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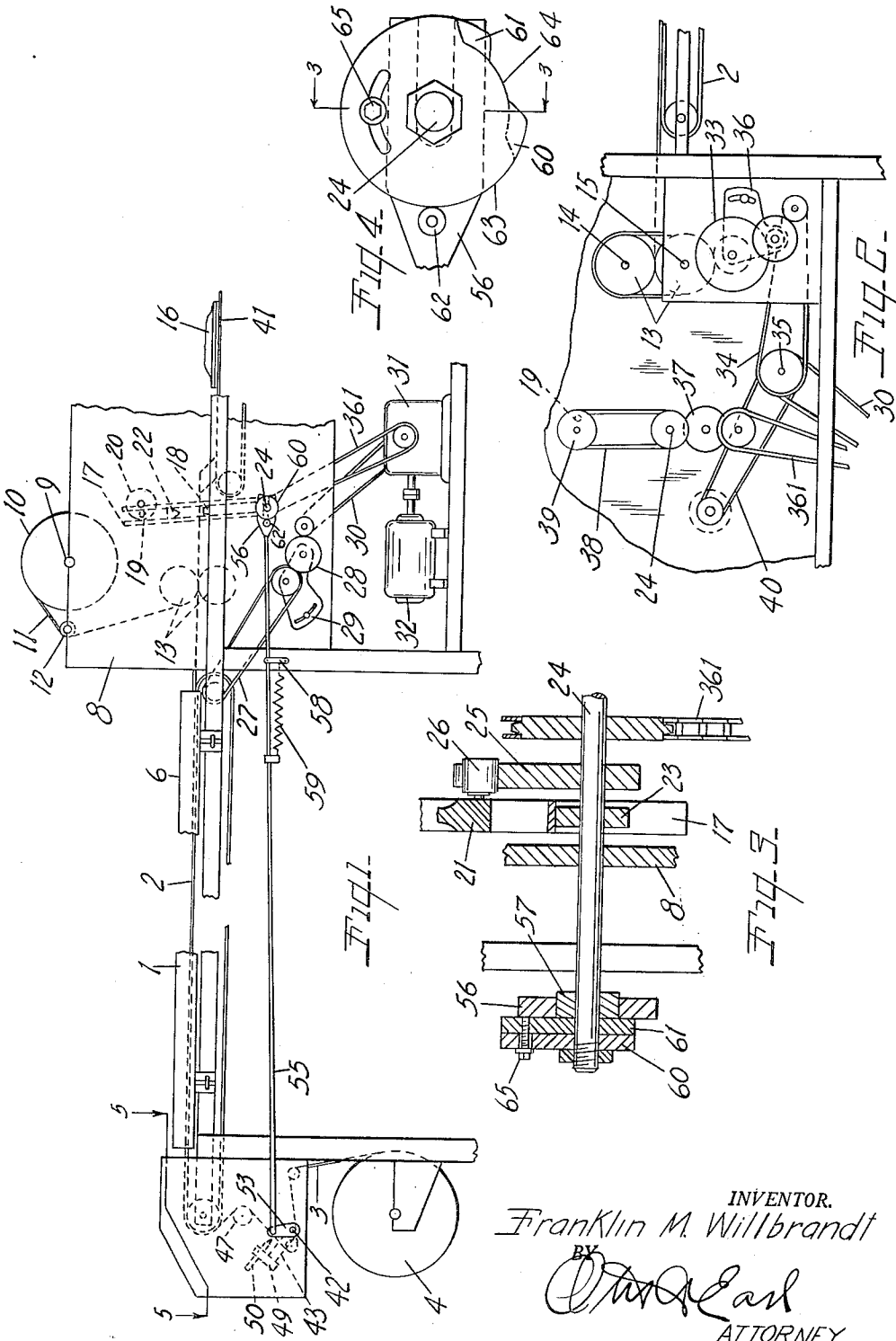
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POUCH AREA MARKER FOR POUCH PACKAGING MACHINES

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2 Sheets-Sheet 1



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2 Sheets-Sheet 2

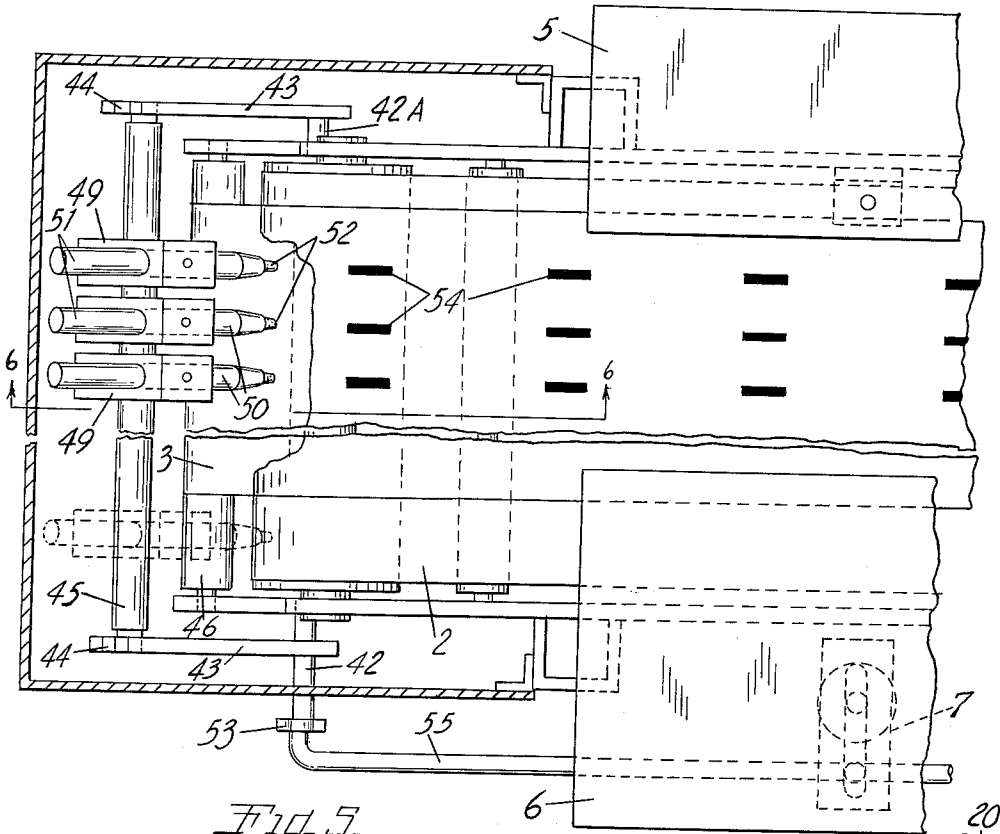
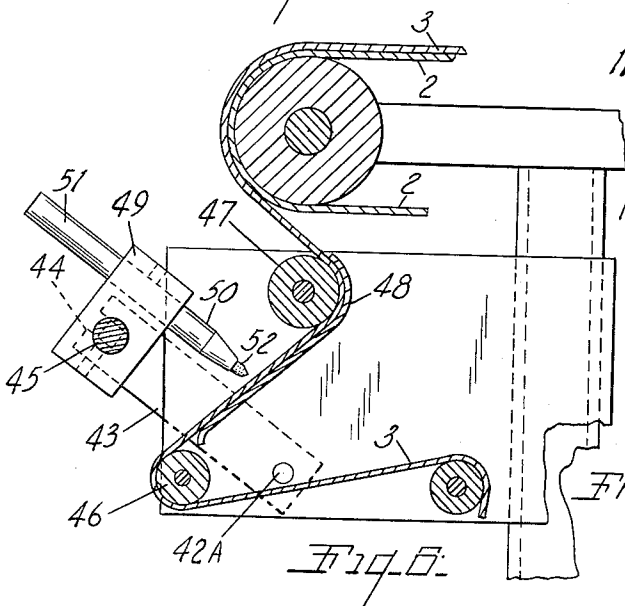


Fig. 5.



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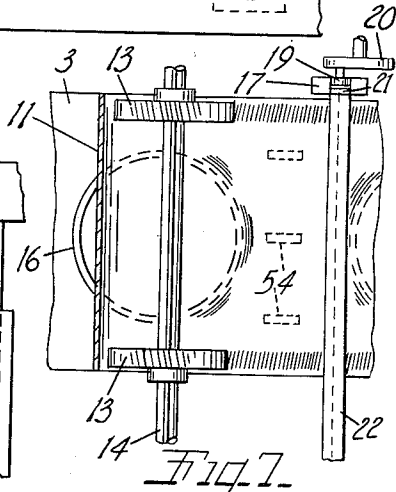


Fig. 7.

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POUCH AREA MARKER FOR POUCH PACKAGING MACHINES

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This invention relates to improvements in article area marker for packaging machines. The principal objects of this invention are:

First, to provide mechanism interconnectable with and driven by the sealing mechanism of an article packaging machine which will place a visible indicia mark of substantially equal length at equal but variably spaced positions along the length of the web of wrapper material being delivered to the loading area of the machine to indicate the proper placement areas for articles to be packaged.

Second, to provide article space indicating means for a packaging machine which is inexpensive to construct, adjustable for various size articles and webs and operable with both transparent and opaque webs of wrapping material.

Other objects and advantages of the invention will be apparent from a consideration of the following description and claims. The drawings, of which there are two sheets, illustrate a highly practical form of the invention.

FIG. 1 is a fragmentary side elevational view of a packaging machine with the pouch area marking mechanism of the invention applied thereto.

FIG. 2 is a fragmentary elevational view of the opposite side of the machine from that shown in FIG. 1.

FIG. 3 is a fragmentary cross sectional view through the drive connection to the pouch area marking mechanism taken along the plane of the line 3-3 in FIG. 4.

FIG. 4 is a fragmentary, enlarged elevational view of the pouch area marking drive cam appearing in FIG. 1.

FIG. 5 is a fragmentary horizontal cross sectional view taken along the plane of the line 5-5 in FIG. 1 with parts broken away.

FIG. 6 is a fragmentary vertical cross sectional view taken along the plane of the line 6-6 in FIG. 5.

FIG. 7 is a fragmentary top plane view of the pouch sealing portion of the machine appearing in FIG. 1.

It is an old practice to package articles by sealing them successively between two webs of wrapping material. One web, usually the bottom one, is fed along a loading way to receive and advance the articles at spaced intervals. The other web is fed into lapped relation to the articles and the first web and seal means then seal the side edges of the webs together and seal transversely across the webs between the articles. It is important and mandatory that the articles be properly spaced on the webs because the cross sealing means operate automatically and if an article is out of position the cross seal means will strike and damage the article or the sealing member or both. This is especially true when, as is common, the cross seal means includes a knife to sever the web into separate packages.

FIG. 1 illustrates in more or less conventional form a pouch packaging machine having a loading way 1 with a conveyor belt 2 for advancing a bottom web 3 of wrapping material from a supply roll 4. Storage platforms 5 and 6 are supported on opposite sides of the way and the platform 6 is laterally adjustable on slides 7 to accommodate webs of different widths. The conveyor delivers to sealing mechanism enclosed between the side walls 8.

The sealing mechanism includes a support 9 for a roll 10 of the upper wrapper web 11. A guide roll 12 leads

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the upper web to the bite of feed rolls 13 that simultaneously draw in and seal together the side edges of the two webs 3 and 11. The sealing rolls 13 are spaced adjustably transversely apart on the drive shafts 14 and 15 and form a pouch in which the articles 16 such as the piston rings illustrated are enclosed. Sealing is accomplished by heat or pressure or both depending upon the character of the webs. After the sides of the pouch have been sealed they are directed between a pair of oscillating arms 17 having a bottom seal bar 18 supported therebetween below the advancing webs. The arms are vertically slotted to receive the crank pin 19 on the wheel 20 that oscillates the arms and to slidably receive lift rods 21 for a top seal bar 22 that oscillates front to rear with the bottom seal bar. As stated the seal bars may include knife edges and/or heating means not illustrated.

At their lower ends the arms 17 are supported upon a rotating disc 23 on a shaft 24. A cam 25 on the shaft engages and actuates a follower roll 26 secured to the lift rods 21. (See FIG. 3.) The lift rods thus lower the top cross seal bar 22 into sealing relation with the bottom seal bar 18 once each revolution of the shaft 24 while the bars oscillate to keep them in horizontal registry with the advancing webs. It will be appreciated that duplicate arms 17 and lift rods 21 are provided at each side of the machine.

The drive to the conveyor 2 shown on the front side of the machine in FIG. 1 extends through a chain 27 to the gear train 28. The gear train 28 is adjustable on the plate 29 to permit changing gears to change the speed of the conveyor 2. A chain or belt 30 drives the gear train from a suitable speed reduction gear 31 and motor 32. The drive for the feed rolls 13 is on the back side of the machine in FIG. 2 and extends through the gear train 33 and chain 34 to the same shaft 35 that drives the gear train 28. The gear train 33 is adjustable on the plate 36 to permit the peripheral speed of the feed rolls 13 to be adjustably matched to the lineal speed of the conveyor 2.

The drive to the crank wheel 20 and crank pin 19 is through a chain 361 to the gear train 37 on the back side of the machine in FIG. 2. The gear train 37 may include elliptical gears (not illustrated) to properly time the oscillating motion of the pin 19. A chain 38 drives the sprocket 39 from the gear train and the sprocket drives the shaft on which the crank wheel is mounted. A chain 40 drives an off-feed conveyor 41 that receives and carries away the packaged articles 16 from the cross seal 22 and cutoff knife.

The foregoing structure is old and is described only to point out that the lineal speed of the loading or in-feed belt 2 can be varied with respect to cycle of operation of the transverse seal mechanism to provide long or short pouches. Regardless of the length of the pouches, the transverse seal and cut-off area should be about the same for economy of the wrapping webs and the length of the packages formed. The articles being wrapped must be placed near the centers of the pouch areas which must be designated in some way.

The pouch area marking mechanism of the invention includes a rock shaft 42 mounted on the front-side frame of the machine at the infeed end of the loading conveyor. The rock shaft and a coaxial stub shaft 42A on the back of the machine rockably support arms 43 with squared notches 44 in their end. The notches non-rotatably receive squared ends on a cross bar 45 that lies in front of the in-feeding lower web 3 where the web passes over guide rolls 46 and 47. A platten 48 supports the web between the guide rolls. Adjustably mounted on the cross bar for angular and longitudinal adjustment are a plurality of holder blocks 49 having holes therein adjustably holding friction marking devices in the form of fountain

brushes 50 having barrels 51 for holding quick drying liquid dye and pointed felt tips or brushes 52 for contacting and marking on the web 3. The rock shaft 42 has a crank arm 53 by means of which the brushes can be moved into and out of contact with the moving web to make pouch area indicating marks 54. (See FIG. 5.)

The crank arm 53 is oscillated by a push rod 55 extending rearwardly to a forked plate 56 supported on a rotating hub or disc 57 on the previously described shaft 24. (See FIG. 3.) It will be recalled that the shaft 24 makes one revolution for each cycle of the transverse seal mechanism. A crank 58 supports the mid-section of the rod 55 and a spring 59 urges the rod and the marking brushes 50 toward web marking position. A two piece cam having cam plates 60 and 61 is adjustably mounted on the shaft 24 adjacent the disc 57. The peripheries of the cam plates 60 and 61 coast with a follower roll 62 on the forked plate 56 and have relatively long dwell portions 63 and relatively short actuating surfaces 64 of reduced radius. By angularly adjusting one cam disc on the other by means of the screw and slot connection 65 the effective length of the combined actuating surfaces can be adjusted in length so that the follower roll 62 and through it the marking brushes are permitted to swing forwardly for adjustable short periods during each cycle of the packaging machine.

The length of the pouch indicating marks 54 is determined by the time of contact with the moving web and when the speed of the web is adjusted the time of contact can be oppositely adjusted by means of the cam plates 60 and 61 to get a substantially uniform length of pouch marker. The markers are clearly visible along the loading way 1 and the persons loading the machine have only to place the articles between the marks 54. Being on the lower web 3, the marks are covered by the upper web and obscured if the upper web is opaque. While the article area marking means have been disclosed in conjunction with a pouch packaging machine in which the package is formed by sealing a web or webs directly over the article because the marking means is of particular utility in such a machine, the marking mechanism is of equal utility in any packaging machine in which the articles to be wrapped are fed into the packaging mechanism on a continuous web of wrapping material.

What is claimed as new is:

1. In a wrapping machine having a loading way with an in-feed belt trained therealong, supports for supply rolls positioned to deliver upper and lower wrapper webs to behind and ahead of said belt respectively with the lower web resting on said belt, feed rolls positioned to simultaneously advance said webs and seal the side edges thereof together with articles enclosed between the webs at intervals, intermittently actuated transverse seal and shear means positioned to seal said webs together along transverse lines spaced longitudinally of the webs and sever the webs into rectangularly sealed packages, and adjustable means for driving said feed rolls and said belt at adjustably constant speeds to advance predetermined lengths of said webs past said seal means between each actuation thereof, the combination which comprises a cross bar rockably supported across the front of said machine and swingable toward and away from the face of said lower web being delivered to upwardly facing position on said belt, a plurality of friction marking devices transversely adjustably mounted on said cross bar and swingable thereby into marking relation to the upwardly facing surface of said lower web, a push rod connected to said cross bar to rock the bar and said marking devices between marking and non-marking positions, a shaft rotated in timed relation to said transverse seal means, and a two piece cam rotatably driven by said last shaft and having dwell and actuating surfaces that are relatively angularly adjustable in length, said push rod having a follower connected thereto and positioned in operative relation to said cam whereby said cam and said push rod move said marking devices to

marking position for adjustably variable periods during each cycle of said seal and shear means.

2. In a wrapping machine having a loading way with an in-feed belt trained therealong, supports for supply rolls positioned to deliver upper and lower wrapper webs to behind and ahead of said belt respectively with the lower web resting on said belt, feed rolls positioned to simultaneously advance said webs and seal the side edges thereof together with articles enclosed between the webs at intervals, intermittently actuated transverse seal means positioned to seal said webs together along transverse lines spaced longitudinally of the webs into rectangularly sealed packages, and adjustable means for driving said feed rolls and said belt at adjustably constant speeds to advance predetermined lengths of said webs past said seal means between each actuation thereof, the combination which comprises a cross bar rockably supported and swingable toward and away from the face of said lower web being delivered to upwardly facing position on said belt, a plurality of friction marking devices adjustably mounted on said cross bar and swingable thereby into marking relation to the upwardly facing surface of said lower web, a push rod connected to said cross bar to rock the bar and said marking devices between marking and non-marking positions, a shaft rotated in timed relation to said transverse seal means, and a two piece cam rotatably driven by said last shaft and having dwell and actuating surfaces that are relatively angularly adjustable in length, said push rod having a follower connected thereto and positioned in operative relation to said cam whereby said cam and said push rod move said marking devices to marking position for adjustably variable periods during each cycle of said seal means.

3. In combination with a pouch packaging machine having side sealing means and cross sealing means, a loading way positioned ahead of said side sealing means and adapted to deliver a wrapper web thereto, and drive means connected to cyclically drive said cross sealing means and continuously drive said side sealing means at adjustable lineal speeds of the web, pouch area marking means comprising a plurality of friction marking devices mounted in opposed relation to the path of the web being fed to said way, means connected to move said marking devices into marking relation with the side of the web being delivered face up to said way, an actuating member connected to move said last means, and a cam means rotated in timed relation to said cross seal means and arranged to move said actuating member for adjustably variable periods during each cycle of said cross sealing means.

4. In combination with a pouch packaging machine having side sealing means and cross sealing means, a loading way positioned ahead of said side sealing means and adapted to deliver a wrapper web thereto, and drive means connected to cyclically drive said cross sealing means and continuously drive said side sealing means at adjustable lineal speeds of the web, pouch area marking means comprising a friction marking device mounted in opposed relation to the path of the web being fed to said way, means connected to move said marking device into marking relation with the side of the web being delivered face up to said way, an actuating member connected to move said last means and a cam means rotated in timed relation to said cross seal means and arranged to move said actuating member for adjustably variable periods during each cycle of said cross sealing means.

5. In combination with a packaging machine having cross sealing means, a loading way with a conveyor positioned ahead of said sealing means and adapted to deliver a wrapper web thereto, and drive means connected to cyclically drive said cross sealing means and continuously drive said conveyor at adjustable lineal speeds of the web, article area marking means comprising a friction marking device mounted in opposed re-

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lation to the path of the web being fed to said way, means connected to move said marking device and said web relatively into marking relation, an actuating member connected to move said last means, and means actuated in timed relation to said cross seal means and arranged to move said actuating member for adjustably variable periods during each cycle of said cross sealing means.

6. In combination with a packaging machine having cross sealing means, a loading way with a conveyor positioned ahead of said sealing means and adapted to deliver a wrapper web thereto, and drive means connected to cyclically drive said cross sealing means and continuously drive said conveyor at adjustable lineal speeds of the web, article area marking means comprising a marking device mounted in opposed relation to the path of the web being fed to said way, means connected to move said marking device and said web relatively into contacting relation to mark longitudinally along said web, an actuating member connected to move said last means, and means actuated in timed relation to said cross seal means and arranged to move said actuating member for adjustably variable periods during each cycle of said cross sealing means.

7. A packaging machine including an elongated supporting way adapted to support a web while it is being translated on the way to receive articles to be packaged manually positioned thereon, means for translating the web upon the way, a web marking device disposed at the front end of the way in operative relation to the web, a packaging means disposed at the rear end of

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said way and arranged to form said web into packages around said articles, and adjustably timed means for actuating said web marking device for variable periods and operatively connected to said packaging means whereby the marking device is actuated in timed relation to said packaging means to mark the web at longitudinally spaced points and thereby facilitate the positioning thereon of the articles to be packaged and translated by the web to said packaging means.

8. A packaging machine including an elongated supporting way adapted to support a web while it is being translated on the way to receive articles to be packaged manually positioned thereon, means for translating the web upon the way, a web marking device disposed at the front end of the way in operative relation to the web, a packaging means disposed at the rear end of said way and arranged to form said web into packages around said articles, and adjustably timed means for actuating said web marking device for variable periods and in timed relation to said packaging means to mark the web at longitudinally spaced points and thereby facilitate the positioning thereon of the articles to be packaged and translated by the web to said packaging means.

References Cited in the file of this patent

UNITED STATES PATENTS

2,037,825	Salfisberg	-----	Apr. 21, 1936
2,321,057	Weiss	-----	June 8, 1943
2,655,777	Hagen	-----	Oct. 20, 1953