

No. 786,403.

PATENTED APR. 4, 1905.

H. C. BLACK.
CAN TOPPING MACHINE.
APPLICATION FILED APR. 9, 1903.

2 SHEETS—SHEET 1.

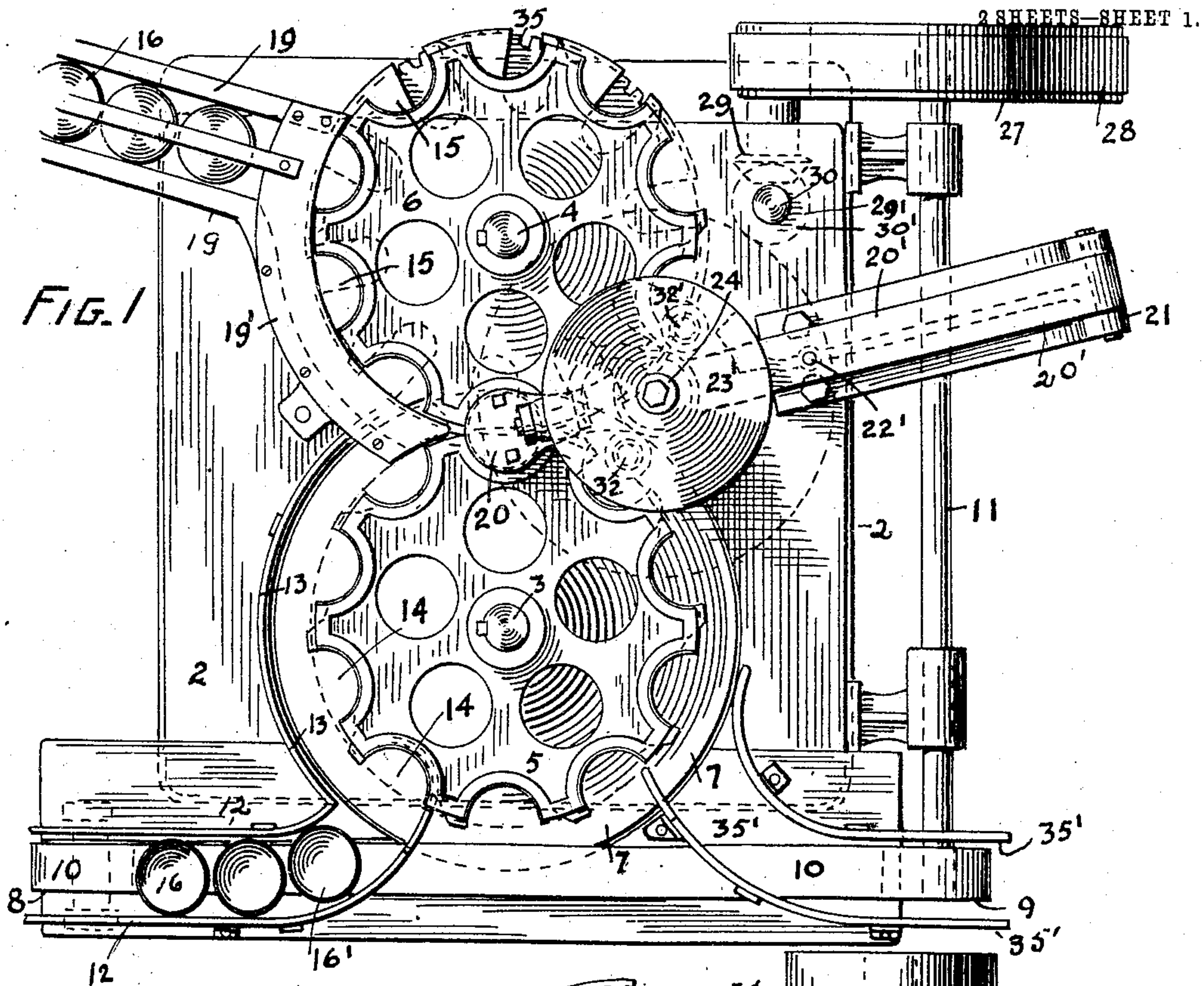
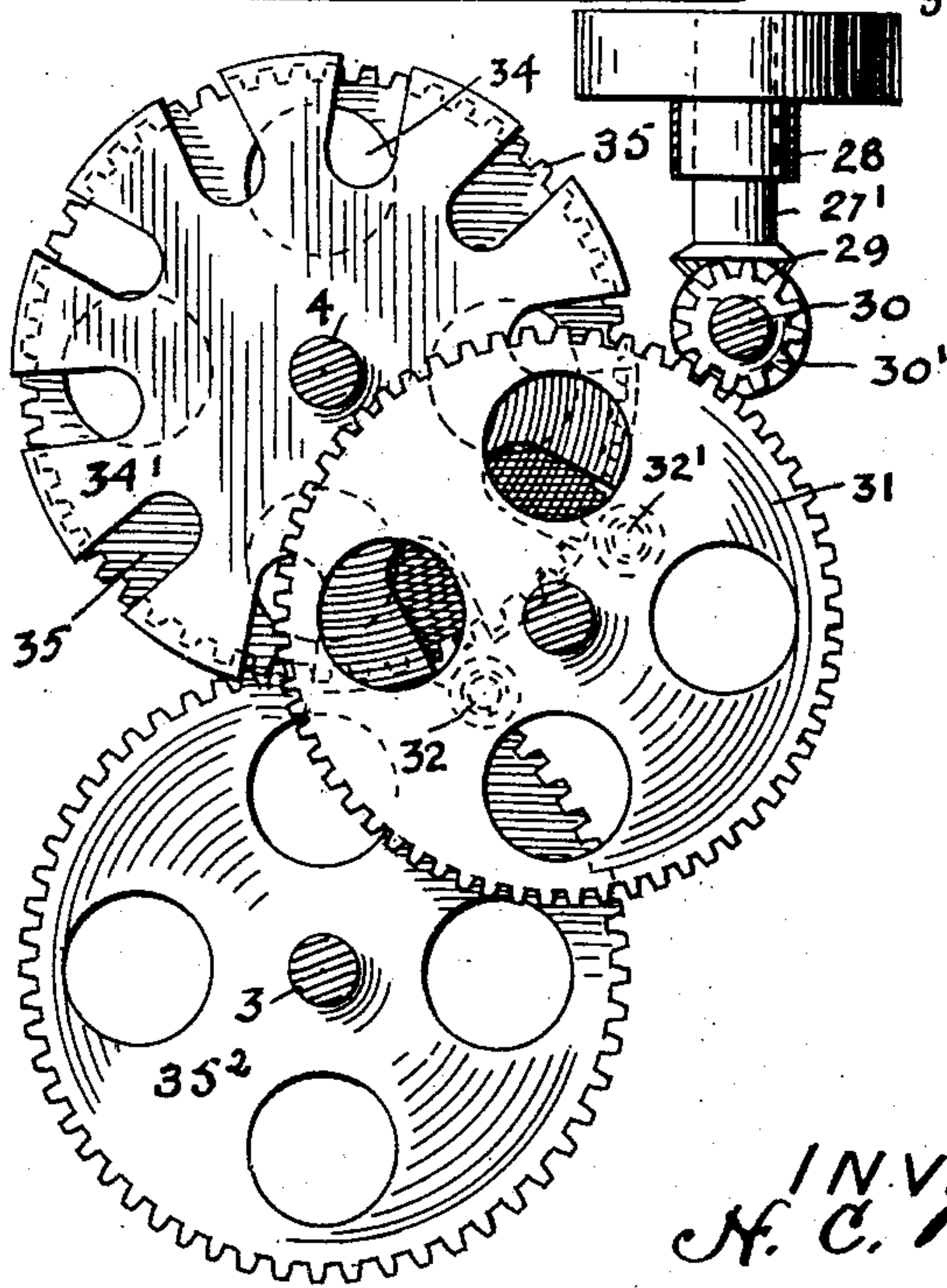


FIG. 2



WITNESSES:

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Leon Boillot

INVENTOR:
H. C. Black
by W. A. Black
His atty.

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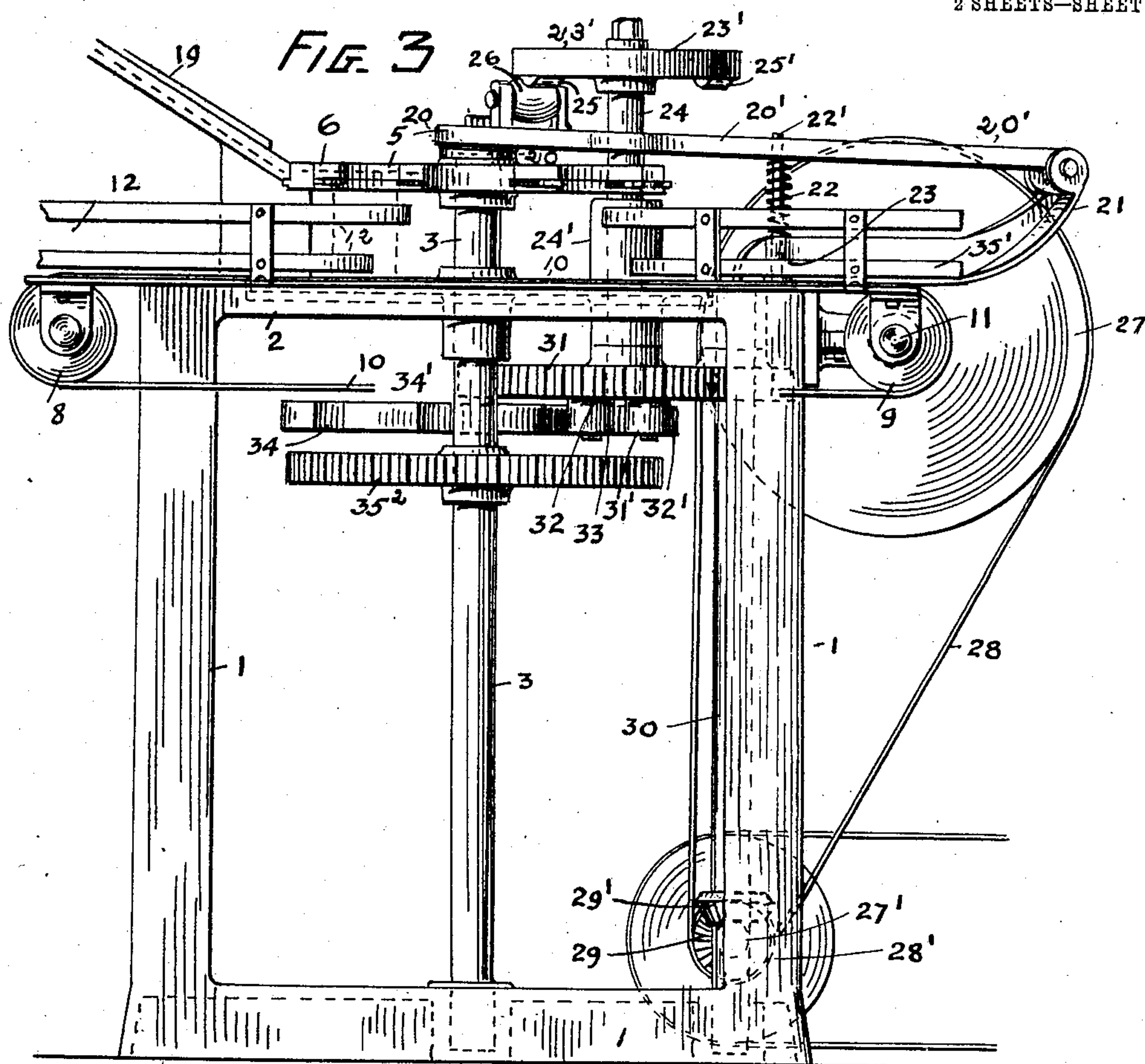


FIG. 4

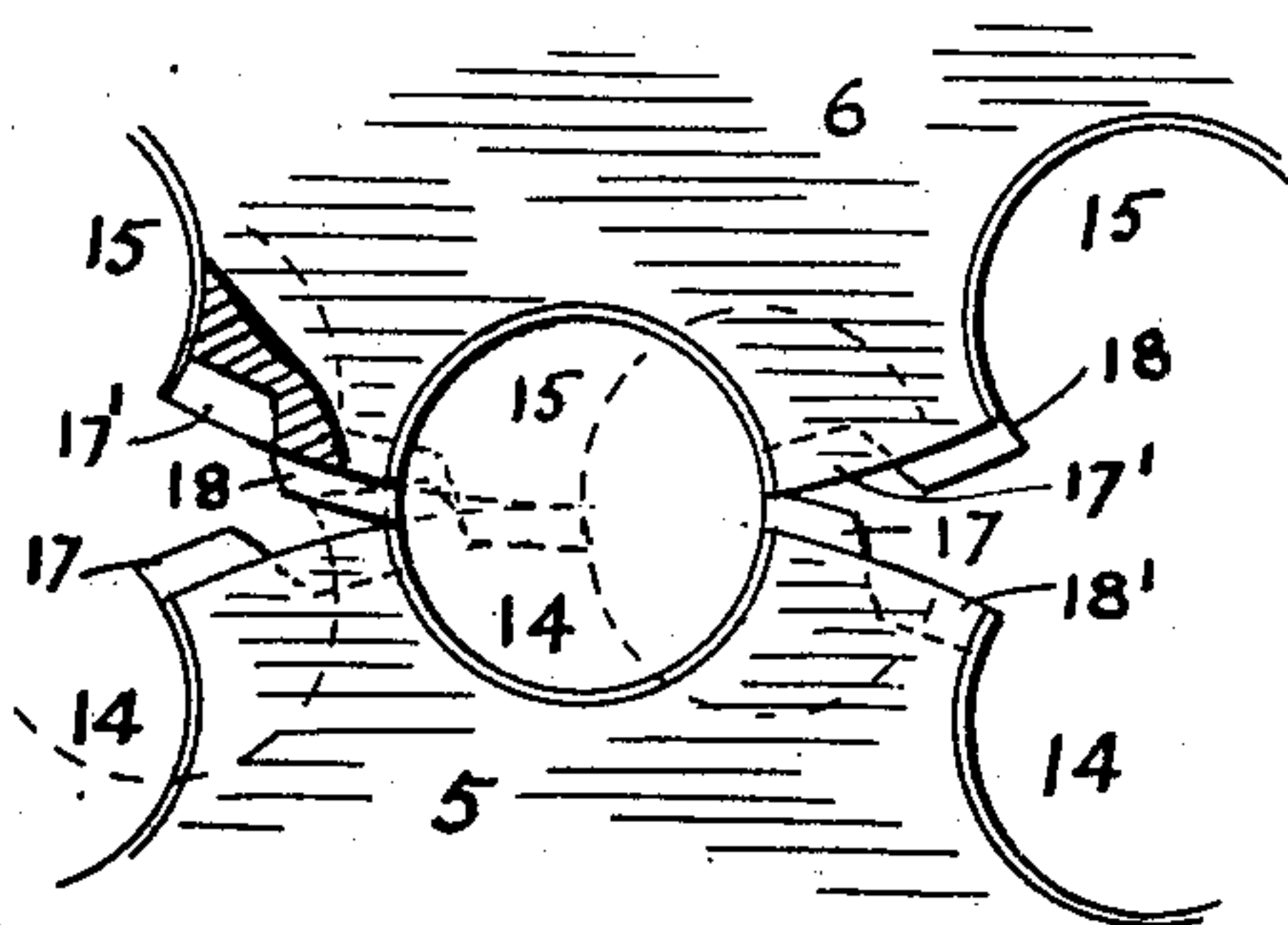
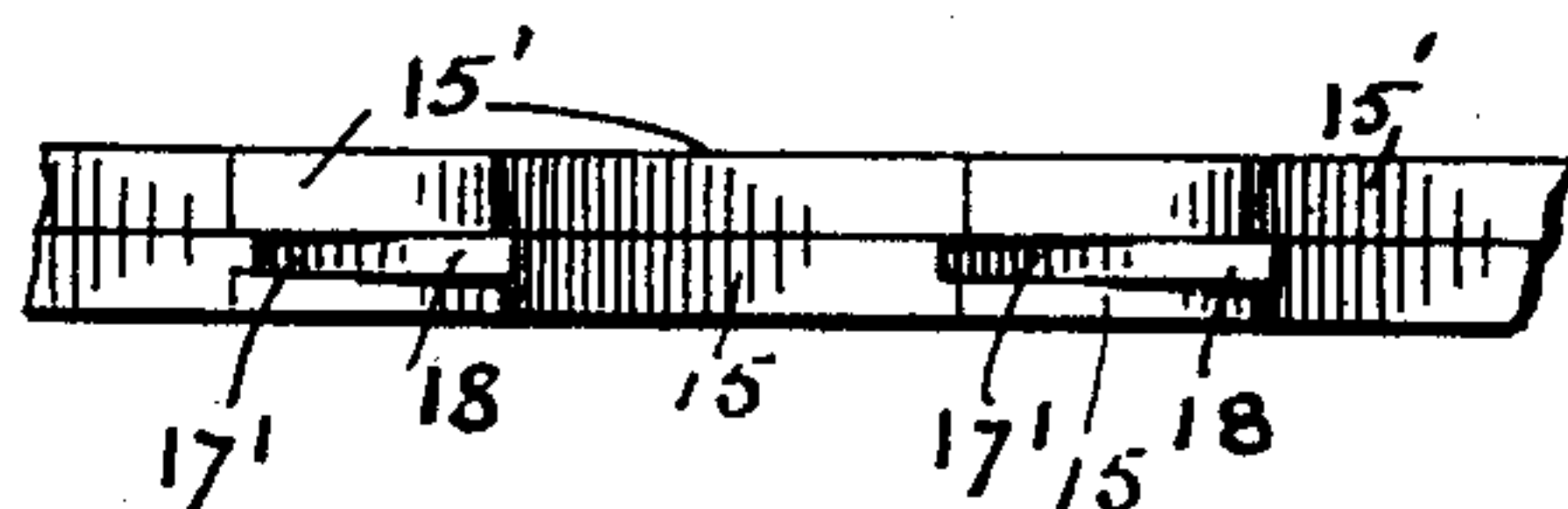


FIG. 5



WITNESSES:

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INVENTOR:

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UNITED STATES PATENT OFFICE.

HENRY C. BLACK, OF SAN FRANCISCO, CALIFORNIA.

CAN-TOPPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 786,403, dated April 4, 1905.

Application filed April 9, 1903. Serial No. 151,749.

To all whom it may concern:

Be it known that I, HENRY C. BLACK, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented certain new and useful Improvements in Can-Topping Machines; and I do hereby declare the following to be a full, clear, and exact description of the same.

The present invention is more especially applicable to the salmon-canning industry, being employed for the placing of tops onto cans previously filled with fish, the object of the invention being essentially to simplify the construction of such machinery, to reduce the damaging of the heads, to provide means for truing the mashed or irregular-shaped cans as carried toward the topping-head, and to increase the efficiency of the topping-machine.

To comprehend the invention, reference must be had to the accompanying sheets of drawings, wherein—

Figure 1 is a top plan view of the machine with the can-runway and the chute-runway for the tops attached thereto, also the endless conveyer-belt for delivering the filled cans to the receiving-disk and removing the topped cans therefrom. Fig. 2 is a plan view of the drive mechanism for the receiving-disks of the topper. Fig. 3 is a side view in elevation of the mechanism disclosed by Fig. 1 of the drawings. Fig. 4 is a broken detail plan view of the retaining-disks for the holding of the cans and tops, and Fig. 5 is a broken front view in elevation of the retaining-disk for the cans.

The numeral 1 is used to indicate any suitable style of frame, to which the frame or bed plate 2 is attached. Through the frame and bed plate extend the vertical shafts 3 4, to which shafts, respectively above the bed-plate, are secured the can-carrier wheel 5 and can-top-carrier wheel 6. A slight distance, approximately the height of a can, below the can-carrier wheel 5 is located the can-receiving disk 7, which disk is attached to the vertical shaft 3. This disk works within a circular opening in the bed or frame plate 2, so that the upper face of the said disk is flush with the upper face of the said bed or frame plate.

Over the belt-pulleys 8 9 works the endless belt 10, which is driven from the cross-shaft 11. To the said shaft 11 is secured the belt-pulley 9. The endless belt 10 works over the face of the bed or frame plate 2 and is so arranged as to slightly overlap a portion of the outer edge of the receiving-disk 7 in order to convey thereto filled cans delivered onto the endless belt 10 in a vertical position by the runway 12. The outer rail or side piece of this can-runway at the lower end thereof is inwardly curved toward the can-carrier wheel 5, so that the filled cans as conveyed by the endless belt 10 are gradually moved onto the rotating receiving-disk. From the lower end of the inner rail or side piece of the can-runway 12 extends the segmental guard 13, which guard prevents displacement of the cans until received and held by the two oppositely-rotating horizontally-arranged carrier-wheels 5 6.

In the can-carrier wheel 5 a series of semi-circular seats 14 are cut, which seats register with a series of correspondingly - arranged semicircular seats 15, cut in the periphery of the carrier-wheel 6. The upper portion or upper half 15' of these semicircular seats is of slightly greater diameter than the lower portion thereof, the difference being that of the thickness of the flange of the can-top 16 to be placed upon the end of the filled can 16'. When the seats 14 and 15 register, a circular seat is formed the true circle of which is completed by a tongue 17, projecting from the edge wall of seat 14, fitting within an opposing tongue-seat 17' in the edge wall of the seat 15 while a similar tongue 18, projecting from the edge wall of seat 15, fits into an opposing tongue-seat 18' in the edge wall of the seat 14.

The runway 19 for the tops 16 is provided at its lower end with a projecting inwardly-curved or segmental guide-plate 19', which guide-plate holds the tops 16 within their seats 15 as carried toward the cans 16'. These can-tops are received from the runway 19 into the upper or enlarged portion of the seats 15, and they are held therein by the guide or guide-plate 19' until the seats 14 and 15 are brought into registry, when the tops will rest within the enlarged portion of each seat and be held

directly above and in line with the end of the can 16' to receive the top 16. When the seats 14 and 15 are in complete registry, they will stand directly below the topping-head 20, which head is secured to the inner end of the topping-arm 20'. The outer end of the topping-arm is hinged to a bracket 21, upwardly projecting from the frame of the machine, Fig. 3 of the drawings. This arm is normally held upward by the pressure of a spring 22, which spring in the present case is illustrated as surrounding a pin or stud 22', depending from the topping-arm 20'. The pin or stud works within a seat or socket 23 in the frame or bed plate 2 of the machine. As stated, the normal position of the topping-arm is a raised one, so that the topping-head 20 is clear of the registering seats 14 15 of the carrier-wheel. Said arm is depressed to place the topping-head 20 onto the can-top 16 to force the said top downward within the seats to place the same onto the open end of the can by means of the double cam-wheel 23'. This wheel is attached to the upper end of the short vertical shaft 24, which shaft works within the sleeve 24', extending through the bed or frame plate 2. During rotation of the shaft 24 the inclined surfaces 25 25' of the cam-wheel 23' alternately bear upon the roll 26, working within bearings at the inner end of the topping-arm 20', forcing downward the topping-arm and the topping-head 20 into the registering seats 14 15 to force the can-top 16 onto the open end of the held can. The speed of the cam-wheel 23' is so timed that the cam-surfaces 25 25' only bear upon the roll 26 to depress the topping-head when the seats 14 15 of the carrier-wheels are in perfect registry, as illustrated by Fig. 4 of the drawings. The cross-shaft 11 has secured to its free end the pulley-wheel 27, which is driven from the drive-shaft 27' by means of the belt 28. This belt works over the pulley-wheel 27 of shaft 11 and belt-wheel 28' of the drive-shaft 27'. To the drive-shaft 27' is secured the bevel-pinion 29, which pinion meshes with the bevel-pinion 29', secured to the lower end of the vertical shaft 30. To the upper end portion of this shaft is attached the pinion 30', which pinion meshes with a gear-wheel 31, carried by the lower end portion of the short vertical shaft 24, Fig. 3 of the drawings. To transmit a step motion to the carrier-wheels 5 6 and receiving-disk 7 from the continuous motion of the shaft 24, there is secured to the diametrically opposed studs 32 32', depending from the gear 31, the rolls 33 31'. These rolls during the rotation of the driven gear 31 alternately work in and out of the radial slots 34, cut in the face of the disk 34', attached to the vertical shaft 4, and thus impart a step rotation to the said shaft. This shaft has secured thereto below the radially-slotted disk 34' a gear-wheel 35, which gear-wheel meshes with a similar gear-wheel 35', attached to the ver-

tical shaft 3. In this manner the step rotation of the vertical shaft 4 is transmitted to the companion vertical shaft 3. The moment the top 16 has been placed onto the can 16' the carrier-disks make a part rotation, so as to release the held can 16', which is gradually conveyed toward the discharge-runway 35' by the step rotation of the receiving-disk 7. This disk supports the can during the topping operation, conveying the same from the feed-runway toward the topping mechanism and from said mechanism by a step movement toward the discharge-runway. As this runway is approached the topped can is gradually moved or guided onto the endless belt 10, by means of which it is carried through the discharge-runway 35' to a suitable place of deposit.

In this class of machinery it is usual to deliver the filled cans onto a vertically-movable seat or plunger, which raises the filled can at the proper moment, so as to place its open end in position to receive the can-top, which top is forced thereon by a downwardly-movable plunger. Such mechanism is dispensed with by the present machine, the filled can being delivered in a vertical position onto the horizontally-rotating non-vertically-movable receiving-disk 7, which disk gives a solid seat or support for the said filled cans. Inasmuch as the receiving-disk is not vertically movable, the time required, first, to raise the filled cans, then to place the top thereon, and, finally, to lower the filled and topped can is obviated. The saving thus made permits of an increased output for the present machine.

The endless traveling belt 10 serves as a means for conveying the filled can onto the receiving-disk and the topped cans therefrom. Hence the same may be termed an "endless traveling conveyer."

Having thus described the invention, what is claimed as new, and desired to be protected by Letters Patent, is—

1. In a can-topping machine, the combination with the horizontally-disposed oppositely-operating carrier-wheels of stationary semi-circular registering seats formed in the periphery of each carrier-wheel, means for imparting an intermittent movement to the carrier-wheels, devices for feeding can-tops and cans to the seats of the carrier-wheels, means whereby the can-tops and cans are held within their seats as the seats approach each other for registry, tongues or lugs projecting from the semi-circular seats, which tongues or lugs fit within opposing sockets as the seats are brought into registry, and mechanism whereby the tops are forced onto the cans when the seats are in registry.

2. In a can-topping machine, the combination with a horizontally-disposed can-top carrier-wheel, of an opposing horizontally-disposed can-carrier wheel, of stationary registering seats formed in the periphery of said

wheels for receiving and holding the can-tops and the cans to be topped, means whereby a step rotation is imparted to the said carrier-wheel, tongues or lugs projecting from each peripheral seat, which tongues or lugs fit within opposing sockets as the seats are brought into registry, a topping-arm arranged above the carrier-wheels, and means whereby the topping-arm is actuated to force the can-tops onto the open end of the cans as the seats of the carrier-wheels are brought into registry.

3. In a can-topping machine, the combination with the horizontally-disposed oppositely-operating carrier-wheels, of a series of stationary semicircular seats cut in the periphery of each carrier-wheel for the reception of can-tops and cans, feed-runways for delivering tops and cans to the carrier-wheels, device whereby the tops and the cans are held within their seats, tongues or lugs projecting from the semicircular seats of the wheels, which tongues or lugs fit within opposing sockets as the said seats are brought into registry, an endless conveyor for placing the cans onto a receiving-disk and removing the same therefrom after being topped, and mechanism whereby the tops are forced onto the cans when the retaining-seats of the carrier-wheels are in registry.

4. In a can-topping machine, the combination with the horizontally-disposed opposing carrier-wheels, of a series of stationary semicircular seats cut in the periphery of each car-

rier-wheel, means for feeding can-tops and cans to the seats of the carrier-wheels, tongues or lugs projecting from the periphery of each carrier-wheel, which tongues or lugs fit within opposing sockets of the carrier-wheels as the seats are brought into registry so as to complete the circle, and means whereby the tops are forced onto the open end of the cans when carrier-wheels seats stand in registry.

5. In a can-topping machine, the combination with a horizontally-rotatable non-vertically-movable support or receiving-disk for the cans to be topped, a can-runway for delivering the cans thereto, of means for changing the direction of travel of the cans to place the same upon the support or receiving-disk, a carrier for the cans, a series of stationary can-seats cut in the periphery of the said carrier, devices for holding the cans with their seats during the topping operation, mechanism whereby rotation is imparted to the support or receiving-disk and to the carrier, devices whereby the can-tops are placed immediately above the cans, and mechanism for forcing the said tops onto the open end of the cans.

In witness whereof I have hereunto set my hand.

HENRY C. BLACK.

Witnesses:

WALTER F. VANE,
N. A. ACKER.