April 21, 1936. W. E. HILBURT 2,037,903

WRAPPING MACHINE CONVEYER COOLER

Filed April 5, 1935

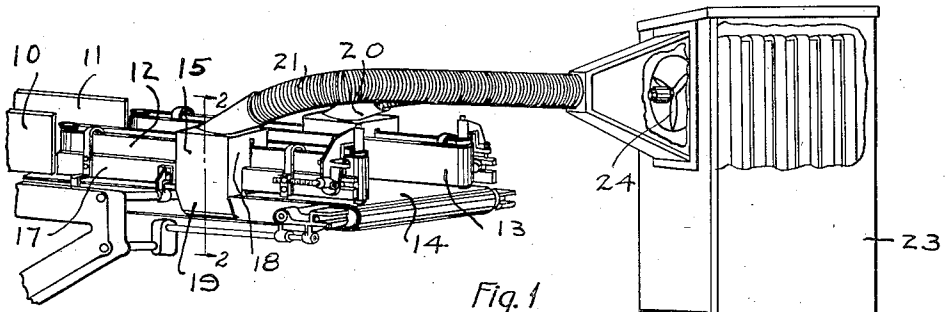



Fig. 1

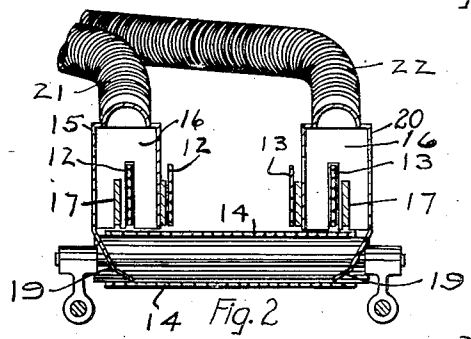



Fig. 2

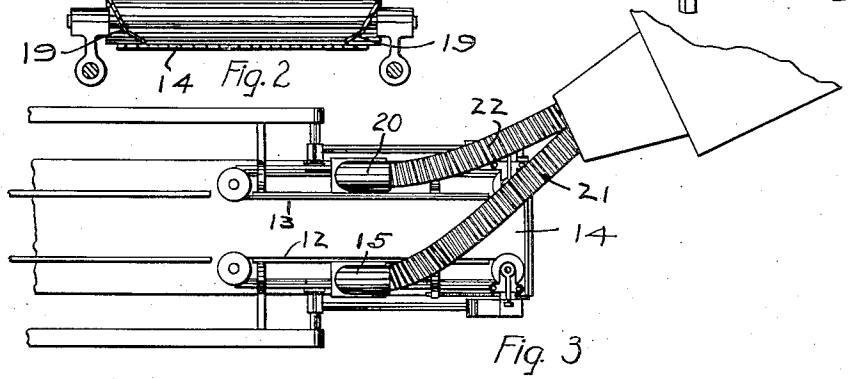



Fig. 3

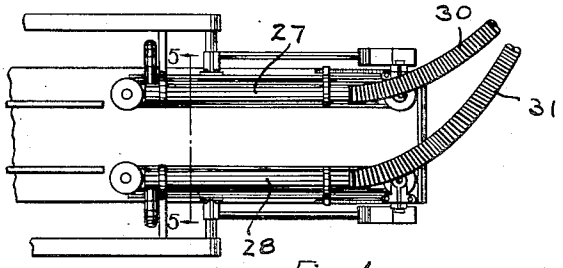



Fig. 4

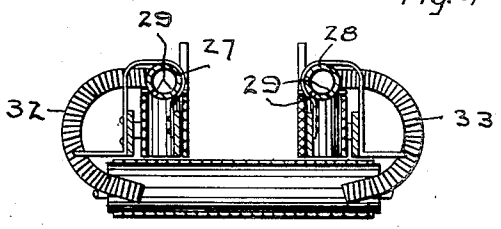



Fig. 5

Inventor,
William E. Hilburt.
By
Minturn & Minturn,
Attorneys.

Patented Apr. 21, 1936 2,037,903

# UNITED STATES PATENT OFFICE

2,037,903

## WRAPPING MACHINE CONVEYER COOLER

William E. Hilburt, Rushville, Ind.

Application April 5, 1935, Serial No. 14,823

6 Claims. (Cl. 93—2)

This invention relates to the art of wrapping and securing articles with self-sealing wrappers of various materials and has for one of its primary objects a provision of means for quickly cooling the wrapper after it has been pressed into shape and heat applied to soften or melt the sealing medium so as to cool the wrapper ends and cause the medium to set quickly so as to retain those ends snugly one against the other by means of the chilled medium serving as a bond.

Heretofore much difficulty has been encountered in wrapping articles such as bread on account of the fact that the wrapper would open up after it has passed through the wrapping machine due to the fact that the conveyer mechanism carrying the wrapped article from the heating means became heated due to the many articles passing thereover and transmitting the heat from them to the conveyer. This accumulated or stored up heat in the conveyer prevented the quick setting of the sealing medium in the wrapper so that when the articles left the conveyer, the ends would fly open.

It is a further primary object of my invention to provide an attachment which may be either applied to machines already in operation or incorporated in the machine when it is built so as to maintain the conveyer mechanism in a chilled state so as to present chilled surfaces to the sealed portions of the wrapped article to quickly set the wax or other bonding medium before the wrapper ends may spring apart. It is also an object of my invention to provide such attachment in a very simple form which may be produced at a relatively low cost and also used without interference with the conveyer or cause inconvenience to the operator.

These and other objects and advantages of my invention will become apparent to those versed in the art in the following description which is more or less diagrammatically illustrated by the accompanying drawing, in which

Fig. 1 is a perspective view showing my invention applied to the conveyer end of a bread wrapping machine;

Fig. 2, a vertical transverse section on a slightly enlarged scale on the line 2—2 in Fig. 1;

Fig. 3, a top plan view;

Fig. 4, a top plan view of a slightly modified form of my invention, and

Fig. 5, a vertical transverse section on the line 5—5 in Fig. 4.

Like characters of reference indicate like parts throughout the several views in the drawing.

Referring to Fig. 1, plates 10 and 11 illustrate the heated members between which the article (not shown) such as a loaf of bread is carried with the wrapper therearound so as to have the folded in ends of the wrapper compressed against these plates in order to melt the wax or other medium carried by the wrapper so as to cause the wrapper ends to adhere in overlapping relation, all in the customary and well known manner. Continuing from the plates 10 and 11 are vertically disposed conveyer belts 12 and 13 which run about vertical spindles. The inner opposing faces of the belts run outwardly from the plates and are so spaced as to compressively engage the folded together ends of the wrapper in order to maintain those ends in their sealed position while the bonding medium is setting. A lower belt 14 extends across under the belts 12 and 13 so as to carry the article outwardly from the plates 10 and 11.

It is found in practice that these belts absorb considerable heat and after some running are sufficiently hot or warm as to prevent the full setting of the bonding medium in the wrapper. Now in order to absorb the heat from these belts I have provided a mechanism which I shall now describe.

I form a housing 15 which is so shaped as to have a portion 16 across the rear end slotted to fit down over the outer returning side of the belt 12 and also the belt carrier bar 17. Similarly a front closure 18 is provided on the housing 15. The under side of the housing 15 is left open, terminating in close proximity to the belt 14 which is immediately under the belt 12. A flange 19 extends downwardly from the outer wall of the housing 15 and is curved around inwardly to between the two sides of the belt 14. A similar housing 20 is placed over and down and around the belt 13. The upper ends of the housings 15 and 20 are each respectively provided with intakes to which are attached flexible conduits 21 and 22 respectively which lead from some source of chilled air. While this air may at times be taken from the atmosphere, I have herein shown a refrigerating unit, generally designated by the numeral 23. In any event a fan 24 draws the air from a cool zone and forces it through the conduits 21 and 22 into the housings 15 and 20.

The air thus discharging into these housings 15 and 20 escapes principally downwardly past the sides of the returning portions of the belts 12 and 13 and flows out onto the upper side of the belt 14. Some air, of course, travels down and around on the inner sides of the flanges 19

to between the sides of the belt **14** to discharge therein. In the particular conveyer herein shown as an example of application of my invention, the inner sides of the belts **12** and **13** are maintained in straight lines by means of boards or plates **25** and **26** so as to maintain a pressure by the belts against the wrapped ends of the article passing therealong. The presence of these boards prevents the housings **15** and **20** from being placed immediately against the belts on their inner sides so that the cooling of the vertically disposed belts is confined to the returning sides which, of course, are the most important portions of the belt to be cooled since the returning sides are those which will next be in contact with wrapped articles after the preceding wrapped articles have been discharged by the belts.

In reference to Figs. 4 and 5, my invention may take a modified form wherein members **27** and **28**, here shown as being tubular in cross section are placed along and immediately above the belts **12** and **13**. Each of these tubes **27** and **28** is provided with discharge openings **29** which are so placed on the under sides of the tubes as to cause air under pressure within the tubes to be directed downwardly and outwardly to the inner faces of the two sides of the respective belts. By means of this form of the invention, I am able to direct the cool air against both the outgoing and the returning sides of the belts and thereby secure a greater cooling effect when it is desired. The rear ends of the tubes **27** and **28** are preferably carried around and downwardly by conductors **32** and **33** to discharge between the upper and lower sides of the belt **14** so as to conduct air to that belt also and thereby secure a heat transference. The tubes **27** and **28** have flexible conductors **30** and **31** respectively entering their outer ends to conduct chilled air under pressure from any desirable source to the tubes.

While I have herein shown my invention in a very simple form, it is obvious that structural variations may be had without departing from the spirit of the invention and I, therefore, do not desire to be limited to that precise form beyond the limitations as may be imposed by the following claims.

I claim:

1. For a wrapping machine conveyer having conveying members in different planes, an air distributor adjacent one of said members formed to permit that member to travel therepast, means for directing a discharge of air from the distributor onto the other of said members, and means for creating a pressure of cool air in said distributor, said distributor being also formed to cause air therein to be carried about said one member.

2. In combination with a wrapping machine discharge conveyer having vertically disposed side belts and an under horizontally disposed belt therebetween, of a belt cooling head mounted adjacent each of said vertical belts, means for supplying cool air to said head, said head in each case being formed to cause the cool air to flow over at least the return side of said vertical belts, and air directing means leading from the head to between the top and bottom sides of said horizontal belt.

3. For a wrapping machine discharge conveyer having vertical and horizontal belts, a cooling head formed to lie along and above the outgoing and returning sides of the vertical belts and having discharge orifices directed outwardly and downwardly against the respective sides of the vertical belts, means for supplying a flow of cool air to said head, and a head air discharge conductor leading from the head to discharge between the upper and lower sides of the horizontal belt.

4. For a wrapping machine discharge conveyer having vertical and horizontal belts, a belt cooling housing comprising a box-like structure open on the under side and fitted closely down over the returning side of the vertical belt forming in effect a substantially closed chamber through which said side travels, said under side being spaced slightly above said horizontal belt to permit some escape of air from the housing, and an air directing flange extending from one side of the housing down, around and between the outgoing and returning sides of the horizontal belt to direct at least a part of said escaping air therebetween, and means for maintaining a supply of cool air under pressure in said housing.

5. For a wrapping machine conveyer having a vertical belt with outgoing and returning sides, a tubular chamber formed to lie along and above the top edges of the belt, a tubular member in the chamber having orifices therein directed downwardly and outwardly toward the inner sides of the outgoing and returning sides of the belt, and means for creating a pressure of cool air in said chamber, said chamber forming in effect substantially a closure between the belt sides.

6. For a wrapping machine conveyer having a vertical belt with outgoing and returning sides, a tubular chamber formed to lie along and above the top edges of the belt, a tubular member in the chamber having orifices therein directed downwardly and outwardly toward the inner sides of the outgoing and returning sides of the belt, and means for creating a pressure of cool air in said chamber, said chamber forming in effect substantially a closure between the belt sides, said conveyer also including an under belt, and an air conduit leading from said chamber to discharge between the outgoing and returning sides of said under belt.

WILLIAM E. HILBURT.