

(No Model.)

2 Sheets—Sheet 1

L. M. FULLER.
WIND GAGE FOR SIGHTS.

No. 564,514.

Patented July 21, 1896.

FIG. 1.

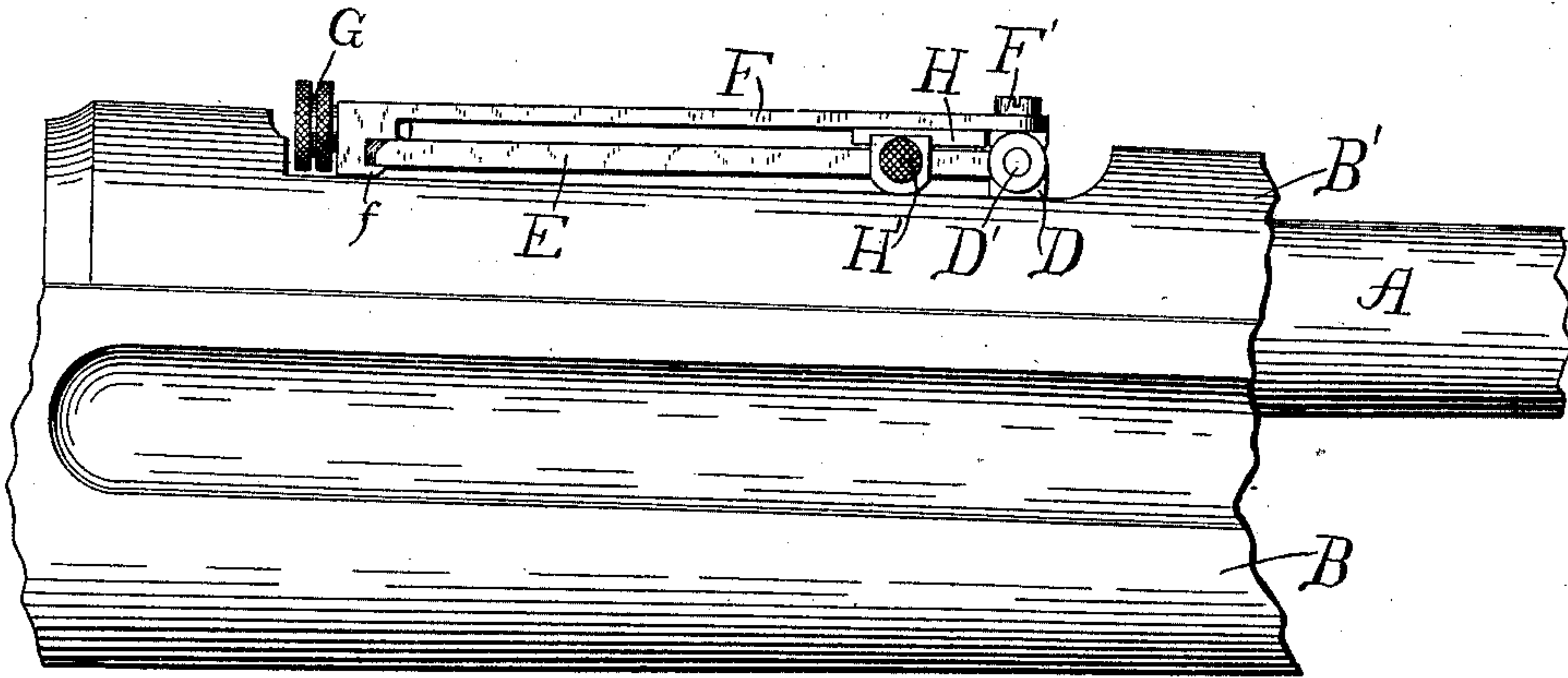


FIG. 2.

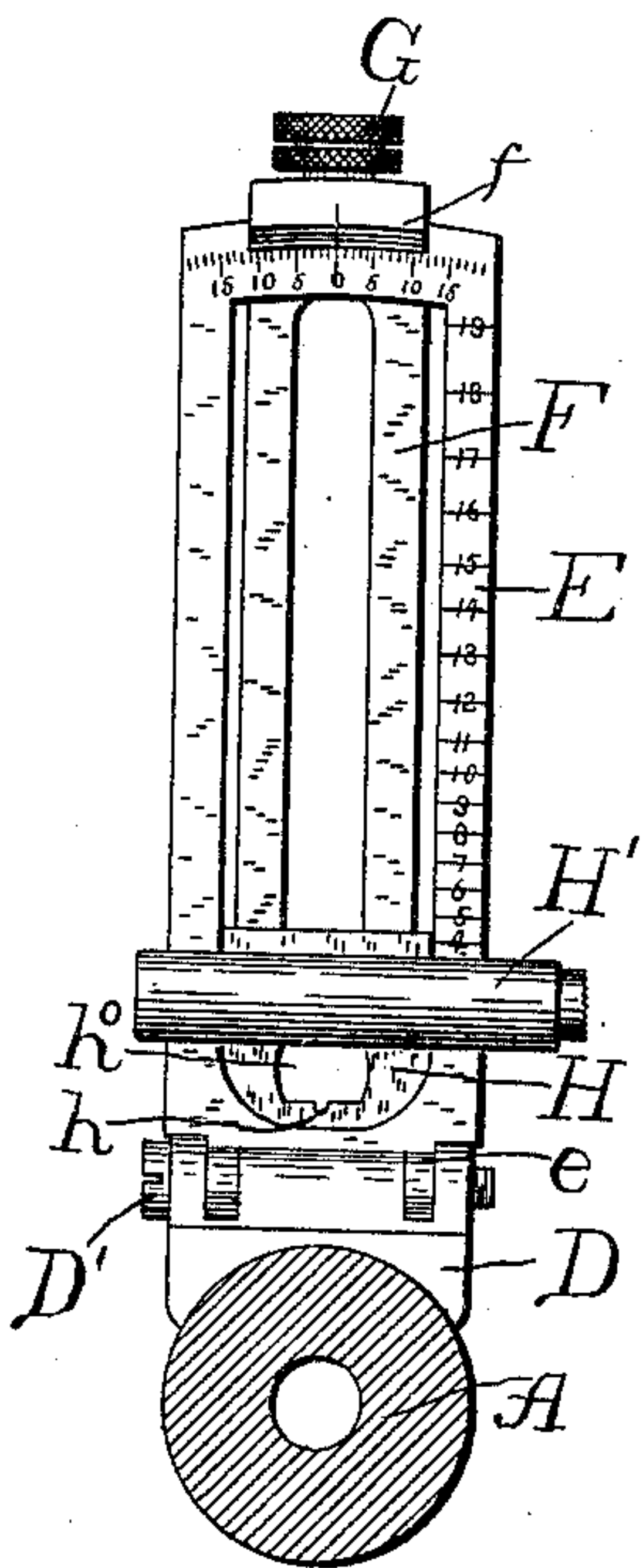


FIG. 3.

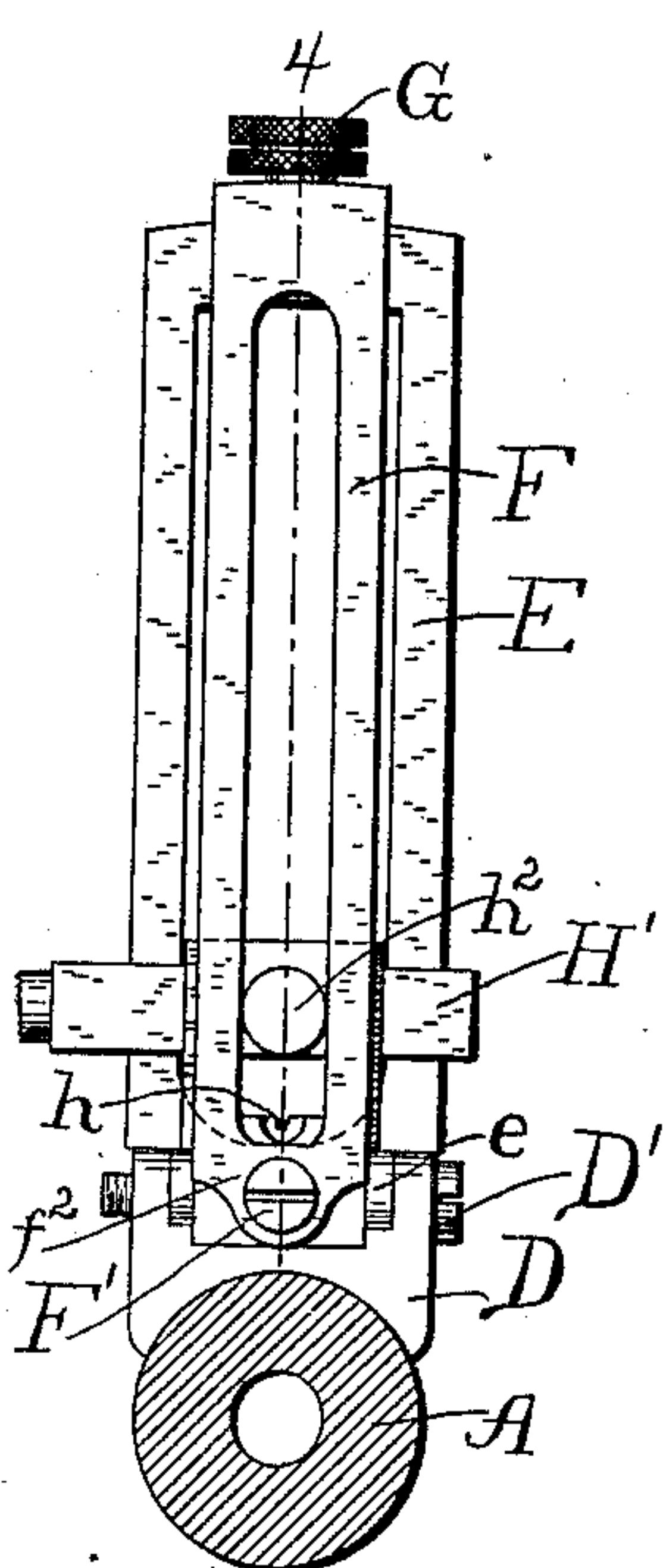


FIG. 4.

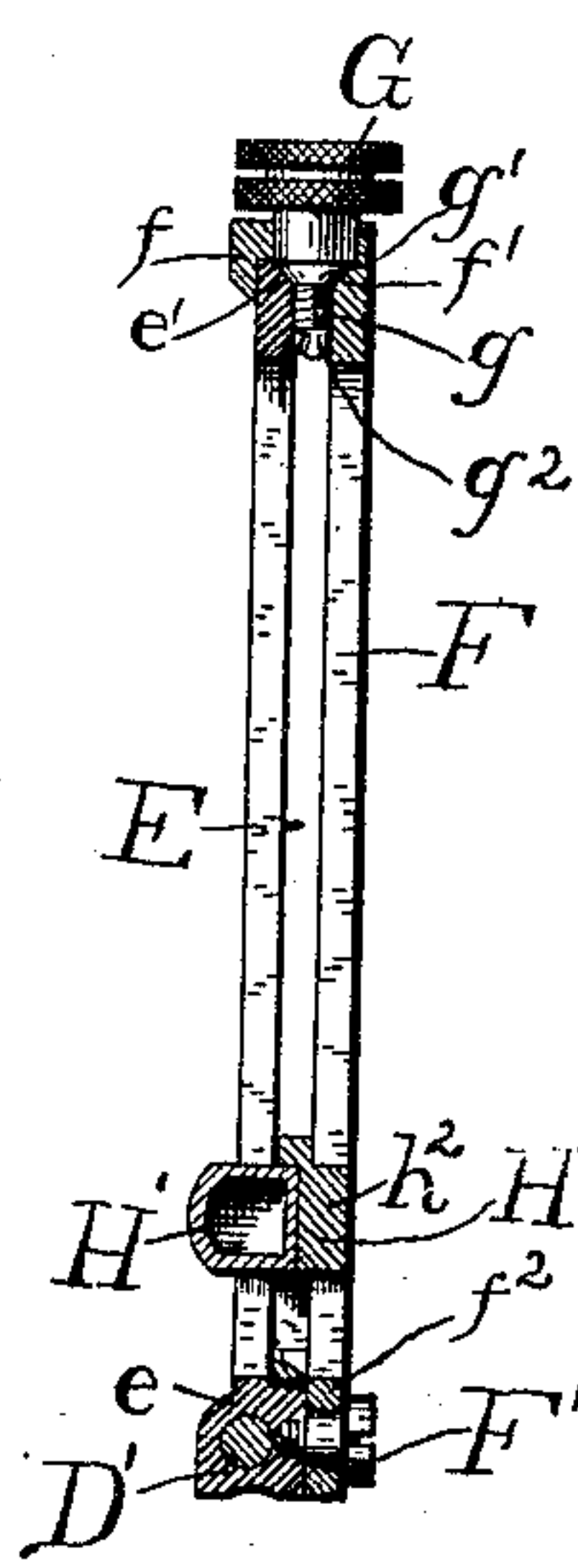
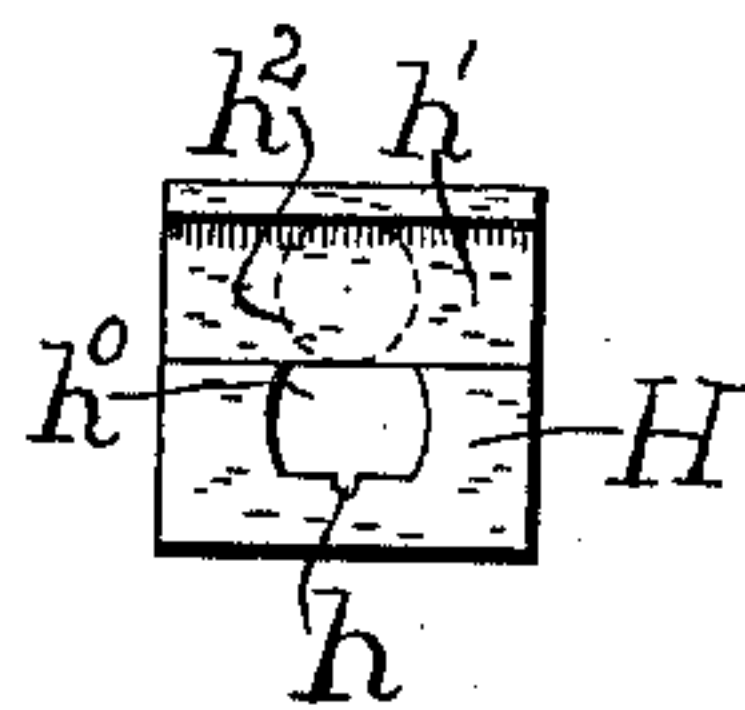


FIG. 5. FIG. 6.



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(No Model.)

2 Sheets—Sheet 2.

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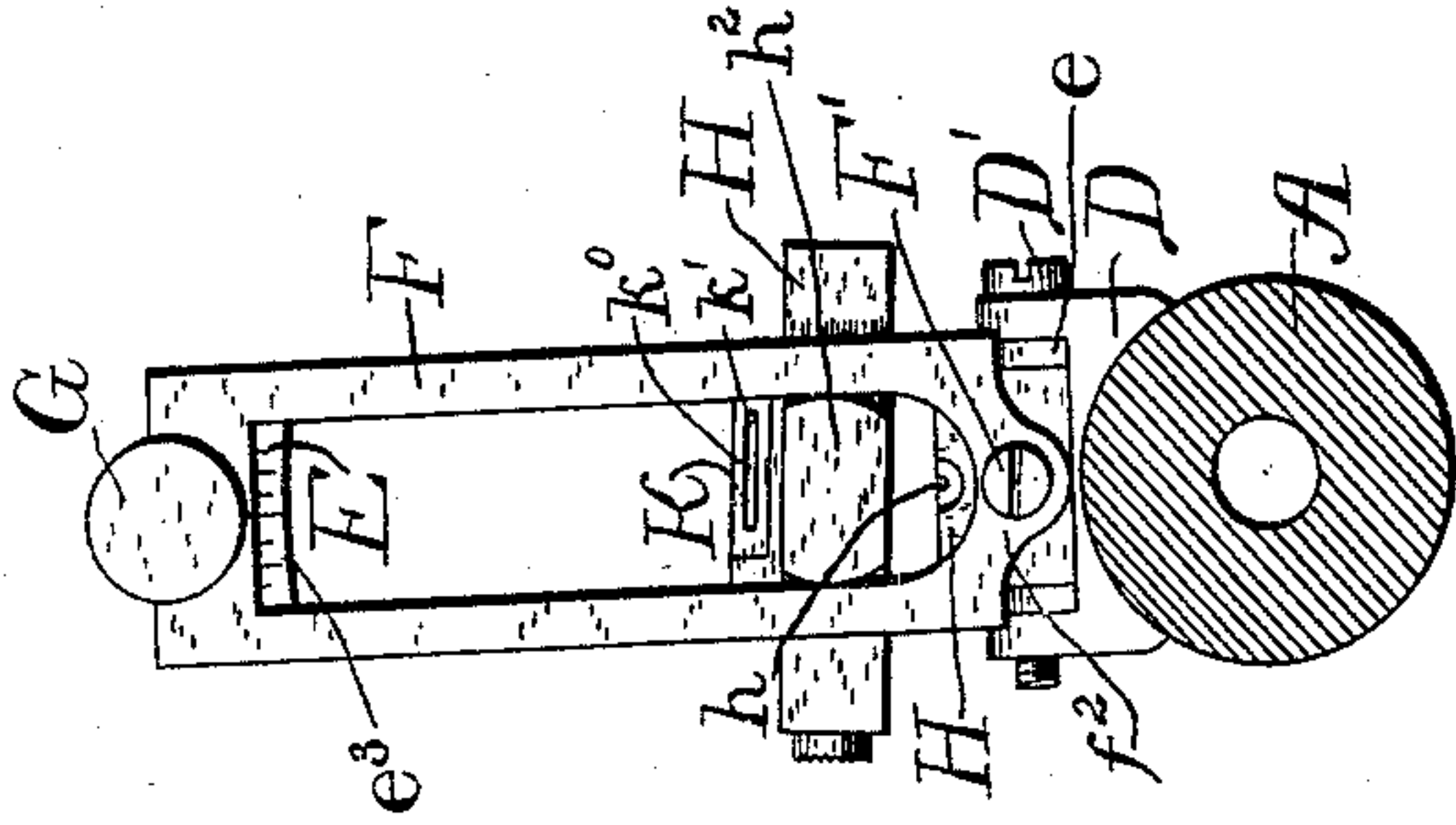


FIG. 11.

FIG. 12.

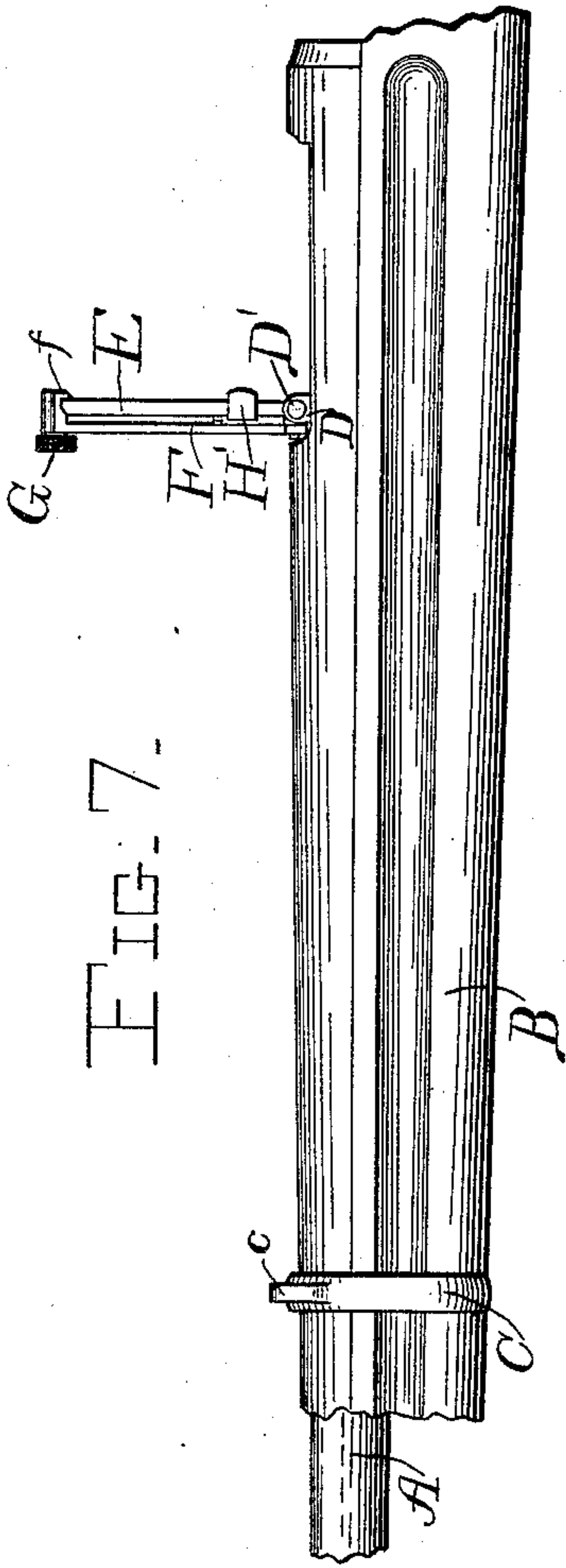
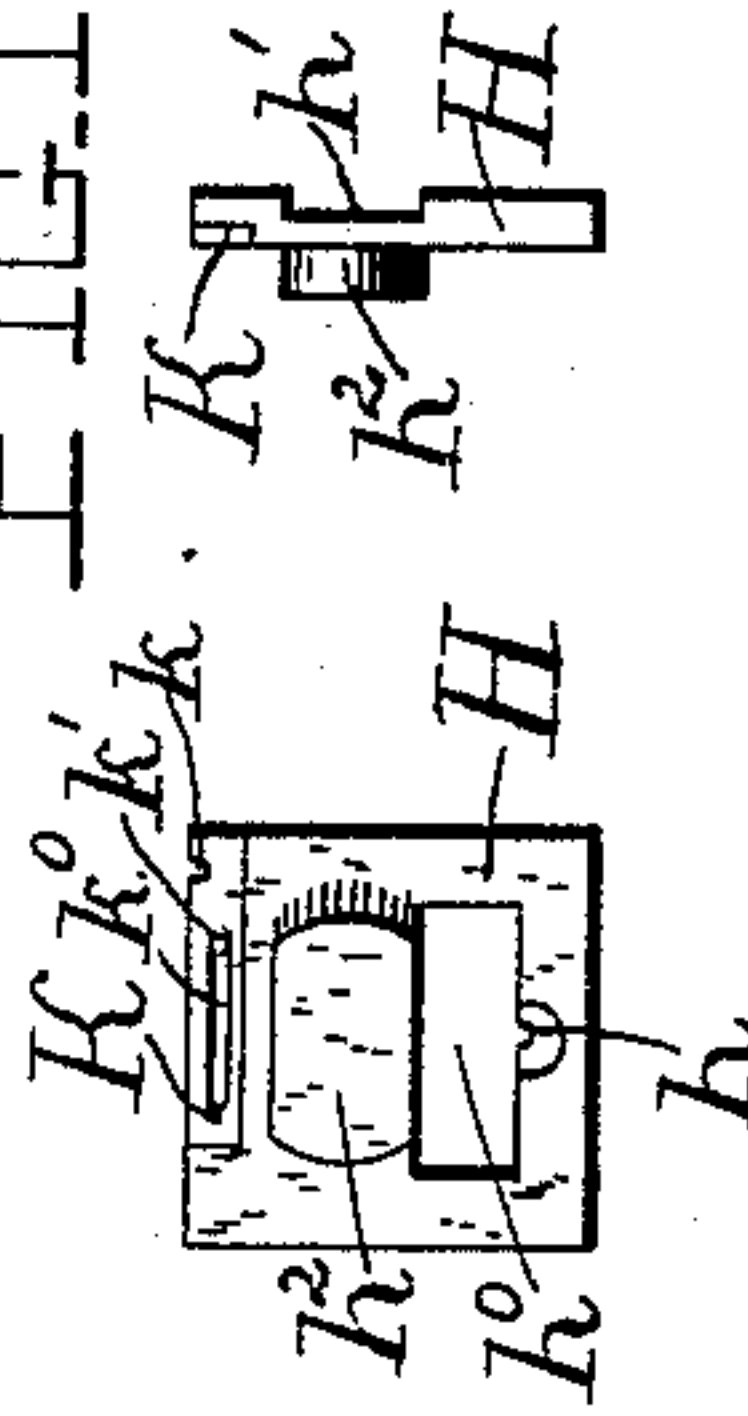


FIG. 7.

FIG. 10.

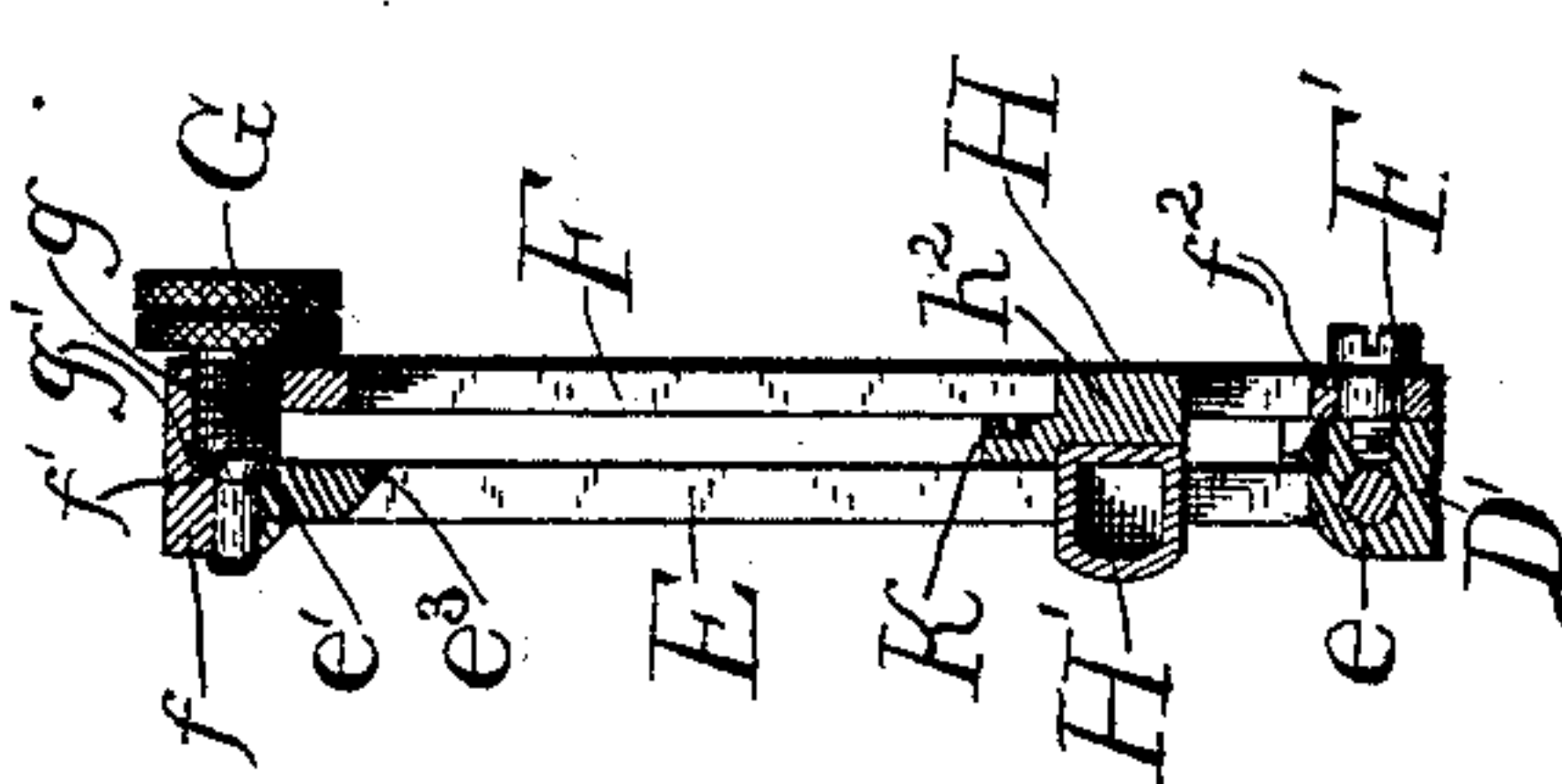


FIG. 9.

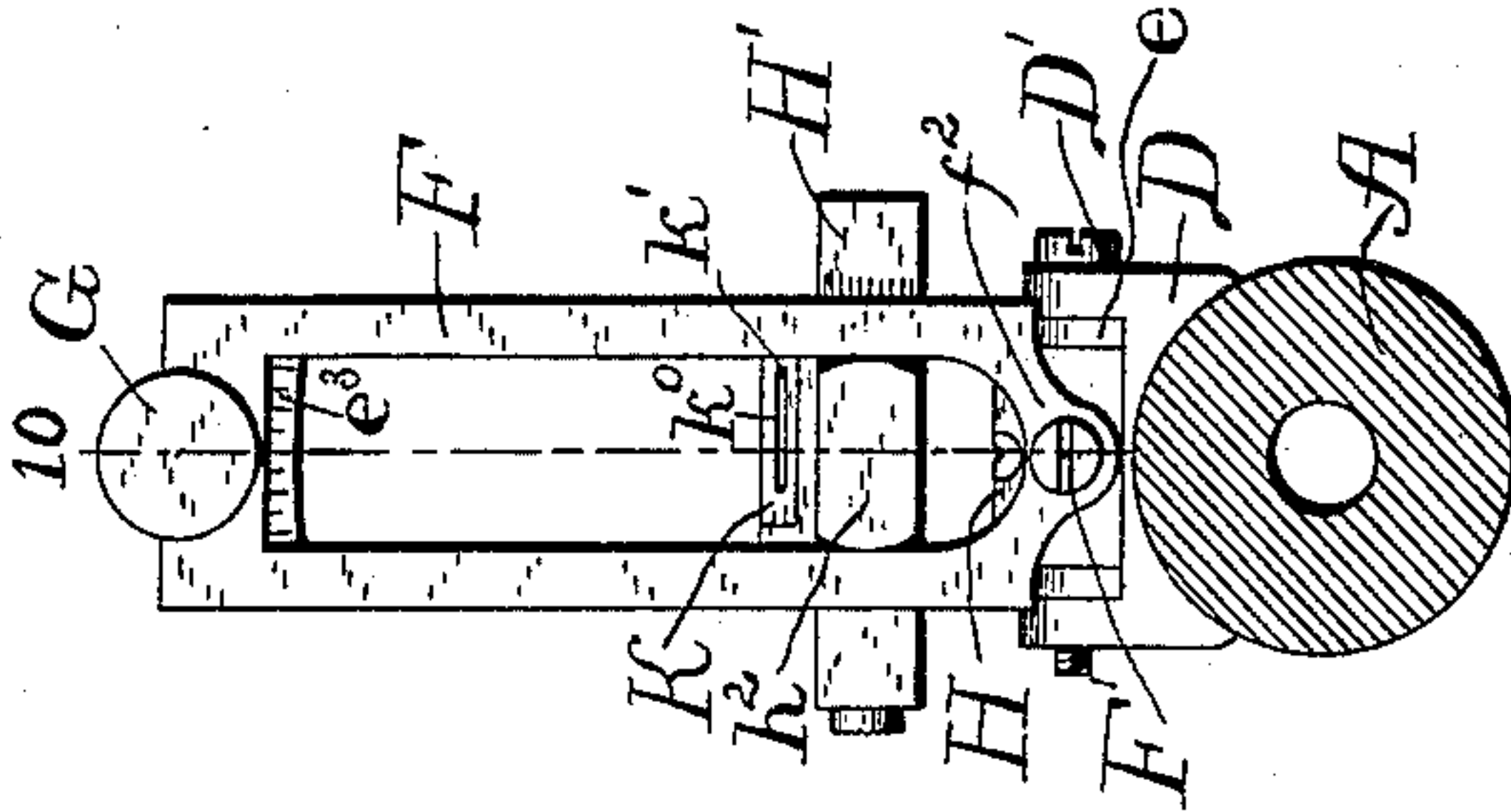


FIG. 8.

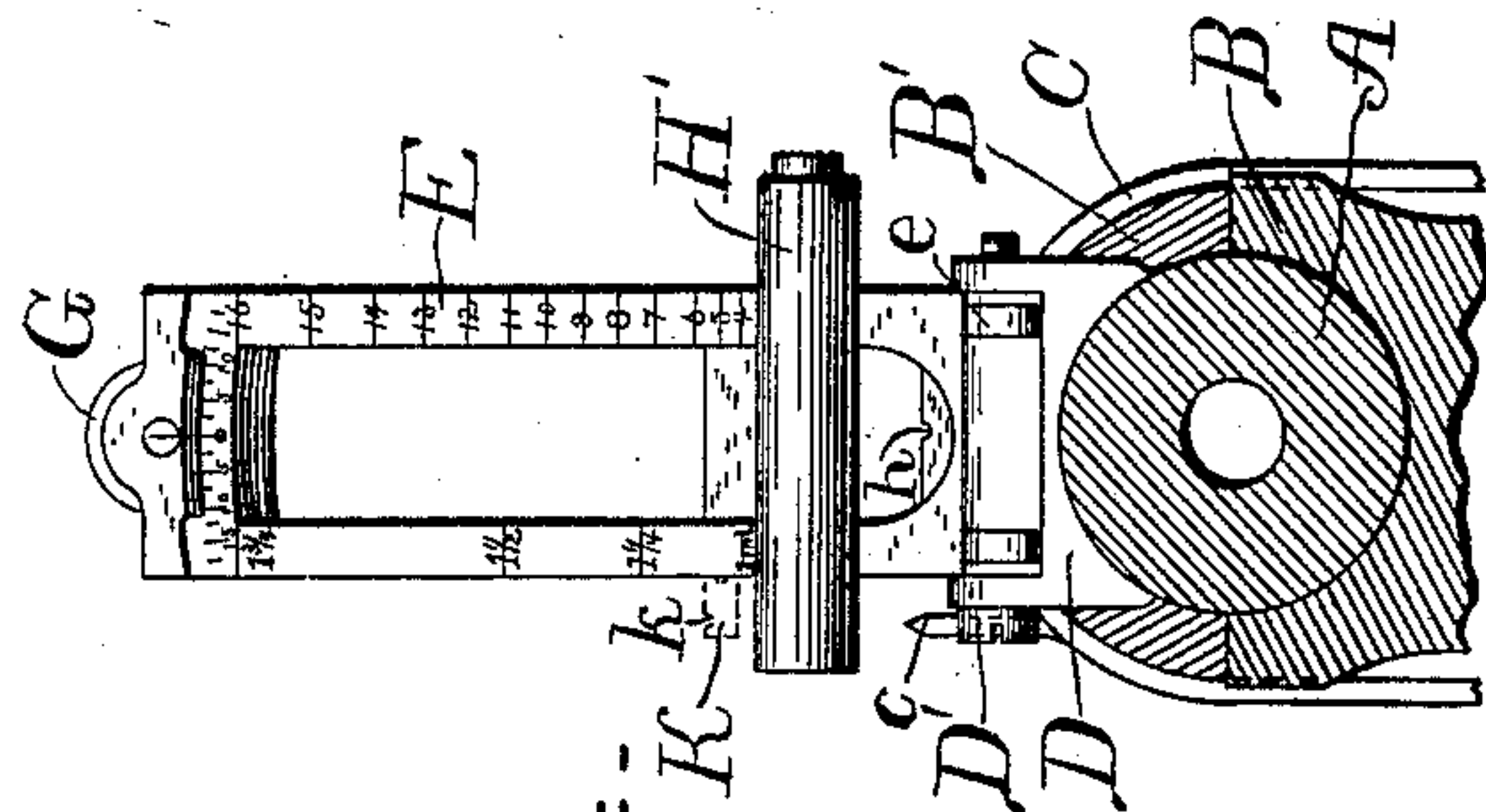
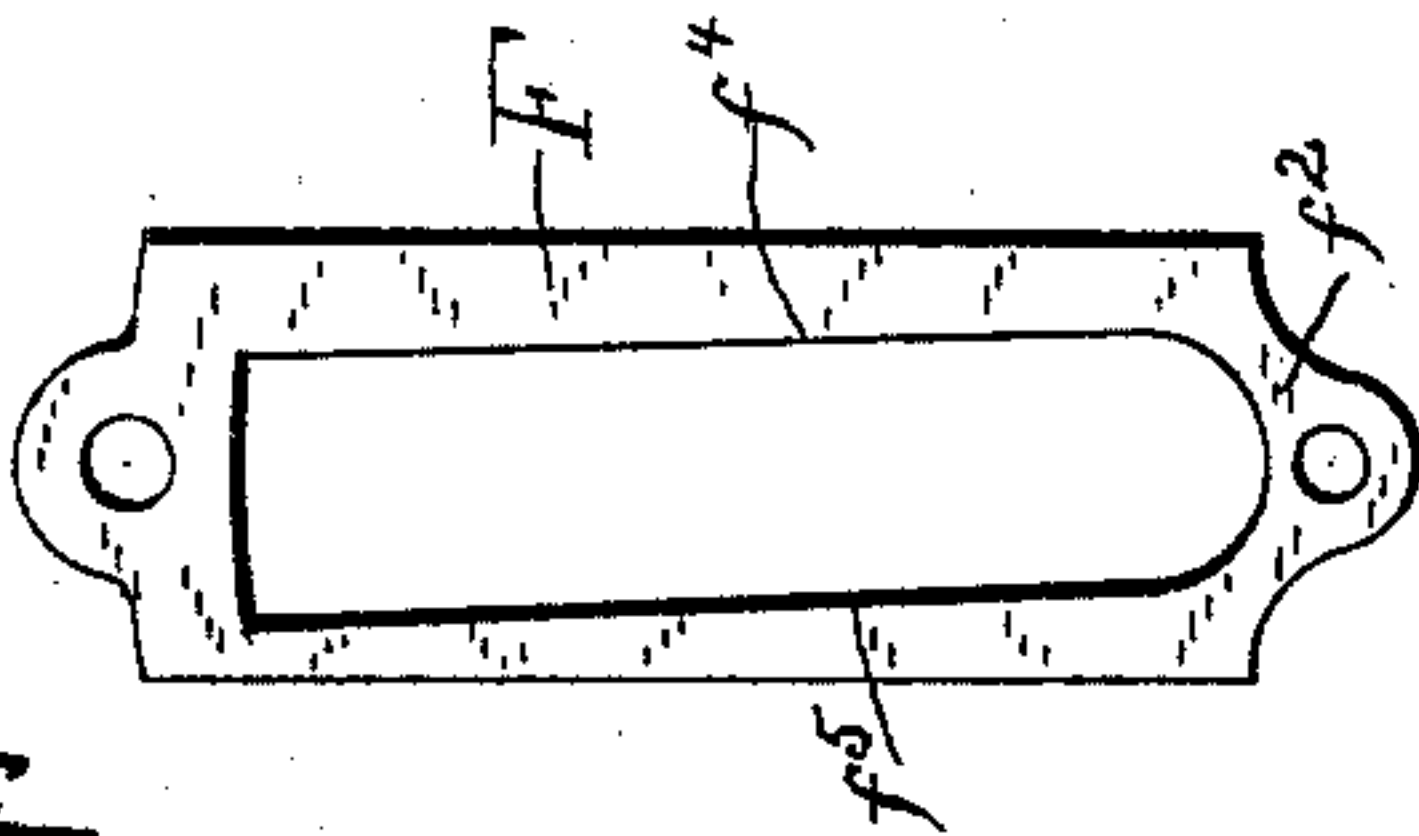


FIG. 14.

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UNITED STATES PATENT OFFICE.

LAWSON M. FULLER, OF THE UNITED STATES ARMY, ASSIGNOR OF ONE-FOURTH TO GUY H. PRESTON, OF THE UNITED STATES ARMY.

WIND-GAGE FOR SIGHTS.

SPECIFICATION forming part of Letters Patent No. 564,514, dated July 21, 1896.

Application filed March 12, 1896. Serial No. 582,919. (No model.)

To all whom it may concern:

Be it known that I, LAWSON M. FULLER, lieutenant of ordnance, United States Army, a citizen of the United States, stationed at Frankford Arsenal, Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Wind-Gages for Sights; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in sights for rifles or other small-arms or cannon; and it consists in providing an automatic wind-gage combined with the ordinary pivoted leaf, and in certain other novel features of construction and novel combinations and arrangements of parts that will be hereinafter described and claimed.

Figure 1 represents a side elevation of a portion of a small-arm, showing the rear sight as turned down along the barrel, and parts being broken away. Fig. 2 is a rear view of the rear sight as turned up, the barrel being shown in section and the wooden sheathing being omitted. Fig. 3 represents a front view of the device shown in Fig. 2. Fig. 4 represents a section along the line 4 of Fig. 3 and looking to the right. Fig. 5 represents a rear elevation of the vertically-movable eyepiece. Fig. 6 represents a side elevation of the eyepiece shown in Fig. 5, as seen from the right of the said figure. Fig. 7 represents a side elevation of a portion of a rifle provided with a somewhat-modified form of sight in which the deflection-bar is of the same width as the leaf, and an auxiliary sight is shown. Fig. 8 represents a rear view, partly in section, of the rear sight shown in Fig. 7. Fig. 9 represents a front view, partly in section, of the device shown in Figs. 7 and 8, parts being omitted. Fig. 10 represents a section of the device shown in Fig. 9 along the line 10 of said figure and looking to the right. Fig. 11 is a view of a modified form of eyepiece provided with the ordinary sight-notch and with a rear auxiliary sight for long ranges, as seen from the muzzle. Fig. 12 is an end view of the eyepiece shown in Fig. 11, as seen

from the right of the said figure. Fig. 13 is a view similar to that shown in Figs. 3 and 9 of a modified form of sight, showing the rear sight set at an angle to supply correction for drift, and Fig. 14 shows a modified form of deflection-bar in which the parallel inner sides thereof are set at an angle to correct for drift.

A represents a rifle-barrel, and B the wood-work of the stock, which is connected to the barrel in the usual way at the breech, and also by the ordinary front band C, as shown in Fig. 7.

D represents a lug secured to the barrel in any convenient way, and provided with ears to which the sight-leaf E is pivoted, as at e , by means of the pin D' . This sight-leaf is preferably made to fold to the rear, as shown, in order to allow the same to fold to the rear if caught in twigs or other obstructions as the riflemen advance. This leaf is graduated in the ordinary way for range, and is also provided on the front face thereof next the breech with wind-graduations, as shown in Fig. 2, while it may also be provided with wind-graduations on the rear face thereof next the muzzle, as shown in Fig. 9. This leaf is provided with an interior slot or opening, behind which the eyepiece slides.

F represents the deflection-bar used for adjusting the sight for wind correction. This deflection-bar is provided with a central slot having parallel sides in which the lug h^2 on the eyepiece H engages. This eyepiece is provided with a rear-sight notch h , with an opening h^0 , and is attached to the slide H' , which moves vertically on the leaf, as is well known.

The details of the rear sight, excepting the wind-gage attachment and the auxiliary sight, are those of the sight now in use in the United States Army, and are not a part of my invention.

The deflector-bar F is pivoted, as at f^2 , on its pivot-screw F' , while its upper end is adjustably held by means of the clamp-screw G, having the screw-threads g and the conical face g' , adapted to wedge the overhanging lip f of the deflection-bar against the rear face of the leaf E, the front face of the leaf and the inner face of the deflection-bar being cut

with a concave groove, (shown at e' and f' in Figs. 4 and 10.) The screw-thread g shown in the said figures engages only in corresponding threads cut in the deflector-arm F, and the clamping effect is obtained by the wedging action of the conical surface g' . The point of this screw G is preferably upset somewhat, so as to prevent the same from being unscrewed too far and lost. It will be seen that the angle between the deflection-bar F and the leaf E may be varied within certain limits by easing up on the screw G and swinging the deflection-bar about its pivot through the requisite angle, corresponding to the velocity of the wind, and then clamping the said deflection-bar in place.

The graduations for wind corrections are shown at the top of the leaf in Figs. 2 and 8, and are preferably made to compensate for wind velocities at right angles to the piece estimated in miles per hour. These graduations are ordinarily extended to about twenty units, representing wind velocities of twenty miles to the right or left of the central or zero position, which zero position corresponds to the position of the wind-gage in a dead calm.

It will be obvious that as the slide H' is raised the lug h^2 of the eyepiece will be deflected to the right or left, corresponding to the adjustment of the deflector-bar, and with it will be carried the rear-sight notch h . Thus when the velocity and relative direction of the wind to the line of fire are approximately constant it will be unnecessary to touch the wind-gage for changes in elevation corresponding in changes in the distance of the target or enemy. In order to provide a correction also for drift, the leaf may be set at an angle, as shown in Fig. 13, or the sides of the slot in the deflector-bar may be permanently set at an angle to the sides of the leaf, as shown at f^4 and f^5 in Fig. 14.

The sight shown in Figs. 2 and 8 is graduated for ranges up to a trifle over a mile, but where the range is greater auxiliary sights will be required. For this purpose I provide a slide K, attached to the eyepiece H and provided with a slot k^0 , engaging the pin k' , made fast to the eyepiece H. This slide is provided with a rear-sight notch k . This slide K may be extended laterally, and may be used for long ranges, in combination with an auxiliary front sight, such, for instance, as the point c , projecting from the front band C; or a detachable front sight or any other convenient form of front sight may be used, if desired. When using this auxiliary sight for long ranges, the left-hand side of the leaf may be graduated to miles and fractions thereof, or to any other convenient distances. In order to apply the wind correction for this distant firing, the upper portion of the leaf may be projected down below the cross-piece at the top of the deflector-bar, as shown at e^3 in Figs. 8, 9, 10, and 13, and the front face of this downwardly-projecting portion of the leaf may be graduated, as at e^3 , for wind cor-

rection; and in adjusting the wind-gage for long distances these graduations should be observed from the front side of the rear sight.

In the forms of sight now ordinarily in use it is the general custom for each rifleman to make separate adjustment of the wind-gage for each elevation; but by the use of the herein-described sight the wind-gage is set once for the estimated velocity of the wind, the adjustment being ordered for a whole regiment or company, as the case may be, and the eyepiece adjusts itself automatically for the velocity of the wind as the range is increased or diminished.

Where the wind is steady, and the line of fire relative to the wind is approximately constant, it will be unnecessary to touch the wind-gage while firing after it has once been set.

In the form of device shown in Figs. 1 to 4 the deflector-bar is made somewhat narrower than the sight-leaf, and no auxiliary sights are shown, while in the form of device shown in Figs. 7 to 13 the deflector-bar is made of the same width as the leaf, whereby a larger field of vision is secured. Moreover, by having the screw G horizontal the rear sight may be made shorter. Again, the form of device shown in Figs. 7 to 13 includes the auxiliary sights for long ranges.

It will be obvious that various modifications of the herein-described apparatus might be made which could be used without departing from the spirit of my invention. Thus this form of wind-gage may be applied to a sight which takes its elevations from a stepped or curved base, as is now common with many military and sporting sights.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a rear sight for small-arms, the combination with a leaf, having graduations thereon to indicate elevation and wind correction, of a deflector-bar angularly movable relative to said leaf, and a movable eyepiece guided by said deflector-bar, and whose position is indicated by said graduations substantially as described.

2. In a rear sight for small-arms, the combination with a leaf set at a fixed angle relative to the axis of the bore having graduations thereon to indicate elevation and wind correction, of a deflector-bar pivoted near the base of said leaf; a vertically-adjustable eyepiece guided by said deflector-bar and whose position is indicated by said graduations; and means for adjustably clamping said deflector-bar to said leaf, substantially as described.

3. In a rear sight for small-arms, the combination with a pivoted leaf adapted to fold down along the barrel having graduations thereon to indicate elevation and wind correction, of a deflector-bar pivoted at or near the base of said leaf and adapted to be moved through an angle laterally relative to said leaf and whose position is indicated by said graduations, and a vertically-movable eyepiece

guided by said deflector-bar, with means for adjustably clamping said leaf and said deflector-bar together, substantially as described.

5 4. In a rear sight for small-arms, the combination with a leaf set at a fixed angle relative to the axis of the bore having graduations thereon to indicate elevation and wind correction, of a slotted deflector-bar near the base of said leaf, a vertically-adjustable eyepiece provided with a lug engaging in said slot in said deflector-bar and whose position is indicated by said graduations, and means for adjustably clamping said deflector-bar to said leaf, substantially as described.

15 5. In a rear sight for guns, the combination with a pivoted leaf adapted to fold down along the barrel having graduations thereon to indicate elevation and wind correction, of a slotted deflector-bar pivoted at or near the base of said leaf and adapted to be moved through an angle laterally relative to said leaf; a vertically-movable eyepiece provided with a lug projecting into said slot in said deflector-bar and whose position is indicated by said graduations, and a clamp-screw for clamping said leaf and said deflector-bar together, substantially as described.

20 6. In a rear sight for small-arms, the combination with a leaf having different graduations thereon for the main sight and the auxiliary sight and also graduations for wind cor-

rection, of a deflector-bar angularly movable relative to said leaf; a movable eyepiece guided by said deflector-bar, and a slide sliding transversely in said eyepiece and serving as an auxiliary sight for long ranges, substantially as described. 35

7. In a rear sight for small-arms, the combination with a leaf set at a fixed angle relative to the axis of the bore, of a deflector-bar pivoted near the base of said leaf; a vertically-adjustable eyepiece guided by said deflector-bar; an auxiliary notched slide sliding transversely in said eyepiece, and means for adjustably clamping said deflector-bar to said leaf, substantially as described. 45

8. In a rear sight for guns, the combination with a pivoted leaf adapted to fold down along the barrel, of a deflector-bar pivoted at or near the base of said leaf and adapted to be moved through an angle laterally relative to said leaf; a vertically-movable eyepiece guided by said deflector-bar; an auxiliary notched slide sliding transversely in said eyepiece, and means for clamping said leaf and said deflector-bar together, substantially as described. 55

In testimony whereof I affix my signature in presence of two witnesses.

LAWSON M. FULLER.

Witnesses:

JABEZ H. GILL,
R. L. HAMILTON.