

(No Model.)

2 Sheets—Sheet 1.

J. W. HAWKINS.  
LIFTING JACK.

No. 287,539.

Patented Oct. 30, 1883.

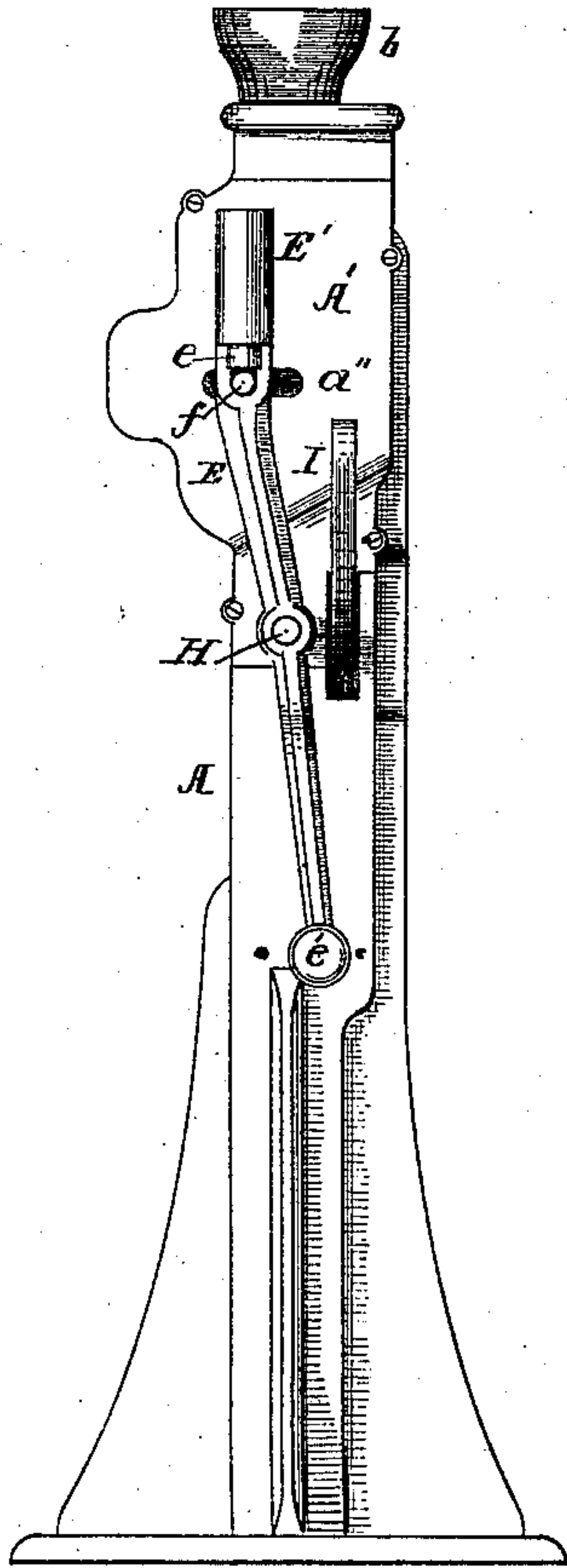


Fig. 1.

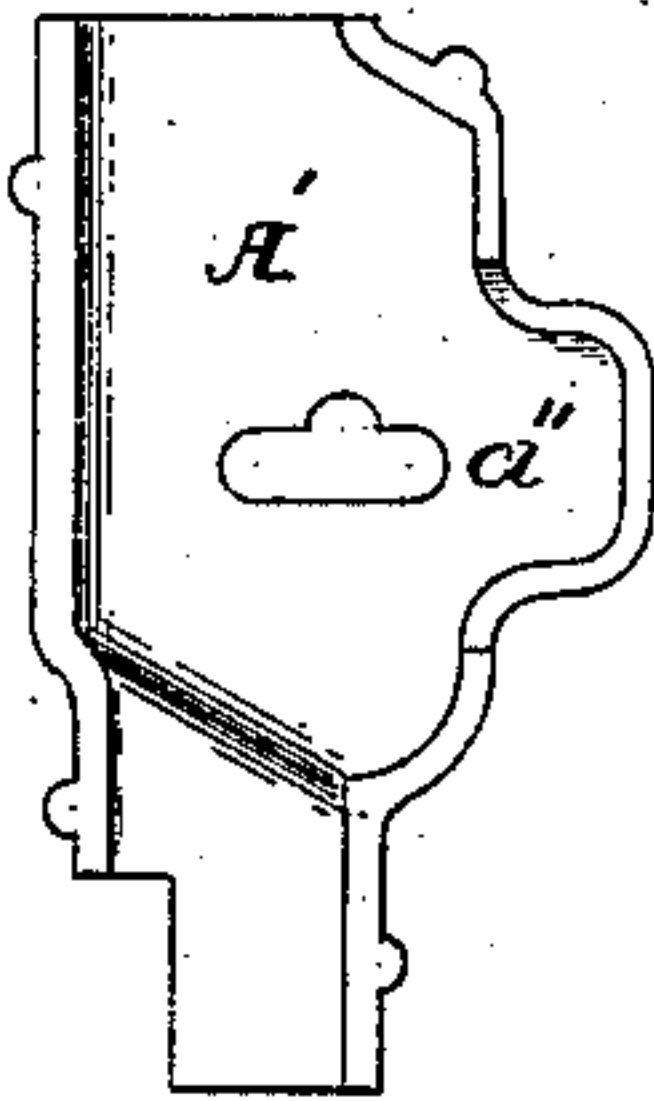


Fig. 3.



Fig. 4.

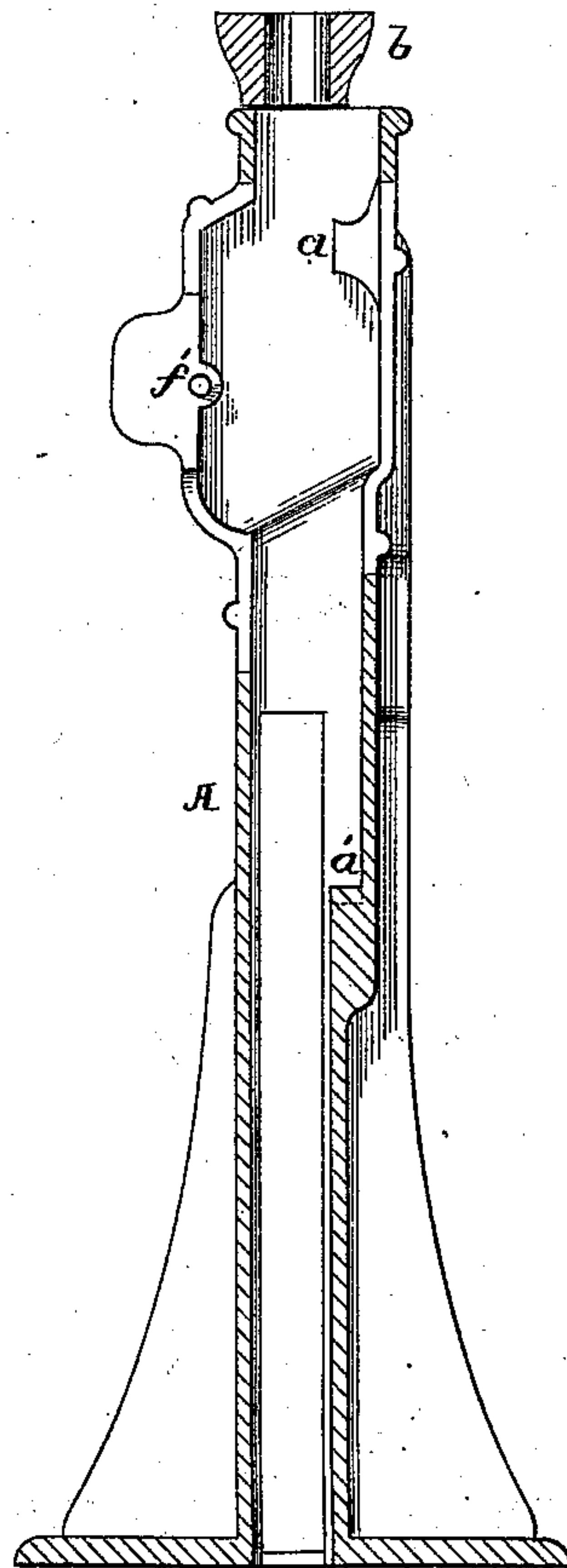


Fig. 2.

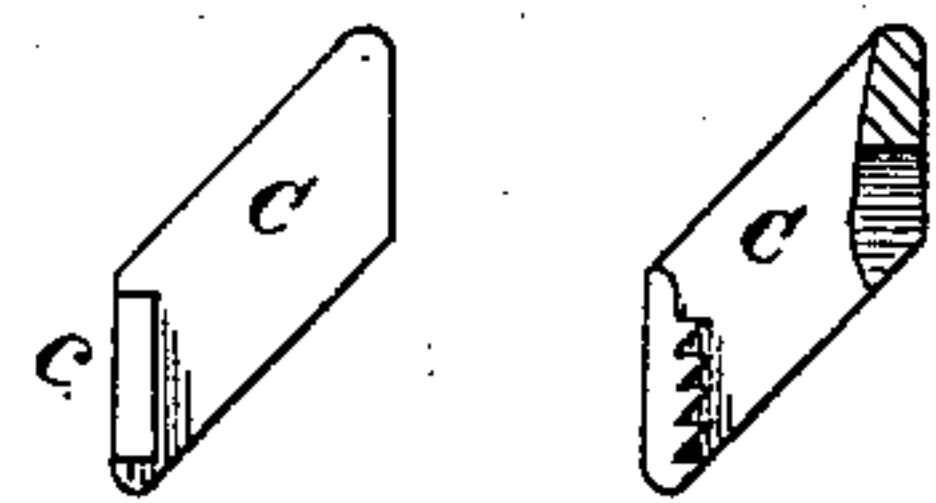


Fig. 5.

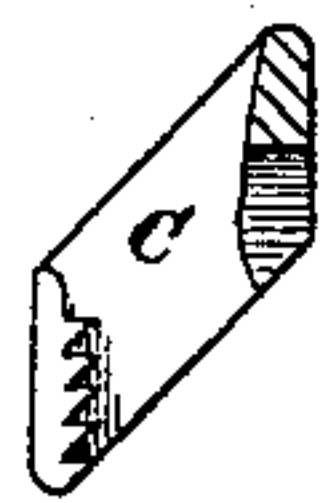


Fig. 6.



Fig. 7.

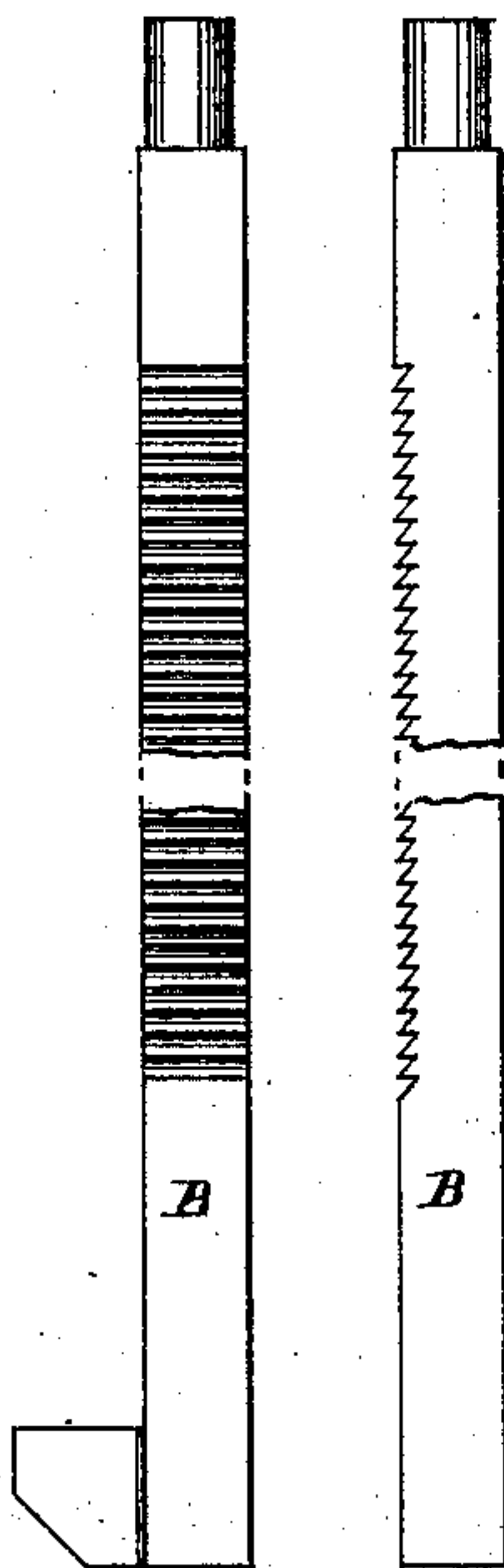


Fig. 11. Fig. 12.

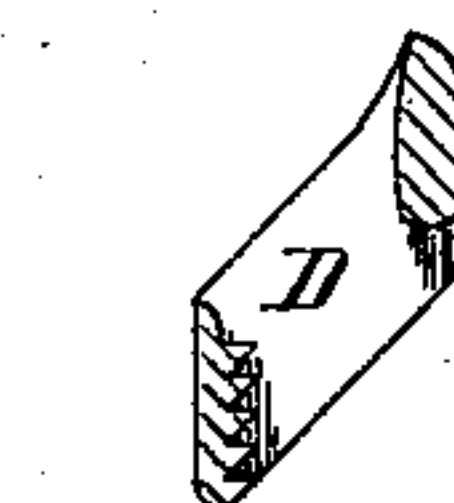


Fig. 8.



Fig. 9.

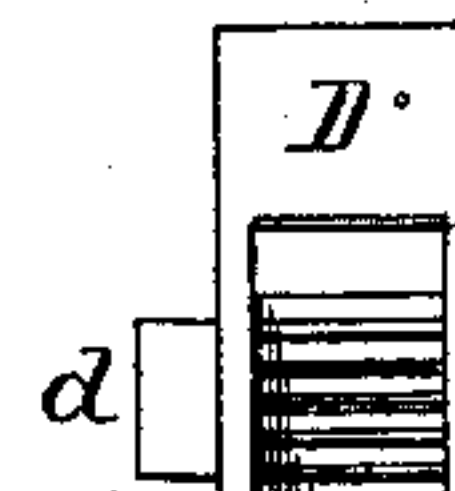


Fig. 10.

Witnesses:

*E. M. Stuart*

*Dayton A. Doyle*

Inventor:

*J. Wesley Hawkins,*

by *C. P. Humphrey*  
Attys.

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2 Sheets—Sheet 2.

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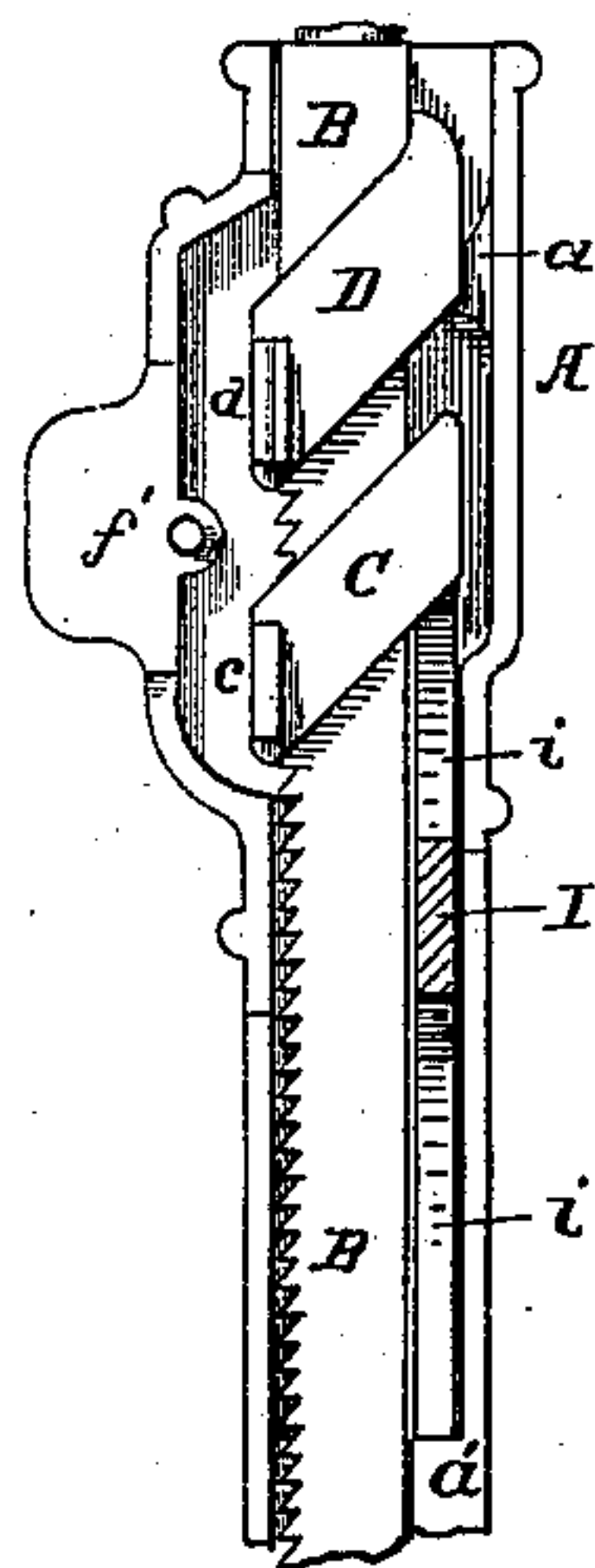


Fig. 13.

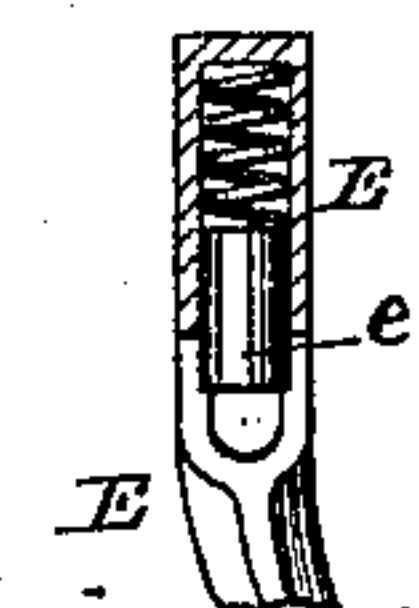


Fig. 16.

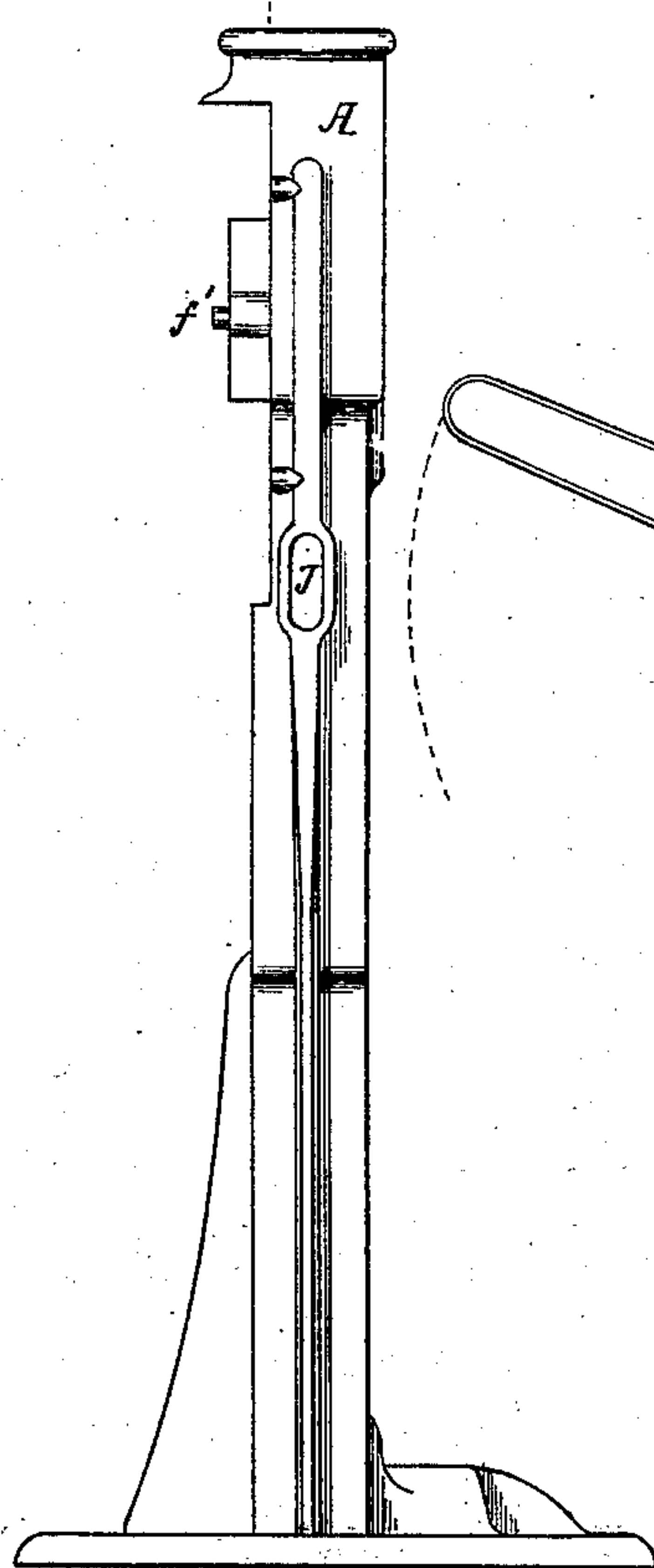


Fig. 14.

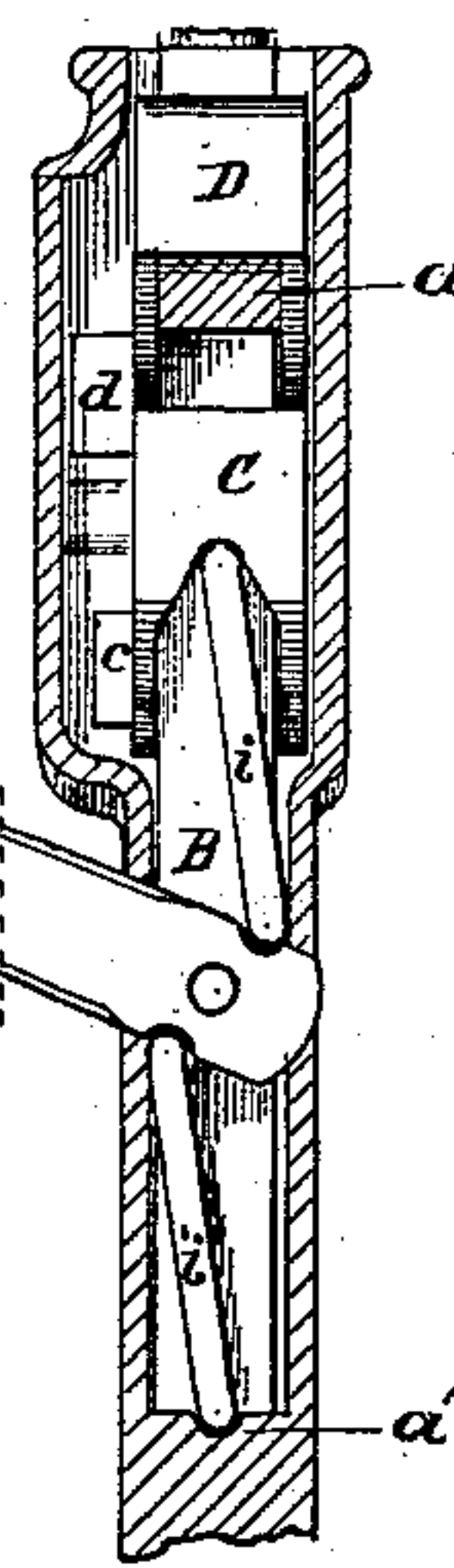


Fig. 15.

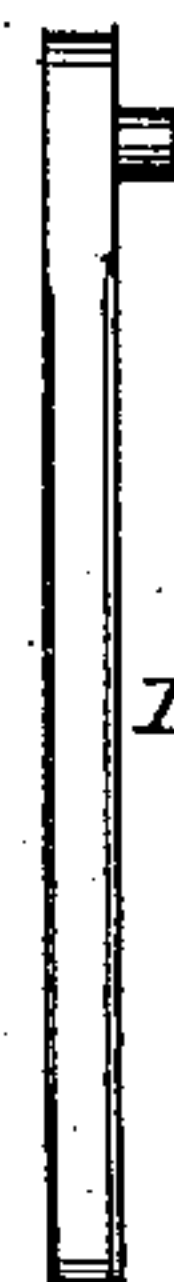


Fig. 17.

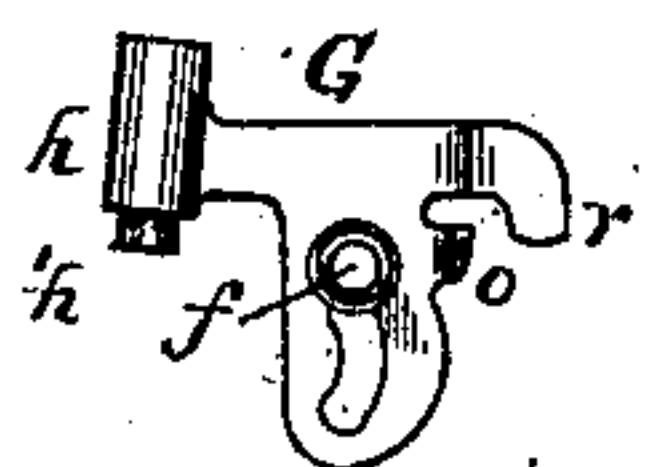


Fig. 18.

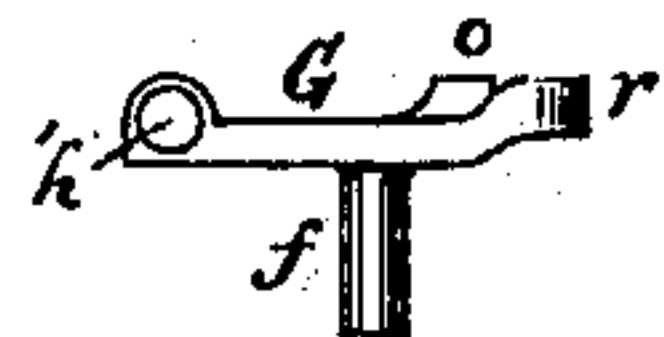


Fig. 19.

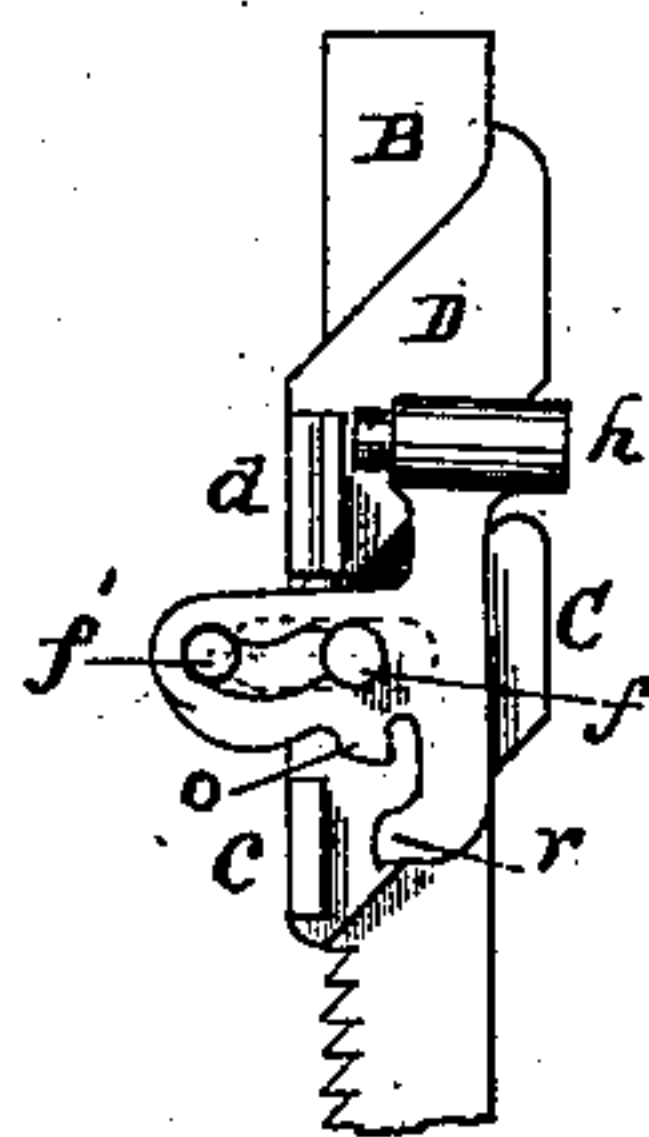


Fig. 20.

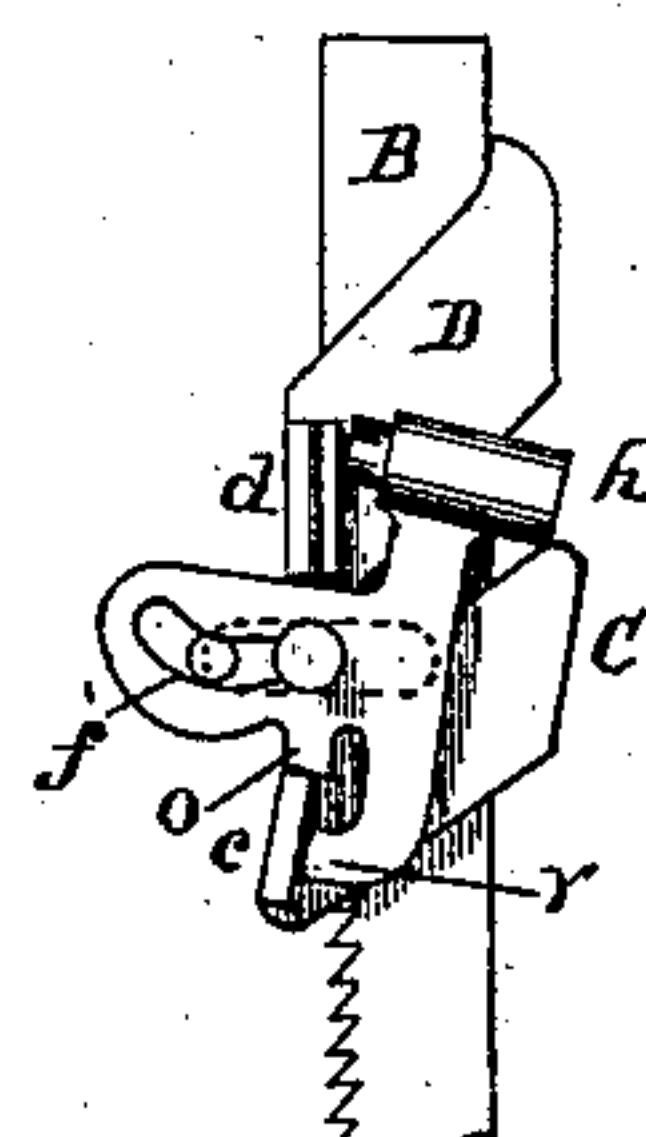


Fig. 22.

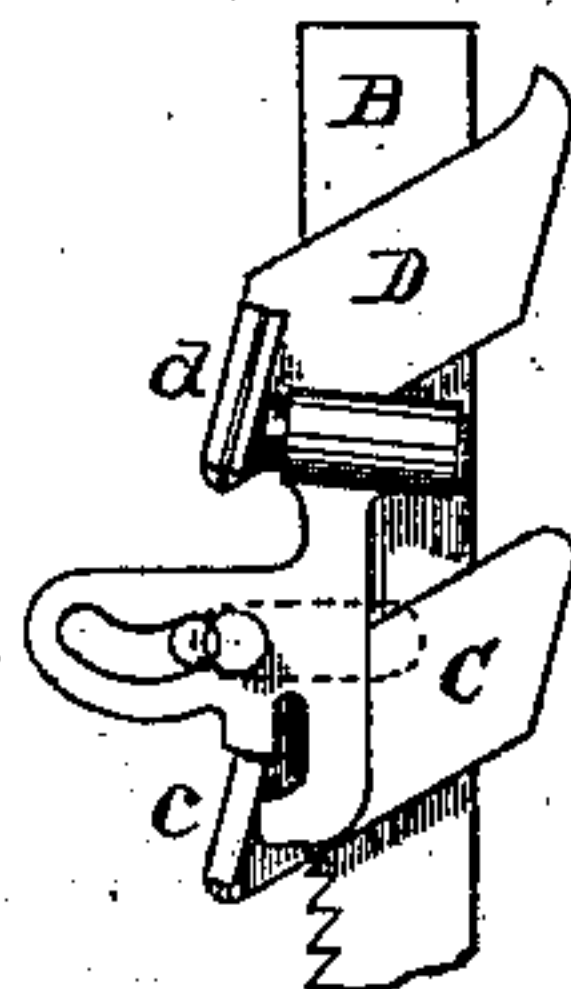


Fig. 21.

Witnesses:

*E. M. Stuart*  
*Dayton A. Doyle*

Inventor:

*J. Wesley Hawkins,*  
by *C. P. Humphrey*  
*Att'y.*



# UNITED STATES PATENT OFFICE.

J. WESLEY HAWKINS, OF GALION, OHIO.

## LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 287,539, dated October 30, 1883.

Application filed September 6, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, J. WESLEY HAWKINS, a citizen of the United States, residing at the town of Galion, in the county of Crawford and State of Ohio, have invented a new and useful Improvement in Lifting-Jacks, of which the following is a specification.

My invention relates to that class of lifting-jacks in which a ratchet lifting-bar is raised vertically by a lifting-pawl and held in place by a retaining-pawl.

The objects of my invention are, first, to avoid the possibility of accident from breaking or "stripping" the ratchet-teeth; second, to cause the ratchet-bar, without strain, to be securely gripped by the lifting and retaining pawls or clutches; third, to prevent friction between the lifting-bar and case by applying the power in a direct line with the bar; fourth, to provide devices whereby the machine may at any point be instantly converted into a lowering-jack; and, fifth, to provide devices whereby both pawls may be instantly disengaged from the ratchet lifting-bar, permitting the latter to be freely raised and lowered.

I attain these objects by the mechanism illustrated in the accompanying drawings, wherein—

Figure 1 represents a side elevation of the complete machine; Fig. 2, a view of case with part removed, the rest in vertical section; Figs. 3 and 4, inside and edge elevations, respectively, of removable plate; Figs. 5, 6, 7, side elevation, vertical section, and rear elevation, respectively, of the lifting-clutch; Figs. 8, 9, 10, vertical section, and side and rear elevations, respectively, of holding-clutch; Figs. 11 and 12, front and side elevations, respectively, of ratchet lifting-bar; Fig. 13, side vertical section of part of case containing lifting-bar, lifting and holding clutches, and lifting-lever; Fig. 14, rear elevation of case, with part removed; Fig. 15, rear vertical section of part of case containing lifting and holding clutches, lifting-bar, and raising-lever and connections; Fig. 16, vertical central section of head of reversing-lever; Fig. 17, edge view of raising-lever; Figs. 18 and 19, side elevation and rear view of tumbler; Fig. 20, lifting-bar, clutches, and tumbler arranged to raise load; Fig. 21, the same parts, clutches disengaged, to permit free movement of lift-

ing-bar; and Fig. 22, the same parts arranged to lower load.

The frame A, preferably of cast-iron, has a part, A', removable, to permit of placing and removing the working parts. Upon the opposite lower side is an elongated vertical orifice, Fig. 2, through which projects the toe of the lifting-bar B. Inside the case are cast the lug *a*, upon which swings the holding-clutch, a seat, *a'*, in which rests one end of the lower bar, *i'*, of the lifting device, a pin, *f'*, which enters the slot of the tumbler G, and a slot, J, at the back, in which moves the pin of the raising-lever I. In the cap A' is a slot, *a''*, through which projects the pin *f* of the tumbler G, and upon the cap is cast a wrist, H, upon which swings the reversing-lever E.

The ratchet-lifting bar B fits and slides freely in the case A, the toe at its lower end, Fig. 11, projecting through the elongated vertical opening at the back of the case, and the upper end projects beyond the top of the case and fits into the head *b*, (shown in section in Fig. 2.)

The lifting and holding clutches C D consist of metallic frames of rectangular plan, parallel sides, the sides projecting diagonally downward from back to front, and each is provided on its inner side, adjacent to the ratchet-teeth, with similar upwardly-projecting teeth, to engage the ratchet-teeth. These clutches surround the ratchet-bar B, the holding-clutch D being suspended on the lug *a* and the lifting-clutch C upon the end of the bar *i* of the lifting device. From one side of each of these clutches projects a lug, *d c*, respectively, whose office will be hereinafter explained. This lifting device consists of the lever I, projecting from which is a pin that fits in the slot J. On the upper and lower edges of this bar are semi-circular bearings offset from each other by about the width of the projecting pin. A short bar, *i*, with rounded ends, rests at one end in the seat *a'* and at the other in the bearing in the lower edge of the bar I, while a similar bar *i'*, rests at one end in the bearing in the upper edge of the bar I, and its other rests in a bearing at the back of and sustains the lifting-clutch C. As the outer end of the lever is depressed the bar *i'* forms a fulcrum by which the bar *i* is raised, and at the same time the two bars *i i'* are thrown into line, thereby se-



curing the combined effects of a lever and knee-joint, and raising the clutch C in a direct line, which prevents crowding the ratchet-bar against the sides of the case.

5 The reversing-gear consists of the tumbler G and reversing-lever E. The tumbler is of the form shown in Figs. 18 and 19, the upper end, *h*, whereof is a hollow case containing a bolt, *h'*, constantly pressed outward by a spring.  
 10 This tumbler rests inside of the case, with the pin *f'* entering the slot and the pin *f* projecting from the tumbler through the slot *a''* in the cap A'. The reversing-lever is pivoted on the pin H, and its upper end terminates in a  
 15 yoke, which grasps the pin *f*, and a spring-bolt, (see Fig. 16,) which continually presses against the pin. The location of the tumbler is changed by swinging the lower end of the lever E to the right or left, a pin on the lever  
 20 entering a hole in the case, to hold it in any desired position. By throwing the end of the lever to the left the tumbler is placed in the position indicated by Fig. 20, entirely out of contact with the clutches, thereby permitting  
 25 them to act naturally with the lifting-bar to raise the load. When the end of the lever is thrown to the extreme right, the tumbler assumes the position indicated in Fig. 21, when the spring-bolt *h'* presses against the lug *d* of  
 30 the clutch D, and the point *r* presses against the lug *c* of the clutch C, thus disengaging both from the ratchet-bar and permitting it to slide freely.

To lower the load, the lower end of the lever  
 35 E is thrown to the center, when the tumbler assumes the position shown in Fig. 22, and its operation is as follows: The clutch C, being held outward by the point *r*, does not engage the first teeth of the ratchet, but as it is raised slides  
 40 past them. The lug *c* presses on the point *o* and swings the tumbler on the pin *f'*. A curved opening in the upper edge of the slot *a''* (see Fig. 3) and the spring-bolt *e* permit the pin *f* to swing upward. At the same time the point  
 45 *r* recedes and permits the clutch C to approach the ratchet-bar and engage its next teeth, while the spring-bolt *h'* is pressed against the lug *d* and forced into its case *h*, the clutch D still remaining engaged with the ratchet-teeth by friction.  
 50 As the clutch C engages the next series of teeth the ratchet-bar is thereby slightly raised, and, the friction being thereby removed, the spring-bolt *h'* forces back the clutch D and permits the ratchet-bar to be  
 55 lowered the distance of one tooth by the clutch C, when it swings back, engaging the next series of teeth. By repeating this operation the load is lowered with the same regularity and speed as it is lifted and by the same movement  
 60 of the lever I.

By the use of the clutches surrounding the lifting-bar I secure the combined effects of

separate pawls, engaging several teeth at the same time, and a "cramp," which securely holds without straining the ratchet-bar, the 65 grip being increased in proportion to the weight of the load.

I claim as my invention—

1. In a lifting-jack, a lifting device, consisting, essentially, of a lever pivoted to swing 70 vertically on a pin resting in a vertical slot in the frame, and two bars, one end of each resting, respectively, in a seat in the frame and a bearing in the lifting-clutch, and the other ends resting on opposite edges of the lever in 75 notches on opposite sides of a cross-line passing through the pivot-pin, substantially as shown, and for the purpose specified.

2. In a ratchet lifting-jack, a lifting and a retaining clutch, each consisting of a frame in- 80 closing the ratchet-bar, having the back and front walls parallel with said bar, the sides diagonal thereto, the lower wall contiguous to the ratchet-bar teeth, and provided on its inner face with two or more corresponding teeth 85 arranged to engage the ratchet-teeth, substantially as shown, and for the purpose specified.

3. In a ratchet lifting-jack, a tumbler, such substantially as shown, arranged by means of 90 a lever simultaneously to disengage the lifting and retaining clutches from the ratchet lifting-bar, and simultaneously to permit them to engage it, substantially as shown, and for the purpose specified. 95

4. In a ratchet lifting-jack, in combination with the ratchet lifting-bar, lifting-clutch, and retaining-clutch, a lowering device, such substantially as shown, which, operated by the 100 lifting mechanism, shall disengage the retaining-clutch substantially simultaneously with the engaging of the lifting-clutch, substantially as shown, and for the purpose specified.

5. In combination with the case A, the ratchet-bar B, clutches C D, lever I, and bars 105 *i i'*, all constructed and arranged substantially as shown, and for the purpose specified.

6. In combination with the bar B and clutches C D, the tumbler G and lever E, all constructed and arranged to operate substantially as 110 shown, and for the purpose specified.

7. The herein-described lifting-jack, consisting of the case A, ratchet-bar B, clutches C D, lever I, bars *i i'*, tumbler G, and lever E, 115 all constructed and arranged substantially as shown, and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 11th day of August, A. D. 1883.

J. WESLEY HAWKINS.

Witnesses:

C. P. HUMPHREY,  
 DAYTON A. DOYLE.