(Model.)

J. R. PAYSON, Jr.

SPRING HINGE.

No. 404,556. Patented June 4, 1889.

Fig. 1.

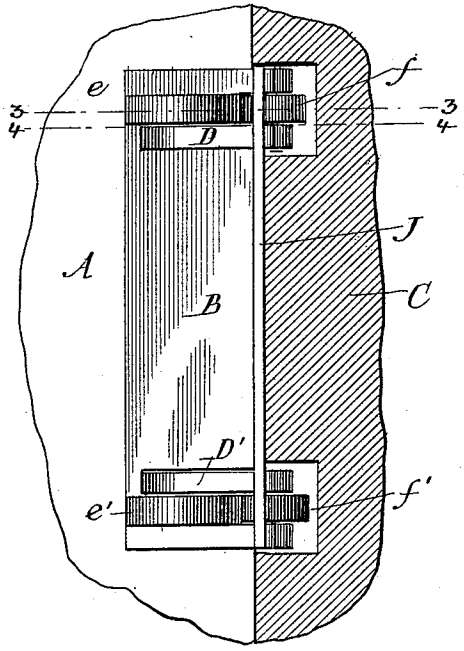


Fig. 2.

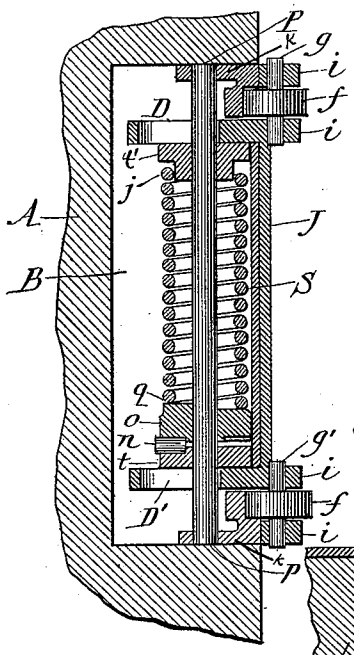


Fig. 6.

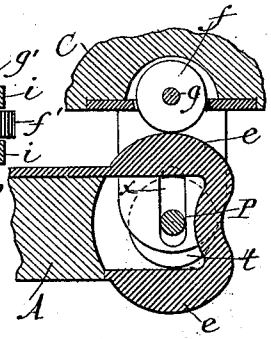


Fig. 3.

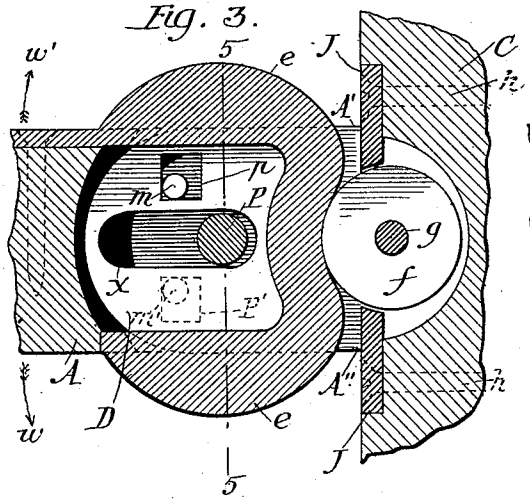


Fig. 4.

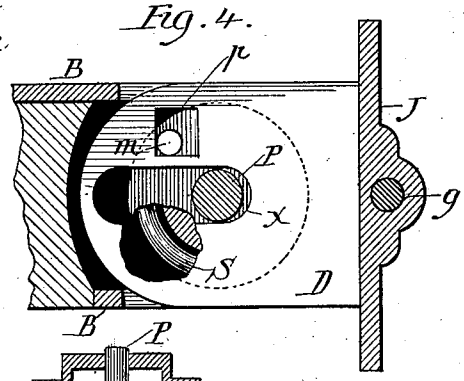
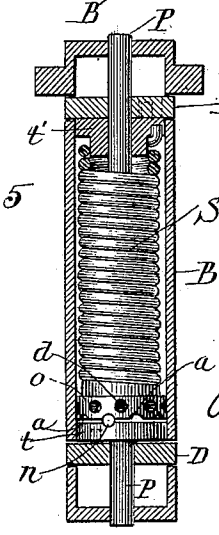


Fig. 5



Witnesses.
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UNITED STATES PATENT OFFICE.

JOSEPH R. PAYSON, JR., OF CHICAGO, ILLINOIS.

SPRING-HINGE.

SPECIFICATION forming part of Letters Patent No. 404,556, dated June 4, 1889.

Application filed November 6, 1888. Serial No. 290,099. (Model.)

To all whom it may concern:

Be it known that I, JOSEPH R. PAYSON, Jr., a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Butts for Doors, of which the following is a specification.

This invention relates to that class of hinges or butts for doors in which the force of a spring or springs is employed to draw the members of the butt toward each other and into the position which they occupy when the door is closed.

The primary object of the invention is to provide a butt of this class which shall have a central pivot, and in which may be secured the same action on the part of the spring—to wit, an action by which the door is closed or yieldingly held in its closed position.

The invention also embraces a centrally-pivoted butt containing several features of the spring-hinge above referred to, but wanting the spring, the same being adapted to be used as the lower hinge of a door in connection with a similar hinge having a spring for the upper part of the door.

Referring to the accompanying drawings for a fuller explanation of the invention, Figure 1 is a side view of a portion of a door and the door frame or casing provided with my improved butt. Fig. 2 is a central vertical sectional view of the same. Fig. 3 is a horizontal sectional view taken upon line 3 3 of Fig. 1. Fig. 4 is a horizontal sectional view taken upon line 4 4 of Fig. 1 immediately below the section-line of Fig. 3. Fig. 5 is a vertical transverse sectional view taken upon line 5 5 of Fig. 3. Fig. 6 is a horizontal sectional view taken upon line 3 3 of Fig. 1, reduced somewhat in size for convenience in drafting, and showing the door open and in position at right angles to the door frame or casing.

A is the door, and C the door frame or casing.

B is one member of the butt, and J the other. The member B is shown as a housing or case adapted to be applied to the edge of the door A, so that its outer faces will lie flush with the side faces of the door, that portion of the door covered by said member being cut away, as clearly shown in Fig. 2. Within the hollow member B is a vertical pivot or pin P, sustained in the upper and lower end plates of said member and located about midway of the thickness of the door. The other member J is shown let into the frame or casing so as to be flush with its face, as seen in Fig. 3, and is provided with two flat horizontal projecting lugs D D′, Fig. 1, which enter suitable slots or openings in the adjacent part of the member B. Each of the lugs D D′ is provided with an elongated slot or opening x, through which the pivot-pin P passes, as clearly shown in Fig. 4. The member B is provided upon its opposite sides with projecting ears or cams $e\ e\ e'\ e'$, one pair being shown at each end of the member, and the member J is provided with friction-rollers $f\ f'$ in position to bear against the curved edges of said cams. These friction-rollers are pivoted on the vertical pivots $g\ g'$, and the door frame or casing C is cut away to accommodate them, as clearly shown in Figs. 1 and 3. A single pair of cams and a single roller will serve as well, and will be preferably located midway of the height of the butt.

Loosely surrounding the pivot P are two shouldered collars t' and o, and between these collars is a coiled torsional spring S, also surrounding the pivot, and having its ends secured to said collars, respectively. A pin m, secured to the upper collar t', projects upwardly therefrom and engages a hole or slot p in the upper lug D of the member J. Interposed between the collar o and the lower lug D′, and also surrounding the pivot P, is a third collar t, which is provided with a downwardly-projecting pin m', engaging a hole or slot p' in the lower lug D′. The face of the collar o adjacent to the collar t is provided with a series of half-round radial notches, and in the adjacent face of the collar t is provided a single similar notch. Together these registering-notches form a hole a, adapted to receive a pin n. When said pin n is inserted, (as clearly shown in Figs. 2 and 5,) the two collars o and t are united together, so that a rotary movement of the one upon the pivot P also produces a rotary movement of the other. Holes or openings d are provided in the periphery of the collar o to receive a lever, so that when

it is desired to increase or lessen the tension of the spring S the lever may be inserted and the strain taken off the pin *n*. The latter may then be removed from the coinciding notches *a* occupied by it and reinserted after another notch in *o* has been brought to register with that in the collar *t*.

It will be observed that the spring S, while located in the member B, is attached at its ends to the lugs D D′ of the member J, and thus exerts a constant force in drawing the two members B and J toward each other, or to the position they have when the door is closed. The cams *e e′* having their shortest radii in the central plane of the door, the opening of the door in either direction withdraws the projections D D′ more or less from within the opposite member of the butt and carries the central pivot P outward in the slots of said projections. This movement of the pivot being resisted by the spring S, the door, when released, is drawn back by said spring to its closed position. (Illustrated in Fig. 5.) The tension of the spring S of the upper butt must of course be sufficient to draw the members into contact with each other. The weight of the door will bear the members of the lower butt together, and the spring may, if desired, be omitted therefrom.

Manifestly various modifications may be made in the details of construction without departure from the invention, which is set forth in its several features in the following claims.

I claim—

1. A door-butt comprising two members, one for attachment to a door and the other for attachment to a door-frame, one or more outward projections upon one of the members, a spring arranged to force the two members toward each other, and a pivot located substantially midway of the thickness of the door and engaging openings in both the said projection or projections and the other member, the opening or openings in one or both of said parts being larger than the pivot, substantially as described.

2. A butt for a lower part of a door, comprising two members for attachment, one to the door and the other to the door-frame, one or more outward projections upon one of the members, and a pivot located substantially midway of the thickness of the door and engaging openings in both the said projection or projections and the other member, the opening or openings in one or both said parts being a slot, substantially as described.

3. The combination, with the two members of the butt, one of which is provided with an outward projection or projections, of a central vertical pivot engaging the projection or projections and the other member by holes which in one or both are in oblong form, and a coiled torsion-spring surrounding the pivot and engaged with the several members, so that its force is exerted to draw the members toward each other, substantially as described.

4. In a centrally-pivoted butt, horizontal lateral extensions or cams upon one of the members having curved outer edges, and a spring arranged to draw the members toward each other.

5. In a centrally-pivoted butt, the horizontal lateral extensions or cams upon one of the members having curved edges, one or more friction-rollers upon the other member arranged to bear upon the curved faces of said cam-extensions, and a spring arranged to draw the members of the butt toward each other.

6. The combination, with the two members of a butt, of a central pivot attached to one of said members and having a bodily movement toward and from the other, and a spring engaged with the pivot and also with the member with respect to which said pivot is movable.

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