

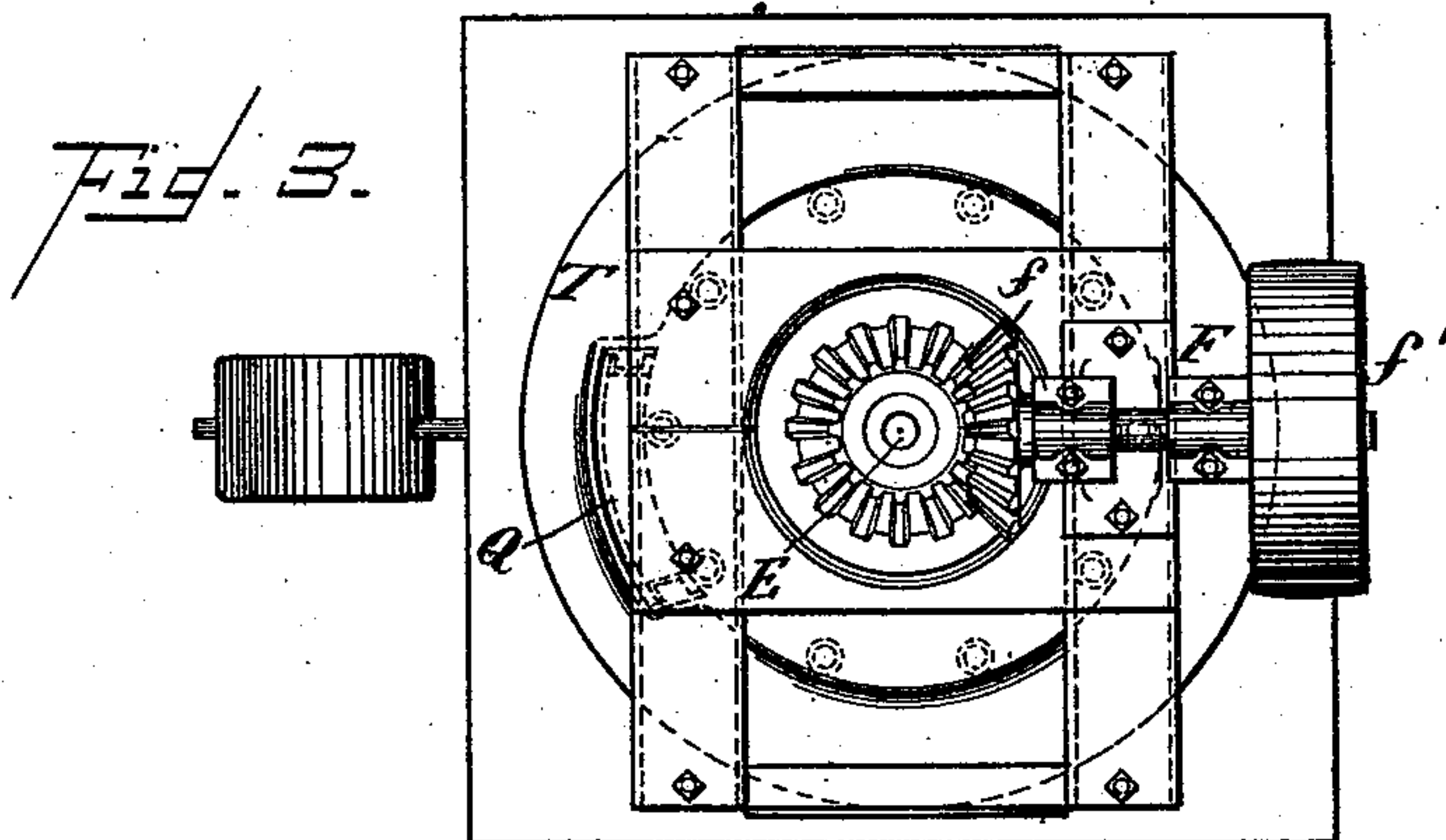
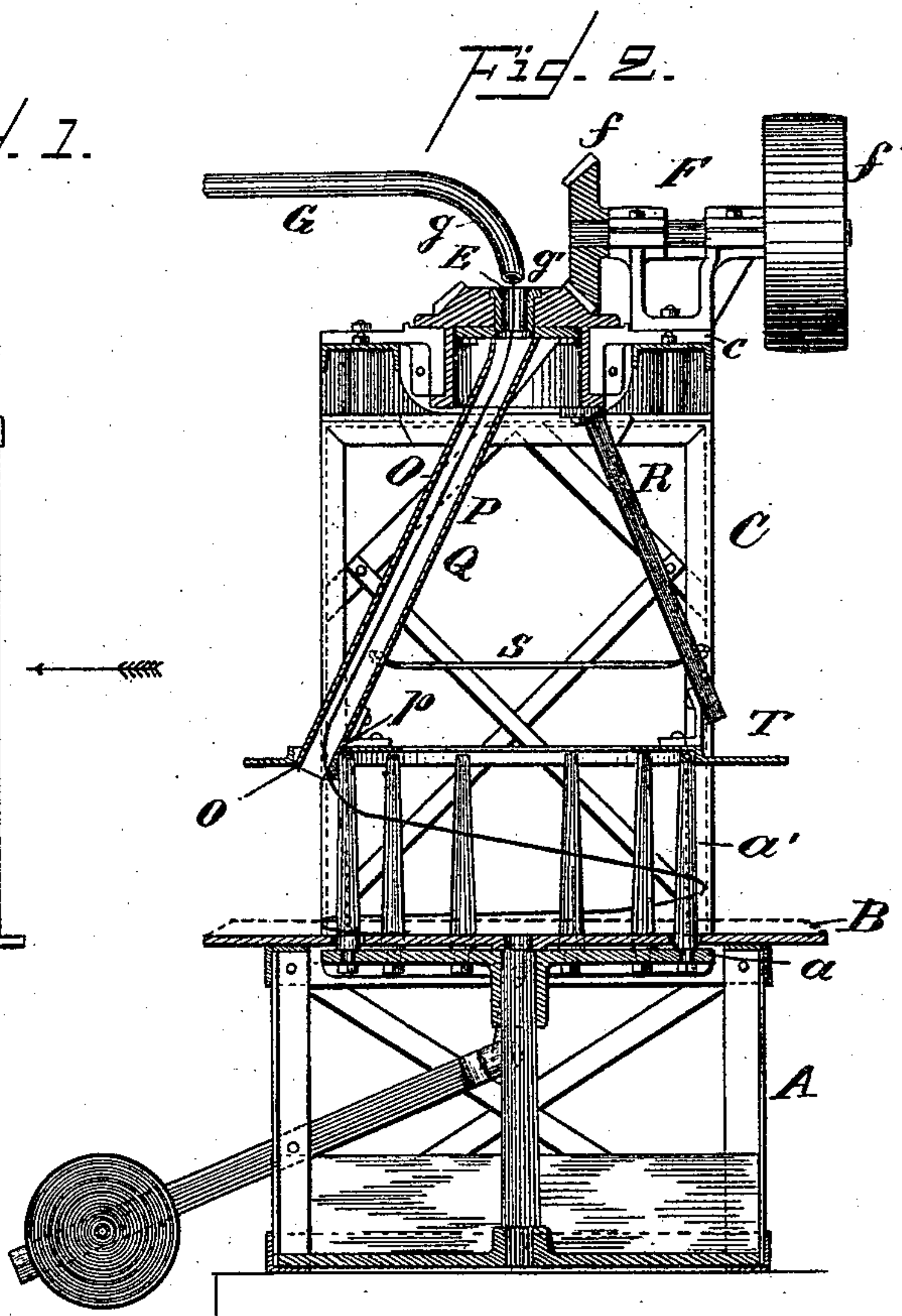
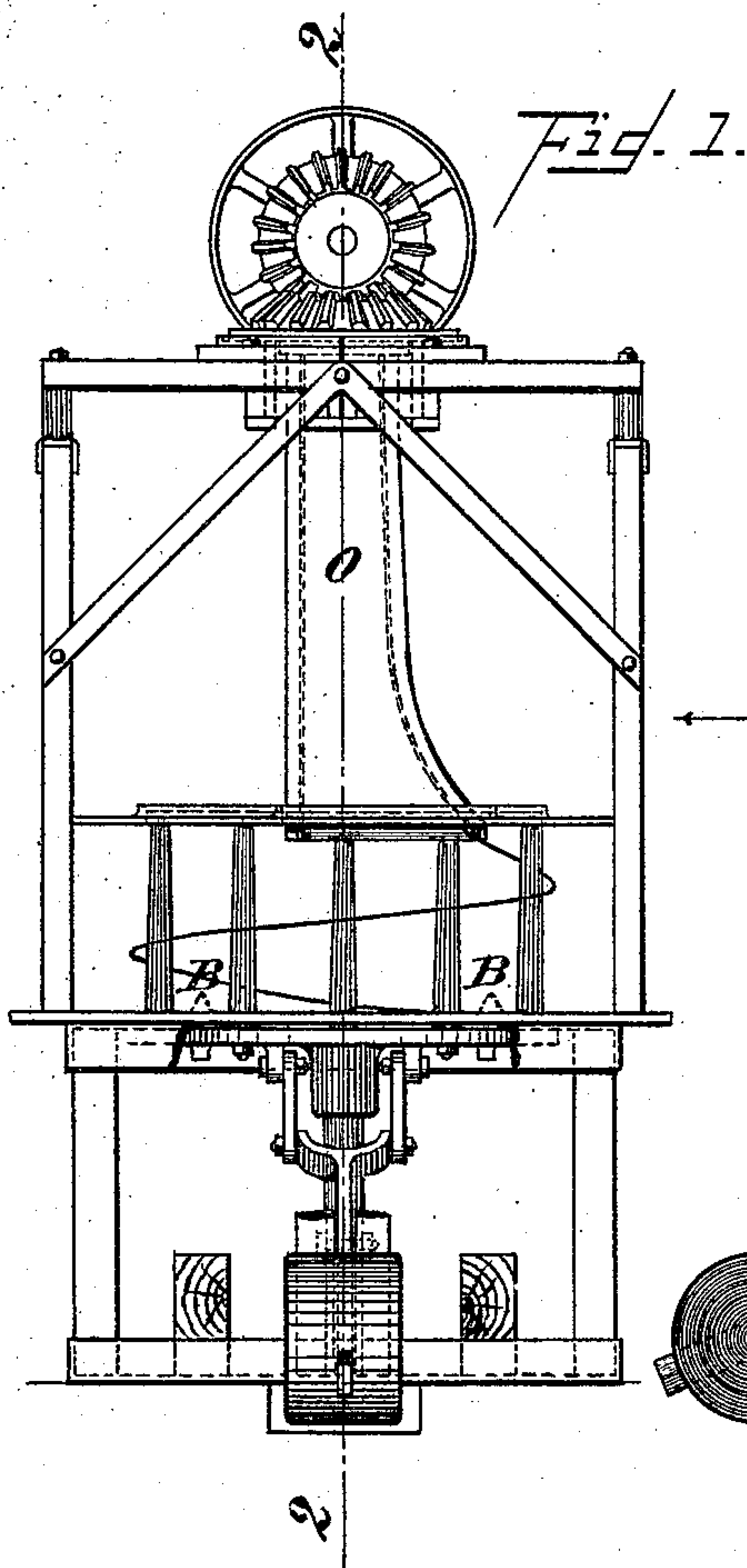
(No Model.)

3 Sheets—Sheet 1.

W. A. KILMER.  
ROD MILL REEL.

No. 532,565.

Patented Jan. 15, 1895.



WITNESSES:

*George Lehberger*  
*John H. Baueroft.*

INVENTOR

*William A. Kilmer,*  
BY  
*W. H. Singleton*  
ATTORNEY.

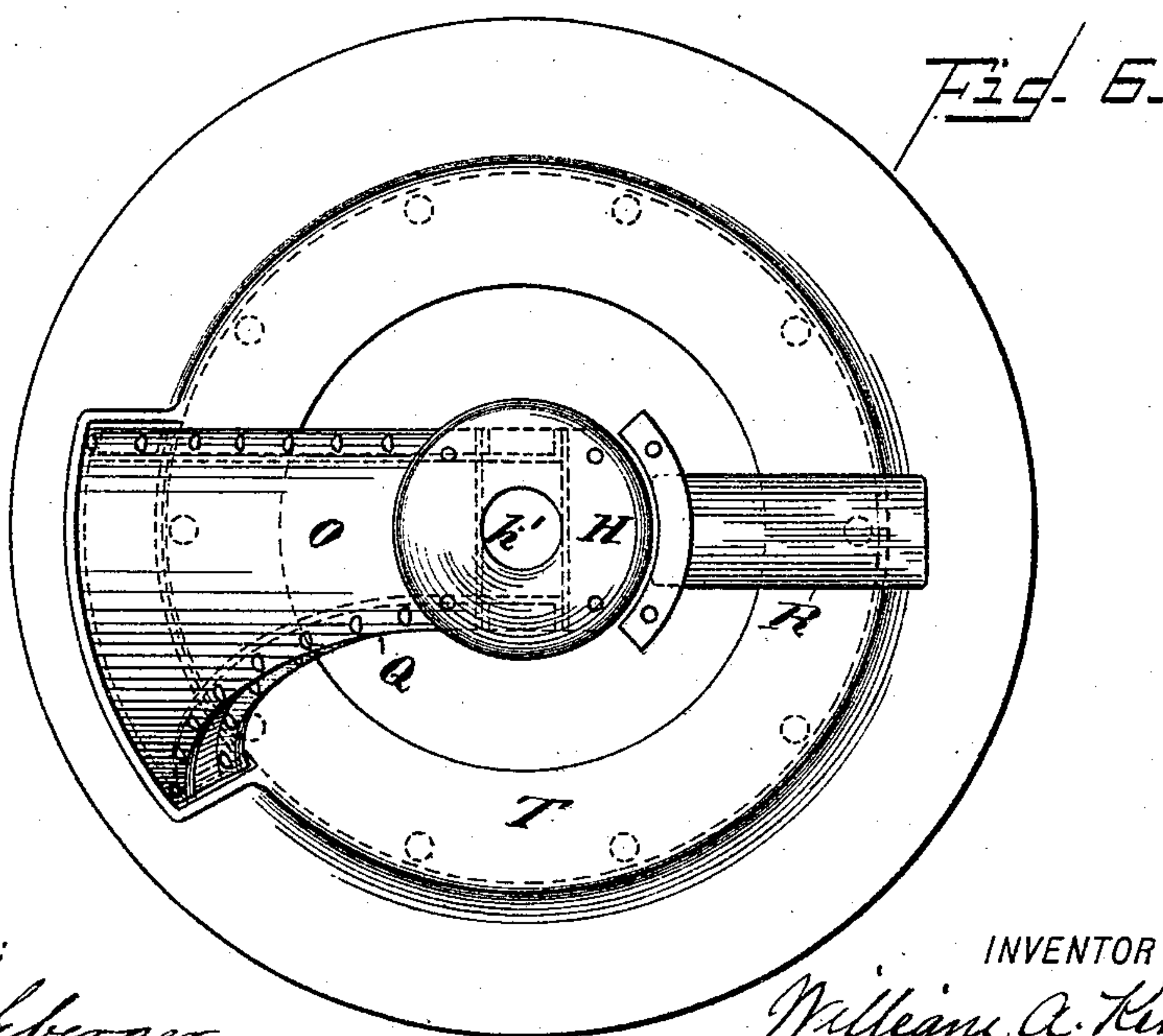
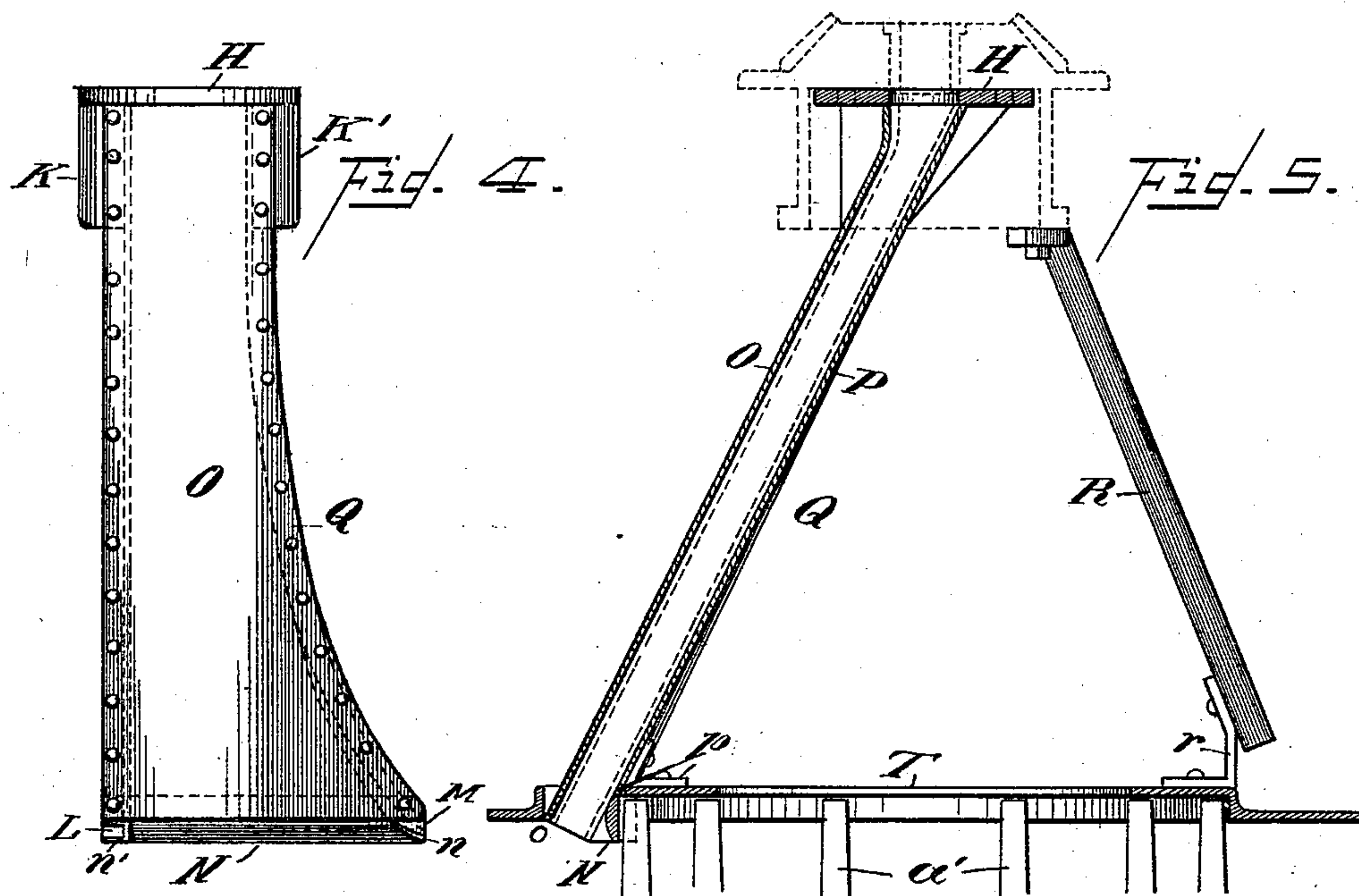
(No Model.)

3 Sheets—Sheet 2.

W. A. KILMER.  
ROD MILL REEL.

No. 532,565.

Patented Jan. 15, 1895.



WITNESSES:

George Lehberger  
John H. Baerens

INVENTOR

William A. Kilmer.  
BY  
W. H. Singleton.  
ATTORNEY.



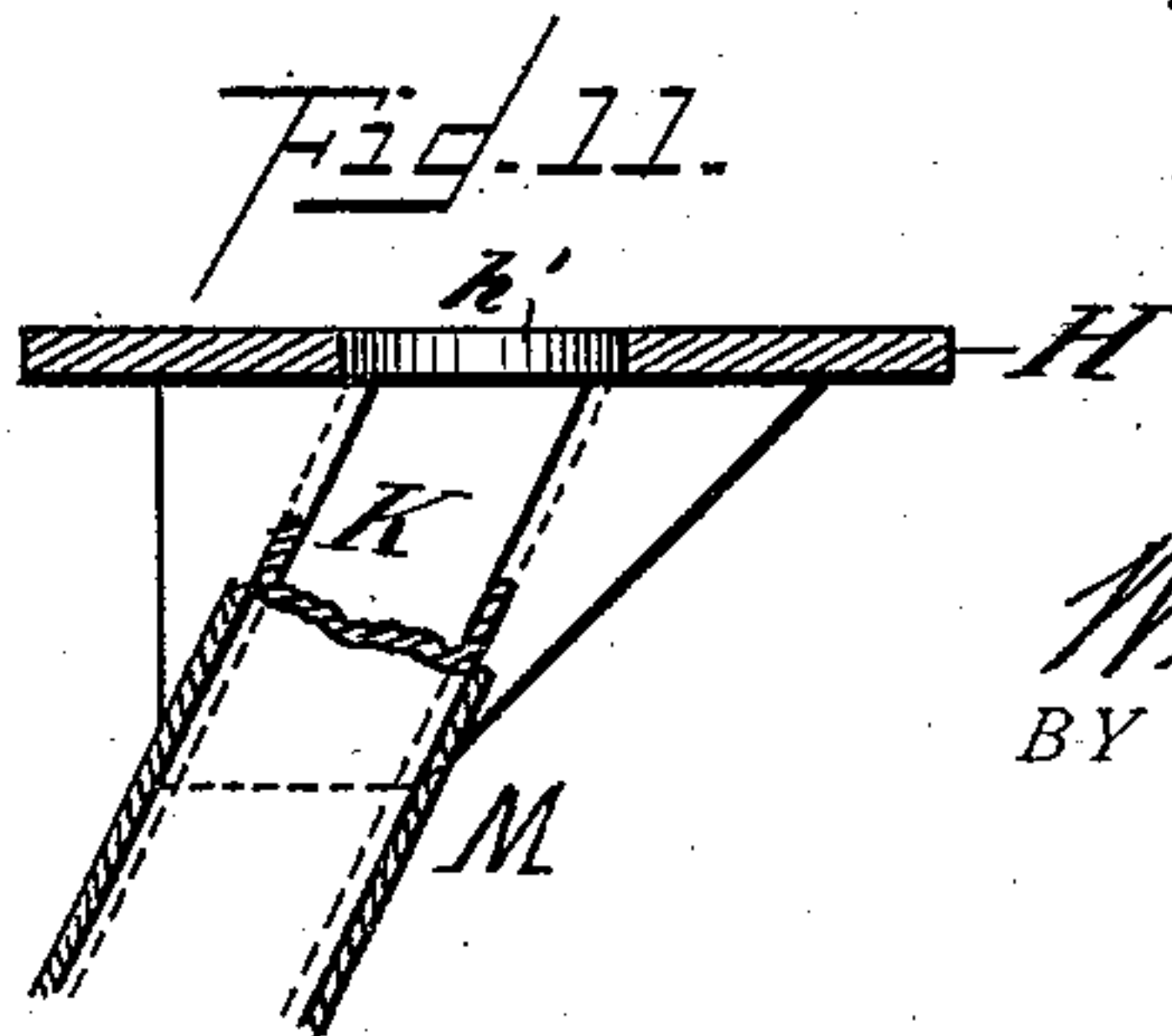
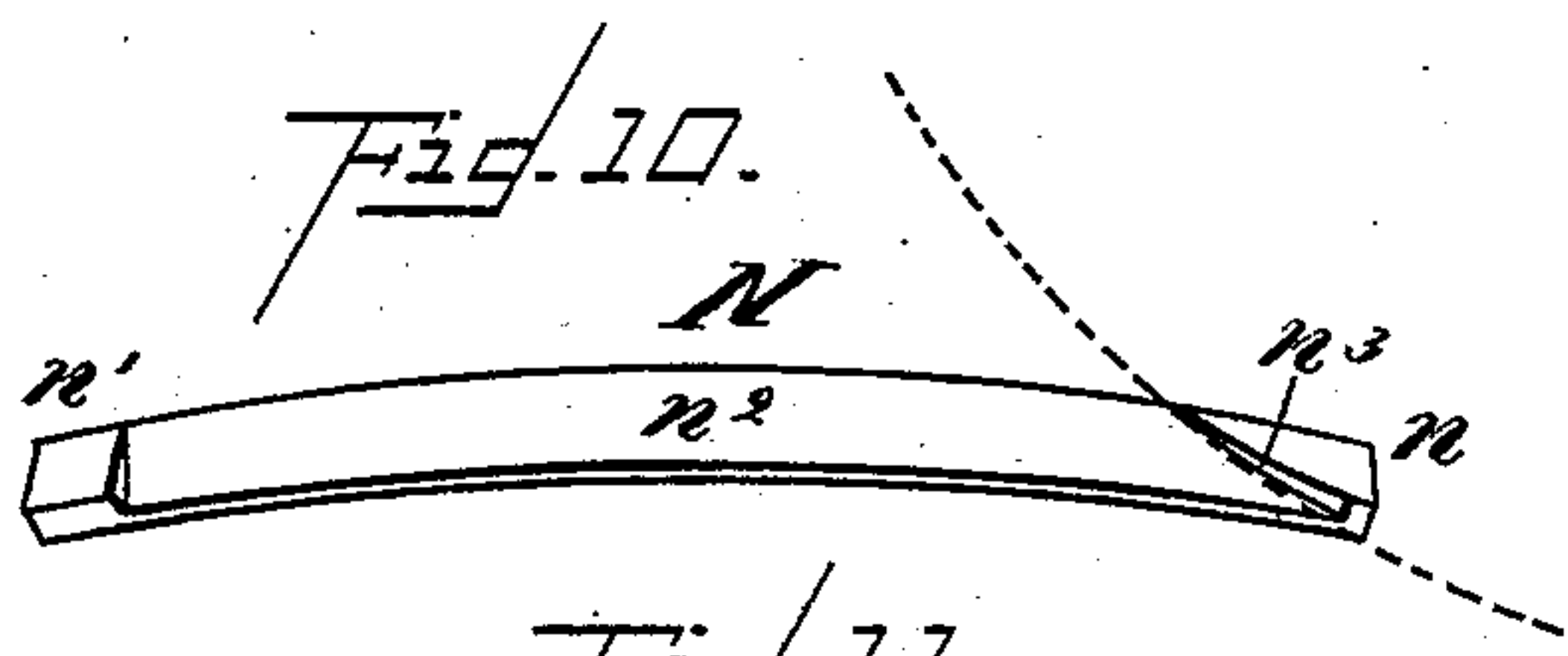
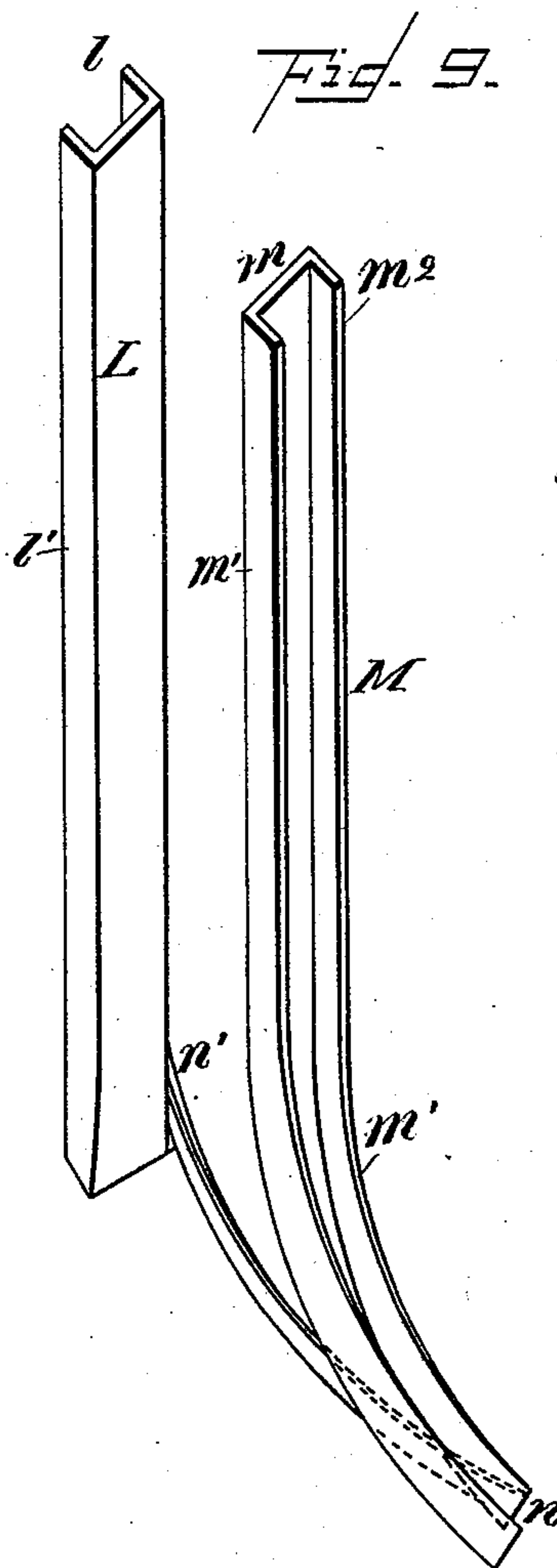
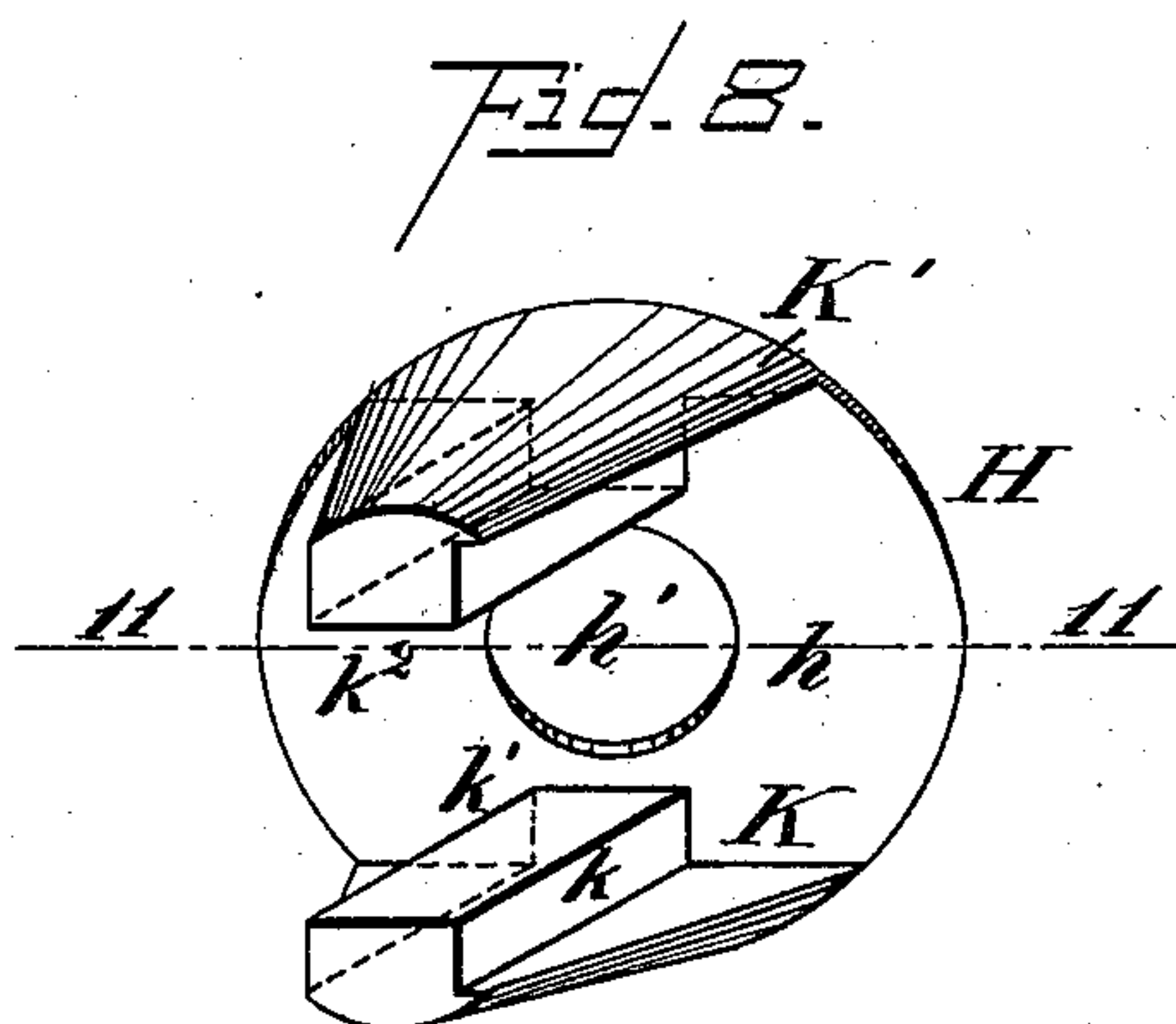
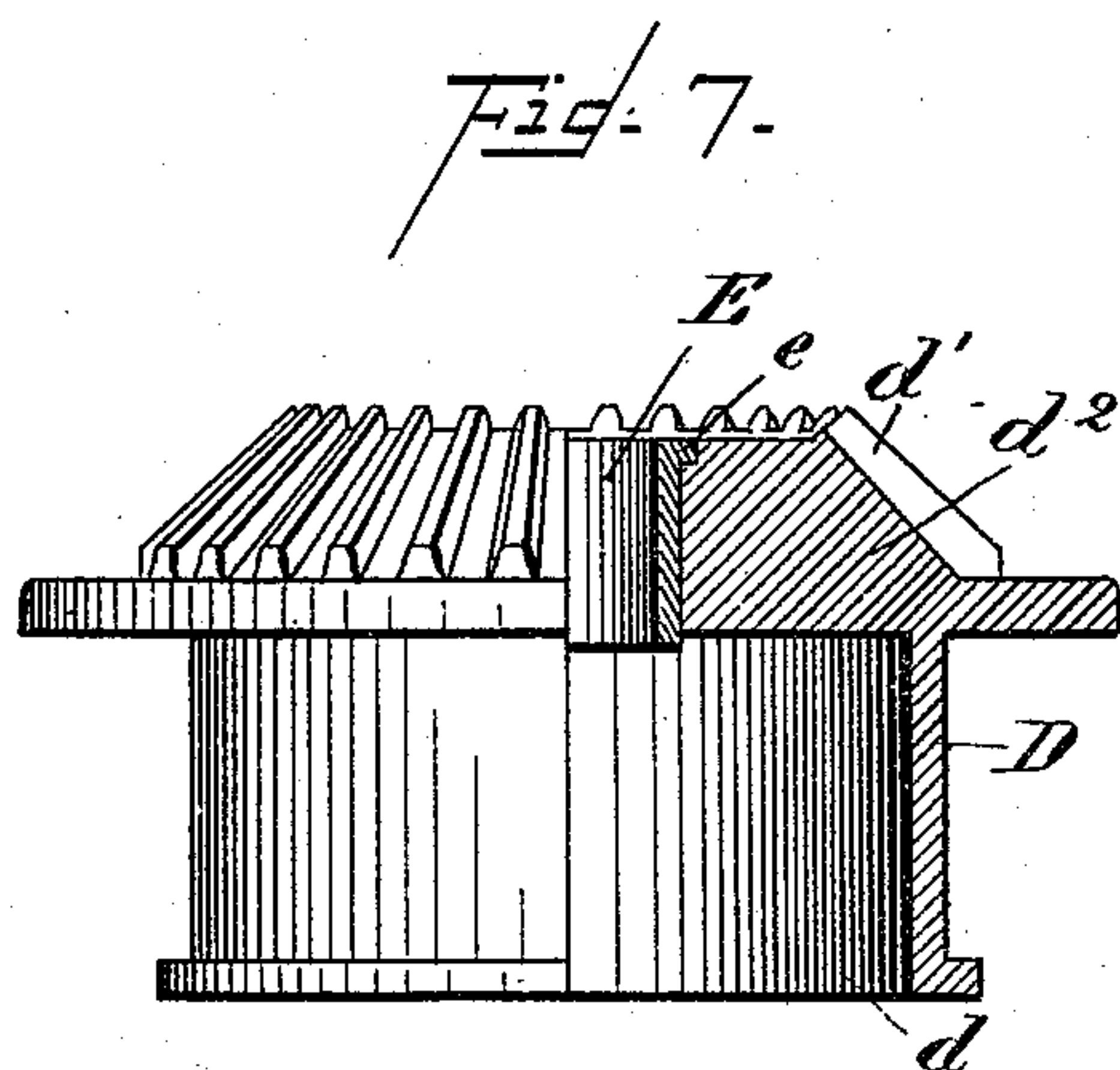
(No Model.)

3 Sheets—Sheet 3.

W. A. KILMER.  
ROD MILL REEL.

No. 532,565.

Patented Jan. 15, 1895.



WITNESSES:  
George Lehberger.  
John H. Bamforth

INVENTOR,  
William A. Kilmer.  
BY W. H. Singleton.  
ATTORNEY.



# UNITED STATES PATENT OFFICE.

WILLIAM A. KILMER, OF NEWBURG, NEW YORK.

## ROD-MILL REEL.

SPECIFICATION forming part of Letters Patent No. 532,565, dated January 15, 1895.

Application filed November 6, 1893. Serial No. 490,178. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. KILMER, a citizen of the United States, residing at Newburg, in the county of Orange and State of New York, have invented certain new and useful Improvements in Rod-Mill Reels; 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 an improvement in automatic reels to be employed with rod mills in reeling or taking up the product as it comes from the mill.

The invention consists in a reel provided with a guide which is so constructed as to minimize friction, as will be explained.

In the drawings: Figure 1 represents a side view of my improved reel. Fig. 2 represents a transverse section of Fig. 1, taken on the line 2—2 looking in the direction of the arrow. Fig. 3 represents a top view of the reel. Fig. 4 represents a side view of the curved guide. Fig. 5 represents an enlarged vertical transverse section taken through the top part of Fig. 2, showing the guide and the counter weight and rim. Fig. 6 represents an enlarged top view of the reel such as is shown in Fig. 5. Fig. 7 is an enlarged side view of the gear wheel and cap at the top of the reel, being partly in section. Fig. 8 is an underneath perspective view of the casting to which the upper end of the curved guide is secured. Fig. 9 is an enlarged view of the channel irons and wear plate which form parts of the guide. Fig. 10 is a detailed view of the wear plate, the dotted lines indicating the path of the rod. Fig. 11 is a detailed view of part of the casting shown in Fig. 8.

In the drawings: the letter A indicates the usual lower portion of an ordinary automatic rod reel constructed in the usual way and provided with a plate *a*, from which rise the usual reel pins *a'*, tapering off from bottom to top. Secured on top of this plate *a* transversely thereto are two ribs B, indicated in dotted lines in Figs. 1 and 2.

The frame C extends upwardly from the bottom of the reel and is securely braced as shown. Centered in a bearing in the top *c* of this frame C and extending down through the top, is a cap D having on the under side the hollow

journal *d* and on the top the beveled gear *d'*. Bushed into the center of the top *d'* of this cap D is the thimble E having the flange *e*. Engaging the beveled gear *d'* is the beveled gear *f* on the counter shaft F provided with the driving pulley *f'*.

Extending from the top of the reel is the rod delivery pipe G having the curved end *g* with its outlet *g'* which is over the top of the thimble E.

Securely bolted within the hollow journal *d* of the cap D to the under side of the top of such cap, by its rim *h* is a casting H, having a central hole *h'* which is in line with the thimble E. This casting H has at opposite ends of a diameter the depending projections K—K', such projections having on each side the rabbets *k*, there being between the two rabbets *k—k'* of each projection K—K', ribs *k'—k''*, the former, *k'* having a turn or bend as shown. Fitting around and securely bolted to these ribs *k'—k''* are the upper ends, *l* and *m* of the channel irons L and M. The channel iron L has a twist given to it, so as to compensate for the greater distance of one side of the iron from the center of the reel, thus bringing both sides at the bottom the same distance from this center. A similar twist, for the same purpose, is given the channel iron M. This twisting of these channel irons, may be through their entire length. These channel irons, L, and M form the sides of the improved guide which is the main element of the improvement in this reel. As has been said, the channel iron M is twisted as shown. This iron curves at its bottom in two directions. At the point *m'* where the second curve begins, it not only curves outwardly away from the channel iron L but also curves toward the right, that is in the direction toward the reeling pins *a'*. This double curvature of the bottom of the channel iron M is shown in Fig. 9. To the bottoms of these channel irons L and M are secured the ends *n* and *n'* of the curved wear plate N. This curved wear plate N has at each end *n* and *n'* an offset, the faces of these offsets being adapted to fit against the lower ends of the channel irons L and M so as to throw out the main portion *n''* of the wear plate N at an angle to and away from these channel irons and closer to the reel pins. At the end *n* of this wear plate N there



is made on the underside of the plate at the offset a prolonged curve  $n^3$ , the curvature of this curve being the same as that which is given to the under side of the lower end of the channel iron M where the wear plate N is secured to such lower end of the channel iron. The lower edge of the wear plate N is in substantially the same horizontal plane as the lower edges of the lower ends of the channel irons L and M.

Securely bolted to the front edges  $l'$  and  $m'$  of the channel irons L and M is the plate O, and securely bolted to the rear edges  $l^2$  and  $m^2$  of these channel irons L and M is another plate P. These plates have the curvature of the reel as shown in Fig. 6. The upper ends of these plates O and P rest against the under side of the flange  $h$  of the casting H. The lower edge  $p$  of the plate P rests against the top of the wear iron N, but the lower edge  $o$  of the other plate O comes somewhat below the lower edge  $p$  of the plate P. This arrangement of the channel irons, wear plate and front and back plates forming the improved guide is so arranged in the reel that the upper end of the guide is directly under the thimble E and the outlet  $g'$  of the rod delivery pipe G. This rod guide Q extends outwardly and obliquely and has its lower end just outside of and below the upper ends of the reel pins  $a'$ .

Secured to the under side of the cap D just across the reel from the rod guide Q, is a counter weight R to such guide, the two being braced apart by the brace  $s$ . Securely bolted to the lower ends of the guide Q and counter weight R, is the circular rim T, its location being such that it surrounds the upper ends of the pins  $a'$  when the pins are in the elevated position shown in Fig. 2.

As the rod is forced from the rolls of the rolling mill it passes through the rod delivery pipe G out of its outlet  $g'$  down through the thimble E, down the rod guide Q out at the lower end of such guide under the wear plate N and around the pins  $a'$ . At the same time, power being applied to the counter shaft F, the cap D is turned in its bearings in the top of the frame C and carries with it the rod guide Q. This rotation of the cap and guide is in the direction of the arrow, Fig. 1, that is, the straight edge of the guide Q is in front and the curved edge at the rear. This movement of the guide tends to cause the rod to be thrown against the rear or curved channel iron M and to take the position shown in Fig. 1. The rod is also thrown down into the curve  $n^3$  of the wear plate N as indicated by dotted lines in Fig. 2, and it passes out underneath the end of the wear plate and is laid around the pins  $a'$ . It will be seen that this action of the guide, owing to its construction, lays the rod around the pins without the usual twisting or binding of the rod which is found in previous rod mills. This freedom of the rod from twisting or binding is due to the shape of the guide. There is ample width

of the guide for play of the rod from side to side and the increasing of this width from top to bottom compensates for the sway of the rod as the guide turns around. Also by making this guide with the curve at its delivery end, friction is minimized and there is no binding in the last end of the rod as is found in other reels, there being no angles to pull over.

As shown in Fig. 2, the guide Q runs in a direct line from the thimble E to the top of the pins  $a'$ , and also is transversely curved as shown in Fig. 6. As the rod is forced by the rolling mill down into this guide, the rod strikes against the inner curved surface of the plate P within the guide Q and glances off therefrom; and as there are no angles or bends in the guide from top to bottom, the rod is freely forced down the guide and out at its delivery end and under the delivery of the wear-plate N. Whatever wear there may be is taken up in the curve  $n^3$  of the wear plate N and the renewing of this plate is about all the repairing that is necessitated by the coiling of rods with this improved reel.

By using the ribs B, all rebounding of the coil is effectually prevented as the rod bends down over these ribs, and in easing down all tendency to rebound is obviated. However, as sometimes, in case the rear end of the rod should become cooled there may be a tendency for it to fly up in spite of the use of these ribs, and I propose, as absolute surety against rebounding, to use the rim T; but in most cases the ribs alone would be sufficient to prevent such rebounding.

Having described my invention, what I claim is—

1. A rod reel provided with a guide, Q, consisting of the plates, O and P, and the irons, L and M, the latter curved outwardly at the bottom, the said guide being wider at the bottom than at the top, as set forth.
2. The guide rod, Q, wider at the bottom than at the top and having its rear edge curved outwardly at the bottom, in combination with the wear plate, N, secured to the bottom of the guide and having the curve,  $n^3$ , of the same curvature as that of the rear edge of the guide at the bottom, as set forth.
3. The rod guide, Q, consisting of the plates, O and P, and the channel irons, L and M, the latter having the double twist, as set forth.
4. The rod guide, Q, provided with the wear plate, N, having the offsets,  $n'$  and  $n$ , and the curve,  $n^3$ , as set forth.
5. The combination of the cap, D, having the projections, K K', with the rod guide, Q, consisting of the plates, O and P, and the channel irons, L and M, as set forth.

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

WILLIAM A. KILMER.

Witnesses:

JOHN H. BANCROFT,  
GEO. LEHBERGER.