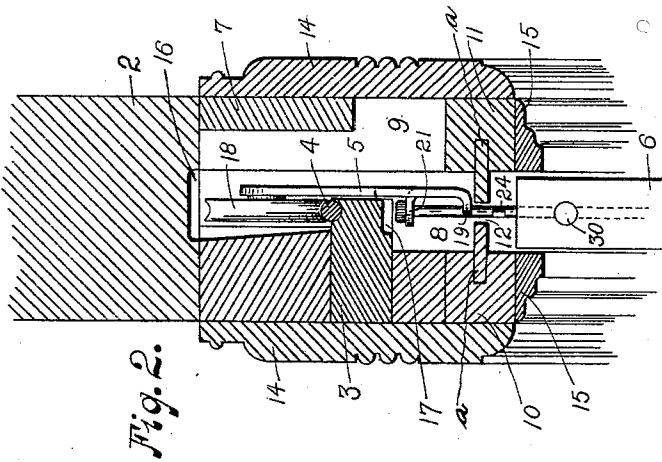


Fig. 2.

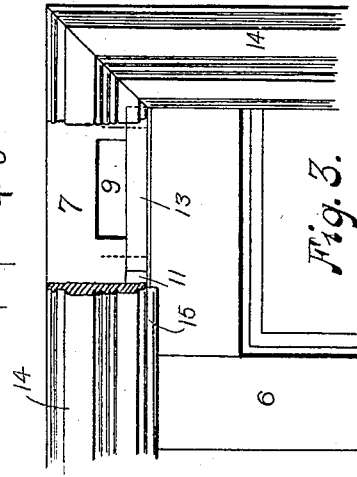


Fig. 3.

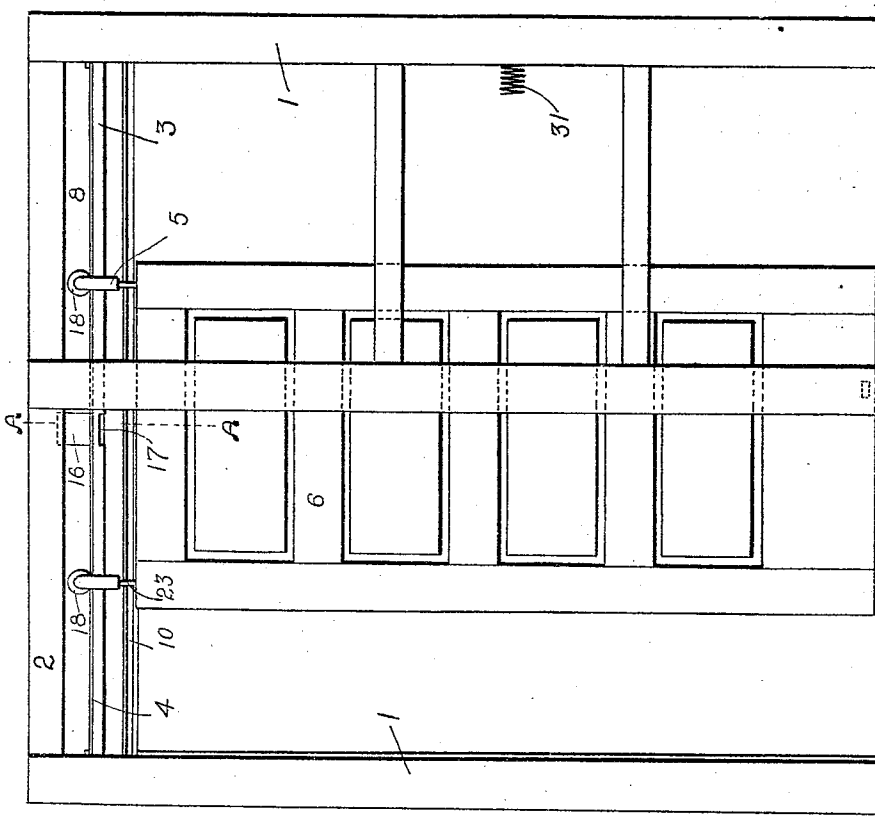


Fig. 1.

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2 SHEETS—SHEET 2.

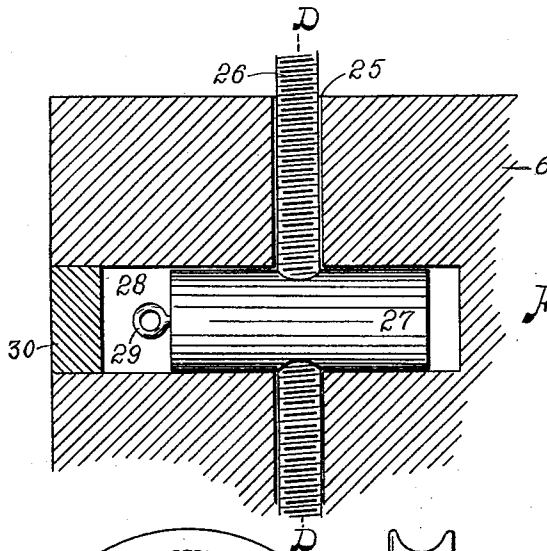


Fig. 4.

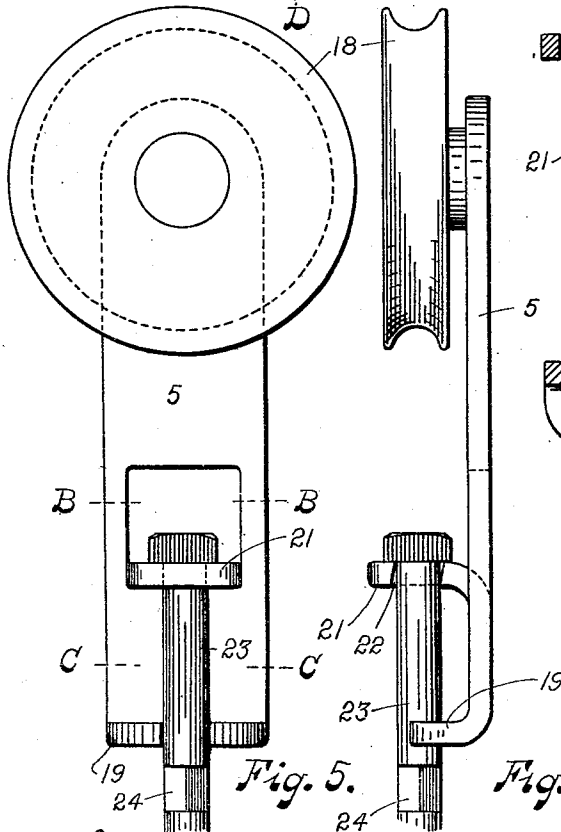


Fig. 5.

Fig. 6.

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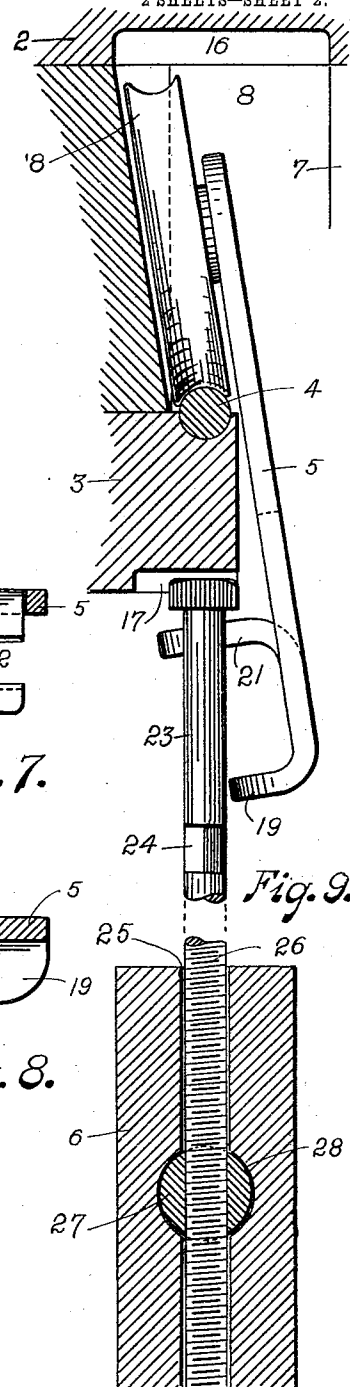


Fig. 7.

Fig. 8.

Fig. 9.

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UNITED STATES PATENT OFFICE.

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DOOR-HANGER.

941,095.

Specification of Letters Patent.

Patented Nov. 23, 1909.

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To all whom it may concern:

Be it known that I, ELMER C. PITCHER, citizen of the United States, residing in the city and county of San Francisco and State of California, have invented certain new and useful Improvements in Door-Hangers; and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention relates to sliding door structures.

One of the objects of the present invention is to provide a simple, cheap and efficient overhead support for door-hangers, whereby all danger of sagging or displacement of the parts are avoided.

Another object is to provide such a construction as will be adapted to light, as well as heavy doors, and will be more economical of space than ordinary sliding doors.

A further object is to provide such a construction whereby the hangers as well as the door, may be readily removed for inspection or repair without injuring the wood-work.

Still another object is to provide a hanger which may be stamped from the sheet metal or the like, thereby increasing the strength and accuracy of the hangers, and decreasing the cost of production.

Another object is to provide means whereby the height of the door above the floor may be varied at will.

Another object of the invention is to provide a structure having the above characteristics that can be made complete in the factory ready for insertion in a building.

These objects are accomplished by means of the devices illustrated in the accompanying drawings, in which:—

Figure 1 is an elevation, portions being omitted to more clearly illustrate the invention. Fig. 2 is an enlarged detail showing a cross-section through A—A of Fig. 1. Fig. 3 is a detail, the casing being broken away to show the removable piece of the door jamb. Fig. 4 shows the means of attaching the hangers to the door. Fig. 5 is a front view of the hanger. Fig. 6 is a side view of the hanger. Fig. 7 is a cross-section through B—B of Fig. 5. Fig. 8 is a cross-section through C—C of Fig. 5. Fig. 9 is a side view of the hanger and section through D—D of Fig. 4. This view shows the position of the hanger preparatory to its removal or the removal of the door.

Referring to the drawings, 1 represents a

suitable frame securely fastened together and provided with a longitudinal piece 2. Below piece 2 and preferably attached thereto is a track-supporting-member 3 provided with a track 4, shown in the drawings as a round metal bar set into member 3 about half of its diameter and held in place by any suitable means. Supported from the track 4 by hangers 5 is a door 6 adapted to slide within the frame 1. In front of the track 4 and its supporting-member 3, is a strip 7 preferably attached to piece 2 and adapted to form one side of a suitable runway or channel 8. Strip 7 is provided with a cut-away part or aperture 9 as shown in Figs. 2 and 3. Attached to member 3 and strip 7 are stringers 10 and 11 respectively, in which are mounted strips *a* to form the bottom for the channel 8 and provide a longitudinally extending slot 12. Below aperture 9, stringer 11 is provided with a removable portion 13. Fig. 3 adapted to close the bottom of the aperture. 14 shows an ordinary door-casing and 15 represents stops for the top of the door. The piece 2 is provided with notches or recesses 16 and member 3 is provided with a recess 17 as shown in Figs. 1, 2 and 9. The hanger 5 which is preferably made of sheet-metal is provided with a wheel or runner 18 suitably journaled thereon. Near the lower end of the hanger 5 is a lug or projection 19 having a slot or recess 20 transverse to the plane of the door. Above the lug 19 is a second lug 21 projecting from the same side of the hanger and provided with a slot or recess 22 preferably at an angle of ninety degrees to slot 20 and extending in a plane parallel therewith. The sides of the slot 22 are preferably at an angle from the perpendicular when in position, as shown in Figs. 6 and 7. The centers of slots 20 and 22 are preferably in the same vertical line and lie directly beneath the center of hanger wheel 18.

As will be seen from the various views, the hanger 5 is formed of one piece of sheet metal from which the lugs 19—21 and recesses 20—22 are stamped out. Projecting through slots 20 and 22, its head resting upon lug 21 is a bolt 23 which is provided with a square portion 24 below lug 19 to receive a turning key or wrench. The lower end of this bolt 23 passes through a hole 25 in the door 6 and is provided with threads 26 adapted to engage with a nut 27 secured in the door. The nut 27 is preferably of an elongated or cylindrical

form and is placed in a hole 28 bored from the edge of the door at right angles to hole 25. This nut is provided with suitable means for placing it in the hole and removing it therefrom, shown as an eye or loop 29. A plug 30 or other cover is preferably provided for the hole 28.

In practice, the frame 1 is set in position and finished with its casing in place with the exception of that portion of the stop 15 under removable piece 13. The hangers 5 are placed on the track 4 by means of the opening left by the removal of the piece 13 and aperture 9. The bolts 23 having been previously secured in the door 6 are interlocked with the hangers 5. The door may be raised or lowered after it is hung in position, by simply turning bolts 23 by means of a wrench on the square portion 24. After the piece 13 and the stop 15 have been secured in place, the door is ready for use. The piece 2 acts as a stop which prevents the hanger wheel 18 leaving the track 4 and the member 3 prevents the bolts 23 with the door 6, from being raised, except at recess 17.

When it is required to remove the door or its hangers, the piece 13 with the stop 15 is removed and one of the hangers is brought opposite the aperture 9 and notches or recesses 16 and 17. One side of the door is lifted slightly thus removing its weight from one of the hangers 5, the notch or recess 17 receiving the head of the bolt 23. The hanger 5 now being freed of the weight of the door can be swung backward into notch or recess 16, the rail 4 acting as a pivot. Swinging the lower end of the hanger forward disengages the bolt 23 from recess 20 of lug 19, the slanting character of recess 22 of lug 21 permitting this movement without undue play in the recess when in normal position. Moving the lower part sidewise disengages the hanger from the bolt 23 thus permitting it to be removed through aperture 9. The bolt 23 is screwed downward into the hole 25 bringing its head below the stringers 10 and 11. The door is now moved forward so that the other hanger comes opposite aperture 9 and pockets 16—17 and is then removed in the same manner as the first hanger.

It will be seen that by the construction heretofore described, the door as well as the hangers are readily removed, either for inspection or repair without injuring the wood-work. The doors need not be put in place until after the building in which they are to be used is completed. This will be found very desirable, especially where highly polished doors or expensive wood is used, which might easily be scratched or otherwise marred during completion of the building.

The door hanging as it does, directly beneath the hanger wheel, by a single arm or connection fastened centrally to the door oc-

cupies the least possible wall space. A most desirable feature.

The rail 4 having a continuous support its entire length is prevented from sagging or becoming distorted, thereby insuring perfect running of the door.

The frame being built as a unit and independent of the frame-work of the building, is not necessarily affected by any settling of the building.

It will be observed that by connecting the hangers to the door by means of the bolts 23 and elongated nuts 27, I avoid all possibility of the hangers working loose, which not unusually happens when the hangers are attached directly to the door by means of screws or the like. By this means I also produce a door in which the hangers are wholly concealed from view and which is not visibly disfigured by hanger attachments. It will be noted that the hanger attachments being centrally disposed, can be used on doors of different thickness and avoid the necessity of making the hangers of different sizes.

It will be seen from the drawings, the hanger 5 loosely interlocks with the bolt 23. By using the term "loosely interlocking", I do not desire to be understood to mean any looseness in the parts when in place but only a loose interlocking for attachment and detachment, as distinguished from semi-permanent attachments such as screws, bolts, clamps and the like.

If for any reason the holes 28 are not exactly the same distance from the top of the door, the nuts 27 may be adjusted on the bolts 23 so that the door hangs perfectly parallel with the floor.

It will be seen that the nuts 27 and bolts 23 permit vertical adjustment of the door to provide for the presence or absence of carpets.

A very important and desirable feature of this invention is the simplicity and cheapness of the hangers which are preferably stamped out of sheet-metal thereby insuring great strength and avoiding hand work or fitting.

Owing to the shape of the recesses or slots 20 and 22, the bolt 23 is securely clamped or locked therein while in a vertical position and easily disengaged therefrom.

What I claim, is:—

1. A door hanger comprising a track member and a door member and means on said members for coupling them together, said means adapted to permit the uncoupling of said members by movement of the members relative to each other.

2. A door hanger including a track member and a door member, and means on said members for coupling them together, said means adapted to permit the uncoupling of the members by movement of one of the

members relative to the other member in planes at right angles to each other.

3. A door hanger comprising a track member and a door member and means on said members for coupling them together, said members being adapted to extend in a vertical plane when coupled together, and said means adapted to permit the uncoupling of said members by movement of one of the members at an angle from the perpendicular and a longitudinal movement of said member.

4. A door hanger including a track member adapted to be supported for a vertical swinging and horizontal sliding movement, and a door member, and means on said members for coupling them together, said means adapted to permit the uncoupling of the members by a vertical swinging and a horizontal sliding movement of the track member relative to the door member.

5. A door hanger including a track member and a door member and means on said members for coupling them together, said means adapted to permit the uncoupling thereof by movement of one of the members relative to the other, said members being adapted to be normally held interlocked by the weight of a door connected with the hanger.

6. The combination with a door hanger comprising a track member and a door member and means on said members for coupling them together by movement of the members relative to each other, of a door and door attaching means, the door member and attaching means being constructed and arranged for adjustable engagement with each other, whereby the door may be vertically adjusted.

7. A door hanger comprising in its construction a door member and a track member, said track member having a laterally projecting lug provided with a substantially parallel sided recess, the sides of the recess being oblique to the top of the lug, whereby

it is adapted to detachably engage and support said door member.

8. A door hanger comprising a door member and a track member, the latter having laterally disposed upper and lower lugs each provided with a recess, said recesses being disposed at right angles to each other whereby said track member is adapted to detachably engage and interlock with the door member.

9. A door hanger comprising a track member and a door member, and means on said members to couple them together, the track member having a roller bearing to support said member for horizontal longitudinal sliding movement and to permit the same to be tilted laterally said means adapted to permit the uncoupling of the members by tilting the track member laterally, and a horizontal sliding movement of said member.

10. A track member for door hangers formed from a single sheet of metal blank comprising a body provided with a recessed lug stamped therefrom and a second lug having a substantially parallel sided recess disposed at an angle of ninety degrees to the recess of the first mentioned lug and parallel with said body, the sides of the recess of the first mentioned lug being oblique to the top of the lug.

11. A track member for door hangers formed from a single sheet metal blank comprising a body provided with a recessed lug stamped therefrom and a second lug having a substantially parallel sided recess disposed at an angle of ninety degrees to the recess of the first mentioned lug and in the same parallel plane, the sides of the recess of the first mentioned lug being oblique to the top thereof.

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