(No Model.) 2 Sheets—Sheet 1.

J. GOULD, Jr.

CAN HEADING MACHINE.

No. 525,100. Patented Aug. 28, 1894.

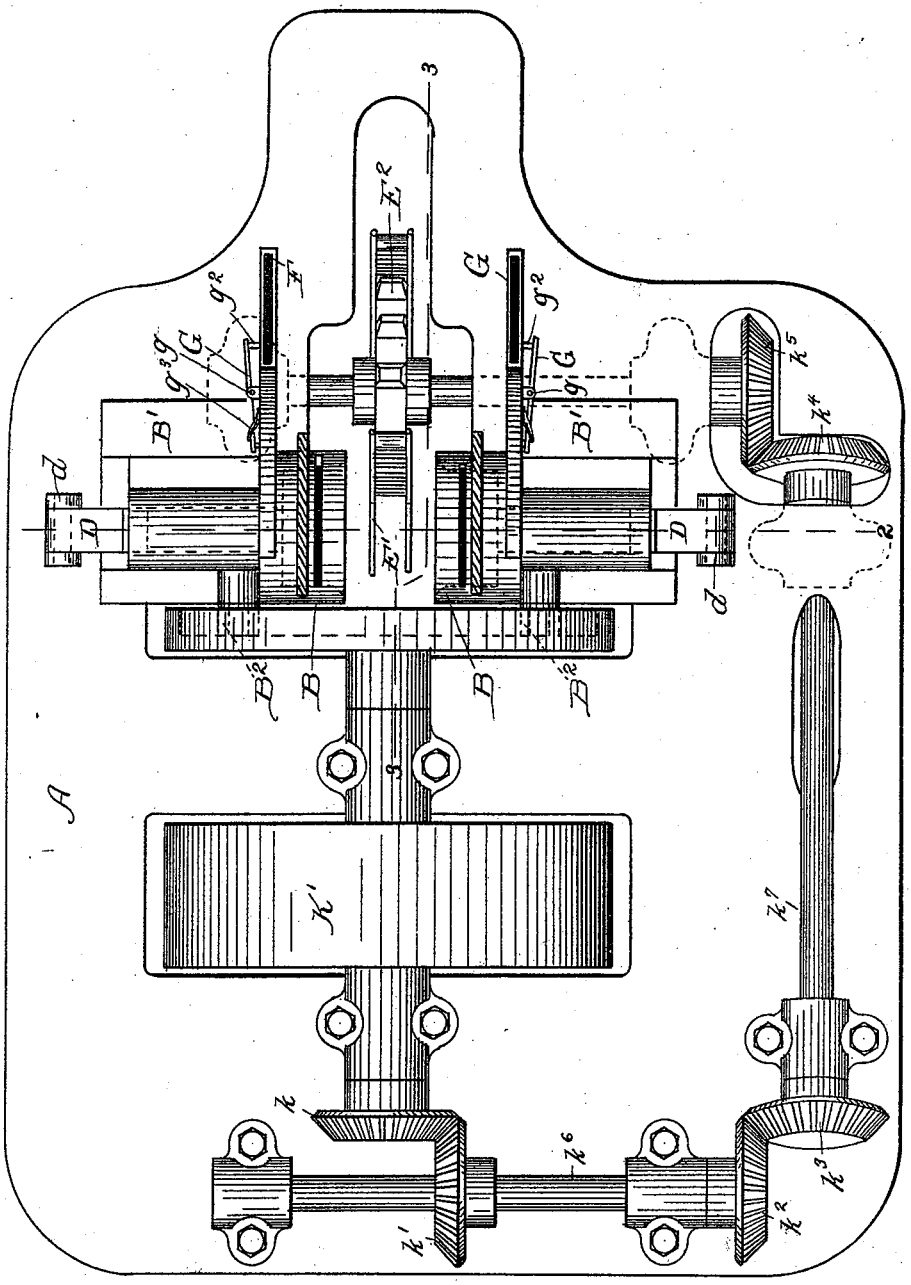

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2

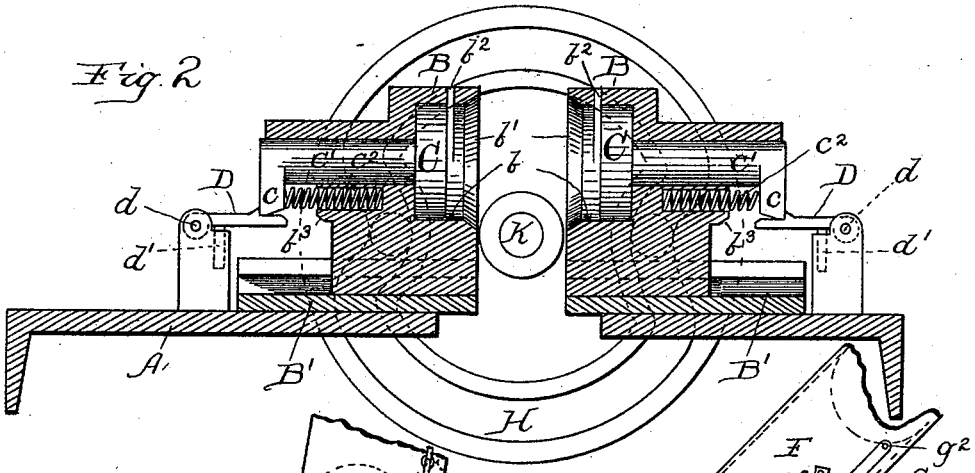


Fig. 3.

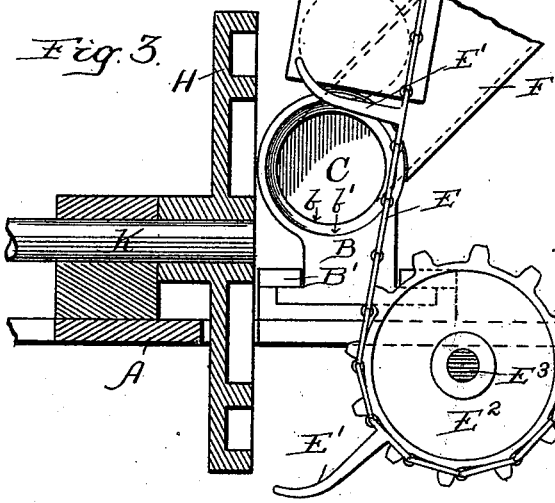


Fig. 5.

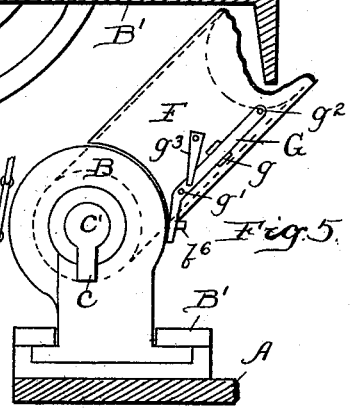


Fig. 6.

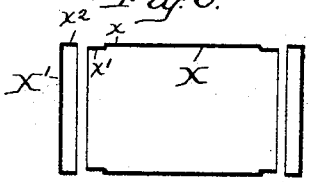
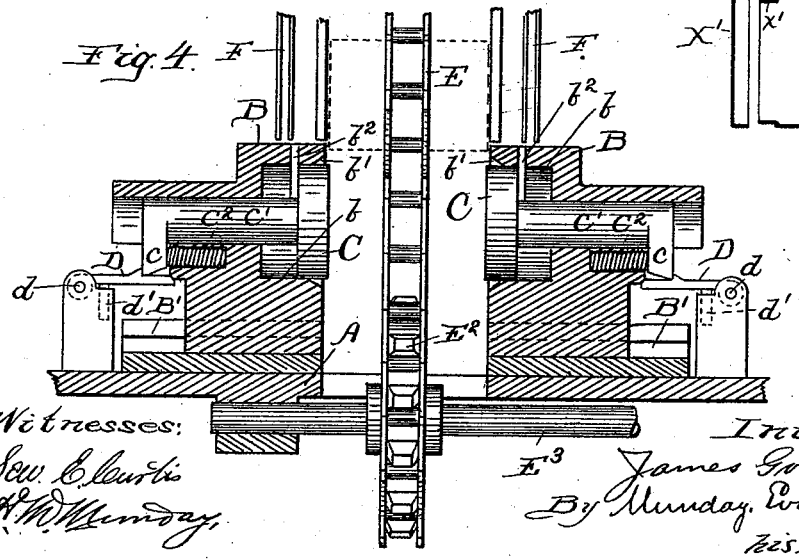


Fig. 4.



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UNITED STATES PATENT OFFICE.

JAMES GOULD, JR., OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO THE PACIFIC CAN COMPANY, OF SAME PLACE.

CAN-HEADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 525,100, dated August 28, 1894.

Application filed January 4, 1894. Serial No. 496,610. (No model.)

To all whom it may concern:

Be it known that I, JAMES GOULD, Jr., a citizen of the United States, residing in San Francisco, in the county of San Francisco and State of California, have invented a new and useful Improvement in Can-Heading Machines, of which the following is a specification.

My invention relates to can heading machines.

The object of my invention is to provide a machine of a simple and efficient construction for automatically applying tight exteriorly fitting can heads to can bodies of a particular kind, wherein the can bodies are made of two diameters differing by the thickness of the tin in the can head flange the smaller diameter of the can body corresponding in size to the interior diameter of the can head flange and the larger diameter of the can body to the exterior diameter of the can head flange.

My invention consists in the novel devices and novel combinations of parts and devices herein shown and described and more particularly pointed out in the claims.

In the accompanying drawings which form a part of this specification, and in which similar letters of reference indicate like parts throughout all the figures, Figure 1 is a plan view of a machine embodying my invention. Figs. 2 and 4 are vertical cross sections taken on the line 2—2 of Fig. 1, and looking in opposite directions the parts being shown however in different relative positions in the two figures. Fig. 3 is a partial vertical section taken on the line 3—3 of Fig. 1. Fig. 5 is a detail view showing in elevation the can head feed chute and the device for regulating the feed of the can heads in the chute, and Fig. 6 shows the particular construction of can for the heading of which the machine is designed.

In the drawings A represents the frame of the machine.

B B are a pair of reciprocating header rings or devices which are adapted to slide back and forth to and from each other on suitable guides B′ B′ on the frame of the machine. The function of these headers B B is to size and round the can body X by exerting external pressure upon the larger diameter x thereof all around its circumference, and thus adapt its smaller diameter x' to enter within the flange x^2 of the can head X′, and also to center and align the can head accurately with the body as the heads and body are forced together by the reciprocating movement of the headers or rings B B. Each of these headers or rings B B has an interior diameter b corresponding to the exterior diameter of the larger portion x of the can body and to the exterior diameter of the can head. Each of these headers B is also furnished with a beveled or flaring mouth b' to adapt the can bodies to enter the same endwise. Each of these reciprocating headers or rings B B is also furnished with a lateral slot or opening b^2 through the same for the admission of the can heads.

C C are a pair of reciprocating plates or plungers mounted in the hollow header rings B B, the purpose of which is, after the heads have been applied to the can, to prevent any tendency of the headers by their backward movement to draw off or loosen the heads from the can. These plates, pistons or plungers C C are held in their forward position so as to press or hold the headed can between them by means of pawls or catches D, D, one on each side, pivoted to the frame at d and engaging a projection c on the stem c' of the piston or plate C. A spring d' serves to hold the pawl D in place. This pawl D is withdrawn as the header B completes its backward movement by means of a cam or projection b^3 thereon which strikes against the end of the pawl D and thus throws it down so as to release the projection c from engagement with the pawl. A spring c^2 interposed between the header B and the projection c then withdraws the piston C.

E represents a continuously moving can body carrier, the same being preferably a flexible or chain carrier furnished with suitable fingers or pockets E′ for supporting the can body and conveying the same to a position between the reciprocating headers B B. This carrier receives motion from a sprocket wheel E^2 secured to a shaft E^3 connected by suitable gearing with the main driving shaft of the machine. Just as the can body is conveyed to a position between the headers B B by the continuously moving carrier E the headers B B move forward or toward each

other, and slipping over the ends of the can body size and round it by contact of its cylindrical surface b with the cylindrical surface of the larger diameter x of the can body so as to adapt its smaller diameter to enter accurately within the flange of the can head as the headers B B are forced together or toward each other. After the can body is begun to be grasped by the headers or begins to enter the beveled or flaring mouths b' b' of the headers, the forward motion of the can body is of course arrested by the headers, and the can body carrier continuing its movement leaves the can body behind.

The space between the fingers or pockets E′ E′ of the carrier E is sufficient to give time for the headers B B to move forward, head the can and again retreat before the succeeding pocket or finger reaches the heading position. As each can body is in turn brought into position between the headers B B, the headers move forward and grasp it, head the can and again retreat while the finger E′ on the continually moving carrier leaves the can behind. After the can is headed and the headers B B retreat or withdraw the headed can drops and may fall either entirely out of the machine or into a suitable discharge chute, or in falling it may again overtake the finger E′, which carried it into position, and be by it conveyed out of the machine or into a discharge chute.

F F are a pair of can head feed chutes or passages along which the can heads move or travel. These chutes are stationary, being attached to the stationary frame of the machine. When the headers B B are in their retracted position the lateral slots b^2 b^2 are brought into registry with the can head feed chutes or passages, so that the lowermost can head in each chute may drop or move into the header ring or device. At this time the springs c^2 have also retracted the pistons or plungers C C. To regulate the feed of the can head chutes, a vibrating lever or trigger G is provided in each of the can head chutes. Each of these triggers G is pivoted at g to the frame or can head chute and is furnished with two pins or projections g' g^2 located at least the diameter of a can head apart, so that when the lever or trigger is vibrated to withdraw the lowermost pin g' out of the way to permit the lowermost can head to pass, the uppermost pin g^2 will be thrust inward in the path of the next succeeding can head to prevent its downward movement until the lever or trigger again vibrates into its normal position wherein the lowermost pin b' projects across the path of the can head in the chute. A spring g^3 holds the lever or trigger G in its normal position, and when the reciprocating header B reaches its backward or retracted position a pin b^6 thereon engaging the end of the lever or trigger G vibrates the same, so as to withdraw the lowermost pin g' and permit the lowermost can head to feed forward. When the header B moves forward to head the can, the spring causes the lever or trigger G to resume its normal position and thus permit the succeeding can head to move down into position against the lowermost pin g'.

The headers B B are automatically reciprocated back and forth as required by a continuously revolving cam H on the main driving shaft K, which cam engages the pins, projections or friction rollers B^2 B^2 connected with the reciprocating headers B B. K′ is the drive wheel or pulley. Motion is communicated from the continuously revolving shaft K to the continuously revolving shaft E^3 of the can body feeder by means of the connecting gears k k' k^2 k^3 k^4 k^5, the first of which is on the shaft K and the last of which is on the shaft E^3, the intermediate gears being on the intermediate shafts k^6 k^7.

I claim—

1. In a can heading machine, the combination with a pair of reciprocating bevel-mouthed laterally slotted can header rings, a pair of pistons or plungers mounted in said header rings, a pair of stationary can head chutes into registry with which the can head slots in the header rings are brought by the reciprocating movement of said rings, a pair of catches or pawls for holding said pistons or plungers in their forward position, a pair of cams or projections on said reciprocating headers for automatically withdrawing said pawls or catches by the backward movement of said headers, a pair of springs for withdrawing said pistons or plungers, a pair of vibrating can head feed levers or triggers likewise operated by said reciprocating headers, and a continuously moving can body carrier for conveying the can bodies into position between said reciprocating headers, substantially as specified.

2. The combination of a continuously moving can body carrier with a pair of reciprocating headers mounted on the stationary frame of the machine, substantially as specified.

3. The combination with a pair of reciprocating can body header rings having flaring mouths with a continuously moving can body carrier for conveying the can bodies between said headers, and a pair of pistons or plungers for holding the can heads on the can body as the headers are withdrawn, substantially as specified.

4. The combination with a pair of reciprocating headers mounted on the stationary frame of the machine and having bevel faced or flaring mouths and slots or openings for the admission of the can heads, with a pair of reciprocating pistons or plungers mounted in said headers, a pair of stationary can head chutes into registry with which the can head slots or openings in said headers are brought by the reciprocating movement of said headers, and a continuously moving can body carrier, substantially as specified.

5. The combination with a pair of reciprocating headers B B of a single continuously

revolving cam H for simultaneously reciprocating both of said headers, substantially as specified.

6. The combination with a continuously moving can body carrier of a pair of reciprocating headers B B, and a single continuously revolving cam H for simultaneously operating both of said headers, substantially as specified.

7. The combination of a pair of bevel-faced slotted reciprocating headers B B, a pair of pistons C C mounted in said headers having their stems c' c' furnished with projections c c, a pair of pivoted pawls D D mounted on the stationary frame of the machine, a pair of springs c^2 c^2 for retracting said pistons C C and a pair of stationary can head chutes F F, substantially as specified.

8. The combination of a pair of bevel-faced slotted reciprocating headers B B, a pair of pistons C C mounted in said headers having their stems c' c' furnished with projections c c, a pair of pivoted pawls D D mounted on the stationary frame of the machine, a pair of springs c^2 c^2 for retracting said pistons C C, a pair of stationary can head chutes F F, and a pair of can head feed regulating levers G G each furnished with a pair of pins or projections g' g^2, said levers G G being engaged and operated by said reciprocating headers B B, substantially as specified.

9. The combination of a pair of bevel-faced slotted reciprocating headers B B, a pair of pistons C C mounted in said headers having their stems c' c' furnished with projections c c, a pair of pivoted pawls D D mounted on the stationary frame of the machine, a pair of springs c^2 c^2 for retracting said pistons C C, a pair of stationary can head chutes F F, and a continuously moving can body carrier E, substantially as specified.

10. The combination of a pair of bevel faced slotted reciprocating headers B B, a pair of pistons C C mounted in said headers having their stems c' c' furnished with projections c c, a pair of pivoted pawls D D mounted on the stationary frame of the machine, a pair of springs c^2 c^2 for retracting said pistons C C, a pair of stationary can head chutes F F, a continuously moving can body carrier E, and a single countinuously revolving cam H for simultaneously operating both of said reciprocating headers B B, substantially as specified.

JAMES GOULD, JR.

Witnesses:
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SAML. H. SHERROTT.