

Sept. 15, 1959

R. A. GRAFF ET AL
CLOSURE AFFIXING DEVICE

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2 Sheets-Sheet 1

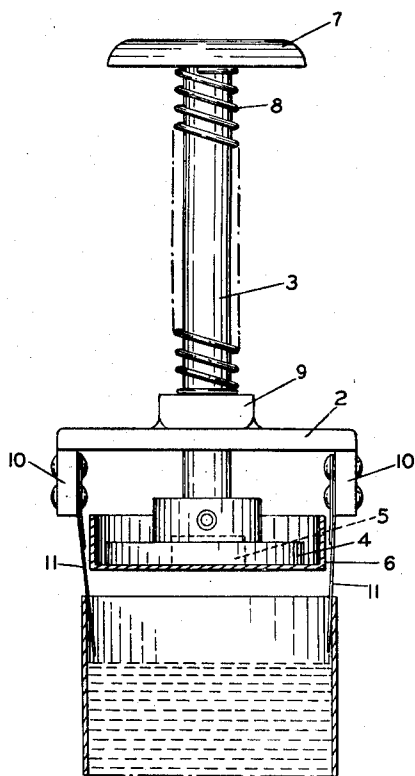


Fig. 1

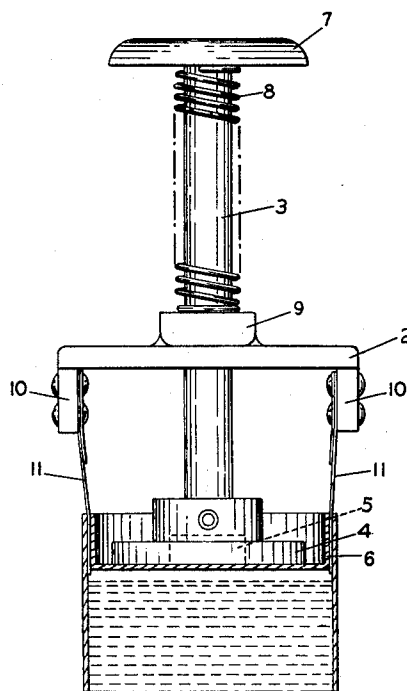


Fig. 2

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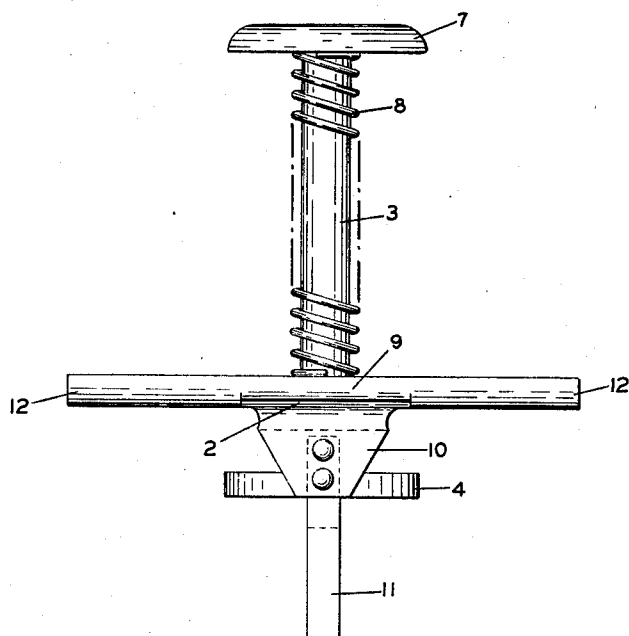
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Fig. 3



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CLOSURE AFFIXING DEVICE

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3 Claims. (Cl. 53—320)

This invention relates to a capping device, and more particularly to a device for placing a cup-shaped closure in a cartridge of plastic composition such as caulking compound.

In the packaging of plastic material such as caulking compound, it has been common practice to place a measured quantity of the compound in a tubular cartridge and seal the top with a cup-shaped closure which fits into the top of the cartridge in engagement with the side walls. Inasmuch as this cup-shaped closure is forced into the filled container, engaging the side walls of the container, air is entrapped beneath the closure. This entrapped air prevents proper sealing and gradually releases the closure from its engagement with the side walls of the container.

The device here under consideration enables a cup-shaped closure to be forced into position in the cylindrical opening at the mouth of a cartridge filled with plastic material and permits air to escape around the closure as the device is withdrawn from its position over the container.

It is an object of this invention to provide a device whereby a cup-shaped container closure can be forced into position in the mouth of a tubular cartridge and the entrapped air is permitted to escape around the edges of the closure after the closure has been put in place.

In order that the invention may be more readily understood, it will be described in connection with the attached drawing in which:

Figure 1 shows the device with the closure in position in the device in alignment with the cartridge to which the closure is to be affixed;

Figure 2 shows the relative position of the elements after the closure has been put in place in the mouth of the cartridge but before the tool has been withdrawn; and

Figure 3 shows a side view of the device turned at an angle of 90° from the view shown in Figures 1 and 2.

Referring now to Figure 1, there is shown an inverted U-shaped yoke 2 which is so designed as to span the cartridge over which it is placed for sealing purposes. A central passage is drilled through the U-shaped yoke member 2 for the reception of a plunger 3 which reciprocates through the opening in the yoke 2. The plunger 3 is provided at its lower extremity with a plunger head 4 of a diameter somewhat slightly less than the internal diameter of the cartridge to which the closure is to be affixed. Within the plunger head 4 there is a permanent magnet 5 for holding the metallic closure 6 in engagement with the plunger head 4 while the device is in position for placing the closure in the cartridge. The top of the plunger 3 has a palm-engaging pad 7. The plunger is held in its uppermost position by means of a spring 8 surrounding the plunger and compressed between the bottom surface of the palm-engaging pad 7 and a bushing 9 surrounding the opening in the yoke 2 through which the plunger passes. Downward movement of the plunger compresses the spring, and when the pressure is

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released the spring returns the plunger to its uppermost position.

The bushing 9 is provided with two outwardly extending projections 12 (Figure 3) which are disposed at right angles to the U-shaped yoke 2. These projections 12 provide finger-engaging means for holding the device over the cartridge to be capped.

On each of the downward projections 10 of the inverted U-shaped yoke 2 there is attached a spring member 11 which is directed downwardly and slightly inwardly so that its lower extremity defines an opening less than the opening in the yoke member and less than the diameter of the opening in the cartridge to which the closure is to be applied. These spring members align the tool with the cartridge to which the closure is to be applied and serve as guides for directing the closure in its downward path of travel when pressure is applied to the plunger through the palm-engaging pad 7.

In the operation of the device, the closure 6 is placed in engagement with the plunger head 4 and is held in engagement by means of the permanent magnet 5. The operator then places the device in his hand by hooking his fingers beneath the projections 12 and pressing the palm-engaging pad 7 into engagement with the palm of the hand. The device is then guided so that the spring elements 11 enter the opening of a newly filled cartridge until the tips of the spring elements 11 contact the contents of the container or cartridge. When in this position, relative movement between the yoke 2 and the cartridge ceases and pressure is applied to the plunger through the pad 7. This downward pressure compresses the spring 8 and forces the closure 6 down along the inner surfaces of the springs 11 into the mouth opening of the cartridge to which the closure is to be applied. When the closure has completed its downward path of travel, it is still in engagement with the spring elements 11. At this time the operator manipulates the device so that he continues to apply pressure to the pad so as to hold the plunger head 4 in fixed relationship with the cartridge while withdrawing the yoke 2 in an upward direction. This action further compresses the spring 8, holding the closure 6 below the spring elements 11. As the spring elements are withdrawn between the closure and the wall of the cartridge, the air which is entrapped when the closure is forced into the cartridge is allowed to escape before the cartridge walls shrink into engagement with the closure to hold the same firmly in engagement therewith.

It will be obvious to those skilled in the art that the tool above described enables one to place a closure in a cartridge of plastic material easily and in proper alignment with the cartridge, and at the same time permitting the escape of entrapped air around the edges of the closure so that the closure will remain firmly attached to the side wall of the cartridge.

We claim:

1. In a capping device of the type described, the elements comprising means for manual engagement to position the device over a container to be sealed, a yoke in juxtaposition to said manual-engaging means, a plunger passing through an opening in said yoke, said plunger being capable of reciprocatory motion with respect to said yoke on a line parallel to the central axis of the cartridge over which it is placed, a plunger head attached to the lower extremity of said plunger, a magnet in said plunger head to hold a container cap in engagement with the plunger head, and a pair of spring elements directed downwardly and inwardly from said yoke to be received within the opening of the container to align the cartridge with the plunger.

2. In a capping device of the type described, the elements comprising a yoke, a plunger passing through an

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opening in said yoke, said plunger being capable of reciprocatory motion with respect to said yoke, a plunger head attached to the lower extremity of said plunger, magnetic means in said plunger head to hold a container cap in engagement with the plunger head, and means extending from said yoke to be received within the opening of the container to be capped to align the container with the yoke.

3. In a capping device of the type described, the elements comprising a frame for positioning the device over a container to be capped, a plunger passing through an opening in said frame, said plunger being capable of reciprocatory motion with respect to said frame on a

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line parallel to the central axis of the container over which it is placed, a plunger head attached to the lower extremity of said plunger, magnetic means on said plunger head to hold a container cap in engagement with the plunger head, and a plurality of spring elements directed downwardly and inwardly from said frame to be received within the opening of the container to align the container with the plunger.

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