A. B. STARR.

AUTOMATIC CRIMPING MACHINE.

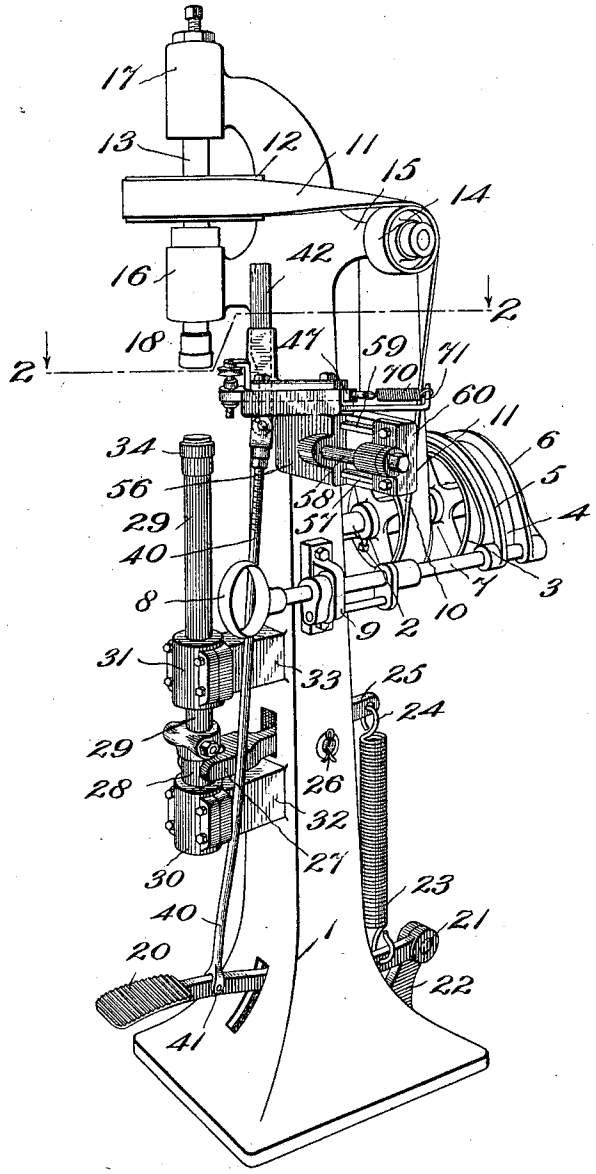
APPLICATION FILED DEC. 14, 1910.

1,013,081.

Patented Dec. 26, 1911.

2 SHEETS—SHEET 1.

Fig. 1



WITNESSES:

Chas. F. Clagett

Geo. A. Bryne.

INVENTOR

A. B. Starr by

Wilkinson Fisher & Wilkinson

ATTORNEYS

A. B. STARR.

AUTOMATIC CRIMPING MACHINE.

APPLICATION FILED DEC. 14, 1910.

1,013,081.

Patented Dec. 26, 1911.

2 SHEETS—SHEET 2.

Fig. 2

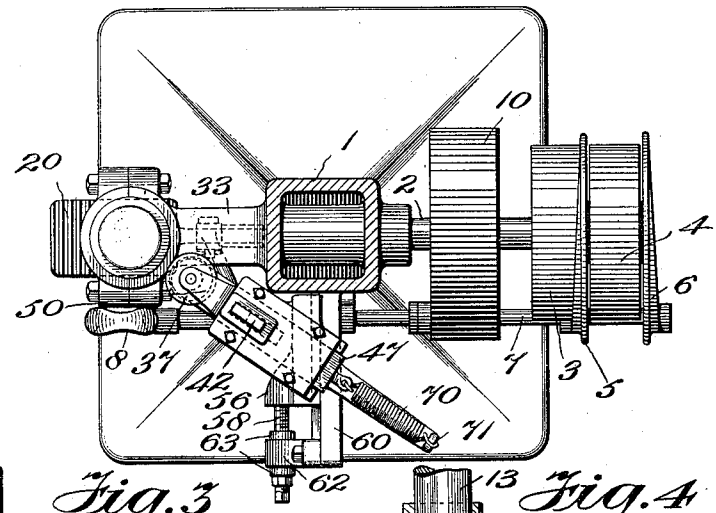


Fig. 3

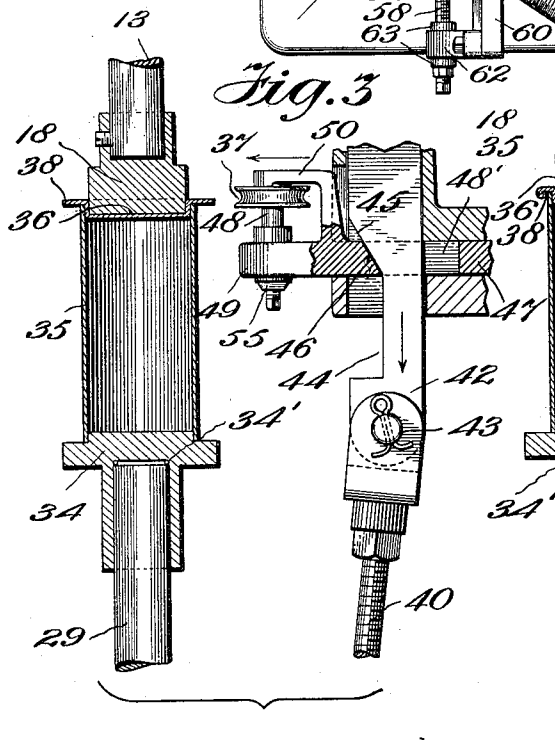
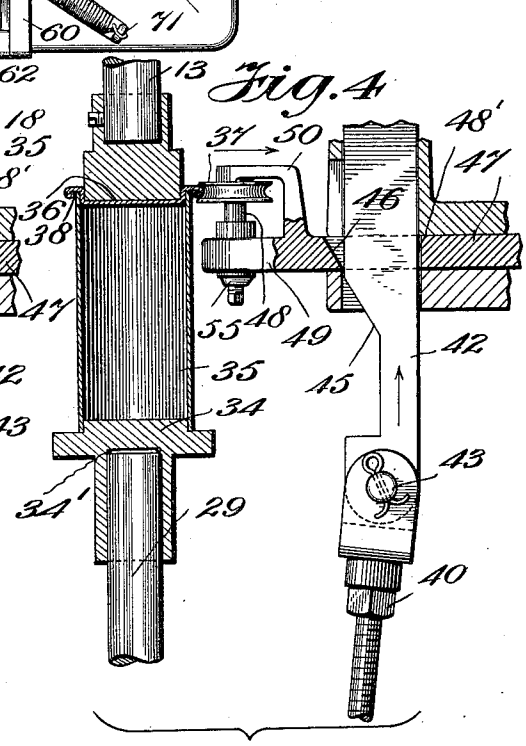


Fig. 4



WITNESSES:

Chas. F. Clagett

Jno. A. Pegue.

INVENTOR

A. B. Starr by

Wilkinson Fisher & Wilkinson

ATTORNEYS

UNITED STATES PATENT OFFICE.

ALDEN B. STARR, OF NEW YORK, N. Y., ASSIGNOR TO SINGLE SERVICE PACKAGE CORPORATION OF AMERICA, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

AUTOMATIC CRIMPING-MACHINE.

1,013,081. Specification of Letters Patent. **Patented Dec. 26, 1911.**

Application filed December 14, 1910. Serial No. 597,288.

To all whom it may concern:

Be it known that I, ALDEN B. STARR, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Automatic Crimping-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to crimping machines adapted to apply tops or bottoms to vessel bodies, and has for its object to produce a machine of this character, which will be more simple in construction, as well as more efficient in action, than are the machines heretofore proposed for doing the same work.

To these ends the invention consists in the novel details of construction and combinations of parts more fully hereinafter disclosed and particularly pointed out in the claims.

Referring to the accompanying drawings forming a part of this specification, in which like numerals refer to like parts in all the views. Figure 1 is a perspective view of a crimping machine made in accordance with my invention; Fig. 2 is a sectional view taken along the line 2—2 of Fig. 1 looking in the direction of the arrows; Fig. 3 is a detail view partly in section showing the relation of the carton closure with the crimping wheel after the first operation of the foot lever has taken place; and Fig. 4 is a view similar to Fig. 1, showing the relation of the crimping wheel and carton closure after the final operation of the foot lever.

1 indicates any suitable standard or base for supporting the mechanism, and on this base is suitably mounted a shaft 2, carrying tight and loose pulleys 3 and 4, over which pass the usual belt shifters 5 and 6 operated by the rod 7 provided with the handle 8, and mounted upon the bracket 9, carried by the said standard 1. The shaft 2 also carries a pulley 10, which is fast thereon, and over this pulley passes a power belt 11. This power belt likewise passes over a horizontally disposed pulley 12, mounted on the revolving mandrel 13, and it also passes over the guide pulley 14, mounted on the projection 15 of the standard 1. The mandrel 13 is suitably journaled for revolution in the projections 16 and 17 of the standard 1, and is provided at its lower end with a cylindrical extension or head 18, adapted to enter depressions in closures for vessel bodies.

The foot lever 20 is suitably mounted in the lower end of the standard 1, as by pivoting the same at 21 to the bracket 22, and near one end is attached the coiled wire spring 23, to which is also attached as at 24, the lever 25, pivoted at 26 to the standard 1, and provided with the forked extremity 27, pivotally attached to an adjustable sleeve 28, carrying the reciprocating plunger or mandrel 29. This plunger 29 is loosely held for reciprocation in the split bearings 30 and 31 carried respectively by the projections 32 and 33 of the standard 1. The upper end of said plunger 29 is also provided with an extension or head 34 adapted to receive a vessel body. The parts are so located that the extension sleeves or heads 18 and 34 are always in alinement, while the latter may revolve on the ball bearings 34′.

It is evident from what has so far been disclosed, if a vessel body 35, provided with a closure 36, see Fig. 3, is placed upon the head or sleeve 34 and that if the parts are brought to the positions illustrated, a roller or other crimping tool, such as 37, may readily crimp or turn under the flange 38 of the closure 36, provided suitable mechanism is present to force the crimping means 37 into contact with the flange 38. In order to automatically cause this crimping operation to take place, I provide the foot lever 20 with the rod 40, which may be pivoted to the said lever as at 41, and this rod 40 extends upwardly to a reciprocating piece 42 to which it is pivoted as at 43. The said member 42 is cut away as at 44, and provided with the cam-like surface 45 adapted to take against a similar surface 46 on the sliding member 47, while reciprocating through the slot 48′ of said member 47. The said member 47 carries a stud 48, mounted in the two jaws 49 and 50, integral with said member 47, and said stud 48 carries said crimping wheel 37, as will be clear from the drawings. It is, therefore, evident when power is applied to the pulley 10, belt 11, pulley 12 and mandrel 13, while the plunger 29 through a depression of the foot lever 20, is brought into the position

shown in Fig. 3, the vessel body 35 may rotate with the head or sleeve 34 on the ball bearings 34′ owing to the friction between the parts. At the same time it is evident that should the foot lever be further depressed its connecting rod 40 will cause the cam surface 45 to force the crimping roller 37 into close contact with the flange 38 of the vessel closure, all as is shown in Fig. 4. The stud 48 is screw threaded as illustrated, and, therefore, the crimping wheel 37 may be adjusted up and down to some extent as by means of the nut 55. The sliding member 47 is mounted on an adjustable frame 56 which frame is in turn mounted upon the slides 57, 58 and 59, carried by the bracket 60 integral with the frame 1. The slide 58 is screw threaded as best shown in Fig. 2, and is further supported by the bracket 62, secured to said bracket 60. It is evident that the said frame 56, carrying the sliding member 47 may be adjusted to and from the standard 1 by means of the nuts 63, carried by said member 58. The parts are so disposed, as best illustrated in Fig. 2, that the said slide 47 and crimping roller 37 extend in a radial line from the center of the mandrel 9, so that when an adjustment of the frame 56 takes place, the roller 37 will be moved in a direction across this radial line.

A spring 70 is secured at one end to the slide 47, and at its other end to an upturned portion 71 of the adjustable frame 56, and consequently the roller 37 is normally held at some distance from the periphery of the closure 36, as is best shown in Figs. 2 and 3.

The operation of my invention will be clear from the foregoing, but may be briefly summarized as follows: When it is desired to secure an end closure to a vessel body, the said body 35 carrying the closure is placed upon the head or sleeve 34 of the plunger 29. Power being turned on, the belt 11 causes the mandrel 13 to continuously rotate, and power being applied to the foot lever 20, the yielding spring 23 through the lever 25, causes the plunger 29 to rise into the position shown in Fig. 3, whereupon the friction between the parts will cause the said vessel body and closure to rapidly rotate. A further pressure upon the foot lever 20 will cause the spring 23 to still further yield, and the rod 40 to pull down the cam surface 45 and thereupon to force the crimping roller 37 against the tension of the spring 70 into engagement with the periphery of the vessel closure 36. The continued spinning operation will cause the said roller 37 to crimp in or turn under the flange 38 of the said closure 36, thereby securely holding said closure in place, as best shown in Fig. 4. After the closure is firmly applied to the vessel body, a release of the foot lever will permit all of the parts through the action of the springs 70 and 23 to return to their normal positions. Of course power is applied and shut off through the manipulation of the rod 7 and handle 8.

The action of the stout coil spring 23 is important in the above operation, in that it is made sufficiently strong to quickly throw the plunger 29 into its upper position, and at the same time it prevents any harsh or forceful engagement between said plunger and the mandrel 13 when grasping the closure blank 36. Further this spring 23 permits the continued depression of the foot lever 20 in the final advancement of the crimping roller 37 without producing any undue friction and loss of power between the parts.

It is evident that those skilled in the art may vary the details of construction and the arrangement of parts without departing from the spirit of my invention, and, therefore, I do not wish to be limited to such features except as may be required by the claims.

What I claim is:—

1. In a crimping machine the combination of means for rotatively holding a vessel body provided with a closure blank; means for engaging and rotating said body and blank; a manually operated lever for moving said holding means to cause said engaging means to contact with said blank; means for crimping said blank on said body; and connections between said lever and said crimping means for operating the latter, substantially as described.

2. In a crimping machine, the combination of means for rotatively holding a vessel body provided with a closure blank; a lever for operating said holding means; a yielding connection between said lever and said holding means; means to crimp said blank onto said vessel body; and rigid connections between said lever and said crimping means for operating the latter, substantially as described.

3. In a crimping machine the combination of longitudinally movable means for rotatively holding a vessel body provided with a closure blank; means for engaging and rotating said body and blank; a manually operated lever for moving said holding means to cause said engaging means to contact with said blank; sliding means for crimping said blank on said body; and connections comprising a rod between said lever and said crimping means for operating the latter upon moving said lever, substantially as described.

4. In a crimping machine, the combination of means for rotatively holding a vessel body provided with a closure blank; a lever provided with a yielding connection for operating said vessel holding means; a crimping tool adapted to engage said closure

blank; and a connection comprising a cam surface between said lever and said tool, substantially as described.

5. In a crimping machine, the combination of means for rotatively holding a vessel body provided with a closure blank; a lever provided with a yielding connection for operating said vessel holding means; a crimping tool adapted to engage said closure blank; means for holding said tool normally away from said blank; and a connection comprising a cam surface between said lever and said tool, substantially as described.

6. In a crimping machine, the combination of means for rotatively holding a vessel body provided with a closure blank; a lever provided with a yielding connection for operating said vessel holding means; a slidingly mounted adjustable crimping tool adapted to engage said closure blank; a spring for normally holding said tool out of engagement with said blank; and a connection comprising a sliding member having a cam surface between said lever and said tool, substantially as described.

7. In a crimping machine, the combination of a power shaft; a plunger provided with means adapted to rotatively hold a vessel body having a closure blank in place at one end; a lever for operating said plunger; a second lever for operating the first mentioned lever; a yielding connection between said levers; a crimping roller; a connection between said second lever and said roller for advancing said roller; and a rotating means driven from said power shaft coacting with said crimping roller, substantially as described.

8. In a crimping machine, the combination of means for rotatively holding a vessel body provided with a closure blank; means for rotating said body and blank on said holding means; crimping means coacting with said rotating means for securing said blank to said body; and a single means comprising a manually operated lever and rod pivoted thereto for actuating said holding and said crimping means, substantially as described.

9. In a crimping machine, the combination of means for rotatively holding a vessel body provided with a closure blank; means for rotating said body and blank on said holding means; crimping means coacting with said rotating means for securing said blank to said body and comprising a sliding member and a spring for returning said member, and a single means comprising a spring controlled lever and rod connected to said lever for actuating said holding and said crimping means, substantially as described.

10. In a crimping machine, the combination of means for rotatively holding a vessel body provided with a closure blank; means for rotating said body and blank on said holding means; crimping means coacting with said rotating means for securing said blank to said body comprising a spring controlled sliding member and a roller carried by said member; and a single means comprising a manually operated spring controlled lever for actuating said holding and said crimping means, substantially as described.

In testimony whereof, I affix my signature, in presence of two witnesses.

ALDEN B. STARR.

Witnesses:
J. H. GEWECKE,
FRANK F. EDWARDS.