

Aug. 25, 1931.

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1,820,102

CLAMP FOR A MACHINE FOR FORMING PAPER CONTAINERS

Filed Jan. 9, 1930

2 Sheets-Sheet 1

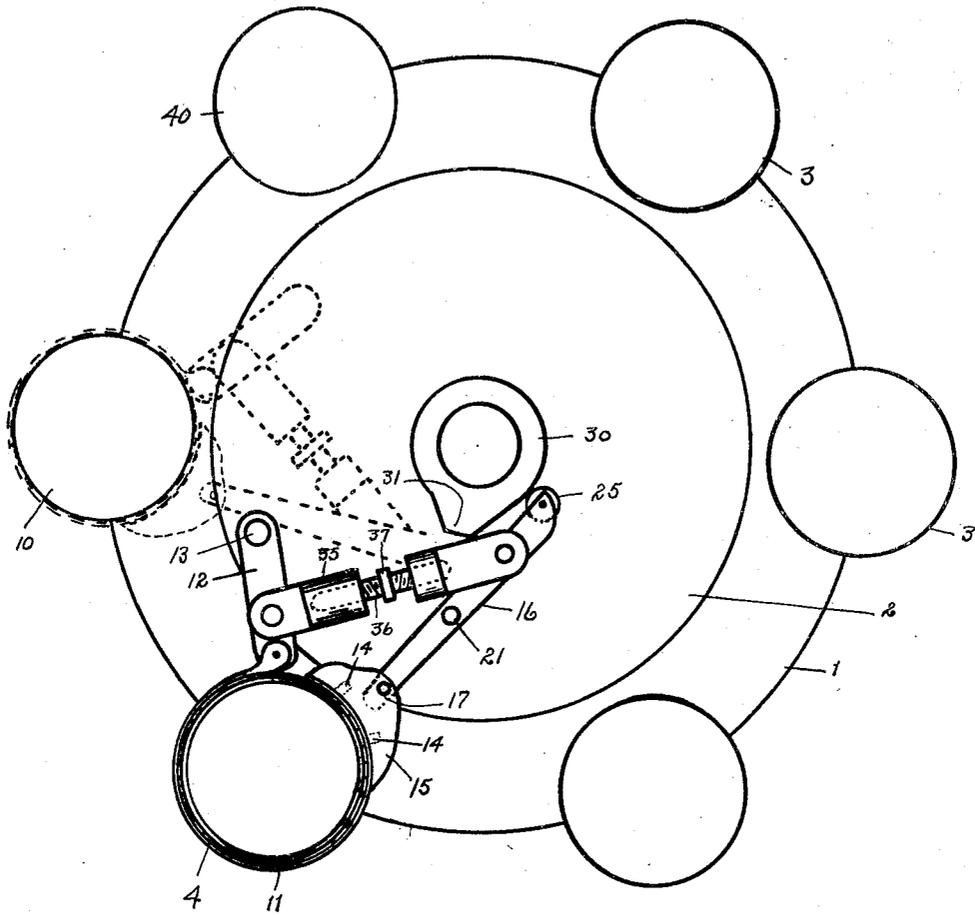


Fig 1

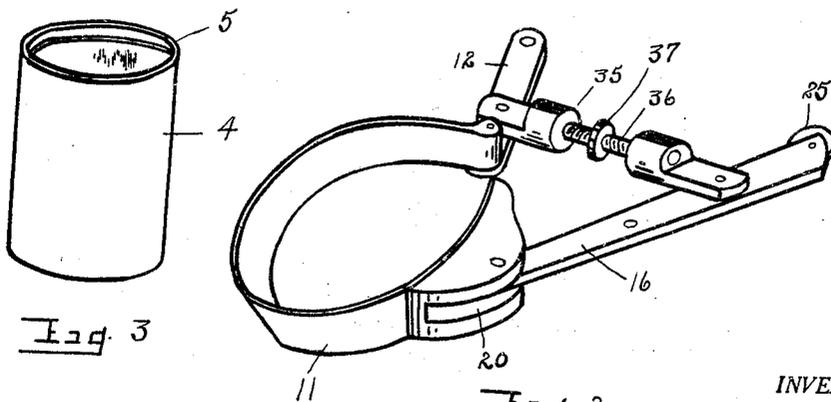


Fig 2
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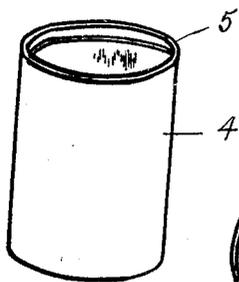


Fig 3

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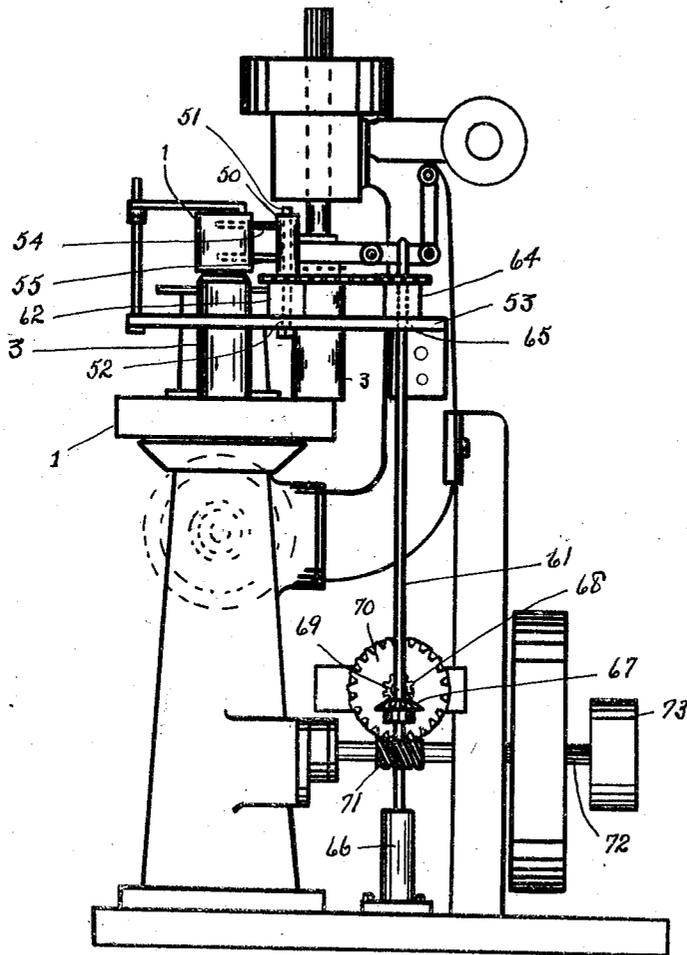


Fig 4

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UNITED STATES PATENT OFFICE

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CLAMP FOR A MACHINE FOR FORMING PAPER CONTAINERS

Application filed January 9, 1930. Serial No. 419,655.

My invention relates to a clamp for a machine for forming paper containers, and I declare the following to be a full, clear, concise and exact description thereof sufficient to enable anyone skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings in which like reference characters refer to like parts throughout the specification.

The object of the invention is to provide a clamp that will hold the paper container securely from turning with respect to the mandrel on which it is mounted, while said mandrel is under the die of the machine for forming paper containers, whereby to allow for crimping or curling the cap portion of the container to the cylindrical or lateral wall. Furthermore the clamp is designed to allow for the unobstructed mounting and removal of the container on the mandrel which carries the container to the die. To this end the clamp is provided with a metallic strap or ring which is actuated towards and from the annular surface of the mandrel in a concentric manner, whereby to maintain a constant relation thereto throughout its entire circumference at all times. Such a concentric movement of the ring will allow for the unobstructed placing of the container on the mandrel and the removal therefrom without any portion of the ring interfering therewith. Heretofore in machines of this character the ring has not been held concentrically with the surface of the mandrel but has because of uneven strain thereon touched the mandrel at certain locations in its circumference. This defect has interfered with the proper placing of the container on the mandrel. Furthermore it oftentimes prevents the air pressure used in blowing the container off the mandrel to overcome the point of contact of the holding ring, whereby the container fails to be removed. Moreover the clamp is designed to allow for a predetermined amount of adjustment to accommodate containers varying in diameter.

The object will be understood by referring to the drawings in which

Fig. 1 is a plan view of certain correlated parts of a machine for forming paper containers with one of the clamps shown in its relative position with said machine.

Fig. 2 is a detail perspective view of the clamp.

Fig. 3 is a perspective view of a paper container.

Fig. 4 is an elevational view of a machine for forming paper containers showing attached thereto a novel means for pushing the finished containers into a chute.

Referring more particularly to the drawings, the intermittent rotary table of a machine for forming paper containers is represented at 1 and mounted to turn therewith the clamping plate holder 2. Mandrels 3 are attached to move with table 1 and are adapted for mounting the cylindrical portions 4 of paper containers 5. As mandrels 3 pass the location of the mandrel at 10 it is important that portion 4 of the container 5 be held rigidly to said mandrel. To this end has been devised the clamp having a metallic band or strap 11 which is intended to quite encircle in a concentric manner the cylindrical portion 4 of the paper container 5. Said strap or ring 11 is attached at one end to a rock arm 12 that is pivoted at 13 to clamping plate holder 2. The opposite end of strap or ring 11 is fastened by screw bolts 14, 14, to block 15. Block 15 is in turn pivoted to lever 16 at 17. For this purpose, the rear side of block 15 is provided with an open recess 20 adapted for the reception of the end of lever 16.

Lever 16 is fulcrumed at 21 upon a pivot upstanding from clamping plate holder 2. The free end of lever 16 holds an antifric-tion roller 25. Roller 25 rides over the surface of stationary cam 30, whereby to rock lever 17 upon its fulcrum 21, when said roller 25 passes over the projecting part 31 of cam 30.

An adjustable link 35 is pivoted at one end to lever 16 beyond fulcrum 21 and at the other to rock arm 12. A screw bolt 36 having right and left hand threads and a finger piece 37 is adapted to unite the parts of the link and make it adjustable.

The operation of the clamp is effected by adjusting link 35 to such a degree as will allow for sufficient space between metal strap 11 and mandrel 3 to slip the cylindrical portion 4 of the container 5 over the mandrel 3. As table 1 carries the container on mandrel 3 towards location 10, lever 16 will be rocked upon its fulcrum 21 by reason of roller 25 coming in contact with the projecting part 31 of stationary cam 30. The rocking of lever 16 will cause one end thereof to move block 15 carrying one end of metal strap 11 and the other end of lever 16 to exert a pull on the free end of rock arm 12 carrying the other end of metal ring 11, whereby ring 11 will approach the annular surface of mandrel 3 in a concentric manner to grip and hold paper container 5 firmly thereto. When the mandrel 3 has reached the location at 40, roller 25 will have passed beyond the projecting part 31 of cam 30, whereby lever 16 will be permitted to return to original position, and strap or ring 11 will be loosened concentrically about portion 4 of container 5 to allow container 5 to be blown off mandrel 3 by the proper mechanism not shown.

Although only one such clamp is shown it will be understood that a similar clamp is used in connection with each mandrel 3.

In Fig. 4 I have shown a device for pushing the containers into an exit chute after completion. The device consists of a rotary member 50 mounted to turn upon a stud 51 which is supported in a bearing 52 having a tight fit in bracket 53. Member 50 has projecting from its lateral surface two arms 54 and 55 which are attached to traverse in the turning of member 50 the field occupied by the completed container 56, whereby to push said container 1 away from its location directly above mandrel 3 where it has been elevated by the air pressure from below, into a chute not shown. The member 50 is rotated by a sprocket and chain connection with a shaft 61. To this end rotary member 50 has a tight fit with a hub 62 which also turns on stud 51. A sprocket wheel is formed on the upper edge of hub 62. Said sprocket wheel is connected by sprocket chain 63 with a sprocket wheel formed on a like hub 64 that is fixed to turn with shaft 61. Shaft 61 has a bearing at upper end at 65 in bracket 53 and at its lower end in journal 66. It carries miter gear 67 which is fixed to rotate with shaft 61. Miter gear 67 is in mesh with a like miter gear 68 disposed at right angles thereto and mounted to rotate with horizontal shaft 69 carrying also to rotate therewith a worm gear 70 that meshes with worm 71 mounted on master shaft 72. A pulley 73 is fixed to turn with master shaft 72 and is

connected by a clutch with some well known source of power not shown.

In operation container 1 is forced upward off from mandrel 3 by a blast of air. At this moment one or both of the arms 54 and 55 will push container 1 according to its height into the chute.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is as follows:

1. In a clamp for a machine for forming paper containers, a ring for surrounding a paper container, a member connected with one end of said ring, a lever connected with the other end of said ring, a link connected with said member and with said lever and means for actuating said first named member and lever, whereby to move said ring in a concentric manner, to hold the said paper container in predetermined position.

2. In a clamp for a machine for forming paper containers, a ring for surrounding a paper container, a member connected with one end of said ring, a lever connected with the other end of said ring, a link connected with said member and with said lever and cam means for actuating said first named member and lever, whereby to move said ring in a concentric manner, to hold the said paper container in given position.

In testimony whereof I have affixed my signature.

LOUIS P. TOSCANO.

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