

No. 737,216.

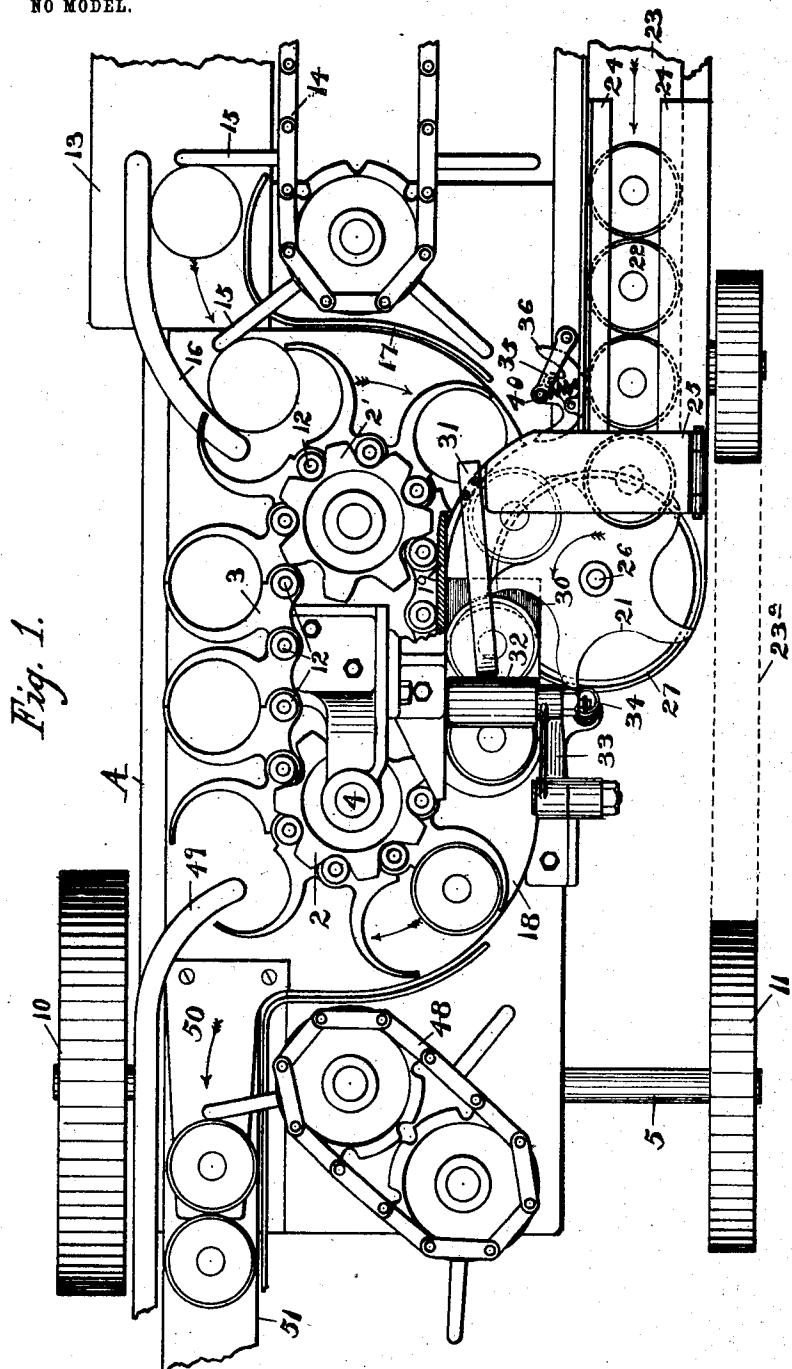
PATENTED AUG. 25, 1903.

C. E. FORRY.
CAN HEADER.

APPLICATION FILED JULY 28, 1902.

NO MODEL.

6 SHEETS--SHEET 1.



WITNESSES.

Source
J. Eldridge

Charles E. Torry INVENTOR
BY Percy Strong ATTORNEYS

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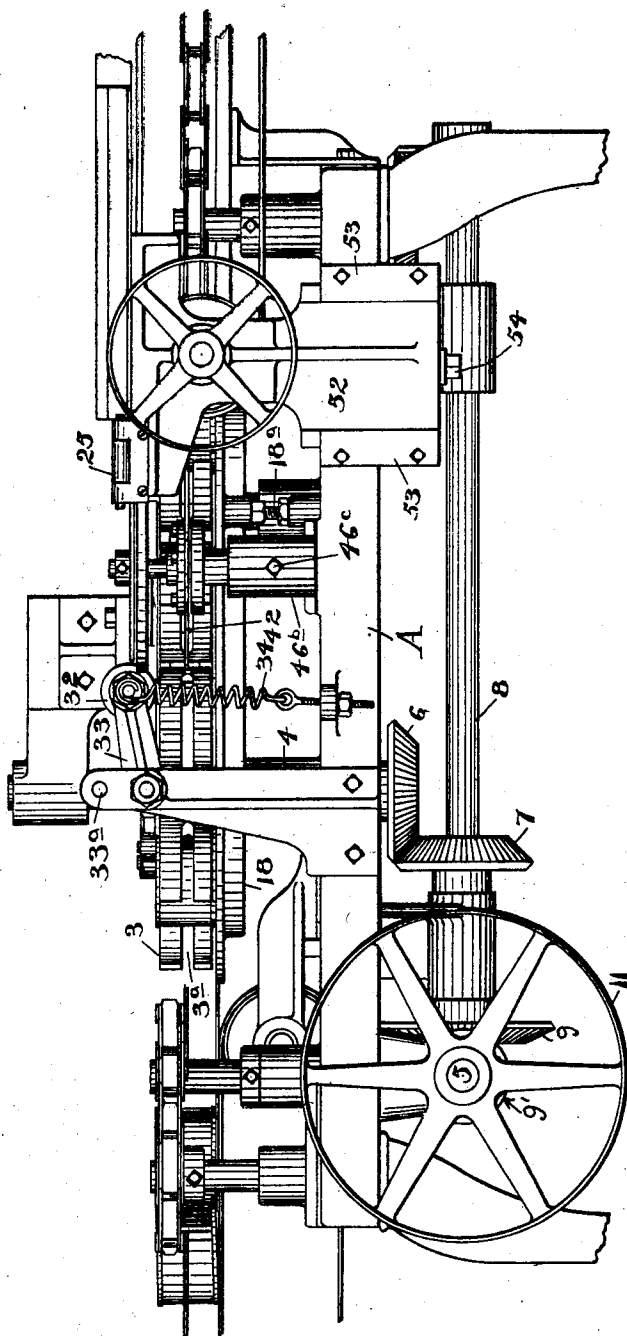
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NO MODEL.

5 SHEETS—SHEET 2.

Fig. 2.



WITNESSES

For source
J. Eldridge

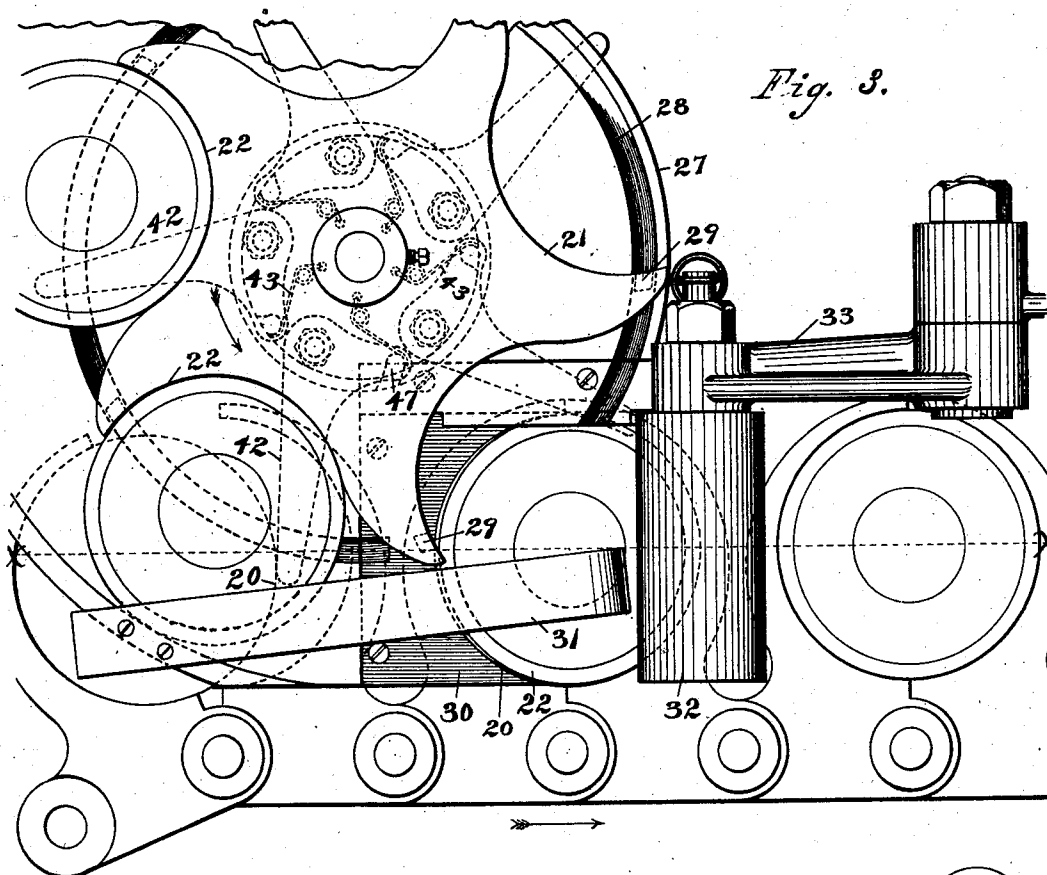
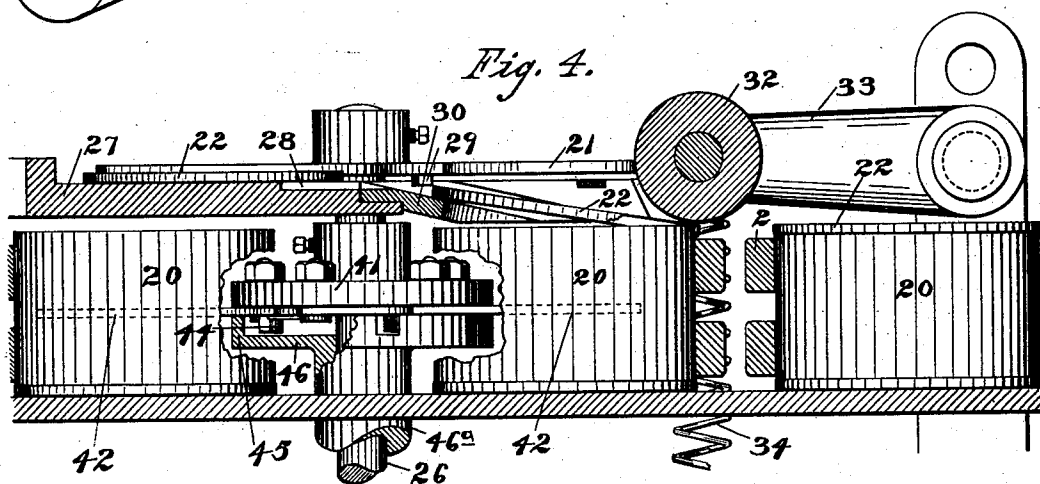
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5 SHEETS—SHEET 3.



WITNESSES

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No. 737,216.

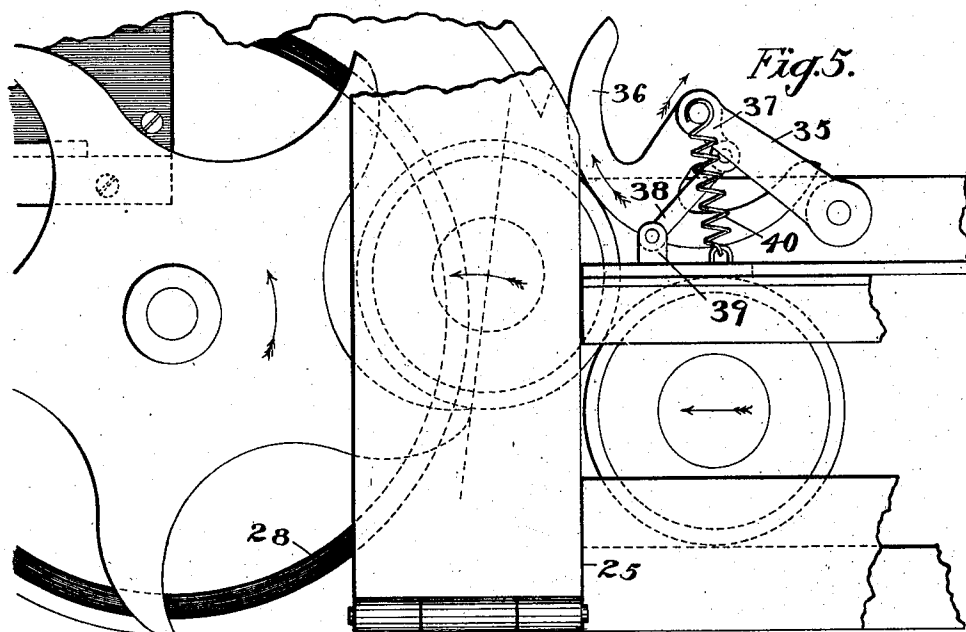
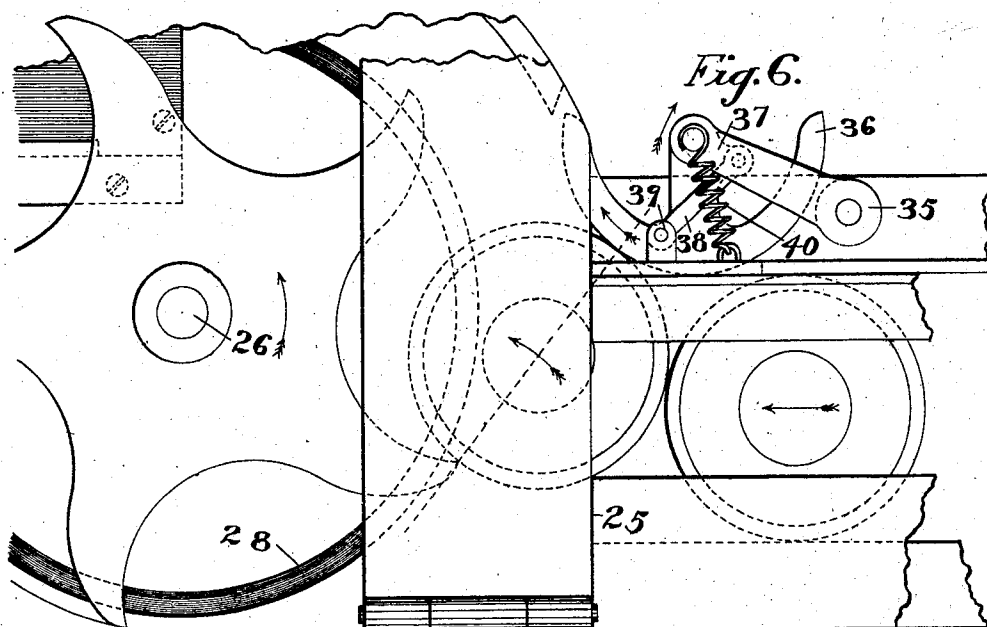
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NO MODEL.

5 SHEETS—SHEET 4.



Witnesses,
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attn

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NO MODEL.

5 SHEETS—SHEET 5.

Fig. 7.

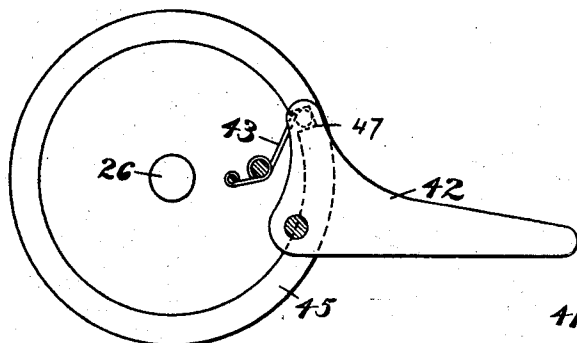


Fig. 8.

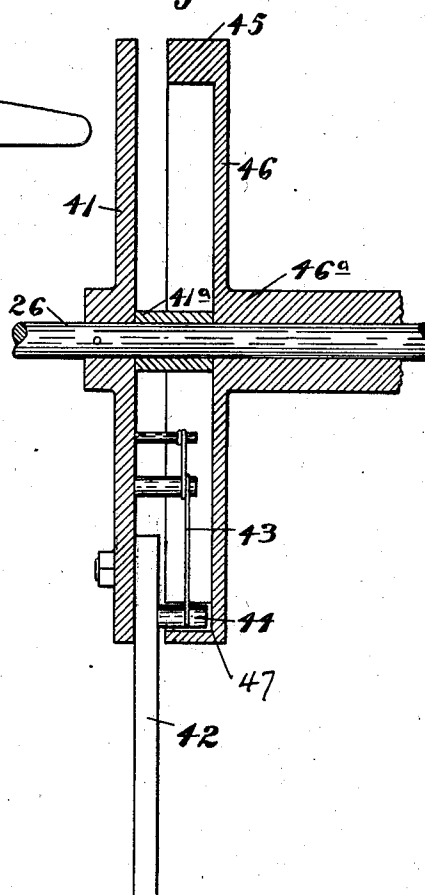
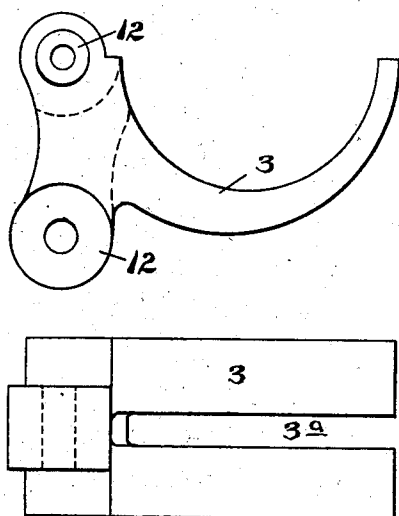


Fig. 9.



Witnesses,

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Inventor,

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UNITED STATES PATENT OFFICE.

CHARLES E. FORRY, OF SAN FRANCISCO, CALIFORNIA.

CAN-HEADER.

SPECIFICATION forming part of Letters Patent No. 737,216, dated August 25, 1903.

Application filed July 28, 1902. Serial No. 117,264. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. FORRY, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Can-Headers; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to improvements in machines for placing the heads in position upon can-bodies. Its object is to provide an automatic machine of simple construction capable of being operated rapidly and in which any danger of injury to the can bodies or tops is obviated.

It consists of a can-body carrier movable about horizontally-disposed sprockets, said carrier comprising pivoted cylindrical jaw-segments, means for delivering the bodies in upright position into said jaws, means for insuring the closing of said jaws upon the cans, a can-head carrier rotatable intermittently, a yielding guide mechanism by which injury to the heads as they are fed from the conveyor-trough into the rotatable carrier is obviated, means for effecting the movement of said last-named carrier by and relative to the can-body carrier, and means for delivering the can-bodies from the machine.

The invention also comprises details which will be more fully set forth hereinafter, having reference to the accompanying drawings, in which—

Figure 1 is a plan view, partially broken away, of a can-heading machine embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is an enlarged detail in plan of the can-head-carrier mechanism. Fig. 4 is a part side elevation and part sectional view of the same on line *xx* of Fig. 3. Figs. 5 and 6 illustrate enlarged views of the can-head-feeding devices. Figs. 7, 8, and 9 are details of construction.

A represents the framework of my machine, supporting the horizontally-disposed sprockets 2 2', around which passes an endless can-body conveyor or carrier 3. A continuous motion is imparted to the carrier through the vertical shaft 4 of sprocket 2 and suitable connection of said shaft with drive-shaft 5. These connections in the present instance include a bevel-gear 6 on shaft 4, engaging a

corresponding gear 7 on the horizontal shaft 8. The latter carries a reducing-gear 9, which engages a pinion 9' on shaft 5, carrying the pulleys 10 11 and driven from any suitable source of power.

The can-body carrier comprises a series of segmental jaws linked together and having rollers 12 on the ends of the link-pins, with which the teeth of sprockets 2 2' engage to drive the carrier. The jaws are cylindrical when closed, and the portion above the slot 3^a corresponds in diameter to the diameter of a can-body to be headed. The jaws are opened and closed in the movement of the carrier about the sprockets 2 2', the latter serving to open the jaws to receive the can-bodies, the jaws being subsequently closed while passing in a straight line through the space between the sprockets and sprocket 2 serving to open the jaws again to allow the body with the head in position to be removed. The can-bodies 20 are fed into the carrier from the table 13 with their axes vertical and are carried through the machine in that position. The feeding of the can-bodies is effected automatically by means of the endless link belt 14, having spacing-fingers 15 engaging the bodies to move them forward between guides 16 17 into the open jaw-spaces. The jaws are centrally slotted in a plane at right angles to the axis of the sprockets, as shown at 3^a. The outer guide 16 extends into these slots, and the fingers 15 move therein, so that a body is sure to be advanced well into the jaws before being released. The timing of the travel of the carrier and belt 14 is regulated so that the two have a proper coördinate movement. The cans are supported while passing through the machine on the bed-plate 18. The latter is adjustable to cans of different height by means of screws 18^a. Passing toward the left from the feed end, as shown in the present instance, the rollers 12 engage a guide 19, having a slightly-convexed surface by which the rollers are drawn in toward the center of the machine sufficiently to insure the tight closing and gripping of the jaws on the can-bodies. As the body thus gripped moves forward in a direct line it receives a head or top carried by the intermittently-movable spider 21. The heads (represented at 22) are fed by a belt conveyor 23 beneath the lateral

guides 24 and the hinged guide-plate 25 into said spider. The belt is driven by suitable connections 23^a with pulley 11 on the drive-shaft 5. The spider 21 is fixed to and turn-
 5 able with the shaft 26, which is suitably journaled in the frame. The arms of the spider are rotatable in close proximity to the upper surface of the stationary table 27, upon which
 10 the can-heads rest after they are received from the belt 23. The table has an annular groove 28, in which lugs 29 on the lower side of the spider-arms travel, Fig. 3. The table
 15 is cut away on the side adjacent to the can-body carrier, and an incline 30 supports the lower edge of the head while it is fed forward from the table into position on the moving
 20 can-body beneath. During this part of its movement the can-head is supported and guided from above by the spring-plate 31, under which the head passes before leaving
 25 the hinged guide-plate 25. The lugs 29 on the spider serve to advance the head down the incline far enough to insure engagement of the can-head flange with the can-body, as
 30 clearly indicated in Fig. 4. The moment the head is in proper engagement with the body the pressure-roller 32 is encountered, by which the head is pressed down tightly upon
 35 the body. The roller 32 is supported on an arm 33, hinged to the frame, and the pressure of the roller may be regulated by a tension-spring 34.

In order that the can-heads may be fed properly into the spider, I have provided the
 35 following means, (best illustrated in Figs. 5 and 6:) Adjacent to the delivery end of the belt 23 I pivot an arm 35, which carries a segment 36. The latter is pivoted to the
 40 outer end of the arm, and the radial portion of the segment carries a projection 37. A link 38 is pivoted to the end of this projection and a fixed support 39, as shown. A spring
 45 40, disposed in the angle between arm 35 and the toggle member 38, tends to press the segment normally into position to be engaged by a can-head as the latter comes from the belt
 50 into the spider and to offer a yielding support and guide for the head. The end of the can-head-conveyer trough is suitably cut away to accommodate the segment. With
 55 this device all possibility of the heads being buckled or damaged or of injury being caused to the machine by reason of the points of the spider striking a head is obviated. The spider
 60 is given an intermittent movement relative to the continuous movement of the can-body carrier and is operated only when a can-body is in position on the carrier to receive a head, so that even though the conveyer
 65 may continue its movement if no bodies are being carried no heads will be delivered, as the spider will remain stationary. The manner in which this intermittent relative movement is effected is as follows: The spider-shaft 26 carries a disk 41, which is rota-
 70 table in unison with the shaft. To the under side of the disk are pivotally attached a se-

ries of bell-crank-levers 42, corresponding in number and disposition to each other and to the can-head-holding arms of the spider. 70
 The longer arms of these levers 42 are adapted to project outwardly into the path of the can-bodies on the carrier and are movable through the slots 3^a in the jaws. These arms
 75 are held extended thus by means of springs 43, secured to the disk 41, engaging the shorter arms and pressing the lugs 44 on the under side of the latter against the inner periphery of the flange 45 on the stationary disk
 80 46. The disk 41 is separated from disk 46 by means of a sleeve or hub portion 41^a. Disk 46 has a sleeve portion 46^a, in which shaft 26 is revoluble and which is adjustable vertically in a hollow casting 46^b by means of a
 85 set-screw 46^c. This is for the purpose of raising and lowering the spider where different heights of cans are to be run through the machine. A notch or recess 47 is made in the inner side of flange 45, in which a lug 44
 90 is adapted to engage when the corresponding arm 42 of said lug is in position to be struck by an approaching can-body. In operation as a can-body hits the arm 42 (whose lug is resting in notch 47) the arm first turns slightly
 95 on its pivot, carrying the lug out of the notch and the end of the shorter arm into engagement with an obstruction—as, for example, the shoulder of the arm immediately ahead—as would be the case in the machine shown
 100 in Fig. 3. The continued movement of the can-body carries the arm, disk 41, and spider along with it. The spider and arms 42 are so disposed on the shaft 26 in relation to each other and to the traveling can-bodies that the spider conveying a can-head will bring
 105 the latter down the incline 30 just in advance of its respective body, so that the latter will engage the flange and draw the head onto the body after the spider stops revolving. The spider stops as soon as the can-
 110 body leaves the arm 42 and is held against further revolution until the next can comes along by reason of the projecting lug 44 on the succeeding arm dropping into the notch 47. The engagement of the second can-body
 115 on the carrier with the projecting arm operates the arm and spider, as before described, to deliver a can-head at the proper moment. The lugs engaging successively the notch 47 at each interval in the intermittent revolution
 120 of the spider always prevents the latter moving too far, and so possibly causing a can-head to fall prematurely through the table-opening. Thus it is seen that so long as there are no can-bodies passing through the machine the spider-conveyer will remain station-
 125 ary, or, in other words, the latter will only be actuated when a body engages one of the arms 42. Passing beneath the pressure-roller 32 the headed cans are carried around sprocket
 130 2 to open the jaws, from which they are extracted by means of the fingered link-carrier 48 with the assistance of the guide 49. The carrier 48 is similar in construction and oper-

ation to carrier 14, previously described, and is run at a relatively greater speed than the can-body conveyer to effect its purpose. The cans pass into a trough 50 and thence onto a belt-carrier 51, by which they are delivered to the crimper or soldering-machine.

This machine is readily adapted to flat or tall cans. In the present instance it is shown adjusted to the former. For cans of greater height the pivot of roller-arm 33, Fig. 2, would be shifted to perforation 33^a and the bed-plate 18 lowered by means of the adjusting-screws 18^a, which support the plate on the frame. If necessary, a can-conveyer having jaws of different height and diameter may be inserted.

The end of the can-head-conveyer trough and the table 27 are movable in unison on the bracket 52, which is slidable in guides 53 and is locked in position by a screw 54, passing through a lug on the back of the bracket and engaging the frame. The position of screw 54 is simply indicated in Fig. 2. The spider 21 is adjustable in relation to the table 27 in the manner before described.

A particular advantage of this header over others commonly in use where the body is not supported on all sides is in handling can-bodies which for some reason have become pressed slightly out of their circular shape. The segmental jaws 3 when they embrace the body true up the end opening, so that a can-head will fit down smooth over it.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination in a can-heading machine, of a supporting-frame, an endless, continuously-operating, can-body conveyer thereon, means for delivering bodies to said conveyer, and means for delivering can-heads to said bodies, said means including an intermittently-revoluble support having arms adapted to extend into the path of the bodies on said conveyer, whereby the support is revolved by the passing bodies.

2. The combination in a can-heading machine of a frame, horizontally-disposed sprockets thereon, an endless can-body conveyer passing around said sprockets, means by which said conveyer is given a continuous movement, and means by which can-heads are delivered upon the bodies on said conveyer, said means including a revoluble support having arms extending into the path of the can-bodies and adapted to be revolved intermittently by the engagement of said arms and bodies.

3. In a can-heading machine, the combination with an endless can-body conveyer thereon, said conveyer comprising links having cylindrical slotted jaw-segments adapted to infold a can-body, of means for delivering can-bodies into said jaws, said means including a link-carrier having spacing-fingers movable in the slots of said jaw-segments.

4. In a can-header, the combination with a

supporting-frame of horizontally-disposed sprockets thereon, an endless can-body conveyer passing about said sprockets, said conveyer comprising hinged cylindrical jaw-segments, rollers on the ends of the pivot-pins of said segments, means adjacent to one of said sprockets by which can-bodies are introduced into said jaws, guide means engaging said rollers between said sprockets to insure the closing of the jaws upon the bodies, and means adjacent to the other sprocket by which the can-bodies are removed from the jaws.

5. The combination in a can-heading machine, of a supporting-frame, horizontally-disposed sprockets, an endless can-body conveyer having cylindrical jaw-segments and passing about said sprockets, means including a link-carrier having projecting spacing-fingers by which can-bodies are delivered successively to said jaw-openings and an intermittently-revoluble can-head-feed mechanism movable in relation to said can-bodies and having members extending into the path of the can-bodies carried by the conveyer whereby the can-head-feed mechanism is revolved intermittently by the engagement of said members and bodies.

6. In a can-header, the combination of a supporting-frame, an endless can-body conveyer, means for delivering can-bodies thereto, an intermittently-revoluble spider and means by which can-heads are delivered to said spider, said means including a segment having a spring-actuated toggle-jointed support for the purpose set forth.

7. In a can-header, the combination with can-body-conveying means, of a stationary table upon which the can-heads are delivered, a spider revoluble above and in close proximity to said table, said table having an annular groove, projections on the arms of said spider movable in said groove, and means engaging can-bodies on said conveying means by which the spider is given an intermittent revoluble movement.

8. In a can-header, the combination with can-body-conveying means of a spider secured to and rotatable with a vertical shaft, a table beneath said spider upon which the can-heads are delivered into engagement with said spider, and pivoted radial arms carried upon the shaft of said spider, and projecting into the path of said can-body conveyer.

9. In a can-header, the combination with can-body-conveying means of a spider secured upon a vertical shaft, means by which can-heads are delivered into engagement with said spider, and means by which said spider is given an intermittent rotatable movement in relation to the bodies carried by said can-body-conveying means, including a disk secured to the shaft of said spider, bell-crank-lever arms pivoted on said disk, and means by which said arms are projected outwardly into the path of the can-bodies.

10. In a can-header, the combination of conveying means, of means by which can-

heads are delivered upon the bodies carried by said conveyer, said means including an intermittently-rotatable spider secured upon a vertical shaft, means for delivering can-
 5 heads into engagement with said spider, pivoted bell-crank levers radially disposed about the shaft of said spider and rotatable in unison therewith, and stop means engaging said levers at each intermittent movement of the
 10 spider.

11. In a can-header, the combination with can-body-conveying means of an intermittently-revoluble spider, a table beneath said spider upon which the can-heads are de-
 15 livered, resilient guide means including a toggle-supported segment 40 by which the entry of the can-heads into said spider is facilitated, and means for delivering the can-heads from said spider upon the bodies carried by said can-body conveyer.

12. In a can-header, the combination with a can-body-conveying means of a rotatable spider secured upon a vertical shaft, means for introducing can-heads into engagement
 25 with said spider, a hinged guide-plate 25, pivoted lever-arms carried by the shaft of said spider extending into the path of the can-body-conveying means whereby the spider is given an intermittent movement rela-
 30 tive to the passing can-bodies, and stop means engaging said arms at the end of each intermittent movement.

13. The combination in a can-header of a supporting-frame, horizontally-disposed
 35 sprockets thereon, an endless can-body conveyer including hinged segmental jaws having rollers engaging said sprockets, whereby the jaws are opened by the sprockets as the former pass about the latter, means for de-
 40 livering can-bodies into engagement with said conveyer, a vertically-adjustable supporting bed-plate for the can-bodies, an intermittently-revoluble spider adapted to deliver can-heads upon the bodies carried by
 45 said conveyer, and means operated by passing can-bodies by which the spider is given an intermittent movement relative to that of

a can-body passing beneath said spider, a hinged pressure-roller beneath which the headed can-bodies pass and means by which
 50 the headed can-bodies are delivered from the conveyer.

14. The combination in a can-header of a supporting-frame, horizontally-disposed sprockets thereon, an endless conveyer com-
 55 prising hinged horizontally-slotted segmental jaws passing around said sprockets, means by which the latter are given a continuous movement, an intermittently-operating can-head-feed mechanism, and means by which
 60 the headed cans are delivered from said conveyer, said means including a link belt having outwardly-projecting fingers movable in the same direction with the direction of movement of said conveyer, but at accelerated
 65 speed, said fingers adapted to engage the can in the slots in said jaws when the latter are opened, and a fixed guide in conjunction with said fingers engaging the slots of the
 70 jaws to aid in the exit of the cans from the latter.

15. The combination in a can-header of a supporting-frame, horizontally-disposed sprockets thereon, an endless can-body conveyer movable about said sprockets, means
 75 for delivering can-bodies to said conveyer, means by which the latter is given a continuous movement, a vertically-adjustable bed-plate on which the can-bodies rest while passing through the machine, vertically-adjust-
 80 able spider mechanism by which can-heads are delivered upon the moving can-bodies, connection between said mechanism and the moving can-bodies by which the former is
 85 given an intermittent movement relative to the movement of the latter and means for delivering the can-bodies from said machine.

In witness whereof I have hereunto set my hand.

CHARLES E. FORRY.

Witnesses:

S. H. NOURSE,
 CHAS. E. TOWNSEND.