July 29, 1924. 1,502,869

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CAN CAPPING MACHINE

Filed Oct. 30, 1922

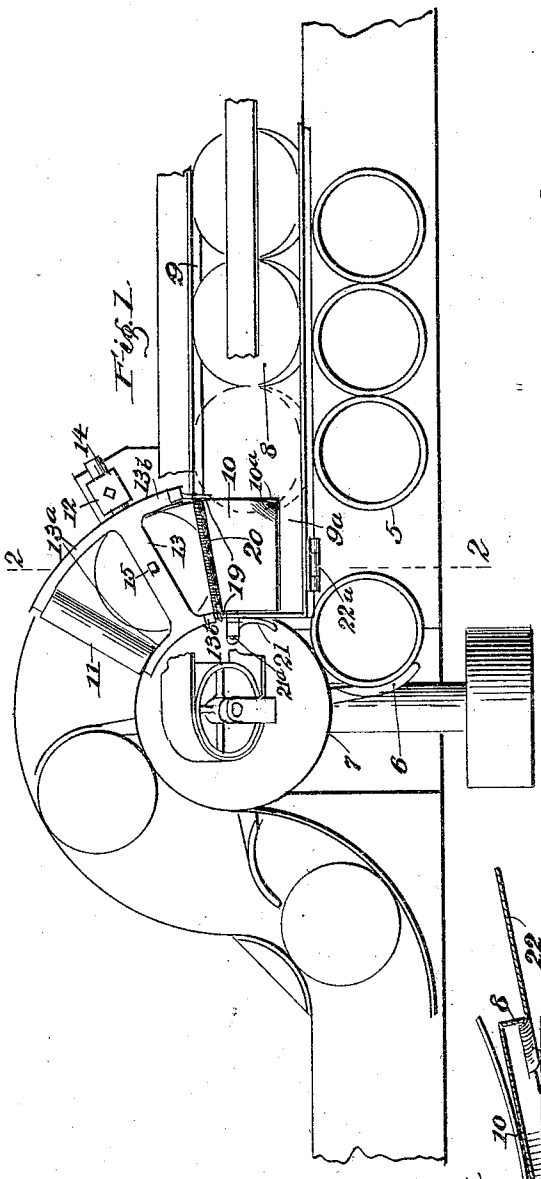


Fig. 1.

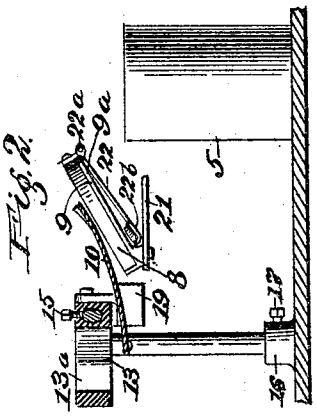


Fig. 2.

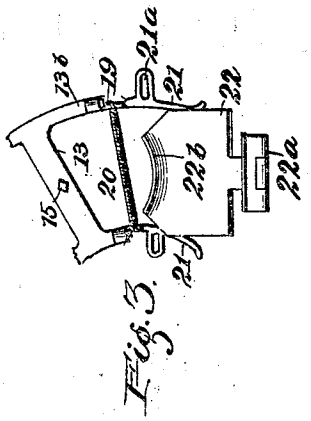


Fig. 3.

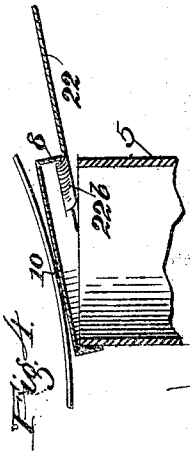


Fig. 4.

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UNITED STATES PATENT OFFICE.

MILO V. NEMECEK AND RUDOLF STROPPEL, OF CEDAR RAPIDS, IOWA.

CAN-CAPPING MACHINE.

Application filed October 30, 1922. Serial No. 597,860.

To all whom it may concern:

Be it known that we, MILO V. NEMECEK and RUDOLF STROPPEL, citizens of the United States, residing at Cedar Rapids, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Can-Capping Machines; and we 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 machines for automatically applying the caps to cans, more particularly cylindrical paper cans such as are in general use as containers of oatmeal and other food products.

The object of the invention is to improve the type of can-capping machine described and illustrated in our former application for patent, No. 472,466, filed May 25, 1921, so as to secure an unfailing insertion of the can inside the cover, regardless of irregularities in the shape of either.

The nature of the invention will fully appear from the description and claims following, reference being had to the accompanying drawing, in which:—

Fig. 1 is a conventional plan view showing the main features of the machine above referred to, with our improved guide mechanism attached. Fig. 2 is a section taken on the line 2—2 of Fig. 1, looking toward the right. Fig. 3 is a plan view of said guide mechanism, with the top deflecting plate removed. Fig. 4 is a fragmentary section, central to the can and cover, showing the position of parts as the can is about to enter the cover.

In the operation of the machine referred to in the above mentioned application, the cans 5 are conveyed to a point where the terminal can is caught by an arm 6 attached to a horizontally revolving drum 7, and swept in a semi-circle to the discharging point, as indicated at the left of Fig. 1. In its movement the can passes under an inclined cover 8, which is the terminal one of a train of covers fed forward in a laterally inclined conveyor 9, which had a gap at 9^a to allow the cover to pass out sidewise. The can and cover engage in the manner clearly shown in Fig. 4. The engaging can and cover in their further forward movement pass under an inclined pressure-plate 10, which forces the cover down to its final position on the can, or nearly so. A pressure roller 11 gives the final seating pressure to the cover, and the capped cans are then ready to be carried forward and out of the machine.

In the operation of the machine as originally designed, some difficulty has been experienced in securing that necessary insertion of the top of the can inside the depending flange of the cover, without which the cover flange is crushed, and the capping fails. This difficulty arises by virtue of the fact that both the can and the cover are often unsymmetrical, one or both being more or less elliptical. In such a case the wider axis of the can would sometimes be presented to the narrower axis of the cover flange, and naturally the edge of the flange would engage the edge of the can top, especially the rearward edges, as the cover is forced downward toward the capping position, and instead of the cover slipping nicely over the top a part of its flange is crushed, and a new cover and re-capping is required. The device now to be described removes this difficulty, and insures the proper capping of the cans with almost unfailing regularity, and at great speed.

To a post 12 is attached a frame 13 by a horizontal stud 14, to which it is adjustably secured by a set-screw 15. This permits any desired rocking of the frame on its support to adjust the operative parts to the work required. The post itself may also be turned, as desired, or raised or lowered in its socket 16, by means of a set-screw 17. Between the forwardly extending arms 13^a is mounted a roller, to give the final leveling pressure, as above noted. To the rearward arms 13^b are pivoted depending wings 19, connecting by a tensile coil spring 20. These wings are in the path of the advancing cover, and serve to limit the lateral spread of the cover flange as the can and cover pass between them, and to guide the flange, at each side, to close proximity with the sides of the can. The wings are preferably yieldable, so that the more elliptical covers are not crushed as their longer axes pass between these guides.

Below these wings, and somewhat behind them, are disposed two fixed guides 21, adjustably attached to some stable support, which may be the cover-chute 9, by screws through the slots 21^a. These are adjusted so as to permit a perfectly cylindrical can

to pass through with little or no lateral compression, but to prevent any lateral bulging, which would interfere with ready entrance of the can top inside the cover flange.

Resting on these fixed guides is an inclined stripper-plate 22, hung by its hinge 22^a from the upper side of the conveyor chute. The lower edge of this plate is formed as an upturned arcuate flange 22^b, the curvature of which corresponds with an arc of the circle of the cover flange. As the cover is carried forward by the engaging forward and upper part of the can the rear part of the cover flange is dragged over this curved flange of the stripper-plate. The flange springs from the plate in an easy curve, so that the cover flange is not torn when thus dragged over it, but the flange nevertheless presents sufficient resistance to draw the cover flange to a true circle, when it easily slips to its place over the top of the can. The upper edge of the stripper flange should be thin, so that the forcing of the same downwardly between the cover flange and the can does not distend or break such cover flange. By a proper adjustment of the parts in relation to the pressure-plate 10, the stripper-plate may be made to lose contact with the cover just as the latter slips over the can at the rear. This insures perfect connection of the can and cover, and once this is made the cover is easily pressed home by the pressure-plate and the roller, as above described.

In practice the pressure-plate may serve to limit the inward swing of the depending guide-wings. This plate is a simple curved piece of sheet metal, smooth on the under side, and secured to the frame 13 at its forward side. It is shown upturned a little at 10^a, so as not to catch any of the covers passing underneath it.

We claim:

1. In a capping machine having a sweep adapted to advance a can, and an inclined cover-chute adapted to present a cover with the forward portion of its flange in the path of the advancing can, a pair of lateral guide-fingers to prevent lateral expansion of the can while moving into capping position.

2. In a can-capping machine having means to advance the can, and an inclined cover-shute adapted to present a cover with its forward portion of flange in the path of the advancing can, a pair of yieldable lateral guide-wings to limit lateral movement or spreading of the cover, and hold the sides of its flange snugly to capping position.

3. In a can-capping machine having means for advancing cans on end, and an inclined cover-chute adapted to successively present covers with the forward portions of their flanges in the path of the advancing cans, a pair of lateral guide fingers to prevent lateral displacement or distortion of the cans, and a pair of lateral yieldable wings to hold the cover flanges snugly in capping position.

In testimony whereof we affix our signatures in presence of two witnesses.

MILO V. NEMECEK.
RUDOLF STROPPEL.

Witnesses:
F. W. ARMSTRONG,
MARTHA A. HEALD.