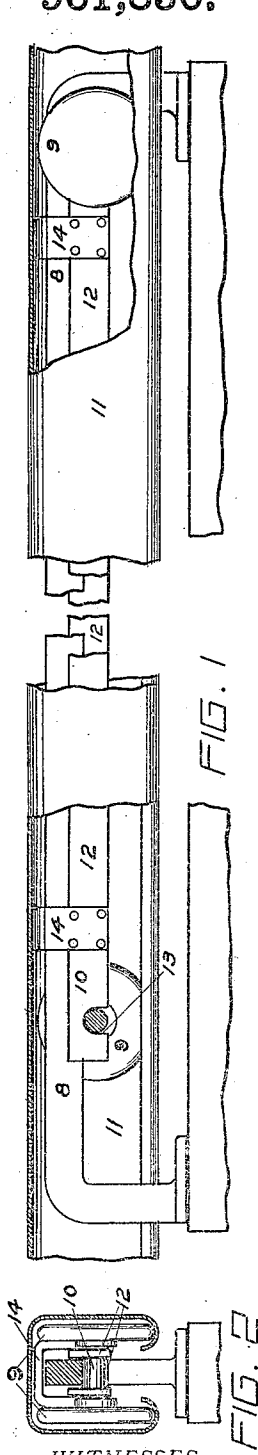


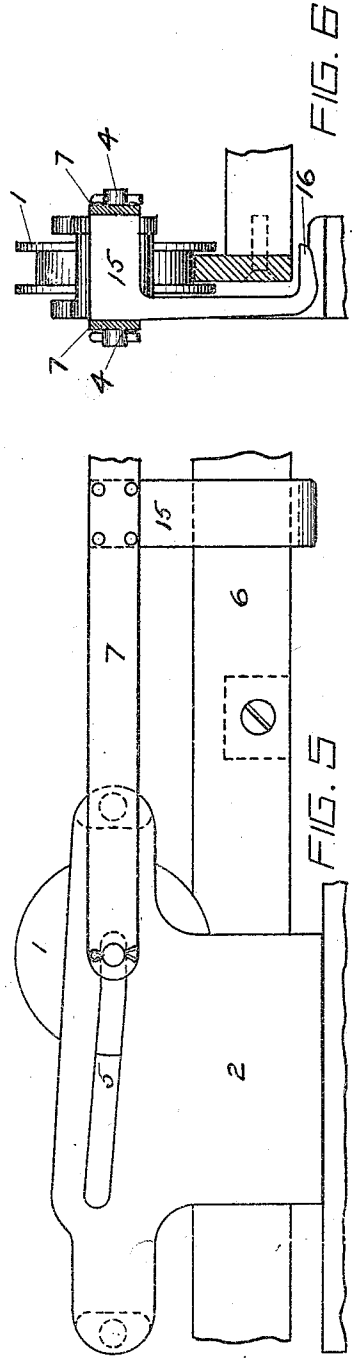
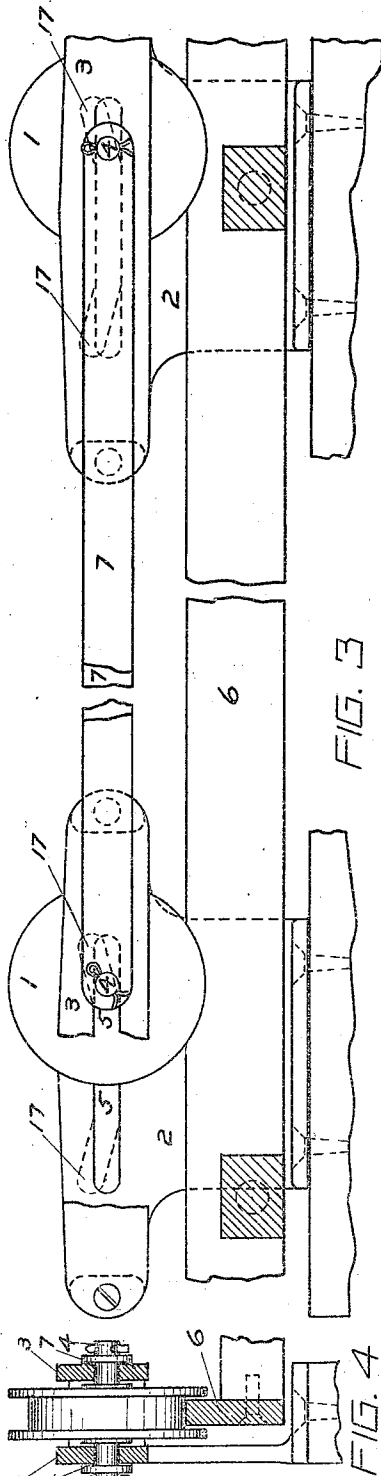
961,850.

F. K. FASSETT.
DOOR HANGER.
APPLICATION FILED OCT. 15, 1908.

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DOOR-HANGER.

961,850.

Specification of Letters Patent. Patented June 21, 1910.

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To all whom it may concern:

Be it known that I, FRANCIS K. FASSETT, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented a new and useful Improvement in Door-Hangers, of which the following is a specification.

My invention relates to an improvement whereby a certain defect known to exist in a very old, and otherwise perfect type of door hanger is removed, and whereby hangers of that type are not only made practicable, but their field of usefulness is enlarged, and they are adapted to uses for which they have not before been available.

One object is to produce a door hanger which will be simple, cheap and durable in construction and be practically frictionless though the parts are never oiled.

Another object is that, if desired, a door may be arranged to move by gravity, or, by a different form of certain parts of the hangers, the door will move by gravity when it is in certain positions and have no tendency to move by gravity when it is in other positions. With another form of certain parts, the hangers may be caused to offer some resistance to the movement of the door when it is at the extremities of its run.

In the accompanying drawing Figure 1 shows my improvement applied to one form of door hanger. Fig. 2 is an end view of the same. Fig. 3 shows a pair of door hangers of another form, with my improvement applied. Fig. 4 is an end view of the same. Fig. 5 is one of a pair of the same kind of hangers as shown in Figs. 3 and 4 but modified in form. Fig. 6 is an end view of the same.

Similar numerals indicate similar parts in all views.

Fundamentally, the hanger referred to is composed of two elements, a rolling member and a rider, the latter having a rectilineal rail which rolls on the rolling member. The rider is adapted to be attached to a door or other body to be carried. The rolling member is usually, though not necessarily adapted to roll on a track. In Fig. 3, two hangers embodying this principle are shown attached to a door, fragments of which are also shown. In each of these hangers the rolling member, the wheel 1, has projecting axles 4, 4, on which the rider rests. The rider is composed of plates 2 and 3, suitably united with a space between them, wherein the

wheel is placed. A slot 5 is formed in each of the plates, through which the axles 4 project, the upper edge of each slot resting on one axle. The lower edges of the slots play no part in the operation of the hanger, and are in fact of no particular use except for maintaining the integrity of the hanger especially when not attached to a door.

The action of the hangers will be readily understood. Because of the rolling action between the riders and wheels the former gain on the latter and in the construction shown in Fig. 3 when the door arrives at either extremity of its run, the axles 4 should be in the rear ends of the slots 5. But when the door strikes the buffers or stops, necessarily placed for the purpose, it tends to jump up, not bodily but with a sort of rocking motion, and while the weight of the door is momentarily off of the wheels, they run ahead, often to the forward end of the slots 5, and when the door is next moved, in the opposite direction, the rolling action between riders and wheels is replaced by a frictional action, and therein lies the defect in hangers of this type. The rubbing between the axles and riders causes the door to move hard, and furthermore, a notch is worn in the riders at one point, which soon becomes so deep that the axles remain therein, and the rolling action of the hanger so affected is permanently destroyed. I have discovered that, with rare exceptions, but one wheel ever becomes displaced, as described, in a single trip of the door, and that it is nearly always the trailing wheel. I have also discovered that even if both wheels do become displaced in a single trip of the door, they do not become displaced at the same moment. This is because of the rocking action of the door already referred to, and because of which the weight of the door is always on at least one wheel. Based on this fact, my invention consists of means whereby the rolling member which is being held in place by the weight of the door is made to hold the other rolling member or members and prevent their displacement, though they are at the time relieved of the weight of the door. For this purpose I employ a pair of links 7, 7, Figs. 3 and 4, with which I connect the rolling members, the links having holes at their ends which slip over the projecting ends of the axles 4 and are kept in place by cotter pins. It makes no difference what the construction of the

hanger is if it embodies the principles of the hanger above described, the rolling member is liable to displacement with reference to the rider, and my improvement will prevent such displacement.

In Figs. 1 and 2 are shown a construction wherein a single rider 8, consisting of a rectilinear bar, bent down at each end, with means for attaching it to a door, co-acts with two rolling members. Each rolling member consisting of two wheels 9, united by an axle 10 on which the rider 8 rests. The rolling members are coupled together by links 12, which are themselves united by yokes 14. To avoid making the wheels 9 detachable from the axles 10, the ends of the links are provided with vertical slots 13, open at the bottom, which embrace the axles 10, one link on each side of the rider, the yokes 14 arching over and clearing the rider. The links are kept in place by gravity.

It has been stated that my improvement renders hangers of this type available for new uses. One of these is shown in Fig. 5, wherein the tread of the rider, that is the upper edge of the slot 5, is composed of two rectilinear portions placed at an angle with reference to each other. Two or more hangers must be used, all alike and attached to one door and the rolling members united by links, as in Fig. 3. In Fig. 5, the slot 5 is partly horizontal and partly inclined. Assuming the door is open when the horizontal portion of the rider rests upon the axles of the wheel, the door will not have any tendency to move by gravity, but if the door is moved to the right to a point where the inclined portion of the tread rests upon the axles, there will be a tendency for the door to close by gravity. In other words, during a portion of its excursion the action of the door will be such as if it was running on a horizontal surface, and during the remainder of its excursion as if running on an inclined surface.

Another new use is where some resistance in starting a door from its open or closed position is desired, as in car doors. This is done by having a short incline at each end of the tread of the rider, as at 17, 17, Fig. 3. It is obvious that the treads of the riders may be wholly inclined in which case the action of the door would be the same as if it ran on an inclined track. The treads of the rider 8, Fig. 1, can be formed as are the treads of the hanger shown in Fig. 5 or as in Fig. 3 in connection with the inclines 17, whereby a hanger constructed as in Fig. 1 may be made available for the new uses above described. It is also clear that hangers of the type I have described are not adapted to the several new uses and functions mentioned, without the aid of my improvement, because with the rolling members subject to displacement with reference

to each other, the movements of the door would be uncertain, very uneven and it would hang out of plumb most of the time.

In each of the constructions shown and described two links are employed which for the purpose of balancing the strains, is the preferred construction. But it is obvious, and it has been demonstrated by trial, that one link will accomplish the result desired, of checking the momentum of one of the wheels while it is momentarily free to become displaced with reference to its companion. It is also obvious that a train of three or more rolling members may be coupled together by a link or links, as for example if one or more hangers were interposed between the two shown in Fig. 3, and additional holes made in the links 7 to receive the axles of the interposed wheels.

Though all views in the drawings show my improvement applied to hangers attached to the top of the door, it can be applied with equal success to trucks embodying the same principles, but placed at the bottom of the door.

When door hangers, of whatever type, run on a track, as in Figs. 3 and 4, it is customary to provide some means to prevent the wheels getting off of the track, and, in hangers of the type shown in these figures, the flange forming part of the plate 2, and by which the hanger is attached to the door, may be brought close to the under edge of the track and thereby prevent derailment of the door. But when the tread of the rider is inclined, as in Fig. 5, the distance between the flange and the track will vary, and should this space exceed the depth of the groove in the wheel the door may be derailed. To prevent derailment, a member 15 is secured to one or both of the links 7 and extends downward along one side of the track and has a projection 16 which extends under and close to the track. Two of these members are preferable, one located as close as possible to each hanger.

Having described my invention, I claim:

1. A door hanger, comprising in combination two or more rolling members, each having a portion reduced in diameter an equal number of riders adapted to ride, one upon the reduced portion of each rolling member, means for securing the riders to a door, and means, preferably links, for maintaining a fixed distance between the said rolling members, whereby one of the rolling members cannot become displaced with reference to its rider unless there is a like displacement of each rolling member with reference to its respective rider.

2. A door hanger, comprising in combination two or more rolling members, an equal number of riders adapted to ride thereon, the treads of said riders being indirect, means for securing the riders to a door, and

means, preferably links, for maintaining a fixed distance between the said rolling members.

5 3. A door hanger, comprising in combination two or more rolling members, each having projecting axles, an equal number of
10 riders, each composed of two parallel strips having rectilineal treads, the said sections rigidly united and adapted to ride upon the
15 rolling members, one section of the rider on each axle thereof, means for securing the riders to a door, and means, preferably links, connecting the rolling members, whereby a fixed distance is maintained between the said
20 rolling members.

4. In a door hanger comprising in combination, two or more rolling members adapted to roll on a track, riders, adapted to be attached to a door and ride on the said
20 rolling members, means, preferably elongated and suitably disposed treads, forming the surfaces of the riders which coöperate with and rest on the rolling members, whereby, during portions of its travel the door
25 will move in a line parallel with, and during the other portions of its travel, in a line diverging upward or downward from the

track on which it runs, the verticality of the door remaining unchanged throughout.

5. In a door hanger comprising in combination, two or more rolling members adapted to roll on a track, riders, adapted to be attached to a door and ride on the said rolling members, means, preferably elongated and suitably disposed treads, forming
35 the surfaces of the riders which coöperate with and rest on the rolling members, whereby, during portions of its travel the door will move in a line parallel with, and during the other portions of its travel in a line diverging upward or downward from the
40 track on which it runs, the verticality of the door remaining unchanged throughout, and a member carried by the several rolling members whose movement during the travel
45 of the door will be altogether parallel with the track, the said member being normally disengaged from the track, but adapted to engage the under side of the track in case the door is lifted slightly by any cause.

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Witnesses:

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WILLIAM K. MARSHALL.