

No. 754,700.

PATENTED MAR. 15, 1904.

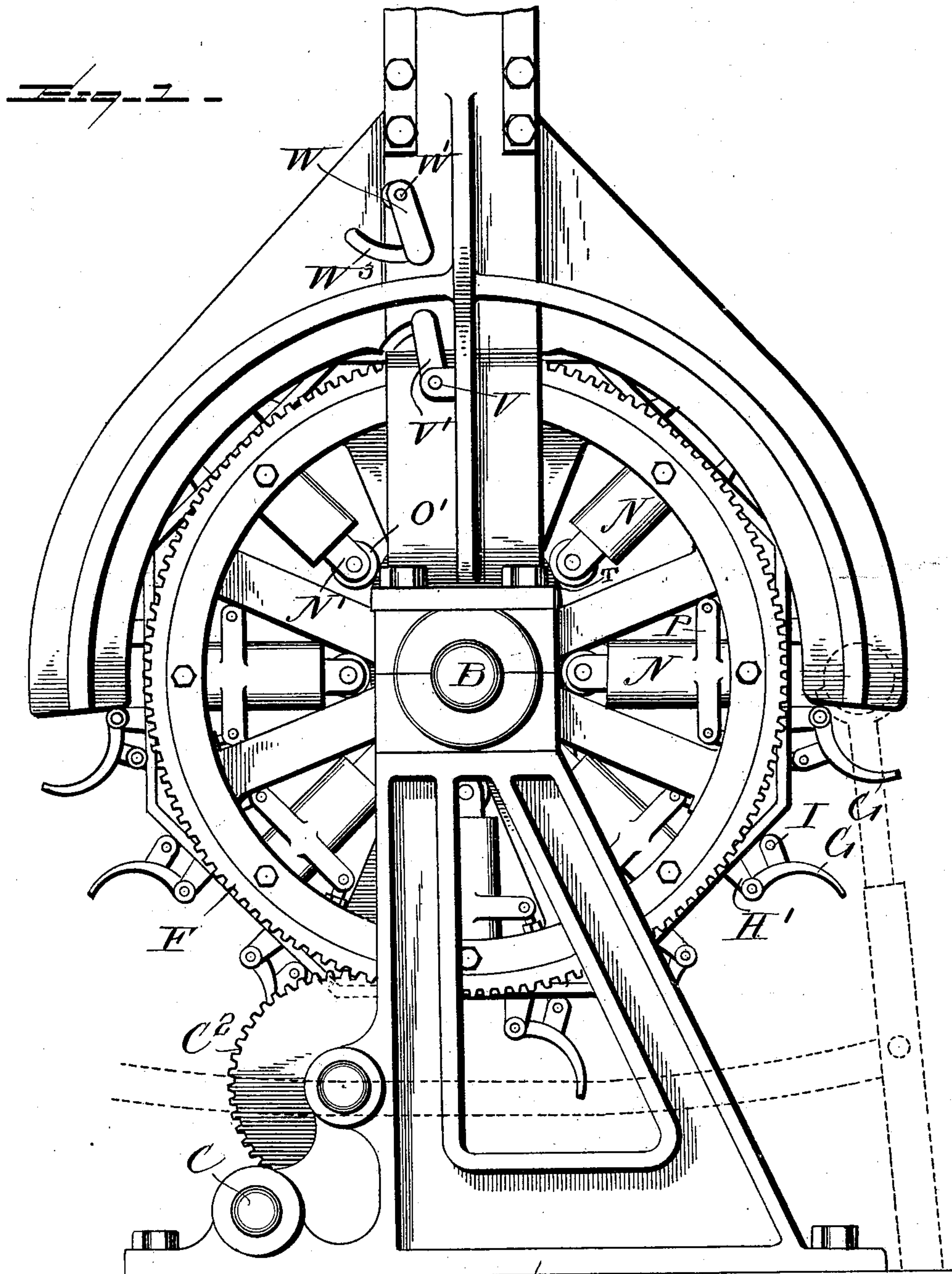
J. G. & M. O. REHFUSS.

MACHINE FOR PUTTING TOPS AND BOTTOMS ON CANS.

APPLICATION FILED MAR. 12, 1902. RENEWED JAN. 4, 1904.

NO MODEL.

4 SHEETS—SHEET 1.



WITNESSES:

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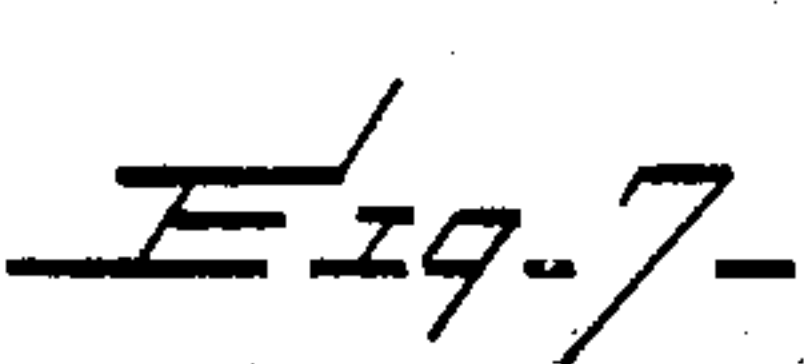
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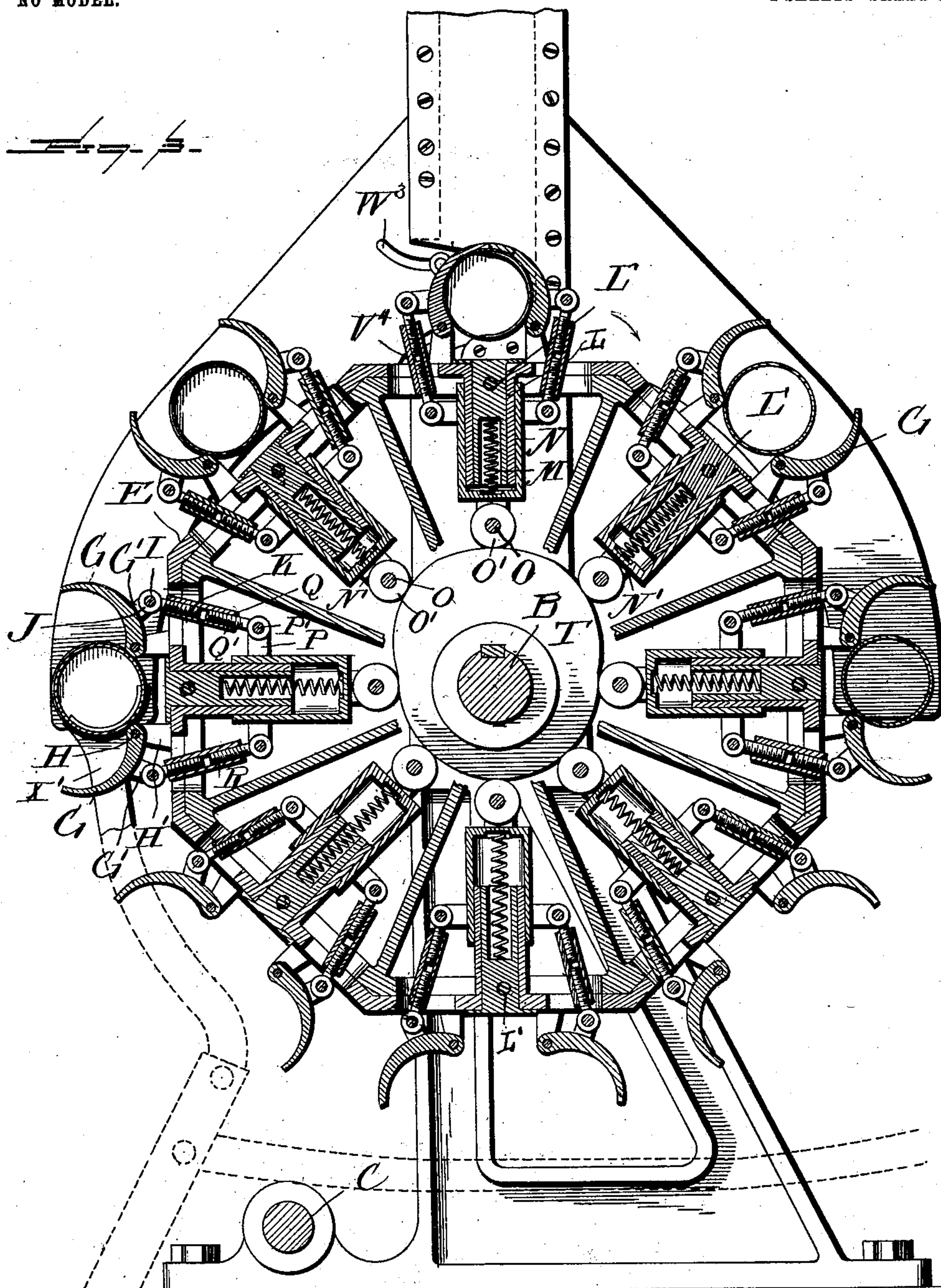
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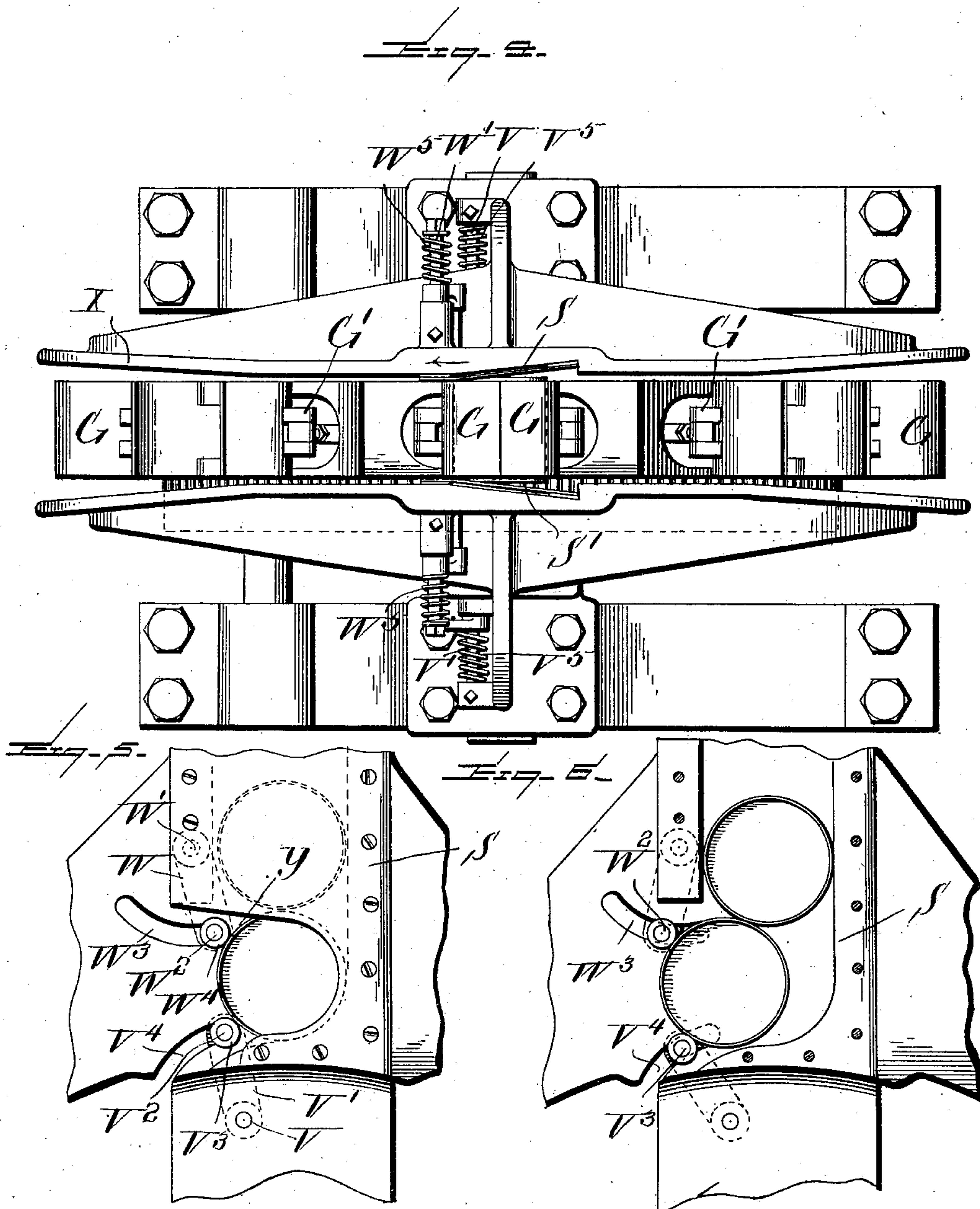
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WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN G. REHFUSS AND MARTIN O. REHFUSS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS TO THE BUREAU CAN AND MANUFACTURING COMPANY, A CORPORATION OF DELAWARE.

MACHINE FOR PUTTING TOPS AND BOTTOMS ON CANS.

SPECIFICATION forming part of Letters Patent No. 754,700, dated March 15, 1904.

Application filed March 12, 1902. Renewed January 4, 1904. Serial No. 187,738. (No model.)

To all whom it may concern:

Be it known that we, JOHN G. REHFUSS and MARTIN O. REHFUSS, citizens of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Putting Tops and Bottoms on Cans; and we do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in machines for putting the tops and bottoms on the ends of the body portions of cans preparatory to their being soldered by mechanism which is covered by our previous application for can-soldering machine, bearing Serial No. 96,273; and it consists in the provision of a rotary wheel carrying clamping-arms which are adapted to automatically grip successive cans as they are fed by any suitable mechanism and deposited between the clamping-jaws, means being provided to throw the clamping-jaws into frictional engagement with the body portions of the cans as they approach positions where they automatically receive the tops and bottoms of the cans, the clamping-jaws being released from the can after the tops and bottoms have been placed thereon after which the cans, with the tops and bottoms thereon, may be deposited upon mechanism provided to convey the same to another portion of the machine, where they are soldered.

The invention consists, further, in various details of construction and combinations of parts, which will be hereinafter fully described and then specifically defined in the appended claims.

Our invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this application, and in which drawings

similar letters of reference indicate like parts in the several views, in which—

Figure 1 is a side elevation of our machine for applying the tops and bottoms to cans. Fig. 2 is an end elevation of the machine. Fig. 3 is a central vertical section transversely through the shaft of the rotating wheel carrying the clamping-jaws. Fig. 4 is a top plan view of the machine. Fig. 5 is a detail view in elevation of the lower end of the chute carrying the tops which are to be placed on the bodies of the cans; and Fig. 6 is a view similar to Fig. 5, showing different positions of the tops and the means for holding the same singly in position to be caught by the bottom portion of the can as it swings against the flange on the top. Fig. 7 is a detail view showing a view of one of the octagonal faces of the skeleton wheel with the clamps removed.

Reference now being had to the details of the drawings by letter, A A designate standards for the frame of the machine, upon which is mounted a stationary shaft B, and journaled in the lower portion of the frame is a shaft C, having a pinion-wheel C', which is in mesh with a gear-wheel C², journaled upon a stud D, which is mounted in one of the upright portions or standards A. Journaled on said shaft B is a skeleton wheel E, to which is bolted a gear-wheel F, having peripheral teeth which are in mesh with the teeth of the gear-wheel C², as shown clearly in Figs. 1 and 2 of the drawings. In the drawings we have shown the skeleton wheel as octagonal-shaped in peripheral outline, each of the eight straight sections about the circumference of the skeleton wheel being adapted to carry a pair of clamping-arms which are adapted to grip the body portions of the cans as they are fed successively between the jaws by any suitable conveying mechanism.

Referring to Fig. 3 of the drawings, the clamping-jaws will be seen to comprise on each face of the circumference of the wheel two members G G, which are concaved on the inner faces and convex on their outer faces and pivoted on their inner ends on the pins

H, which are mounted in bracket-arms H', which project at right angles from the flat face of the wheel carrying the jaws. Each jaw has an integral lug G' projecting from its
 5 convexed surface and apertured to receive a pin I, which pin also receives an eye J, which is integral with the outer end of a threaded screw K. Each of the eight faces about the
 10 periphery of said wheel has a hollow cylindrical flange portion L, adapted to receive a flanged rod L', the inner end of which is hollow to receive a spring M, one end of which
 15 spring bears against the bottom wall of the bore in said rod, while its other end bears against the bottom wall of a cylindrical cup-shaped member N, which telescopes over said
 hollow cylindrical member L. Projecting from the end of each of said cup-shaped members N are lugs N', which carry a stub-shaft
 20 O, upon which an antifriction-wheel O' is mounted. Projecting laterally from positions diametrically opposite each other on the outer periphery of each cup-shaped member are
 arms P, which carry pins P' at the ends thereof.
 25 on which the eyes Q of the screws Q' are journaled. The threaded portions of screws K and Q' are adapted to fit interior threads in the adjusting turnbuckle R, whereby as the
 latter is rotated the throw of the arms may be
 30 regulated to fit cans of different diameters.

The cam T is keyed to the shaft B adjacent to the face of the skeleton wheel, and the outer circumference of said cam forms a track on which said antifriction-rollers O' are
 35 adapted to travel as the wheel carrying the clamping-jaws and the antifriction-wheel rotates about the cam.

Mounted on either side of the wheel carrying the clamping-jaws are two chutes S and
 40 S', which chutes are adapted to hold the tops and bottoms of the cans, which are fed into the chutes upon edge and in contact with one another. In the drawings we have shown these
 chutes as being in vertical positions and in
 45 planes adjacent to their exit or lower ends at angles to the opposite faces of the wheel carrying the clamping-jaws, the positions of said
 chutes being shown clearly in Fig. 4 of the drawings. Pivotaly mounted at the marginal
 50 edge of each chute is a link W, journaled on a pin W', and the free end of said link carries a pin W², which has a limited play in a curved slot W³. (Shown clearly in Figs. 5 and 6 of the drawings.) Mounted on said pin W² is
 55 an antifriction-roller W⁴, against which the flange on the top or bottom of the can is adapted to contact as it approaches a position adjacent to the body portion of a can as it rotates with the wheel.

60 Pivoted on a pin V on each chute is a second link V', carrying a pin V² adjacent to its free end, on which an antifriction-roller V³ is mounted, and said pin V² is adapted to have a limited movement in the slot V⁴. Mounted
 65 upon the pin W² is a spring W⁵, (shown clearly

in Figs. 2 and 4 of the drawings,) one end of which spring is fastened to the head W⁶ of said pin and its other end engages about the link carrying the pin W², the office of which
 70 spring is to normally hold the link and the pin, with roller thereon, in the position shown in Fig. 5 of the drawings, in which position
 said roller will be in the path of the tops and bottoms as they are fed singly in either chute
 75 in positions to be applied to the body portion of a can.

Mounted on the pin V is a spring V⁵, which is similar to the spring W⁵, before described, and serves the same purpose in that one end
 80 of the spring is fixed to the head of the pin V and at its other end bears against the link V', adapted to throw the free end of the link, with the roller carried thereon, in such a position
 that the flanged edge of the top or bottom for a can is in contact therewith as it is fed in a
 85 position to be applied to the body portion of a can.

On opposite sides of the wheel of the machine are the outwardly-diverging guide-plates X, between which the cans gripped by the
 90 clamping-jaws are adapted to travel in receiving the tops and bottoms. These guide-plates are parallel a portion of their length, as shown clearly in Fig. 4 of the drawings, and each of
 said plates is recessed on its inner wall to receive the lower ends of the chutes, through
 95 which the tops and bottoms for the cans are fed. The inner wall of each chute is cut away, as shown in Fig. 5 by letter Y, through which the top or bottom for the can is adapted
 100 to pass as the flange on the same is caught by one or the other end of the body portion of the can.

In Figs. 1 and 3 we have shown the upper
 105 end of an arm X', which is provided to convey the cans from the rotary carrier, but as the means for transferring the body portions of the cans to the machine for applying the
 tops and bottoms forms no part of the present invention, but is fully described and illustrated in a separate application, Serial No.
 110 109,554, it is not deemed necessary in the present case to further illustrate or describe said transferring mechanism. Suffice it to say that the body portions of the cans are fed
 115 in rapid succession, so that the body portion of a can will be gripped by each pair of clamping-jaws with the rotary movement of the wheel carrying said jaws.

In operation the chutes described are filled
 120 with the flanged tops and bottoms which are to be applied to the body portions, and are fed to the chutes in any suitable manner. As the wheel carrying the clamping-jaws rotates
 on the shaft B the body portions of the cans
 125 are fed singly to the position shown to the right of Fig. 3, adjacent to two of the clamping-jaws, and as the antifriction-wheel O', which is adjacent to the jaws about to clamp
 the body portion of a can, begins to travel over
 130

the cam-surface the jaws will begin to close about the body portion of the can, and when the body portion of the can approaches a position to receive the tops and bottoms said jaws are thrown by means of the antifriction wheels or rollers traveling on the large portion of the cam tightly against the body portion, as shown in Fig. 3 of the drawings. The tops and bottoms for the cans, which have been previously deposited by gravity into the positions shown in Fig. 4 of the drawings, rest at angles to the ends of the body portion of the can with portions of the flanges of the top and bottom for the can in the path of the ends of the body portion thereof, whereby as the opposite ends of the can contact with the flanges and during the rotary movement of the body portion with the clamping-jaws the body portion of the can passes between the contracted parallel portion of the guide-plate, carrying the top and bottom for the can with it, and as the outer faces of the top and bottom contact with the opposite parallel walls of the guide-plate said top and bottom will be clapped over the cylindrical body portion of the can. After the can receives its top and bottom and as the antifriction-wheel which actuates the clamping-jaws holding the can to receive the top and bottom thereof begins to pass down over the surface of the cam the jaws begin to open to release the can, and when the two jaws which have previously held the can to receive the top and bottom thereof arrive at a position diametrically opposite the position in which the can is received by the clamping-jaws the can falls by gravity and is adapted to be conveyed by mechanism (not shown or forming a part of the present invention) to another part of the machine, whereby the soldering of the tops and bottoms is effected, which machine is covered by our previous application before referred to.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A machine for putting tops and bottoms on the body portions of cans comprising a rotating carrier with clamping-jaws thereon for holding the cans, chutes through which the tops and bottoms for the cans are fed to locations in the paths of the ends of the body portions of the cans, yielding antifriction-wheels mounted at the exit ends of said chutes and adapted to engage the tops and bottoms, fixed vertical parallel walls between which said tops and bottoms contact as they are carried forward by the cans, whereby said tops and bottoms are clapped over the end of a body portion of a can, as set forth.

2. A machine for putting tops and bottoms on the body portions of cans comprising a rotating carrier with clamping-jaws thereon for holding the cans, chutes disposed at angles to each other, through which the tops and bottoms for the cans are fed to locations in the

paths of the ends of the body portions of the cans, arms pivotally mounted at the exit ends of said chutes, and antifriction-wheels journaled on said arms, and springs bearing against the arms to hold said wheels against the tops and bottoms of the cans, fixed vertical parallel walls between which said tops and bottoms contact as they are carried forward by the cans, whereby said tops and bottoms are clapped over the ends of the body portions of the cans, as set forth.

3. A machine for putting tops and bottoms on the body portions of cans, comprising a rotating carrier with clamping-jaws thereon for holding the cans, chutes through which the tops and the bottoms of the cans are fed to locations in the paths of the ends of the body portions of the cans, a plurality of pivotal members being provided for engaging the tops and bottoms each at two locations to hold the tops and bottoms to receive the can-bodies, fixed vertical parallel walls between which said tops and bottoms are carried and against which they contact, whereby said tops and bottoms are clapped over the ends of the body portions, as set forth.

4. A machine for putting tops and bottoms on the body portions of cans, comprising a rotating carrier with clamping-jaws thereon for holding the cans, chutes through which the tops and the bottoms of the cans are fed to locations in the paths of the ends of the body portions of the cans, a plurality of spring-actuated antifriction-wheels adapted to contact with the flanges on the tops and bottoms to hold the same against the wall of the chute as the body portion of a can contacts with said tops and bottoms, fixed vertical parallel walls between which said tops and bottoms are carried and against which they contact, whereby said tops and bottoms are clapped over the ends of the body portions, as set forth.

5. A machine for putting tops and bottoms on the body portions of cans, comprising a rotating carrier with clamping-jaws thereon for holding the cans, chutes through which the tops and bottoms of the cans are fed to locations in the paths of the ends of the body portions of the cans, pins mounted in the walls of the chutes, links, rocking on said pins, antifriction-rollers carried by said link and adapted to be held yieldingly in opposite directions against each top and bottom of the can, fixed vertical parallel walls between which said tops and bottoms are carried and against which they contact, whereby said tops and bottoms are clapped over the ends of the body portions, as set forth.

6. A machine for putting tops and bottoms on the body portions of cans, comprising a rotating carrier with clamping-jaws thereon for holding the cans, chutes through which the tops and bottoms of the cans are fed to locations in the paths of the ends of the body portions of the cans, pins mounted in the walls of said

chutes opposite each other, each pin having a link adapted to rock thereon, a pin carried at the end of each link, an antifriction-roller mounted at the other end of the link, and a
 5 spring fixed at one end to the head of the pin and its other end engaging the link, curved slots in which said pins are adapted to travel, fixed vertical parallel walls between which
 10 said tops and bottoms are carried and against which they contact, whereby said tops and bottoms are clapped over the ends of the body portions, as set forth.

7. A machine for putting tops and bottoms on the body portions of cans comprising a rotating carrier with clamping-jaws thereon for
 15 holding the cans, chutes through which the tops and bottoms of the cans are fed to locations in the paths of the ends of the body portions of the cans, fixed vertical parallel
 20 walls between which said tops and bottoms are carried and against which they contact, offsets in said walls in which the lower ends of the chutes are disposed at angles to each other, bosses projecting from the outer walls
 25 of said chutes, rocking pins carried in said bosses, links fastened to said pins, and antifriction-wheels carried by said links and adapted to contact with the flanges of tops and bottoms of cans, as set forth.

30 8. A machine for putting tops and bottoms on the body portions of cans, comprising a rotating carrier with clamping-jaws thereon for holding the cans, chutes through which the tops and bottoms of the cans are fed to locations
 35 in the paths of the ends of the body portions of the cans, fixed vertical parallel walls merging into outwardly-diverging portions, offsets in the inner faces of said walls, in which the lower ends of said chutes are disposed,
 40 the lower ends of said chutes being recessed, a yielding link pivoted to each chute, and an antifriction-wheel carried by each link and having a play in the recess of the chute, as set forth.

45 9. A machine for putting tops and bottoms on the body portions of cans, comprising a rotating polygonal carrier, clamping-jaws arranged in pairs about said carrier and projecting from the flat faces about its periphery,
 50 an operating-shaft, a stationary cam, an integral hollow cylindrical and radially-disposed portion projecting from each polygonal face of the carrier, hollow members telescoping over said cylindrical portions, and having connections
 55 with said clamping-jaws, an antifriction-wheel carried by each of said telescoping members and adapted to move said clamping-arms as the antifriction-wheels move about the periphery of said cam, whereby the body
 60 portion of the can is automatically gripped and held, chutes through which the tops and bottoms for the cans are fed to locations in the paths of the end portions of the can-bodies, fixed vertical and parallel walls between which
 65 said tops and bottoms are carried and by which

they are applied onto the ends of the cans, as set forth.

10. A machine for putting tops and bottoms on the body portions of cans, comprising a frame, a shaft mounted therein, a polygonal
 70 wheel rotating with said shaft, clamping-jaws arranged in pairs about the periphery of said wheel and projecting from the flat faces about the periphery thereof, and pivotally connected thereto, a stationary cam, a hollow open-
 75 ended and radially-disposed cylindrical portion extending from each polygonal face of said wheel, a hollow member telescoping over said cylindrical portion, an antifriction-wheel carried by each of said telescoping members,
 80 adjustable pivotal connections between said members and clamping-jaws, whereby as said wheel rotates, and the antifriction-wheels travel about the periphery of said cam, a pair of jaws is thrown into clamping relation with
 85 the body portion of a can, chutes through which the tops and bottoms for the cans are fed to locations in the paths of the end portions of the can-bodies, fixed vertical and parallel walls between which said tops and bot-
 90 toms are carried and by which they are applied onto the ends of the cans, as set forth.

11. A machine for putting tops and bottoms on the body portions of cans, comprising a frame, a shaft mounted therein, a polygonal
 95 wheel journaled on said shaft, lugs on the flat faces about the periphery of said wheel, clamping-jaws arranged in pairs and pivotally mounted on said lugs, a hollow open-ended cylindrical and radially-disposed portion project-
 100 ing inward from each polygonal face of said wheel, a cylindrical shell with one end closed telescoping over said cylindrical portion, an antifriction-wheel carried on the closed end of each of said shells, adjustable connections
 105 between said cylindrical shell and the clamping-jaws, a stationary cam on which said antifriction-wheels travel, and springs for holding the antifriction-wheels against the cam, chutes through which the tops and bottoms
 110 for the cans are fed to locations in the paths of the end portions of the can-bodies, fixed vertical and parallel walls between which said tops and bottoms are carried and by which they are applied onto the ends of the cans, as
 115 set forth.

12. A machine for putting tops and bottoms on the body portions of cans, comprising a frame, a shaft mounted therein, a wheel having
 120 a polygonal periphery, each face about the periphery on the wheel being provided with a pair of clamping-jaws pivoted to the wheel, each face having a radially-disposed hollow cylindrical projection, a hollow telescoping member mounted over each of said cylindrical por-
 125 tions, a spring seated in a recess in the end of the cylindrical portion, and said telescoping member, an antifriction-wheel journaled at the end of each telescoping member, a stationary cam about which said friction-wheel travels, later-
 130

ally-projecting arms on each telescoping member, and adjustable pivotal connections between said arms and clamping-jaws, chutes through which the tops and bottoms for the cans are fed to locations in the paths of the end portions of the can-bodies, fixed vertical and parallel walls between which said tops and bottoms are carried and by which they are applied onto the ends of the cans, as set forth.

13. A machine for putting tops and bottoms on the body portions of cans, comprising a frame, a shaft mounted therein, a skeleton wheel with polygonal periphery journaled on said shaft, a series of clamping-jaws arranged in pairs about the periphery of said wheel and means for operating said jaws, whereby the body portions of the cans are clamped and held while receiving the tops and bottoms therefor, guide-plates having wings extending down over the upper portion of the wheel, said plates being parallel at locations between which the cans are carried while receiving the tops and bottoms thereof and designed to contact with and hold the tops and bottoms on the body portion of a can, the downwardly-extending ends of said wings diverging, chutes, through which the tops and bottoms are fed to the body portions of the cans, the inner wall of each of said guides being notched at positions opposite each other for the reception of the lower ends of said chutes, a recessed portion adjacent to the lower ends of

the chutes through which the tops and bottoms pass to positions to be caught by the ends of the body portion of the can, as set forth.

14. A machine for putting the tops and bottoms on the body portions of cans comprising a frame, a shaft mounted therein, a polygonal wheel journaled on said shaft, lugs projecting from each flat edge of the periphery, jaws pivotally mounted on said lugs, a cylindrical flanged member seated in a hollow cylindrical portion of each face, a hollow telescoping member mounted over said hollow cylindrical portion of the wheel, a spring bearing against said telescoping member, an anti-friction-wheel, and a cam against which said anti-friction-wheel contacts, lugs projecting in opposite directions from the telescoping member, pins carried by the lugs on said jaws and telescoping member, threaded eyebolts mounted on said pins, an interior threaded turnbuckle mounted over the threaded portions of said bolts, and means for feeding the tops and bottoms to locations in the paths of the body portions of the cans, as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN G. REHFUSS.

MARTIN O. REHFUSS.

Witnesses:

J. B. JARDELLA,

JOS. ZIEGLER.