I. D. THORNBURGH.

MACHINE FOR RE-FORMING CAN BODIES.

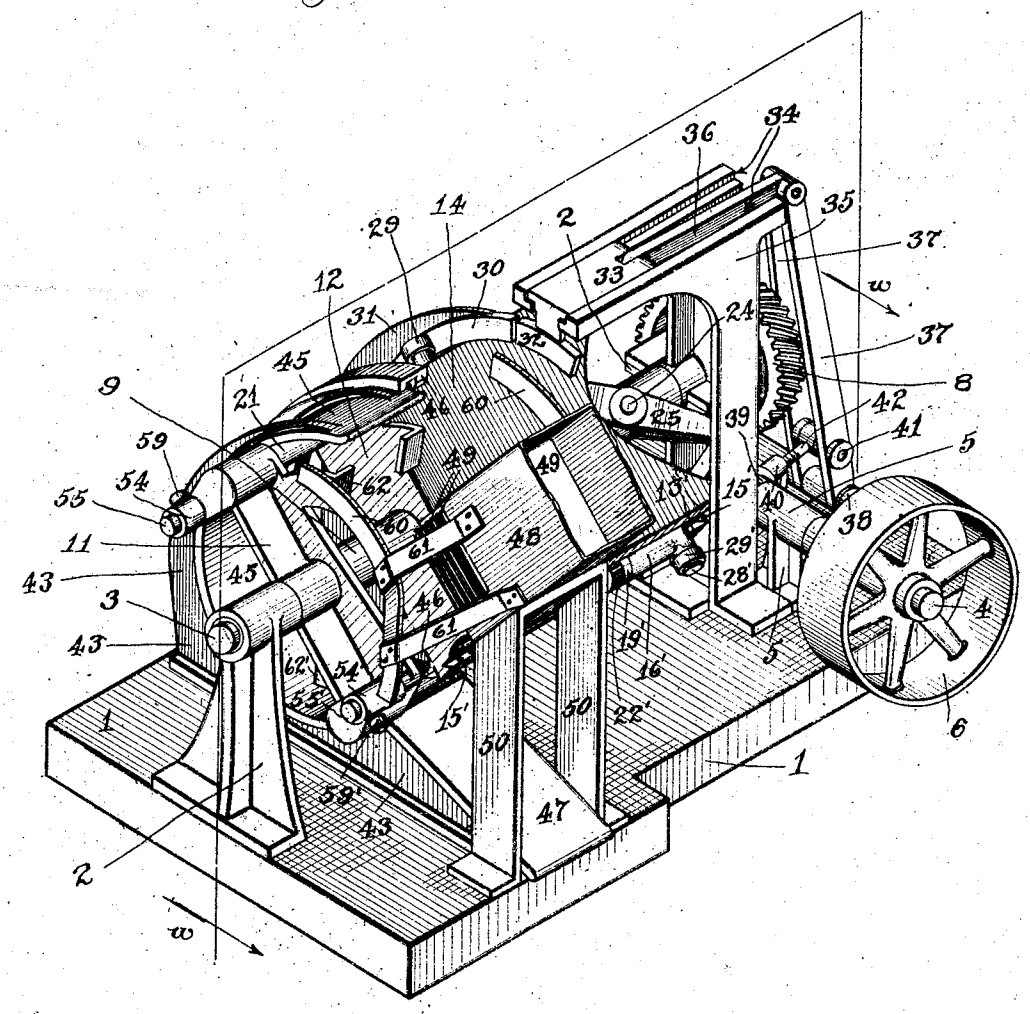
APPLICATION FILED OCT. 2, 1915.

**1,190,341.**

Patented July 11, 1916.

4 SHEETS—SHEET 1.

Fig. 1.




WITNESS

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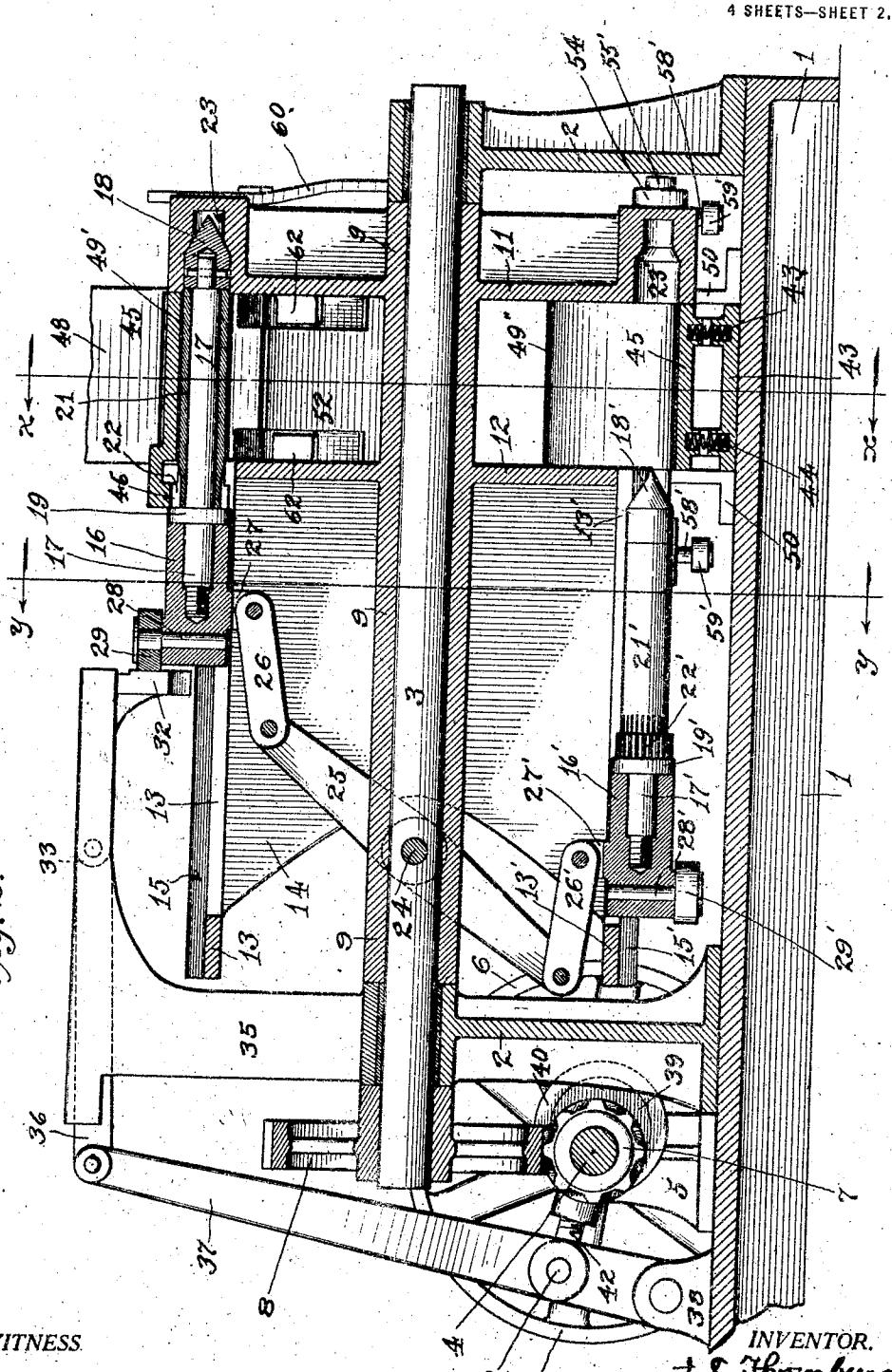

Fig. 2.

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4 SHEETS—SHEET 3.

Fig. 3

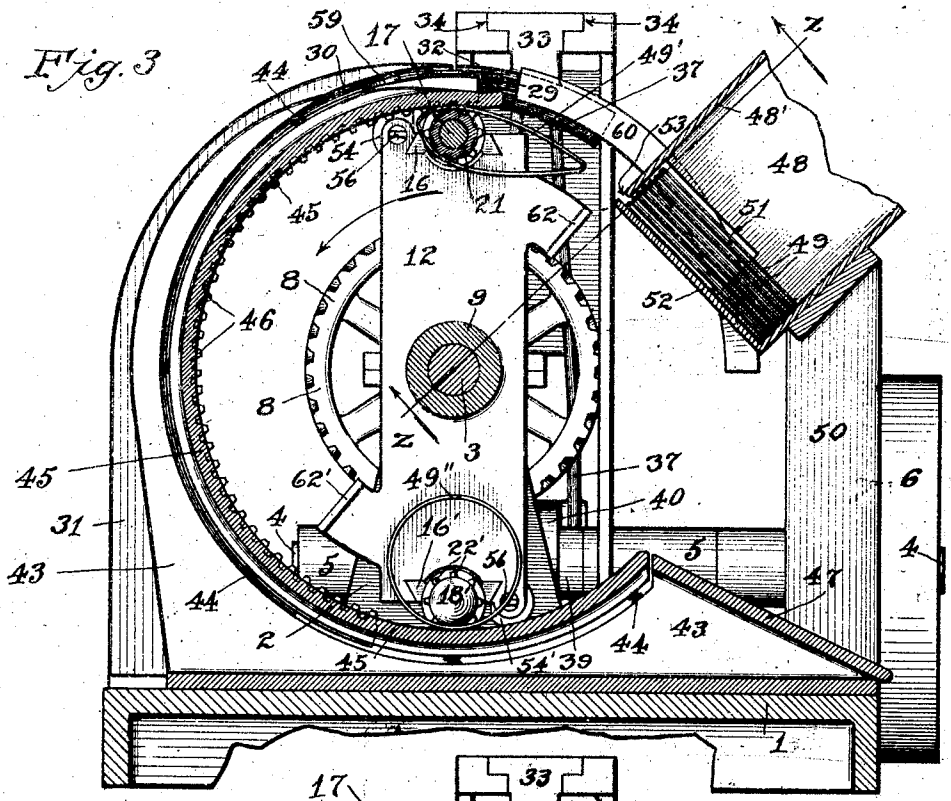
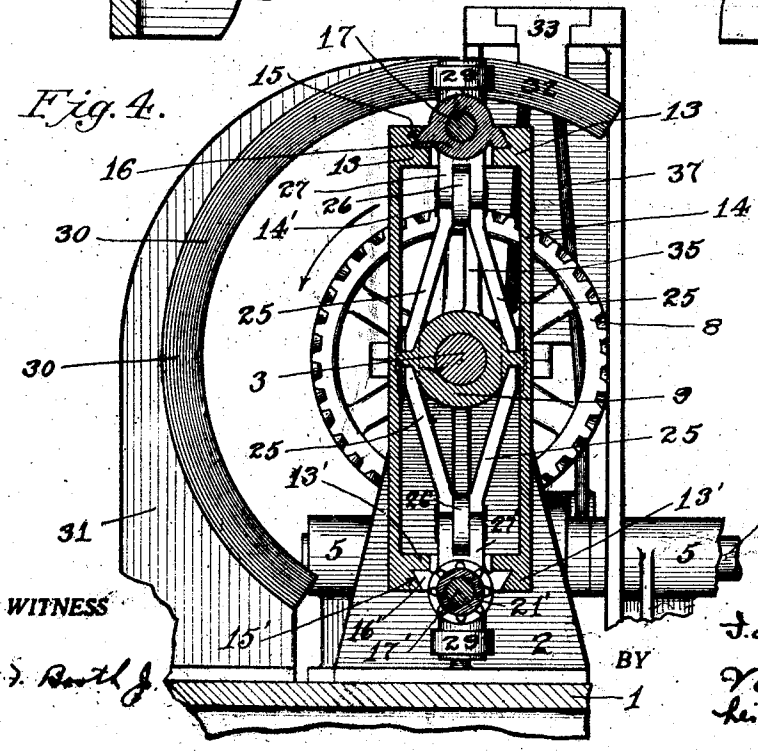



Fig. 4.

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4 SHEETS—SHEET 4.

Fig. 5.

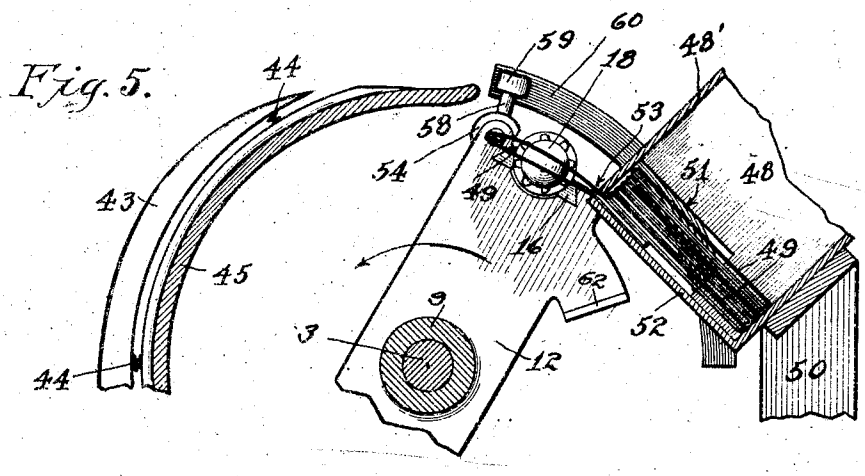



Fig. 6.

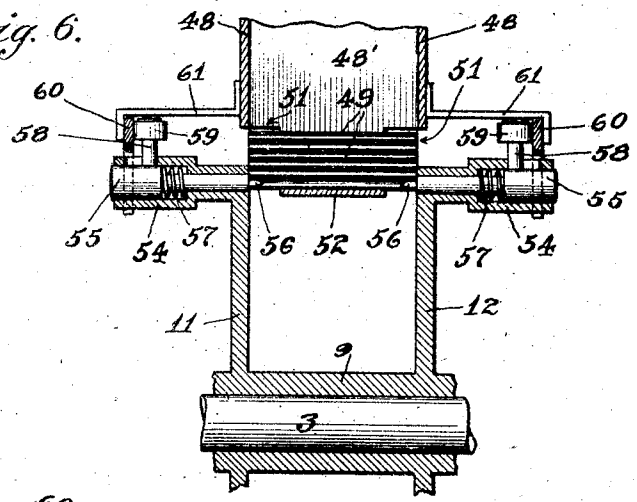
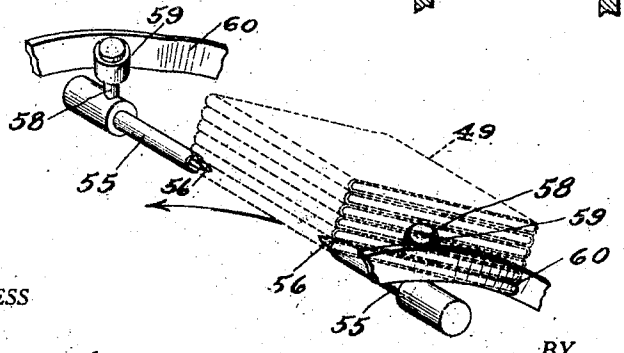



Fig. 7.

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# UNITED STATES PATENT OFFICE.

IVAN D. THORNBURGH, OF OAKLAND, CALIFORNIA, ASSIGNOR TO AMERICAN CAN COMPANY, OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF NEW JERSEY.

## MACHINE FOR RE-FORMING CAN-BODIES.

1,190,341. Specification of Letters Patent. Patented July 11, 1916.

Application filed October 2, 1915. Serial No. 53,741.

*To all whom it may concern:*

Be it known that I, IVAN D. THORNBURGH, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Machines for Re-Forming Can-Bodies, of which the following is a specification.

The present invention relates to an apparatus for reforming can bodies and more particularly to a continuously operated machine for the reforming of the bodies of cans designed to be used for the reception and preservation of food products or other materials, after such can bodies have been compressed or flattened to facilitate the shipment or storage thereof.

In machines at present employed for reforming compressed or flattened can bodies, the construction and operation of the working parts is such that the can bodies are intermittently moved from point to point, and successively and independently operated on at each point. This construction involves the stopping and starting of a great number of parts in the machine, thereby causing a considerable waste of energy and time. It is the object of the present invention therefore, to provide a machine for the described purpose in which the can bodies are continuously operated on, and in which the various parts are in continuous movement, and which consequently performs its functions more rapidly and more efficiently than any device now known to the art.

In order to comprehend the invention reference should be had to the accompanying sheets of drawings, in which—

Figure 1 is a perspective view of the can body reforming machine. Fig. 2 is a vertical longitudinal sectional view taken on a plane represented by the lines *w—w* of Fig. 1 of the drawings, and viewed in the direction of the arrows. Fig. 3 is a vertical transverse sectional view, taken in the direction of the arrows on the line *x—x* of Fig. 2 of the drawings, showing a series of flattened can bodies within the can body holder, a body about to be reformed after having been removed from the holder, and a reformed body about to be discharged from the machine. Fig. 4 is a vertical transverse section taken in the direction of the arrows on the line *y—y*, Fig. 2 of the drawings. Fig. 5 is a fragmental section, similar to Fig. 3 of the drawings, with parts removed, showing a flattened can body partly removed from the holder. Fig. 6 is a fragmental section taken in the direction of the arrows on the line *z—z* of Fig. 3 of the drawings, showing the means for removing flattened can bodies from the holder. Fig. 7 is a fragmental perspective detail of the means for removing can bodies from the holder.

In the drawings, the numeral 1 represents a suitably constructed base or bed-plate for supporting the various parts of the machine and upon which are mounted upwardly extending brackets 2, which carry a horizontal rotatable shaft 3. A drive shaft 4, shown in the drawings as supported in brackets 5 resting upon the bed-plate 1, is provided with means, as, for example, a pulley 6, Fig. 1 of the drawings, for receiving power from an outside source, not shown in the drawings, and drives the shaft 3 by means of the spiral gears 7 and 8, Figs. 1 and 2 of the drawings.

Supported by and fixed to the rotating horizontal shaft 3 is a rotary driven spider consisting of a hub 9 upon which are two spaced, radially disposed plates 11 and 12, Figs. 2 and 6 of the drawings, preferably integral with said hub 9. The plate 12 carries two rearwardly extending, spaced, axially disposed plates 14 and 14′, Figs. 2 and 4 of the drawings, the outer edges of which are joined together by peripheral webs 13 and 13′. These webs 13 and 13′ are provided with guide-ways 15 and 15′ respectively, in which are slidably mounted blocks 16 and 16′, said blocks carrying forwardly extending studs 17 and 17′, Figs. 2, 3 and 4 of the drawings. The studs 17 and 17′ are provided as shown in Fig. 2 of the drawings with collars 19 and 19′ adjacent to the blocks 16 and 16′, tapered or conical heads 18 and 18′, and rotatably mounted cylindrical sleeves or mandrels 21 and 21′ intermediate said collars and said heads, said sleeves 21 and 21′ being formed with pinion-toothed sections 22 and 22′ at their rear ends. The forward end plate 11 has suitably formed in the inner face thereof the spaced sockets 23 and 23′ in aline-

ment with said tapered heads 18 and 18′ respectively, and within which said heads are adapted to seat.

Fulcrumed upon a pin 24, Fig. 2 of the drawings, is a double transverse lever 25, Figs. 2 and 4 of the drawings, which is connected at its upper and lower ends to the sliding blocks 16 and 16′ by means of links 26 and 26′ and lugs 27 and 27′ on said blocks 16 and 16′ respectively. It will readily be seen that on account of this lever and link connection between the two blocks 16 and 16′, any forward sliding movement of the block 16 will cause a corresponding rearward movement of the block 16′, and vice versa. The blocks 16 and 16′ are further provided with outwardly extending pins 28 and 28′ respectively, upon which are rotatably mounted cam-following rollers 29 and 29′.

A segmental semi-circular cam-face 30, Figs. 1 and 4 of the drawings, formed upon a bracket 31 supported by the base 1, is adapted to engage the cam-following rollers 29 and 29′ of the sliding blocks 16 and 16′ as the same are successively brought to the top of the machine by the rotation of the shaft 3, and by such engagement to hold one of said blocks 16 or 16′ at the forward limit of its travel during a part of the revolution of said shaft 3. A short segmental cam-face 32, Figs. 1 and 2 of the drawings, carried by a slide 33 operating in horizontal guide-ways 34 supported in a plane parallel to the shaft 3, by the bracket 35, is given a fore and aft reciprocating movement by a link 36 connecting said slide 33 to a lever 37 fulcrumed in a bracket 38 on the base 1, said lever 37 being operated by an eccentric 39 on the drive shaft 4, the strap 40 of which is pivotally connected to said lever 37 at 41 by a short connecting rod 42. The reciprocating movement of the slide 33 is so timed with respect to the rotation of the shaft 3 that said slide 33, with its segmental cam-face 32, is at the extreme rearward limit of its travel at the moment that either one of the cam-rollers 29 and 29′ is brought into a position to engage said cam-face 32; and that upon the beginning of such engagement, the slide 33 is moved forward to bring its cam-face 32 into alinement with the stationary cam-surface 30, as shown in Fig. 1 of the drawings.

Thus by the forward movement of the slide 33 one of the slide-blocks, for instance, slide-block 16 with its mandrel 21 is moved to its extreme forward position, and the head 18 is seated in the socket 23 of the forward transverse plate 11, as shown in Fig. 2 of the drawings, and by means of the double lever 25, the slide 16′ with its mandrel 21′ is simultaneously retracted. The relative positions of the mandrels 21 and 21′ are maintained by the engagement of the cam-roller 29 of the block 16 with the stationary cam-face 30, until, by the rotation of the shaft 3, the mandrel 21′ is brought to the top of the machine, and its cam-roller 29′ engages the movable cam-face 32. By this time the cam-roller 29 has run off the lower end of the stationary cam-face 30, so that when the sliding cam-face 32 is again moved forward by the action of the slide 33, the relative positions of the mandrels 21 and 21′ are reversed.

A semi-circular bracket 43—Figs. 1 and 3 of the drawings, supported by the base 1, is positioned to partly inclose the space between the revolving transverse plates 11 and 12,—Figs. 1, 2 and 3 of the drawings. Flexibly supported upon a plurality of springs 44 within said bracket 43 is a semi-cylindrical ironing track 45,—Fig. 2 of the drawings, upon which the forwardly positioned mandrel 21 or 21′ rolls in following its circular orbit from the top to the bottom of the machine.

A segmental gear rack 46 is rigidly mounted within said bracket 43 besides said ironing track 45, said rack 46 engaging the pinion teeth 22 or 22′ upon one of the mandrels 21 or 21′, and by such engagement said mandrel is caused to rotate and therefore to roll along the ironing track 45 without slipping. An inclined face 47 supported by the bracket 43 beyond the lower end of the ironing track 45, provides a continuation of said track for the discharge of reformed can bodies from the machine, Fig. 3 of the drawings.

A suitably constructed magazine or holder 48, Figs. 1 and 3 of the drawings, adapted to contain a supply of flattened can bodies 49 placed one upon the other and with their longitudinal axes parallel to the axis of the machine, is supported slightly in advance of the upper end or beginning of the ironing track 45, upon brackets 50 extending upwardly from the base 1. The sides and front walls of the holder 48 are cut away, as shown at 51, in Fig. 6 of the drawings, to permit the passage thereunder of the revolving transverse plates 11 and 12. A plate 52, Figs. 3, 5 and 6 of the drawings, forms the bottom of the holder 48, a slot 53 being formed between said bottom plate 52 and the front wall 48′ of the said holder 48 to provide a discharge opening for the lowermost flattened can body 49 within said holder 48.

Oppositely disposed cylindrical extensions 54, Fig. 6 of the drawings, are formed in the upper end portions of the transverse plates 11 and 12 adjacent to the mandrel 21, and within these extensions are slidable pins 55, having flattened points or fingers 56,—Figs. 5, 6 and 7 of the drawings, adapted to be intruded into the space between the transverse plates 11 and 12, to

engage the lowermost flattened can body 49 within the holder 48. These pins 55 are normally prevented from so intruding by means of springs 57,—Fig. 6 of the drawings. Said pins 55 carry laterally extending studs 58 upon which are mounted cam-following rollers 59, adapted to engage segmental cam-faces 60,—Figs. 1, 6 and 7 of the drawings, supported by the outwardly projected brackets 61, attached to the sides of the can body holder 48, and by means of this engagement of the rollers 59 with the segmental cam-faces 60, the pins 55 are forced inwardly so that their points 56 engage the lowermost can body 49 within the holder 48, as shown in Figs. 6 and 7 of the drawings. A corresponding pair of pins 55′ with points 56′ and rollers 59′ carried by studs 58′ are mounted in similar extensions 54′ at the opposite or lower end portions of the transverse plates 11 and 12, adjacent to the mandrel 21′,—Figs. 1, 2 and 3 of the drawings.

Carried by the transverse plates 11 and 12, in the rear of the mandrel 21′ are inwardly extending ejector arms 62′, adapted to engage a reformed can body 49″,—Fig. 3 of the drawings, and to push the same, after its mandrel 21′ has been withdrawn therefrom, up onto the inclined discharge track 47. A corresponding pair of ejector arms 62 are mounted on the opposite ends of the transverse plates 11 and 12 and follow the mandrel 21 for a similar purpose.

The operation of the machine may be briefly described as follows:—Assuming that the holder 48 contains a supply of flattened can bodies 49, power is applied to the drive shaft 4, and the shaft 3 carrying the transverse plates 11 and 12, and the mandrels 21 and 21′, is rotated by the described means. As the pins 55 cross the lower part of the holder 48, the rollers 59 engage with and ride upon the segmental cam-faces 60, and said pins 55 are forced inwardly, so that their points 56 are inserted into the lowermost flattened can body 49 within the holder 48, as in Figs. 5 and 7 of the drawings. By the engagement of the points 56 of the pins 55, the lowermost can body 49 is drawn out from within the holder 48 through the slot 53 in the front thereof, as shown in Fig. 5 of the drawings. Further movement of the shaft 3 brings the cam-roller 29, attached to the sliding block 16 carrying the mandrel 21, onto the segmental cam-face 32, whereupon said segmental cam-face 32, impelled by the eccentric 39 on the drive shaft 4 and the connecting mechanism above described, moves forward and forces the tapered head 18 of said mandrel 21 through the can body 49 which is being carried between the transverse plates 11 and 12 by the pins 55, causing said can body to assume the form and position 49′,—Fig. 3 of the drawings. The cam-roller 29 of the mandrel 21 now runs onto the stationary cam-face 30, and said mandrel 21 is thereby held in its forward position. At the same time the pinion-teeth 22 of said mandrel 21 engage the gear rack 46, and said mandrel is forced to roll along the ironing track 45, thereby ironing out the interposed can body 49′ into substantially true cylindrical form. The ironing track 45, being flexibly supported upon the springs 44, gives sufficiently to insure close contact between the mandrel 21 and the track 45. When, by the continued rotation of the shaft 3, the mandrel 21 is brought to the lower end of the gear rack 46, the cam-roller 29′ of the opposite mandrel 21′ engages the sliding segmental cam-face 32, and said mandrel 21′ is thereby moved forwardly through a second can body in the manner previously described in connection with the mandrel 21. This action, by means of the double lever 25, withdraws the mandrel 21 from within the reformed can body, which has now assumed the form and position 49″,—Fig. 3 of the drawings. The reformed can body 49″, being freed from the mandrel 21, is then engaged by the ejector arms 62′ and carried up onto the inclined discharge track 47, from which position it is removed from the machine by any suitable means not shown in the drawings.

Thus the operation of the machine is continuous. That is, a flattened can body is removed from the holder, partially opened by the introduction of one of the mandrels and ironed out into cylindrical form by further travel of said mandrel around the ironing track, without necessitating the stopping or intermittent operation of any parts of the machine. Furthermore, by adding one or more additional pairs of co-acting mandrels, the output of the machine may be increased, since one can body is acted on by each mandrel. The number of pairs of mandrels may be thus increased to whatever extent structural considerations will permit.

In addition to the changes in the number of mandrels employed, other variations may be made in the construction of the machine without in any way altering or affecting the principles of my invention, and I therefore do not wish to be construed as limiting myself in this regard, but, on the contrary, wish to be understood as claiming the invention as broadly as the state of the art will permit.

For the purpose of the hereinafter appended claims, the expression "rotary element" will be employed to express the spider secured to and mounted on and driven by the rotatable horizontal shaft 3, which spider in the present case is illustrated as consisting of the hub 9 and the spaced radi-

ally disposed plates 11 and 12, and, as heretofore pointed out, the said plates 11 and 12 carry the axially disposed plates 14 and 14', which are joined together or united one to the other by the peripheral webs 13 and 13'. In the present case, it is this rotary element which carries the reciprocating mandrels and the devices for extracting the lowermost deformed can body from the stack of can bodies held within the holder 48, which holder is adapted to contain a stack of deformed can bodies 49.

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

1. In a machine for the described purpose, the combination with a rotary element, of devices associated therewith for successively removing the lowermost body from the stack of deformed can bodies held within the path of the rotary element, a reciprocating mandrel carried by the rotary element, devices for moving the same into and out of a deformed can body, devices associated with the rotary element for engaging with the surface of a deformed can body and ironing the same into substantially cylindrical form, and devices for ejecting the reformed can body on the withdrawal of the mandrel therefrom.

2. In a machine for the described purpose, the combination with a reciprocating mandrel for receiving and holding a deformed can body, of means associated therewith for engaging the surface of a can body for ironing the same into substantially cylindrical form.

3. In a machine for the described purpose, the combination with a rotary mandrel for receiving and holding a deformed can body, of means for moving the mandrel into and out of the can body, and means associated with the mandrel for engaging with the surface of a can body thereon for the ironing of the same into substantially cylindrical form.

4. In a machine for the described purpose, the combination with a rotary mandrel for receiving and holding a deformed can body, of means for moving the mandrel into and out of the can body, means associated with the mandrel for engaging with the surface of a can body thereon for the ironing of the same into substantially cylindrical form, and devices for automatically ejecting the reformed can body on the withdrawal of the mandrel therefrom.

5. In a machine for the described purpose, the combination with a reciprocating rotary mandrel, of means for positioning a deformed can body in axial alinement with the said mandrel, of devices for moving the mandrel into and out of the deformed can body, devices associated with the mandrel for engaging with the surface of a deformed can body thereon for the ironing of the same into substantially cylindrical form, and devices for ejecting the reformed can body on the withdrawal of the mandrel therefrom.

6. In a machine for the described purpose, the combination with a reciprocating mandrel, of means for moving the mandrel into and out of a deformed can body positioned in axial alinement therewith, and means associated with the mandrel for engaging with the surface of a can body thereon for the ironing thereof to restore the same to original form.

7. In a machine for the described purpose, the combination with a reciprocating rotary mandrel, of means for positioning a deformed can body in axial alinement therewith, devices for moving the mandrel into and out of the can body, means associated with the mandrel for engaging with the surface of a can body thereon for the ironing thereof to restore the same to original form.

8. In a machine for the described purpose, the combination with a rotary element, of a reciprocating mandrel carried thereby, of devices for positioning a can body in axial alinement with said mandrel, devices for moving the mandrel into and out of the can body, means associated with the mandrel for engaging with the surface of the can body thereon for the ironing thereof to restore the same to original form, and means for automatically ejecting the reformed can body on the withdrawal of the mandrel therefrom.

9. In a machine for the described purpose, the combination with a reciprocating mandrel, of means for positioning a deformed can body in axial alinement therewith, means co-acting with the mandrel for engaging with the surface of a can body thereon for the ironing thereof to restore the same to original form, and means for removing the mandrel from within the sphere of the reformed can body.

10. In a machine for the described purpose, the combination with a holder adapted to contain a stack of deformed can bodies, a reciprocating mandrel, devices for removing the lowermost body from the stack of deformed bodies within the holder and placing the same in axial alinement with the mandrel, means for moving the mandrel into and out of the can body, and means associated with the mandrel for engaging with the surface of a deformed can body thereon for the ironing thereof to restore the same to original form.

11. In a machine for the described purpose, the combination with a holder adapted to contain a stack of deformed can bodies, a reciprocating mandrel, devices for removing the lowermost body from the stack of deformed bodies within the holder and plac-

ing the same in axial alinement with the mandrel, means for moving the mandrel into and out of the can body, means associated with the mandrel for engaging with the surface of a deformed can body thereon for the ironing thereof to restore the same to original form, and devices for automatically ejecting the reformed can body on the withdrawal of the mandrel therefrom.

12. In a machine for the described purpose, the combination with a plurality of reciprocating mandrels for receiving thereon deformed can bodies, of devices for positioning deformed can bodies successively in axial alinement with the said mandrels, devices for moving the mandrels into and out of the said can bodies, means co-acting with the mandrels for engaging with the surface of a can body thereon for the ironing thereof to restore the same to original form, and means for automatically ejecting a reformed can body on the withdrawal of the mandrel therefrom.

13. In a machine for the described purpose, the combination with a rotary element mounted for rotating in a vertical plane, of a holder arranged within the path of the rotary element and adapted to contain a stack of deformed can bodies, a plurality of reciprocating mandrels carried by said rotary element and held in spaced relation relative to each other, devices carried by the rotary element associated with each mandrel for removing the lowermost body of the stack of retained can bodies and positioning the same in axial alinement with the said mandrels, devices for moving the mandrels into and out of the alined can bodies, stationary means for engaging with the surface of a can body for the ironing thereof to restore the same to original form, and means for automatically ejecting the reformed can body on the withdrawal of the mandrel therefrom.

14. In a machine for the described purpose, the combination with a rotary element, of a series of reciprocating mandrels carried thereby in spaced relation relative to one another, of means for positioning deformed can bodies in axial alinement with said mandrels, an ironing device for engaging with the surface of the deformed can bodies held on the mandrels for the ironing thereof to restore the same to original form, and interconnected mechanism for imparting continuous rotary movement to the rotary element for moving the mandrels into and out of the can bodies in timed relation.

15. In a machine for the described purpose, the combination with a reciprocating rotatably mounted mandrel for receiving and holding thereon deformed can bodies, of means associated therewith for engaging with the surface of a can body thereon for restoring the same to original form, and devices for automatically ejecting the reformed can body on the withdrawal of the mandrel therefrom.

16. In a machine for the described purpose, the combination with a reciprocating rotatably mounted mandrel for receiving and holding thereon deformed can bodies, of means associated therewith for engaging with the surface of a can body thereon for restoring the same to original form, and devices for ejecting the reformed can body on the withdrawal of the mandrel therefrom.

17. In a machine for the described purpose, the combination with a series of reciprocating rotary mandrels, of a holder adapted to contain a stack of deformed can bodies, devices for removing the lowermost body of the stack and positioning the same relative to the mandrel, means co-acting with the mandrel for engaging with the surface of a can body thereon for the ironing thereof to restore the same to original form, and mechanism for automatically moving the mandrels into and out of the can bodies.

18. In a machine for the described purpose, the combination with a holder adapted to contain a stack of deformed can bodies, devices for engaging with and removing the lowermost body of the stack of bodies from within the holder, means for moving said devices into and out of engagement with said can body, a reciprocating mandrel adapted to move into and out of the said can body, means for actuating the said mandrel to place the same into and out of the said can body, and an ironing member associated with said mandrel for engaging with the surface of a can body thereon for the ironing thereof to restore the same to original form.

19. In a machine for the described purpose, the combination with a reciprocating mandrel mounted for free rotary movement and provided with a tapering receiving end, of mechanism for positioning a deformed can body in axial alinement with said reciprocating mandrel, mechanism for moving said mandrel into and out of the said can body, and means associated with the mandrel for engaging with the surface of a can body thereon for the ironing thereof to restore the same to original form.

20. In a machine for the described purpose, the same comprising reciprocating means for receiving a deformed can body, of a holder adapted to contain a stack of deformed can bodies, and devices for removing the lowermost body of the said stack and positioning the same in axial alinement with said reciprocating means.

21. In a machine for the described purpose, the combination with reciprocating means for receiving deformed can bodies and partly reforming the same, of devices

for positioning a deformed can body in axial alinement with said means, mechanism for moving the said means into and out of the can body, and a member associated with said means for engaging with the surface of the can body thereon for the ironing thereof to restore the same to original form.

22. In a machine for the described purpose, the combination with reciprocating means for receiving deformed can bodies and partly reforming the same, of devices for positioning a deformed can body in axial alinement with said means, mechanism for moving the said means into and out of the can body, a member associated with said means for engaging with the surface of the can body thereon for the ironing thereof to restore the same to original form, and devices for automatically ejecting the reformed can body on the withdrawal of the means therefrom.

23. In a machine for the described purpose, the combination with a holder adapted to contain a stack of deformed can bodies, primary means for removing the lowermost body from within said holder, secondary reciprocating means for receiving and holding the said removed can body, and a member associated therewith for engaging with the surface of a held can body for the ironing thereof to restore the same to original form.

24. In a machine for the described purpose, the combination with a reciprocating member supporting a mandrel freely rotatable thereon and said member provided with a tapering receiving end, of devices for positioning a deformed can body in axial alinement with said mandrel, means for moving said mentioned member to place the mandrel carried thereby into and out of the said can body, and devices associated with the mandrel for engaging with the surface of a can body thereon for the ironing thereof to restore the same to original form.

25. In a machine for the described purpose, a rotary element carrying a pair of inter-connected, oppositely operating, reciprocating, and freely rotatable mandrels, a cam-follower carried by each of said mandrels, a holder adapted to contain a stack of deformed can bodies, means for removing the lowermost body of said stack and positioning the same in axial alinement with one of said mandrels, a movable segmental cam face adapted to be engaged by said cam-followers on said mandrels, a stationary segmental cam face adapted to be engaged by said cam-followers on said mandrels subsequent to their engagement with said movable cam-face, means for moving said movable cam face in timed relation to the rotation of said rotary element to move said mandrels into positioned deformed can bodies and out of the same after they have been reformed, and means co-acting with said mandrels for engaging with the surfaces of the can bodies thereon for the ironing thereof to restore the same to original form.

26. In a machine for the described purpose, a rotary element carrying a reciprocating, freely rotatable mandrel, a holder adapted to contain a stack of deformed can bodies, means carried by said rotary element for removing the lowermost can body of said stack and positioning the same in axial alinement with said mandrel, means for moving said mandrel into and out of the positioned deformed can body, a segmental ironing track over which said mandrel is adapted to roll to iron the can body thereon into substantially cylindrical form, and means for ejecting the reformed can body on the withdrawal of the mandrel therefrom.

27. In a machine for the described purpose, a holder adapted to contain a stack of deformed can bodies, a rotary element carrying a reciprocating, freely rotatable mandrel, said mandrel carrying pinion teeth in one portion thereof, a flexibly supported segmental ironing track over which said mandrel is adapted to roll, a segmental gear rack adapted to engage the pinion teeth carried by said mandrel, means for removing a deformed can body from said holder and positioning the same in axial alinement with said mandrel, means for moving said mandrel into and out of said can body, and means for ejecting said can body from the machine on the withdrawal of the mandrel therefrom.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

IVAN D. THORNBURGH.

Witnesses:
N. A. ACKER,
D. B. RICHARDS.