No. 607,728. Patented July 19, 1898.

F. L. BARNICK.

ROLLER SPRING HINGE.

(Application filed Feb. 24, 1898.)

(No Model.)

Fig. 1.

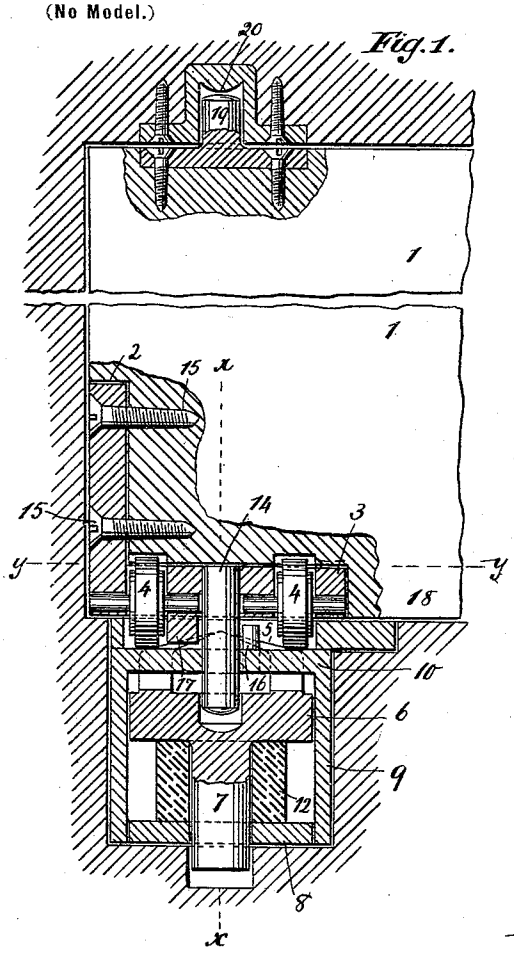


Fig. 2.

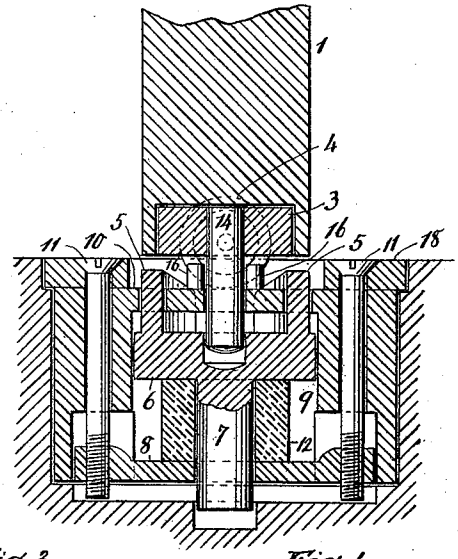


Fig. 3.

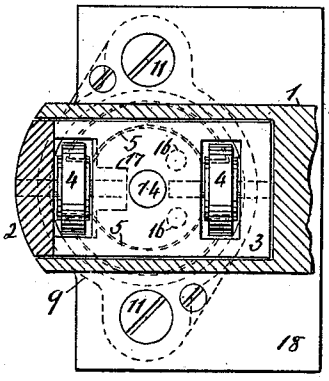


Fig. 4.

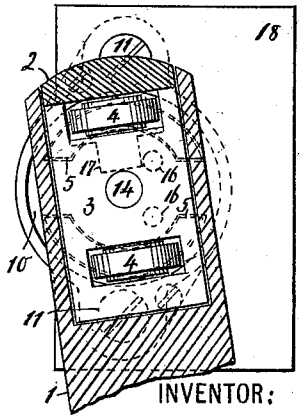
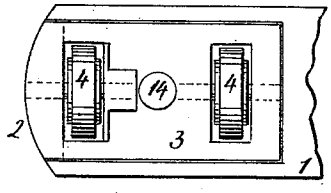


Fig. 5.



WITNESSES:

E. Wolff.

Chas. E. Foerster.

INVENTOR:

Frank L. Barnick.

BY

Hauff & Hauff

ATTORNEYS.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FRANK L. BARNICK, OF NEW YORK, N. Y.

ROLLER SPRING-HINGE.

SPECIFICATION forming part of Letters Patent No. 607,728, dated July 19, 1898.

Application filed February 24, 1898. Serial No. 671,488. (No model.)

To all whom it may concern:

Be it known that I, FRANK L. BARNICK, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Roller Spring-Hinges, of which the following is a specification.

This invention relates to a hinge which is readily applied and reliable in operation; and the invention resides in the novel features of construction set forth in the following specification and claims and illustrated in the annexed drawings, in which—

Figure 1 is a sectional view of the hinge applied to a door, the latter being closed. Fig. 2 is a section along *x x*, Fig. 1. Fig. 3 is a section along *y y*, Fig. 1. Fig. 4 is a view like Fig. 3, the door being open. Fig. 5 is an inverted plan view of the bracket.

Against an angle or outer part of a door 1 sits a bracket or angle-piece 2 3. Said bracket or its branch 3 is provided with suitably-journaled rollers or casters 4, made to project outside of or below the bracket. These rollers travel on ridges or cam-surfaces 5. These faces 5 extend from or form part of a head or plate 6, having stem 7 extended through the perforated box-bottom 8. The side or body of the box is shown at 9 and its top at 10.

The box-top 10 is suitably cut or broken for the cam-faces 5 to project or pass through, and these cam-faces, as seen in Figs. 3 and 4, are suitably spaced or separated. When the door opens, Fig. 4, the rollers 4 travel toward the high parts or apexes of the cams, and when the door is shut, Fig. 3, said rollers rest on or pass to the low parts of the cams or into the spaces between the low parts of said cam-surfaces onto the box-top 10.

The bottom 8 is adjustable or held by screws 11, housed in lateral extensions or chamber portions of the box 9. Placed about the stem 7 and between the bottom 8 and cam or head 6 is a rubber tube 12. As the door opens, the rollers 4, pressing or running onto the high parts of cams 5, compress a spring composed of an elastic tube 12, and such pressure on the release of the door tends to close the latter and to raise or return the cam-faces 5. By adjusting or turning screws 11 the bottom 8 is made to compress tube 12 more or less forcibly against cam-head 6, and the cams 5, supported on bottom 8, can be lowered as required.

The roller-bracket has a pivot 14, and the cams 5 or their head 6 is provided with a suitable seat for the reception or swivel of this pivot.

The bracket 2 3 is readily applied or the door 1 can be readily slipped into place on said bracket and secured by screws or fastenings 15, Fig. 1, the door having been recessed or cut or prepared for the seating or reception of bracket member 3. When the door is shut, the rollers 4 resting on box-bottom 10 and in the spaces between cams 5, the door is held shut against the wind or accidental opening.

As seen in Fig. 4, the door can be prevented from excessive swing or opening by a stop or pins 16, rising from box-bottom 10. The bracket having a shoulder 17 suitably applied, such shoulder, engaging or being arrested by one or another of stop-pins 16, will limit the swing or opening of the door in either direction. The rubber tube 12 has been found preferable to a metallic spring, as this tube can be made very short and still be effective, so as to require but a shallow box. As the door opens its weight will press the cams 5 into the box or compress the tube 12, which latter is fitted close about pin 7.

The box-body 9, as also the lateral extensions for the screws 11 when made of cylindrical form, can be readily seated or housed, since cylindrical holes or seats are readily bored for sinking or housing the box in place. Above the level of box-top 10 the box is provided with a laterally-extended plate 18, which when the parts are in working position, as seen in Fig. 2, can be made to carry the weight of the box, such plate 18 being sunk to the level of the floor or door-sill. The screws 11, being exposed through plate 18 at each side of door 1, are readily accessible for the required adjustment of bottom 8. The pivot 14 guides the door in connection with pivot 19, Fig. 1, which when made convex or like a ball-bearing in connection with its seat 20, works easily or with little friction.

In Fig. 1 the yielding cams 5 are shown applied at the bottom of the door; but if seen fit they could be applied at the top—as, for example, when the floor is marble, iron, or

undesirable or difficult to cut or work. The roller-bracket 2 3 can of course be likewise transposed.

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

1. A roller spring-hinge, comprising a bracket secured at the inner corner of the door, rollers journaled in said bracket, a box seated in the door-sill, a spring-raised plunger working in said box and having cam-surfaces projecting through the top thereof and on which said rollers travel, and a pivot-pin projecting downward from said bracket and working through an opening in the top of the box, substantially as described.

2. A roller spring-hinge, comprising a bracket secured at the inner corner of the door, rollers journaled in said bracket, a box seated in the door-sill, a plunger working in said box and having cam-surfaces projecting through the top thereof and on which said rollers travel, a spring located under the plunger and acting to press it upward, stops or pins projecting from the top of said box and a shoulder on the bracket adapted to contact with said stops or pins to limit the swing of the door in either direction, substantially as described.

3. A roller spring-hinge comprising a bracket secured at the inner corner of the door, rollers journaled in said bracket, a box seated in the door-sill, a plunger working in said box and having a head provided with cam-surfaces projecting through the top thereof and on which said rollers travel, and a spring interposed between said plunger-head and the bottom of the box and encircling the stem of the plunger, substantially as described.

4. A roller spring-hinge comprising a bracket secured at the inner corner of the door, rollers journaled in said bracket, a box seated in the door-sill having a movable bottom, a plunger working in said box and having a head provided with cam-surfaces projecting through the top thereof, and on which said rollers travel, and a stem working in an opening in the bottom of the box, a spring interposed between the plunger-head and the bottom of the box and encircling the stem of the plunger, and means for adjusting the height of the bottom of the box to vary the compression of said spring, substantially as described.

5. A roller spring-hinge comprising a bracket secured at the inner corner of the door, rollers journaled in said bracket, a box seated in the door-sill having an adjustable apertured bottom and an apertured top, a plunger working in said box and having a head provided with cam-surfaces projecting through the top thereof and on which said rollers travel and a stem working in the aperture in the bottom of the box, a spring interposed between the plunger-head and the bottom of the box, a pivot-pin projecting from said bracket and working in the aperture in the top of the box, and a seat formed in the plunger-head to receive the lower end of said pivot-pin, substantially as described.

6. A roller spring-hinge comprising a bracket secured at the inner corner of the door, rollers journaled in said bracket, a box seated in the sill having an adjustable bottom and provided with lateral chamber portions and having a laterally-extended plate above the level of the top, screws extended through said plate and housed in said chamber portions and supporting the bottom of the box, and a plunger yieldingly supported on said bottom and having cam-surfaces projecting through the top of the box and on which said rollers travel, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FRANK L. BARNICK.

Witnesses:
HATTIE BARNICK,
E. F. KASTENHUBER.