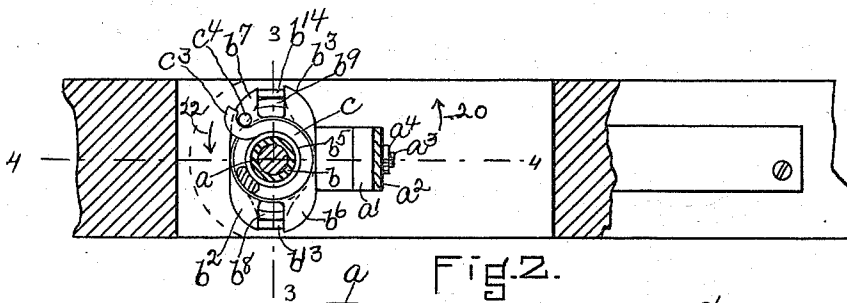
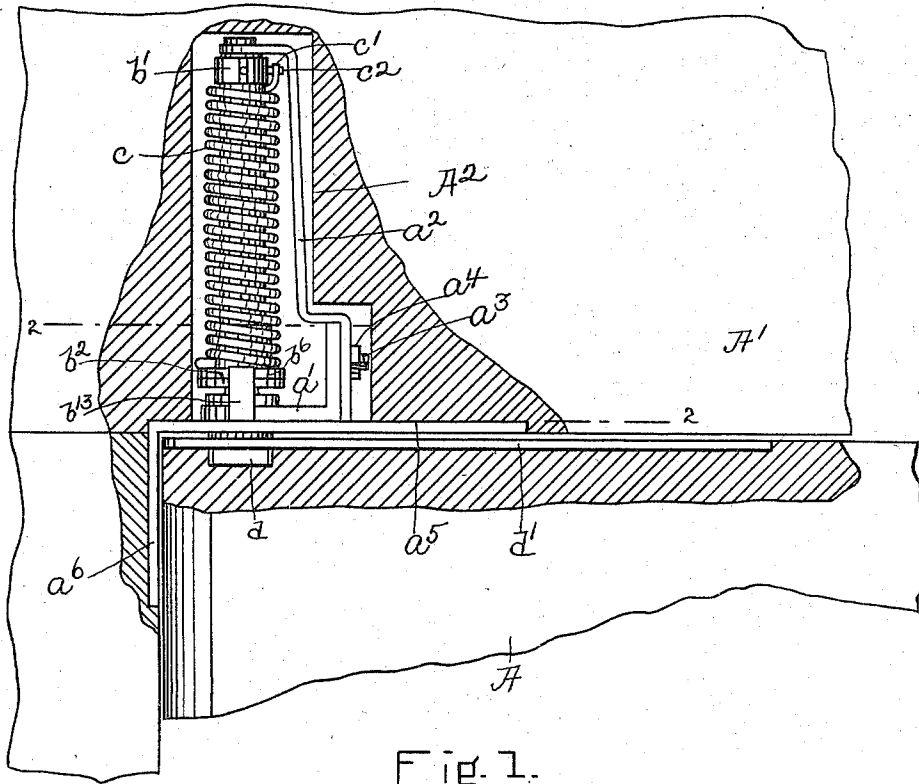


(No Model.)

P. CHANDLER.
SPRING HINGE.

No. 580,373.

Patented Apr. 13, 1897.



WITNESSES.

Matthew M. Blunt,
J. Murphy.

FIG. 3.

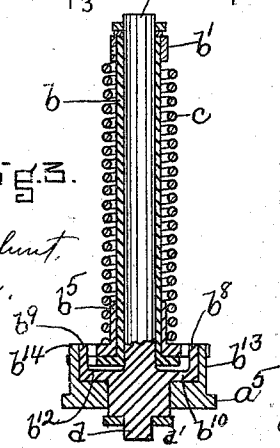
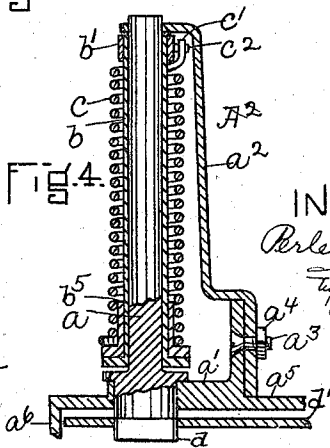


FIG. 4.



INVENTOR.
Percy Chandler
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ATTY.

UNITED STATES PATENT OFFICE.

PERLEY CHANDLER, OF BARRE, VERMONT, ASSIGNOR TO JOHN W. CURRIER, OF BOSTON, MASSACHUSETTS.

SPRING-HINGE.

SPECIFICATION forming part of Letters Patent No. 580,373, dated April 13, 1897.

Application filed June 4, 1896. Serial No. 594,239. (No model.)

To all whom it may concern:

Be it known that I, PERLEY CHANDLER, residing in Barre, in the county of Washington and State of Vermont, have invented an Improvement in Door-Hinges, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to door-hinges of that class employed on doors which swing on opposite sides of the center or normal position of the door and substantially such as shown and described in United States Patent No. 539,724, granted to me May 21, 1895.

My present invention has for its object to provide a swinging hinge of simple and improved construction, which can be operated with a minimum power, and which is also preferably constructed so as to avoid cutting action or wear upon the arbor upon which the door swings.

In accordance with this invention the arbor or pivot for the door is supported to turn in a suitable framework or bracket and the said arbor has fitted loosely on it a sleeve upon which is loosely fitted a second sleeve, the said sleeves being encircled by a spiral spring having one end connected to one sleeve and the other end connected to the other sleeve, the said sleeves being adapted to be turned or rotated in opposite directions by the rotation of the door pivot or arbor, as will be described. These and other features of this invention will be pointed out in the claim at the end of this specification.

Figure 1 represents in elevation, with parts broken away, a sufficient portion of a door, its casing, and a hinge embodying this invention. Fig. 2 is a section on the line 2 2, Fig. 1; Fig. 3, a vertical section of the hinge on the line 3 3, Fig. 2; and Fig. 4, a vertical section of the hinge on the line 4 4, Fig. 2.

Referring to Fig. 1, A represents a door, and A' the casing therefor, which latter is provided with a suitable socket or recess A² for a hinge embodying this invention.

The hinge comprises, essentially, a vertical pivot or arbor *a*, having bearings at its opposite ends in a suitable framework, herein shown as an L-shaped bar or casting *a'*, and

an upright arm or bracket *a*², secured to the bar or casting *a'*, as by a bolt *a*³ and a nut *a*⁴. The bar *a'* may be secured to or form part of a bottom plate *a*⁵, which in practice is designed to be screwed or otherwise fastened to the casing A' of the door, the plate being herein represented as provided with a depending flange *a*⁶ and set into a mortise in the casing A', so as to be flush with the same.

The pivot or arbor *a*, in accordance with this invention, has fitted upon it a sleeve *b*, herein shown substantially as long as the pivot or arbor *a* and having secured to or forming part of it at its upper end a collar *b'*, the said sleeve at its lower end being provided with preferably two arms *b*² *b*³, extended from opposite sides of the sleeve near its bottom and located on opposite sides of a transverse line through the sleeve, as clearly shown in Fig. 2. The sleeve *b* has loosely fitted upon it a second sleeve *b*⁵, provided with arms *b*⁶ *b*⁷, similar to the arms *b*² *b*³, but extended from the sleeve *b*⁵, so as to lie opposite to the arms *b*² *b*³ and leave suitable spaces or openings, up into which project lugs or fingers *b*⁸ *b*⁹ on arms *b*¹⁰ *b*¹², (see Fig. 3,) extended from the pivot pin or arbor *a*, the said openings between the arms *b*² *b*⁶ *b*³ *b*⁷ also having extended up into them uprights or posts *b*¹³ *b*¹⁴, secured to or forming part of the plate or bar *a'*. The sleeves *b* *b*⁵ are encircled by a spiral spring *c*, having one end engaging with or connected to the inner sleeve *b* at one end of the shaft or pivot, herein shown as the upper end, the said spiral spring having its end *c'* engaging or bearing against a stud or pin *c*², projecting from the collar *b'* on the sleeve *b*.

The lower end of the coiled spring *c* is engaged with or connected to the sleeve *b*⁵, which may be accomplished, as herein shown, by having the curved end *c*³ of the spiral spring *c* engaging a pin or post *c*⁴, erected from the arm *b*⁷, as shown in Fig. 2.

The pivot or arbor *a* is extended through the plate *a*⁵, as shown in Figs. 3 and 4, and below the said plate the pivot or arbor is provided with an angular projection *d*, which is adapted to enter a suitable socket in a plate *d'*, fastened to the upper edge of the door A, so that when the door A is turned the shaft or pivot *a* will be turned with it.

In practice the door A normally occupies a closed position, as represented in Fig. 1, and if it is desired to open the door in one direction, as, for instance, to move it in the direction indicated by the arrow 20, Fig. 2, pressure is applied to the door, which pressure turns the pivot or arbor *a* and causes the fingers *b*⁸ *b*⁹ to engage the arms *b*⁶ *b*⁷, thereby turning the outer sleeve *b*⁵ in such direction as to wind up the lower portion of the coiled spring, the stud *c*⁴ moving the end *c*³ of the coiled spring in the direction indicated by the arrow 22, Fig. 2, the upper end of the coiled spring being held stationary by reason of the arms *b*² *b*³ on the sleeve *b* engaging the stationary posts or uprights *b*¹³ *b*¹⁴.

When the pressure is removed from the door A, it is returned to its normal position by the uncoiling of the spring *c*. The movement of the door A in the direction opposite to the arrow 20 restores the arms *b*⁶ *b*⁷ into contact with the stationary posts *b*¹³ *b*¹⁴.

If it is desired to swing the door in the direction opposite to that indicated by the arrow 20, pressure is applied to the opposite side of the door A, and the shaft or arbor *a* is turned in the opposite direction, which movement causes the lugs or fingers *b*⁸ *b*⁹ to act on the arms *b*² *b*³ of the sleeve *b*, and thereby move the said sleeve in the direction opposite to that indicated by the arrow 22, Fig. 2, and cause the spring *c* to be wound up by the stud or pin *c*² engaging the end *c*¹ of the coiled spring, the lower end of the coiled spring being held stationary by the

uprights or posts *b*¹³ *b*¹⁴ engaging the arms *b*⁶ *b*⁷ of the sleeve *b*⁵ and preventing movement of the said arms, and thereby holding the lower end of the coil stationary. When pressure is relieved from the door A, the coiled spring *c*, acting through the sleeve *b* and its arms *b*² *b*³ against the fingers *b*⁸ *b*⁹, turns the shaft or arbor back to its normal position.

The tension of the spring *c* may be adjusted by inserting the pin *c*² in different holes in the collar *b*¹.

I claim—

In a spring-hinge, the combination of the following instrumentalities, viz: a supporting-frame, a pivot or arbor journaled therein, a sleeve loose on the said pivot or arbor and provided with an arm extended therefrom, a second sleeve loose on the first sleeve and provided with an arm extended in a direction substantially opposite to the arm on the first sleeve, a spring encircling said sleeves and acting on the same to rotate them and their arms in opposite directions, lugs movable with the arbor or pivot and engaging the arms on the said sleeves, and stops to limit the movement of the sleeves by the said spring, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PERLEY CHANDLER.

Witnesses:

F. A. WALKER,
U. S. CHEEVER.