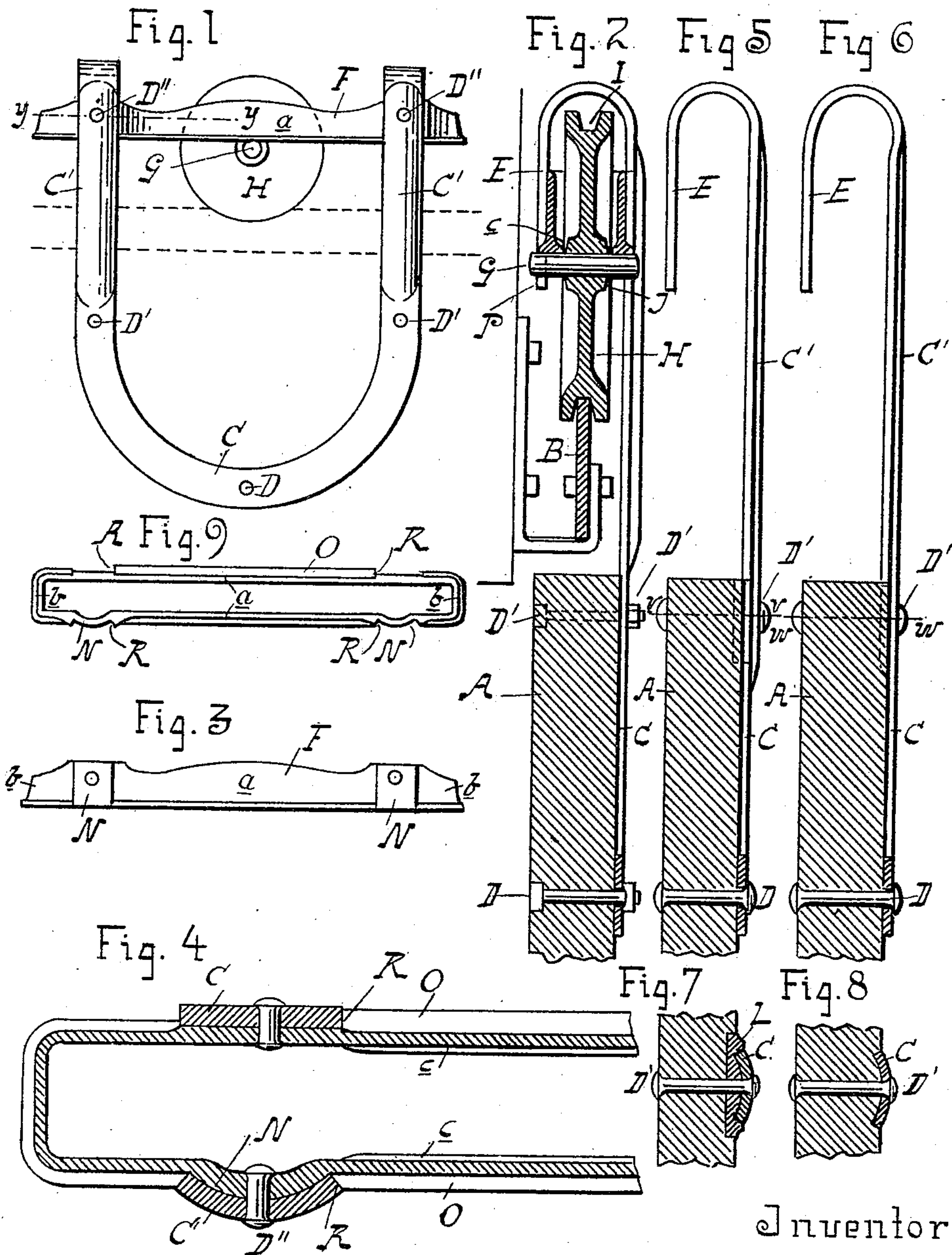


(No Model.)

B. F. ISBELL & L. T. WILCOX.
DOOR HANGER.

No. 436,311.

Patented Sept. 9, 1890.



Witnesses

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UNITED STATES PATENT OFFICE.

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MICHIGAN.

DOOR-HANGER.

SPECIFICATION forming part of Letters Patent No. 436,311, dated September 9, 1890.

Application filed September 9, 1889. Serial No. 323,461. (No model.)

To all whom it may concern:

Be it known that we, BENJAMIN F. ISBELL, of Schoolcraft, Kalamazoo county, and LEWIS T. WILCOX, of Jackson, Jackson county, both in the State of Michigan, citizens of the United States, have invented certain new and useful Improvements in Door-Hangers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in door-hangers; and the invention consists in the peculiar construction and arrangement of the various parts, whereby greater strength and durability are secured without additional cost or complication above the simple forms in present use, all as more fully hereinafter described, and shown in the accompanying drawings, in which—

Figure 1 is an elevation of our improved door-hanger detached. Fig. 2 is a vertical cross-section thereof, showing it applied to a door. Fig. 3 is a side elevation of the rider-bar detached. Fig. 4 is a horizontal section on line *y y* in Fig. 1. Figs. 5 and 6 are vertical cross-sections through hanger-frames of slightly-modified forms. Fig. 7 is a horizontal section on line *v v* in Fig. 5. Fig. 8 is a horizontal section on line *w w* in Fig. 6. Fig. 9 is a plan of the rider-bar detached.

A is the door, and B is the fixed rail above the door, from which it is slidingly suspended in the usual manner by means of my improved door-hanger, the construction of which is as follows:

C is a hanger-frame of any known form, preferably U-shaped, and secured to the top of the door by suitable bolts, rivets, or screws D and D' in the usual manner, except as hereinafter described. To the upper ends of this hanger-frame, which is provided with the return-bends E, the rider-bar F is secured. This rider-bar forms a rectangular frame of metal, preferably cast integrally in one piece with two parallel sides *a* and parallel ends *b*, and with the lower edges of the casting in a horizontal plane to form suitable bearings for the ends of the shaft of the roller-wheel H. This roller-wheel is provided with a circumferential V-shaped groove I, adapted to engage with the track-rail, and its axle G,

which is fast in the roller-wheel and is adapted to support the rider-bar, while the roller-wheel is free to travel between the sides of the rider-bar. The lateral displacement of this roller-wheel is prevented by a hub J, which, to reduce friction, is beveled upon its outer ends, and its contact with the rider-bar is reduced to a minimum by providing the rider-bar upon its inner lower edges with a small bead *c*.

The hanger-frame C may be formed of wrought or malleable iron, and to impart great strength to those portions C' of the hanger-frame which in operation are liable to be subjected to a great strain I construct those portions curved in cross-section, as shown. The edges of these portions C' of the hanger-bar may be either maintained in the same plane with the rest, as in Figs. 2 and 5, or not, as in Fig. 6, where the edges of the portions C' are curved inwardly. The portions C' of the curved cross-section extend, as shown in Fig. 1, from above the fastenings D' to a little distance above the rivets D'', which latter secure the rider-bar to the hanger-frame, or, preferably, as shown in Figs. 5 and 6, where the curved portions extend below the fastenings D'.

The further advantage obtained by constructing the portions C' of the hanger-frame of the peculiar curved cross-section is that increased facility is thereby obtained for securing the rider-bar very firmly to the hanger-frame, and also for securing the latter to the door. To this end we form on the side of the rider-bar where the hanger is to be connected the curved seats N, which fit the curved cross-section of the hanger. The parts being secured together by rivets D'', as in the usual manner, a good deal of the strain ordinarily brought on the rivets when the doors are operated is thus taken off. Further, if the curved cross-section of the hanger-frame is maintained below the upper edge of the door a very simple and strong means of securing the hanger-frame to the door is obtained, either by letting the edges of the hanger-frame into the wood, as shown in Fig. 8, with the style of hanger represented in Fig. 6, or by using a washer L with a curved seat and

let into the wood, as shown in Fig. 7, with the style of hanger shown in Fig. 5. In either case a strong fastening is obtained, and it will be seen that but little cutting into the wood is required, as the rest of the hanger-frame will fit against the face of the door without requiring any cutting. The return-bends of the hanger-frame, which are flat, are secured to the opposite side of the rider-bar in the ordinary manner, except that the ends of the return-bends extend below the lower edges of the rider-bar to form stops P, which form the limits of travel for the roller-wheel H. A small bead O may be formed on the outer lower edges of the rider-bar to make a broader bearing for the shaft of the rollers wheel and at the same time form shoulder-R for the edges of the hanger-frame to engage on.

It will be seen that in our improved construction of door-hanger a number of new constructional features are embodied with the well-known simple construction of door-hanger, which, while they do not increase the cost of construction, add very materially to its practical value.

What we claim as our invention is—

1. In a door-hanger, the hanger-frame formed with the portions C', curved in cross-section, in combination with a rider-bar having the curved seats N formed thereon to fit the curved cross-section of the hanger-frame, substantially as described.

2. In a door-hanger, the combination of the hanger-frame formed with the portions C', curved in cross-section, the rider-bar secured thereto and forming a four-sided frame provided with the curved bearings N, the roller-wheel H, provided with the shaft G, and the return-bends E of the hanger-bar secured to the rider-bar and extending below the same to form stops P for the roller-wheel, substantially as described.

In testimony whereof we affix our signatures, in presence of two witnesses, this 25th day of July, 1889.

BENJ. F. ISBELL.
LEWIS T. WILCOX.

Witnesses as to Benj. F. Isbell:

BENJ. F. RIX,
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Witnesses as to Lewis T. Wilcox:

ENOCH BANCKER,
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