June 26, 1951 D. M. KING 2,557,975

MEANS FOR HEAT-SEALING RECEPTACLES

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Fig. 1

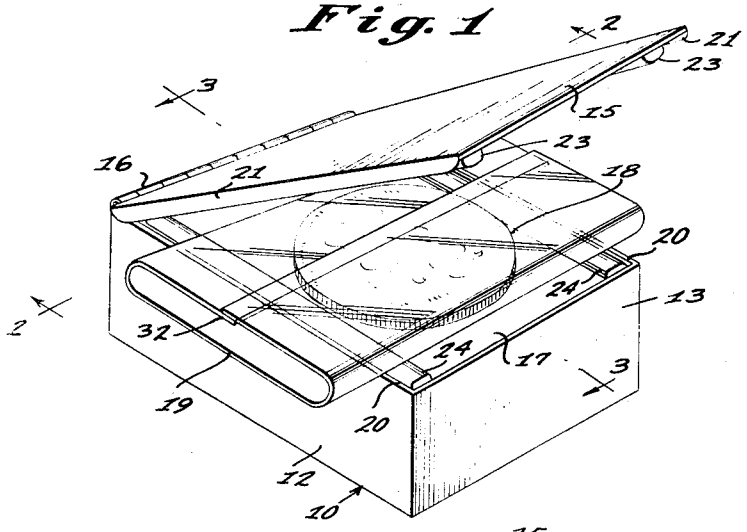


Fig. 2

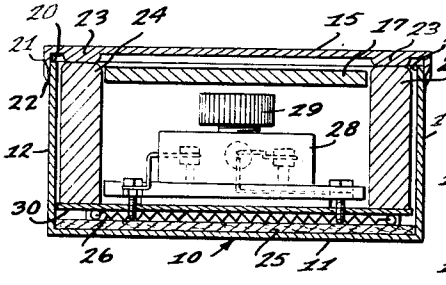
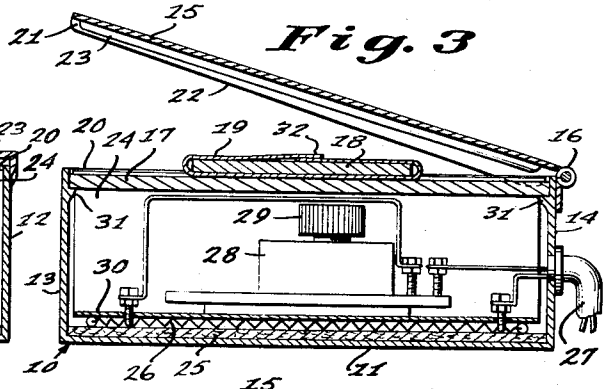


Fig. 3



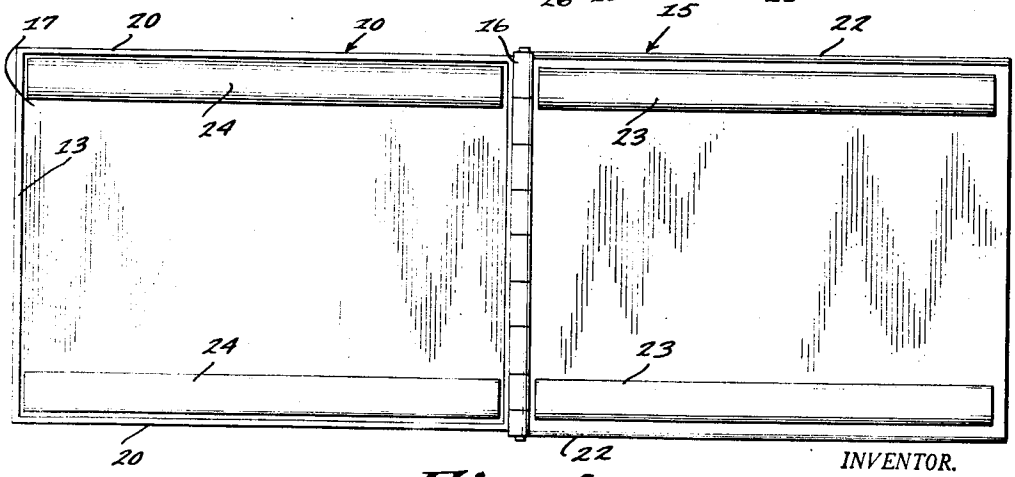


Fig. 4

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MEANS FOR HEAT SEALING RECEPTACLES

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2 Claims. (Cl. 226—2)

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My invention relates to means for heat-sealing receptacles, and more particularly to means for heat-sealing the open ends of receptacles formed of thermoplastic sheet material. The apparatus disclosed hereinafter is particularly adapted for heat-sealing the open ends of transparent thermoplastic tubes adapted to contain small objects, such as coins or stamps, whereby the objects are protected against handling, but may be readily displayed.

With the foregoing in view, it is an object of my invention to provide improved apparatus for heat-sealing thermoplastic receptacles.

A further object is to provide an improved means for heat-sealing the open ends of thermoplastic receptacles, and wherein both open ends of the tubular receptacle are sealed simultaneously.

A further object is to provide improved apparatus for heat-sealing the open ends of thermoplastic tubes simultaneously and simultaneously trimming such open ends.

Other objects and advantages reside in the particular structure of the invention, combination and arrangement of the several parts thereof, and will be readily understood by those skilled in the art upon reference to the attached drawing in connection with the following specification, wherein the invention is shown, described and claimed.

In the drawing:

Figure 1 is a perspective view of an apparatus according to the invention showing the position of the parts just prior to a sealing operation;

Figure 2 is a transverse vertical sectional view taken substantially on the plane of the line 2—2 of Figure 1, but showing the position of the parts during the sealing operation;

Figure 3 is a longitudinal vertical sectional view taken substantially on the plane of the line 3—3 of Figure 1 with the parts shown in the Figure 1 position;

Figure 4 is a plan view of the apparatus of Figure 1, the cover being shown in the fully open position.

Referring specifically to the drawing, wherein like reference characters have been used throughout the several views to designate like parts, 10 designates generally any suitable base for the device which preferably is in the form of a rectangular housing including a bottom wall 11, side walls 12 and front and rear walls 13 and 14, respectively. A presser member 15 comprising a lid or cover for the receptacle or base 10 is hingedly secured to the upper edge of the rear

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wall 14 by any suitable hinge means 16. A platform 17 is secured to the front and rear walls 13 and 14 in any suitable manner, but is spaced from the side walls 12, as best seen in Figure 2, for a purpose to be described. The platform 17 comprises a support for any suitable small object, such as the coin 18 which is enclosed in an open-ended tube 19 of thermoplastic sheet material. Inasmuch as the device according to the invention is particularly adapted for the sealing of flat objects, such as coins or stamps, the presser member or lid 15 has been disclosed as being flat, whereby it closely overlies the object to be sealed and the tube enclosing the same. At the same time, it should be understood that when the device is utilized for the sealing of thicker objects, the central portion of the presser member or lid 15 is suitably recessed to permit the upper extension of such bulky objects therethrough.

The upper edges 20 of the side walls 12 are formed to provide stationary cutter bars. The side edges of the presser member 15 are downwardly directed to provide flanges 21 adapted to closely overlie the side surfaces of the side walls 12 when the presser member 15 is moved to the closed position shown in Figure 2. The free edges 22 of the flanges 21 are beveled, Figure 2, and are preferably upwardly inclined from the rear to the front, as shown in Figures 1 and 3, whereby they provide movable cutter bars adapted to cooperate with the stationary cutter bars 20 to trim the open ends of the tube 19 as the presser member 15 is moved to the closed position. The under surface of the presser member 15 is provided with a pair of longitudinally-extending movable jaws 23 which are located parallel to and inwardly adjacent to the movable cutter bars. Such jaws 23 are adapted to flatten the open ends of the tube 19 against complementary fixed jaws 24 carried by the base 10 in laterally inwardly-adjacent relation to the side walls 12. As clearly shown in Figures 1 and 2, the upper surfaces of the fixed jaws 24 extend slightly above the platform 17. Means now to be described are effective to heat the stationary jaws 24, whereby to heat-seal the open ends of the tube 19 when the same are flattened by the pressure of the movable jaws 23. As is apparent from the foregoing, the flattening sealing and trimming operations occur virtually simultaneously when the presser member 15 is moved from the Figure 1 to the Figure 2 position.

As best seen in Figures 2 and 3, the floor 11 for the base 10 has mounted thereon a sheet of any suitable insulating material 25 which sup-

ports any suitable electric heating element 26. The element 26 is operatively connected to any suitable source of electric energy, not shown, by means of a cord 27. A thermostat 28 is in circuit with the element 26 and is supported thereon in any suitable manner. A regulating knob 29 for the thermostat is provided to adjust the thermostat. It is understood that the thermostat 28 prevents the heating element 26 from becoming overheated and likewise serves to heat the element to a desired temperature. The regulating knob 29 is understood to be operative to adjust the thermostat whereby to cause the same to regulate the heat to higher or lower temperatures as desired. Access to the knob 29 is provided by removing the platform 17 from the base 10 with the presser member 15 raised. This is permitted by the fact that the platform 17 is removably seated upon ledges or lugs 31 formed on the front and rear walls 13 and 14 of the base 10. Obviously, other means for supporting the platform 17 may be provided. A sheet 30 of any suitable insulating but heat-conducting material, such as mica, rests atop the heating element 26 and supports the stationary jaws 24 thereon. Thus, such jaws 24 are heated by conduction from the heating element 26 through the sheet 30. Obviously, if desired, the heating element could be applied directly to the stationary jaws 24 in a well known manner. However, the construction here disclosed permits a relatively simple heating element to be provided which is readily removed and replaced when the same is burned out or damaged. Obviously, in the construction shown the jaws 24 are formed of metallic material having a high heat conductivity.

It follows from the foregoing that the device provided is compact in nature, whereby to occupy but little space when not in use, has a high degree of portability and is remarkably rapid and efficient in use. Thus, the collector of coins or stamps need not provide himself with any particular size of plastic tube, but may readily form his own tubes 19 by wrapping a sheet of thermoplastic sheet material about the object to be sealed so that the edges overlap, as shown in Figure 1 and Figure 2 at 32. Thereafter, the wrapped object is placed upon the platform 17, the heating element 26 is energized, and the presser member 15 is pressed downwardly to the Figure 2 position, whereby the open ends of the tube 19 are simultaneously sealed and trimmed, whereby to provide a sealed transparent container of uniform size which is particularly advantageous in the storing and/or filing of the sealed objects.

Thus, while I have shown and described what is now thought to be a preferred embodiment of the invention, it is to be understood that the same

is susceptible of other forms and expressions. Consequently, I do not limit myself to the precise structure shown and described hereinabove except as hereinafter claimed.

I claim:

1. Apparatus for heat-sealing the open ends of a thermoplastic tube, comprising a base, a platform fixed to said base and adapted to support the tube thereon, a pair of laterally-spaced fixed jaws on opposite sides of said platform and adapted to underlie the open ends of the tube, a pressure member, a pair of laterally-spaced movable jaws fixed to said pressure member, said movable jaws being coextensive with said stationary jaws, hinge means hingedly mounting said pressure member on said base whereby said movable jaws are movable into and out of an operative position adapted to flatten both open ends of the tube simultaneously against said stationary jaws, a replaceable heating element carried by said base, said stationary jaws resting atop said element, and said stationary jaws being heated by conduction from said element.

2. Apparatus for heat-sealing the open ends of a thermoplastic tube, comprising a base, a platform fixed to said base and adapted to support the tube thereon, a pair of laterally-spaced fixed jaws on opposite sides of said platform and adapted to underlie the open ends of the tube, a pressure member, a pair of laterally-spaced movable jaws fixed to said pressure member, said movable jaws being coextensive with said stationary jaws, hinge means hingedly mounting said pressure member on said base whereby said movable jaws are movable into and out of an operative position adapted to flatten both open ends of the tube simultaneously against said stationary jaws, means for heating at least one pair of jaws whereby to heat-seal said flattened ends of said tube, a fixed cutter bar in laterally-outwardly-adjacent relation to each stationary jaw, a movable cutter bar fixed to each movable jaw in laterally-outwardly-adjacent relation thereto, and said movable cutter bars cooperating with said stationary cutter bars to trim both ends of said tube simultaneously with the sealing thereof.

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