

(Model.)

T. P. STRAUP & L. MORGENSTERN.

LOCK HINGE.

No. 294,746.

Patented Mar. 4, 1884.

Fig. 1.

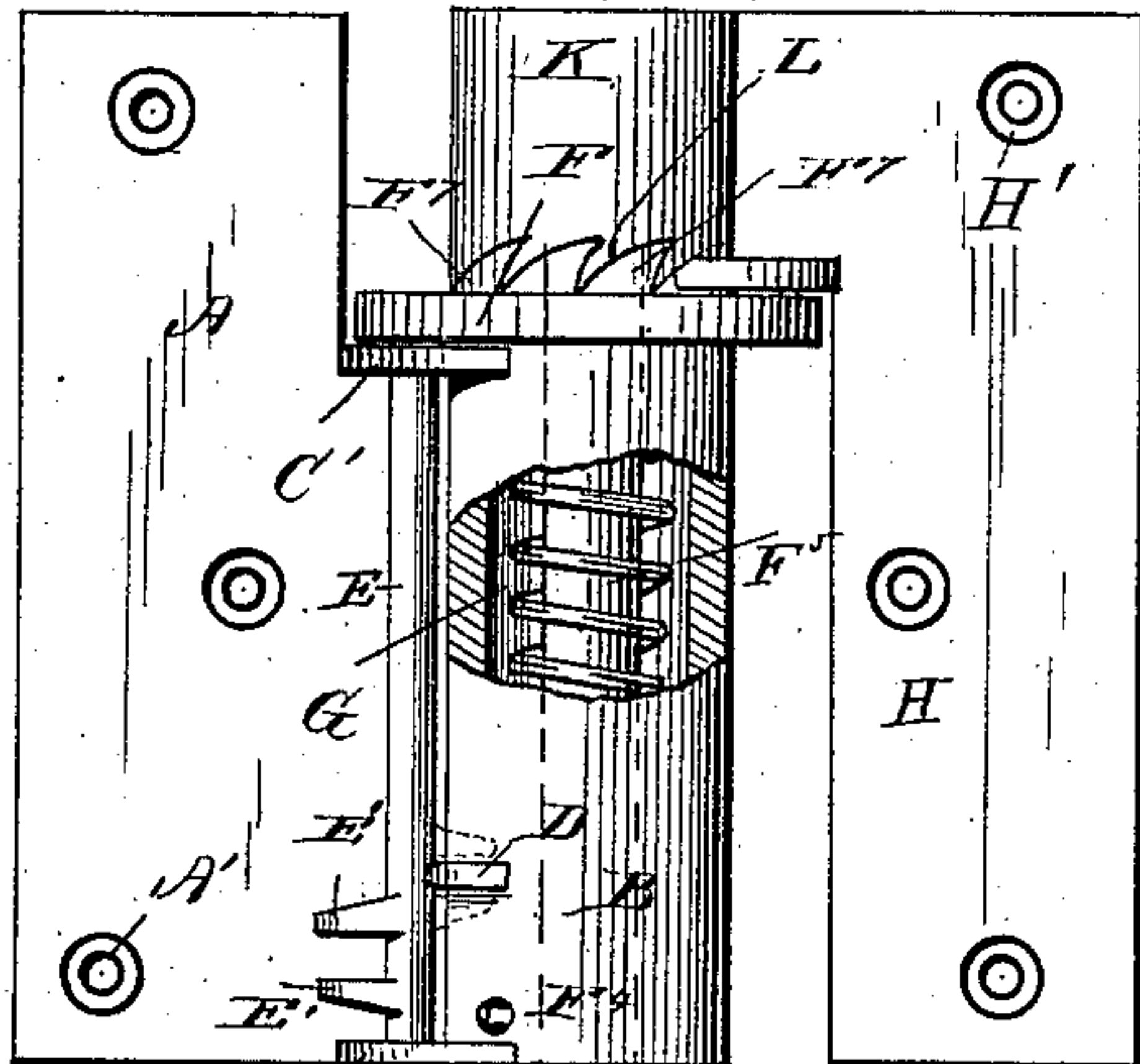


Fig. 2.

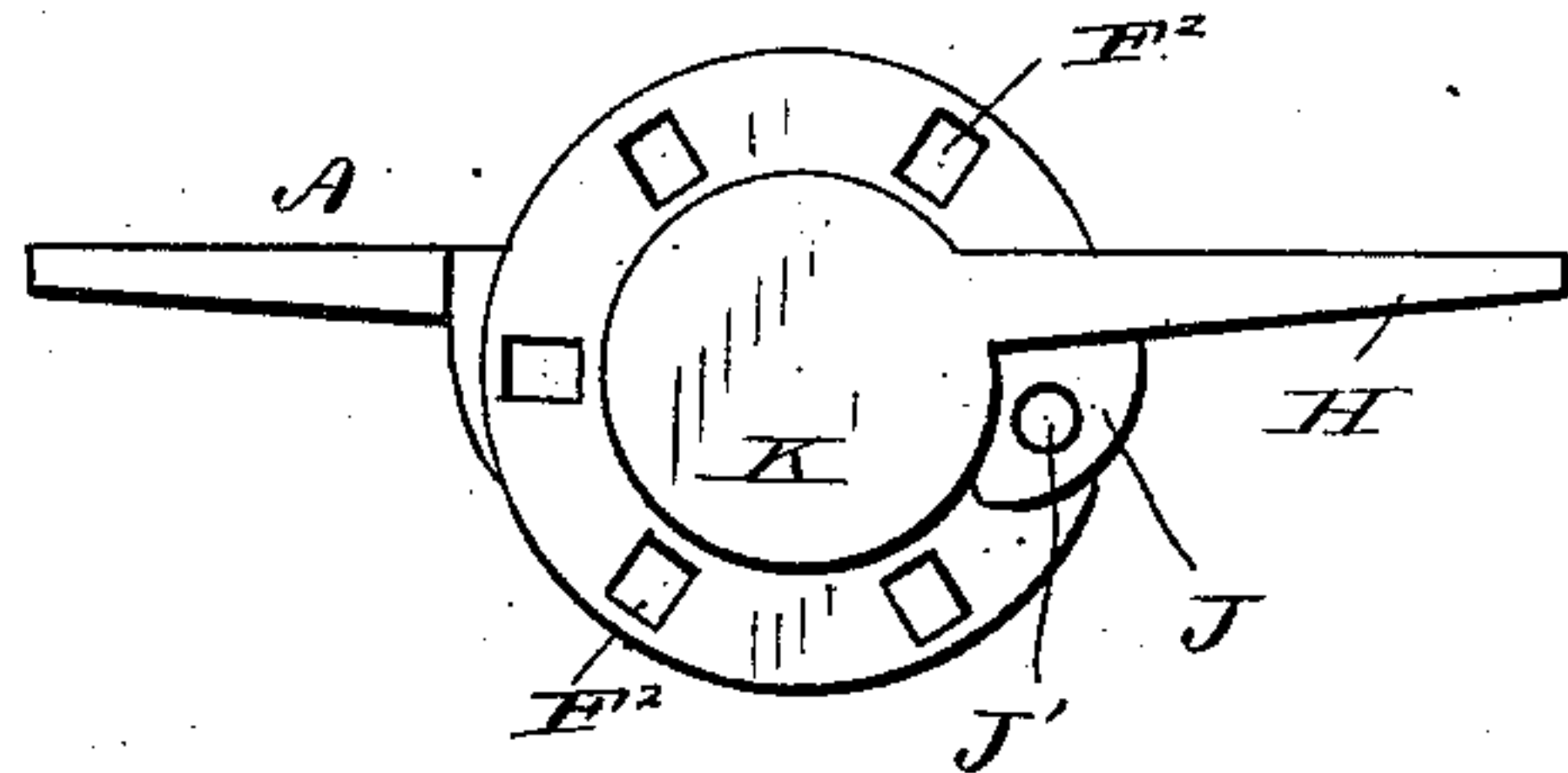


Fig. 3.

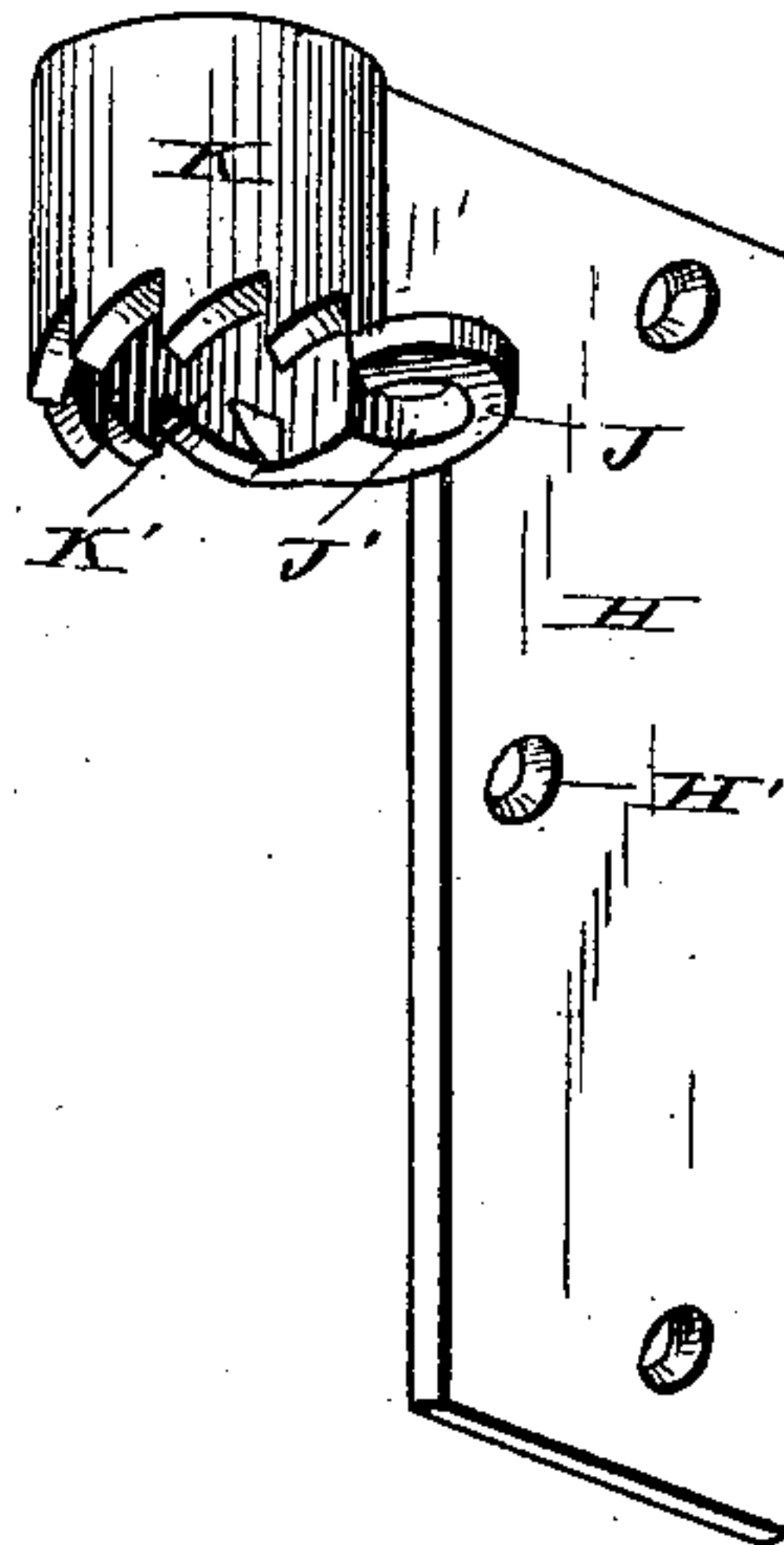
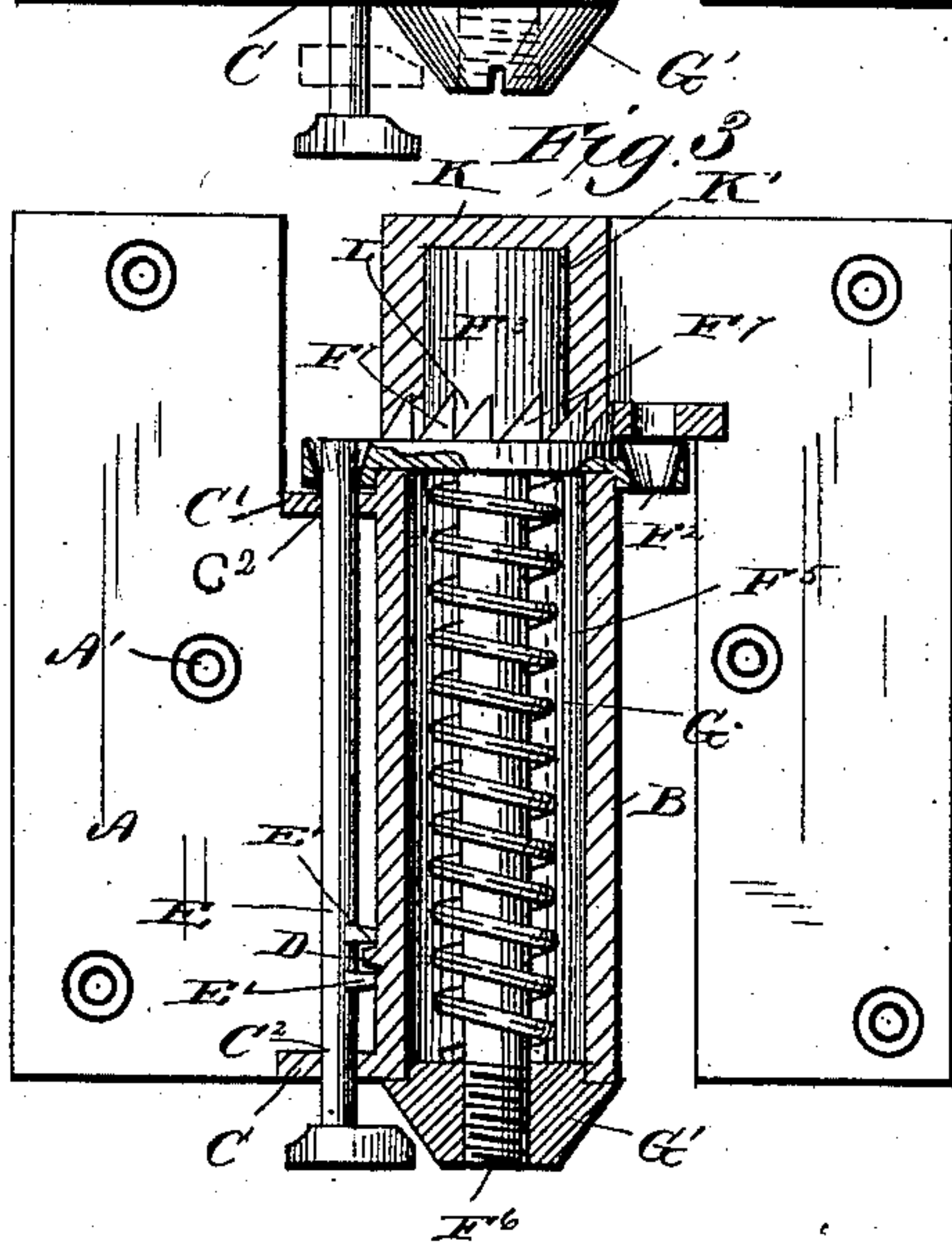
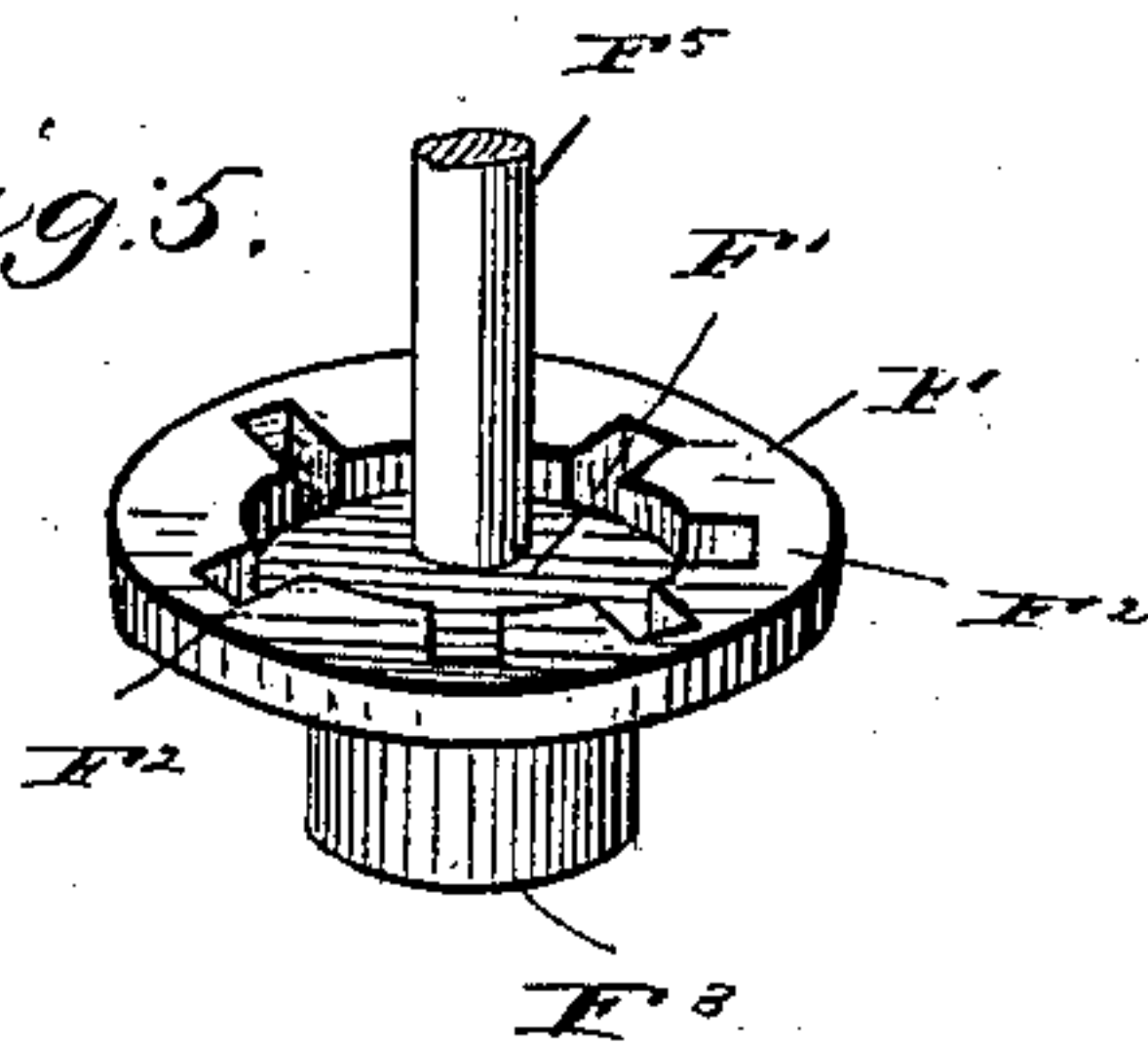


Fig. 5.



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# UNITED STATES PATENT OFFICE.

THOMAS P. STRAUP AND LOUIS MORGENSTERN, OF EASTON, PENNSYLVANIA;  
SAID MORGENSTERN ASSIGNOR TO SAID STRAUP.

## LOCK-HINGE.

SPECIFICATION forming part of Letters Patent No. 294,746, dated March 4, 1884.

Application filed October 13, 1883. (Model.)

*To all whom it may concern:*

Be it known that we, THOMAS P. STRAUP and LOUIS MORGENSTERN, citizens of the United States, residing at Easton, in the county of Northampton and State of Pennsylvania, have invented certain new and useful Improvements in Hinges, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention relates to hinges; and it consists in the parts which will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 represents a face view of our device, a part of the cylindrical casing being broken away, showing the spiral spring encircling a rod. Fig. 2 is a top plan view of the device. Fig. 3 is a face view with the casing and its flange in section. In this view the engaging teeth on the casing differ somewhat in the structure from the teeth shown in Fig. 1. Fig. 4 is a perspective view of one of the wings provided with the toothed cylindrical socket-section. Fig. 5 is a perspective view of the disk, its plug, and a fragment of the rod which receives the spiral spring. The parts shown in this figure are inverted, to better illustrate the circular depression on the under side of the disk, and the small slots therein adapted to receive and secure the upper end of the locking-rod.

Like letters indicate like parts throughout the several views.

A represents one of the wings, provided with screw-openings A'.

B is a cylinder, rigidly united to wing A. Said cylinder is open at both ends.

C is a lip formed at the intersection of the wing A and cylinder B, and C' is a similar lip at the upper end of said intersection.

C<sup>2</sup> C<sup>2</sup> are openings in said lips for the reception of the locking-rod E.

D is a lug formed on the outer lower surface of the cylinder. This lug is adapted to lock the rod E in position. Said rod is provided with two lugs, E', between which the cylinder-lug D lies when the hinge is locked, as shown in Fig. 3, and thus kept from dropping down and unlocking the hinge. By partly revolving the locking-rod E from its position shown in Fig. 3, and in dotted lines of Fig. 1, its lugs E' are removed and disengaged from

the cylinder-lug D. Then, by lowering the rod E to the position shown in full lines, Fig. 1, the upper end of said rod is disengaged from the circular row of disk-slots, and the two parts of the hinge left free to move—that is to say, the hinge is thereby unlocked. The upper end of the cylinder fits in the circular depression F' in the disk F.

F<sup>2</sup> is a series of slots in the disks, adapted to engage the upper end of the locking-rod E, as shown in Fig. 3.

F<sup>3</sup> is a socket-plug fixed on the upper side of the disk F.

F<sup>4</sup> is a small opening in the cylinder B, adapted to engage and secure the lower end of the spiral spring, though it may be secured in any other suitable manner.

F<sup>5</sup> is a rod fixed to the under side of the disk. The spiral spring G is coiled around this rod. The lower end of said spring is fixed to the cylinder, and its upper end is fixed to the under side of the disk F.

F<sup>6</sup> is the threaded end of the rod F<sup>5</sup>, and G' is the bevel-nut thereon.

F<sup>7</sup> are clutching-teeth fixed on the upper side of disk F at the intersection of the plug F<sup>3</sup>.

H is one of the hinge-wings, having screw-openings H'.

K is a cup or socket-piece formed integral with the wing H.

J is a lip integral with the hinge H and cup K. Said lip is provided with an opening, J', adapted to engage the upper end of the locking-rod when it is desired to secure the hinge in a folded position, in which case the locking-rod is passed through one of the disk-slots F<sup>2</sup>, and thence into the opening J', whereby the wings A H are locked.

When the lugs E' D are engaged in the manner shown in Fig. 3, the upper end of the locking-rod E only engages the slots F<sup>2</sup>, and does not pass wholly through the disk; but said rod may, however, by further insertion upward, be placed in the opening J', and thereby secure the wings in a folded position, as indicated. Then, by turning the locking-rod so that the upper of its lugs E' rests upon the lug D, it is secured and prevented from falling down and unlocking the hinge.

Our hinge is so constructed that paint can-



not get into any of the working parts and there hardening hold them fast or prevent the free working of the several parts. The hinge can be used for shutters or for doors. In the latter case the hinge must be reversed, as it is the purpose, generally, to hold doors shut and shutters open.

The hinge is easily taken apart and the tension readily adjusted without removing the shutter. This is done by putting upper or shutter part on with shutter wide open, so that the teeth engage; then by closing the shutter and pushing the locking-rod up into one of the slots,  $F^2$ , in the rim; then by disengaging the teeth, by lifting the shutter a little, then opening wide, then engaging the teeth and letting the pin drop out of slot, so that the tension is then on, and will hold the shutter wide open. If more tension is desired, it is only necessary to repeat the operation. By reversing the process the tension may be lessened or entirely taken off.

The opening  $J'$  on shutter part of hinge is to engage the locking-rod and hold the shutter partly closed or "bowed."

The slots  $F^2$  are made wider at top than at the bottom, to facilitate casting.

We prefer the form of teeth shown in Figs. 1 and 4, for the reasons hereinafter given; but as this form involves practical difficulties in manufacturing the hinges, we regard the form shown in Fig. 3 as almost as good and amply secure. The tension of the spring causes sufficient friction between the teeth to prevent the shutter from being lifted off the hinges by wind or other accidental causes, and it is just that much more secure in this respect than the hinges usually used on shutters known as "loose butts."

The teeth, when made as in Fig. 1, lock, and thus it is impossible to lift shutter vertically off the hinges, which is a great advantage in sudden gusts of wind.

Our hinge being provided with means for holding the shutter in any desired position, it is, therefore, not necessary to employ "catches," "holdbacks," or other devices to hold the shutters back or open.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In a hinge, a cylinder having open ends, said cylinder being provided with a wing, and a disk provided on its upper side with a socket-plug and clutching-teeth, in combination with a socket-clutching cup and a wing formed integral therewith, a rod fixed to the under side of said disk, and a spring having one end secured to the disk and the other end secured to the cylinder, substantially as described, and for the purpose set forth.

2. In a hinge, a cylinder having a wing projecting therefrom, said cylinder being provided with guide-lips and a locking-lug on the cylinder, a locking-rod provided with lugs adapted to engage the said locking-lug, as specified, a disk provided with slots around its outer edge, and having on its upper side a socket-plug and clutching-teeth, and a rod on its under side provided with a spiral spring wound thereon, the lower end of the spring being connected to the cylinder and the upper end thereof fixed to the disk, in combination with a wing and a socket-clutching cup, substantially as described, and for the purpose set forth.

3. In a hinge, a cylinder having a wing connected thereto, said cylinder having lug  $D$  and lips  $C C'$ , provided with openings at the intersection of said wing and cylinder, a locking-rod,  $E$ , provided with lugs  $E'$ , a disk provided with a recess for the reception of the upper end of the cylinder, said disk having slots around its outer edge, and provided on its upper side with a socket-plug,  $F^3$ , and clutching-teeth, and a rod on its under side provided with a spiral spring wound thereon, the upper end of the spring being fixed to the disk and the lower end thereof secured to the cylinder, in combination with a wing and a socket-clutching cup formed integral, substantially as described, and for the purposes set forth.

4. In a hinge, a cylinder having a wing fixed thereto, said cylinder having lug  $D$  and lips  $C C'$ , provided with openings at the intersection of said wing and cylinder, a locking-rod,  $E$ , provided with lugs  $E'$ , a disk provided with a recess for the reception of the upper end of the cylinder, said disk having slots around its outer edge, and provided on its upper side with a socket-plug,  $F^3$ , and clutching-teeth, and a rod on its under side provided with a spiral spring wound thereon, the upper end of the spring being fixed to the disk and the lower end thereof secured to the cylinder, in combination with a wing and a socket-clutching cup and a lip,  $J$ , having opening  $J'$  at the intersection of said cup and wing, substantially as described, and for the purposes set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

THOMAS P. STRAUP.  
LOUIS MORGENSTERN.

Witnesses:

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