

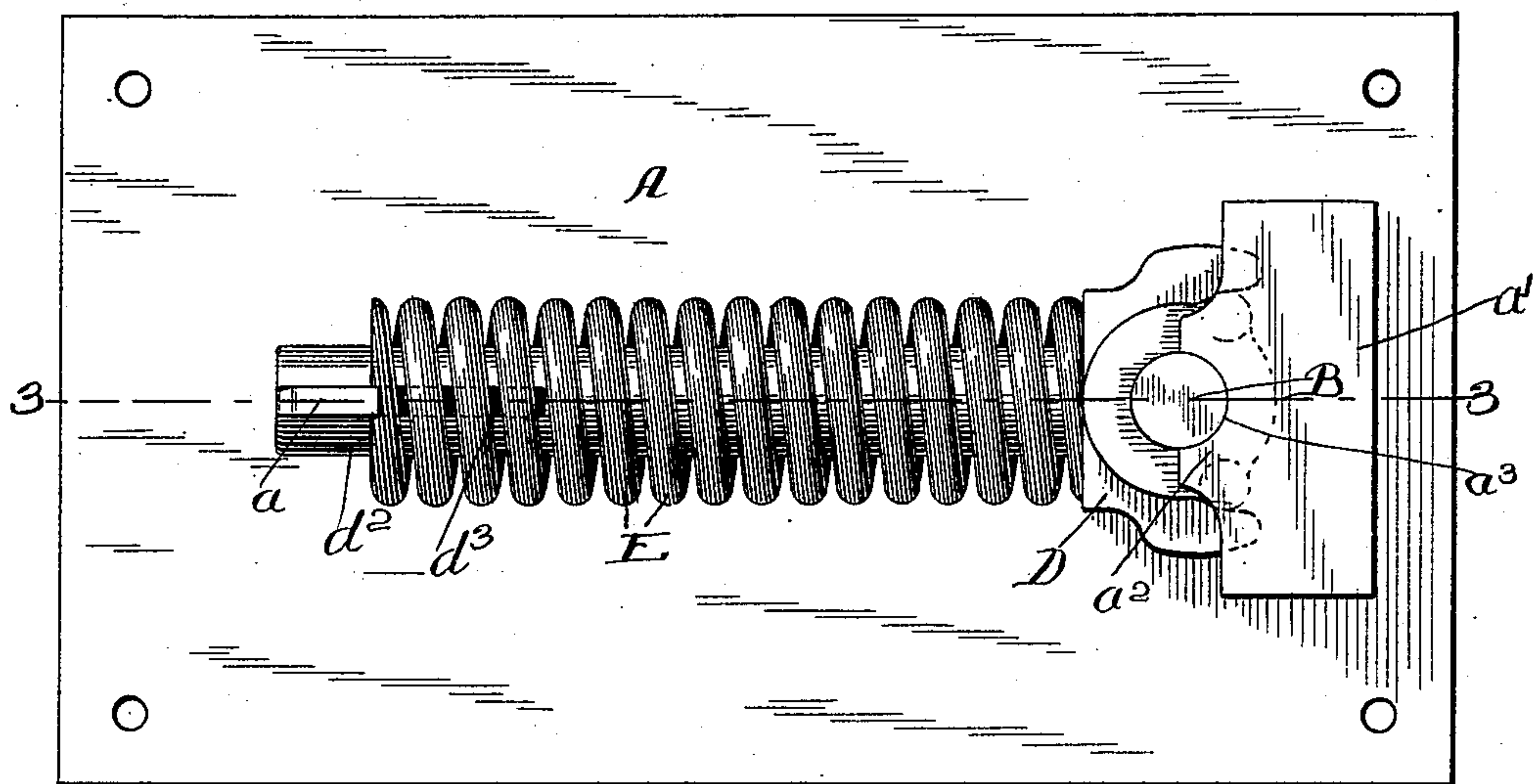
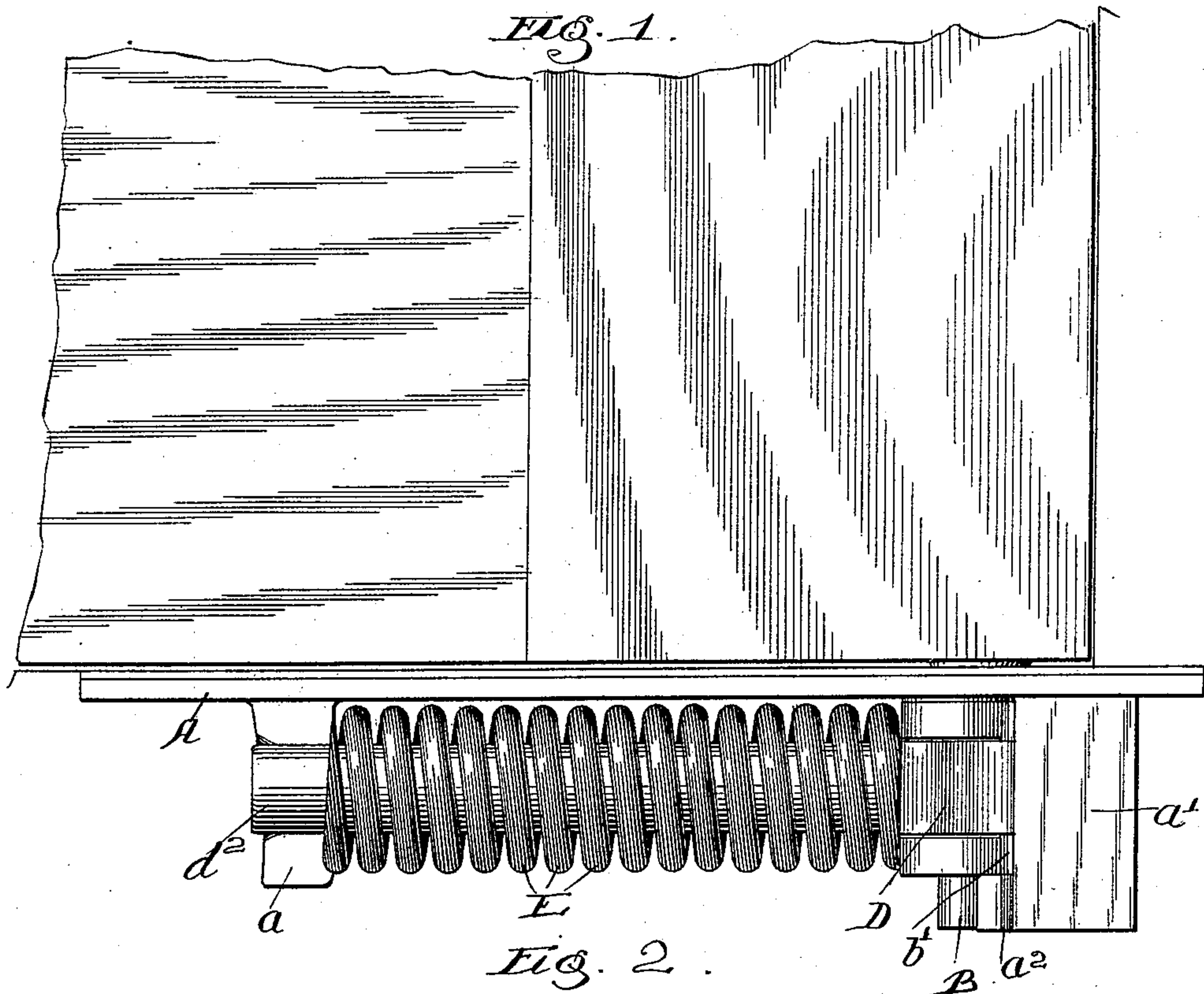
(No Model.)

2 Sheets—Sheet 1.

H. BITNER.
DOOR CLOSER AND HINGE.

No. 539,408.

Patented May 21, 1895.



Witnesses:

Charles O. Sharvey
A. H. Ebbesen

Inventor:

Harry Bitner

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

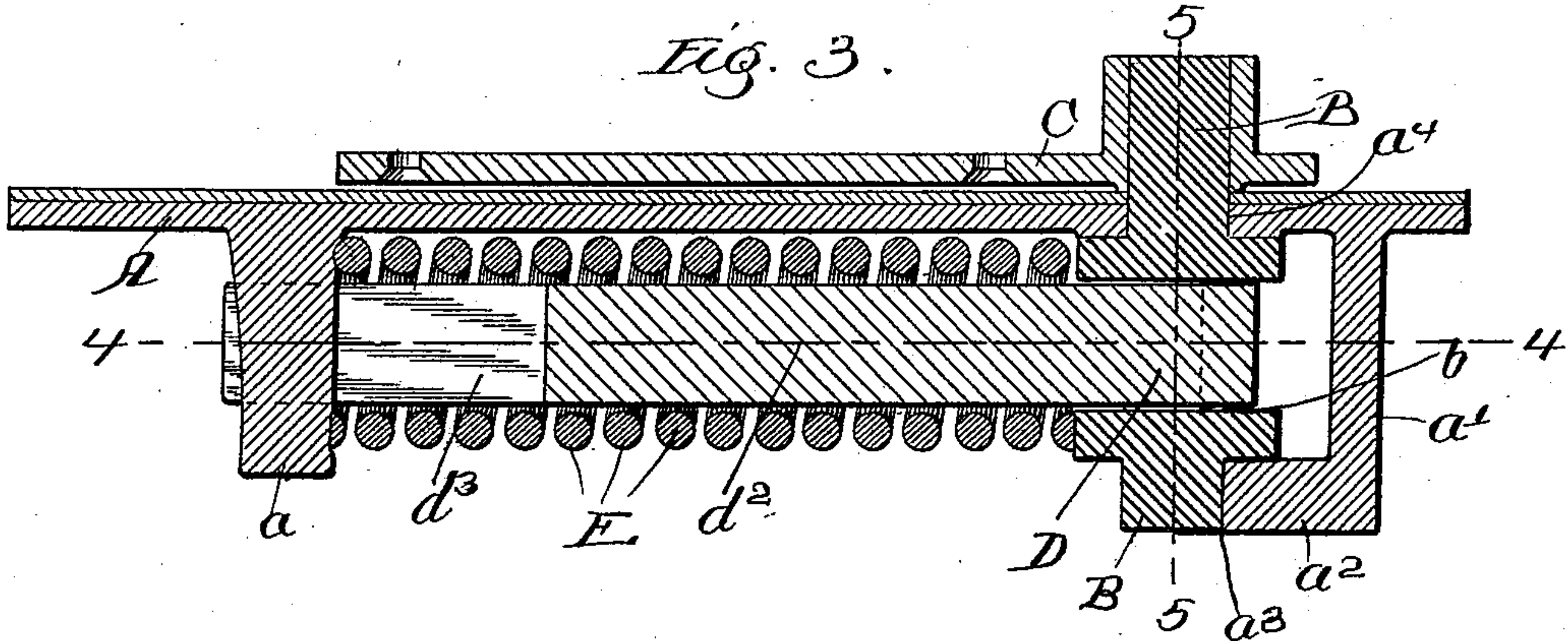


Fig. 4.

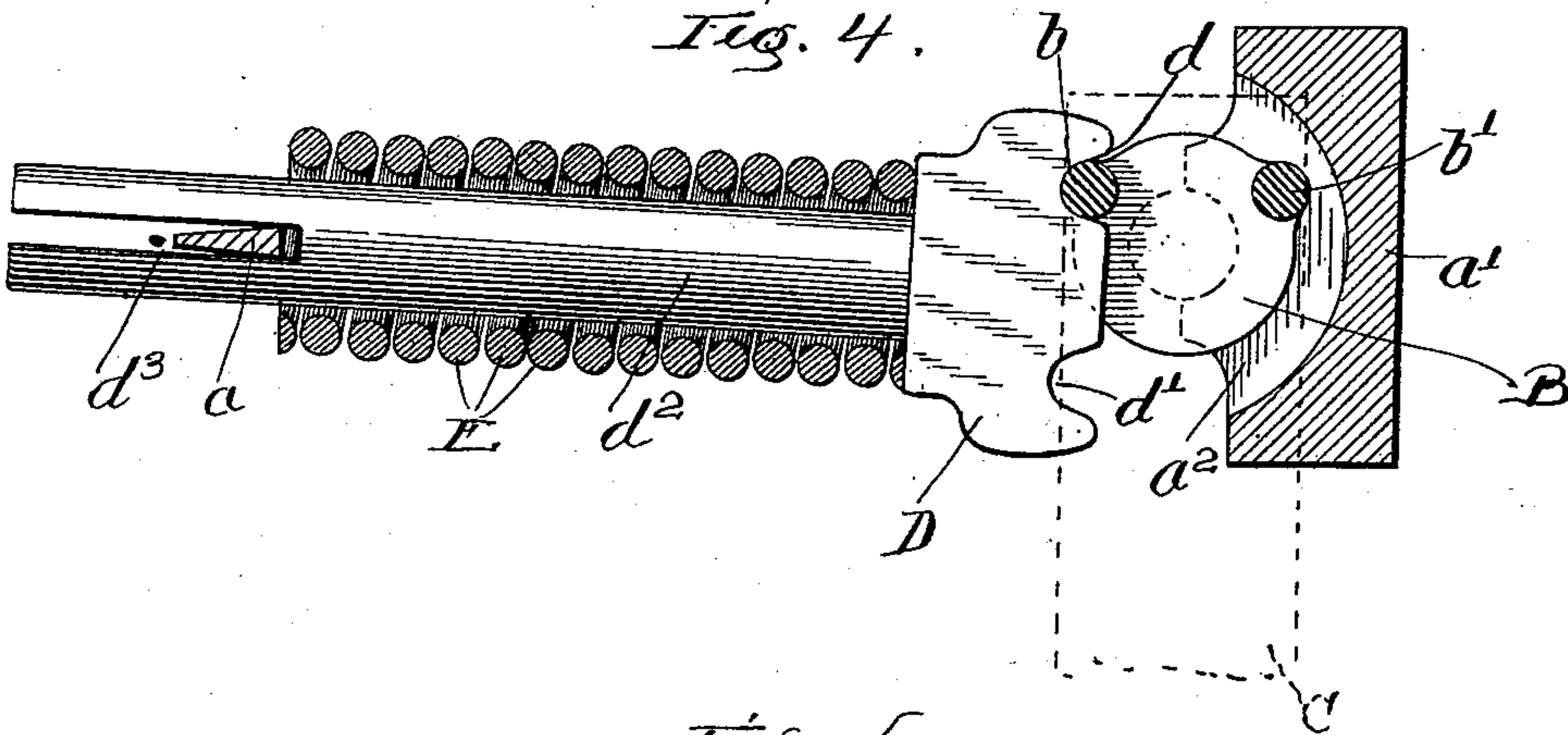
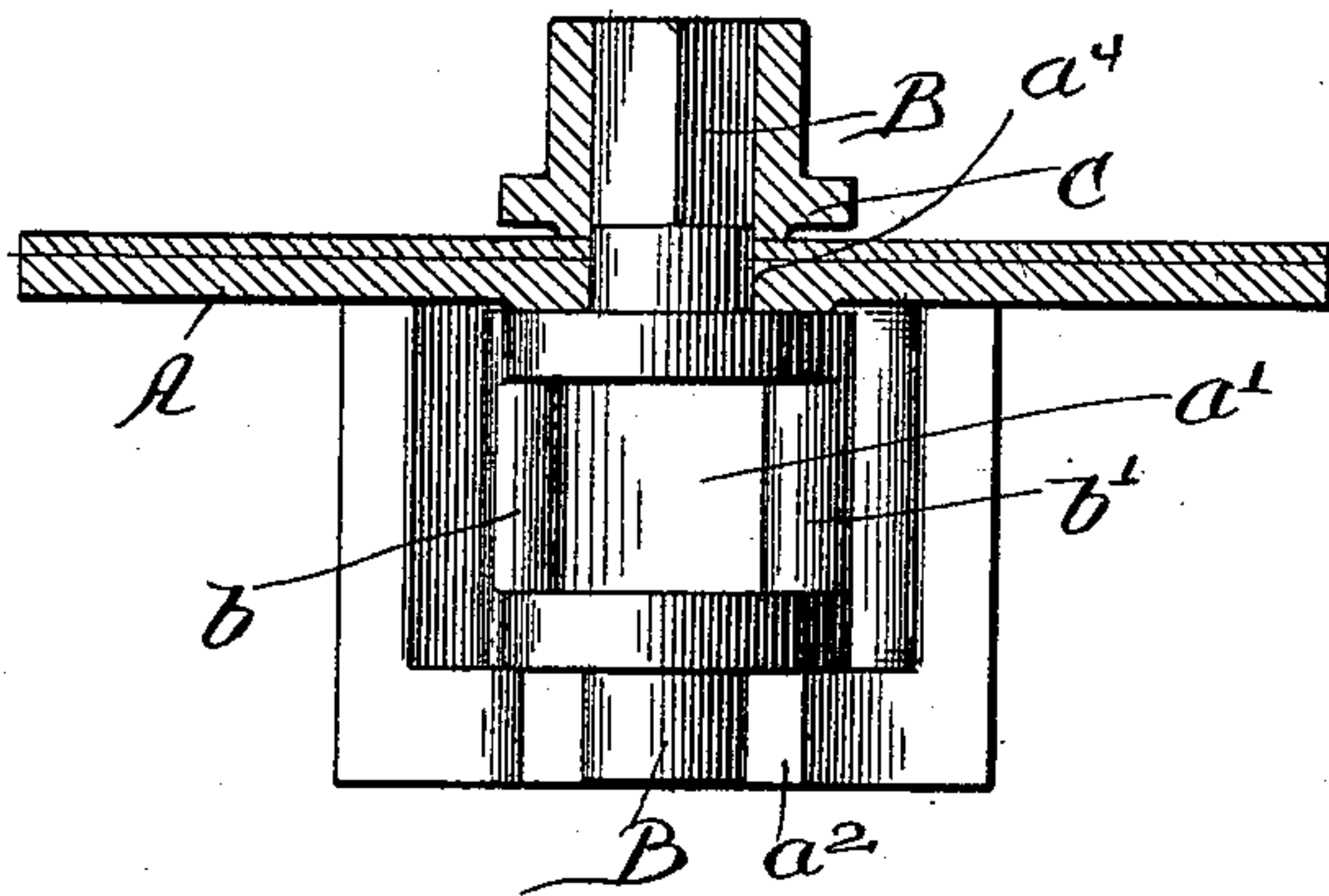


Fig. 5.



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UNITED STATES PATENT OFFICE.

HARRY BITNER, OF CHICAGO, ILLINOIS.

DOOR CLOSER AND HINGE.

SPECIFICATION forming part of Letters Patent No. 539,408, dated May 21, 1895.

Application filed December 8, 1894. Serial No. 531,180. (No model.)

To all whom it may concern:

Be it known that I, HARRY BITNER, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Door Closers and Hinges, of which the following is a specification.

My invention relates to certain improvements in door closers and hinges of the class which are primarily adapted to use beneath the floor, the purpose of the invention being to gain simplicity, strength and cheapness of construction.

The invention is illustrated by means of five figures, of which—

Figure 1 is a side elevation of the hinge with the lower corner of the door resting thereon, the floor being removed to show more fully the working parts of the hinge. Fig. 2 is an under plan of the hinge itself. Fig. 3 is a vertical section in line 3 3 of Fig. 2. Fig. 4 is a horizontal section in line 4 4, Fig. 3; and Fig. 5 is a vertical transverse section in line 5 5 of Fig. 3 with certain portions of the hinge removed.

In its application to floor hinges, my invention consists in its preferred form of a supporting plate adapted for fastening to the floor and furnishing the necessary bearings, a pivot secured to the door against rotation, a spring-actuated yoke adapted to operate the pivot by certain means hereinafter described and a spring adapted to operate said yoke.

Looking at the drawings, the plate is seen at A, and is ordinarily screwed to the floor, the latter being cut away slightly beneath the plate to bring the surface of the latter flush with that of the former. This plate has two downwardly projecting posts, a , a' , the latter of which has a horizontal projection, a^2 , in the direction of the former containing a rounded socket, a^3 . Above this socket, the plate contains a hole, a^4 , and the door pivot, B, turns in said hole and said socket as the door swings back and forth. To accomplish this, the upper head of the pivot is ordinarily squared and a metal socket, C, fitted to the squared head is secured upon the door. Between the bearings, a^4 , a^3 , the pivot, B, is reduced to two eccentric pins, b , b' , against which bears a yoke, D, having sockets, d , d' , to receive the pins and having a shank, d^2 , extending in the

opposite direction and provided with a slot, d^3 , embracing the post, a . About the shank, d^2 , is placed under compression a coiled spring, E, bearing at one end upon the yoke, D, and at the other end upon the post, a .

The hinge is set so that when the door is closed, the yoke, D, bears upon both of the pivot pins. When the door is swung in either direction, one of the pins leaves its socket and the other pin crowds the yoke backward against the tension of the spring, C, until the latter pin reaches a line drawn through the post, a , and the pivot axis. At this point the force of the spring is exerted entirely upon the pivot and as soon as this line is passed, the action of the hinge is reversed and will hold the door open. In order that this reversing movement may not take place until after the door has been opened more than ninety degrees, the two eccentric pins, b , b' , are set in a line back of the pivot axis when looking from the direction of the spring.

The construction above described has all of the desirable features of a spring hinge, namely: The force of the spring is exerted to the best advantage when the door is closed. The door may be opened in either direction, and will be closed in either case by the spring, and if opened beyond the limit of ordinary use, the spring will hold the door open. On the other hand the construction is exceedingly cheap and simple, no finishing or fitting being necessary. In putting the parts of the hinge together, the upper end of the pivot is slipped through the hole, a^4 , and the lower end pushed backward into the socket, a^3 . The spring is then placed upon the shank of the yoke and compressed sufficiently to allow the same to be placed upon the post, a , at one end and engaged with the pins, d , d' , at the other, after which the spring is released and at once operates to hold the parts of the hinge together without other fastening.

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

1. The combination in a spring hinge of a suitable frame work, a pivot mounted therein, having a pair of eccentric pins, a yoke engaging said pins by means of sockets provided therefor and having a shank extending therefrom and guided by said framework at a sufficient distance to permit the yoke to

swing laterally with the pins and a coiled spring mounted under compression upon the shank and bearing at one end upon the yoke and at the other end upon the frame; substantially as described.

2. The combination with the plate, A, having the downward projections, a, a' , the latter of which has the horizontal extension, a^2 , containing the socket, a^3 , of the pivot, B, jour-
naled in a hole in the plate and in the socket,
 a^3 , and having two eccentric pins, b, b' , the

yoke, D, having the sockets, d, d' , adapted to engage the pins, the shank, d^2 , and the slot, d^3 , adapted to embrace the post and the coiled spring, E, mounted upon the shank of the yoke and under compression between the head of the same and the post, a ; substantially as described.

HARRY BITNER.

Witnesses:

EDNA S. BITNER,
CHARLES O. SHERVEY.