Oct. 18, 1927. 1,646,359

P. A. RAICHE ET AL

MACHINE FOR GUMMING THE EDGES OF NIPPLES

Filed March 17, 1926 3 Sheets-Sheet 1

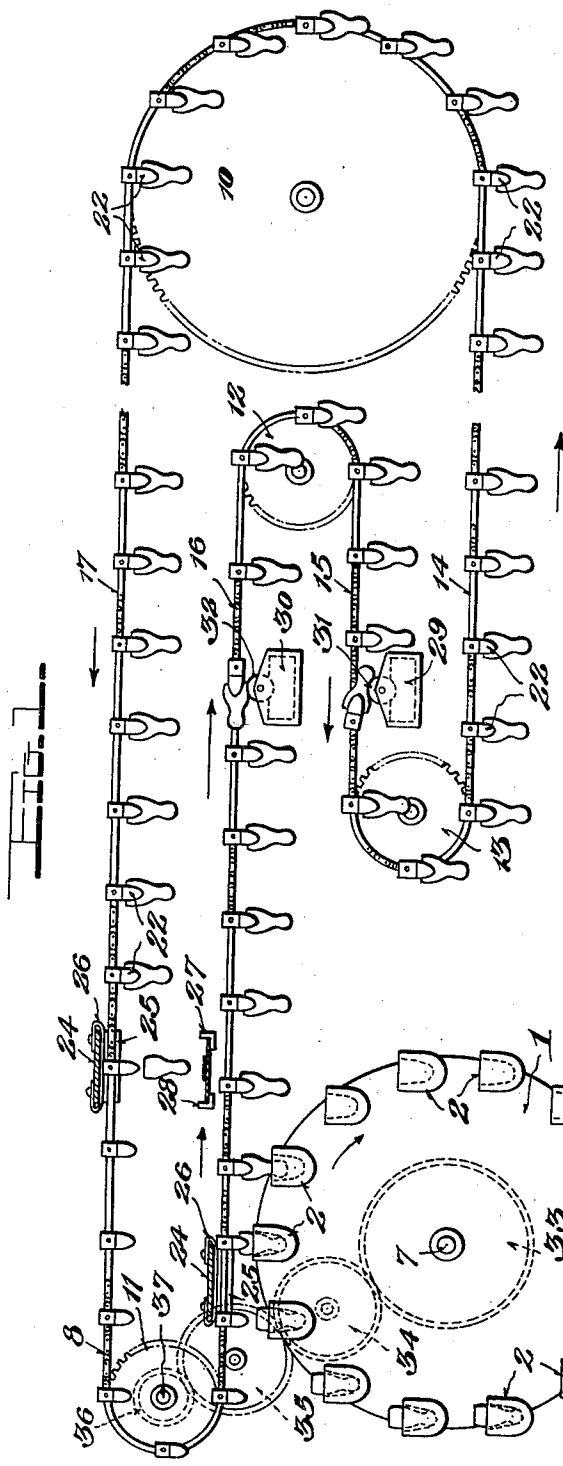


FIG. 1.

Inventors
Paul A. Raiche
Thomas B. Dowling
Thomas J. Bridel
By Joseph A. Miller Attorney

Oct. 18, 1927. 1,646,359

P. A. RAICHE ET AL.

MACHINE FOR GUMMING THE EDGES OF NIPPLES

Filed March 17, 1926 3 Sheets-Sheet 2

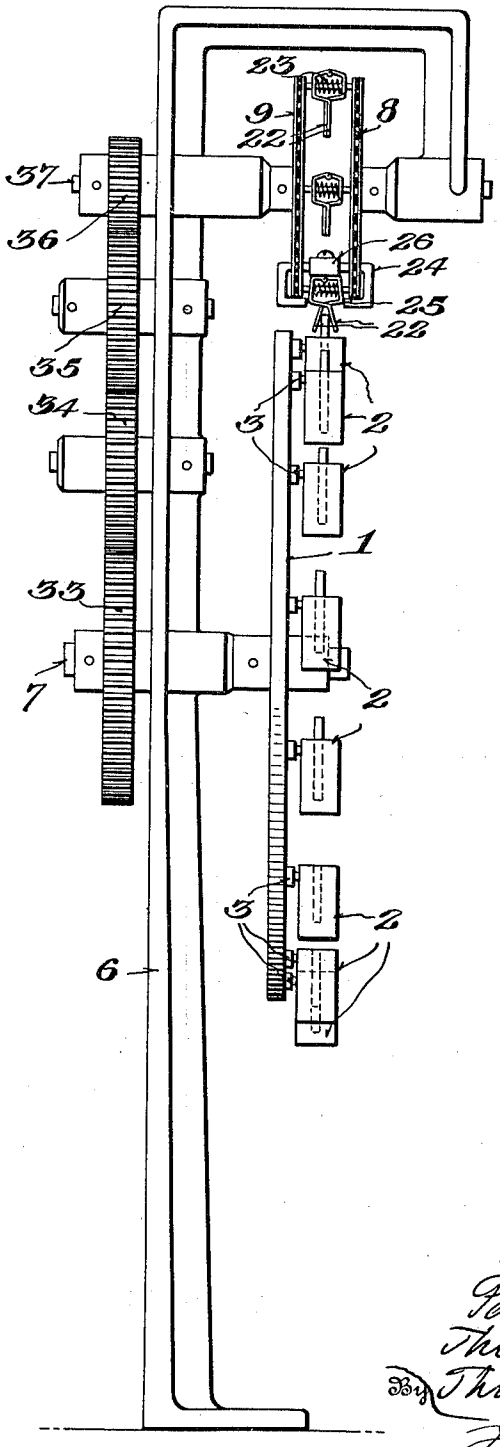
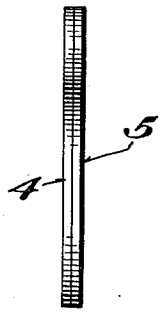


Fig. 2

Fig. 6.



Inventors

Paul A. Raiche

Thomas B. Dowling

Thomas J. Bridal

By Joseph A. Miller Attorney

Oct. 18, 1927. 1,646,359

P. A. RAICHE ET AL.

MACHINE FOR GUMMING THE EDGES OF NIPPLES

Filed March 17, 1926 3 Sheets-Sheet 3

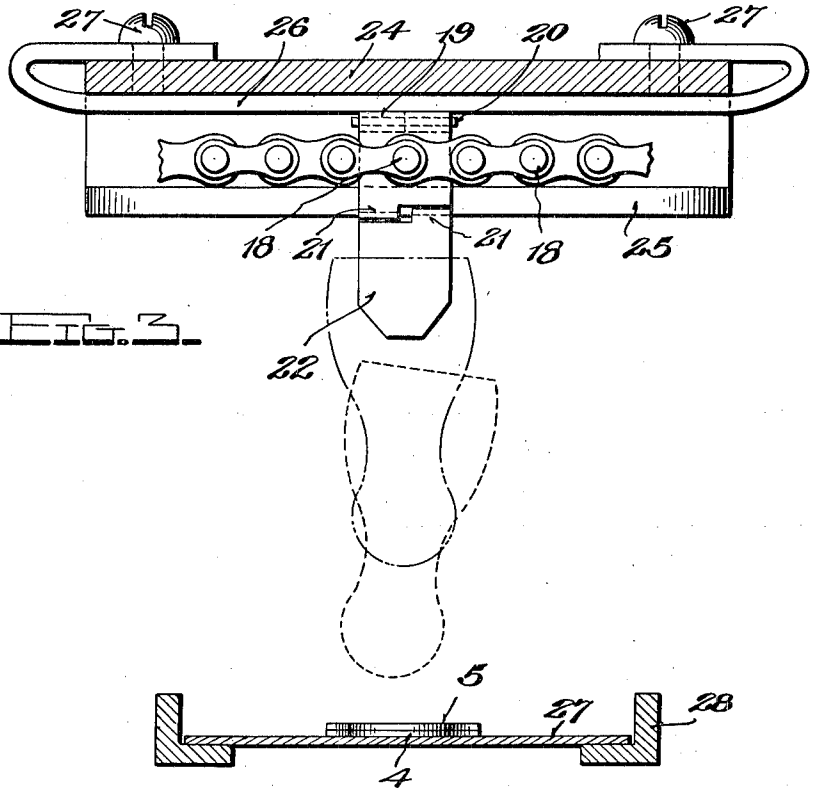


FIG. 3

FIG. 4

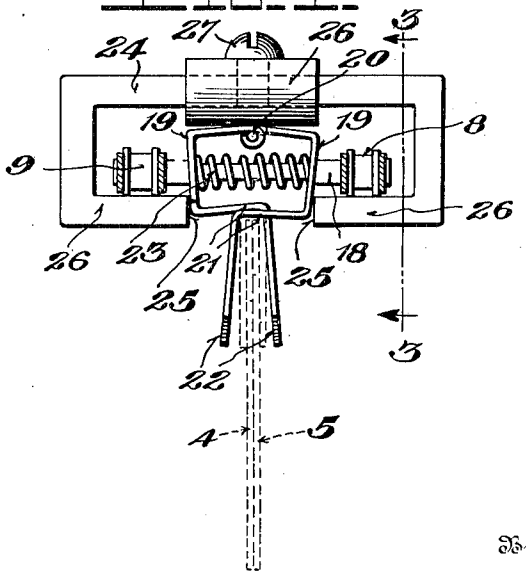
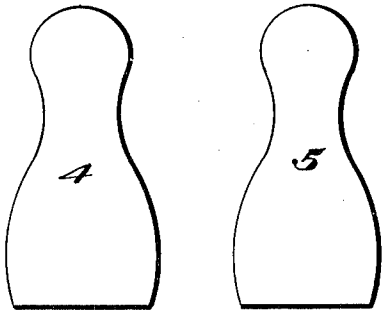


FIG. 5



Inventors

Paul A. Raiche

Thomas B. Dowling

Thomas J. Brides

By Joseph A. Miller Attorney

Patented Oct. 18, 1927. 1,646,359

UNITED STATES PATENT OFFICE.

PAUL A. RAICHE AND THOMAS B. DOWLING, OF PROVIDENCE, AND THOMAS J. BRIDES, OF WARWICK, RHODE ISLAND, ASSIGNORS TO DAVOL RUBBER COMPANY, OF PROVIDENCE, RHODE ISLAND.

MACHINE FOR GUMMING THE EDGES OF NIPPLES.

Application filed March 17, 1926. Serial No. 95,408.

This invention relates to certain new and useful improvements in a machine for gumming the edges of nipples, and the primary object thereof is to provide a machine which automatically applies liquid gum or adhesive to each of the opposite side edges of the two blanks that conjointly form the nipple, preparatory to curing and finishing.

A further object of the invention is to provide a machine of this type which effects drying of the gum and thereafter automatically discharges the gummed and dried nipple onto a conveyor which latter carries same to the operator for finishing and curing.

In the drawings

Figure 1 is a side elevation of the invention, the frame being omitted;

Figure 2 is an end elevation showing the means for operating the parts;

Figure 3 is an enlarged section on line 3—3 of Figure 1,

Figure 4 is an enlarged detail view of the jaw opening device.

Figure 5 is a plan view of the companion nipple blanks,

Figure 6 is an edge view of the nipple blanks after gumming of their side edges.

In proceeding in accordance with the present invention a wheel 1 is located at the front end of the machine and is equipped on its outer side face with a series of pockets 2 pivoted thereto as indicated at 3. The pockets are, as shown in Fig. 1, connected to the wheel so that when the pockets reach the highest point of travel of the wheel same will have their open tops disposed substantially at such highest point so as to cause the two companion nipple blanks that are held in the pockets to have their upper ends project above the wheel, for a purpose later set forth. The pockets are pivoted to the wheel so that upon rotation of the latter, the pockets will always lie in a true vertical plane. The pockets are also shaped and of a size so as to hold the companion or complementary blanks 4 and 5 in registering and face to face contact therein.

As shown in Figure 2 of the drawings, a frame 6 is employed and to which the wheel 1 is journaled on a shaft 7.

The carrier consists of a pair of endless chains 8 and 9 (Fig. 2) the chains being trained over relatively large sprocket wheels 10 at the rear of the machine and over smaller sprockets 11, 12 and 13. Of these smaller sprockets 11 is at the front of the machine and disposed above wheel 1, wheel 12 is located in front of wheel 10 and below wheel 11, while wheel 13 is located below wheel 12 and in front of the latter. The chain accordingly has four flights 14, 15, 16 and 17, and of which latter flight 16 travels just above wheel 1.

As shown in Figures 3 and 4 of the drawings, the chains are connected by transverse pins 18. The pins 18 extend through perforations provided therefor in a pair of opposed clips 19, the latter being pivoted together at 20 and having parts 21 which cross each other and which terminate in jaws 22 formed to engage the blanks 4 and 5 and to clampingly hold same for movement with the carrier. A coil spring 23 encircles the pin 18 and bears at its ends against the clips 19 thereby to normally tension the jaws 22 so that the latter aproach or move toward each other.

Opening devices for the clips or jaws are employed and since each is identical with the other, a description of one will suffice. As shown in Fig. 4 a substantially C-shaped shoe 24 is employed, the side edges 25 of which provide cam edges which engage the clips 19 and force same together, thereby spreading or opening the jaws 22 to release the gummed blank or to permit an ungummed blank to be gripped by the jaws. The upper faces of the confronting sides 26 of the shoe afford tracks upon which the chains 8 and 9 ride and are guided during opening of the jaws thereby to assure proper relation of the latter to the cam edges 25 and consequent proper functioning of the parts. A runner or track 26′ is arranged on the under face of the top of the shoe and has its ends curved upwardly and secured at 27 to the top of the shoe. This track

or runner engages the upper or top parts of the clips 19 so as to hold the same against upward movement upon spreading of the jaws 22. As depicted in Figure 1 of the drawings there are two opening devices, one located just above wheel 1 and the other adjacent and to the rear of wheel 11 and below the flight 17 of the carrier. A conveyor 27 operating on tracks 28 lies below the upper opening device so as to receive the gummed nipples from the carrier. Tanks 29 and 30 containing liquid gum or adhesive are positioned below the carrier flights 15 and 16 respectively and having partially submerged rollers 31 and 32 respectively therein. Shaft 7 may be driven in any suitable manner and has a gear wheel 33 thereon in mesh with a gear 34 the latter in turn being in mesh with a gear 35. The gear 35 is in mesh with a gear 36 on the shaft 37 of the wheel 11.

In operation, the operator places the two blanks into register and in the pockets 2 of the wheel 1, the machine being in slow operation or may be stopped while all of the pockets of the wheel are being filled or charged with the blanks. As the jaws 22 approach the opening device above wheel 1, same are opened and the upper ends of the blanks 4 and 5 are simultaneously moved by the rotation of the wheel 1 to lie in a position between the jaws 22. As the jaws are moved by the carrier movement out of engagement with the opening device, the jaws under the tension of spring 23 close and clamp or grip the two blanks therebetween.

The carrier then carries the blanks over and into engagement with the gumming or gum spreading roller 32 and due to the pivotal mounting of the pockets 2, it will be seen that the then under side edges of the blanks will be dragged over the roller and the latter will apply or spread gum over the said edges of the blank. The carrier upon continued movement thereof, then conveys the blanks over the roller 31 whereupon the latter spreads or applies gums to the opposite side edges of the blanks, which latter edges are then lowermost due to the fact that the blanks are first moved in one direction, and then in the opposite direction. After leaving roller 31, the blanks gummed on each of their opposed side edges, are then slowly conveyed rearwardly throughout the extent of flight 24, thence upwardly and finally forwardly throughout the extent of flight 17 until encountering the upper opening device, which latter releases the then gummed and dried blanks and permits same to gravitate onto conveyor 27. The conveyor 27 conveys the blanks to the operator who opens and places same upon forms and then cures same for the finishing process.

It will be noted that the flights 14 and 17 are made of sufficient length so as to afford the necessary time for drying between the final gumming step and the release of the blanks from the carrier.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:—

1. A machine for gumming the opposed side edges of complementary nipple blanks, including a blank-carrying wheel, pivoted blank receiving pockets carried by the wheel, carrier wheels located in advance of and rearwardly of the first named wheels, an upper and a lower carrier wheel spaced from the latter and located between the first mentioned carrier wheels, an endless carrier trained over the carrier wheels, nipple blank grippers carried by the carrier, means located above the blank-carrying wheel to open the grippers to enable same to receive the blanks, means to release the grippers to permit the blanks to gravitate therefrom, and gum applying means located between the upper and lower carrier wheels so as to apply gum to the opposite side edges of the blanks.

2. A machine for gumming the opposed side edges of complementary nipple blanks, including blank feeding means, a carrier, pivoted blank grippers carried by the carrier, means to actuate the grippers to admit the blanks from the feeding means, means in the path of travel of the carrier to apply adhesive solely to one of the side edges of the blanks and to support the blanks during applying of the adhesive, means in the path of travel of the carrier to apply adhesive solely to the opposite side edges of the blanks and to support the blanks during applying of the adhesive, and means to release the blanks from the grippers.

3. A machine for applying adhesive to the opposite side edges of nipple-forming blanks, including an endless carrier, pivoted blank grippers on the carrier, said carrier having flights travelling in opposite directions, and adhesive applying means associated with each flight whereby to apply adhesive solely to the opposite side edges of the blanks and to support the blanks during applying of the adhesive upon respective opposite movement of the blanks.

4. A machine for applying adhesive to the opposite side edges of nipple-forming blanks, including an endless carrier, pivoted blank grippers on the carrier, said carrier having flights travelling in opposite directions, and adhesive applying means associated with each flight whereby to apply adhesive solely to the opposite side edges of the blanks and to support the blanks during applying of the adhesive upon respective opposite movement of the blanks, means to actuate the grippers to admit the blanks thereto, and other means to actuate the grippers to release the blanks.

5. In a machine for applying adhesive to

the opposite side edges of nipple-forming blanks, a carrier having oppositely moving parts, pivoted grippers on the carrier, and adhesive applying means cooperating with said oppositely moving parts whereby to apply adhesive solely to the opposite edges of the blanks and to support the blanks during applying of the adhesive upon movement of the carrier parts in the respective opposite directions thereof.

6. In a machine for applying adhesive to the opposite side edges of nipple-forming blanks, a carrier having oppositely moving parts, pivoted grippers on the carrier and a pair of adhesive applying means cooperating with said parts and arranged to permit the grippers to drag the edges of the blanks thereover so as to apply adhesive solely to the said blank edges and to support the blanks during applying of the adhesive.

7. In a machine for gumming the edges of complementary nipple blanks, a source of adhesive supply, spaced adhesive applying means, means whereby to provide said applying means with such quantity of the adhesive so as to solely coat the edges of the blanks, conveying means, means to movably support the blanks from the conveying means, and means to mount the conveying means whereby to cause the blanks to be first dragged over one of the applying means and in engagement therewith to coat the edges of one side of the blanks and then dragged over the other applying means and in engagement therewith to coat the edges on the other side of the blanks.

8. In a machine for applying adhesive to the side edges of nipple-forming blanks, adhesive applying means and means pivotally carrying the blanks to drag the latter over and while held supported by adhesive applying means so as to apply adhesive solely to the said blank edges.

9. In a machine for gumming the edges of complementary nipple blanks, rotatable adhesive applying means, conveying means, means to actuate the conveying means so as to drag the blanks over the applying means thereby to solely coat the blank edges, and means whereby to permit the blanks during their engagement with the applying means to move relative to the latter so as to have their edges conform to the applying means.

10. In a machine for applying adhesive to the opposite side edges of nipple blanks, means to pivotally carry and move the blanks first in one and then in another direction, and adhesive applying means arranged to engage the edges of the blanks and support the latter when moved in each of said directions so as to enable the moving means to drag the blanks thereover so as to apply adhesive solely to the said blank edges.

11. In a machine for gumming the side edges of complementary nipple blanks, adhesive applying means, and means to move the blanks into engagement with the adhesive applying means so as to be supported thereby and in varying directions so as to first and solely coat one and then the other of the side edges thereof with adhesive.

12. The hereindescribed method of applying adhesive solely to the edges of complementary blanks, which resides in dragging the blanks first in one and then in the opposite direction over a surface having thereon adhesive of a depth so as to solely coat the opposite side edges of the blanks.

13. The hereindescribed method of applying adhesive solely to the edges of complementary blanks so as to unite such edges, which resides in dragging the blanks over a surface having thereon adhesive of a depth so as to solely coat the blank edges.

14. The hereindescribed method of applying adhesive solely to the edges of complementary blanks so as to unite such edges, which resides in gripping the blanks at one end thereof so as to leave the opposite ends free for movement laterally of the blanks and then in longitudinally dragging the blanks over adhesive of a depth so as to solely coat the blank edges by the combined longitudinal and lateral movement of the blanks.

15. The hereindescribed method of applying adhesive solely to the edges of complementary blanks so as to unite such edges, which resides in dragging the blanks over a surface having thereon adhesive of a depth so as to coat solely the edges on one side of the blanks and in then dragging the blanks over a surface having thereon adhesive of a depth so as to coat solely the edges on the opposite sides of the blank.

16. In a machine for gumming the edges of complementary nipple blanks, adhesive applying means for applying a coat of adhesive solely to the edges of the blanks, means to drag the blanks longitudinally thereof over and in engagement with the applying means, and means to permit movement of the blanks laterally of the latter so as to permit the blank edges to conform to the surface of the applying means.

17. In a machine of the type set forth, means for applying a coat of adhesive solely to the edge of an article, means for dragging the article longitudinally thereof over the applying means so as to be supported by the latter, and means for permitting simultaneous lateral movement of the article during dragging thereof so as to conform its said edge to the surface of the applying means.

18. In a machine for gumming the edges of complementary blanks to unite same, means for applying a coat of adhesive solely to the adjacent edges of the blanks so as to pro-

vide such edges solely with a coat of adhesive which latter extends across the lines of juncture of the blanks so as to unite the latter, and means for effecting relative movement between the blanks and the applying means.

19. In a machine of the type set forth, a carrier, jaws pivoted together at one end and having intermediate inwardly extending portions which cross one another and having their opposite ends free, means to tension the jaws, and means engageable with the parts of the jaws between the pivot and the crossed portions thereof to spread the free ends of the jaws.

In testimony whereof we have signed our names to this specification.

PAUL A. RAICHE.
THOMAS B. DOWLING.
THOMAS J. BRIDES.