

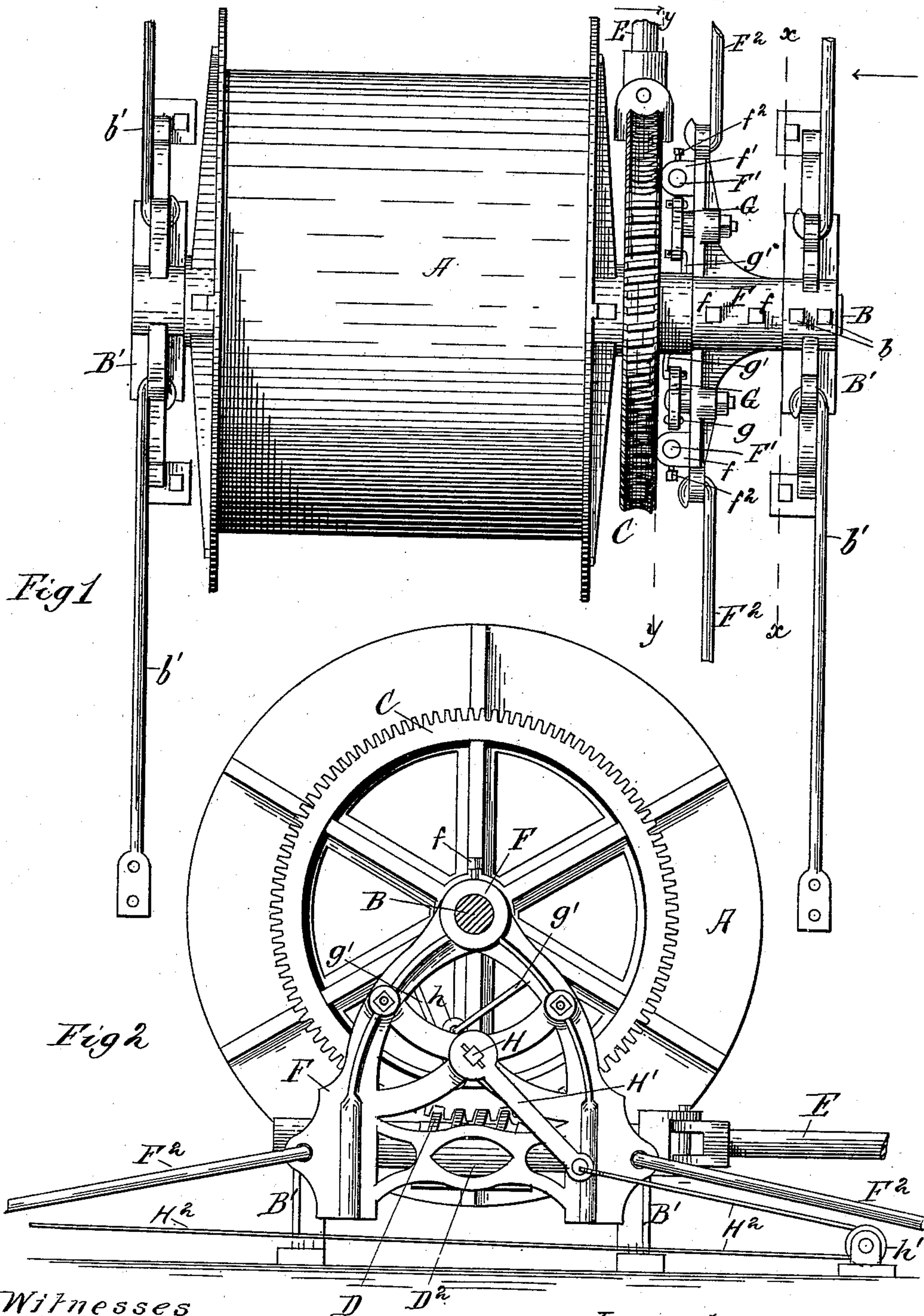
(No Model.)

2 Sheets—Sheet 1.

W. G. ADAMS.
WINDING DRUM.

No. 349,196.

Patented Sept. 14, 1886.



Witnesses
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Joanne Miller

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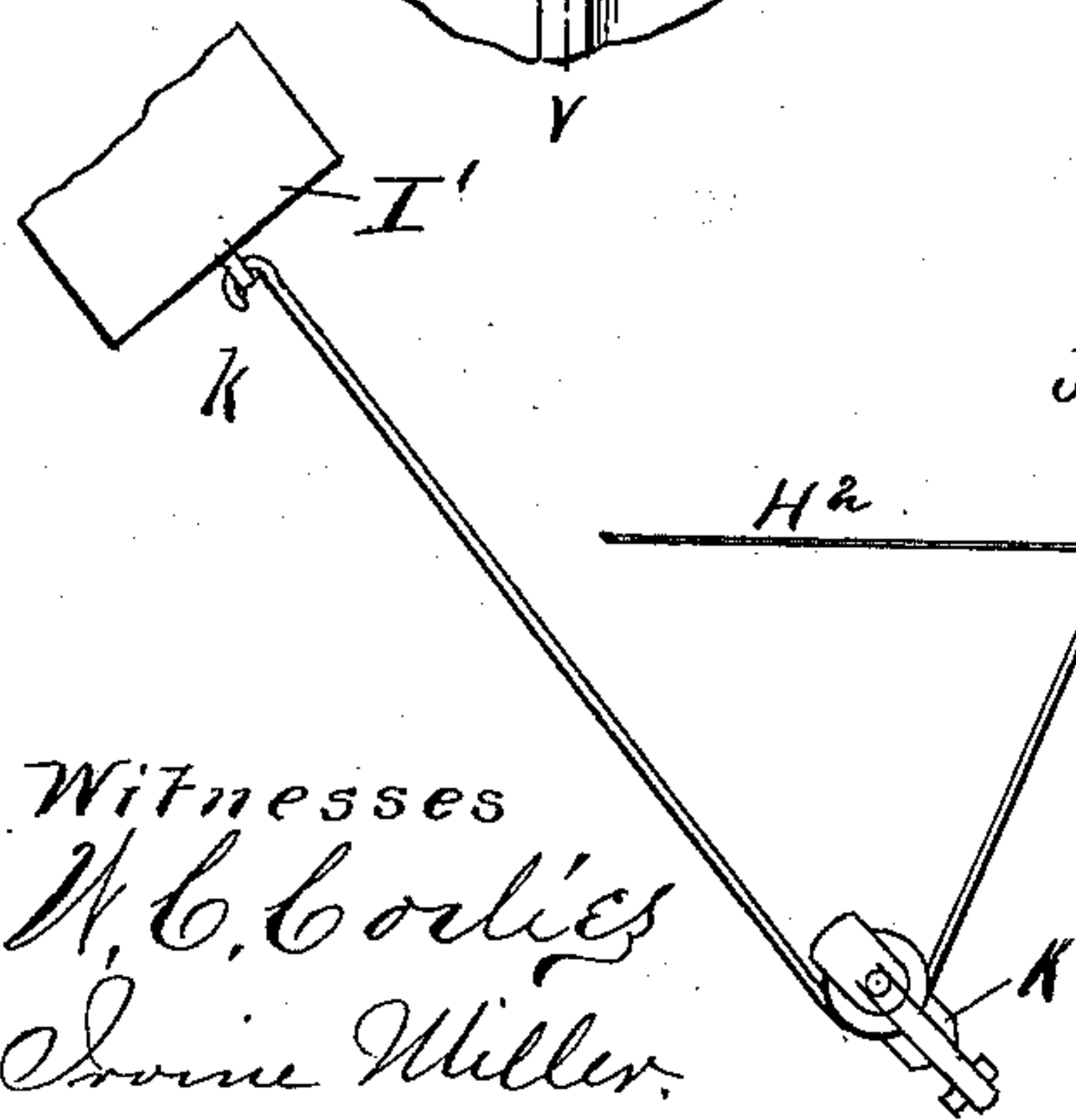
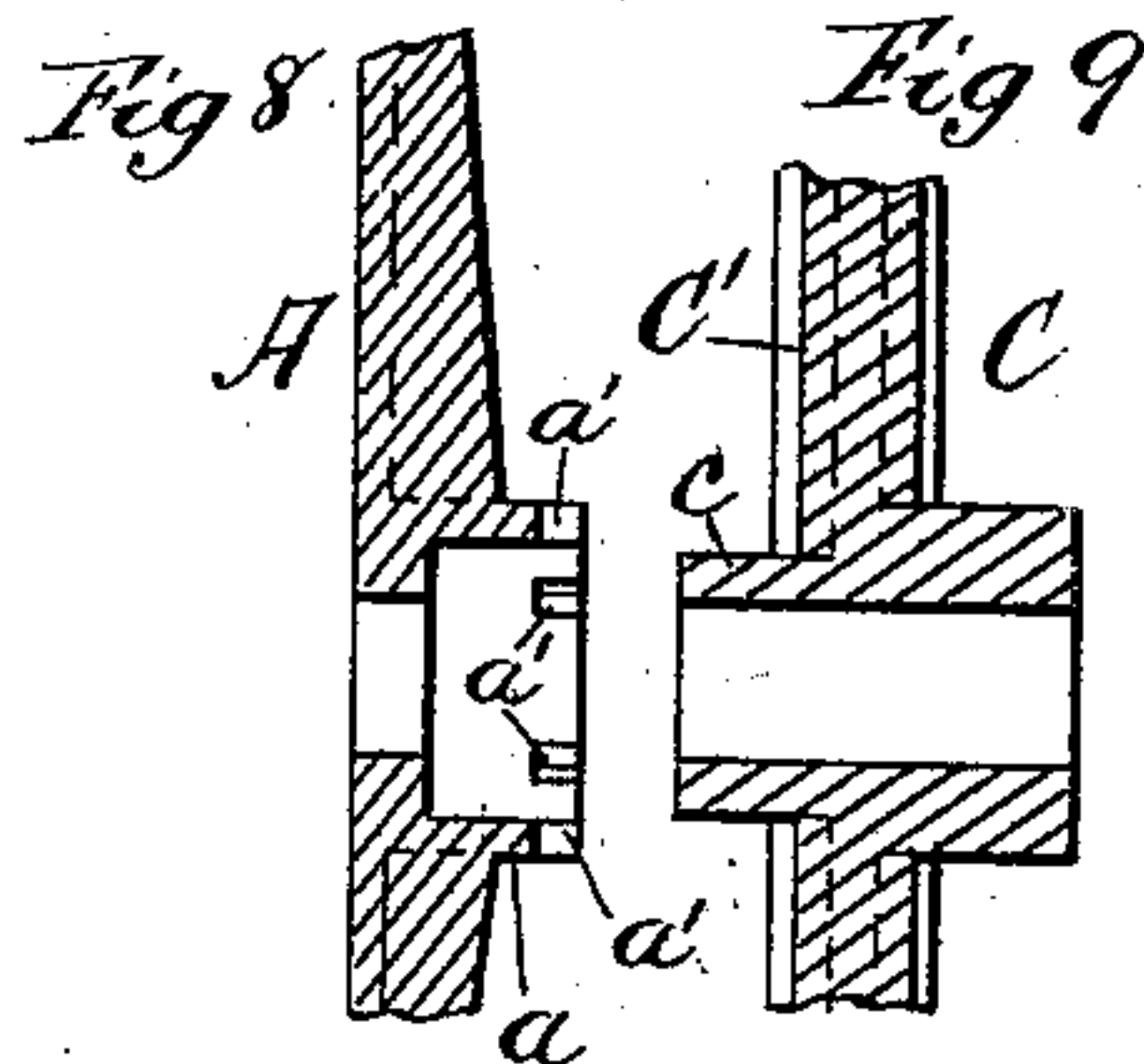
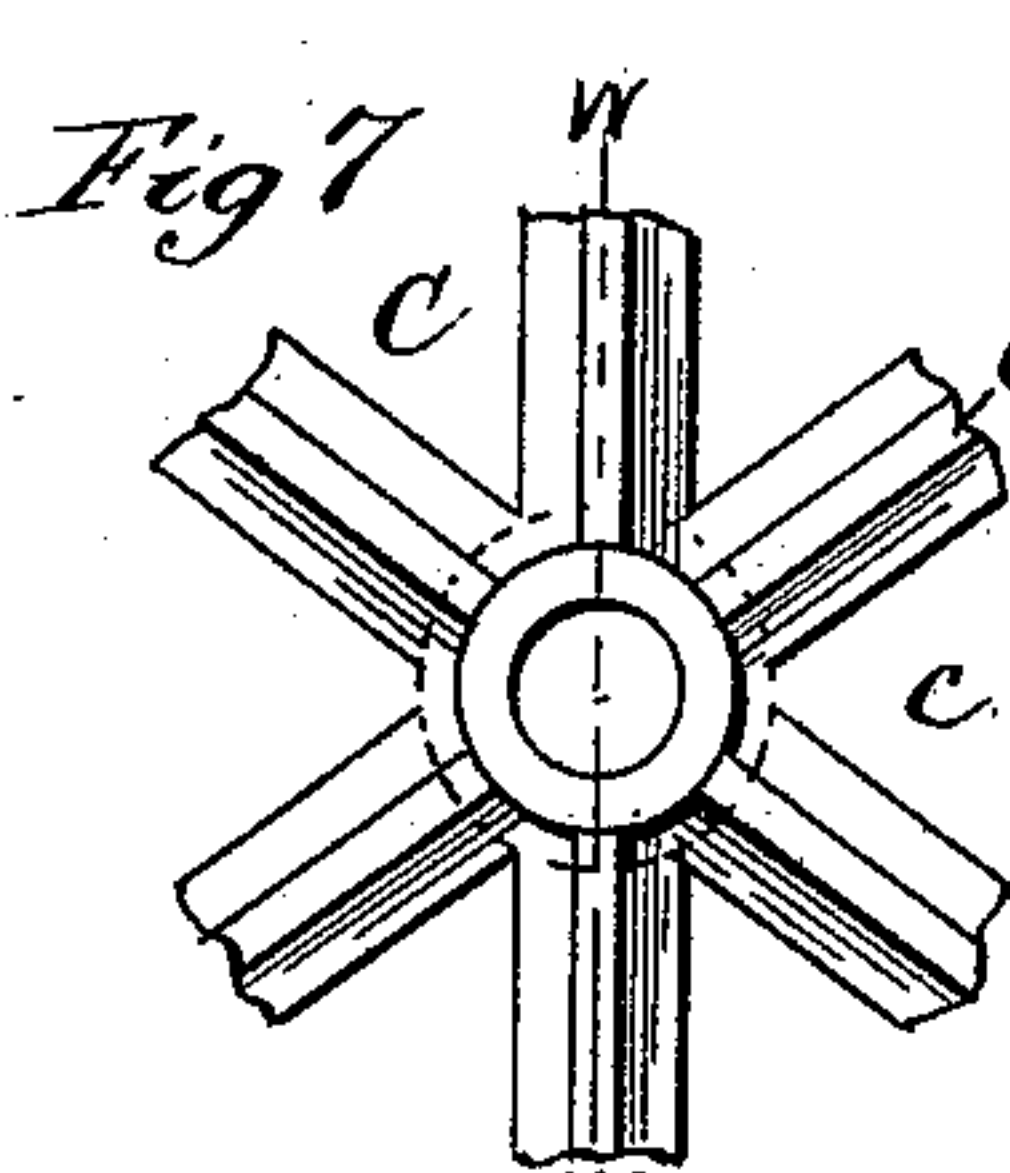
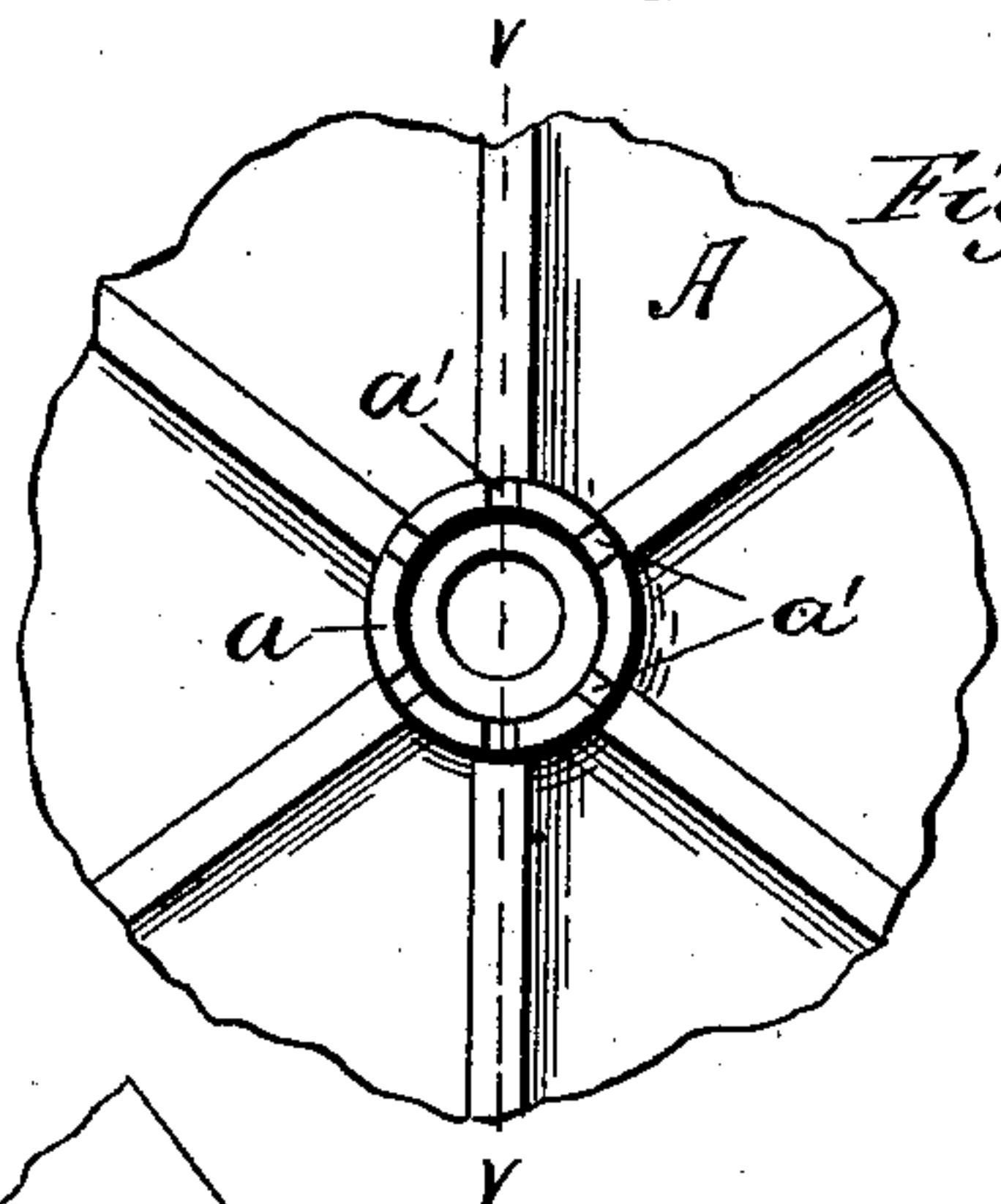
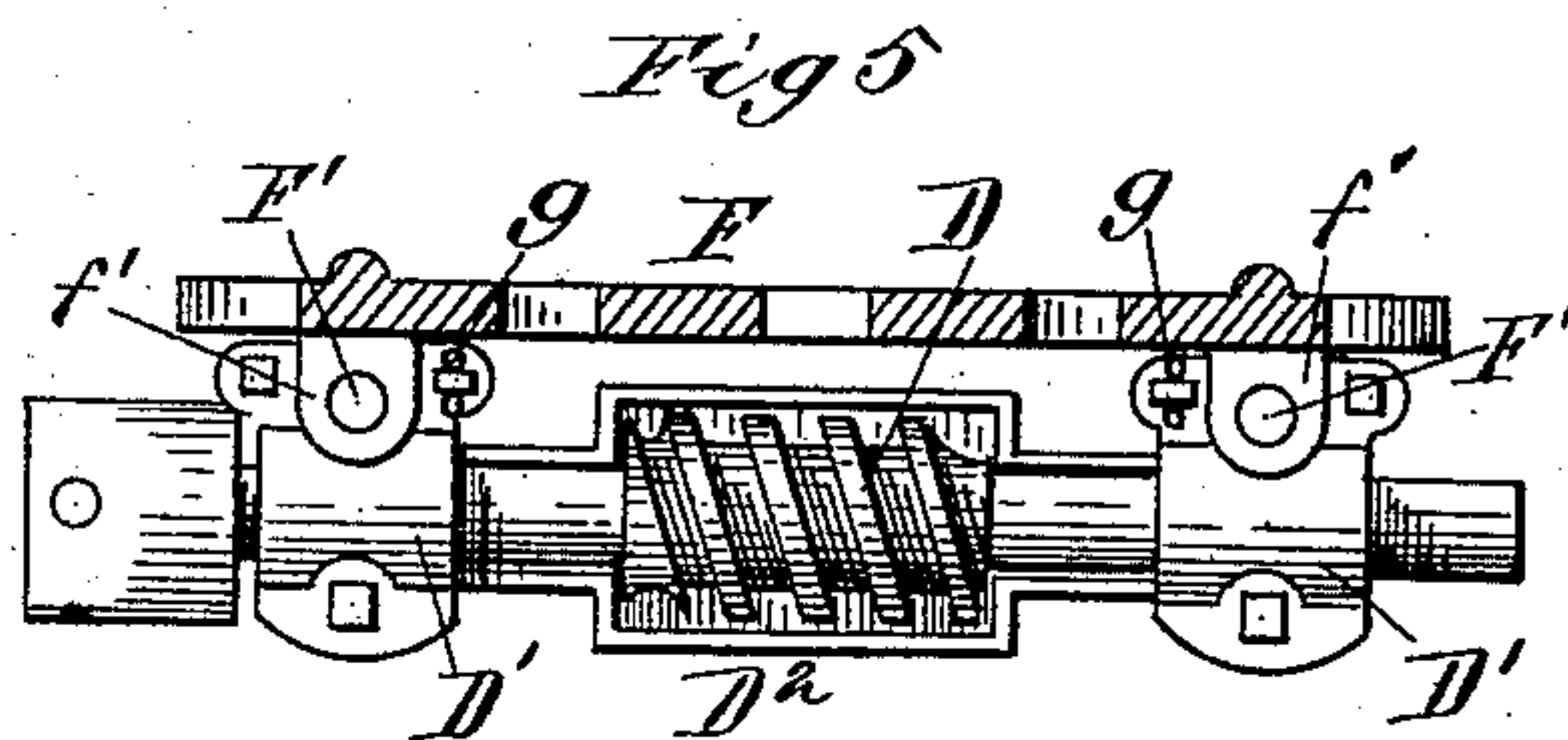
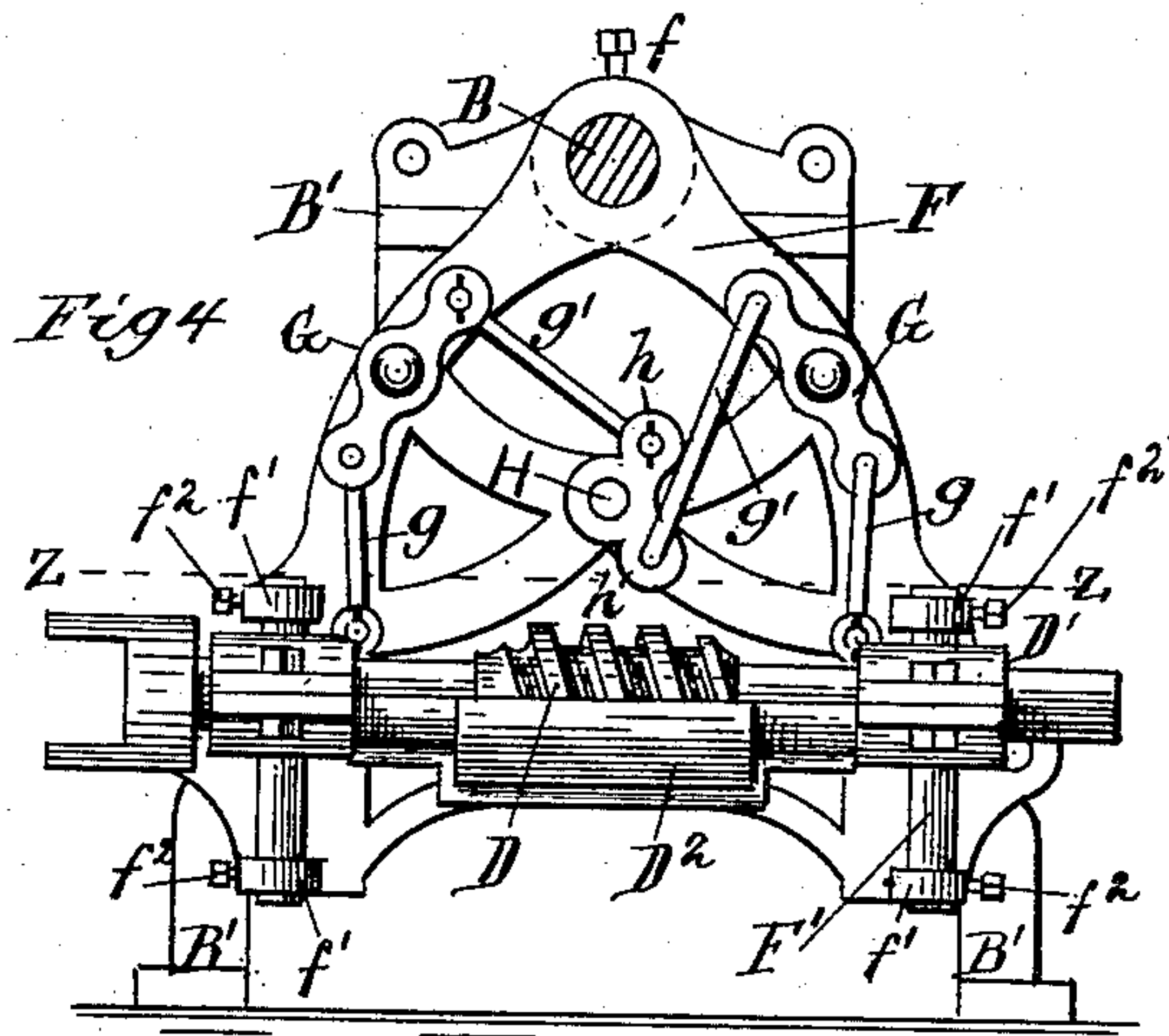
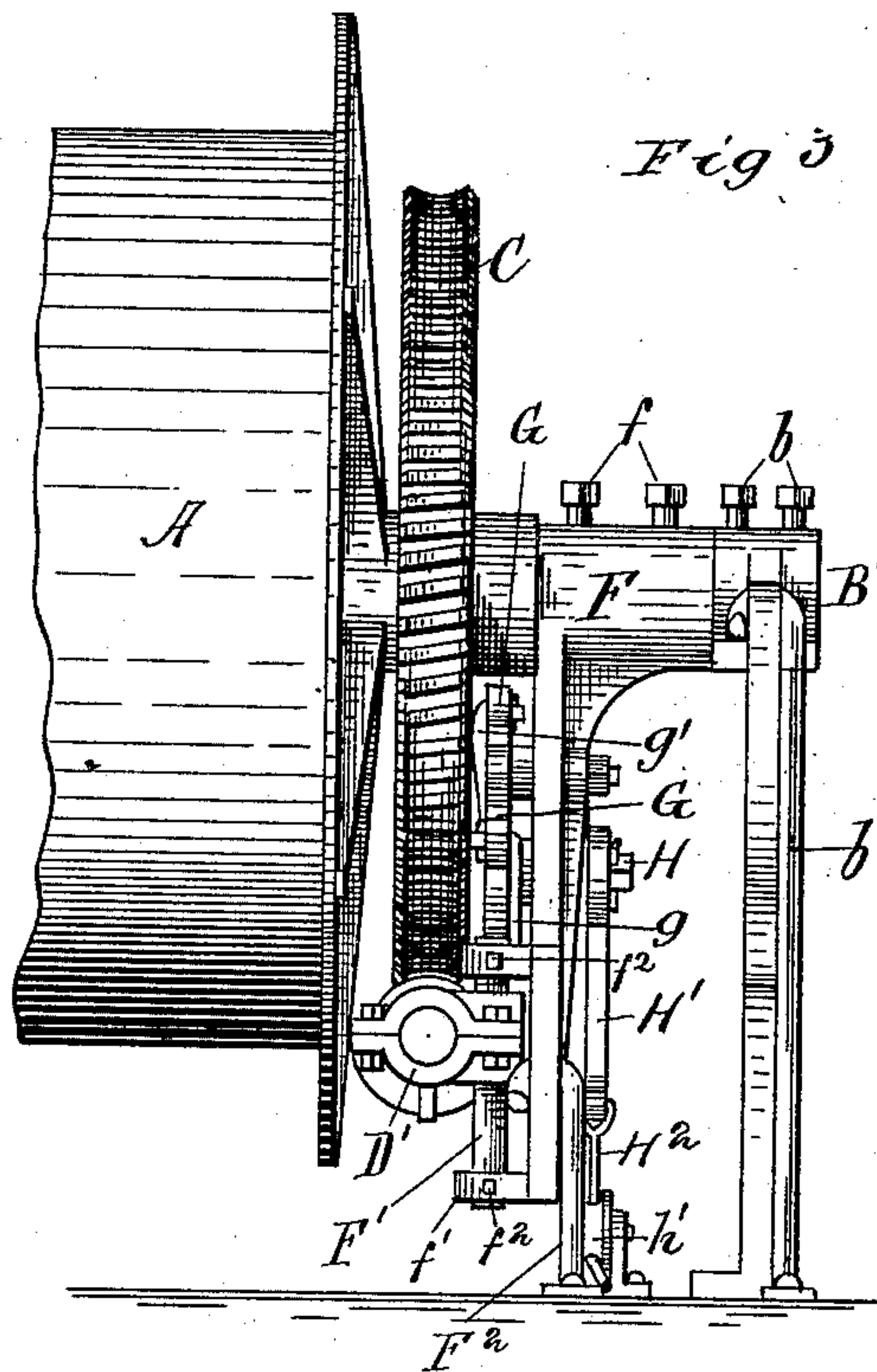
(No Model.)

W. G. ADAMS.
WINDING DRUM.

2 Sheets—Sheet 2.

No. 349,196.

Patented Sept. 14, 1886.



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Fig 10
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UNITED STATES PATENT OFFICE.

WALTER G. ADAMS, OF SANDWICH, ILLINOIS.

WINDING-DRUM.

SPECIFICATION forming part of Letters Patent No. 349,196, dated September 14, 1886.

Application filed March 22, 1886. Serial No. 196,144. (No model.)

To all whom it may concern:

Be it known that I, WALTER G. ADAMS, a citizen of the United States, and residing at Sandwich, in the county of De Kalb and State of Illinois, have invented a certain new and useful Improvement in Winding-Drums, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of a drum embodying my improvement. Fig. 2 is a sectional view taken on the line *x x* of Fig. 1; Fig. 3, a detail front elevation of one end of the same; Fig. 4, a sectional view taken on the line *y y* of Fig. 1; Fig. 5, a detail plan section taken on the line *z z* of Fig. 4; Fig. 6, a detail elevation of the central portion of one end of the drum; Fig. 7, a view of the central portion of the corresponding face of the gear-wheel; Fig. 8, a detail sectional view taken on the line *v v* of Fig. 6; Fig. 9, a detail sectional view taken on the line *w w* of Fig. 7; Fig. 10, a plan view illustrating one application of my device to practical use.

Like letters refer to like parts in all the figures of the drawings.

My invention relates to winding-drums, upon which a rope or cable may be wound or unwound by power, for the purpose of raising or lowering or hauling objects by means of said rope, its object being to provide a drum which shall be simple in construction and effective in operation; and to these ends my invention consists in certain novel features, which I will now proceed to describe, and will then particularly point out in the claims.

In the drawings, A represents the drum, which may, so far as its general features are concerned, be of any approved construction. This drum is mounted loosely upon a fixed shaft, B, which shaft is secured in suitable standards or brackets, B', at each end, by means of bearing or set screws *b*, or any other suitable means. Suitable braces, *b'*, are employed to support the standards B, these braces hooking into suitable recesses or apertures in the standards at one end, and having their other ends bolted or otherwise secured to the floor or other support.

C indicates a worm-gear, which is mounted loosely on the shaft B, and is connected to the drum A in any suitable manner, the construc-

tion which I prefer for this purpose being that shown in Figs. 6 to 9, inclusive, of the drawings. In this construction the gear-wheel C is shown provided with a projecting hub, *c*, and with a number of radial ribs, C', while the adjacent face of the drum is provided with a projecting sleeve or collar, *a*, having in its outer edge a number of notches or recesses, *a'*, corresponding to the ribs C' on the worm gear. This latter being placed upon the shaft B, adjacent to the drum A, the projecting hub *c* enters within the collar *a*, and the ribs C' engage with the recesses *a'*. It will be seen that in this position the two parts are firmly clutched together, so that any rotary motion imparted to the worm-wheel will be transmitted to the drum.

In order to operate the worm gear C and drum A, I employ a worm or screw, D, which is mounted as hereinafter described, and is connected to the power by means of a shaft, E, suitably coupled to the power-shaft and worm-shaft at its ends.

F indicates a yoke or bracket, which is mounted adjustably on the shaft B; but is secured thereon in proper position by means of set-screws *f*. The yoke or bracket F is provided with lugs *f'*, in which bars F' are secured by means of set-screws *f''*, or in any other suitable manner. These bars form guides or ways upon which the bearings or boxes D', in which the worm-screw D is mounted, slide. These bearings are connected by means of a suitable trough or guard, D², which forms a receptacle for the oil employed to lubricate the worm-screw, and also acts as a guard for the said screws. The worm is suspended from levers G by means of links *g*, connected at one end to the boxes D' and at the other end to one end of the said levers. These latter are fulcrumed at or near their centers upon the yoke or bracket F, and are connected by means of links or connecting-rods *g'* to two short arms or projections, *h*, secured on the inner end of a short shaft, H, to the outer end of which the operating-lever H' is secured. This lever is shown, in the present instance, as provided with a rope, H², which passes over a pulley, *h'*, to a point within convenient reach of the operator.

It will be readily seen that, by means of the mechanism just described, the worm or screw may be radially moved toward and from the

worm-gear, so as to connect it therewith or disconnect it therefrom. As a matter of fact, the weight of the worm and its connected parts is sufficient to cause it to disconnect itself by dropping down as soon as the operating-lever H' is released; and in order to connect it again it is only necessary to raise the said operating lever, either directly or by means of the rope H^2 . It will be seen that, in this adjustment, the worm is adjusted to and from the gear-wheel bodily, both ends being moved at the same time. This adjustment I call "radial," because it is in the direction of a radial line from the point of engagement between the worm and gear. It is distinguished in this way from the movement of the worm by swinging it at one end, while the other remains stationary, in which case the movement is in the arc of a circle. In this latter adjustment the gearing is soon badly worn, because the engagement is not on direct line, and there is also more danger of breakage. The adjustment just described is to overcome these difficulties by making the movement of the worm in direct lines, so that it engages with the gear in precisely the same relation in which it is to work.

The yoke F , which carries the worm and its operating mechanism, is capable of adjustment around the shaft B , so as to enable the worm to be connected to the power-shaft, whether this latter be on a level, as in the case shown, or above or below the level of the apparatus. This yoke is provided with braces F^2 , similar to the braces b' , in order to more firmly secure the yoke in a position when it has been finally adjusted.

In Fig. 10 of the drawings I have shown one application of my improvement, in which it is employed to haul cars from point to point, as desired. In this construction I represents an elevator or similar building, and I' a car which it is desired to draw up to the same. The rope or cable A' passes from the drum A out between two pulleys, J , arranged as shown, and thence through a snatch-block, K , its extremity being provided with a hook, k , or other means for connecting to the car. The worm being lowered by releasing the rope H^2 , the rope A' may be readily unwound from the drum, since this latter is entirely disconnected from the operating mechanism, and will therefore revolve freely with a minimum friction. The snatch-block K being temporarily connected to any object somewhat beyond the point to which it is desired to move the car—such, for instance, as the ties of the railway-track—and the end of the rope A' being connected to the car, the worm is raised by means of the rope H^2 , and the mechanism operated thereby, and the car is thereupon drawn into the desired position. Although I have de-

scribed this one application of my improvement, still it is obvious that there are various other applications thereof, and I therefore do not wish to be understood as limiting myself to this one; moreover, there are various mechanical modifications which may be made in the details of construction without departing from the principle of my invention, and I therefore do not wish to be understood as limiting myself strictly to the precise details hereinbefore described, and shown in the drawings.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A winding-drum, in combination with a worm-gear connected thereto and a worm mounted in bearings which are adjustable about the center of motion of said gear, substantially as and for the purposes specified.

2. The winding-drum, in combination with a worm-gear connected thereto and a worm adjustable bodily to and from the said worm-gear in a direction radial to the point of contact therewith, substantially as and for the purposes specified.

3. The winding-drum, in combination with the worm-gear, the worm mounted to slide on suitable ways, and the levers suitably connected to the said worm and to an operating-lever, substantially as and for the purposes specified.

4. The winding-drum and worm-gear, in combination with the worm mounted to slide on suitable ways, the links g , the levers G , connecting rods g' and shaft H with operating-lever H' , substantially as and for the purposes specified.

5. In a winding-drum, the combination, with the drum proper, A , having collar a with recesses a' , of the gear C , provided with projecting hub c and radial ribs C' , substantially as and for the purposes specified.

6. In a winding-drum, the combination, with the fixed shaft B and a drum and worm-gear loosely mounted thereon, of the yoke or bracket F , which carries the worm D , the said yoke being adjustably mounted on the fixed shaft, substantially as and for the purposes specified.

7. The combination, with the yoke F , provided with lugs f' , of the bars F' , secured in said lugs by means of set-screws f^2 , and the worm D , having boxes D' , mounted to slide on said bars, substantially as and for the purposes specified.

8. The combination, with the worm D , having boxes D' , of the trough or receptacle D^2 , connecting said boxes, substantially as and for the purposes specified.

WALTER G. ADAMS.

Witnesses:

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FRED SIMMONS.