

No. 775,339.

PATENTED NOV. 22, 1904.

C. B. McDONALD.
CAN CAPPING MACHINE.
APPLICATION FILED OCT. 23, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

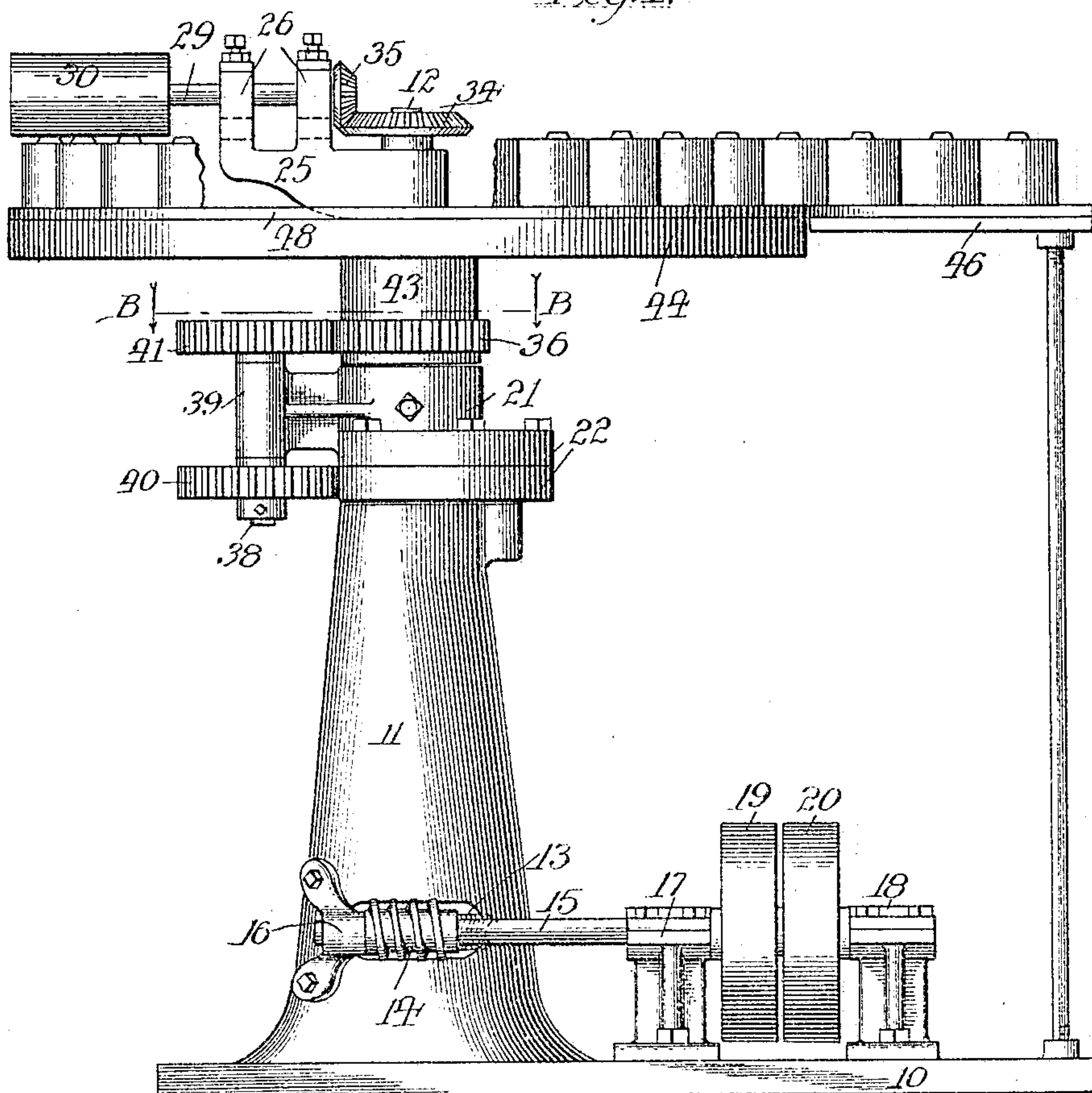
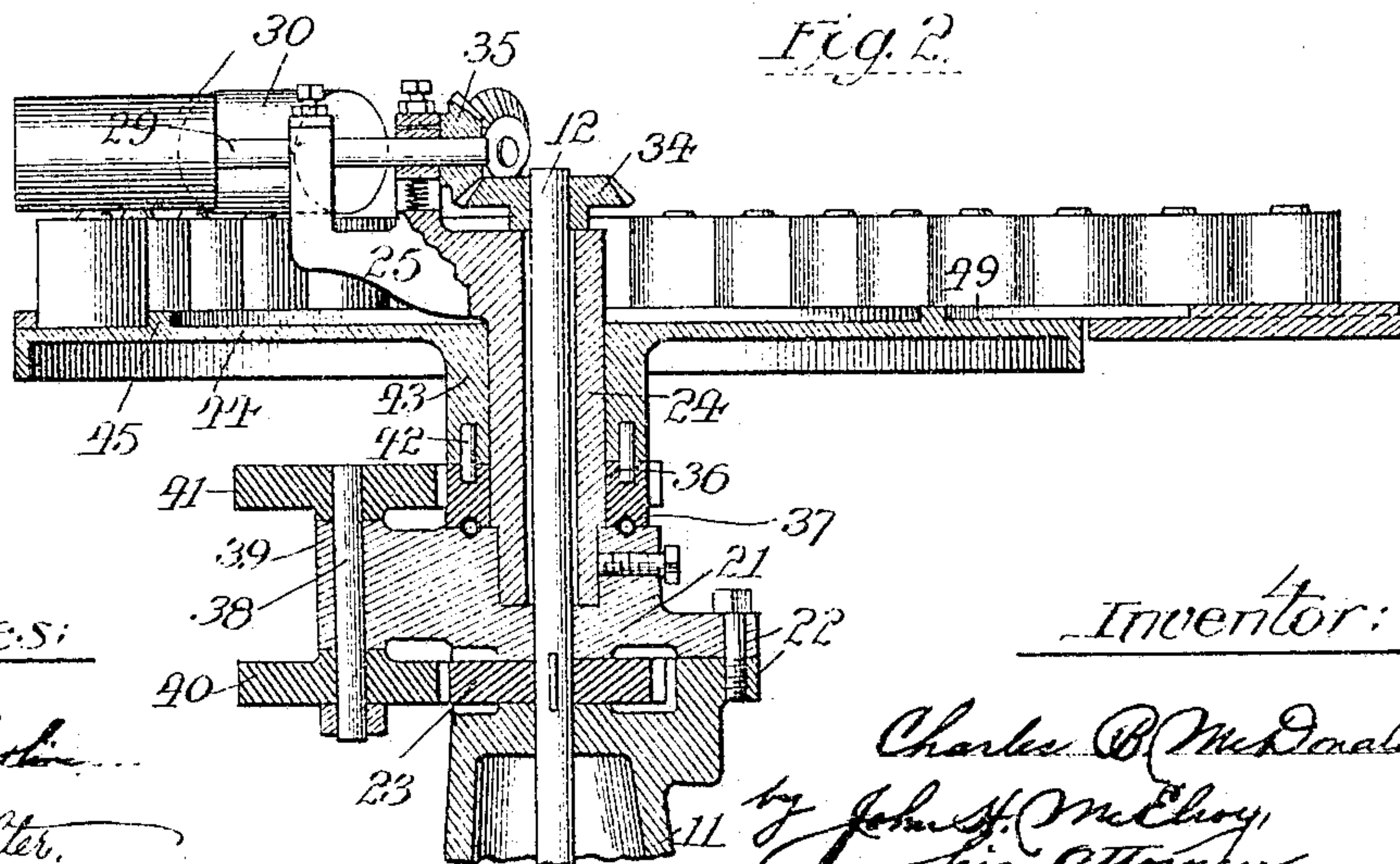


Fig. 2.



Witnesses:

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Inventor:

Charles B. McDonald,
by John H. McElroy,
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2 SHEETS—SHEET 2.

Fig. 3

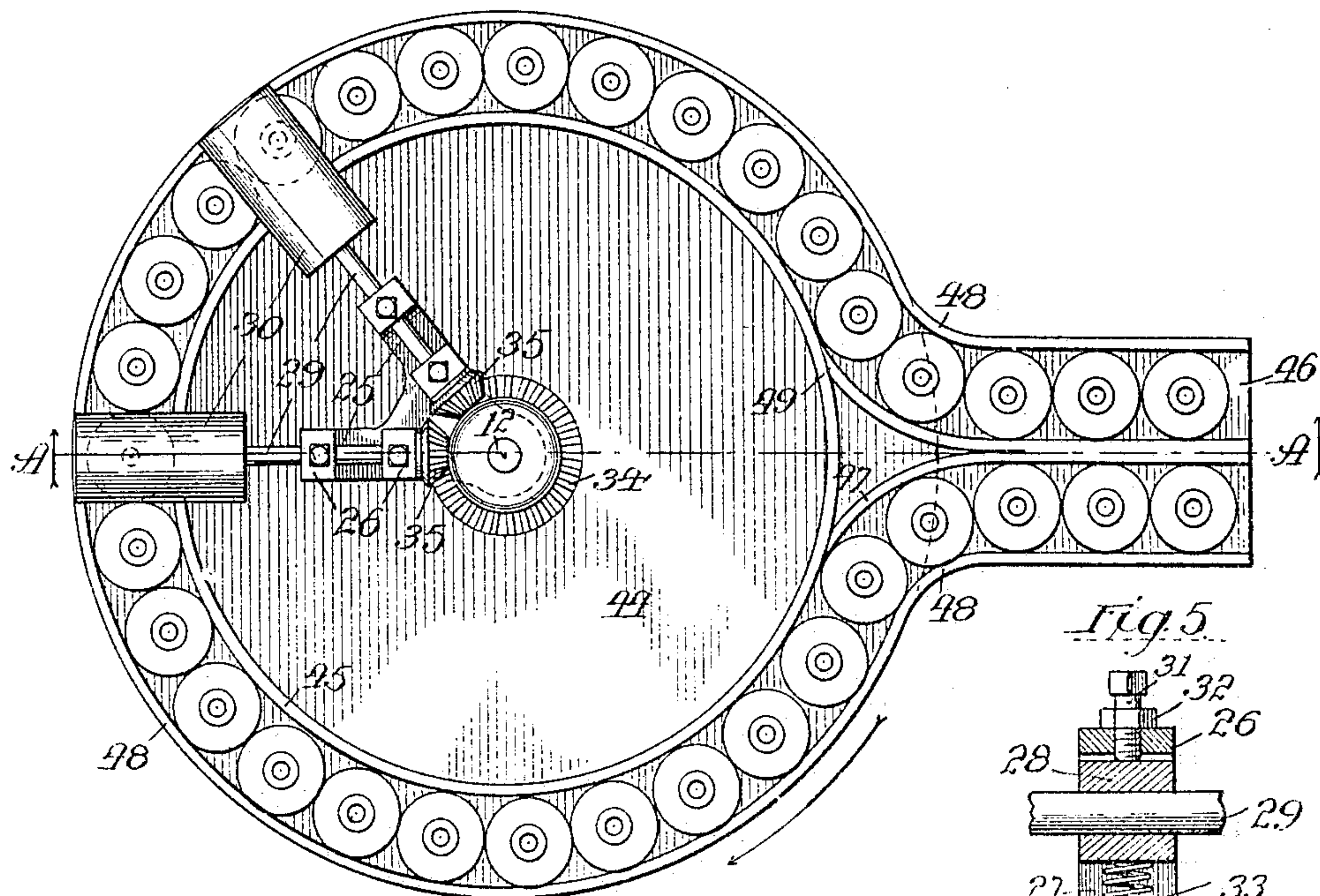


Fig. 5

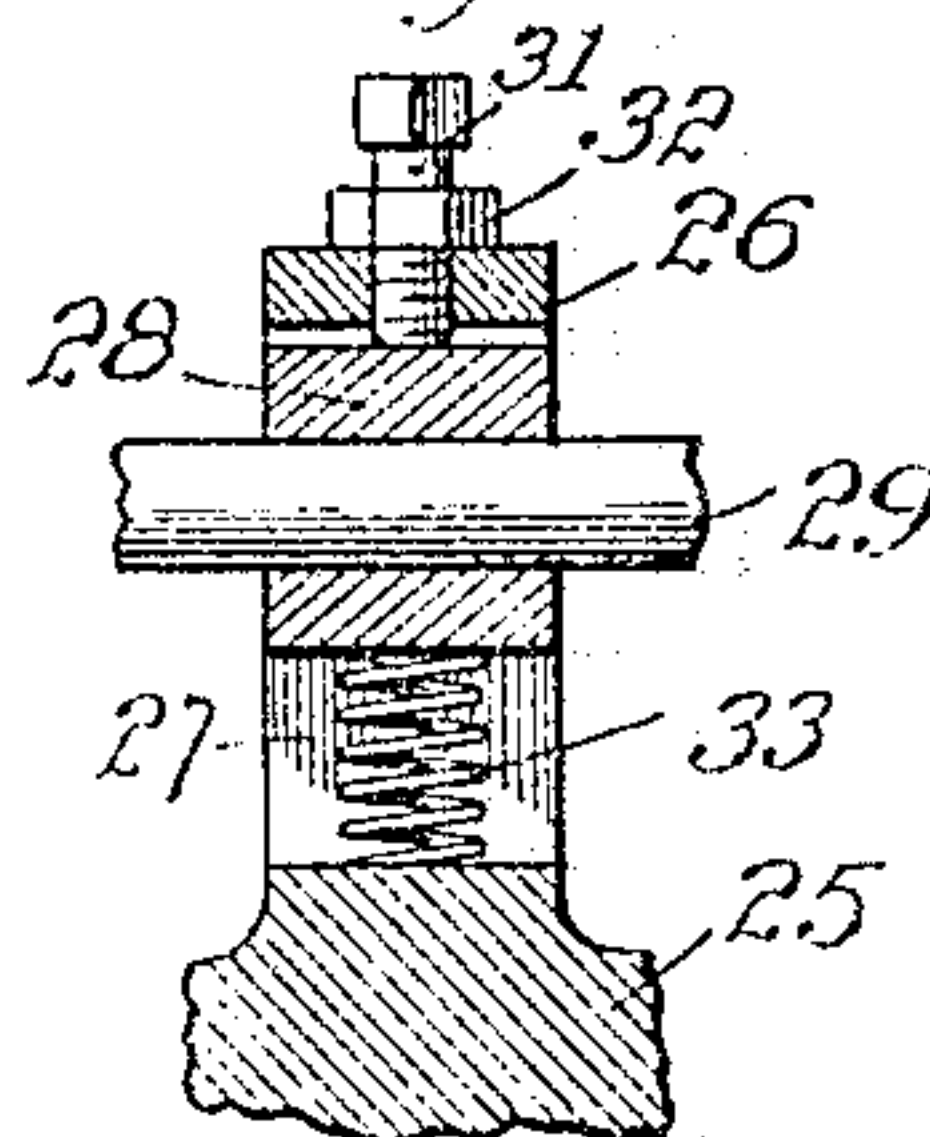
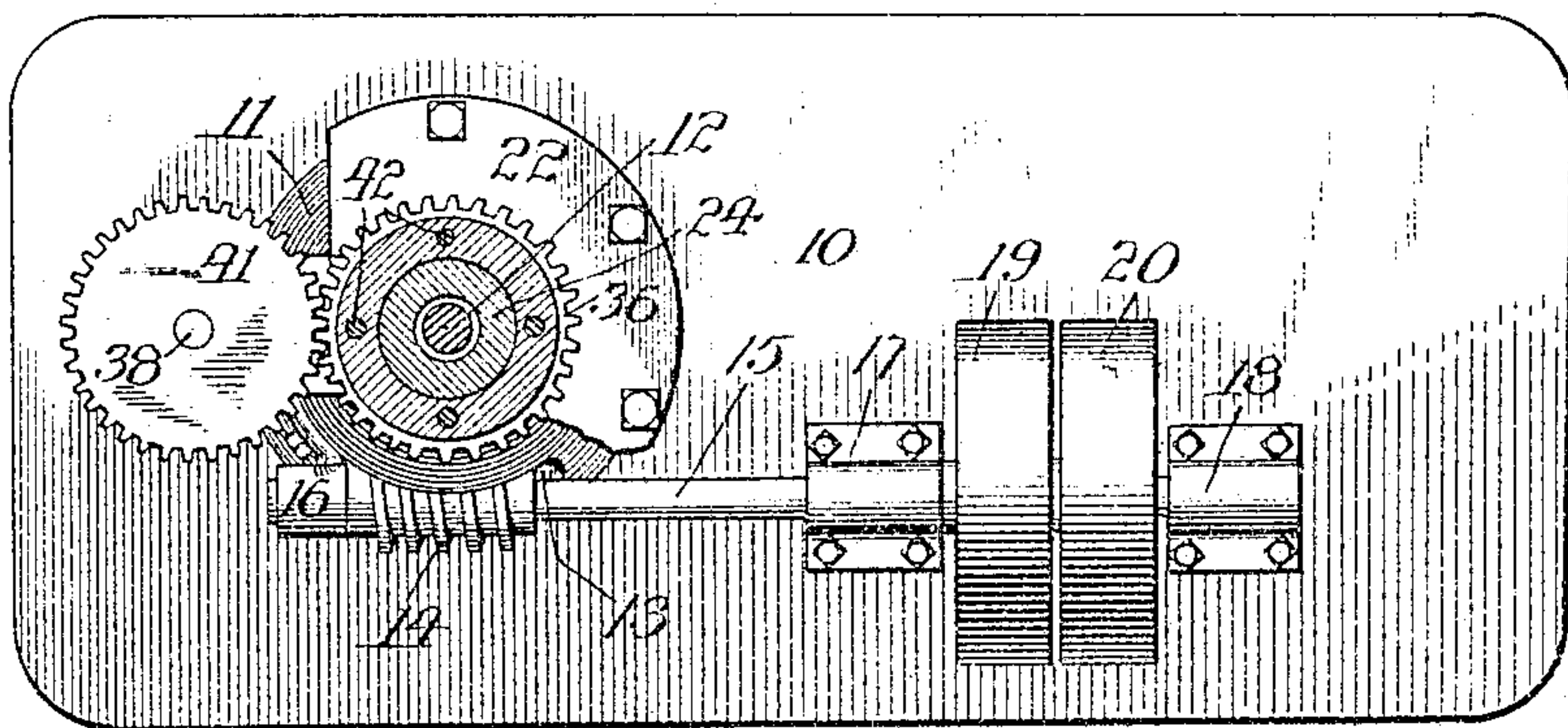


Fig. 4



Witnesses:

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UNITED STATES PATENT OFFICE.

CHARLES B. McDONALD, OF CHICAGO, ILLINOIS.

CAN-CAPPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 775,339, dated November 22, 1904.

Application filed October 23, 1903. Serial No. 178,178. (No model.)

To all whom it may concern:

Be it known that I, CHARLES B. McDONALD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Can-Capping Machines, of which the following is a specification.

My invention is concerned with a novel form of a can-capping machine of the character shown in my application, Serial No. 164,163, filed July 3, 1903, in which I claim the specific form shown as well as the invention generically. In the present application I show a different form, and the claims are specific to that form.

To illustrate my invention, I annex hereto two sheets of drawings, in which the same reference characters are used to designate identical parts in all the figures, of which—

Figure 1 is a side elevation of the complete machine. Fig. 2 is a longitudinal section of the upper portion thereof on the line A A of Fig. 3. Fig. 3 is a top plan view. Fig. 4 is a plan view in section on the line B B of Fig. 1, and Fig. 5 is an enlarged detail showing the adjustable bearings.

Rising from the base 10 is a hollow standard 11, in which is journaled a vertical shaft 12, which has secured near the lower end thereof the worm gear-wheel 13, which is driven by the worm 14, secured on the horizontal shaft 15, journaled in the bearings 16, 17, and 18, the bearing 16 being secured to the standard and the bearings 17 and 18 being mounted on pedestals projecting upward from the base 10. Between the bearings 17 and 18 the shaft has secured thereto and mounted thereon, respectively, the belt-wheel 19 and loose pulley 20, to which power is applied by a driving-belt in the customary manner.

The standard 11 has its upper portion 21 made of a separate casting and bolted to the lower portion by two or more pairs of ears 22, so that the gear-wheel 23, secured to the shaft 12, may be journaled between the two portions. Secured in the upper portion 21 is the vertical bearing-sleeve 24, which is provided at its upper end with one or more brackets 25, each of which is provided with a pair of vertical bearing-ears projecting from the upper

side thereof. These bearing-ears have the rectangular bearing-slots 27 therein, in which are mounted to slide the rectangular bearing-blocks 28, in which are journaled the shaft or shafts 29, the outer ends of which have secured thereon the camming-cylinders 30. To limit the upward movement of the bearing-blocks 28, and thus provide a fixed distance or limit of upward movement at which the rollers 30 operate, I screw into the tops of the ears 26 the set-screws 31, which are held in the desired position of adjustment by the jam-nuts 32. Interposed between the bottom of the bearing-block 28 and the top of the lower surface of the rectangular aperture 27 in the ears 26 are the helically-coiled expanding springs 33, which serve to hold the rollers yieldingly in their uppermost position.

The shaft 12 has secured upon its upper end the bevel gear-wheel 34, which meshes with the bevel gear-pinions 35, secured on the ends of the horizontal shafts 29.

Mounted upon the top of the portion 21 of the standard is the gear-wheel 36, and I preferably interpose a set of ball-bearings 37 in order to diminish the friction as the gear-wheel 36 rotates, it being driven from the gear-wheel 23 through the medium of the counter-shaft 38, mounted in the bearing-lug 39, formed in the casting 21 and having the gear-wheels 40 and 41 secured at the bottom and top thereof and meshing with the gear-wheels 23 and 36, respectively.

Secured upon the gear-wheel 36 conveniently by dowel-pins 42, projecting upwardly from the gear-wheel and into correspondingly-located slots in its hub 43, is a circular table or carrier 44, which through the mechanism described is rotated by the shaft 12, and the gearing employed is so timed that the peripheral velocity of the adjacent surfaces of the table and the rollers 30 is substantially the same and in the same direction. Rigidly secured upon the top of the table and preferably formed integral therewith is the retaining-flange 45, against which the cans to be capped rest as the table is rotated. Secured adjacent to one portion of the rotating table is the horizontal support 46, whose upper surface is on the same level as the upper surface

of the carrier 44 and which may be provided with carrier-belts to bring the cans to the rotating carrier, upon which they are guided by the upwardly-projecting inner flange 47 and the outer flange 48, the latter being continued entirely around the table and resting on the outer edge thereof, the space between the flanges 45 and 48 being preferably just sufficient to accommodate a single line of cans. When the cans have completed their circuit, they are directed off of the rotating table by the stationary inner flange 49, which is similar to and symmetrical with the flange 47.

The operation of the apparatus will be readily apparent. If two or more rollers 30 are employed, the set-screws 31 are so adjusted that the first rollers 30 beneath which the cans pass are at such a height as to press the caps in a portion of the desired distance. The next roller is adjusted in a lower position, and if it is the last of the series it forces the cap home to the entire extent desired, the apparatus operating in the same manner as that of my above-mentioned application, Serial No. 164,163.

While I have shown and described my invention as embodied in the form which I at present consider best adapted to carry out its purposes, it will be understood that it is capable of some modifications and that I do not desire to be limited in the interpretation of the following claims except as may be necessitated by the state of the prior art.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a machine for forcing caps into the heads of cans, the combination with the rotating carrier having the continuous, vertically-immovable, can-supporting surface, of the forcing-surface extending transversely above the same at a fixed operative distance and held unyieldingly against separating movement therefrom, and means for rotating the carrier.

2. In a machine for forcing caps into the heads of cans, the combination with the rotating carrier having the continuous, vertically-immovable, can-supporting surface, of the vertically-adjustable forcing-surface extending transversely above the same and at a fixed operative distance and held unyieldingly against separating movement therefrom, and means for rotating the carrier.

3. In a machine for forcing caps into the heads of cans, the combination with a carrier, of a discharge apparatus connected therewith, a plurality of forcing-surfaces extending transversely above the same at different fixed operative distances therefrom with said distances decreasing toward the discharge apparatus, and means for advancing the carrier.

4. In a can-capping machine, the combination with the rotating carrier having a discharge apparatus connected therewith, of a plurality of vertically-adjustable forcing-surfaces extending transversely above the same

at different distances therefrom, said distances decreasing toward the discharge apparatus, and means for rotating the carrier.

5. In a machine for forcing caps into the heads of cans, the combination with the rotating carrier, of the forcing-roller journaled above and transversely of the carrier at a fixed operative distance and held unyieldingly against separating movement therefrom, and means for rotating the carrier.

6. In a machine for forcing caps into the heads of cans, the combination with the rotating carrier, of the forcing-roller journaled above and transversely of said carrier at a fixed operative distance and held unyieldingly against separating movement therefrom, and means for rotating the carrier and roller so that their adjacent surfaces move at the same speed and in the same direction.

7. In a can-capping machine, the combination with the rotating carrier having a discharge apparatus connected therewith, of the plurality of rollers journaled above and transversely of said carrier at gradually-decreasing distances therefrom toward the discharge apparatus, and means for driving the carrier and the roller so that their adjacent surfaces move at the same speed and in the same direction.

8. In a can-capping machine, the combination with the standard, of the vertical driving-shaft journaled therein, the carrier-disk journaled on said standard concentric with the driving-shaft, the roller extending horizontally above and radially of the disk, and connections between said driving-shaft and disk and roller for driving them so that their adjacent surfaces move in the same direction and at the same velocity.

9. In a can-capping machine, the combination with the standard, of the vertical driving-shaft journaled therein, the carrier-disk provided with a hub journaled on said standard concentric with the driving-shaft, a stationary sleeve secured in the upper end of the standard and forming the bearing for the hub of the carrier-disk, roller-bearings interposed between said hub and standard, the roller extending horizontally above and radially of the disk, and gearing between said shaft and hub and roller to drive the disk and roller so that their adjacent surfaces will move in the same direction and at the same velocity.

10. In a can-capping machine, the combination with the standard, of the vertical driving-shaft journaled therein, the carrier-disk provided with a hub journaled on said standard concentric with the driving-shaft, a stationary sleeve secured in the upper end of the standard and forming the bearing for the hub of the carrier-disk, roller-bearings interposed between said hub and standard, the roller extending horizontally above and radially of the disk, and gearing between said shaft and hub and roller to drive the disk and roller so

that their adjacent surfaces will move in the same direction and at the same velocity, said gearing including a counter-shaft parallel to the vertical driving-shaft and having gears 5 thereon connected with the vertical driving-shaft and the hub of the carrier-disk.

11. In a can-capping machine, the combination with the rotating carrier, of receiving and discharge apparatus connected therewith, 10 the forcing-surface extending transversely above the same, an inner guide-flange projecting vertically from the upper surface of the

carrier, an outer concentric flange resting on the edge of the carrier and supported by the receiving and discharge apparatus, and switch- 15 flanges carried by said receiving and discharge apparatus; substantially as and for the purpose described.

In witness whereof I have hereunto set my hand this 17th day of October, 1903.

CHARLES B. McDONALD.

Witnesses:

JOHN H. McELROY,

WILLIAM H. CHAMBERLIN.