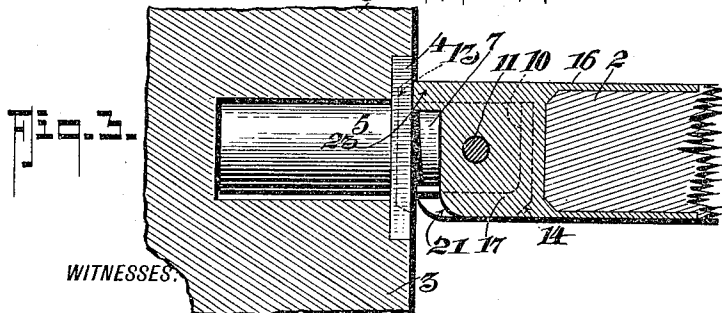
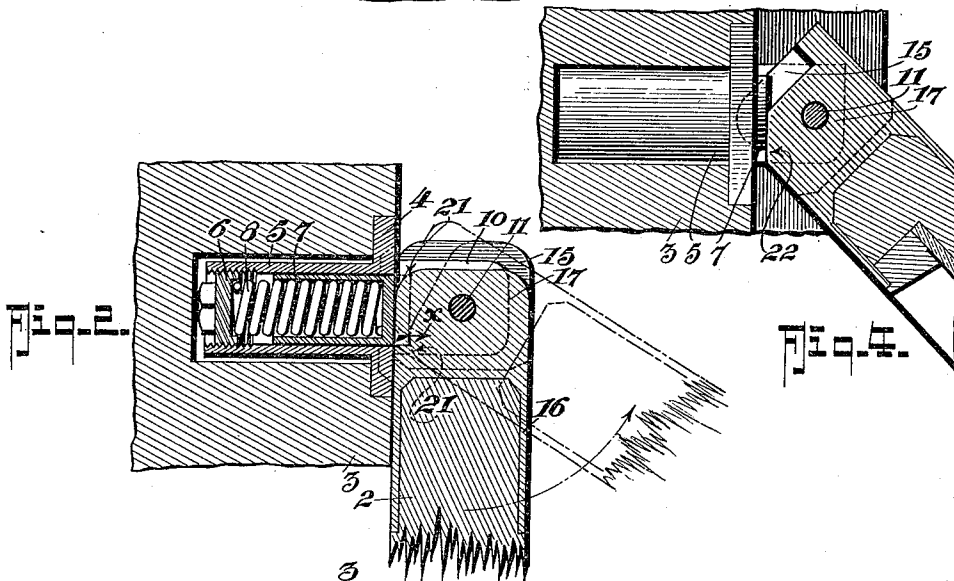
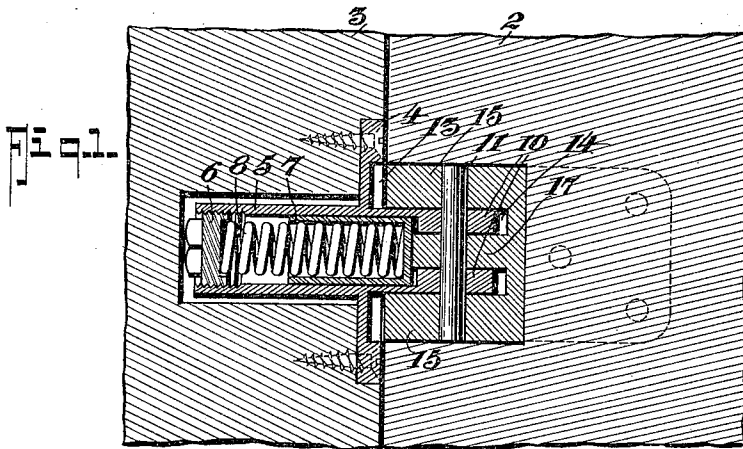


P. McI. SMITH.
 SPRING HINGE.
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1,122,322.

Patented Dec. 29, 1914.



WITNESSES:

INVENTOR

John S. Schrott
Charles Diller

Paul McIntosh Smith
 BY

Fred G. Breerich & Co.
 ATTORNEYS.

UNITED STATES PATENT OFFICE.

PAUL McINTOSH SMITH, OF VANCOUVER, BRITISH COLUMBIA, CANADA.

SPRING-HINGE.

1,122,322.

Specification of Letters Patent.

Patented Dec. 29, 1914.

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To all whom it may concern:

Be it known that I, PAUL McINTOSH SMITH, a citizen of the Dominion of Canada, residing at Vancouver, in the Province of British Columbia, Canada, have invented certain new and useful Improvements in Spring-Hinges, of which the following is a specification.

This invention relates to a door hinge of that class which is designed to close the door from one side or the other and to maintain it with a certain resistance in the closed position. This result is attained by providing a spring in one member of the hinge to press on the contour of a part movable with the other member. This contour is such that the spring acting on it will move the door to the desired position of rest from any intermediate position.

Although particularly intended for application as a door hinge, swinging either way from the closed position, it may with slight modification be made for the door to open to only one side against a spring resistance which normally maintains it closed. This latter arrangement may also be applied to a transom or casement window. In either use, the contour of the bearing contact of the spring resistance is such as will also hold the door or window in the open position at any desired angle up to ninety degrees.

The invention is particularly described in the following specification, reference being made to the drawings by which it is accompanied, in which:

Figure 1 is a vertical section through the hinge as applied to a door to open either way. Fig. 2 is a horizontal section of the same, showing in full lines the door as checked in the open position and in dot and dash lines its position in the act of closing, showing the action of the spring to effect the closing, and Fig. 3 shows a plan and part section of the hinge as modified for a door or window to open one way only. Fig. 4 is a view similar to Fig. 3 showing a modification hereinafter referred to.

In these drawings 2 represents the hinge stile of the door and 3 the stile of the frame to which the door is hinged.

Recessed into the inner face of the door frame 3 is a butt plate 4, forming the fixed member of the hinge, and having a spring casing 5 projecting from it, which casing fits into a cylindrical recess provided for it

in the door frame. Projecting from the outer face of this butt plate 4 are two lugs 10, one on each side of the produced axis of the spring casing 5. Fitting on the outside of these lugs 10 and pivotally connected to them by the hinge pin 11 are corresponding projections 15 from the movable portion 16 of the hinge, which is secured to the hinge stile of the door, and fitting between the lugs 10 is a similar projection 17 from the same member 16 through which member 17 the hinge pin 11 passes. The lugs 10 of the fixed member, and 15 of the movable member of the hinge, are merely to receive the pivot pin and sustain the weight of the door, but the member 17 is the one having the contour on which the spring acts to effect the desired closing and check of the door. Against the projection 17 bears the end of a hollow piston 7, which is endwise movable within the spring casing 5, and within which casing acts a coil spring 8 which is introduced between the piston and a plug 6 screwed into the other end of the casing 5. The screw of this plug 6 enables the pressure of the spring 8 to be adjusted.

The contour of the projection 17, against which the piston 7 bears, is shaped to hold the door in the desired position of opening or closing, and to allow it to be moved to the closed position from any intermediate position. In its simplest form, as shown in Figs. 1 and 2, the end of 17 is normal to the plane of the door and the action of the spring 8 against it will retain the door in the closed position, as in any movement from this mid-position, the pressure of the spring will act through the point of contact, as represented by the arrow *a*, to exert a turning movement to close the door. The corners of this square end of 17 are rounded to facilitate movement, and in movement after this rounded corner is passed, the pressure of the spring will obviously act on the flat faces of the projection 17, which are parallel to, or in the plane of the faces of the door, and will retain the door in the wide open positions.

Where the door is designed to open one way only, the face of the hinge member 16, which is secured to the door stile, is carried, as shown at 23 in Fig. 3, to contact with the butt plate 4 of the hinge so as to prevent opening of the door or window to that side.

In order to close the direct opening be-

tween the lugs of the hinge as attached to the door stile and the butt plate 4, attached to the door frame, the lugs 15 project slightly beyond the edge of the door stile and turn in recesses 13 provided for them in the butt plate.

The end of the projections 15 need not project far beyond the edge of the door stile although the recess is sufficient to enable the corners to turn. Similarly the ends of the lugs 10 turn in recesses 14 of the portion 16 of the hinge that is secured to the door.

Where the check hinge, as illustrated in Fig. 3, is to be applied to a transom window, instead of providing a rounded corner at 21, a flat surface 22 may be provided as shown in Fig. 4 that will check and sustain the window in an open position at an angle of, say forty-five or sixty degrees.

Having now particularly described my invention, I hereby declare that what I claim as new and desire to be protected in by Letters Patent, is:

A spring hinge which comprises a tubular body, a butt plate formed integrally with said body at one end of the same and adapt-

ed to be secured and counter sunk into a door casing, pivot lugs projecting in alignment with said tubular body on the side of said plate opposite the tubular body, said lugs having a passage way alining with the bore of said tubular body, a piston within said tubular body and adapted to project into said bore, a spring located within said tubular body and said piston for forcing said piston outwardly, a second member secured to the door and having lugs and slots to fit over the first mentioned lugs, one of the second mentioned lugs projecting between said first mentioned lugs to engage said piston, and a pivot pin passing through said lugs, said butt plate having recesses to receive the projecting lugs of said second member when said second member is turned on said pivot pin.

In testimony whereof I affix my signature in presence of two witnesses.

PAUL McINTOSH SMITH.

Witnesses:

ROWLAND BRITAIN,
MAY WHYTE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."