2 Sheets—Sheet 1

H. E. RICHARDS.

Door-Hanger.

No. 202,587. **Patented April 16, 1878.**

Fig. 1.

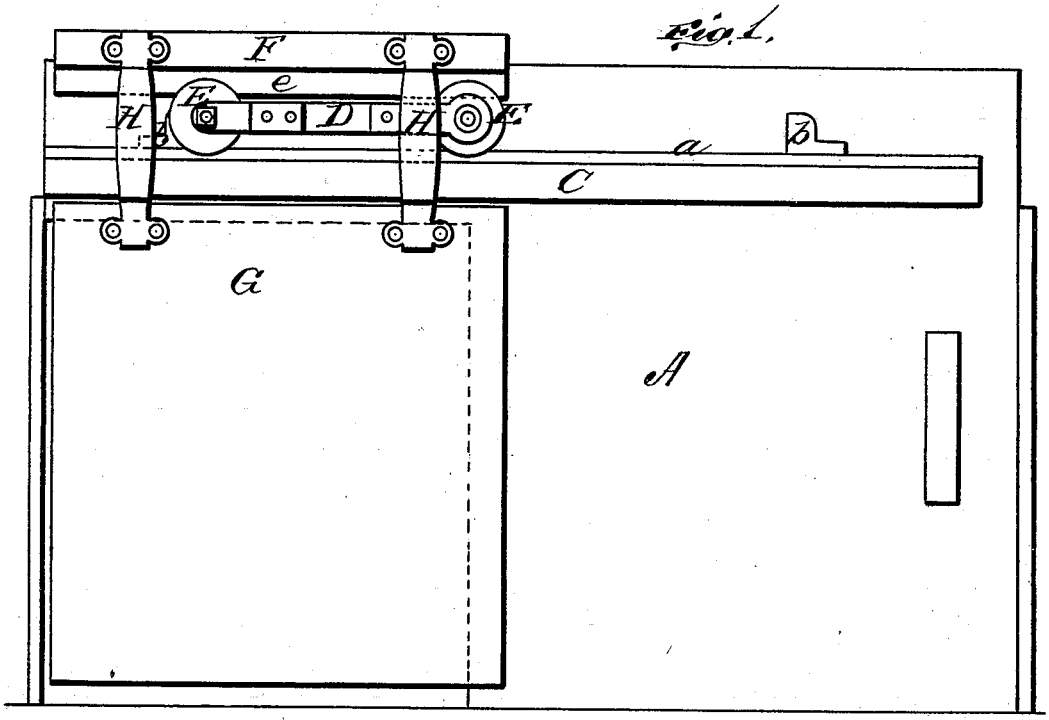


Fig. 2.

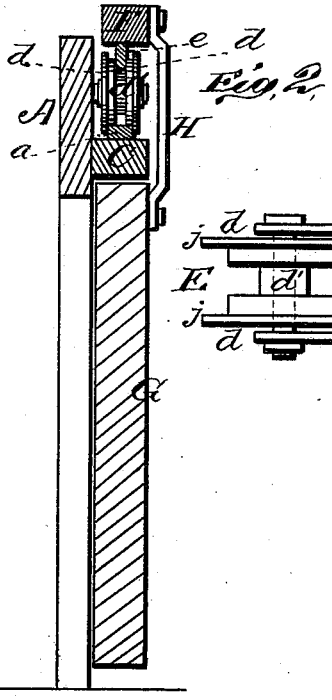
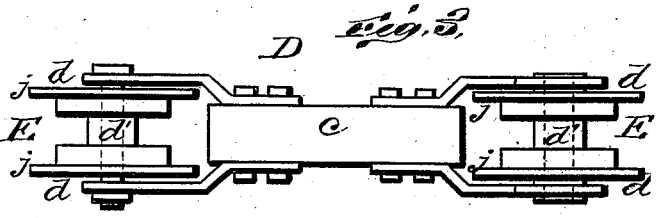


Fig. 3.



WITNESSES

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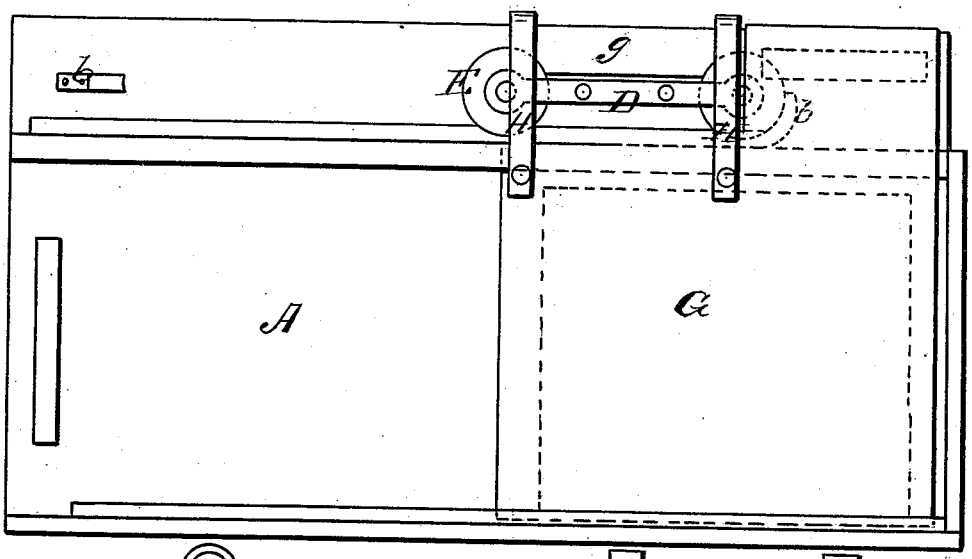
2 Sheets—Sheet 2.

H. E. RICHARDS.

Door-Hanger.

No. 202,587. **Patented April 16, 1878.**

Fig. 4.



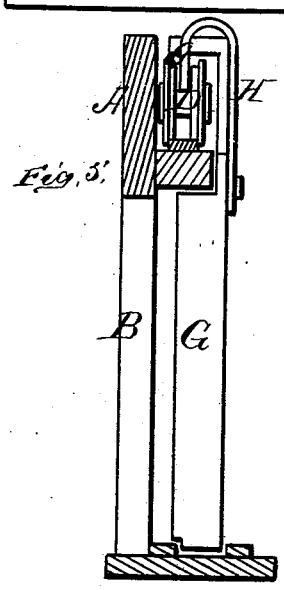


Fig. 5.

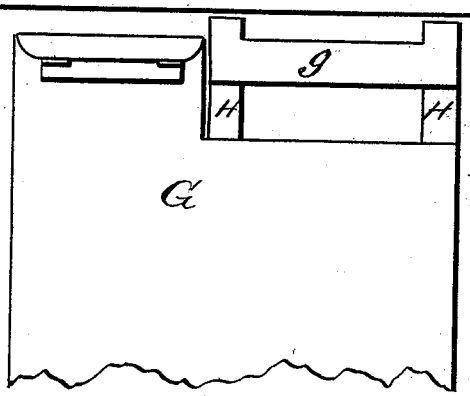


Fig. 6.

Fig. 7.

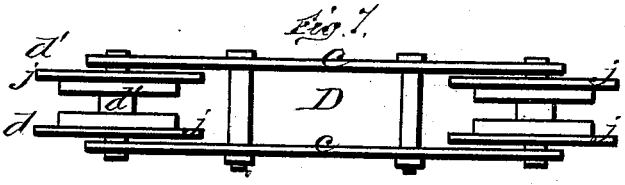


Fig. 8.

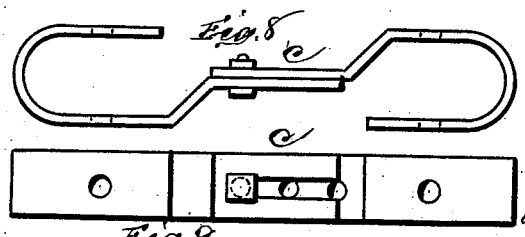


Fig. 9.

WITNESSES

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UNITED STATES PATENT OFFICE.

HENRY E. RICHARDS, OF OSWEGO, ILLINOIS, ASSIGNOR OF TWO-THIRDS HIS RIGHT TO JULIUS F. RICHARDS AND MARCUS C. RICHARDS, OF SAME PLACE.

IMPROVEMENT IN DOOR-HANGERS.

Specification forming part of Letters Patent No. **202,587**, dated April 16, 1878; application filed February 9, 1878.

To all whom it may concern:

Be it known that I, H. EUGENE RICHARDS, of Oswego, in the county of Kendall and State of Illinois, have invented a new and valuable Improvement in Anti-Friction Hangers for Gates and Doors; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side view of a sliding hanging door, showing my invention. Fig. 2 is a vertical cross-section of the same. Fig. 3 is a top view of the carriage. Fig. 4 is a side view of a modification of Fig. 1. Fig. 5 is a vertical cross-section thereof; and Figs. 6, 7, 8, and 9 are detail views.

This invention has relation to improvements in hanging and sliding doors for barns, warehouses, depots, and other buildings.

The invention consists, mainly, in the construction and novel arrangement, in connection with a hanging door and fixed track over the same, of a double-wheeled carriage upon said track, and a rider-bar upon said carriage, to which the door is attached by suitable connections.

In the annexed drawings, the letter A indicates the wall of a barn, in which is made an entrance-way, B. Above this latter is secured horizontally a beam, C, having on its top a track, *a*, provided with two spaced stops, *b*, for a purpose hereinafter fully set forth. Upon this track is placed the carriage D, composed of two wheels, E, united by a reach, *c*, in the forked ends of which the said wheels are journaled. These latter consist of two spaced disks, *d*, united at their centers by a cylindrical bar, *d'*, each of the said disks having an inside rabbet, between which the track *a* is received, the flanges *j* formed by the said rabbet inclosing the track between them. This carriage is entirely independent of the door and barn, being attached to neither.

F represents a strong wooden or metallic rider-bar, having on its under side a track-bar, *e*. The latter fits snugly between the disks *d* of wheels E, and bears upon the cylindrical portion *d'* thereof between the said disks. The track *e* is of sufficient height to raise the bar F sufficiently to clear the perimeters of the wheels E.

G represents a door connected to the door-bar F by means of the rigid hangers H. When the bar F is mounted upon the carriage, with its track *e* bearing upon the cylindrical portion *d'* of its wheels, the gate is suspended therefrom, and may be pushed endwise, to open or close the entrance-way. During these movements the wheels act differentially, their perimeters resting upon the beam C, and their cylindrical portions *d'* supporting the track-beam F. The opening or closing of the gate is thus very easily and quickly effected, there being the least possible friction. In Fig. 3 the carriage is shown as composed of a partly wooden and partly metallic reach, and of the wheels aforesaid, the bearing-plates of the latter being metallic; but the entire carriage may be made, as in Fig. 7, entirely of metal, and the reach may be made in sections, adjustably secured together, as shown in Figs. 8 and 9, for the purpose of increasing or lessening the distance between the wheels. Instead of the beam F, its track-bar *e*, and the hangers being separately made, they may be made in one piece, as shown in Figs. 5 and 6. In this case the hangers are connected together at their upper curved ends by a cross-bar, *g*, which bears upon the cylindrical portion of the wheels, like the track, and has exactly the same function.

In practice, the door may be extended up to the track-beam, thereby concealing the carriage.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a sliding door, the combination, with a fixed track-bar, *a*, over the entrance-way, and a door having a rider-bar, F, above and connected to it, of a carriage, D, independent of the door and building, substantially as specified.

2. The sliding-door carriage D, consisting

of the wheels E, having the spaced flanged disks *d* and the connecting cylindrical bar *d'*, and a reach, *c*, connecting said wheels, in combination with a door having a track-bar, *e*, attached to the rider-bar F, bearing on the cylindrical part of said wheels, and a track-bar, *a*, supporting the carriage, and received between the flanges *j j* of the disks, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

HENRY EUGENE RICHARDS.

Witnesses:
FRANK STROPMAN,
WILLIAM F. FORBES.