

July 18, 1939.

E. POMMER

2,166,784

DEVICE FOR APPLYING AND ATTACHING TEAR-OFF CAPS TO BOTTLES

Filed Feb. 24, 1936

2 Sheets-Sheet 1

Fig. 1

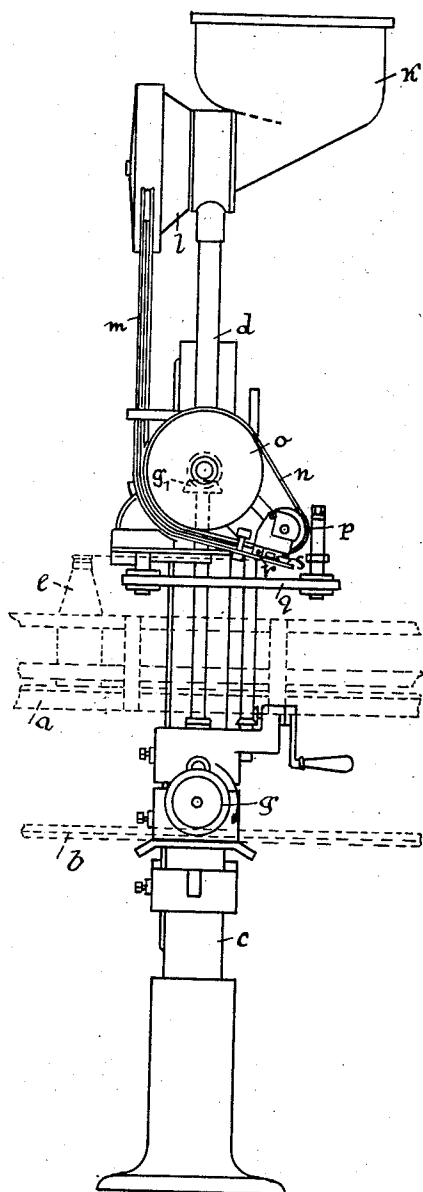
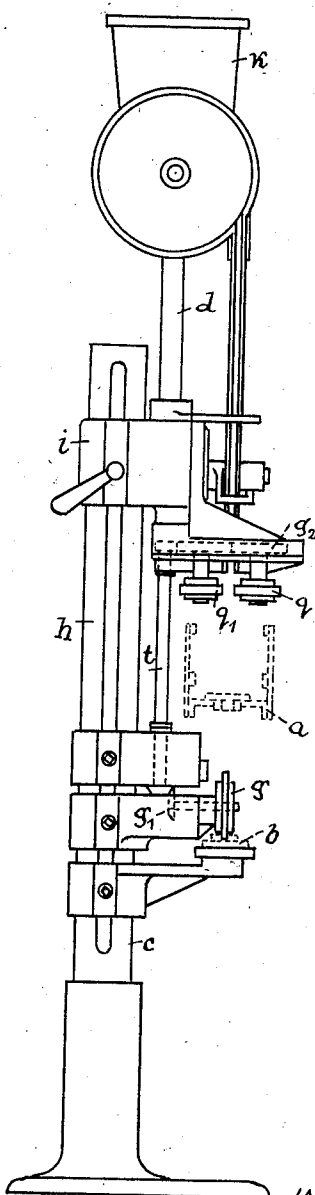


Fig. 2



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Fig. 3

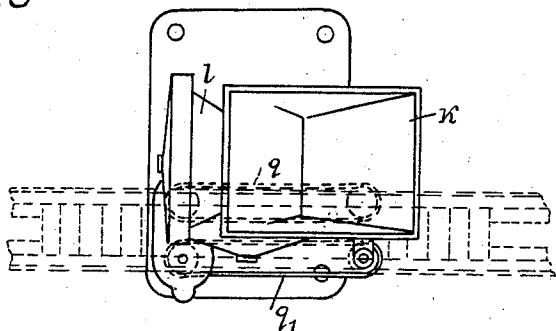


Fig. 4

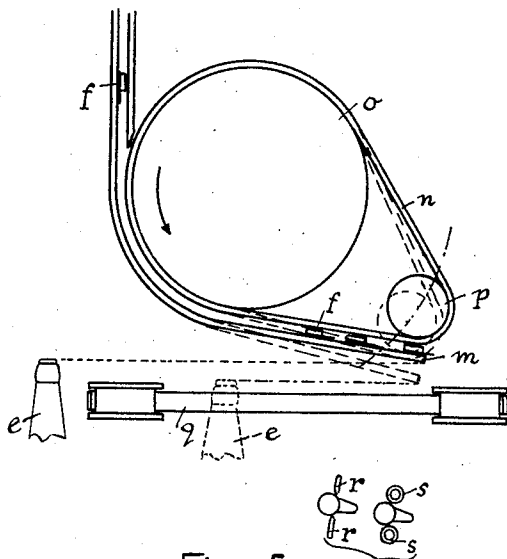


Fig. 5.

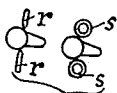
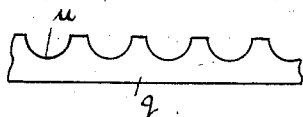


Fig. 6

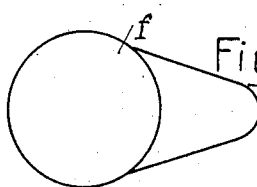


Fig. 7.

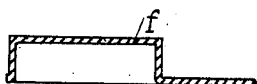


Fig. 8.

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2,166,784

DEVICE FOR APPLYING AND ATTACHING
TEAR-OFF CAPS TO BOTTLES

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Application February 24, 1936, Serial No. 65,278
In Austria February 22, 1935

2 Claims. (Cl. 226—80)

(Granted under the provisions of sec. 14, act of
March 2, 1927; 357 O. G. 5)

The present invention relates to capping devices and the like, and more particularly to a device for placing caps on bottles.

The main object of the invention is to provide a cap placing device which is adapted to operate as part of a capping machine and which permits the placing of the caps on bottles without the interruption of the normal movement of the bottles in the capping machine.

Another object is to provide a cap placing device by which the caps are automatically clamped on the bottles by the force of the movement of the bottles in the capping machine.

In carrying out this object the bottles, during their passage from the filling to the closing position, within the conveyor device, are brought beneath the setting head of a machine which is driven by the conveyor chain of the conveyor device and is provided with a feeding device for the tear-off caps, at the discharge point of which feeding means the caps are taken up by the bottles and lightly clamped on the heads thereof by means of members arranged adjacent thereto. During this process, the bottles are guided between conveyor bands formed with notches conforming to the periphery of the bottles, which bands prevent the overturning of the latter.

The setting head of the machine provided with the feeding device is adjustable in the upward direction.

A constructional form of the device according to the invention is illustrated, by way of example, in the accompanying drawings, wherein:—

Fig. 1 is a side elevation

Fig. 2 is a front elevation and

Fig. 3 a plan view thereof,

Fig. 4 is a detail view of the adjustable retaining discs with the rubber band and the conveyor band device;

Fig. 5 is a plan view of the stop fingers and clamping rollers;

Fig. 6 is a plan view of the conveyor band device, and

Fig. 7 shows a tear-off cap in plan view, and Fig. 8 shows the tear-off cap in vertical section.

The device for applying tear-off caps to bottles during their automatic conveyance from the filling to the closing position consists essentially of the following main parts: 1. The conveyor device *a* for the bottles *e* and which is operated by conveyor chain *b*, said conveyor device *a* being of the known construction comprising chains and three guides between which the bottles are held; 2. of the frame *c* of the cap-applying machine, and 3. of the setting head *d* adjustably mounted on this

frame, the bottle conveyor device extending centrally beneath the setting part of the said head *d* in such a manner that the bottles *e* being conveyed must pass the hereinafter described members for applying the tear-off caps *f*, which members are provided in the setting head.

On the frame *c* of the setting machine are arranged the gears *g*, which transmit the drive from the conveyor chain *b* by means of bevel and spur wheels to the movable parts of the setting head *d*. In addition, the frame is provided with a supporting pillar *h*, longitudinally of which the setting head *d* itself is mounted in a slidable and adjustable support *i*.

The setting head *d* further comprises the filling hopper *k* with the sorting drum *l* and the guiding rail *m* for the tear-off caps, the supplying and retaining discs *o* and *p* connected by a rubber band *n* (Figs. 1 and 4), the conveyor band device *q*, *q*₁ (Figs. 1, 4 and 5) for holding the bottles during the application of the caps, (Figs. 1 and 4) the stop device *r* and the clamping members *s* (Figs. 1 and 4).

The method of operation of the device is as follows: The filling hopper *k* is first supplied with tear-off caps *f* and the bottle conveying device *a* is set in operation, which then drives the setting head by means of the conveyor chain *b* through the intermediary of the gearing *g*, *g*₁, *g*₂. The tear-off caps are projected at the end of the guiding rail *m*, where the first one thereof is held for a time by the spring pressed stop fingers *r* (Figs. 1 and 4) until the latter are forced apart by the bottle head seizing the rear wall of the cap, which is disposed in an inclined position and the cap *f* is set free, which latter then passes to the clamping rollers *s* (Fig. 4) and remains in a slanting position until the bottle, which in the meantime is held between the conveyor bands *q*, *q*₁ and brought to this point, enters completely by its head into the hollow space of the tear-off cap and presses the latter between the rollers, whereby the cap is lightly clamped on the bottlehead. This is effected without the further conveyance of the bottle to the closing position being impeded, as it is impossible for the bottles to fall over during the picking up of the cap and the clamping operation on account of the double conveyor band *q*, *q*₁ in the grooves *u* of which the bottles are securely held at their necks. The rail *m*, the band *n* and the disc *p* are adjustable, and are shown in Fig. 4 in a position in which the capping of smaller bottles may conveniently take place.

Having now particularly described and ascertained the nature of my invention and in what manner the same is to be performed I declare that what I claim is:

- 5 1. A cap placing device for capping machines and the line, comprising a conveyor belt for transporting the bottles to be sealed, a setting head adjustably mounted over said conveyor belt, a supply roller and a cooperating roller carried by said setting head, a delivery chute for the caps
10 mounted beneath said rollers, stop fingers mounted at the discharge end of said chute for holding the caps passing through said chute in position for automatic removal by the passing
15 bottles, a pair of rollers spaced from said stop fingers for slightly clamping the caps on the bottle necks, and guiding bands at each side of the

conveyor belt for holding the bottles in position when passing said fingers and said rollers.

2. A cap placing device for capping machines and the like, comprising a conveyor belt for transporting the bottles to be sealed, a setting head adjustably mounted over said conveyor belt, a supply roller and a cooperating roller carried by said setting head, a delivery chute for the caps mounted beneath said rollers, stopping means
10 mounted at the discharge end of said chute for holding the caps passing through said chute in position for automatic removal by the passing bottles, and clamping means spaced from said stopping means for clamping the caps on the
15 bottle necks to prevent the caps from falling off the bottle heads during their transportation.

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