

(No Model.)

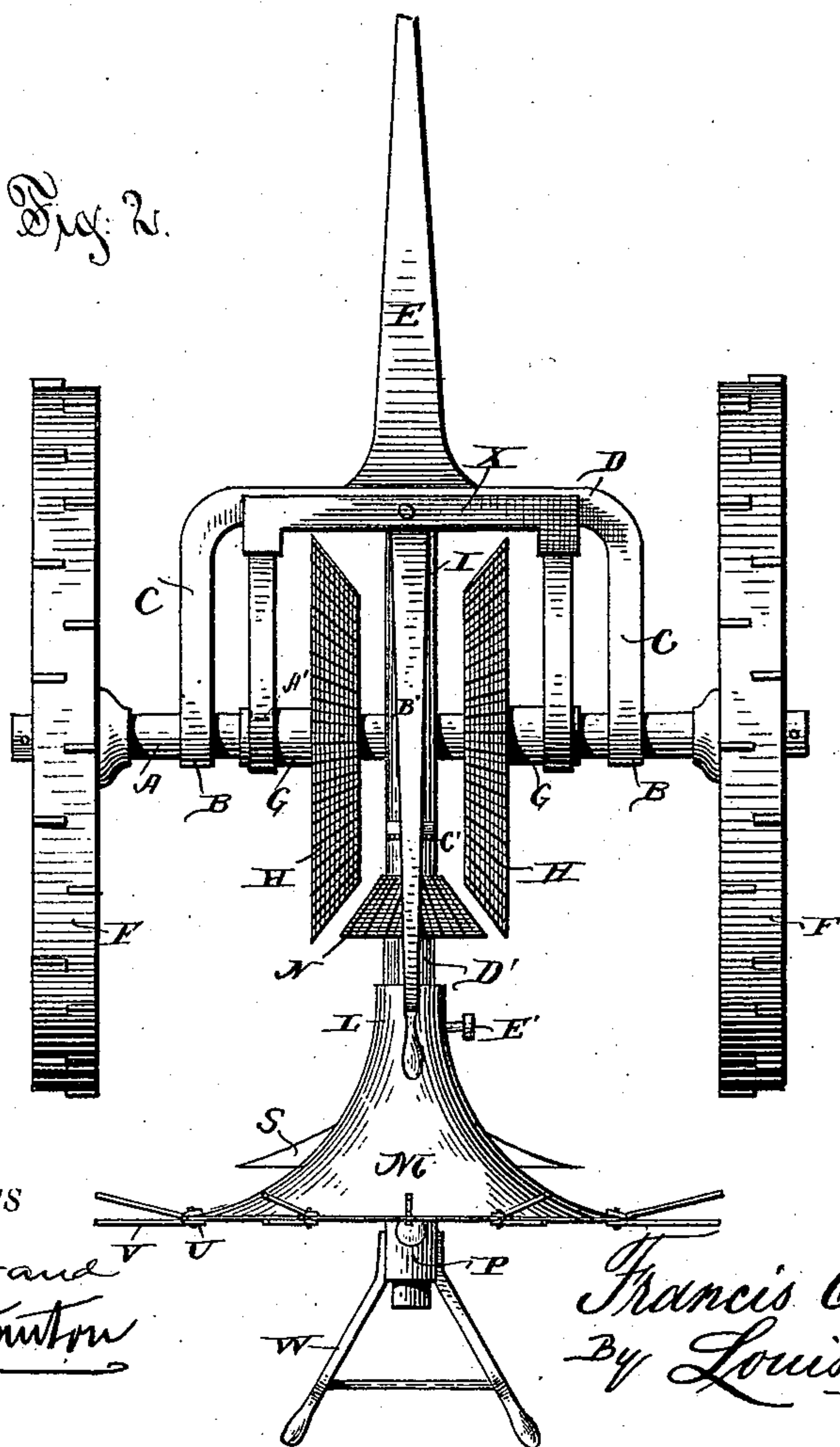
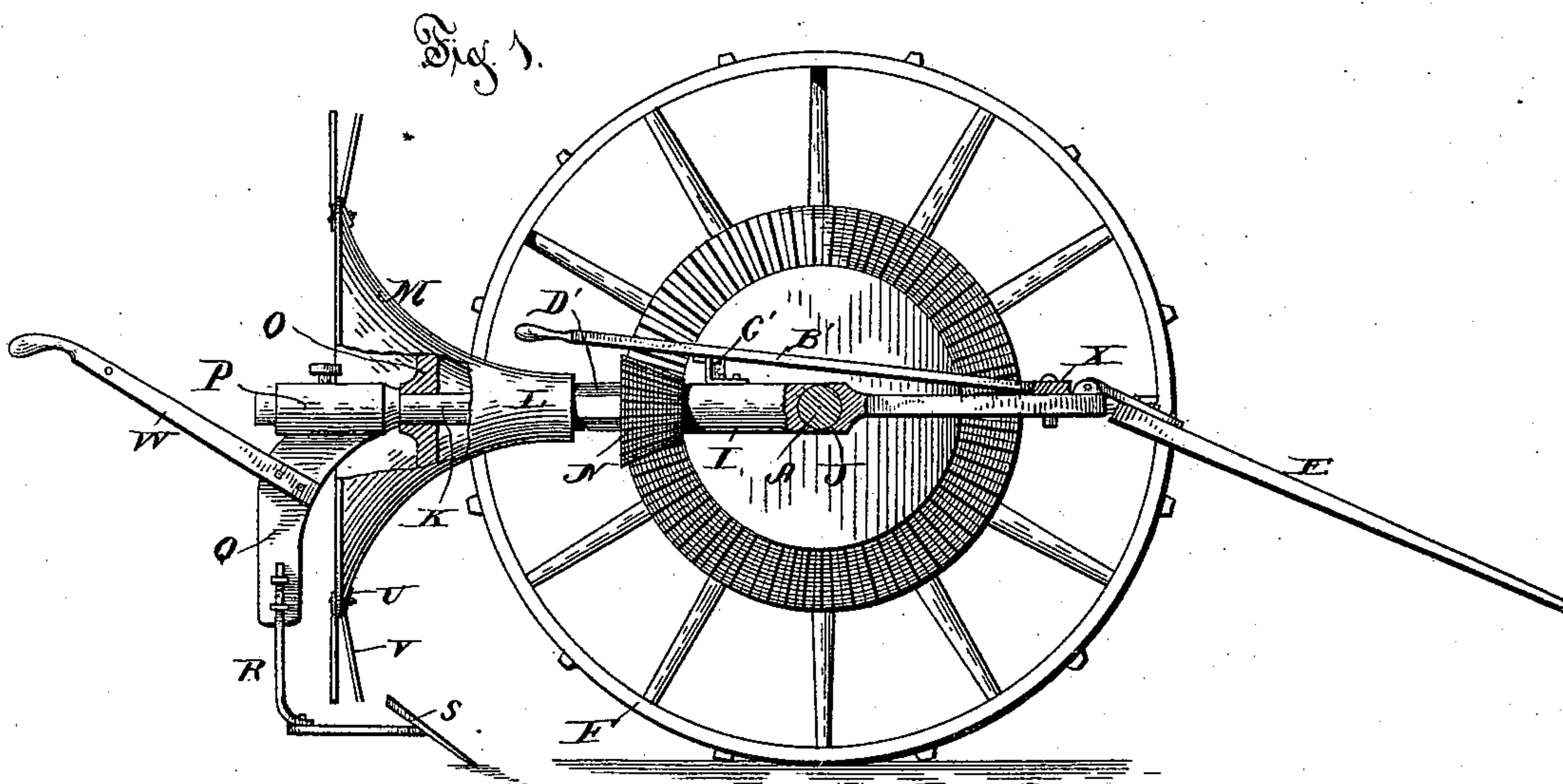
2 Sheets—Sheet 1.

F. O. WILLIAMS.

POTATO DIGGER.

No. 352,966.

Patented Nov. 23, 1886.



WITNESSES

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INVENTOR

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Attorneys.

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Fig. 3.

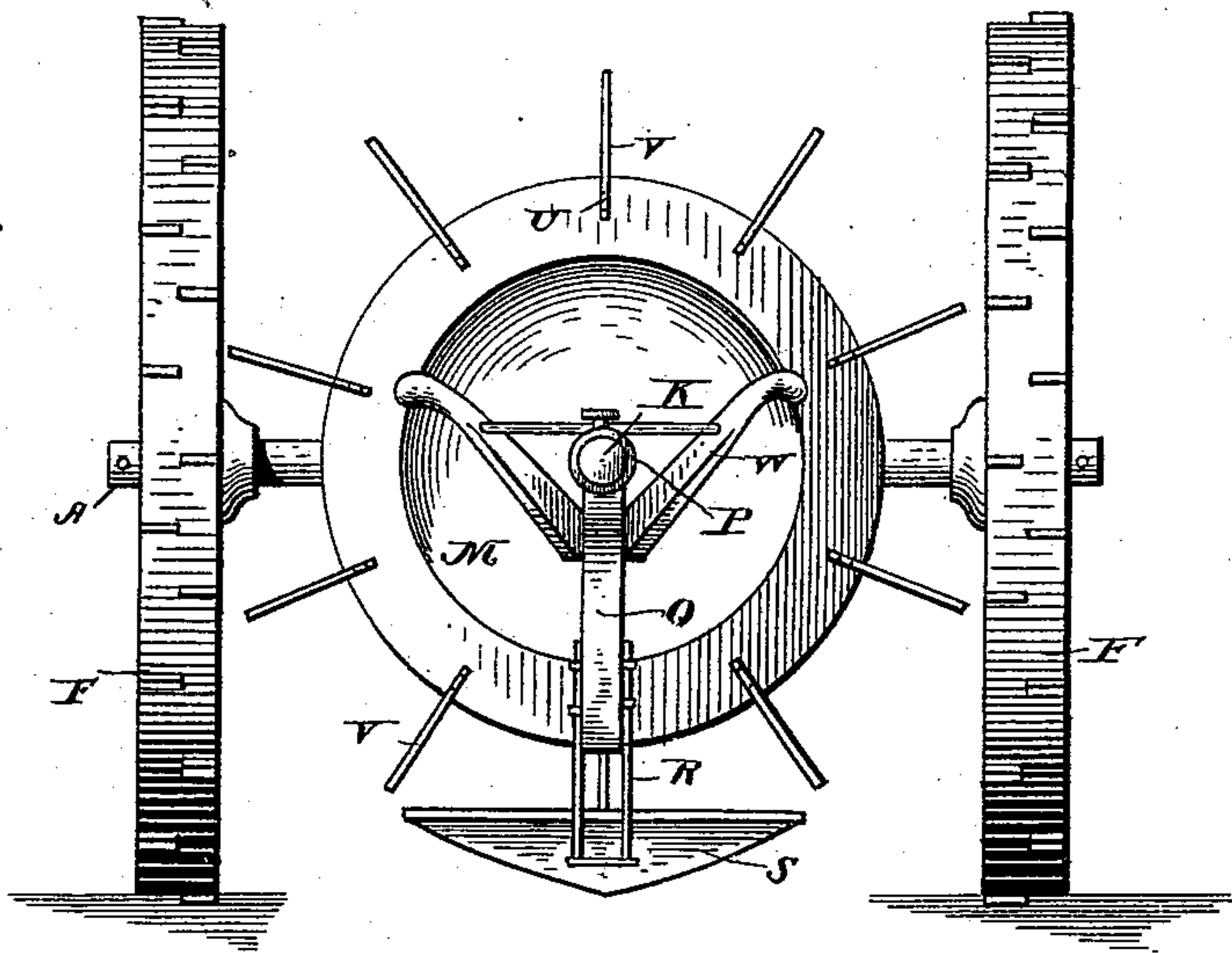


Fig. 4.

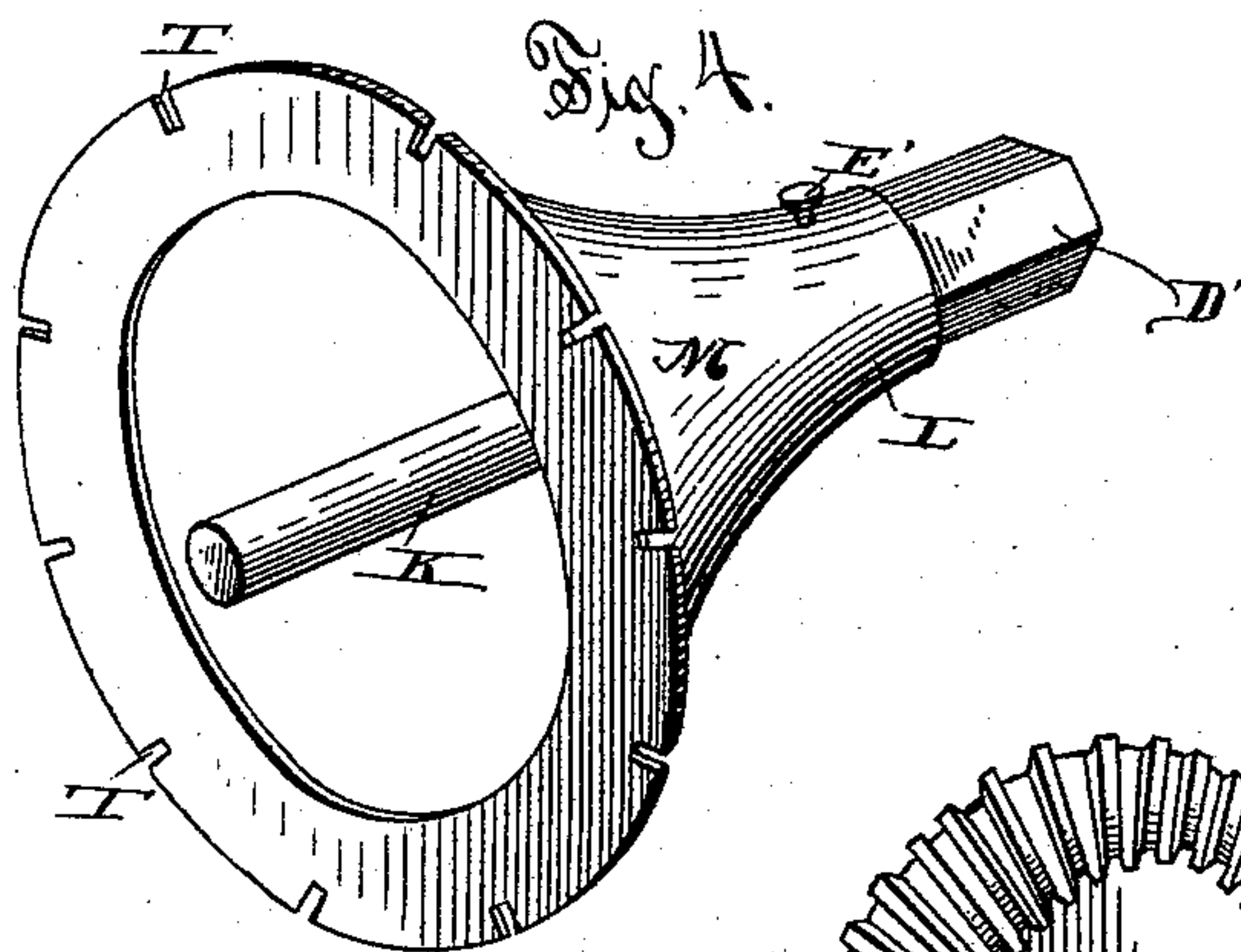


Fig. 5.

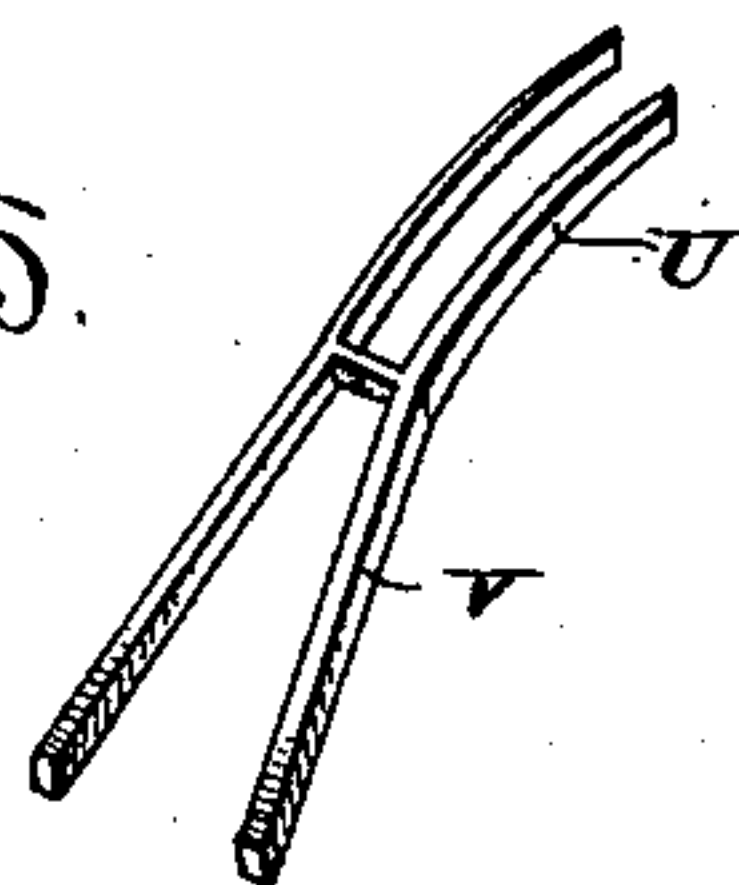
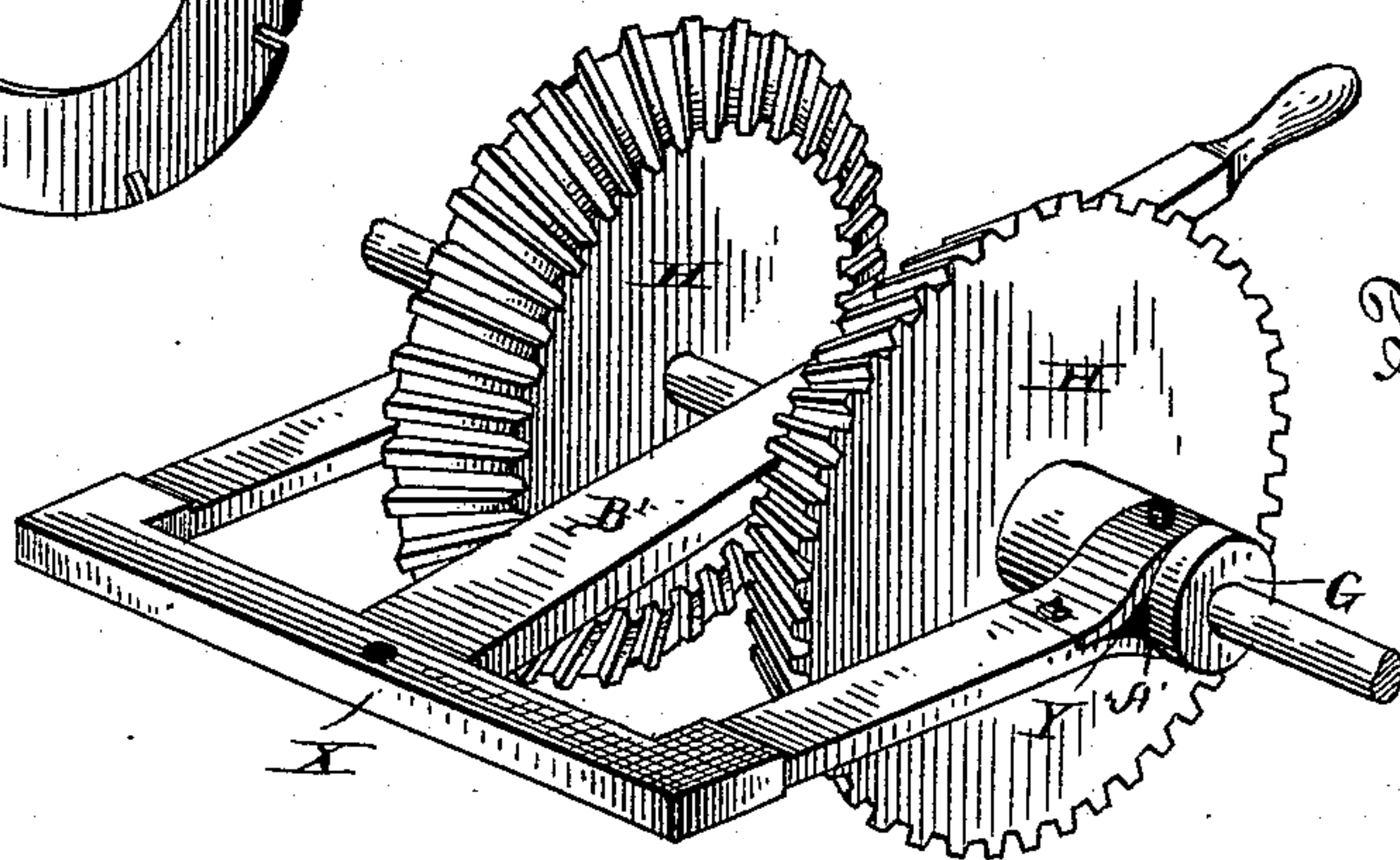


Fig. 6.



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UNITED STATES PATENT OFFICE.

FRANCIS OSCAR WILLIAMS, OF COHOCTON, NEW YORK.

POTATO-DIGGER.

SPECIFICATION forming part of Letters Patent No. 352,966, dated November 23, 1886.

Application filed March 20, 1886. Serial No. 195,919. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS OSCAR WILLIAMS, a citizen of the United States, and a resident of Cohocton, in the county of Steuben and State of New York, have invented certain new and useful Improvements in Potato-Diggers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a longitudinal vertical sectional view of my improved potato-digger. Fig. 2 is a top view of the same. Fig. 3 is a rear view. Fig. 4 is a perspective detail view of the hub of the reel. Fig. 5 is a similar view of one pair of fingers, and Fig. 6 is a perspective detail view of the device for shifting the beveled cog-wheels upon the main axle.

Similar letters of reference indicate corresponding parts in all the figures.

My invention has relation to that class of potato-diggers in which a revolving reel having fingers in its periphery stirs the soil and vines from the potatoes as they are brought to the surface of the ground by a digging-blade; and it consists in the improved construction and combination of parts of such a digger, in which the stirring-fingers are secured to the rim of a flaring funnel-shaped reel, as herein-after more fully described and claimed.

In the accompanying drawings, the letter A indicates the main shaft or axle, which is journaled in bearings B B in the rearwardly-extending frame-arms C, which are connected at the forward ends by means of a cross-piece, D, to which the tongue E is attached. The main shaft has the drive-wheels F F secured to its ends, and sleeves G G, having beveled cog-wheels H H at the inner ends, slide upon and turn with the shaft inside of the bearings.

The middle of the cross-piece of the frame has a rearwardly-projecting arm, I, having a transverse perforation or bearing, J, through which the main shaft passes and in which it turns; and the rear portion of the arm is formed into a spindle, K, of a somewhat smaller diameter than the forward portion of the arm. The forwardly-projecting sleeve L of a flaring funnel-shaped reel, M, fits and turns upon the

spindle, having a bevel-pinion, N, at its forward end, which pinion bears against the shoulder of the spindle and fits between the rear edges of the beveled cog-wheels, and the rear end of the sleeve is provided with a collar, O, inside of its flaring throat, which collar is secured to the reel and revolves upon the spindle.

A sleeve, P, or box fits upon the rear end of the spindle, bearing against the rear side of the collar, and confines the reel upon the spindle, being secured by means of a set-screw, and this sleeve is provided with a downwardly-projecting standard, Q, to the lower end of which the upwardly-projecting shank R of the digging-blade S is secured by means of adjustable clamping-staples or similar means. The forward triangular edge of the digging-blade is lower than the rear straight edge, the blade being placed in an inclined position.

The rim of the funnel-shaped reel is formed with a number of equidistant notches, T, into which the inner lips, U U, of the fingers V V are secured, the said lips straddling the rim in the notches and being bolted thereto, while the fingers project radially outward, the forward finger of each pair being preferably bent into a forwardly-inclined position, as shown in the drawings. The standard at the rear end of the spindle is provided with handles W W, by means of which the machine may be guided.

A U-shaped frame, X, is pivoted at the middle upon the cross-piece of the axle-frame, and the rear ends of its arms are bifurcated, as shown at Y, having inwardly-projecting pins Z, which may engage annular grooves A' in the sleeves of the beveled cog-wheels, the bifurcated ends of the arms being curved around the upper and lower sides of the sleeves. The middle of the pivoted U-shaped frame is provided with a rearwardly-projecting lever or handle, B', which may be held either directly in the central line of the machine, or tilted to either side by means of catches C' upon the rearwardly-projecting central arm of the frame; and it will be seen that by tilting the lever from one side to the other the beveled cog-wheels and their sleeves will be slid upon the shaft, throwing either of the cog-wheels into engagement with the pinion upon the reel. It will thus be seen that the reel may be revolved in either direction, and

that the vines and grass and weeds which may be loosened by the digger-blade may be thrown to either side by simply throwing the lever to one side or the other. The beveled pinion revolving upon the spindle is preferably provided with a prismatic sleeve, D', at its rear end, upon which the similarly-shaped inner side of the sleeve of the reel is secured by means of a set-screw, E', so that the reel may be adjusted closer to or farther from the drive shaft or axle, as desired, the sleeve sliding adjustably upon the sleeve of the pinion.

The bell shape or funnel shape of the reel will prevent the vines from becoming tangled up or caught in the arms of the reel, as they are liable to do in diggers having radiating arms, and the bearing of the reel is covered by the sleeve, so that no dirt can enter the bearing and cut the same or the spindle, the shape of the reel rendering the digger more lasting and less liable to get out of order.

The digger-blade may be raised or lowered upon the standard by means of the staples or clips, adjusting the blade to cut to the desired depth, and the reel and standard will always remain in the same relative position, as the standard is moved with the sleeve, if the latter is adjusted upon the sleeve of the pinion. The forwardly-inclined finger of each pair of fingers of the reel will allow the fingers to pass easily through the soil and through the vines, rendering the draft of the machine comparatively light.

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

1. In a potato-digger, the combination of a U-shaped frame having an arm projecting from the middle of its cross-piece toward the rear, forming a spindle at its rear end, said arm and the ends of the said frame being provided with transverse bearings registering with each other, and a drive-shaft journaled in the said bearings, as and for the purpose shown and set forth.

2. In a potato-digger, the combination of a rearwardly-projecting spindle, a bell-shaped or funnel-shaped reel having a bearing in its forward end and near the mouth of the flaring portion turning upon the spindle, and means for revolving it, as and for the purpose shown and set forth.

3. In a potato-digger, a revolving bell or funnel shaped reel having fingers at its periphery, as and for the purpose shown and set forth.

4. In a potato-digger, a revolving bell or

funnel shaped reel having fingers at its periphery projecting radially, and inclined forward, as and for the purpose shown and set forth.

5. In a potato-digger, the combination of a revolving bell or funnel shaped reel having means for revolving it, and having a number of equidistant notches in its periphery, with a number of diverging fingers having their inner connected ends formed with lips for straddling the rim in the notches, and having bolts passed through the lips and the rim, as and for the purpose shown and set forth.

6. In a potato-digger, the combination of a rearwardly-extending spindle having a shoulder at its forward end, a sleeve revolving upon the spindle and formed with a prismatic exterior, and with a beveled pinion at its forward end, having means for revolving it, and a bell or funnel shaped reel having a prismatic bore in the forward end of its sleeve fitting adjustably upon the sleeve having the pinion, and having a bearing in the mouth of the flaring portion revolving upon the spindle, as and for the purpose shown and set forth.

7. In a potato digger, the combination of a spindle projecting rearward and having a revolving reel, a sleeve secured upon the rear end of the spindle by a set-screw confining the reel and having a downwardly-projecting standard, a digging-blade having an inclined triangular forward edge, and having an upwardly-projecting shank, and clips or bails for securing the shank adjustably to the standard, as and for the purpose shown and set forth.

8. In a potato-digger, the combination of a revolving reel having a beveled pinion upon its forward end, a drive-axle having two sleeves sliding upon it and turning with it, and provided with beveled cog-wheels at their inner ends at both sides of the pinion, and a U-shaped frame pivoted at its middle upon the machine-frame and having a rearwardly-projecting handle or lever at its middle and provided with bifurcated rear ends at its arms projecting around the upper and under sides of the sleeves, and having pins projecting into annular grooves in the sleeves, as and for the purpose shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

FRANCIS OSCAR WILLIAMS.

Witnesses:

EDGAR T. CLAPP,

EDWARD A. MESSERSCHMITT.