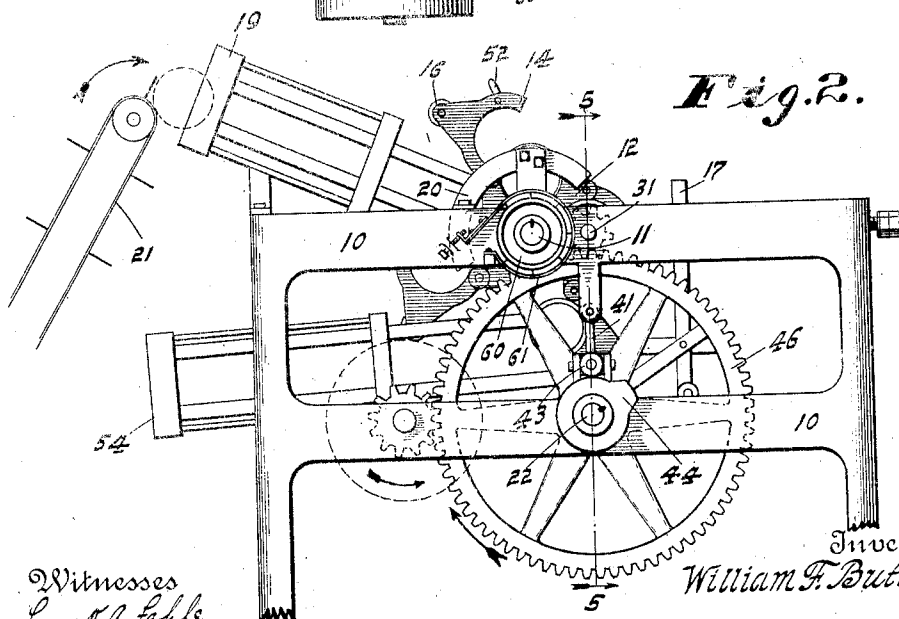


1,022,464.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses
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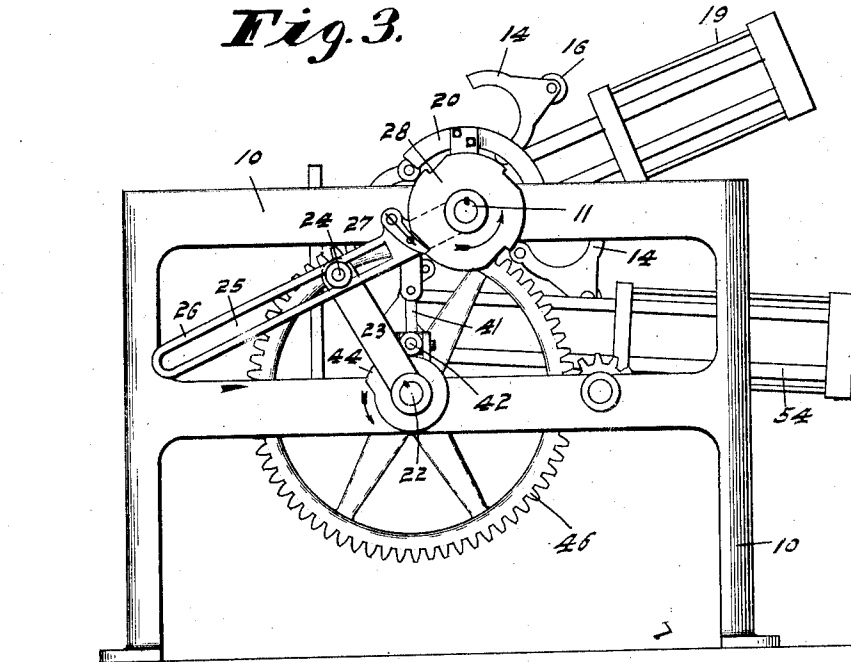
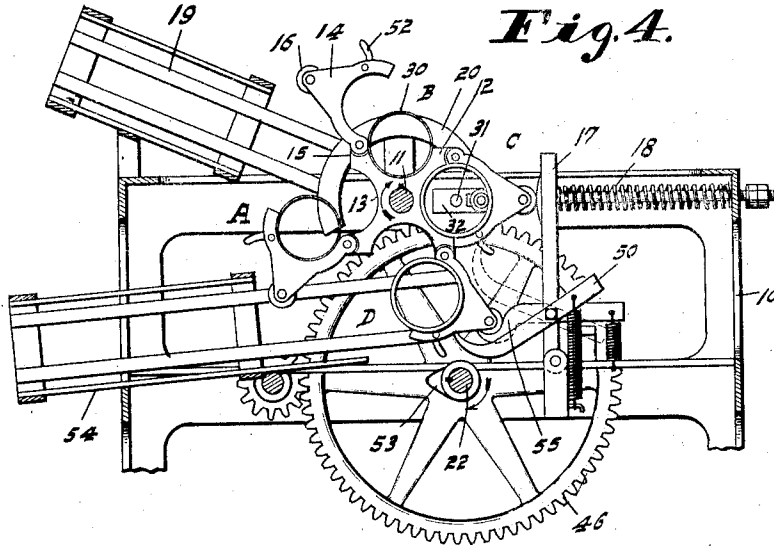
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CAN FLANGING MACHINE.
APPLICATION FILED OCT. 5, 1908.

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Patented Apr. 9, 1912.

3 SHEETS—SHEET 2.



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3 SHEETS-SHEET 3.

Fig. 5.

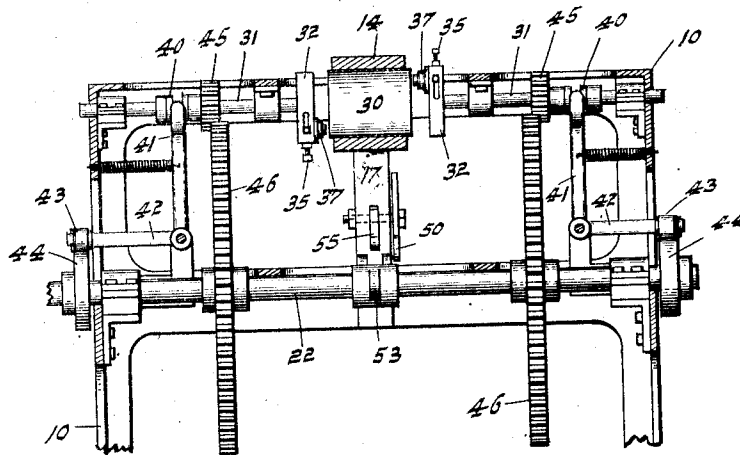
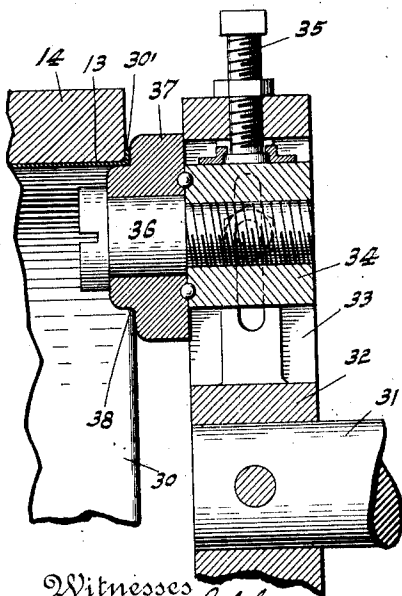
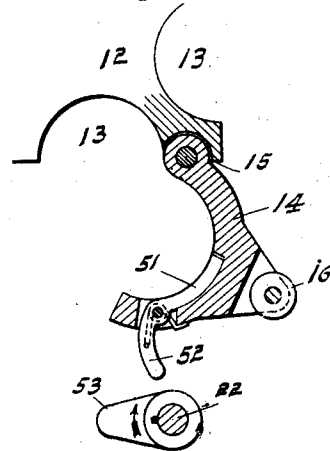


Fig. 6.



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Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM F. BUTLER, OF INDIANAPOLIS, INDIANA.

CAN-FLANGING MACHINE.

1,022,464.

Specification of Letters Patent.

Patented Apr. 9, 1912.

Application filed October 5, 1908. Serial No. 456,260.

To all whom it may concern:

Be it known that I, WILLIAM F. BUTLER, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Can-Flanging Machines, of which the following is a specification.

The object of my invention is to produce a machine for automatically receiving blank can bodies and flanging one or both ends thereof, and subsequently automatically delivering the flanged blanks from the machine.

The accompanying drawings illustrate my invention.

Figure 1 is a plan of a machine embodying my invention; Fig. 2 a side elevation; Fig. 3 an elevation of the opposite side to that shown in Fig. 2; Fig. 4 a section on line 4-4 of Fig. 1; Fig. 5 a section on line 5-5 of Fig. 2; Fig. 6 a detail of a portion of the flanging head and adjacent parts; and Fig. 7 a sectional detail of one of the can holding members and of the can discharging mechanism.

In the drawings 10 indicates a main frame in which is journaled a shaft 11 carrying a head 12 which head is provided with a plurality of substantially semi-cylindrical can-receiving sockets 13. Hinged to body 12 adjacent each socket 13 is a clamping member 14 provided with a socket which complements the socket 13, the amount of swing of the members 14 on head 12 being limited in any desired way, such for instance as by means of a shoulder 15. Each jaw 14 is provided with a roller or other member 16 adapted to be engaged by a pressure head 17 yieldingly urged toward shaft 11 by means of spring 18. Leading downward toward shaft 11 is a can chute 19 through which blank can bodies may be delivered to the sockets 13 and arranged adjacent said chute and parallelly surrounding shaft 11 at each end of body 12 is a cam 20 which cams serve to center the blank can body 13. The blank can bodies are delivered by any suitable means, such for instance as an elevator 21 to the chute 19 so that they will roll in succession into the clamping members 14 when they reach the position A (Fig. 4) and in order to insure proper reception of the blank bodies shaft 11 is preferably rotated step-by-step the portion of revolution being equal to the distance between the two sockets

13. Any suitable means may be provided for accomplishing this step-by-step movement. In the drawings I have shown a main drive shaft 22 journaled in frame 10 and carrying a crank arm 23 having a wrist pin 24 lying within a slot 25 of a ratchet arm 26 pivoted upon shaft 11 and provided with a pawl 27 adapted to engage a ratchet disk 28 carried by shaft 11, the arrangement being such that a complete rotation of shaft 22 will produce a quarter turn of shaft 11.

In order to simultaneously flange both ends of the blank can body 30 I journal in the frame 10 parallel with shaft 11 and at opposite ends of body 12 a pair of shafts 31—31 each of which is axially slidable in frame 10 toward and from body 12. Each shaft 31 carried at its inner end a head 32 having a radial slot 33 in which is mounted a block 34 radially adjustable toward and from the axis of shaft 31 by any suitable means, such for instance, as adjusting screw 35. Block 34 carries a pin 36 the axis of which is parallel with the axis of shaft 31 and journaled upon said pin is a flanging roller 37 having a portion 38 adapted to engage the adjacent end 30' of the blank can body 30 and flange the same outwardly against body 12 and the cooperating clamping member 14.

In order to automatically shift shafts 31 axially I provide each shaft with a shifting collar 40 adapted to be engaged by a shifting yoke 41 carried by a lever 42 one arm of said lever having a portion 43 arranged to be engaged by the cam 44 carried by shaft 22. In order to rotate shafts 31 I provide each of said shafts with a pinion 45 adapted to engage the gear 46 carried by shaft 22, the pinion 45 being so arranged relative to its gear 46 that the shifting of shaft 31 axially will not carry pinion 45 out of mesh with the gear 46.

After the blank can body has been received at the position A the first advance of shaft 11 will bring the blank to the point B and the second advancement to the point C. At same position between the points B and C the clamping member 14 will, of its own weight, drop upon the blank can body and clamp the same between it and body 12, and, as the point C is reached, the roller 16 of the clamp 14 will be engaged by the member 17 and the clamp held firmly upon the can body so as to prevent any movement thereof. As soon as the body 12

comes to rest, cams 44 shift shafts 31 inwardly toward body 12 and bring rollers 38 into engagement with the projected end 30' of the blank body 30 and flanges the same outwardly as indicated in Fig. 6, the head 32 being rotated by the pinions 45 as already described. Immediately the flanging heads are withdrawn and shaft 11 given another quarter turn thus advancing the first blank to the point D. As soon as the parts start from point C the clamp 14 is engaged by a spring urged hook 50 which compels clamp 14 to swing downwardly away from its socket 13 as shown at the lower part of Fig. 4. Socket 13 is just a trifle less than a semi-cylinder so that in practice the blank body is apt to stick in the cooperating clamp 14 and in order to insure the discharge of the flanged blank therefrom I mount in each of said clamps 14 an ejector finger 51 having an end 52, which, when the parts reach the position D, lies in the path of movement of a finger 53 carried by shaft 22 so that, as said shaft rotates it will bring finger 53 into engagement with the ejector and eject the flanged can body into the discharge run-way 54. In order to steady the parts during the operation of the ejecting into the ejector I provide a hook 55 adapted to engage roller 16.

In order to limit the step-by-step movement of shaft 11 and insure the proper positioning of head 12 I mount a brake-head 60 in one end of shaft 11 and provide a cooperating band brake 61.

I claim as my invention:—

1. In a machine of the class described the combination of a rotary head having a can receiving socket of less dimension than the length of the blank to be operated upon, a clamping member carried by said head and cooperating with said socket, means arranged in the path of movement of said clamping member for holding the same in clamping position a pair of flanging means arranged adjacent the rotary head one at each end thereof, means for moving said flanging means into and out of cooperative relation with the opposite ends of a can clamped within the head, means for withdrawing the clamping member from clamping position, an ejector carried by the clamping member, and a can chute delivering to said rotary head, and a can chute receiving from the ejector.

2. In a machine of the class described, the combination of a rotary head having a can receiving socket of less dimension than the length of the blank to be operated upon, a clamping member carried by said head and cooperating with said socket, a pair of flanging means arranged adjacent the rotary head one at each end thereof, means for moving said flanging means into and out of cooperative relation with the opposite

ends of a can clamped within the head, a can chute delivering to said rotary head, an ejector carried by said clamping member, and a can chute receiving from the ejector.

3. In a machine of the class described a horizontal shaft, a head carried by said shaft and provided with a horizontal can pocket, means for rotating said shaft and head, a clamping head having a complementary can pocket pivoted upon the first mentioned head upon a horizontal axis at the rear edge of the can pocket of said first mentioned head, whereby the said clamping head will, when left free, hang away from the can pocket of the first head, a can chute delivering to one of the can pockets when the clamping head is extended from the first mentioned head, means for positioning the can endwise, means for temporarily holding the clamping head in clamping position during a short portion of the rotation of the shaft, a rotary flanging head arranged adjacent the position where the clamping head is held in clamping position, means for bringing said flanging head into flange-forming engagement with a can clamped in the can pockets, and a can chute leading from the discharging position of the clamping head.

4. In a machine of the class described a horizontal shaft, a head carried by said shaft and provided with a horizontal can pocket, means for rotating said shaft and head, a clamping head having a complementary can pocket pivoted upon the first mentioned head upon a horizontal axis at the rear edge of the can pocket of said first mentioned head, whereby the said clamping head will, when left free, hang away from the can pocket of the first head, a can chute delivering to one of the can pockets when the clamping head is extended from the first mentioned head, means for positioning the can endwise, means for temporarily holding the clamping head in clamping position during a short portion of the rotation of the shaft, a pair of rotary flanging heads arranged adjacent the position where the clamping head is held in clamping position, means for bringing said flanging heads into flange-forming engagement with a can clamped in the can pockets, an ejector carried by the clamping head, means for intermittently operating said ejector when the clamping head is extended from the first mentioned head, and a can chute leading from the discharging position of the clamping head.

5. In a machine of the class described a horizontal shaft, a head carried by said shaft and provided with a horizontal can pocket, means for rotating said shaft and head, a clamping head having a complementary can pocket pivoted upon the first mentioned head upon a horizontal axis at the rear edge of the can pocket of said first men-

tioned head, whereby the said clamping head will, when left free, hang away from the can pocket of the first head, a can chute delivering to one of the can pockets when the clamping head is extended from the first mentioned head, means for positioning the can endwise, means for temporarily holding the clamping head in clamping position during a short portion of the rotation of the shaft, a rotary flanging head arranged adjacent the position where the clamping head is held in clamping position, means for bringing said flanging head into flange-forming engagement with a can clamped in the can pockets, an ejector carried by the clamping head, means for intermittently operating said ejector when the clamping head is extended from the first mentioned head, and a can chute leading from the discharging position of the clamping head.

6. In a machine of the class described a horizontal shaft, a head carried by said shaft and provided with a horizontal can pocket, means for rotating said shaft and head, a clamping head having a complementary can pocket pivoted upon the first mentioned head upon a horizontal axis at the

rear edge of the can pocket of said first mentioned head, whereby the said clamping head will, when left free, hang away from the can pocket of the first head, a can chute delivering to one of the can pockets when the clamping head is extended from the first mentioned head, means for positioning the can endwise, means for temporarily holding the clamping head in clamping position during a short portion of the rotation of the shaft, a pair of rotary flanging heads arranged adjacent the position where the clamping head is held in clamping position, means for bringing said flanging heads into flange forming engagement with a can clamped in the can pockets, and a can chute leading from the discharging position of the clamping head.

In witness whereof, I, have hereunto set my hand and seal at Indianapolis, Indiana, this eleventh day of July, A. D. one thousand nine hundred and eight.

WILLIAM F. BUTLER. [L. S.]

Witnesses:

ARTHUR M. HOOD,
THOMAS W. McMEANS.