

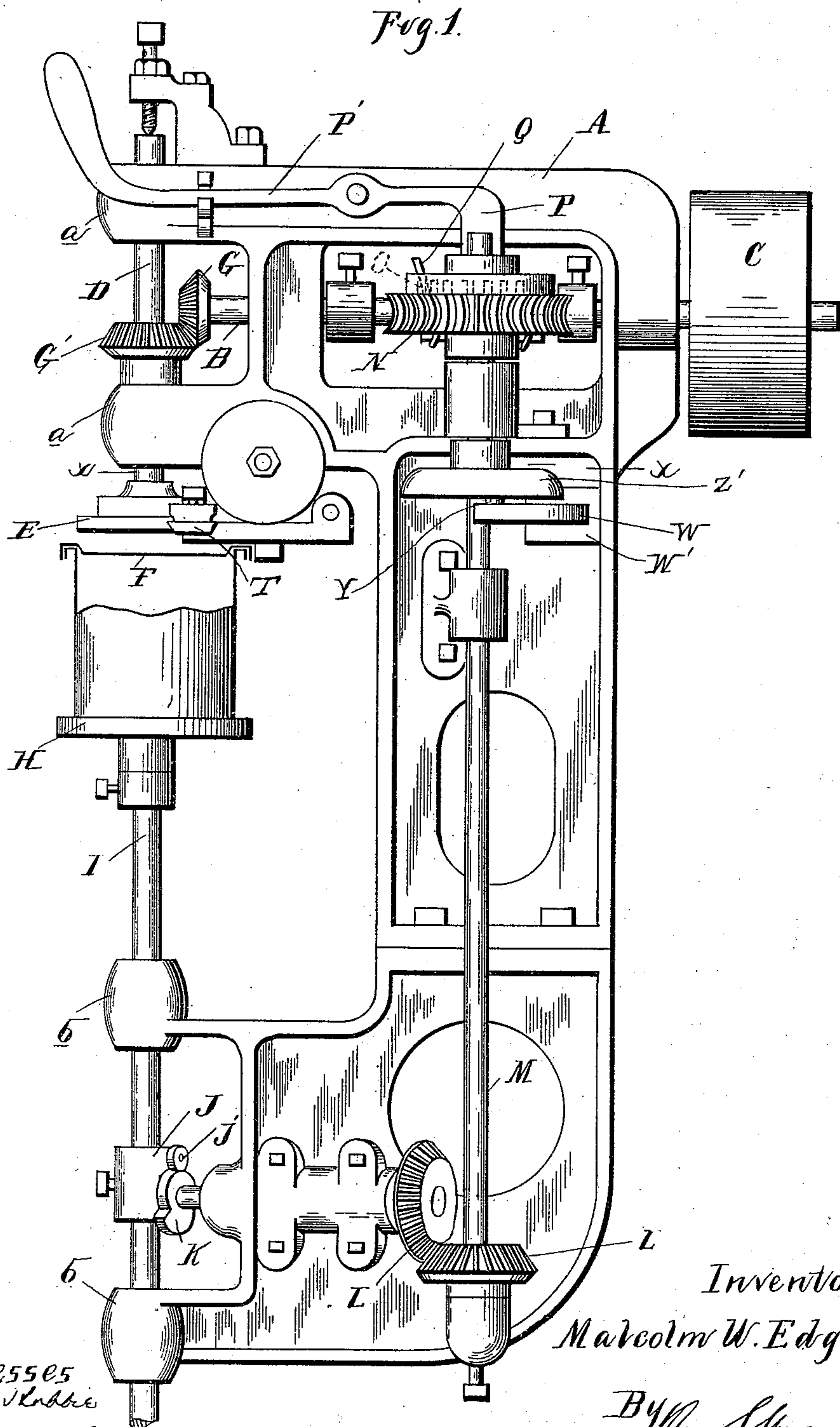
(No Model.)

3 Sheets—Sheet 1.

M. W. EDGAR.
CAN HEADING MACHINE.

No. 464,297.

Patented Dec. 1, 1891.



Inventor

Malcolm W. Edgar

By *Thos. Sprague & Son*
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a. L. Kobbie
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(No Model.)

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Fig. 2.

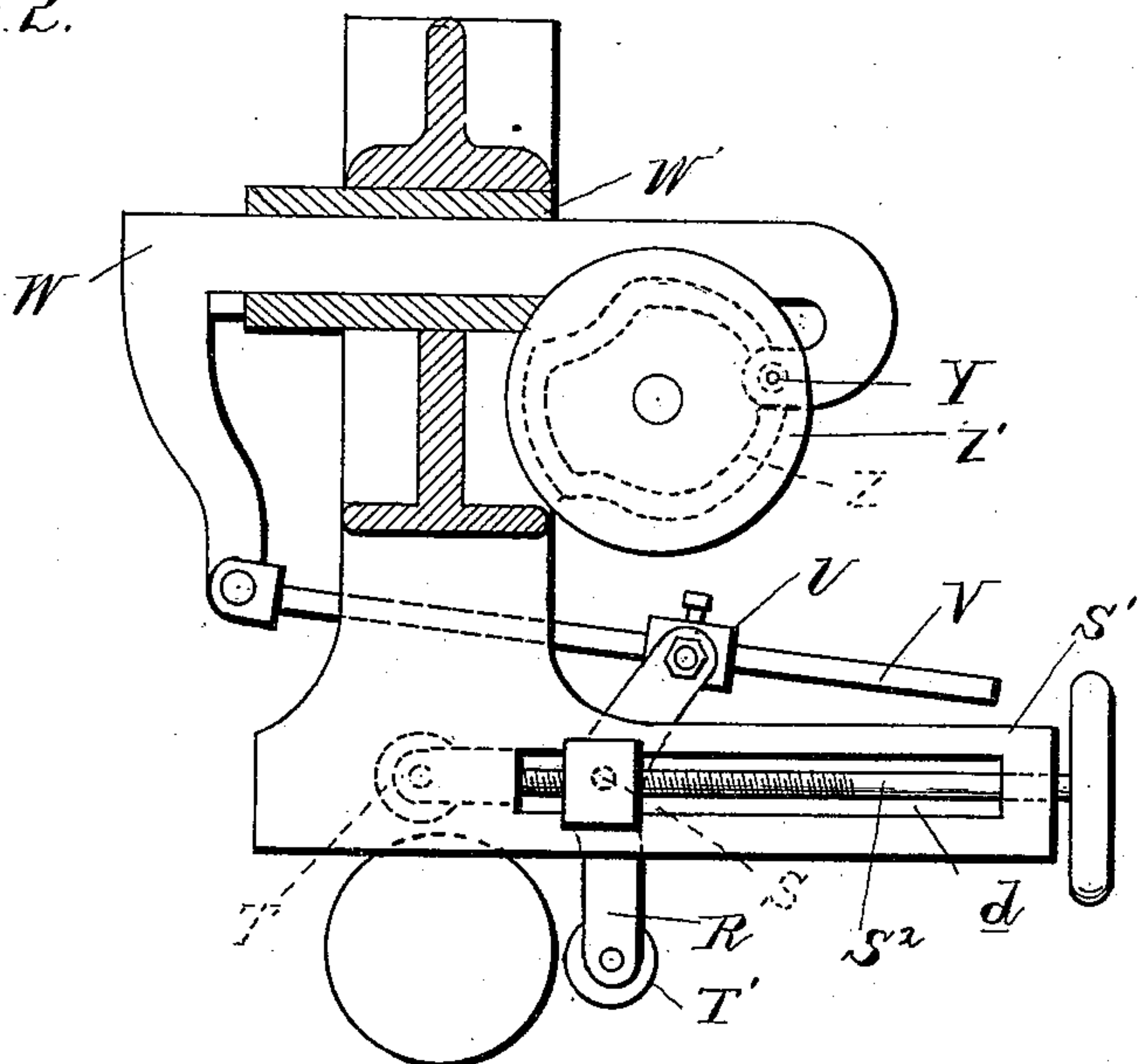
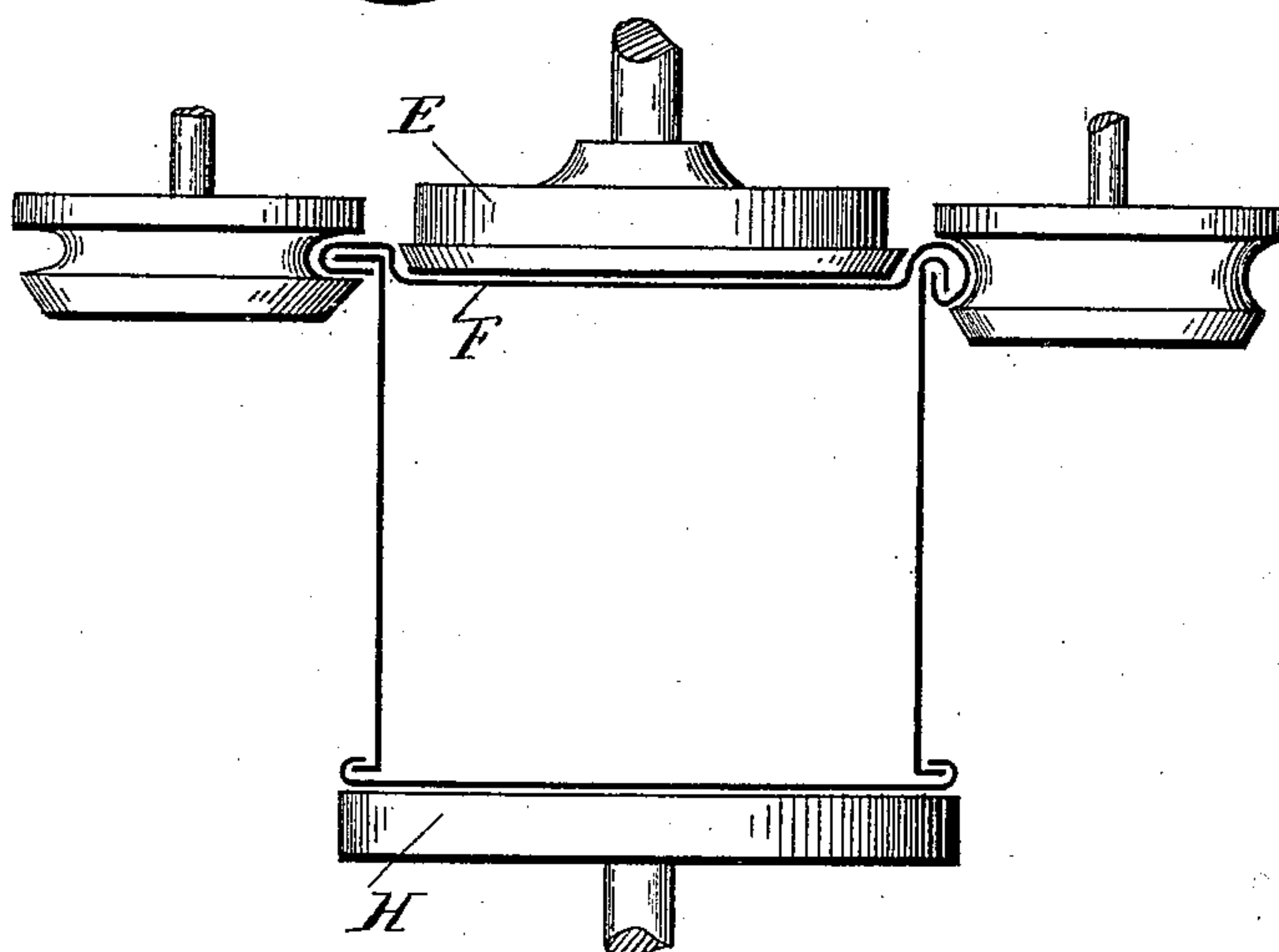


Fig. 3.



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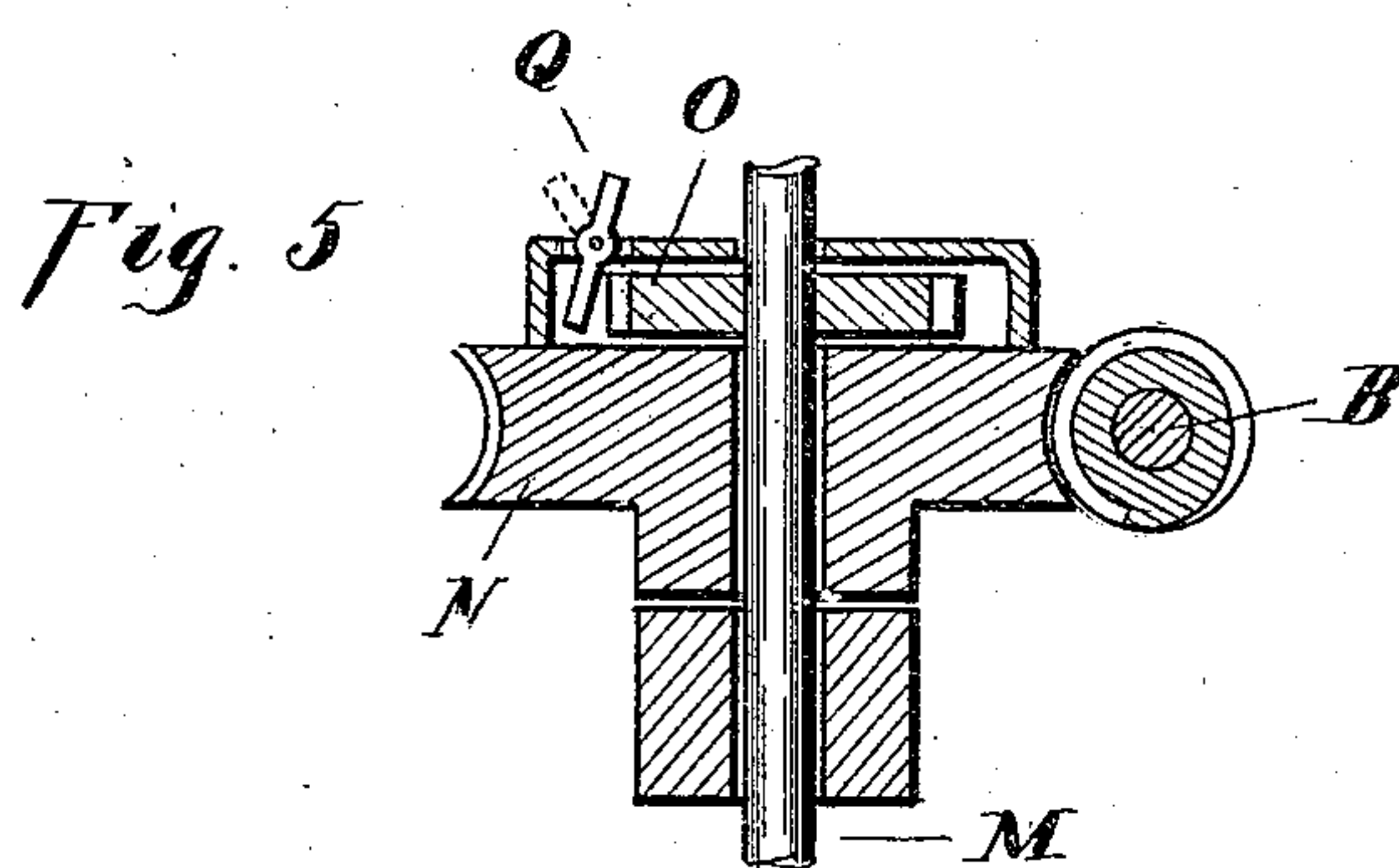
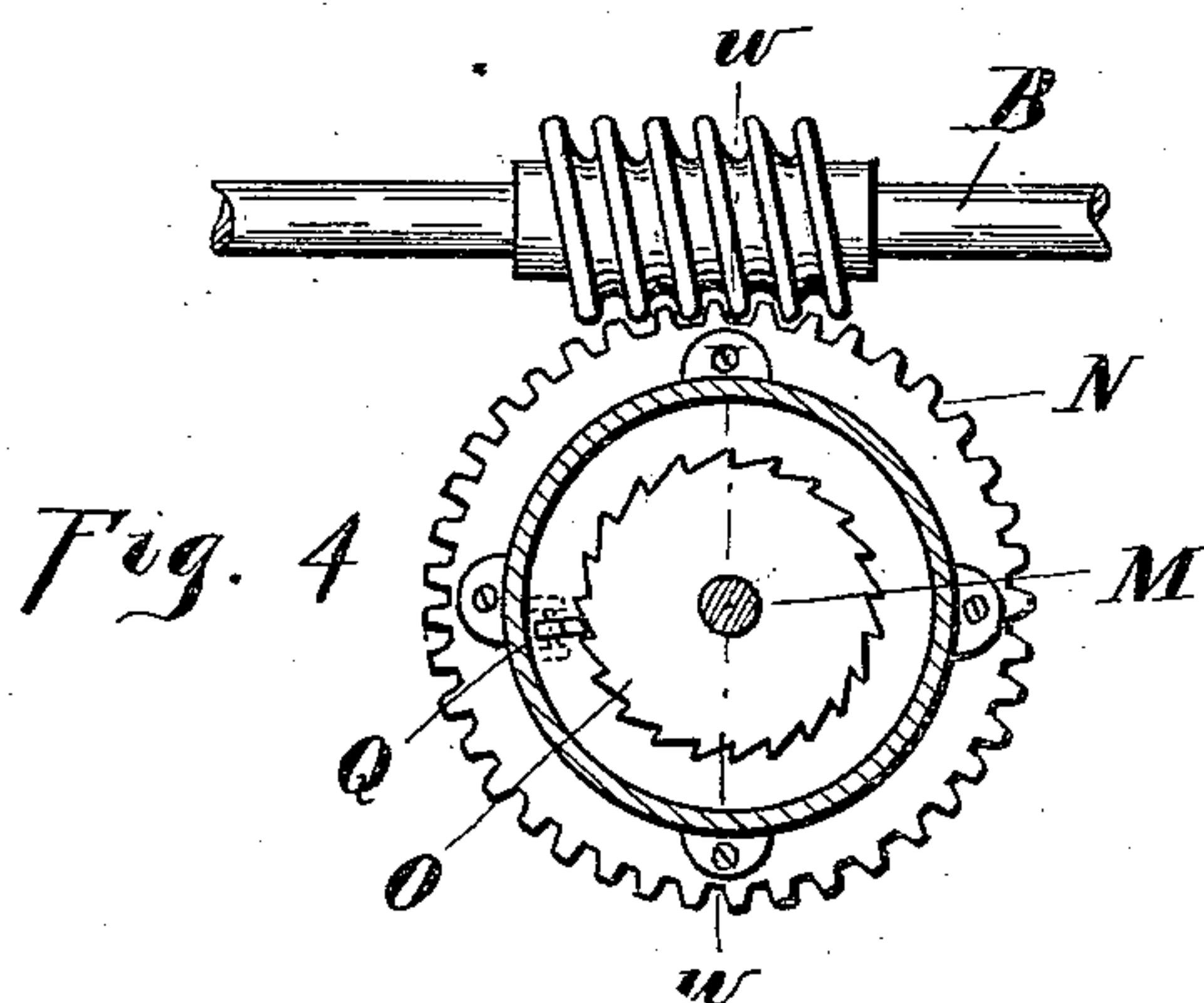
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3 Sheets—Sheet 3.

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CAN HEADING MACHINE.

No. 464,297.

Patented Dec. 1, 1891.



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Inventor:

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UNITED STATES PATENT OFFICE.

MALCOLM W. EDGAR, OF DETROIT, MICHIGAN, ASSIGNOR TO THE DETROIT CAN COMPANY, OF SAME PLACE.

CAN-HEADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 464,297, dated December 1, 1891.

Application filed February 11, 1891. Serial No. 381,100. (No model.)

To all whom it may concern:

Be it known that I, MALCOLM W. EDGAR, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Can-Heading Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to new and useful improvements in can-heading machines; and the invention consists in the peculiar construction, arrangement, and operation of parts whereby a can-head is secured to the
15 body by a double seam automatically formed by means of two seaming-rollers which are successively pressed against the sides of the can while the can-body is revolved between chucks, all as more fully hereinafter described.

20 In the drawings which accompany this specification, Figure 1 is an elevation of my improved machine. Fig. 2 is a horizontal section on line *xx* in Fig. 1. Fig. 3 is a diagram elevation of a can, illustrating the formation of the seam by the two seaming-rollers. Fig. 4 is a plan view of the worm and gear, showing the clutch; and Fig. 5 is a vertical central section through the gear shown
25 in Fig. 4.

30 A is a suitable frame which supports the operating parts.

35 B is the main shaft, journaled horizontally in the top of the frame and provided with the drive-pulley C, to which the power is applied.

D is a vertical spindle journaled in suitable bearings *a a* in the frame and provided at its lower end with the can-holding chuck E, adapted to fit into the depressed can-head F.
40 Motion is imparted to the spindle through the intermeshing bevel gear-wheels G G', secured upon the shaft B and spindle D, respectively, and the spindle is also secured in a manner to be susceptible of vertical adjustment.

45 Vertically below the chuck E a bottom chuck H is provided, into which the bottom of the can is adapted to fit, and this chuck is supported free to revolve upon a vertical standard I, which is supported free to slide
50 vertically in guide-bearings *b b* in the frame. A cross-head J is adjustably secured upon the

standard I, and a roller-wrist J' on said cross-head rides on top of a cam K, and thereby supports the standard I. The cam K is adapted to be slowly revolved by motion derived
55 through the intermeshing bevel gear-wheels L L' from the vertical shaft M, which also revolves slowly and derives its motion through a worm gear-wheel N, engaging with a worm on the shaft B. The worm gear-wheel N is
60 secured to the shaft through the medium of a trip-clutch O, located on the upper side of the worm-wheel N, and a stop P is secured in the path of the tripper-arm Q of the clutch, the trip Q consisting of a dog centrally piv-
65 oted in a suitable casing on the wheel N, its lower end adapted to be swung into engagement with the teeth of the clutch O, while its upper end engages with the stop P to trip the clutch after one revolution of the shaft M.
70 This stop P is formed at the end of a hand-lever P', by means of which it may be thrown in or out of position by the operator.

R is a bell-crank lever secured upon a pivot S, which slidably engages in a slot *d*, formed
75 in the horizontal projecting arm S', and which is adjustably secured therein by means of the adjusting-screw S''. The bell-crank lever has three arms, two of which are at right angles to each other and carry the seaming-rollers T
80 T', and the third has a wrist U pivotally secured to it.

V is a connecting-bar adjustably secured near one end of the wrist U, and W is a sliding cross-head secured in a guide-bearing W'
85 in the frame. To one end of this cross-head is pivotally secured the connecting-bar V, and the other end carries a roller or pin Y, which engages into a cam-groove Z, formed on the under side of the cam Z', which is secured
90 upon and revolves with the shaft M.

In practice, the parts being arranged and constructed as shown and described, the machine is intended to operate as follows: Motion being given to the shaft B, the chuck E
95 will be revolved, and if the stop P is raised out of the way of the trip-arm Q the shaft M will also be revolved, but much slower, and this movement will periodically lift up the standard I and bottom chuck H. The amount
100 of this lift is so adjusted that if a can is placed upon the chuck H it will be clamped between

the two chucks H E, as shown in Fig. 3, and in this position it will be revolved by the spindle D. As soon as the can is thus clamped the cam Z', which is also slowly revolved by the shaft M, will actuate the frame W. In the position of the parts shown in Fig. 2 both of the two rollers T T' are held out of contact with the can; but if the frame W is moved in one direction it will rock the crank-lever, so as to pass one roller against the can, and if moved in the other direction it will do the same with the other roller. By thus pressing first one roller and then the other against the open seam the well-known operation of seaming is performed. Of course the particular form of seam desired will govern the precise form of the cam-groove and also the particular outline of the seaming-rollers. In the drawings the parts are constructed to form a double seam, which may be called a "combined flat and rolling seam," as one roller presses the burr back against the body of the can and the other rolls the flattened seam against the body of the can. The adjustment of the cam Z' and form of the cam-groove of course are such that the rollers do their work automatically one after the other during the interval of time the can is held and revolved between the can-holding chuck, while during the interval of time in which the lower chuck is allowed to drop for the purpose of removing the finished can and putting a new can in place the seaming-rollers are held in their non-operative position.

It is obvious, of course, that by using other forms of seaming-rollers any desired form of seam which can be made by the use of two seaming-rollers can be produced, and to this end I make suitable provision for the easy removal and adjustment of the seaming-rollers, so as to use others, or to differently adjust the same rollers, so as to bring other portions to bear against the seam. Provision is also made for adjusting or readily exchanging such parts which need be changed for seaming cans of different sizes, and by means of the adjustable pivot S, which is carried by the screw S'' in a slot, and by means of the adjustable wrist U it is very easy to quickly change the adjustment of the two seaming-rollers for cans of different sizes. This adjustment is facilitated by making the two arms which carry the seaming-rollers of equal length and with the two arms at such an angle to each other as to take in cans of different sizes.

The arrangement of the trip-clutch in connection with the lever P' obviously permits the throwing of the shaft M out of gear without disturbing the relative positions of the cams Z' and K, the movement of which is timed in relation to each other.

A modification of the machine may be made by making the lever in two parts, each similar to the one shown, and adjustably connected, so that both ends of the can may be seamed at once.

My machine has the advantage of auto-

matic operation with the most simple construction, and one cam actuates both rollers one after another, so that each roller completes its work before the other begins.

What I claim as my invention is—

1. In a can-heading machine, the combination, with the can holding and revolving devices, of a three-armed lever pivotally secured to move in the plane of the revolving can, two of the arms being at right angles to each other, of two seaming-rollers carried by the two right-angled arms of said lever, respectively, and adapted to be pressed by said arms alternately against the head of the can by the movement of said lever in opposite directions, and of actuating devices adjustably connected to the other arm of said lever, whereby the lever is moved to press the two rollers successively against the head of the can to form the seam while the can is revolving, substantially as described.

2. In a can-heading machine, the combination of two can-holding chucks, the upper one being secured to a revolving spindle and the lower one being carried loosely by a standard, a cam supporting the standard, a main shaft imparting motion to the revolving chuck, a counter-shaft driven by intermediate gear from the main shaft to intermittently raise and lower the lower chuck at each revolution of said counter-shaft, a three-armed lever having two of its arms provided with seaming-rollers adapted to be pressed alternately against the head of the can by the movement of said lever in opposite directions, and intermediate actuating connection between the other arm of the said lever and said counter-shaft, substantially as described.

3. In a can-heading machine, the combination of two can-holding chucks, a main shaft having actuating connection for revolving the upper chuck, a counter-shaft driven by intermediate gear from said main shaft, a cam supporting the lower chuck, operated by said counter-shaft to intermittently raise and lower the lower can-holding chuck at each revolution of said counter-shaft, a three-armed lever having two arms arranged at right angles and provided with seaming-rollers adapted to bear against the head of the can, a sliding frame to which the third arm of said lever is adjustably connected, and a revolving cam on said counter-shaft having a cam-groove into which the sliding frame engages, substantially as described.

4. In a can-heading machine, the combination of two can-holding chucks, a main shaft having actuating connection for revolving the upper chuck, a counter-shaft driven by intermediate gear from said main shaft, a cam operated by said counter-shaft to intermittently raise and lower the lower can-holding chuck at each revolution of said counter-shaft, an adjustable cross-head against which the cam engages, a three-armed lever having two arms provided with seaming-rollers adapted to bear against the head of the can, a sliding frame

to which the third arm of said lever is connected, a revolving cam on the counter-shaft, having a cam-groove into which the sliding frame engages, and a trip-clutch on the counter-shaft, arranged to be automatically tripped at each revolution of said counter-shaft, substantially as described.

5. In a can-heading machine, the combination, with can holding and revolving devices, substantially as described, of the lever R, provided with the seaming-rollers, the adjustable pivot S of said lever, the sliding frame W, the revolving cam Z', having a cam-groove Z, into which said sliding frame engages, the connecting-rod V, and the wrist U, pivotally secured to the lever R and adjustably secured upon the connecting-rod, substantially as described.

6. In a can-heading machine, the combination, with the holding-chucks and mechanism for rotating the same, of a three-armed lever,

seaming-rolls on the lever, an adjustable fulcrum for the lever, intermediate means for actuating the lever by the rotating mechanism, and an adjustable connection between the lever and said means, substantially as described.

7. In a can-heading machine, the combination, with the upper and lower chucks and means for rotating the same, of a standard for the lower chuck, an adjustable cross-head on the standard, a cam engaging the cross-head and supporting the standard, and means for actuating the cam, substantially as described.

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

MALCOLM W. EDGAR.

Witnesses:

M. B. O'DOGHERTY,
P. M. HULBERT.