April 5, 1938. F. ENGEL 2,113,269

WRAPPING MACHINE

Filed Oct. 9, 1936 2 Sheets-Sheet 1

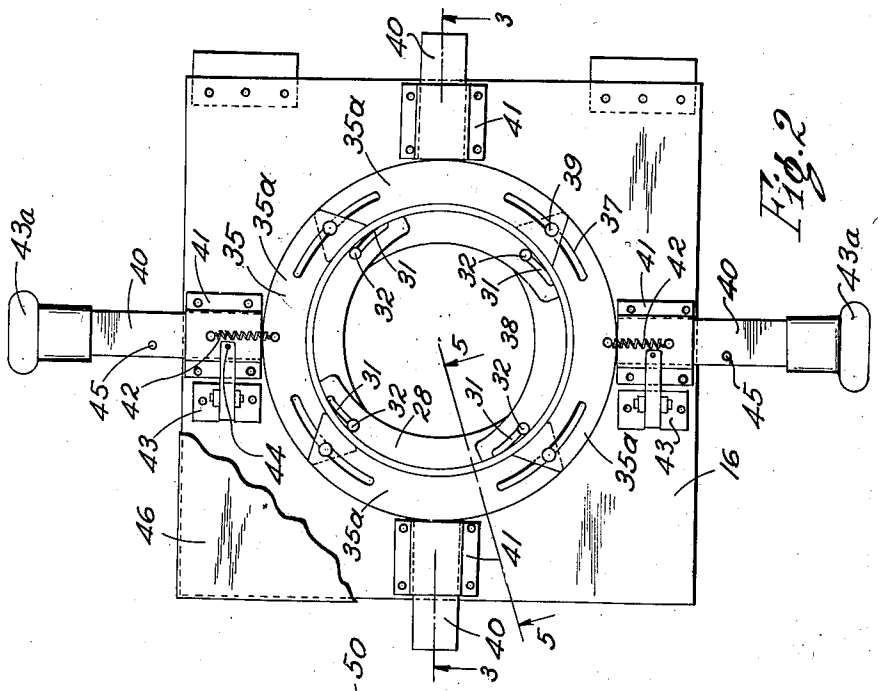


Fig. 2

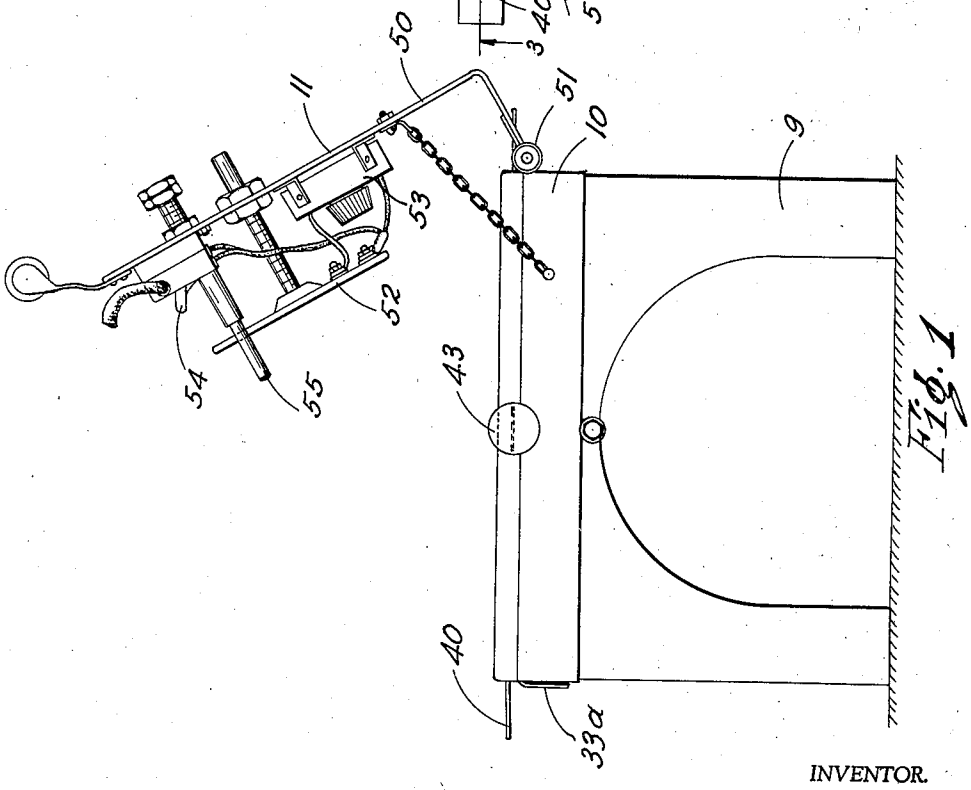


Fig. 1

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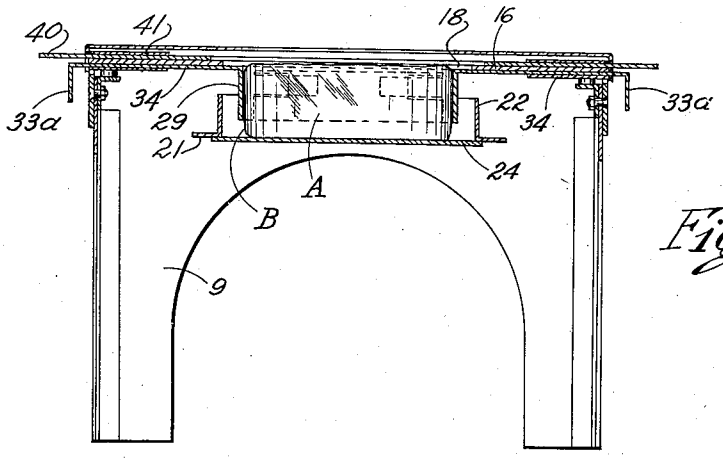


Fig. 3

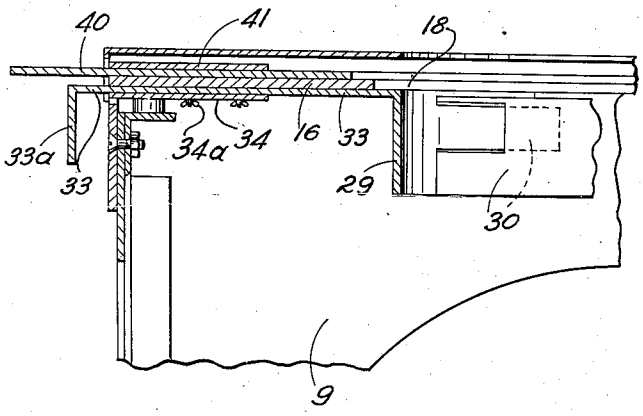


Fig. 4

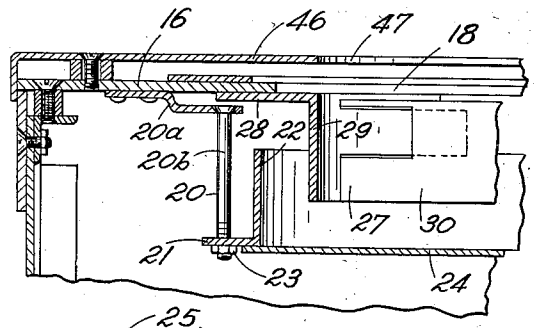


Fig. 5

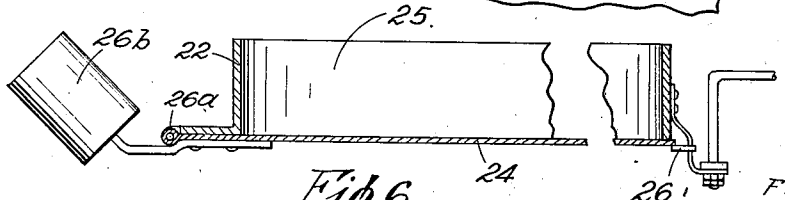


Fig. 6

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Patented Apr. 5, 1938 2,113,269

UNITED STATES PATENT OFFICE

2,113,269

WRAPPING MACHINE

Frank Engel, Cleveland, Ohio

Application October 9, 1936, Serial No. 104,855

14 Claims. (Cl. 93—2)

This invention relates to wrapping machines and more particularly to a machine for wrapping articles in any suitable type of wrapping material and sealing the folded edges of the wrapper.

Heretofore, various practices have been followed in wrapping various types of articles, particularly baked goods, in a transparent material of the character at present upon the market and known as "Cellophane" for example, the wrapper was placed around the articles by hand and then the folded edges were held in contact with a heated plate until the folds of the wrapping material have adhered together and formed a seal, or in lieu of heating the folds of the wrapper a gummed label was used for effecting the same purpose; in other instances, suitable machines were employed for wrapping the article, and sealing the same. These prior practices of wrapping and sealing articles have presented many objectionable features. The cost of wrapping and sealing the articles by hand was expensive due primarily to the time and labor involved. Furthermore, the resulting packages were not particularly attractive or uniform in appearance. Moreover, in hand wrapping, a greater amount of wrapping material was used in wrapping the article than was necessary to adequately cover the same. The machines heretofore developed for this purpose were complicated in operation, costly to purchase and when used to wrap articles did not materially reduce the cost of wrapping due to the relatively slow speed at which the machine wrapped the articles.

By the present invention I have provided a device for wrapping and sealing articles which is relatively simple in construction and operation, avoids the objectionable features of the prior practices employed in wrapping articles, serves to effectively wrap the articles in the minimum amount of wrapping material required to adequately cover the article and greatly increases the speed at which the articles are wrapped. While the device may be employed for wrapping any desired type of commodity, I have chosen for illustration a construction which may be used for wrapping baked goods and the like. The preferred embodiment of this invention comprises a base for supporting a wrapping head having a chamber which receives the article to be wrapped and the wrapper therefor, folding means for carrying the wrapping material over the article and gathering and folding the edges of the same adjacent the center of one surface of the article being wrapped, and heating means for engaging the folded edges of the wrapped material until the same have adhered together and effected a seal.

The foregoing and other advantages of my invention and the invention itself will become more apparent from the following detailed description of an embodiment thereof taken in conjunction with the accompanying drawings wherein similar reference characters denote corresponding parts and wherein:—

Figure 1 is a side elevational view of a wrapping device embodying this invention.

Figure 2 is a top plan view of the wrapping unit with the cover plate removed.

Figure 3 is a sectional view taken on the line 3—3 of Figure 2.

Figure 4 is an enlarged fragmentary sectional view of Figure 3.

Figure 5 is an enlarged fragmentary sectional view taken on the line 5—5 of Figure 2.

Figure 6 is a view illustrating the means for discharging the wrapped article from the device.

With reference to the accompanying drawings and particularly Figures 1 and 2, there is illustrated a preferred embodiment of my invention which includes, broadly, a supporting frame 9 having mounted thereon a wrapping head, indicated by the numeral 10, and a sealing device 11 pivotally mounted on the frame 9 and cooperating with the wrapping head to seal the wrapper on the article while the same is disposed in the chamber of the wrapping head so that when the article is discharged from the device it is completely wrapped and sealed.

The wrapping head 10 comprises a substantially rectangular plate 16 (see Figures 2, 3, 4, and 5) provided with a centrally disposed opening 18 extending therethrough. Supported by means of a plurality of hangers 20 below the plate 16 and concentric with the opening 18 is a ring-like member 22. Each of the hangers 20 consists of a bracket 20*a* secured to the bottom of the plate 16 and supporting threaded bolts 20*b* depending therefrom. The ends of the bolts 20*b* extend through ears 21 formed on the member 22. Nuts 23 on the threaded ends of the bolts 20*b* serve to adjust the position of the ring member below the plate 16. The bottom of the ring member 22 is closed by a trap door 24 which is normally maintained in closed position during the wrapping and sealing of the article by means of a latch mechanism 26. The ring-like member 22 and door 24 define a chamber 25 for receiving the article to be wrapped and the wrapper therefor. A spring hinge 26*a* and counter weights 26*b* serve to return the trap door 24 to

its normal closed position after the latch mechanism 26 has been released to discharge the wrapped article from the chamber 25.

To change the diameter of the chamber 25 so as to make the wrapping head suitable for use in wrapping articles of different diameters, there is provided a gaging member 27. This gaging member 27 is supported below the plate 16 and comprises a plurality of arcuate plates 28 each having a depending flange 29 the latter extending down within the periphery of the ring 22. The flanges 29 are formed with tongues 30 which overlap the flanges of the next contiguous plate to form a continuous wall throughout the circumferential adjustment cycle of the gage. The horizontal portion of the plates 28 are formed with arcuate slots 31 adjacent each end thereof and disposed in angular relation to the radii of the arcuate plates. The slots of contiguous plates overlap and receive headed pins 32 which serve to define the relative movement between the plates. Mid-way between the extremities of each of the plates 28 and extending radially therefrom is an integral arm 33 having flange 33a formed on the free end thereof to facilitate adjustment of the arcuate members 28. Suitable brackets 34 secured to the bottom surface of the plate 16 slidably receive the arms 33 and serve to support the gaging member 27 in close proximity to the bottom surface of the plate 16 and within the confines of the ring-like member 22. Thumb screws 34a extending through the brackets 34 and engaging the arms 33 serve to secure the arcuate plates 28 in any desired adjusted position.

The folding member 35 is slidably mounted on the top surface of the plate 16 and comprises a plurality of arcuate plates 35a the edges of which when assembled define an opening 38 concentric with the opening 18 in the plate 16. The plates 35a are movable relative to each other from the periphery of the opening 18 toward the center thereof to reduce the opening 38 so that the wrapping material which is disposed about the article "A" in the chamber 25, the edges of which normally extend upwardly through the opening 18 may be drawn or carried over the upper edges of the article and gathered in proximity to the central portion of the article. The plates 35a are provided with arcuate slots 37 adjacent each end thereof. The slots of contiguous members overlap and receive headed pins 39 which restrict relative movement between adjacent members.

Each of the arcuate members 35a is provided midway between the ends thereof with a radially extending arm 40 which is slidably received within a bracket 41 secured to the top surface of the plate 16. The arcuate members 35a are normally held in their outermost position through the medium of springs 42, one end of which is secured to the arcuate member and the other end to the bracket 41. Suitable handles 43a are pivoted on the ends of two opposed arms 40 so that the members 35a may be moved inwardly toward the center of the opening 18 in plate 16. Movement of the two opposed arms 40 due to the slot and pin connection between all of the members 35 will cause all of such members to move inwardly and draw the wrapping material about the article. Spring pressed latches 43 each having a depending lug member 44 which engage apertures 45 in opposing arms 40 serve to hold the arcuate members in their innermost position against return by the springs 42. This latching mechanism is adapted to be released when the heating element, hereinafter described, has been brought into engagement with the wrapping material which has been gathered together by the folding means 35. A cover plate 46 having an opening 47 concentric with the opening 18 in the plate 16 encloses the folding member 35.

With reference to Figure 1, the sealing device 11 comprises a plate 50 pivotally mounted to the side of the frame 9 as at 51. Carried by the plate 50 is an electrically heated member 52 connected to a suitable source of current through a rheostat 53 and a switch 54. The member 52 is so positioned on the plate 50 that when the latter is moved to a position parallel to the plate 16 the element 52 will be within the opening 47 in the cover 46 and in engagement with the folds of the wrapping material. Plate 50 also carries members 55 which engage the latching mechanisms 43 and release the same as the heating element is moved into position to seal the wrapping material. The release of the latching mechanism permits the springs 42 to return the folding means 35 to its normal position preparatory to receiving the next article to be wrapped.

The operation of this embodiment of my invention is as follows: The arcuate plates 28 are adjusted by moving arms 33 so that the flanges 29 thereof define the chamber 25 slightly larger than the article, such as a piece of baked goods to be wrapped. The article "A" and the wrapper "B" therefor are placed in the chamber 25 with the top of the article and the wrapper resting on the trap door 25 and the edges of the wrapper extending upwardly around the periphery of the article and through the opening 18 in the plate 16. The opposing arms 40 are moved inwardly to move the arcuate members 35a of the folding device and reduce the diameter of the opening 38 thereby bringing the upwardly extending portions of the wrapping material around the article and gathering the same adjacent the central portion thereof. When the members 35a are moved inwardly, the lugs 44 of the latching mechanisms 43 engage the apertures 45 in opposing arms 40 and prevent the return of the arcuate members 35a to their normal position until the latching mechanisms have been released.

The plate 50 is then moved downwardly until the heating member 52 engages the folds of the wrapping material. Simultaneously with the movement of the member 52 into engagement with the folds of the wrapper, the members 55 carried by the plate 50 engage the latching mechanisms 43 and release the arcuate members 35a which are returned to their initial position by the springs 42. The heating member 52 is held in contact with the folds of the wrapping material until the same have become adhered together. The trap door 24 is then released and the article is dropped out of the chamber 25 onto a traveling belt (not shown). The device is then ready to receive the next article to be wrapped.

Having thus described my invention so that those skilled in the art may be able to understand and practice the same, what I desire to secure by Letters Patent is defined in what is claimed.

I claim:

1. A wrapping machine comprising a frame, a wrapping head mounted on said frame having a chamber therein for receiving an article to be wrapped and the wrapper therefor, retractable means for carrying the wrapper over the article, pivotal means mounted on said frame, an electrically heated member carried by said pivotal

means and adapted to engage the folds of the wrapping material and seal the same together, and means carried by said pivotal means for releasing the retractable means during the movement of the heating means into engagement with the wrapper.

2. A wrapping machine comprising a frame, a wrapping head mounted on said frame having a chamber disposed below the surface thereof for receiving an article and a wrapper therefor, retractable means movable across the surface of the wrapping head for carrying the wrapper over the article, pivotal means carrying an electrically heated member mounted on said frame, said heated member adapted to engage the folds of the wrapping material upon movement of the pivotal means toward the wrapping head and means carried by the pivotal means for releasing the retractable means during the said movement of the pivotal means toward the wrapping head.

3. A wrapping machine comprising a frame, a plate mounted on said frame having an opening therethrough, means suspended from said plate defining a chamber concentric with said opening for receiving an article and a wrapper therefor, retractable means mounted on said plate and movable from the outer edge of said opening toward the center thereof for folding the edges of the wrapper over the article, means for holding said retractable means adjacent the center of said opening, means for automatically returning said retractable means to their normal position upon release of said holding means, and pivotal means mounted on said frame having an electrically heated member mounted thereon adapted to engage the folded edges of the wrapping material upon movement of the pivotal means toward said plate.

4. A wrapping machine comprising in combination a wrapping head having a chamber for receiving an article to be wrapped and the wrapper therefor, means for drawing the wrapper around the article and gathering the edges of the wrapping material adjacent the center of one surface of the article, sealing means including an electrically heated member for engaging the edges of the wrapping material and sealing the same together, and means carried by said sealing means for releasing said first named means upon movement of the heated member into engagement with the wrapper.

5. A wrapping machine comprising a frame, a plate mounted on said frame having an opening therethrough, means suspended from said plate defining a chamber for receiving an article to be wrapped and a wrapper therefor, adjustable means for defining the size of said chamber, retractable means mounted on said plate and movable from the outer edge of said opening toward the center thereof for folding the edges of the wrapping material over the article, means for holding said retractable means adjacent the center of said opening, pivotal means mounted on said frame and movable toward said plate, an electrically heated member carried by said pivotal means for contacting the folded edges of the wrapping material and sealing the same together and means operable to release said holding means just prior to the engagement of the heated member with the wrapping material.

6. A wrapping machine comprising a frame, a plate mounted on said frame having an opening therethrough, means suspended from said plate defining a chamber for receiving an article to be wrapped and a wrapper therefor, adjustable means for defining the size of said chamber, retractable means mounted on said plate and movable from the outer edge of said opening toward the center thereof for carrying the wrapping material over the article, pivotal means mounted on said frame and movable toward said plate, an electrically heated member carried by said pivotal means for contacting the edges of the wrapping material and sealing the same together and means carried by said pivotal means for releasing the retractable means during the latter part of the movement of the heated member toward the wrapper.

7. A wrapping machine comprising a wrapping head having a chamber for receiving an article to be wrapped and the wrapper therefor, retractable means movable across the opening of said chamber from the outer edge toward the center thereof for carrying the wrapping material over the article, electrically heated means movable into engagement with the wrapping material for sealing the edges thereof and means for releasing said retractable means during the movement of the heating means into engagement with the wrapping material.

8. A wrapping machine comprising a wrapping head having a chamber for receiving an article to be wrapped and the wrapper therefor, a plurality of arcuate members movable radially across the opening of said chamber from the outer edge toward the center thereof for carrying the wrapping material over the article, electrically heated means movable into engagement with the wrapping material for sealing the edges thereof and means for releasing said arcuate members during the movement of the heating means and just prior to the engagement thereof with the wrapping material.

9. A wrapping machine comprising a wrapping head having a chamber for receiving an article to be wrapped and the wrapper therefor, adjustable means for defining the size of said chamber, retractable means movable across the opening of said chamber from the outer edge toward the center thereof for carrying the wrapping material over the article, electrically heated means movable into engagement with the wrapping material for sealing the edges thereof and means for releasing said retractable means during the movement of the heating means toward the wrapping material.

10. A wrapping machine comprising a wrapping head having a chamber for receiving an article to be wrapped and the wrapper therefor, adjustable means for defining the size of said chamber, a plurality of arcuate members movable radially across the opening of said chamber from the outer edge toward the center thereof for carrying the wrapping material over the article, electrically heated means movable into engagement with the wrapping material for sealing the edges thereof and means for releasing said arcuate members during the movement of the heating means toward the wrapping material.

11. A wrapping machine comprising a frame, a plate mounted on said frame having an opening therethrough, means suspended from said plate defining a chamber for receiving an article to be wrapped and a wrapper therefor, adjustable means for defining the size of said chamber, a plurality of arcuate members movable radially across the opening toward the center thereof for folding the edges of the wrapping material over the article, means for holding said arcuate members in abnormal position, means for automati-

cally returning said arcuate members to their normal position upon release of said holding means, pivotal means mounted on said frame and movable toward said plate and an electrically heated member carried by said pivotal means for contacting the folded edges of the wrapping material and sealing the same together.

12. A wrapping machine comprising a frame, a plate mounted on said frame having an opening therethrough, means suspended from said plate defining a chamber for receiving an article to be wrapped and a wrapper therefor, adjustable means for defining the size of said chamber, a plurality of arcuate members movable radially across the opening to said chamber from the other edge toward the center thereof for folding the edges of the wrapping material over the article, means for holding said arcuate members in material folding position, means for automatically returning said arcuate members to their normal position upon release of said holding means, pivotal means mounted on said frame and movable toward said plate, an electrically heated member carried by said pivotal means for contacting the folded edges of the wrapping material and sealing the same together and means for discharging the article from said chamber.

13. A wrapping machine comprising a wrapping head having a chamber for receiving an article to be wrapped and the wrapper therefor, retractable means movable across the opening of said chamber from the outer edge toward the center thereof for carrying the wrapping material over the article, means for holding said retractable means adjacent the center of said opening, electrically heated means movable into engagement with the wrapping material for sealing the edges thereof, means for releasing said holding means during movement of the heating means into engagement with the wrapping material and means for discharging the article from the chamber.

14. A wrapping machine comprising a wrapping head having a chamber for receiving an article to be wrapped and the wrapper therefor, adjustable means for defining the size of said chamber, a plurality of arcuate members movable radially across the opening of said chamber from the outer edge toward the center thereof for carrying the wrapping material over the article, means for holding said arcuate members adjacent the center of said opening, electrically heated means movable into engagement with the wrapping material for sealing the edges thereof, means for releasing said holding means during movement of the heating means toward the wrapping material, means for automatically returning said arcuate members to their normal position upon release of said holding means and means for discharging the article from the chamber.

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