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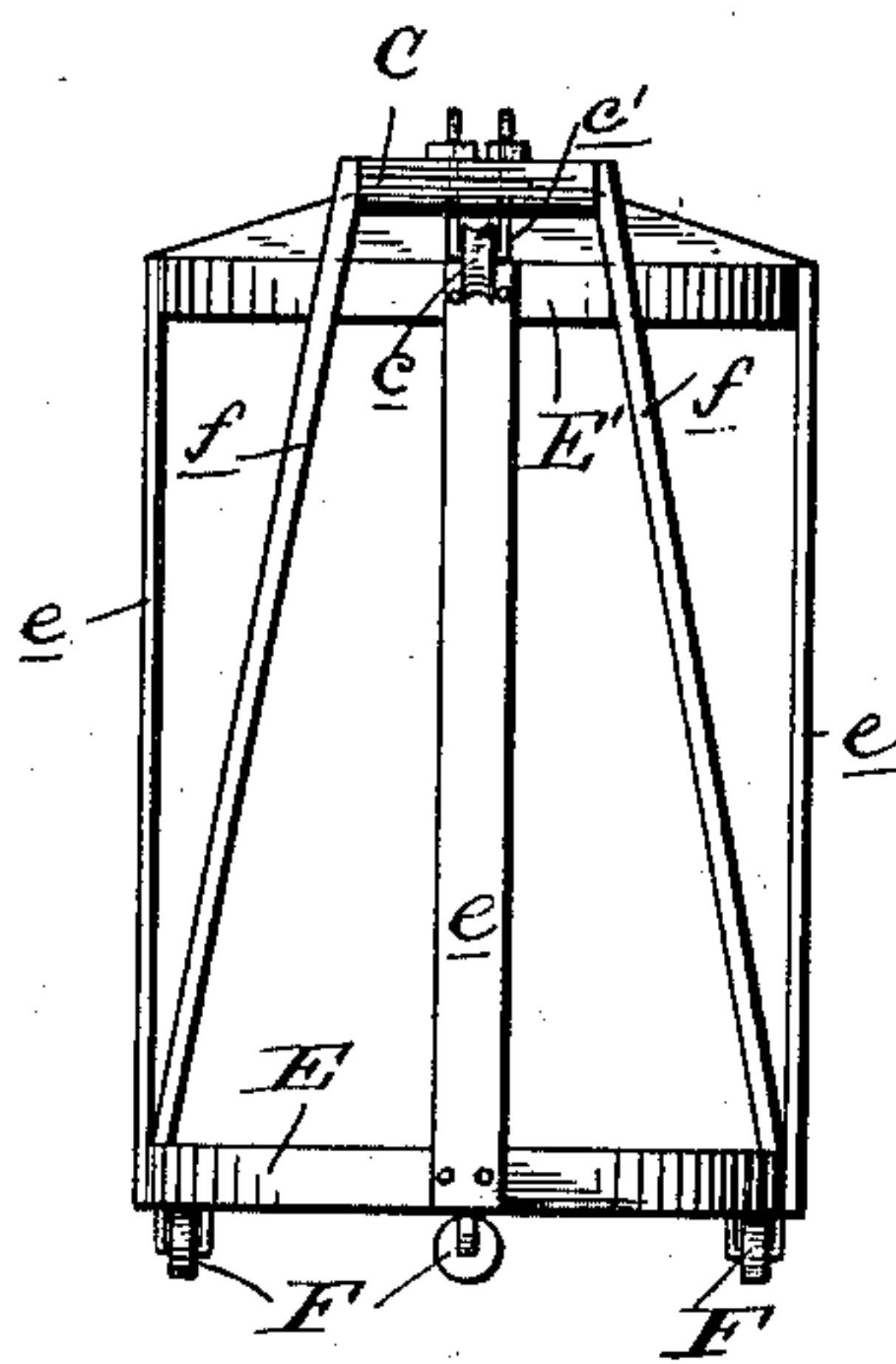
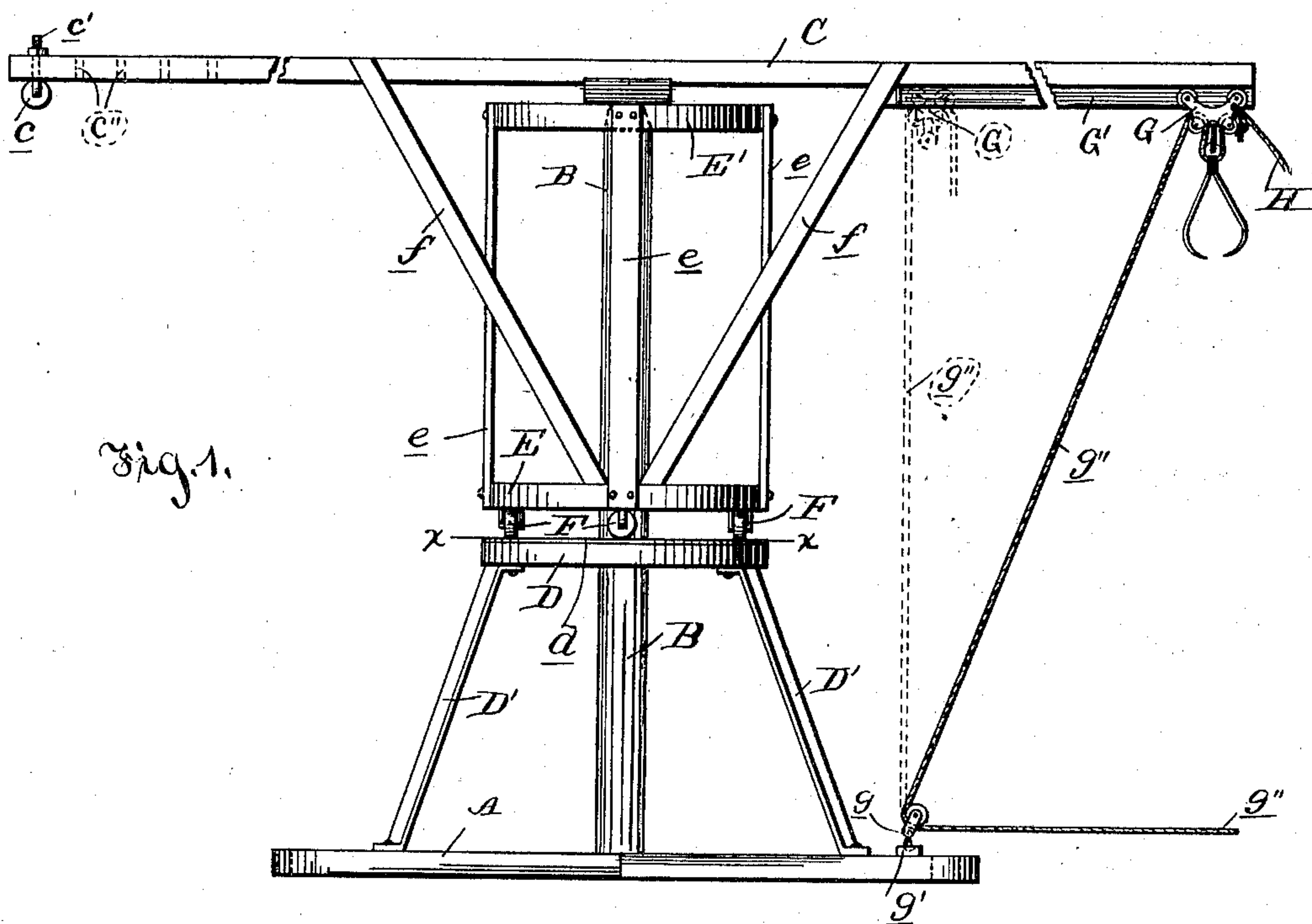
Patented Jan. 9, 1900.

W. E. SAUERMAN.  
ROTARY DERRICK.

(Application filed July 12, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses;  
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Att'y

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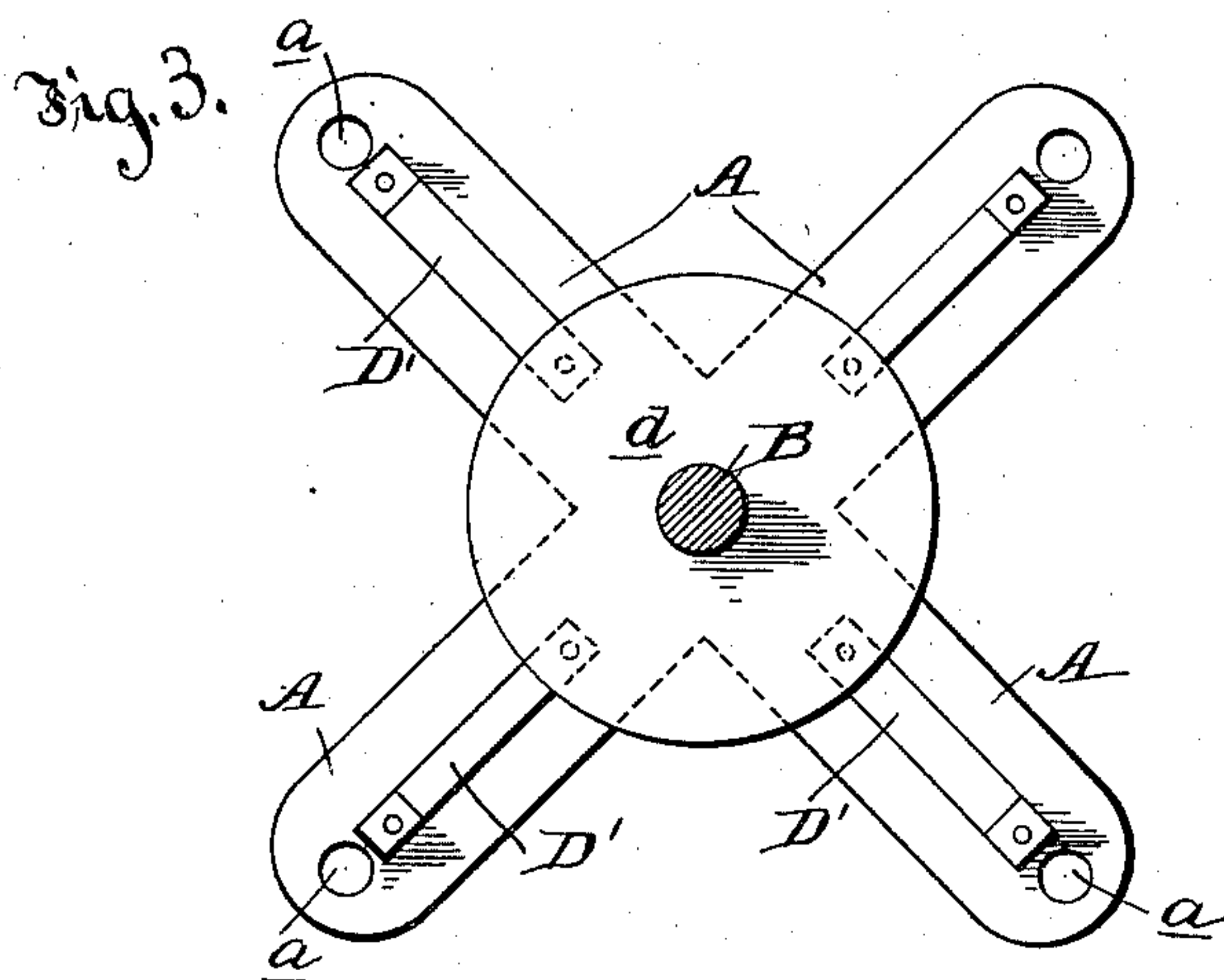
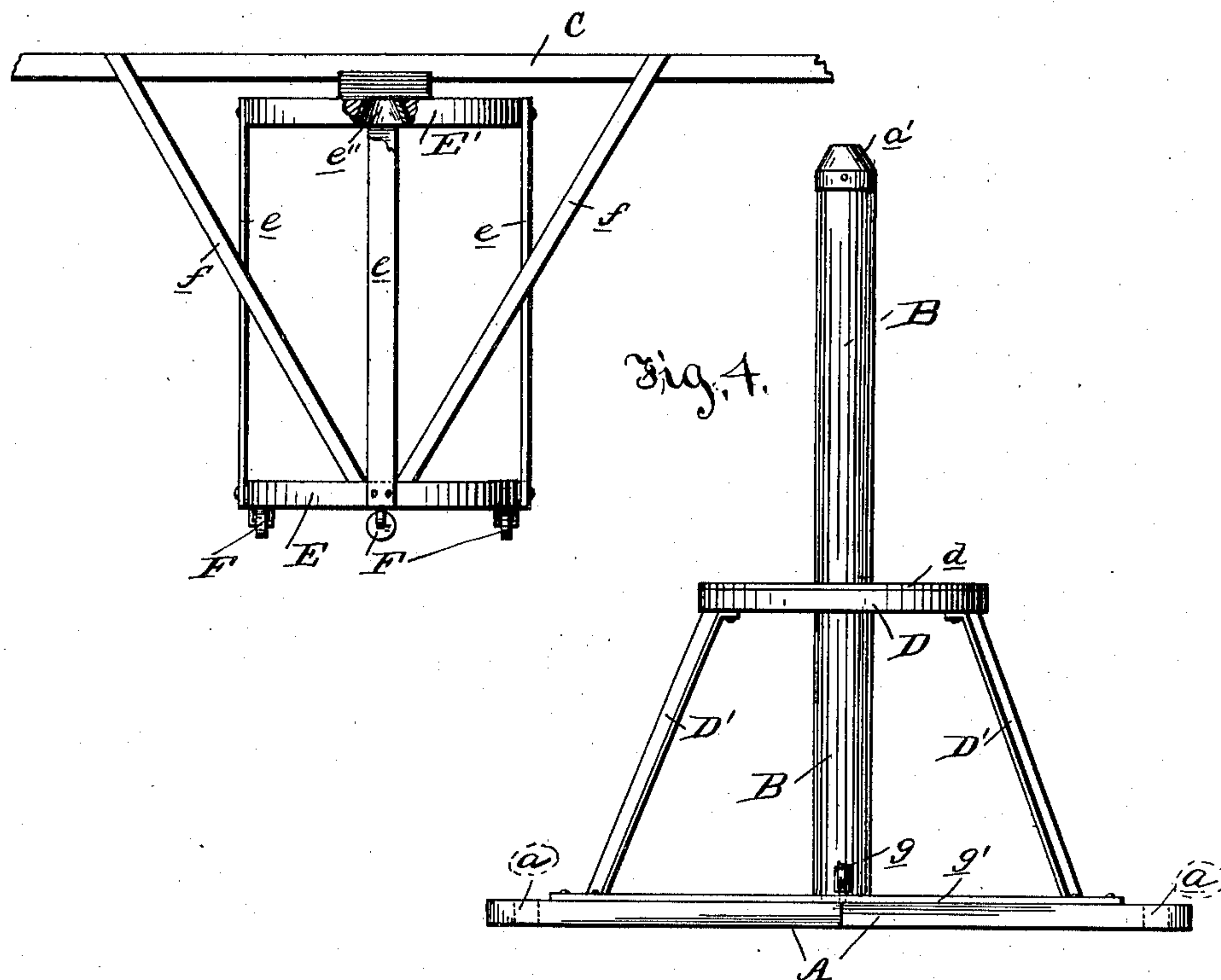
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2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

WILLIAM E. SAUERMAN, OF CINCINNATI, IOWA.

## ROTARY DERRICK.

SPECIFICATION forming part of Letters Patent No. 640,958, dated January 9, 1900.

Application filed July 12, 1899. Serial No. 723,572. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM E. SAUERMAN, a citizen of the United States, residing at Cincinnati, in the county of Appanoose and State of Iowa, have invented certain new and useful Improvements in Rotary Derricks; 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.

This invention relates to improvements in rotary derricks particularly designed for use in elevating and transferring hay, but at the same time applicable to many other analogous uses.

An object of the invention is to afford a strong and simple construction wherein the least possible strain will have to be borne by the center standard and wherein the carrying or shifting arm may be revolved easily and quickly and with comparatively little friction between the operating parts.

Another object of the invention relates to the means for shifting the load so that the turning of the derrick will be greatly facilitated.

The invention also has in mind certain details in construction and arrangement of parts to be hereinafter pointed out.

In the accompanying drawings like letters of reference designate corresponding parts in the several views.

Figure 1 is a side elevation. Fig. 2 is an end view of the upper section. Fig. 3 is a cross-sectional view on the line  $x x$  of Fig. 1, and Fig. 4 is a view showing the two members detached.

Referring to the drawings, A represents a base, having apertures  $a$  at suitable points therein for attachment to a truck or other conveying means. Mounted centrally of the base and projecting upwardly a desired distance is a non-rotatable standard B, around which the cross-arm C is adapted to revolve, as hereinafter described. Mid-distance of its height the standard or mast A has rigidly secured thereto a circular track D, which is preferably made of wood with a metallic bearing-surface  $d$ , but may be entirely of metal if found expedient. Braces D' equidistant apart, fastened at their upper and lower ends, respectively, to the track and

base, afford sufficient lateral support for the track and other members supported thereupon.

The rotary portion of the derrick comprises the upper and lower sections E E', preferably circular in contour and properly spaced apart and braced by the vertical connecting rods or bars  $e$ . The lower section E has a central aperture adapted to loosely encompass the standard when in operative position, and the upper section E' has the bearing  $e''$  in its under center portion, adapted to normally rest and revolve upon the cone-shaped point  $a'$  of the standard A.

Properly suspended from the lower side of the section E are antifriction-rollers F, which are arranged to travel upon the bearing-surface of the track D. It will thus be apparent that there is comparatively little of the mechanism which is necessary to be revolved and that the arrangement is such that the friction between the operating parts is reduced to a minimum.

A cross-arm C, securely mounted on the section E' of the rotary member, projects outwardly to either side thereof and is braced by the diagonally-arranged rods  $f$  from the lower section E.

When extremely-heavy loads are to be elevated, I make use of that end of the cross-rod to which is attached the pulley  $c$ . A U-shaped bracket  $c'$  carries the said pulley and is adjustably secured in apertures  $c''$  in the arm, which apertures are arranged in series, as shown, so that the pulley may be adjusted backward or forward, as occasion may require; but the elevating means which I prefer to employ and which will in nearly every case suffice is that shown at the opposite end of the cross-rod. In the first place I insert a swiveled block and pulley  $g$  upon a cross-piece  $g'$  on the base A, under which a rope or cable  $g''$  passes to be attached to a horse. From this pulley the rope or cable extends upwardly, as shown, and runs over a traveling carrier G, (seen in diagram in Fig. 1,) and from thence it hangs downwardly and is attached to any suitable hay-fork or other gripping member. The carrier, not forming a part of the present invention, will not be specifically described; but it will suffice to refer to it as being one of the ordinary type, which will



when the load is elevated lock the same temporarily in such position until said carrier traverses a predetermined distance, where it will contact with a suitable trip and disengage the load, thereby permitting the same to drop. I have been enabled to employ such a carrier herein by mounting on the under side of the cross-arm a track  $G'$  of a length to extend from the extreme end of the cross-piece to a point substantially above or inward from the pulley  $g$ . The object of having this track and carrier is so that the weight of the material suspended at the end of the rope may be brought inward over the pulley, so that there will not be the outward strain on the operating-rope when the derrick is being turned that would otherwise be incident to the material being suspended from the end of the arm during the rotary movement.

The operation will be as follows: The parts primarily occupying the positions indicated in Fig. 1, the fork or other grip will be engaged with the material to be lifted, and, the operator retaining the carrier at the end of the arm by means of the rope  $H$ , provided for the purpose, the horse will draw upon the rope and elevate the load, and, the operator then slacking the rope  $H$ , the carrier and load will be drawn back into the position indicated in dotted lines, same figure. The derrick may then be readily turned to the desired position, the carrier and load returned to the end of the cross-beam through the medium of the rope  $H$ , and the load deposited.

It will be apparent that the track  $G'$  may be made to register with a corresponding track upon the ceiling of a barn, hay-loft, or the like, so that the carrier may be run clear of the derrick, if found practicable.

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

1. A derrick comprising a support or base, a track mounted thereon, a standard extending upwardly from the track, a rotary member resting on the upper end of the standard

adapted to revolve thereon extending downwardly to a plane slightly above the track, and comprising the sections  $E, E'$ , arms extending in opposite directions from the upper section, and vertical and diagonal braces therefor, antifriction-rollers interposed between the track and rotary member to constitute a bearing for the lower end of the rotary member, and elevating mechanism carried by the said rotary member, substantially as described.

2. A derrick comprising a base or support, a stationary mast thereon, a rotary member mounted on the mast, a track  $G'$  on said rotary member, a carrier adapted to travel on the track, a rope or chain extending downwardly from said carrier to a suitable source of power, a guide for said rope or chain on the base or support, located below the track and away from the mast, and means operating to cause the carrier to travel inwardly to the plane of the rope-guide on the base, substantially as described.

3. A derrick comprising a base or support, an upwardly-extending stationary standard thereon, a member adapted to rotate around the standard, means for elevating the load comprising a suitable track, carrier and operating-rope leading to a source of power carried by the rotary member, an antifriction-guide for the operating-rope mounted at approximately the lower end of the base or support slightly outward or away from the standard thereon, means operating to cause the carrier and load to travel inwardly to substantially the vertical plane of the antifriction-guide on the base, and means for restoring the carrier to its initial position to unload, substantially as described.

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

WILLIAM E. SAUERMAN.

Witnesses:

G. P. MYERS,  
J. D. BAIER.