

N. 858,785.

PATENTED JULY 2, 1907.

H. C. BLACK.

CAN FLANGING AND HEAD SEAMING MECHANISM.

APPLICATION FILED APR. 6, 1906.

5 SHEETS—SHEET 1.

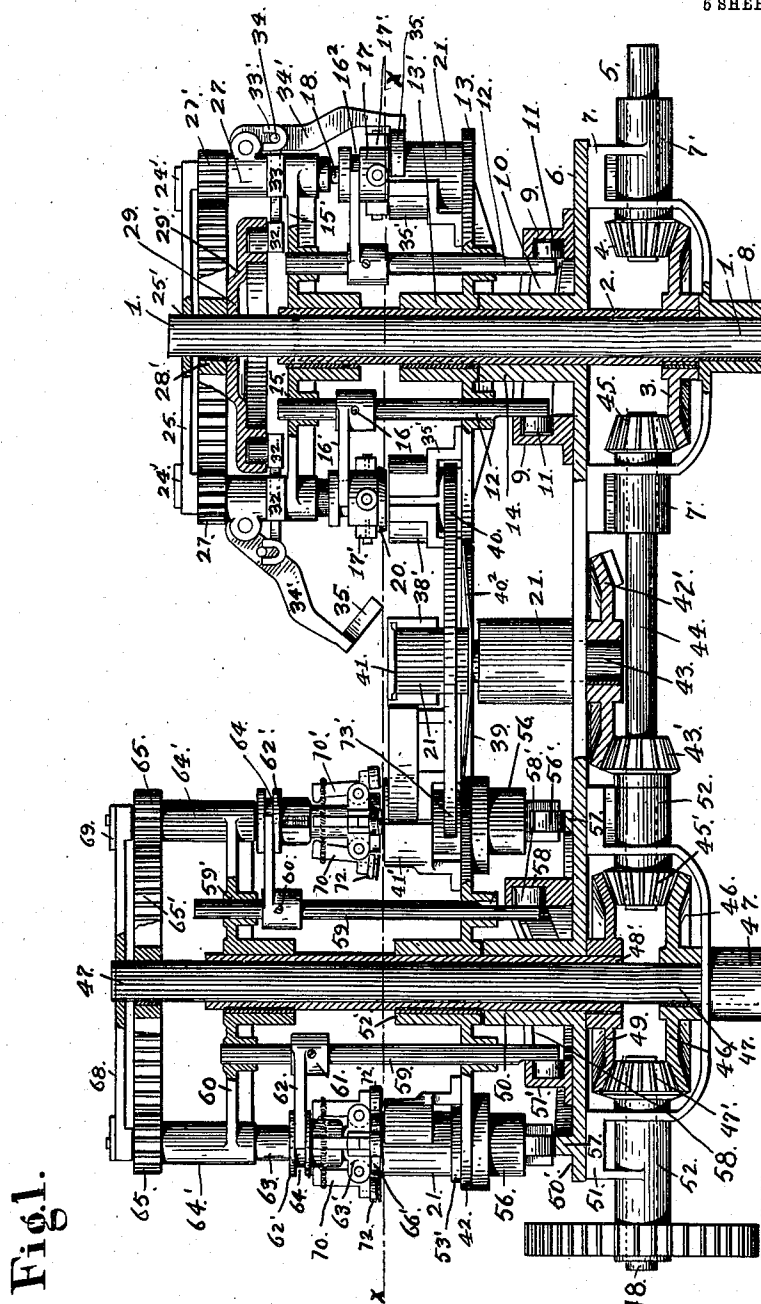


Fig. 1.

Witnesses.

Arthur L. Slee.

L. Compton.

Inventor.
Henry C. Black
by N. A. Acken
his atty.

No. 858,785.

PATENTED JULY 2, 1907.

H. C. BLACK.

CAN FLANGING AND HEAD SEAMING MECHANISM.

APPLICATION FILED APR. 8, 1906.

5 SHEETS—SHEET 2.

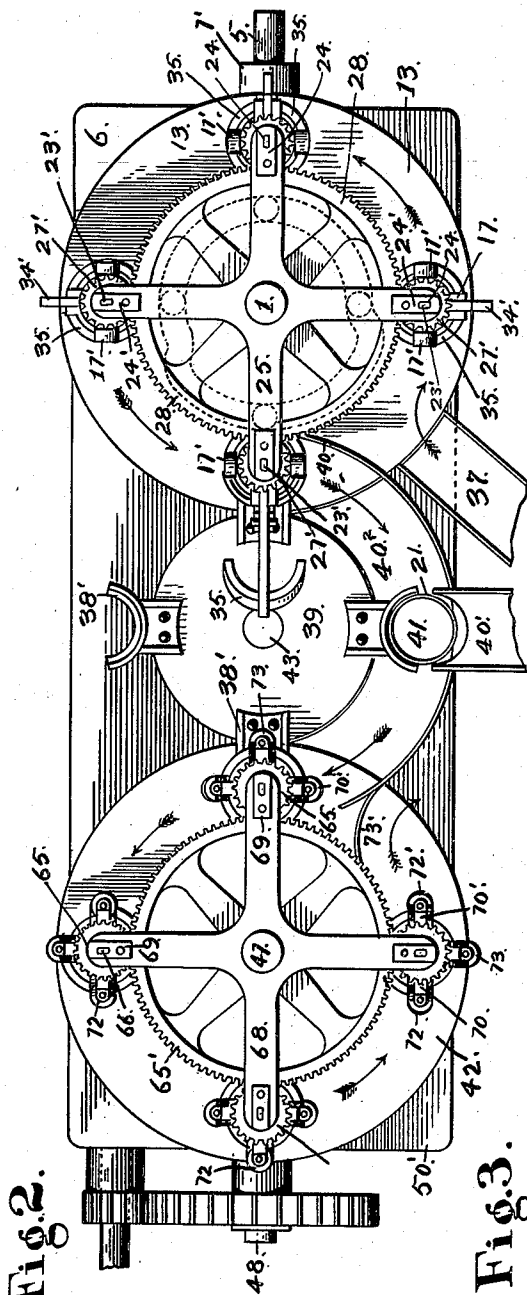


Fig. 2.

Witnesses.

Arthur L. Slee.
D. B. Richards

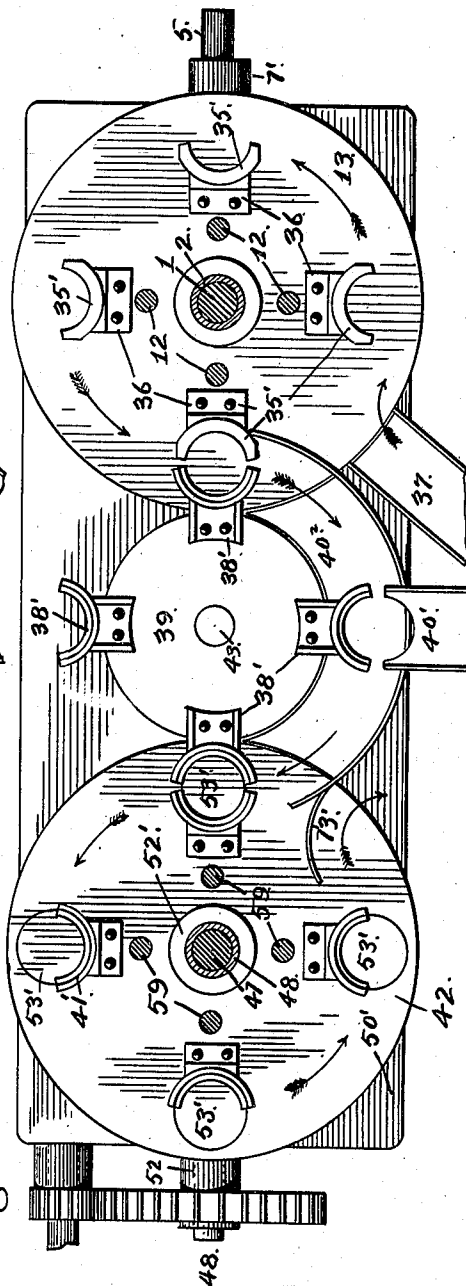


Fig. 3.

Inventor.
Henry C. Black
by H. A. Allen
his atty.

No. 858,785.

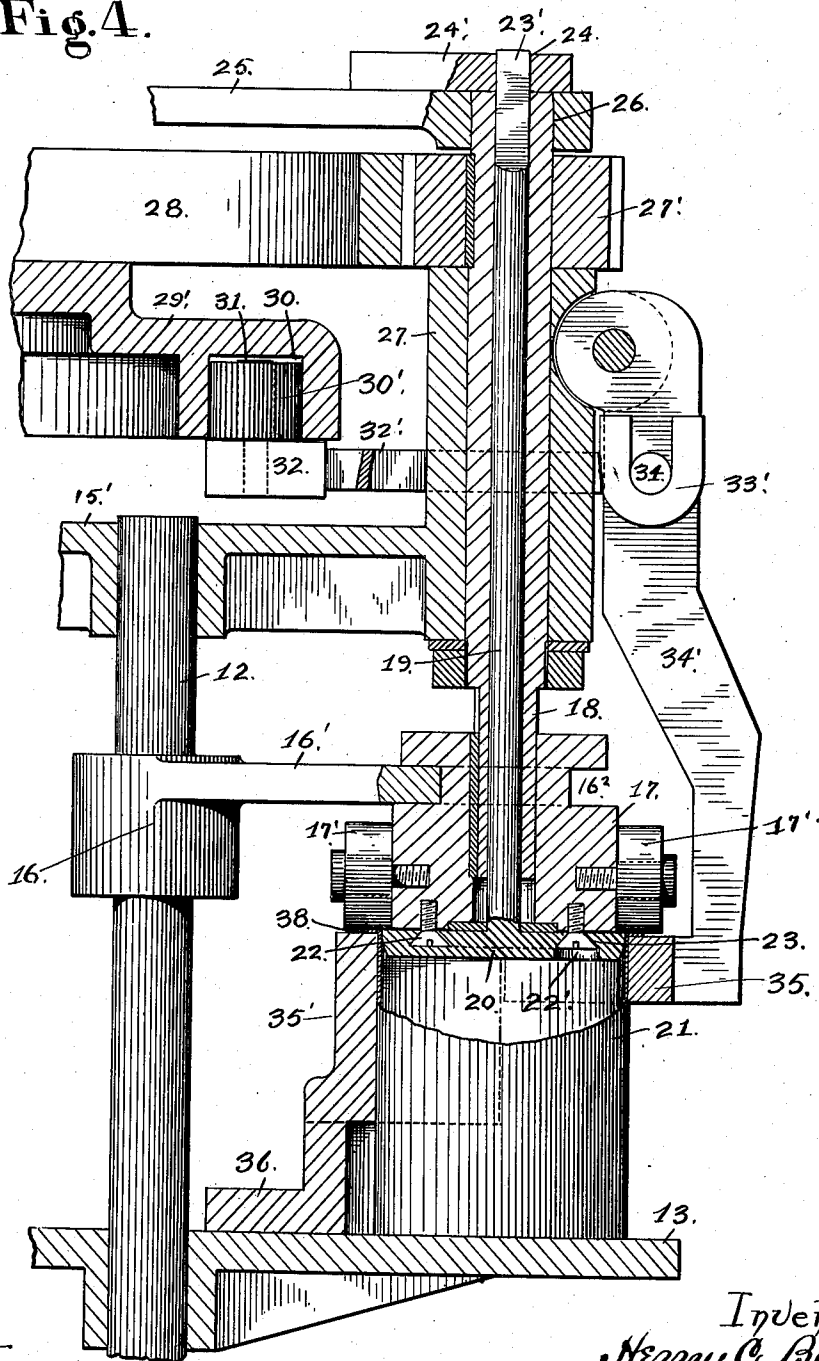
PATENTED JULY 2, 1907.

H. C. BLACK.
CAN FLANGING AND HEAD SEAMING MECHANISM.

APPLICATION FILED APR. 6, 1906.

5 SHEETS—SHEET 3.

Fig. 4.



Witnesses.
Arthur L. Lee.
D. B. Richards

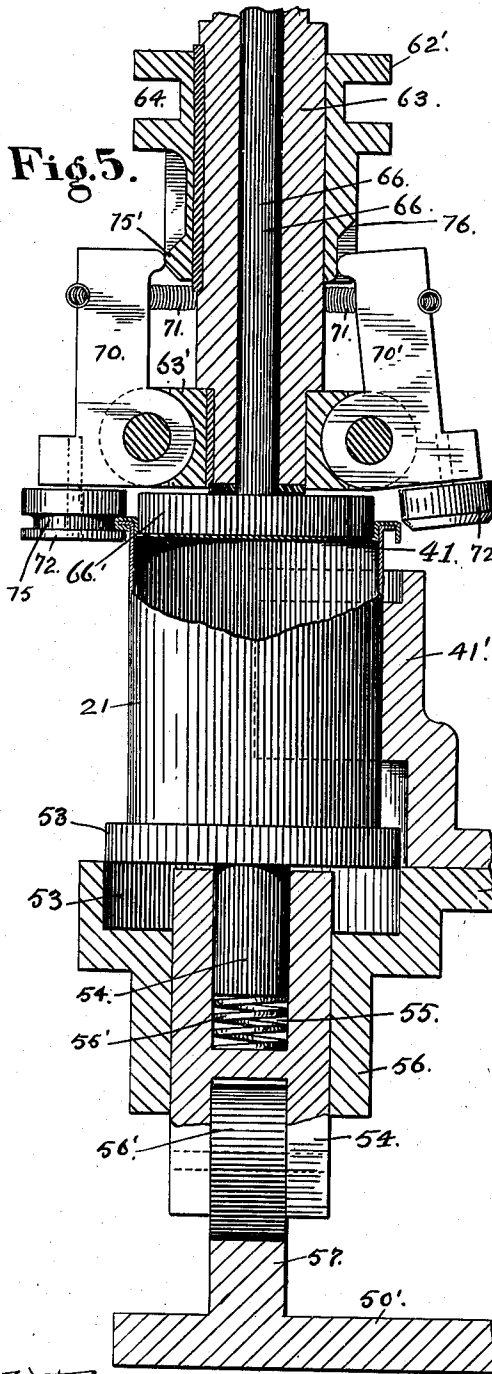
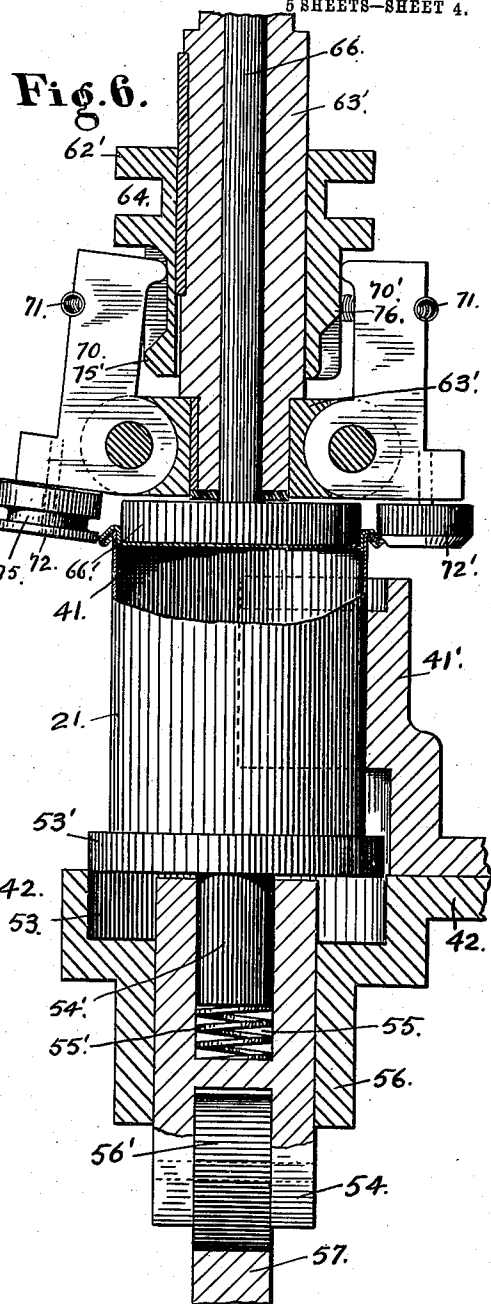
Inventor.
Henry C. Black
by W. A. Black
His atty.

No. 858,785.

PATENTED JULY 2, 1907.

H. C. BLACK.
CAN FLANGING AND HEAD SEAMING MECHANISM.
APPLICATION FILED APR. 6, 1906.

5 SHEETS—SHEET 4.



Witnesses.
Arthur L. Slee.
D. B. Richards.

Inventor.
Henry C. Black
by N. A. Acker
S. C. C. C.

No. 858,785.

PATENTED JULY 2, 1907.

H. C. BLACK.
CAN FLANGING AND HEAD SEAMING MECHANISM.

APPLICATION FILED APR. 6, 1906.

5 SHEETS—SHEET 5.

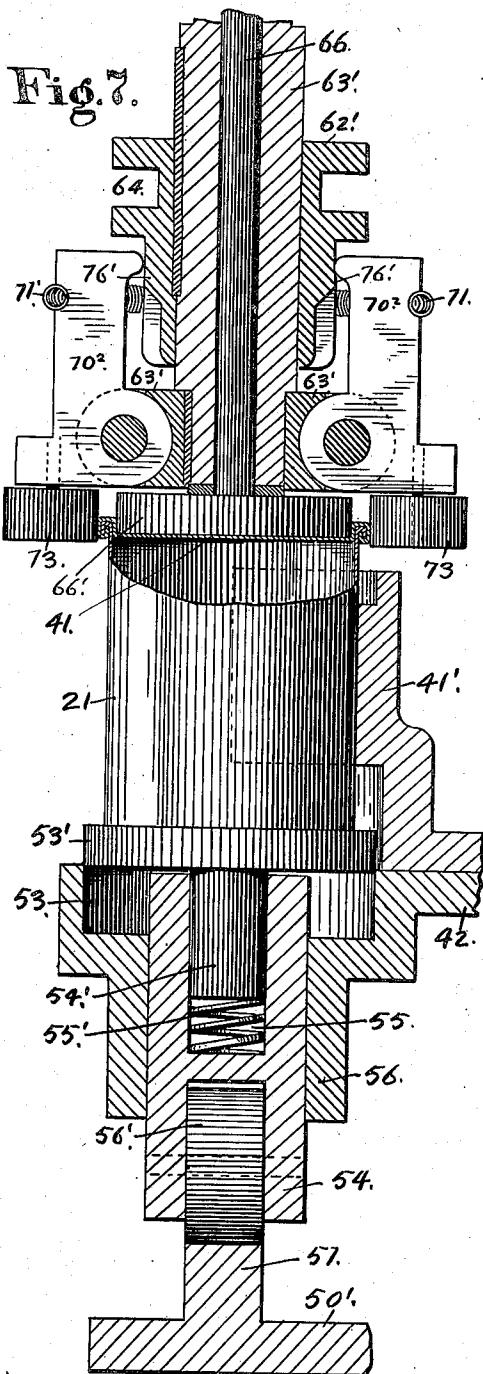
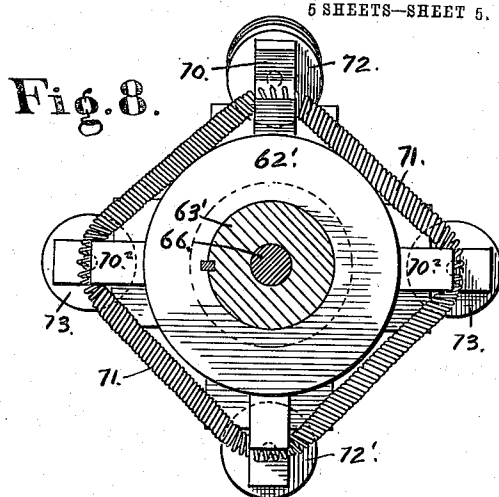


Fig. 9.

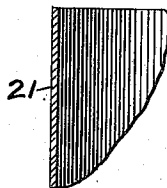


Fig. 10.

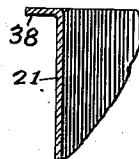


Fig. 11.

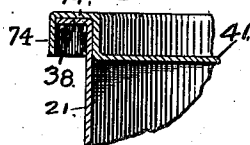


Fig. 12.

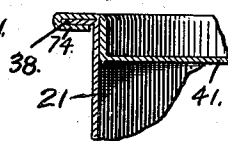


Fig. 13.

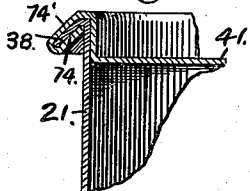
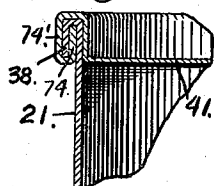


Fig. 14.



Witnesses.

Arthur L. Slee
J. B. Richard

Inventor.
Henry C. Black
by N. A. Acker
his atty.

UNITED STATES PATENT OFFICE.

HENRY C. BLACK, OF SAN FRANCISCO, CALIFORNIA.

CAN-FLANGING AND HEAD-SEAMING MECHANISM.

No. 858,785.

Specification of Letters Patent.

Patented July 2, 1907.

Application filed April 6, 1906. Serial No. 310,316.

To all whom it may concern:

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

The present invention relates to an organized machine for receiving open end cans, flanging the end thereof and crimping thereto by a double seam, heads loosely applied thereto, such double seam heading of the heads to the can being utilized in the formation of what is known to the trade as a sanitary can, that is, a can having its top and bottom secured thereto by crimping and seaming, in contradistinction to a can having its top and bottom soldered thereto.

The hereinafter described mechanism is adapted for the flanging of either end of a can body and applying a loosely fitted head thereto by a double seamed joint, the machine being especially adapted for packers generally employing cans for the placing of their goods on the market. Ordinarily, the can is supplied to the packer or canner with its bottom double seamed thereto, the upper end of the can body being outwardly flanged to receive a head after the can has been filled; the cans after being filled having their heads clamped thereon to form a double seamed joint. The serious objection to the cans thus supplied to the packer resides in the fact that the formed end flange is mashed or otherwise damaged or injured during shipment and transportation; hence it is oftentimes impossible to properly secure the head to the can after the same has been filled or packed.

By the use of the presently described apparatus, the empty can is supplied to the packer with its open end unflanged, the can after having been packed or filled with the goods to be placed on the market is then delivered to the flanging portion of the machine and its open end properly flanged to receive the can head to be applied thereto, the can head then being loosely fitted onto the flanged end of the can and the can with the head thus loosely applied being delivered to the crimping and seaming mechanism for uniting the head thereto by a double seamed joint, the can during the operation of flanging the end thereof and crimping the loosely applied head thereto by a double seamed joint being held against rotation.

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

Figure 1 is a side view of the machine in elevation, illustrating the relative position of the various parts, the mechanism for imparting horizontal travel to the tables for receiving the cans to be flanged, and for crimping a loosely applied head thereto by double seamed joint being sectioned. Fig. 2 is a top plan view

of the apparatus disclosing the feed devices for supplying the cans onto the receiving table for the flanging mechanism, and the rotatable device for receiving the flanged cans and delivering the same to the receiving table for the crimping means. Fig. 3 is a longitudinal sectional top plan view of the machine taken on line $x-x$ Fig. 1 of the drawings. Fig. 4 is a broken detail enlarged part sectional view disclosing one of the can end flanging means, said view illustrating a can held to the rotatable receiving table, the plunger of the clamping means lowered, and the mandrel head thereof within the open end of the held can above the head or end held therein, the means for actuating the vertically movable plunger, the means for imparting rotation to the rotatable sleeve carrying the flanging rolls and the mechanism for actuating the hinged arm carrying the clamp for the can being disclosed. Fig. 5 is an enlarged detail part sectional view of one of the crimping and seaming means for the can head or end, said view disclosing a broken section of a portion of the receiving table and the can to be crimped and seamed held thereon, the can head or end being applied to the end of the can body, said section of the means illustrating the position of the crimping roll after having completed the crimping of a portion of the can head or end to the circular flange of the can body, such being the first step of the crimping and seaming operation, the first seaming roll which acts on the flanged portion of the can body being shown swung outward or away from the can body, the plunger or head on which rests the can to be crimped or seamed being moved upward, to force the head or end of the can against the mandrel which holds the can head firmly in position and receives the pressure of the rolls of the crimping means; Fig. 6 is a view similar to Fig. 5, of the drawings, illustrating the second step of the crimping and seaming operation, in this view the first seaming roll being illustrated as having partially seamed the crimped end to place the same at an inclination to the can body, the crimping roll having completed its work and being moved away from the body of the can; Fig. 7 is a similar view illustrating the position of the final seaming rolls which force the metal of the flanged, crimped and partially seamed end firmly against the body of the can, such being the last step in the crimping and seaming operation; these seaming rolls are not shown in Figs. 4 and 5 of the drawings, the section of the parts disclosed by said views being taken on such lines as to remove the said rolls; Fig. 8 is a plan view of one of the crimping means, said view illustrating the spring connection for holding the upper portion of the hinged arms carrying the rolls of the crimping and seaming means inward and the vertically movable collar for actuating said rolls, the rotating spindle to which said collar is feathered and the mandrel stem about which said sleeve rotates axially being sectioned; Fig. 9 is a detailed broken section of a can prior to the

end thereof being flanged; Fig. 10 is a similar view disclosing the can after its end has been flanged; Fig. 11 is a broken detail section of a can with its head or end to be crimped and seamed loosely applied thereto; Fig. 12 is a similar view showing the position of the flange of the can head or end after the action of the crimping roll, which is the first step of the crimping and seaming operation; Fig. 13 is a similar view showing the position of the flange of the can head or end and the flange of the can body after the action of the first seaming roll, which is the second step of the crimping and seaming operation; and Fig. 14 is a similar view of the can with its head or end completely seamed thereto, which is the final step of the crimping and seaming operation.

To simplify the understanding of the invention, the description of the can end flanging mechanism will first be given, reference being had to Fig. 1 of the drawings, wherein the numeral 1 is used to designate a vertically arranged spindle, which serves as a guide post for the rotatable drive sleeve 2, fitted thereon. To this sleeve, near its lower end, is keyed a bevel gear 3, which gear is driven to rotate the sleeve 2, by means of the pinion 4, said pinion being secured to the drive shaft 5, which shaft is driven in any suitable manner. The drive sleeve 2 extends through the base plate 6, which plate carries the brackets 7 for the bearings 7', said brackets also being secured to the bearing 8, to which the guide post 1 is keyed. To this base plate 6 is secured the cam grooved ring 9, within the upwardly inclined cam groove 10 of which work the rollers 11, of the hereinafter described rods 12.

Each plunger rod 12 extends through the receiving table 13, the hub 13' of which is keyed to the drive sleeve 2. This receiving table is held a distance above the plate 6, by means of the hub 14, of said plate, on which the hub 13' of the receiving table bears. The plunger rods 12, four of such rods being shown, Fig. 3 of the drawings, extend through guide openings 15, of a spider 15', which spider is keyed to the drive sleeve 2, so as to rotate therewith.

Each plunger rod 12 has secured thereto by a set screw 16, a projecting lift arm 16', the outer ends of each arm being forked to fit within a circular groove 16², formed in the heads 17, which heads carry the flanging rolls 17', Fig. 4 of the drawings. The said heads 17 are feathered to the spindles 18, which spindles rotate about the vertically movable rods 19, each rod at its lower end carrying a mandrel 20, which mandrel, when its rod 19 is lowered, as hereinafter described, moves within the open end of the held can 21 to be flanged. The mandrel 20 is supported by the head 17, being connected thereto by means of the screws 22. These screws extend through a vertical opening 22', in the mandrel 20, the same being inserted from the under face of the said mandrel, such portions of the screws moving into the dove-tailed circular groove 23, intercepted by the vertical opening 22'.

While the mandrel 20 and rod 19 are supported by the head 17, the said head is free to turn or rotate without its motion being imparted to the mandrel 20, the said mandrel being held against rotation by reason of the rectangular end portion 23', of its rod 19, fitting within a similarly shaped socket 24 formed in a holding plate 24', secured to the upper face of each arm 25 radially projecting from the hub 25' loosely fitted on the

central guide post 1. Within a vertical guide opening 26 in the outer end portion of each arm 25, works the upper end of the spindles 18. The spindles 18 rotate within the vertical guide bearings 27, upwardly extending from the spider 15', and on each of the spindles 18, immediately above its guide bearings 27, is keyed a pinion 27'. These pinions mesh with a gear ring 28, the hub 28' of which gear ring is keyed to the upper end portion of the central guide post 1.

To the guide post 1, immediately below the hub of the gear ring 28, is secured the hub 29, of the disk 29', Fig. 1 of the drawings. In the under face of this disk 29', is formed the circular cam groove 30, within which work the rollers 30'. These rollers are secured to the studs 31, upwardly extending from the inner end portion of the slide blocks 32. These blocks are formed with one or more projecting arms 32', which arms work through bearings 33, on the side of the guide bearings 27, the outer end of each arm or arms terminating in a trunnion bearing 33', in which rest the trunnions 34, projecting from each hinged clamp arm 34'. In the form illustrated there are two of such arms 32', oppositely disposed, terminating in separated bearings 33', between which the arm 34' rests. These arms are hinged to the guide bearings 27, the lower end of each arm carrying a can retaining jaw or clamp section 35. These retaining jaws or clamp sections are to hold the upper portion of the body of the can 21, firmly in its fixed jaw or mold 35', which mold is secured by a bracket portion 36, to the rotatable receiving table 13. In height the mold or jaw 35' is slightly less than the can body to be flanged, the retaining jaw or clamp section 35, when thrown downward by the action of its clamp arm 34', completing the ring which compresses the upper end portion of the can body circumferentially and trues the same, in case the can body should be mashed by handling.

The cans 21, filled or empty, are delivered onto the rotating receiving table 13, by means of any suitable feed conveyer, or device 37, the lowermost can of the series contained therein being removed and forced onto the table 13, the moment the same is engaged by one of the fixed molds or jaws 35'.

After the can 21 to be flanged has been removed from the feed conveyer 37 onto the receiving table 13, the said table will have rotated to such a position as to carry the roller 30', for actuating the clamp arm 34', carrying the companion can jaw 35 which registers with the fixed mold or jaw 35', into the inwardly inclined portion of cam grooves 30, the travel of the said roller 30', within such portion of the cam groove 30, causing the slide block 32 to be drawn inward. This movement of the slide block, through the medium of the arms 32', throws the hinged clamp arm 34' downward. As the said arm 34' is swung downward, its can jaw or clamp section 35 engages the upper end portion of the can body and forces the said can body firmly into the fixed retaining jaw or mold 35'. At the same time, due to the continued rotation of the receiving table, the roller 11, of the plunger rod 12 connected with the action of the described clamp devices for the can body, rides within the downwardly inclined portion of the cam groove 10, of the fixed ring 9, Fig. 1 of the drawings, and the said plunger rod 12 is drawn downward. This movement of the plunger rod 12, through the

medium of the arm 16', carries therewith the head 17, feathered on the rotating spindle 18, and draws downward the rod 19, forcing the mandrel 20 into the open end of the can body. With the downward movement of the head 17, the flanging rolls 17', carried around by the rotation of the head 17, which, as stated, is feathered to the rotating spindle 18, are gradually moved downward against the projecting end of the can body rigidly held between the clamping jaws, and the end of the body above the mandrel 20, is gradually outwardly flanged, so that by the time the head 17 has moved its full downward distance, an outwardly projecting circular flange 38, for the open end of the can body is formed, Figs. 4 and 10 of the drawings. Inasmuch as the action of each of the series of flanging devices is the same as the described movements, no attempt has been made to follow other than the action of one of the clamping and flanging means, it being understood that the successive means receive the cans to be flanged, clamp the same and outwardly flange the open end in the manner just described, the action of any one set of operative parts being the same as that of the remaining ones of the series.

Where the apparatus is used to flange the open end of filled cans, the downward movable mandrel 20, serves to firmly compress or pack the material therein. The moment the end of the can body has been properly flanged, the roller 11, by the continued rotation of the receiving table, will have moved into such a position within the cam groove 10, as to ride upon the upwardly inclined portion of the said cam groove, which imparts a reverse movement to the plunger rod 12, lifting the same so as to move the head 17 upward, and lifting the flanging rollers 17' and the mandrel 20 clear of the flanged can body. At the same time, the roller 30', controlling the action of the hinged clamp arm 34', rides upon the outwardly inclined portion of the cam groove 30, forcing its slide block 32 outward, which throws the hinged clamp arm 34' upward, thus moving the clamp jaw 35 away from the flanged can, and leaving the same free within its seat, mold or jaw 35'.

The requisite rotation is imparted to the flanging rollers by the rotary motion of the spindle 18, which spindle is driven by the pinion 27' there of meshing with the teeth of the fixed gear ring 28, as the said pinion is carried around the gear ring 28, by the rotary travel of the spider 15', which spider is propelled during the rotation of the receiving table 13, by reason of its connection with the drive sleeve 2. By reason of the connection between the propelled pinion 27' of the spindle 18 and the stationary gear ring 28, the said spindle 18, carrying the flanging rollers 17', will be rotated at a much higher speed than the drive sleeve 2.

The flanged and released can 21 is removed from the fixed mold 35' of the receiving table 13 by means of the fixed semicircular molds 38', which molds are secured to the rotatable disk 39. As the released cans 21 are engaged by the fixed molds 38', they are forced against the curved guide plate 40, Figs. 1 2 and 3 of the drawings, which gradually guide the same from off the receiving table 13 onto the inclined trackway 40², the cans being propelled thereon by means of the fixed molds 38', carried by the rotatable disk or carrier 39. As the cans 21 are moved over the downwardly inclined

portion of the trackway 40², the cans are lowered so as to place the flanged end thereof immediately below the feed chute 40' for the can heads 41, the heads being delivered thereto by said chute or runway 40'. The rotation of the disk or carrier 39 propels the can 21 with its loosely applied head 41, onto the upwardly inclined portion of the trackway 40², until the loosely headed can is received by one of the fixed molds 41' of the receiving table 42, for the crimping and seaming mechanism and gradually removed from within the fixed mold 38' of the disk or carrier 39. Rotation is imparted to the disk or carrier 39 by means of the gear 42', which is secured to the vertical shaft 43 of the said rotatable disk or carrier. This gear intermeshes with the pinion 43' on the shaft 44, which shaft is driven by means of the pinions 45—45' meshing respectively with the gears 3 and 46, the gear 46 being secured to the central shaft for the crimping and seaming portion of the machine.

The crimping and seaming mechanism for securing the loosely applied head to the flanged can end comprises a central shaft 47, to which is keyed the gear 46. Motion is imparted to this gear for rotating the shaft 47, by means of the pinion 47', which pinion is secured to the drive shaft 48. On this shaft 47 is loosely fitted the drive sleeve 48', rotation being given to sleeve 48' by the said pinion 47', which meshes with the gear 49 keyed to the lower end portion of the said sleeve 48, Fig. 1 of the drawings. This sleeve 48' thus rotates axially about the rotating shaft 47, and the said sleeve imparts rotary travel to the hereinafter described receiving table for the cans 21, and the means for crimping and seaming the loosely applied can head or end 41 of the open flanged end of the can 21 held to the rotary impelled receiving table 42. The drive sleeve 48' passes through a hub 50, upwardly projecting from a suitably supported stationary base plate 50', which plate carries the depending brackets 51, which serve as supports for the bearings 52 and are connected to the lower bearing for the central shaft 47. To the rotatable drive sleeve 48' is keyed the hub 52' of the receiving table 42, within counter-sunk circular seats 53 of which work the detached heads 53' of the plunger rods 54, the stem 54' of each head 53' fitting within a socket 55, in the end of each plunger rod 54, the lower end of each stem 54' bearing on a spring 55', fitted within the sockets 55. Each plunger rod 54 works through a guide extension 56, depending from the receiving table 42, and, in the lower bifurcated end of each plunger rod 54 is secured a roller 56'. These rollers ride upon the inclined circular track 57, secured to the base plate 50', as the plunger rods 54 are carried around by the rotary travel of the receiving table 42. To the base plate 50' there is also attached a ring 57', said ring having formed in its inner face an inclined cam groove 58. Within this cam groove 58 work the rollers 58', which rollers are secured to a stud or pin outwardly projecting from the lower end of the vertically movable lift rods 59. These rods work through openings 59' formed in the rotatable disk 60, which disk is keyed to the drive sleeve 48'. Each rod 59 has secured thereto by a set screw 60', a collar 61, each collar carrying a lift plate 62. The outer end of each lift plate 62 is forked so as to straddle a vertically mov-

able collar 62', feathered to a hollow spindle 63, carrying the head 63', to which the arms of the crimping and seaming rollers are hinged.

The forked end of the lift plate 62 fits within a circular groove or channel 64, cut in each of the vertically movable collars 62', the purpose of said plates is to raise and lower the said vertically movable collars 62', as the lift rods 59 are forced up and down by the rollers 58', riding onto and off of the inclined portions of the cam groove 58, of the ring 57'.

To the disks 60 are attached a series of guide bearings 64', within which guide bearings work the hollow spindles 63. Each spindle 63 projects beyond the said guide bearing 64', and to the projecting end portion thereof is secured a pinion 65. Said pinions mesh with and are driven by means of the gear 65', which gear is secured to the upper end of the central shaft 47, the rotation of said shaft being thus transmitted for imparting rotation to the pinions 65 for rotating the spindles 63.

Through each spindle 63 extends a stem 66' of the mandrel 66' secured to the lower end of each stem, which mandrel engages with the head 41, loosely fitted onto the open flanged end of the can 21, and holds the same so positioned during the operation of crimping and seaming the said head or end onto the open end of the can. The upper end of each mandrel stem 66, extends through a guide opening formed in the spider 68, secured to the end of the rotating shaft 47, each stem being held against rotary movement by reason of its upper flattened end fitting within a similarly shaped socket 68', formed in the plates 69, attached to the spider 68, immediately above the guide openings, within which guide openings is fitted the upper end of the sleeves 63.

To the head 63', keyed to each of the rotatable spindles 63 are hinged, in the present case, four arms, 70, 70' and 70'', which arms are held inwardly pressed at their upper end, by means of the spring ring 71, Fig. 8 of the drawings. To the lower end of the arm 70 is secured the circumferentially grooved crimping roller 72, the arm 70', at its lower end, carrying the beveled face seaming roller 72', while the opposed hinged arms 70'', located intermediate the arms 70 and 70', carry at their lower end the seaming rolls 73, each of the described rollers being so disposed that the faces thereof work against the metal to be crimped and seamed.

The can 21 or the body onto which an end or head 41 is to be seamed, is fed onto the receiving table 42, by means of the before described rotatable carrier 39, the can, or can body, after having an end or head 41 seamed thereto is removed from the receiving table 42 by the curved guide plate 73', onto any suitable delivery conveyor or device, for receiving the headed can, or the can body to which an end has been seamed, Figs. 2 and 3 of the drawings.

While either end or head may be applied to a can body, in describing the operation of the apparatus, the body shall be treated as having been received from the end flanging mechanism with its bottom applied thereto, and that the same has been delivered to the crimping and seaming mechanism as a filled can, and in following the operation of crimping and seaming the head, the movements of only one of the crimping and seaming devices will be given, as the action of

the remaining devices constitutes a mere repetition.

The operation of this portion of the machine may be briefly given as follows. During the horizontal rotation of the receiving table 42, driven by the sleeve 48', the roller 56' of the plunger rod 54, for actuating said plunger head 53', rides upon the upwardly inclined portion of the circular track 57, which lifts the plunger rod 54 and raises the plunger head 53' and can 21 resting thereon, forcing the head 41, previously loosely placed onto the open end of the can, firmly against the mandrel 66', thus holding the can 21 clamped against rotary movement. The mandrel 66' fits within the depressed central portion of the head 41, the depending portion 74 of the circular flange 74' of the said head 41 encircling the outwardly projecting circular flange 38 of the can 21. The spring 56, within the socket 55, of the plunger rod 54, permits of the head 53' giving slightly to compensate for any slight variation in the height of the cans. As the can with its head loosely fitted thereto is clamped between the plunger head 53' and the mandrel 66', the roller 58' commences to ride upon the downwardly inclined portion of the cam groove 58, of the ring 57, lowering the lift rod 59, and, through the medium of the lift plate 62, carrying therewith the slide collar 62'. As this collar is forced downward, the outwardly inclined lower end portion 75' thereof, bears against the upper end portion of the hinged arm 70, swinging the same to force the crimping roll 72 inward, the depending portion 74 of the can head flange 74' being engaged by the periphery of the said roll 72, and being gradually crimped or turned under the circular flange 38, of the open end of the can 21, until the roll 72 stands in a position parallel to the body of the said can 21, the circular groove 75 in the periphery of the roll 72, permitting the said roll to gradually crimp or turn under the depending portion of the can head flange 74', Figs. 5 and 12 of the drawings. The continued rotation of the receiving table causes the roller 58' to continue its travel on the downwardly inclined portion of the cam groove 58, drawing the slide collar 62' downward, until the edge of the hinged arm 70 clears the inclined portion 75' thereof, when the tension of the spring ring 71 forces the upper end portion of the said arm 70 inward, so as to move the roller 72 away from the crimped joint of the held can. At the same time, the upper end of the hinged arm 70' is forced outward by the inclined shouldered portion 76 of the gradually lowering slide collar 62', forcing its lower end inward and causing the first acting seaming roller 72' to gradually move inward toward the can and to partially force the crimped joint toward the body of the can 21, Figs. 6 and 13 of the drawings. The continued downward movement of the slide collar 62', causes the upper portion of the hinged arms 72' to move onto the surface 76' of the collar 62', which gradually moves inward the lower end of the said hinged arms and causes the final seaming rollers 73 to force the crimped and partially seamed joint firmly down onto the body of the can 21, a double seamed joint being thus formed, Figs. 7 and 14 of the drawings. It will be understood that the mandrel 66' resists the pressure of the described rollers during the operation of crimping and seaming the can head to the end of the can, likewise that during the described operation the slide collar 62' is car-

ried around by the rotation of the spindle 63, to which the said collar is feathered.

As the roller 58' moves from off the downwardly inclined portion of the cam groove 58, and onto the upwardly inclined portion thereof, the lift rod 59' is raised and the slide collar 62' through its connection therewith, gradually moves its full upward distance, the pressure of the spring ring 71 restoring the hinged arms 70' and 72' and the rollers carried thereby, to normal position. The moment the said arms carrying the seaming rollers 72 and 72' move away from the seamed end of the can, the roll 56' moves onto the downwardly inclined portion of the track 57 and the plunger rod 54 gradually descends by gravity, lowering therewith its head 53', until the seamed can 21 is flush with the surface of the receiving table 42. The seamed can is then engaged by a fixed curved delivery plate 73', which plate gradually guides the cans from off the receiving table 42 onto any delivery device, not shown.

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

1. In an apparatus for receiving and automatically flanging the open end of cans and seaming loosely applied heads thereto, the same comprising a rotatable table provided with a series of can receiving jaws or molds, swinging clamp jaws for clamping the can into the fixed molds of the table and holding the same against rotation, devices for actuating said swinging jaws to clamp the cans and to release the same, flanging rolls for engaging the projecting end of the held can and flanging the same outwardly, means for imparting rotation to the flanging rolls, devices for moving the flanging rolls toward and from the open end of the can, a seaming table having means thereon for receiving and seaming to the flanged cans loosely applied heads, and a rotatable transfer disk located between the flanging and seaming tables to deliver from one to the other, and receiving means on the transfer disk comprising fixed jaws or molds complementary to and co-operating with the aforementioned jaws on the flanging table.

2. In an apparatus for the described purpose, the combination with a rotatable receiving table for the cans to be flanged, of a series of fixed molds carried thereby for the cans, of swinging jaws for holding the cans clamped within the molds against rotation, of devices for actuating the swinging jaws during rotation of the receiving table to clamp the cans within the fixed molds and to release the same after the open end of the cans has been flanged, means for imparting rotation to the table and co-operating means for receiving the flanged cans and delivering the same to a seaming mechanism, and mechanism for seaming loosely applied heads thereto, said co-operating means including a transfer device having a plurality of receiving jaws arranged to register with the fixed jaws of the flanging table, as the cans are released by the swinging jaws.

3. In an apparatus for receiving a can and automatically flanging the open end thereof, the combination with means for receiving and holding the can to be flanged against rotation, of mechanism for flanging the open end of the held can, devices for releasing the clamped can after the open end thereof has been flanged, actuating means for said devices and operatively connected mechanism for receiving the flanged can and seaming thereto a loosely applied head, a transfer means for delivering the flanged can to the seaming mechanism, and means for feeding a can head to said transfer means.

4. In an apparatus for the described purpose, the combination with the flanging rolls, of the head to which said rolls are held, of a rotatable sleeve to which the said head carrying the flanging rolls is feathered, of means for imparting rotation to said sleeve, devices for imparting vertical movement to the head for moving the flanging rolls toward and from the open end of a held can, of mechanism for seaming a loosely applied head to the flanged can, and devices for delivering the flanged can to the seaming mechanism, and a feed chute for loose heads connecting with said delivery devices.

5. An apparatus for flanging the end of cans and automatically seaming a loosely applied head thereto, the same comprising means for receiving and clamping a can against rotation, mechanism for flanging the end of the held can, a transfer means, means for feeding a head to the can on said transverse means devices for crimping the flange of the head loosely applied to the flanged can and seaming the same thereto by a double seamed joint, and means for moving the crimping and seaming mechanism into and out of engagement with the held can.

6. An apparatus for flanging the ends of cans, and seaming loosely applied heads to the flanged cans, the same comprising a rotatable receiving table having means associated therewith for flanging the end of a can, a supplemental rotatable table having means associated therewith for seaming to the flanged end of the can a loosely applied head, and a rotatable disk arranged between said tables, and having a jaw thereon, arranged to receive the flanged can from the first mentioned table and deliver the same to the supplemental table and connected gearing for actuating the respective tables and disk.

7. An apparatus for the described purpose comprising a rotatable receiving table having associated therewith means for flanging the open end of a can mounted upon the table, a supplemental table arranged to receive the flanged can, and having associated therewith means for seaming a loosely applied head to the flanged head of the can, a rotatable transfer means arranged intermediate the respective tables and operating to deliver the flanged can from the receiving table to the supplemental table, and means for feeding a head to the can as it is being transferred from the one table to the other.

8. In an apparatus for the described purpose, the combination of means for receiving a can body and flanging the open end thereof, mechanism for crimping a loosely applied head to the flanged end of a filled can, means for transferring the filled can with its open end flanged from the flanging means to the crimping mechanism, and means for feeding a head to the flanged end of the filled can, as conveyed toward the crimping mechanism.

9. An apparatus for the described purpose, a horizontal rotatable receiving table having associated therewith means for flanging the open end of a can mounted upon the table, a supplemental horizontally rotatable table arranged to receive the flanged can, and having associated therewith means for seaming a loosely applied head to the flanged end of the can, a rotatable transfer means arranged intermediate the respective tables and operating to deliver the flanged can from the receiving table to the supplemental table, means for feeding a head to the can as it is being transferred from the one table to the other, and means whereby the can is maintained in an upright position throughout the series of operations mentioned.

In testimony whereof I have hereunto affixed my signature in the presence of witnesses.

HENRY C. BLACK.

Witnesses:

J. COMPTON,
D. B. RICHARDS.