Feb. 16, 1926. 1,573,669

C. W. H. BOLINGBROKE

PACKAGE SEALING DEVICE

Filed Feb. 19, 1924 4 Sheets-Sheet 1

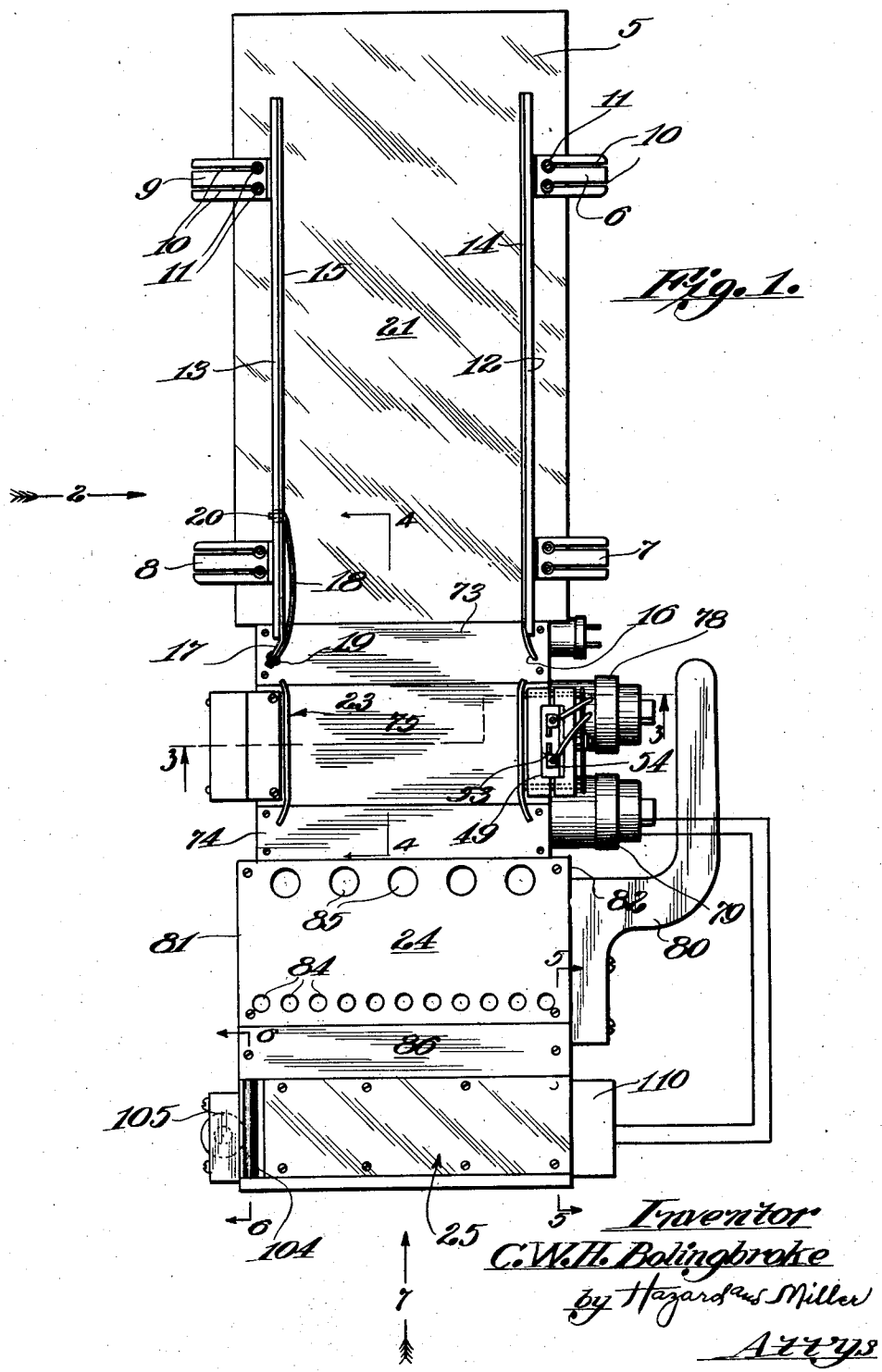

Fig. 1.

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Filed Feb. 19, 1924 4 Sheets-Sheet 2

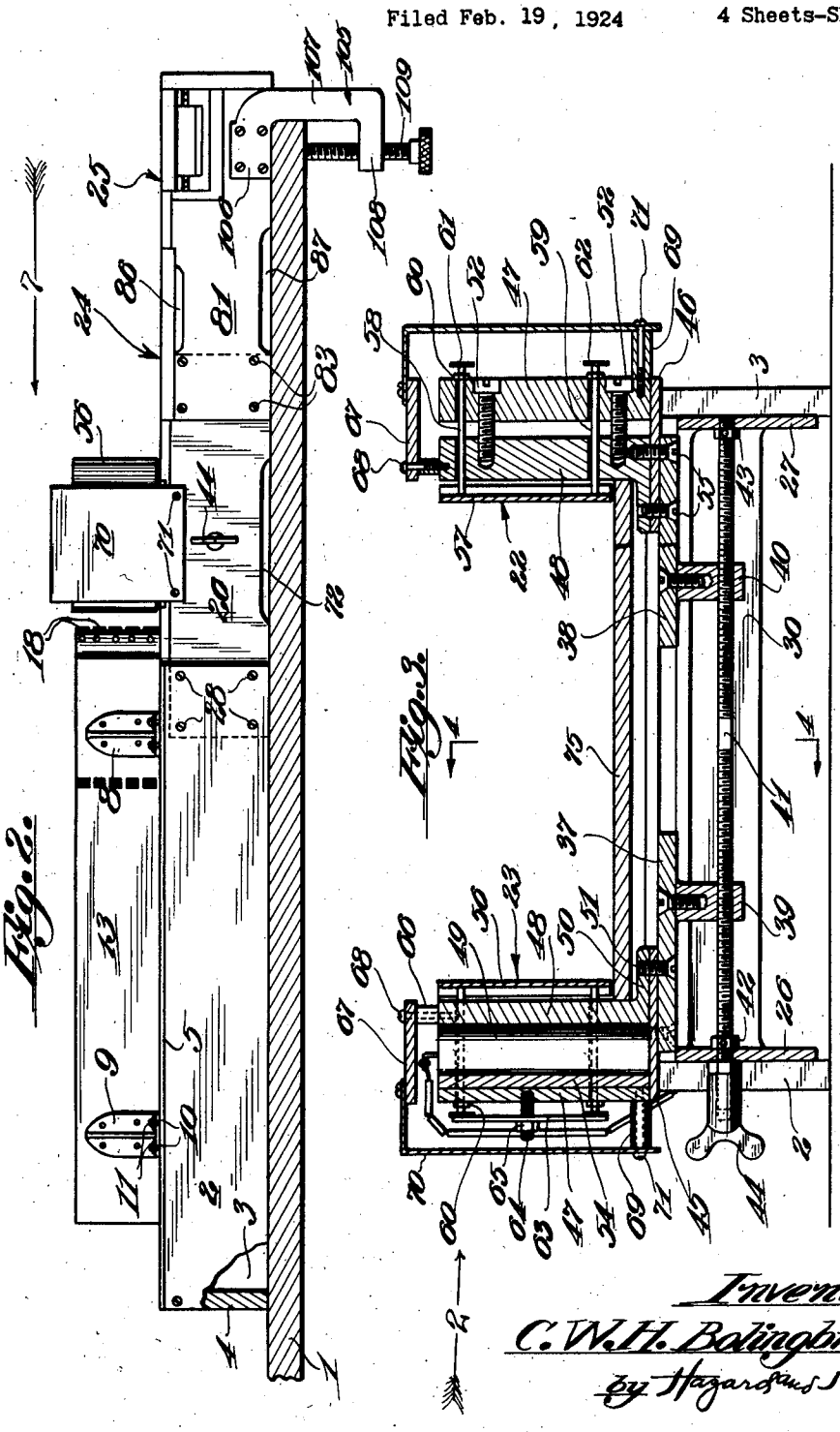

Fig. 2.

Fig. 3.

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PACKAGE SEALING DEVICE

Filed Feb. 19, 1924 4 Sheets-Sheet 3

Fig. 4.

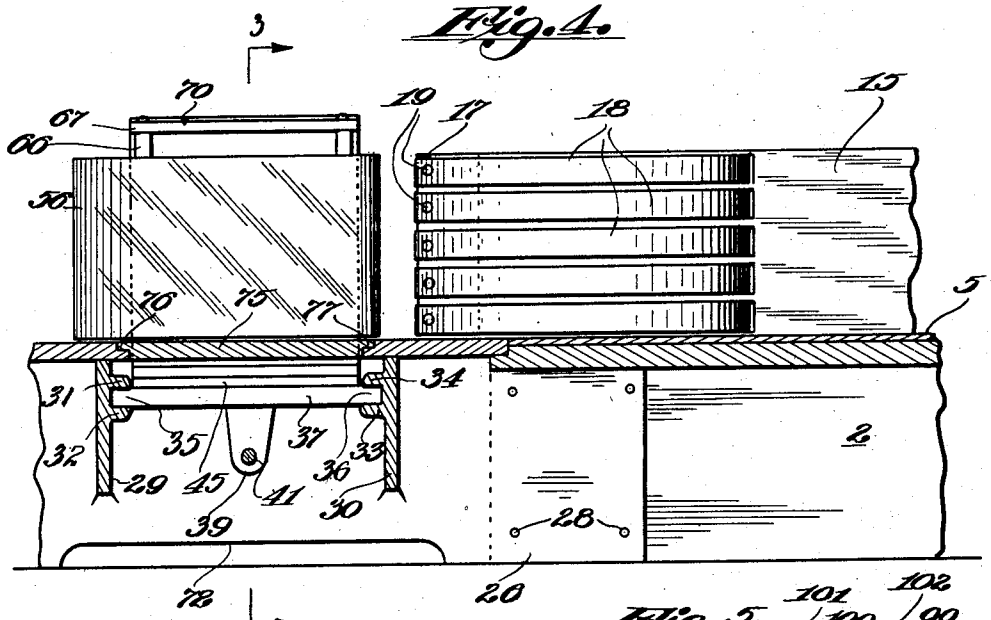


Fig. 5.

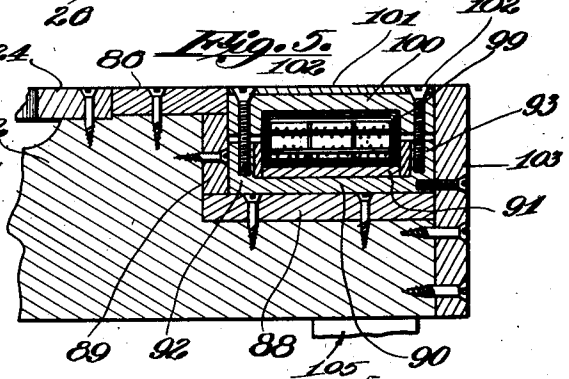
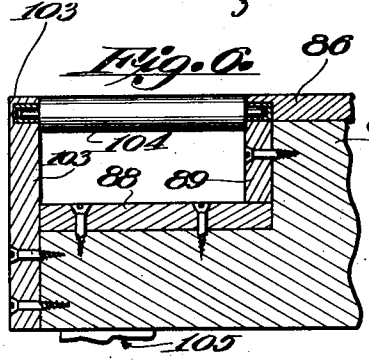


Fig. 6.



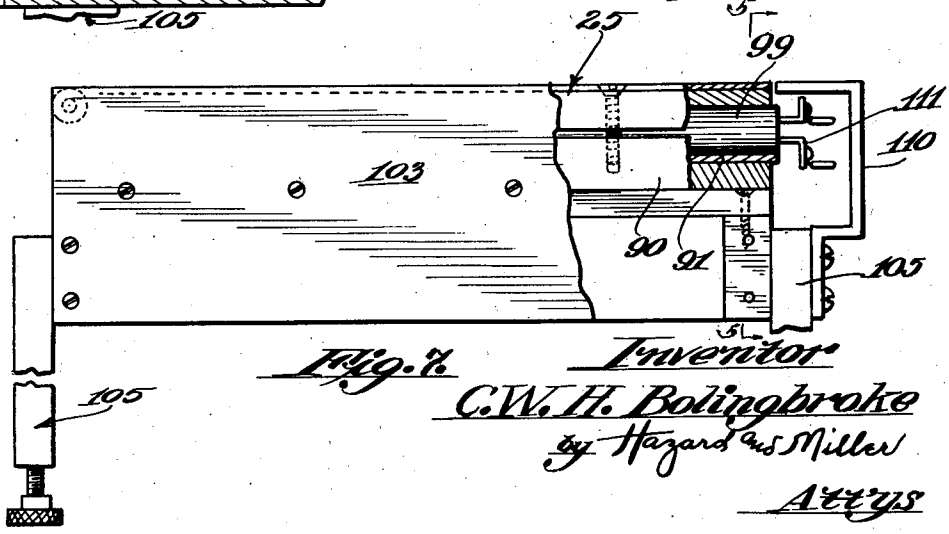


Fig. 7.

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PACKAGE SEALING DEVICE

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Fig. 8.

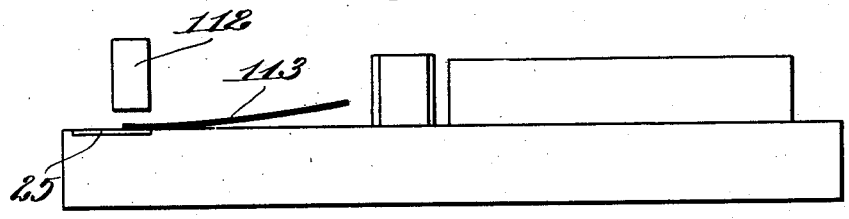


Fig. 9.

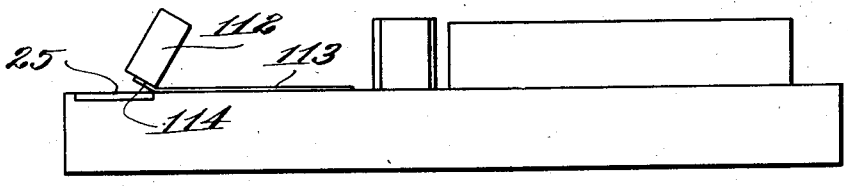


Fig. 10.

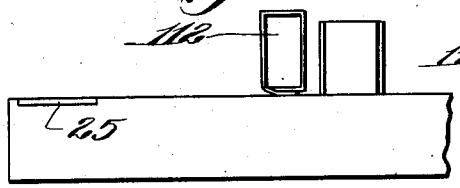


Fig. 11.

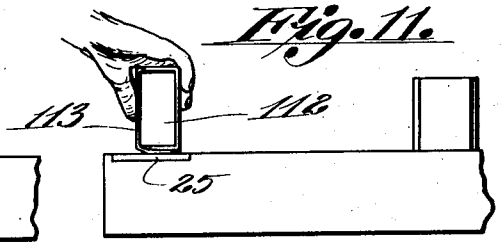
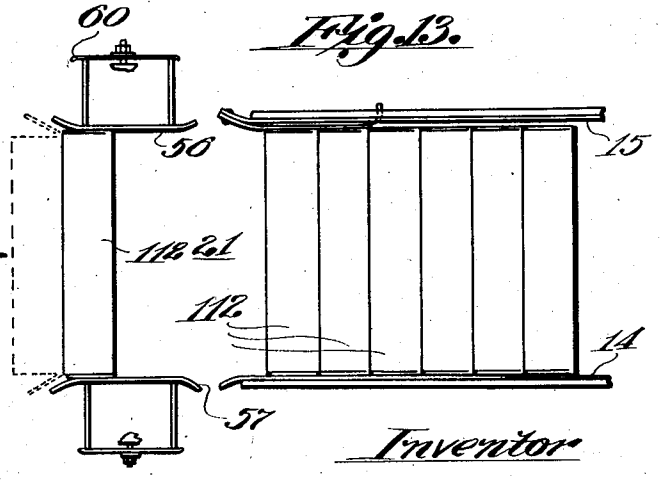


Fig. 13.



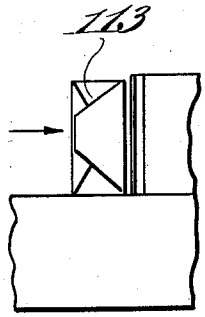


Fig. 12.

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Patented Feb. 16, 1926. 1,573,669

UNITED STATES PATENT OFFICE.

CHARLES W. H. BOLINGBROKE, OF LOS ANGELES, CALIFORNIA.

PACKAGE-SEALING DEVICE.

Application filed February 19, 1924. Serial No. 693,913.

To all whom it may concern:

Be it known that I, CHARLES W. H. BOLINGBROKE, a subject of the King of Great Britain, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Package-Sealing Devices, of which the following is a specification.

My invention relates to package sealing devices, and consists of the novel features herein shown, described and claimed.

An object of my invention is to make a device to assist in the rapid handling of packages to be wrapped and sealed with paraffin paper.

Another object of my invention is to make a device having heaters adapted to soften or melt the wax or paraffin paper so that when a package is wrapped and applied to the heaters the wax will form a bond to hold the edges of the paper in a sealed position.

Further objects and advantages will appear from the drawings and specifications.

The drawings illustrate the invention.

Figure 1 is a top plan view of a package wrapping and sealing machine embodying the principles of my invention, the view being taken looking downwardly in Figs. 2 and 3.

Fig. 2 is a side elevation looking in the direction indicated by the arrow 2 in Figs. 1 and 3.

Fig. 3 is a vertical cross section on the line 3—3 of Fig. 1.

Fig. 4 is a fragmentary vertical sectional detail on the lines 4—4 of Figs. 1 and 3.

Fig. 5 is a fragmentary sectional detail on the lines 5—5 of Figs. 1 and 7.

Fig. 6 is a fragmentary sectional detail on the lines 6—6 of Figs. 1 and 7.

Fig. 7 is a fragmentary end elevation looking in the direction indicated by the arrows 7 in Figs. 1 and 2.

Figs. 8, 9, 10, 11, 12 and 13, are diagrammatic views illustrating the operation of wrapping and sealing a package on the machine shown in Figs. 1 to 7.

The details of the package wrapping and sealing device are as follows:

The machine is adapted to be mounted upon a flat table top or bench 1, the side boards 2 and 3 are rigidly secured together by cross pieces 4 and a cooling top 5. Angle brackets 6, 7, 8 and 9 are mounted upon the top 5, the horizontal portions of the brackets having parallel slots 10 through which screws 11 are inserted into the top 5 so that the brackets may be moved inwardly or outwardly.

Adjustable side boards 12 and 13 having sheet metal linings 14 and 15 are secured to the vertical arms of the brackets 6, 7, 8 and 9. The forward end of the lining 14 extends beyond the board 12 and is curved outwardly to make a guide 16. The forward end of the lining 15 is curved outwardly to make a support 17 for the leaf springs 18, said springs being secured to the support 17 by rivets or small bolts 19 and the springs are bowed inwardly and the rear ends of the springs are bent outwardly to form the guides 20 extending loosely through holes in the lining 15 and board 13. The space within the linings 14 and 15 forms a cooling table 21.

The end heaters 22 and 23 are mounted in front of the cooling table 21. The work table 24 is mounted in front of the heaters 22 and 23 and the side heater 25 is mounted in front of the work table 24 and at the extreme forward end of the machine.

The details of the heaters 22 and 23 are as follows:

Plates 26 and 27 overlap the side boards 2 and are secured to the side boards 2 by bolts 28, said plates being inside of the ends of the side boards. Cross bars 29 and 30 connect the plates 26 and 27 and have inwardly extending ribs 31 and 32 and 33 and 34 forming slideways 35 and 36 for the boards 37 and 38. Bearing blocks 39 and 40 extend downwardly from the boards 37 and 38 and a screw 41 has right and left threads extending through the bearing blocks 39 and 40 and the screw is held from endwise movement by set collars 42 and 43, one end of the screw being mounted in the plate 27 and the other end of the screw extending through the plate 26 and a handle 44 is fixed upon the screw 41 outside of the plate 26 so that by manipulating the handle 44 the boards 37 and 38 may be moved to or from each other. Blocks 45 and 46 of heat insulation, such as fibre, are secured to the boards 37 and 38 and extend outwardly beyond the outer edges of the boards.

Castings 47 and 48 form housings for the heating elements 49. The casting 48 has a flange 50 resting upon the heat insulation 45 and connected to the board 37 by screws 51. The castings 47 and 48 are secured together by screws 52 and form chambers 53

in which the heating elements 49 are mounted. The blocks 54 of heating insulation material is placed in the chambers 53 outside of the heating elements 49 to reduce the radiation of the heat outwardly.

The castings 47 and 48 of the heater 22 are mounted upon the heating insulation material 46 and secured to the board 38 by screws 55.

The heating plates 56 and 57 are mounted inside of the castings 48. Rods 58 and 59 are secured to the plates 56 and 57 and extend through openings in the castings 47 and 48 and have nuts 60 upon their inner ends to limit the inward movements of the plates. The outer ends of the rods 58 and 59 bear against leaf springs 61 and 62 so as to yieldingly mount the heating plates 56 and 57, the tensions of the springs being exerted to move the plates inwardly away from the castings 48. The springs 61 and 62 are secured to the ends of a cross bar 63 and the cross bar 63 is mounted upon a stud bolt 64 fixed in the casting 47 and having a nut 65 on its outer end so that by manipulating the nut 65 the tensions of the springs may be regulated.

Sleeves 66 are placed against the upper ends of the castings 48, cover plates 67 of heating insulation are placed upon the sleeves 66 and extend outwardly and the covers are held in place by cap screws 68 inserted through the plates 67 and through the sleeves 66. Sleeves 69 of heat insulation material fit against the outer sides and lower ends of the castings 47 and housings 70 fit against the sleeves 69 and are held in place by screws 71 inserted through the housings and through the sleeves and tapped into the castings 47, said housings having vertical plates extending upwardly and then horizontal portions extending inwardly and resting upon the plates 67 so as to completely enclose the heating elements.

The lower edges of the plates 26 and 27 are cut away to form air inlets 72 for cooling parts. Boards 73 and 74 are laid crosswise of the plates 26 and 27 and spaced apart and rigidly secured in place, a spacing board 75 fits between the boards 73 and 74 and rabbet joints 76 and 77 are formed, said board 75 fitting between the castings 48 of the heaters 22 and 23 and the length of the board 75 determines the length of package the machine is set to handle. If a different package is to be handled the handle 44 is manipulated to move the heaters apart to release the board 75 and the board 75 is removed and a longer or shorter board inserted. The switch transformers 78 and 79 are mounted against the outer face of the plate 27. A guard 80 is secured to the frame and extends outwardly and alongside of the switches to protect the switches.

The side boards 81 and 82 are lapped over the forward ends of the plates 26 and 27 and secured in place by bolts 83, said boards 81 and 82 being substantially like the boards 2. The working board 24 fits upon the boards 81 and 82 against the board 74 and has front small perforations 84 and rear larger perforations 85. A heat insulating board 86 of fibre or the like is mounted upon the boards 81 and 82 against the working board 24. The upper and lower edges of the boards 81 and 82 are cut away to form openings 86 and 87 for the circulation of air.

The details of the heater 25 are as follows:

The forward ends of the boards 81 and 82 are cut down half way from their tops, the cut extending some distance from the extreme forward ends to form notches for mounting the heaters. A substantial board 88 is mounted crosswise in the notches and connects the boards 81 and 82. A second board 89 extends upwardly from the inner end of the board 88. A casting 90 fits upon the board 88 against the board 89, a heat insulation board of fibre or the like 91 rests upon the casting 90 and flanges 92 and 93 extend upwardly from the edges of the casting 90. The heating element 99 is mounted upon the fibre board 91 within the flanges 92 and 93, the casting 100 covers the heating element 99 and has downwardly extending flanges to match the flanges 92 and 93.

A finished working plate 101 is mounted upon the casting 100 and screws 102 extend downwardly through plate 101 through the flanges of the casting 100 and are tapped into the flanges 92 and 93. An end board 103 fits against the ends of the boards 81 and 82 and extends as high as the plate 101. A small roller 104 is mounted with its pintles in the board 103 and the board 89 to form a finished end for the heater 25.

Clamps 105 have attaching plates 106 secured to the boards 81 and 82 and the clamping arms 107 extend downwardly from the plates 106 against the end of the table top 1 and the bearing 108 has a screw 109 to engage under the table top and clamp the machine firmly in place upon the table top. A housing 110 is secured to the right hand clamp 105 and extends outwardly and upwardly and inwardly to cover the electrical connections 111 leading to the heater.

The elements of the heaters 22, 23 and 25 may be electrically connected to and from the switches 78 and 79 in the usual way.

Referring to Figs. 8 to 13, the operation is as follows:

Assuming that the package 112 to be wrapped and sealed is a rectangular prism, such as a pound of butter in a box or carton, sheet 113 of paraffined wax paper is held in the hand with one edge of the paper upon the heater 25 and almost instantly the pack-

age is placed upon the edge of the paraffined wax paper lying upon the heater, then the paraffined wax paper with the box superimposed thereon is drawn backwardly and with a rolling backward motion the paper is wrapped around the package, as shown in Figs. 9 and 10. The package is then drawn forward over the working board and onto the heater 25 and drawn across the heater with a sideways motion, which seals the paraffined wax paper completely around the box or carton.

Then the operator folds the paper against the ends of the box, as shown in Fig. 12, and places the package upon the board 74 and presses it backwardly between the yielding heating plates 56 and 57 of the heaters 23 and 22 and the box remains in this position long enough to melt the wax upon the various overlapping portions at the ends of the package. If the heat is high enough the package may move right through the vertical heaters. Then the package is moved backwardly between the lining 14 and springs 18 upon the cooling board 21 and the tension of the springs 18 will press the folded ends tight enough to form a good seal and as the work goes on the sealed packages will pass backwardly upon the board 21 between the plates 14 and 15 and cool. The rear ends of the plates 14 and 15 may be wider apart than the forward ends so that the stack of packages will move backward easily.

It will thus be seen that I have invented a method of sealing packages which is partly manual and partly mechanical. As shown in Fig. 8, one end of the paraffin paper is slightly heated, and as shown in Fig. 9, the package is gummed thereto. After rolling the package so as to encase it in the paper as shown in Fig. 10, the outside end is gummed by application to the hot plate 25 as shown in Fig. 11. The sides of the package are then folded inward as indicated in Fig. 12 and the complete package pressed through the hot plates 56 and 57, as shown in Fig. 13, to seal the sides, and subsequently are pressed to the cooling table at the right hand end of Fig. 13.

In working from the heater 25 to the heaters 22 and 23 over the board 24 rubbing the sealed portions of the package over the board 24 and over the holes 84 and 85 will remove any lumps or surplusage of paraffin from the package.

Thus I have produced a package wrapping and sealing device comprising a frame, means forming a flat hot plate at the forward end of the frame, a working board extending backwardly from the hot plate, two hot plates back of the working board vertically and yieldingly mounted and facing each other, means for adjusting the distance between the vertical hot plates, a cooling table extending backwardly from the vertical hot plates and having sides adjustably mounted, and a series of bowed springs attached to the forward end of one side to press against the ends of a package as it passes to the cooling table.

In the specification and claims where I use the term paraffin paper I intended to cover any type of gummy or sticky paper or fabric which may be made adhesive by the action of heat in order to seal a package in the manner and by the mechanism described.

Various changes may be made without departing from the spirit of my invention as claimed.

I claim:

1. A package wrapping and sealing device comprising a frame, means forming a flat hot plate at the forward end of the frame, a working board extending backwardly from the hot plate, two hot plates back of the working board vertically and yieldingly mounted and facing each other, means for adjusting the distance between the vertical hot plates, a cooling table extending backwardly from the vertical hot plates and having sides adjustably mounted, and a series of bowed springs attached to the forward end of one side to press against the ends of a package as it passes to the cooling table.

2. A package sealing device comprising a frame having a substantially continuous flat upper surface extending from the front to the rear end of the frame, having means forming a flat hot plate at the forward end of the frame, a working board extending backwardly from the hot plate, two vertical hot plates on the back of the working board facing each other, a cooling table extending backwardly from the vertical hot plates having vertical sides extending substantially parallel and a series of bowed springs attached to the forward end of one of the sides of the cooling table to press against the ends of a package as it passes to the said cooling table.

3. In a wrapping device, a frame, a hot plate at the forward end of the frame, said hot plate being constructed with boards extending crossways of the frame from a box like structure, lower and upper castings in the box, heating elements mounted in the castings, means to insulate the heating elements from the castings and a finished working plate on top of the upper casting.

In testimony whereof I have signed my name to this specification.

CHARLES W. H. BOLINGBROKE.