

No. 839,425.

PATENTED DEC. 25, 1906.

G. L. SARGENT & A. A. PAGE.

FLOOR HINGE.

APPLICATION FILED APR. 17, 1903.

3 SHEETS—SHEET 1.

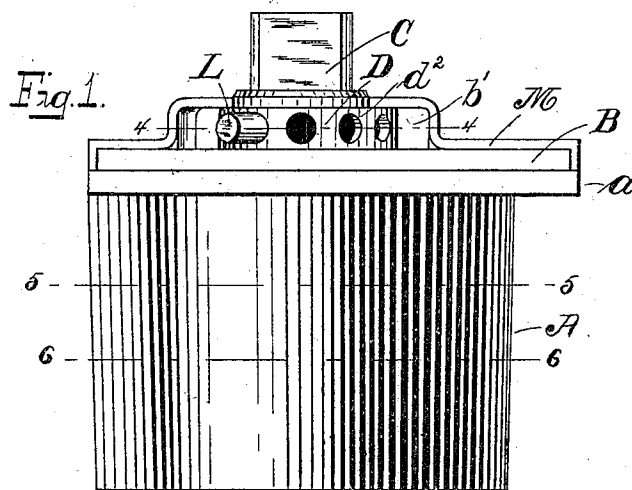
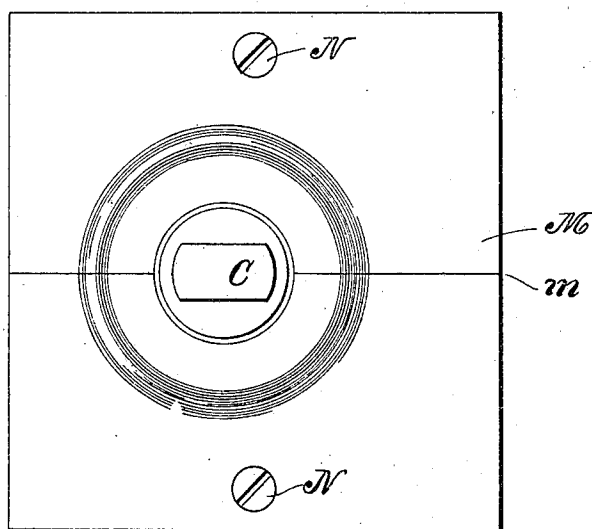


Fig. 2.



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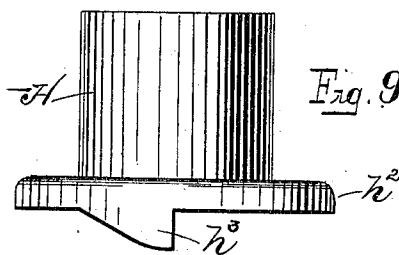
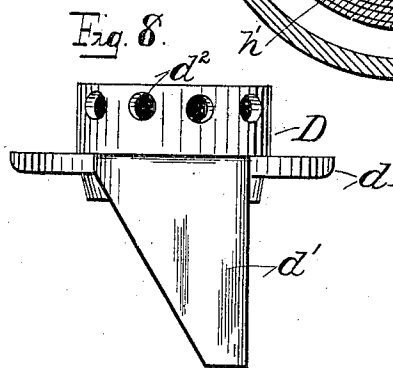
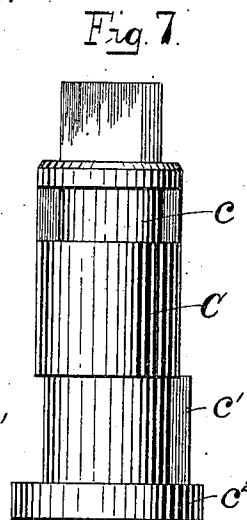
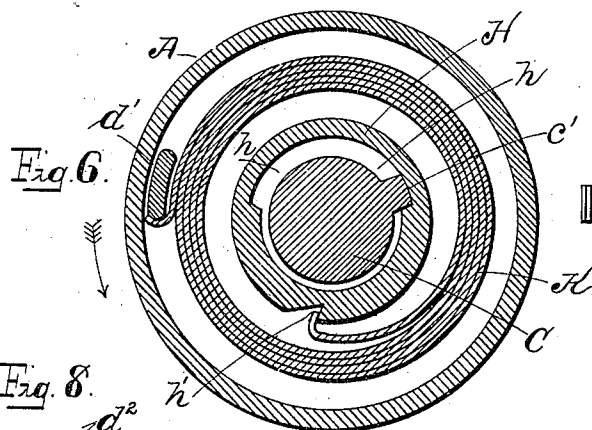
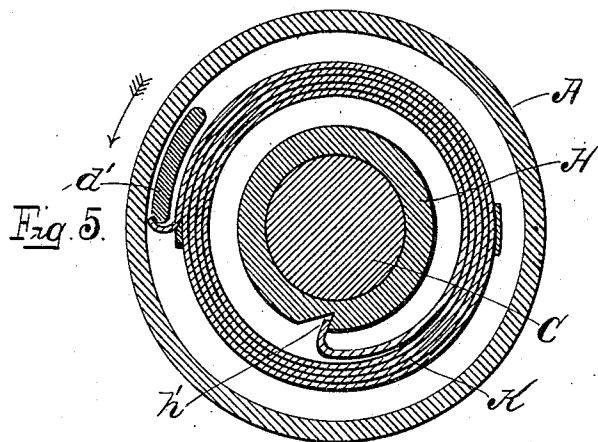
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

GEORGE LEWIS SARGENT, OF NEW HAVEN, AND ALBERT A. PAGE, OF EAST HAVEN, CONNECTICUT, ASSIGNORS TO SARGENT AND COMPANY, OF NEW HAVEN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

FLOOR-HINGE.

No. 839,425.

Specification of Letters Patent.

Patented Dec. 25, 1906.

Application filed April 17, 1903. Serial No. 153,104.

To all whom it may concern:

Be it known that we, GEORGE LEWIS SARGENT, of the city of New Haven, and ALBERT A. PAGE, of the town of East Haven, in the county of New Haven, State of Connecticut, have invented new and useful Improvements in Floor-Hinges, of which the following is a full, clear, and exact description, when taken in connection with the accompanying drawings, which form a part thereof, and in which—

Figure 1 represents a side elevation of a floor-hinge embodying our invention with a part of the top plate removed; Fig. 2, a plan view of the said floor-hinge; Fig. 3, a central vertical section of a portion of the same and the door to which the hinge is connected. Figs. 4, 5, and 6 are horizontal sections on lines 4 4, 5 5, and 6 6, respectively, of Fig. 1; Fig. 7, a side elevation in detail of the operating-spindle; Fig. 8, a similar view of the sleeve to which the outer end of the spring is adapted to be connected, and Fig. 9, a similar view of the sleeve to which the inner end of the spring is adapted to be connected.

In all figures similar letters of reference represent like parts.

This invention relates to the class of floor-hinges known as "double-acting," which return the door under the tension of the spring to its normal position of rest from either side, and more particularly to the class intended to be located in the floor and support the door in its movement on a stud or pintle.

The object of the invention is the production of a novel hinge having various improvements, as set forth and claimed hereinafter, among which are a divided top plate so constructed that a portion may be removed while the door is mounted on the pintle to permit the adjustment of the tension of the spring without removing the door, a flat band-spring connected through intermediate sleeves with the pintle, and the peculiar form of this connection by which a particularly efficient yet simple hinge is produced.

Referring to the drawings for a more particular description, the parts designated by the letter A represent a hollow cylindrical case open at its upper end, and a a lateral flange projecting from the top. B designates a cap-plate adapted to close the mouth

or opening of the cylindrical case A. The plate B has a circular perforation b , and around the perforation b an upwardly-projecting flange b' extends part way. Through the perforation b a spindle C and sleeve D are adapted to project.

The upper end of the spindle is flattened, as shown more particularly in Figs. 2 and 7, for engagement with a socket-bar E, which fits into a mortise or groove in the under side of the door X, where it is firmly secured by means of plates F. (Indicated in outline in Fig. 3.) The upper end of the door may be mounted by the insertion of a rigidly-secured top pivot into a socket in the door-jamb or in any other suitable manner. The spindle C has a groove or recess c extending partially around its periphery near its top, (see Figs. 4 and 7,) and near the bottom is a laterally-projecting stop or feather c' . The bottom of the spindle is adapted to travel on balls G in a circular channel or groove a' in the bottom of the case A.

A sleeve H, loosely mounted on the spindle, is provided with a groove h , extending partially around its interior surface, into which the feather or stop c' of the spindle C projects. The sleeve H rests upon the upper side of a flange c^2 of the spindle and has an exterior notch h' or other means for connection with the inner end of a flat band-spring K. The sleeve H is also provided with an annular flange h^2 , projecting laterally from its lower end and on the under side of which is a shoulder or stud h^3 , adapted to come in contact upon the rotation of the sleeve H with a stop a^2 in the bottom of the case A.

A sleeve D, loosely mounted on the upper end of the spindle C, has a projecting annular flange d , from the edge of which is a depending flange d' , adapted to engage the outer end of the band-spring K, as shown more particularly in Figs. 5 and 6. The sleeve D is provided with a number of pin-holes d^2 for an adjusting-pin L, which when inserted in one of the holes d^2 is adapted to project into the groove c on the spindle C, Fig. 4, while its other end will come in contact with the ends of the flange b' of the cap-plate B upon the rotation of the sleeve D.

M designates a cover-plate divided on the central line m into two parts. This plate, as

particularly shown in Figs. 1, 2, and 3, is adapted to fit over the top of the case and inclose the cap-plate B, the projecting end of the sleeve D, and pin L and may be secured to the case by screws N. When one part of the cover-plate is removed, as shown in Fig. 1, access may be had to the pin L while the door is still mounted on the spindle C.

The parts are assembled and adjusted as follows: The spindle C is placed with its lower end on the balls G in the channel a' of the case A and the sleeve H mounted on the spindle, with the feather c' in the groove h and the stud h^3 against the stop a^2 . The spring K is inserted so that its inner end engages the notch h' in the sleeve H. The sleeve D is then mounted with the depending flange d' engaging the outer end of the spring K. The cap-plate B then closes the case, and the pin L is inserted through one of the holes d^2 in the sleeve D into the groove c of the spindle C. The proper tension of the spring K is obtained by turning the sleeve D in the direction of the arrow, Figs. 4, 5, and 6, for the inner end of the spring is held stationary, as the lower sleeve H cannot turn in this direction because of the engagement between the flange h^3 and stop a^2 . The tension is preserved when the pin L is placed in the proper hole, for the spring cannot unwind, as the outer end of the pin strikes the edge of the flange b' on the cap-plate B. When the parts are thus assembled and the door mounted on the spindle, the device is ready for operation.

If the door is swung to turn the spindle in the direction of the arrow, Figs. 4, 5, and 6, the inner end of the spring K cannot move, as the sleeve H is held stationary, because of the lug h^3 being in contact with the stop a^2 . The spindle, however, may partially rotate in the sleeve H, for the feather c' travels in the groove h , Fig. 6. The spindle rotating in this direction carries the sleeve D around, because the pin L projects through the sleeve D and abuts against the end of the slot c in the spindle C, Fig. 4, so that the tension of the spring is increased, and when the force ex-

erted on the door is removed the spring will return it to its normal position.

If the door be swung to turn the spindle in the direction opposite to that indicated by the arrow, Figs. 4, 5, and 6, the sleeve D (engaging the outer end of the spring K by the flange d') will be held stationary, because the pin L, projecting through the sleeve D, strikes the end of the flange b on the cap-plate B. The spindle C is free to move in the sleeve D, as the inner end of the pin L slides in the slot c of the spindle. The feather c' on the spindle striking against the end of the groove h in the sleeve H turns the sleeve H (which engages the inner end of the spring K) away from the stop a^2 and increases the tension of the spring to return the door when released to its normal position.

Having now described our invention, which may vary in its details without departing from the spirit thereof, what we claim, and desire to secure by Letters Patent, is—

In a floor-hinge, the combination with a case having a shoulder on the outside thereof; of a rotary spindle operated by the door, or other article, and having a lateral groove; a spring surrounding said spindle; two sleeves loosely mounted on said spindle and having connection with opposite ends of said spring, one of said sleeves having its movement limited in one direction by said case and in the other by said spindle, and the other sleeve having a flange with a series of radial holes projecting above said casing; and a pin adapted to be inserted axially into one of said holes and engage with one end said groove in said spindle, and with the other end said shoulder on said case, substantially as described.

In witness whereof we have hereunto set our hands on the 25th day of February, 1903.

GEORGE LEWIS SARGENT.
ALBERT A. PAGE.

Witnesses:

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