2 Sheets—Sheet 1

A. K. RIDER.

Roller Attachments for Sliding-Doors.

No. 205,906. **Patented July 9, 1878.**

Fig. 1.

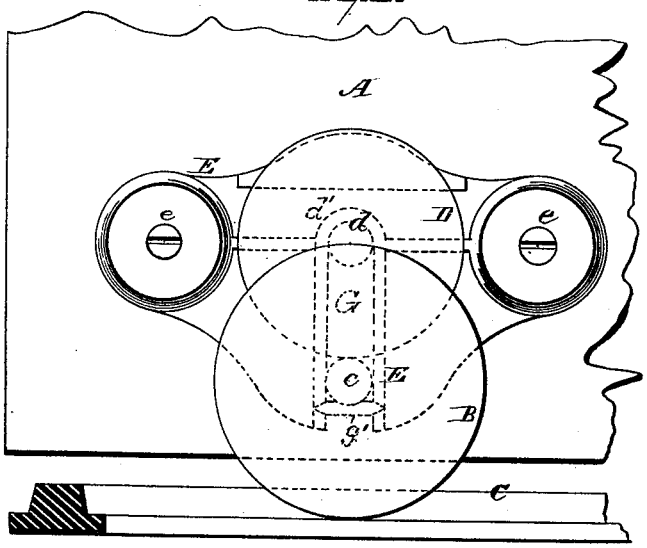

Fig. 2.

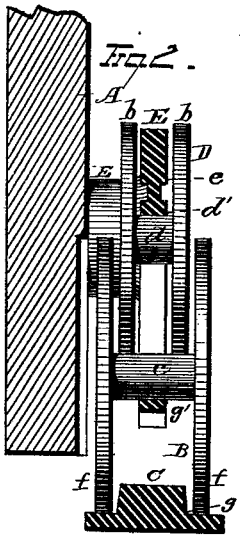

Fig. 3.

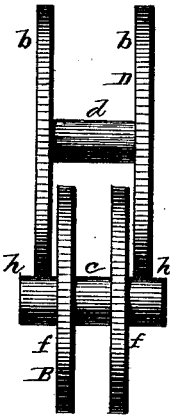

Fig. 4.

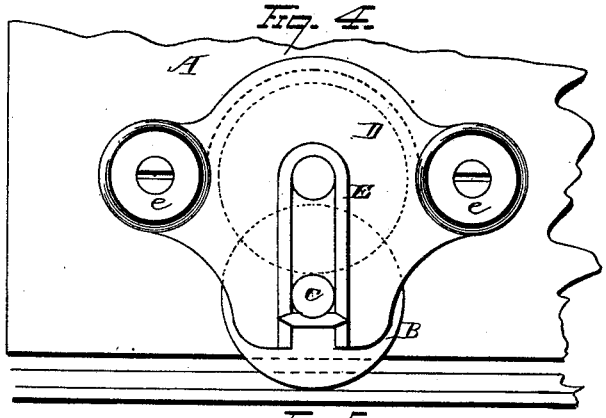

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Fig. 5.

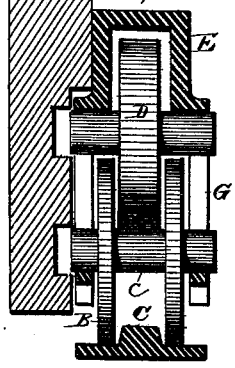

Fig. 8.

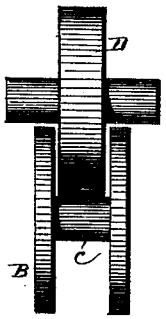

Fig. 6.

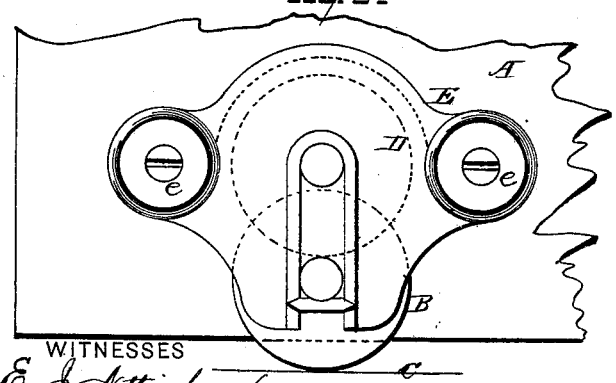

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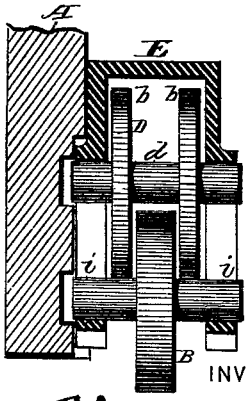
Fig. 7.



WITNESSES

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2 Sheets—Sheet 2.

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Roller Attachments for Sliding-Doors.

No. 205,906. Patented July 9, 1878.

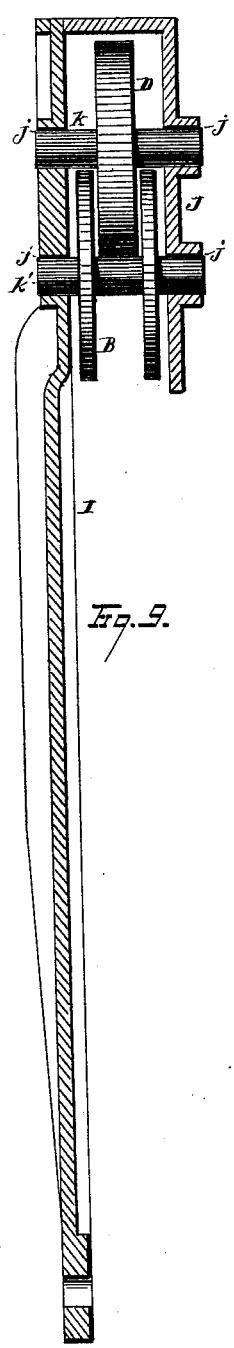

Fig. 9.

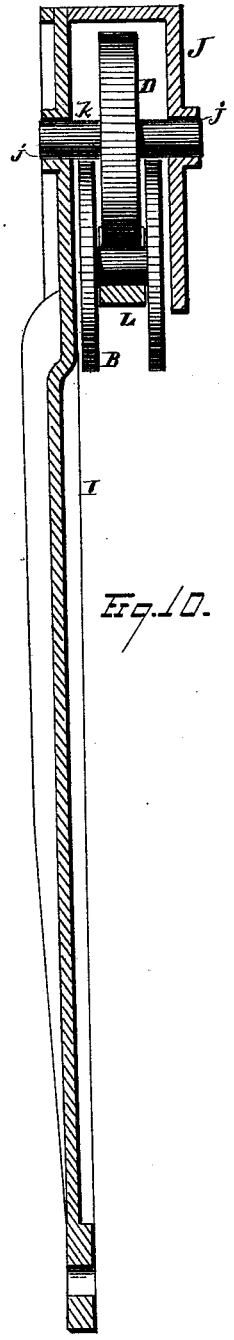

Fig. 10.

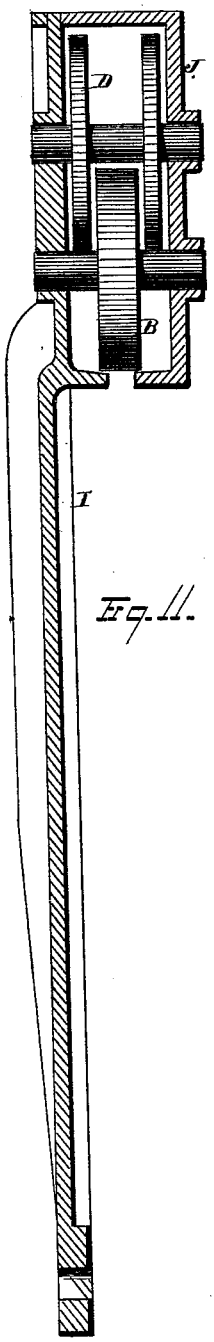

Fig. 11.

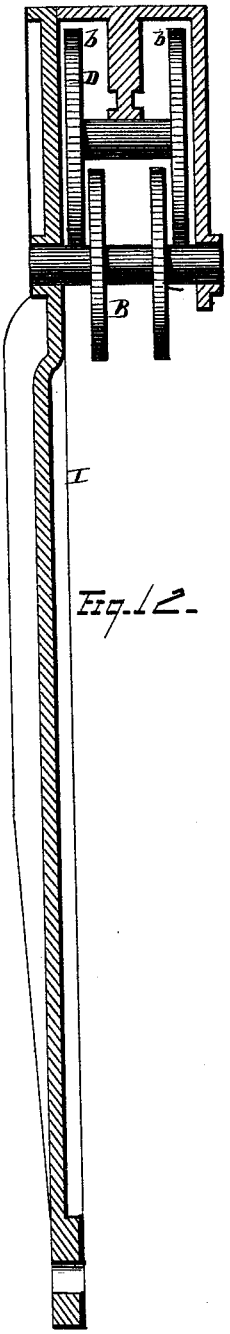

Fig. 12.

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UNITED STATES PATENT OFFICE.

ALEXANDER K. RIDER, OF WALDEN, NEW YORK.

IMPROVEMENT IN ROLLER ATTACHMENTS FOR SLIDING DOORS.

Specification forming part of Letters Patent No. **205,906,** dated July 9, 1878; application filed February 22, 1877.

To all whom it may concern:

Be it known that I, ALEXANDER K. RIDER, of Walden, in the county of Orange and State of New York, have invented a new and useful Improvement in Roller Attachments or Devices for Sliding Doors, Gates, and other like purposes, of which the following is a full description, reference being had to the accompanying drawing, forming part of this specification.

My invention relates to an improvement in door hangers and rollers, the object being to provide door-hangers and door-rollers of such construction that the friction and wear of the parts will be materially less than in like devices of ordinary construction; and another object to be attained is to simplify the construction and lessen the number of parts of this class of devices; and to these ends my invention consists, first, of a door hanger or roller consisting, essentially, in the combination, with a suitable casing or support, of two rollers, one located above the other, the lower roller adapted to run on a suitable trackway and supporting the upper roller on its axle or journals.

My invention further consists in the combination, with a suitable casing or support, of two rollers, the lower roller adapted to embrace the sides of a track, while the periphery of the upper rollers rests and is supported upon the axle or journals of the lower roller.

My invention further consists in the several details of construction and arrangements of parts, as will hereinafter be described, and pointed out in the claims.

In the accompanying drawings, Figure 1 represents a side elevation of the lower portion of a sliding door provided with a door-roller, having embodied therein one form of construction included in the scope of my invention. Fig. 2 is a transverse vertical section of Fig. 1, taken through the roller-support. Figs. 3, 4, 5, 6, 7, and 8 represent modified forms of door-rollers. Fig. 9 is a transverse vertical section of a door-hanger illustrating one form of construction embodying my invention. Figs. 10, 11, and 12 represent modifications of door-hangers.

A represents a sliding door, to the lower portion of which is secured any desired number of door-rollers, each consisting of a casing or support, E, adapted to be secured to the door by screws or bolts *e*, or the casing may be attached to the door in any other suitable manner. D and B respectively represent the upper and lower rollers, the upper roller D serving as an anti-friction roller, and lower roller B as a track-roller.

As represented in Figs. 1 and 2, the upper or anti-friction roller D is of spool form, having the two heads *b* united by an axle, *d*, which latter rests against the lower surface of a journal-bearing, *d'*, formed on the cross-piece *e* of the casing or support.

The lower or track roller B is also of spool form, having enlarged disks or circular heads *f*, united by an axle, *c*, the latter supporting the heads or wheels *b* of the upper roller, and thereby insuring a rolling bearing-surface for the upper or anti-friction roller. The heads or wheels *f f* of the lower roller rest upon a trackway, C, constructed with rabbeted edges *g*, which allow the double track-wheels *f f* a lateral bearing, and thus prevent the lateral displacement of the door-roller.

The casing or support is provided with a slot, G, within which the axle *d* of the anti-friction roller is placed, and beneath the same is placed axle *c* of the track-roller, the latter being secured in place by a keeper, *g'*.

From the foregoing, it will be observed that the track-wheel, which supports the load, is provided with a rolling bearing on the peripheries of the heads or wheels *b* of the upper or anti-friction rollers, and thus the friction and wear on the several parts of the device are materially lessened.

When the roller and hanger are composed of an upper and lower roller, it is essential that their axles should be located in the same vertical plane, and thus obviate any tendency to uneven wear or strain.

This door-roller may be of any suitable shape, as may also the track-rail in its transverse section; likewise the treads of the track-wheel. Such variations also apply to the other modifications of my invention, and include a fluted or rounded construction of the treads of the wheels.

Fig. 3 represents a door-roller constructed similarly to the one above described, the only

difference being in the relative arrangement of the heads or wheels of the upper and lower rollers.

In the form of construction represented in Fig. 3 the heads *b* are placed outside the heads or wheels *f*, and rest upon trunnions or journals *h*.

Figs. 4 and 5 show another modification of my invention, in which the upper or anti-friction wheel is constructed with a single wheel or head, D, which has its bearing upon the axle of the lower or track roller. In this form of door-roller the upper and lower rollers are provided with outside journals or trunnions, which are supported in the casing.

Figs. 6 and 7 show a modification, in which the upper or anti-friction roller is provided with two heads or wheels, *b*, while a single wheel constitutes the track-roller. From each side of the track-roller extend elongated trunnions or journals *i*, the outer ends of which are placed within the vertical slots in the casing, while the wheels *b* of the upper or anti-friction roller rest upon trunnions *i* at points between the casing and opposite sides of the single track-wheel.

When door-rollers of the construction last described are employed, the track is provided with a central groove, to receive the tread of the track-roller and retain the same in place.

Fig. 8 illustrates another modification, in which the upper or anti friction roller consists of a single wheel, the tread of which rests upon the axle connecting the two heads of the lower or track roller.

Fig. 9 represents a door-hanger embodying my invention. The shank I and cap J are provided with holes *j j* in the same vertical plane, for receiving the trunnions or journals *k k'* of the respective upper and lower rollers. In this instance the upper roller is supported on the axle connecting the heads of the lower rollers.

Fig. 10 shows a door-hanger with a single upper roller resting on the axle of the lower roller, which latter is not provided with trunnions, as shown in Fig. 9, but is retained in place by the keeper L.

Fig. 11 shows a hanger wherein a single lower or track roller is employed, and, as the cap overhangs the track, it serves as a guide to prevent the track-roller from running off the trackway.

Fig. 12 illustrates another form of hanger. The upper or anti-friction roller is composed of the two heads *b*, which rest upon the trunnions of the track-wheel, the periphery of which latter is adapted to embrace the sides of the track and insure a lateral bearing for the track-wheel.

I have illustrated and described several different modifications, all embodying my improvement; and it is evident that further changes in the construction and arrangement of the several parts may be devised, both in door-rollers and door-hangers, without departing from the spirit of my invention; and hence I would have it understood that I do not limit myself to the particular construction shown in any or in all of the several devices as heretofore set forth, as my invention comprises, broadly, any door-hanger or door-roller provided with a track-wheel supporting an anti-friction wheel, the axles of both being in the same vertical plane.

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

1. A door-hanger or door-roller consisting, essentially, in the combination, with a suitable cap or casing, with or without a shank for its attachment to a door, of a track-roller and a single anti-friction roller, the axes of which are retained in the same vertical plane, and the periphery of the anti-friction roller constructed and arranged to rest upon the axle or journals of the track-roller, substantially as set forth.

2. The combination, with a suitable cap or casing, of a single anti-friction roller and a track-roller, adapted to embrace the sides of the track, said rollers being arranged with their axes constantly in the same vertical plane, and the periphery of the anti-friction roller supported upon the axle or journals of the track-roller, substantially as set forth.

3. The combination, with a casing or support provided with an elongated slot, of a single anti-friction roller and a track-roller, both of which are retained in proper position by means of a keeper located below the axle or trunnions of the track-roller, substantially as set forth.

4. In a door-hanger or door-roller, the combination, with a double wheel, having two heads of equal diameter, of an interposed wheel or anti-friction roller, the one wheel straddling the other and forming bearings for the hubs or trunnions thereof, substantially as set forth.

ALEXR. K. RIDER.

Witnesses:
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GEO. W. STODDARD.