

March 17, 1959

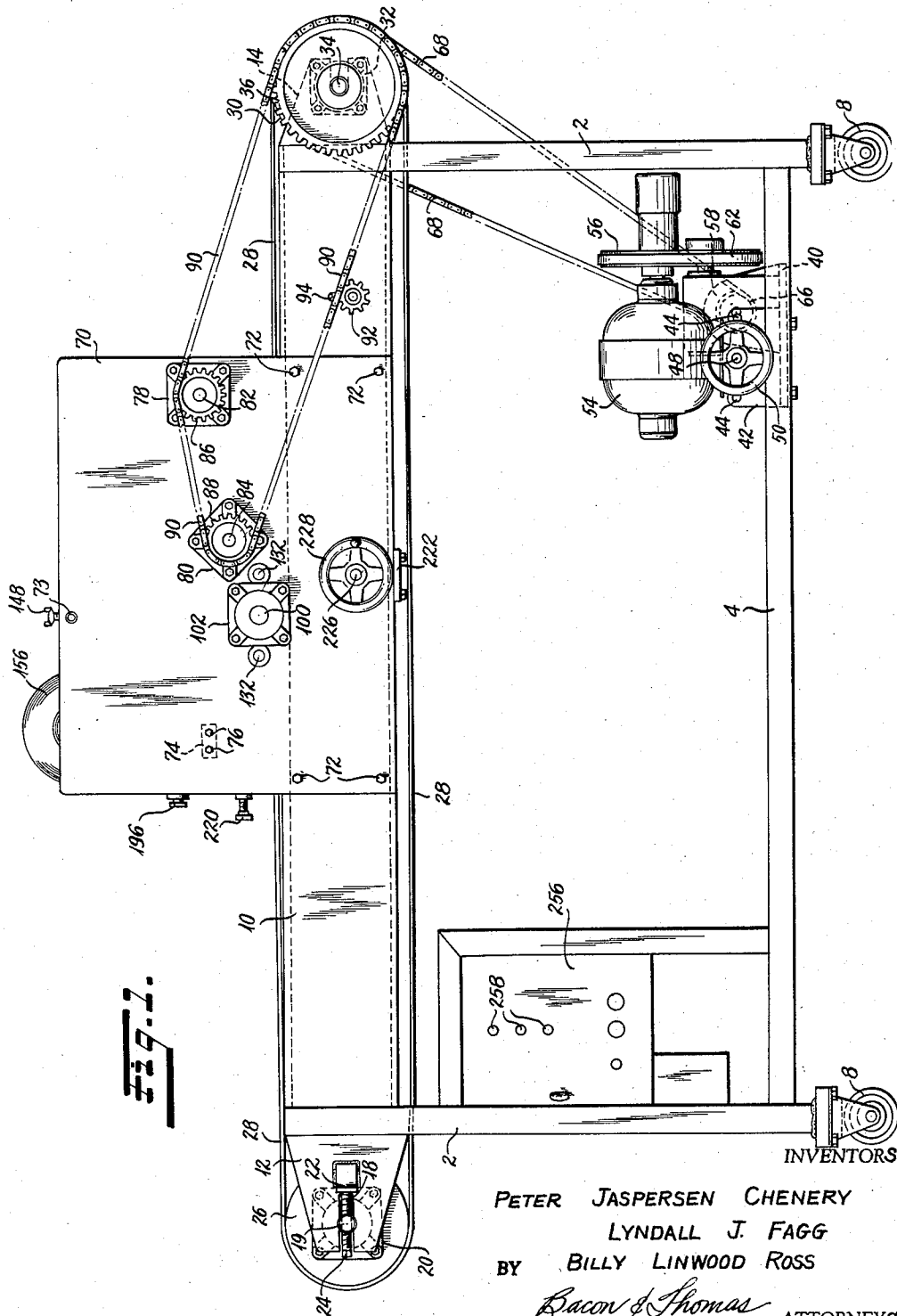
P. J. CHENERY ET AL

2,877,586

TRANSFER MACHINE

Filed Sept. 6, 1955

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TRANSFER MACHINE

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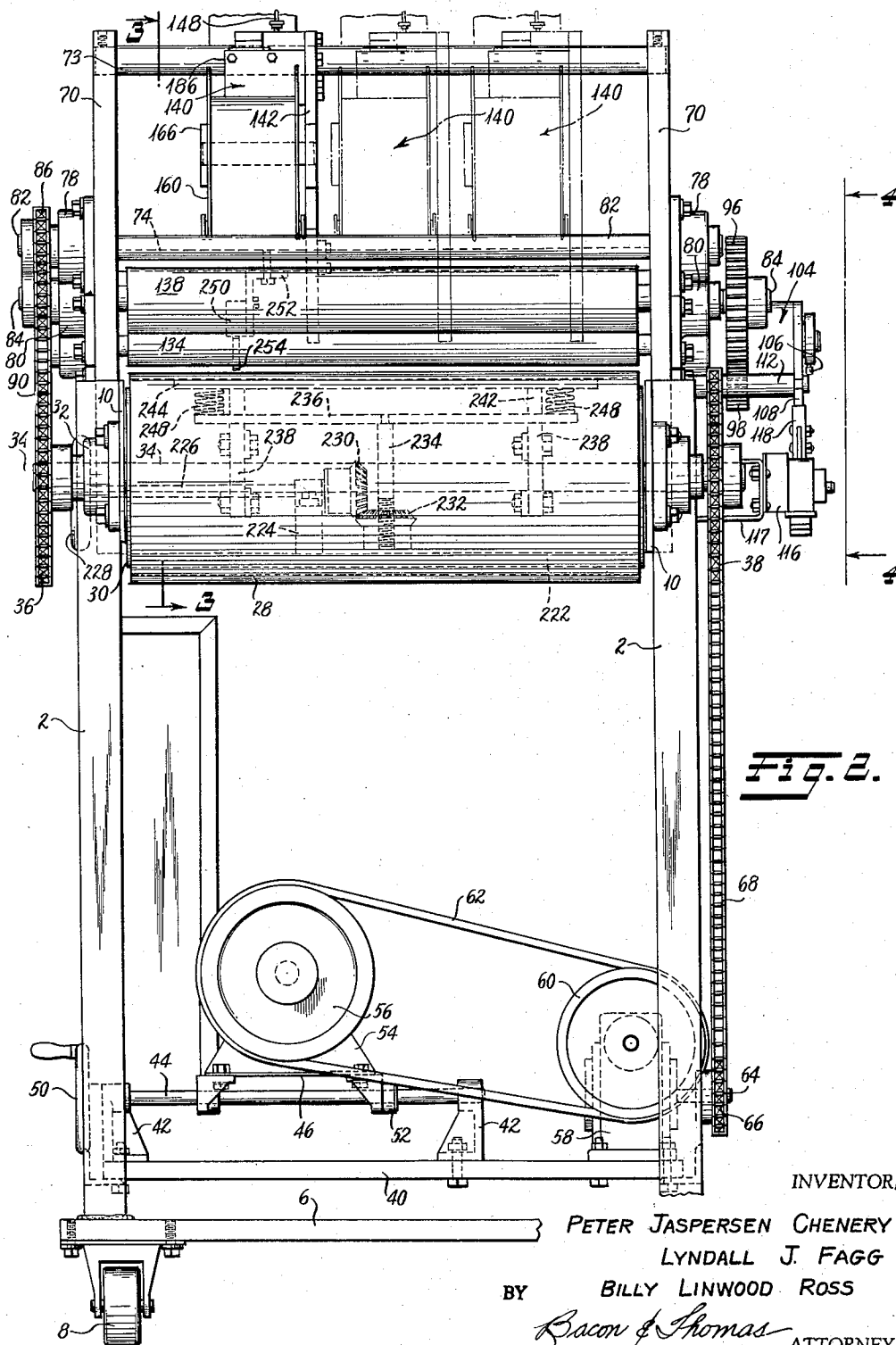


Fig. 2.

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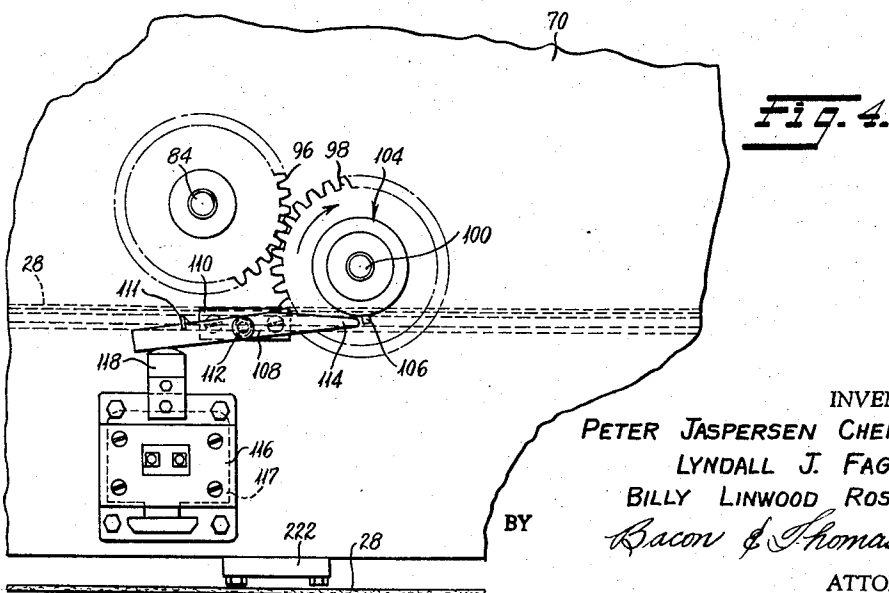
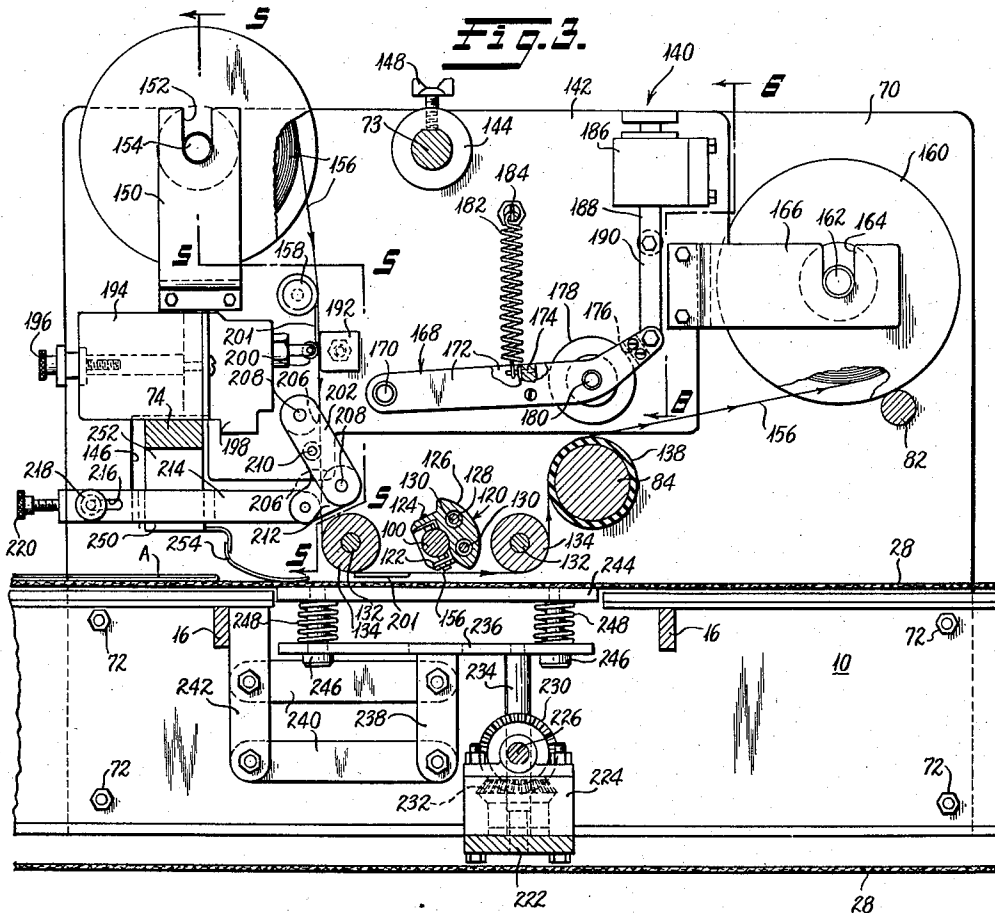
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4 Sheets-Sheet 4

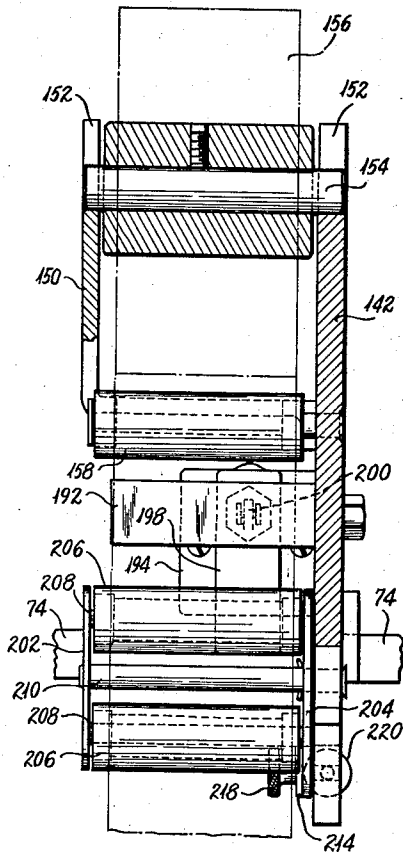


Fig. 5.

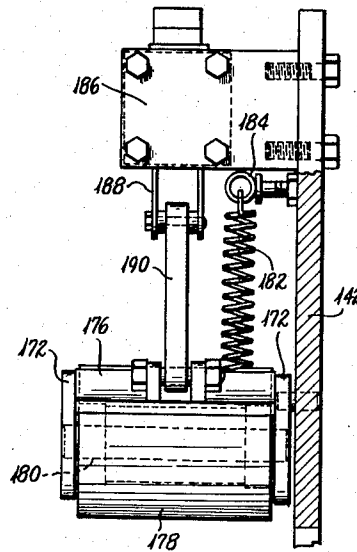


Fig. 6.

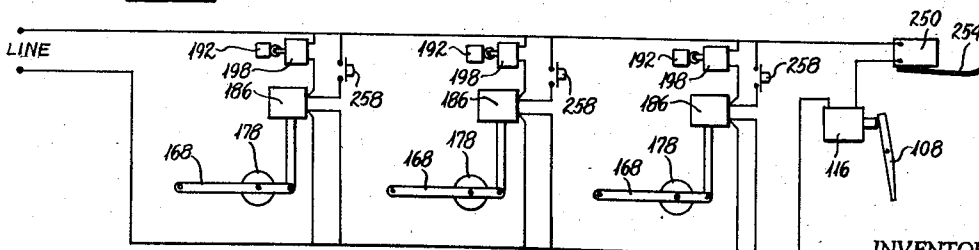


Fig. 7.

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TRANSFER MACHINE

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Application September 6, 1955, Serial No. 532,641

8 Claims. (Cl. 41—1.2)

This invention relates to transfer machines for transferring printed matter, labels, or other indicia from a carrier tape to an article of merchandise. The description herein relates particularly to a machine for transferring such indicia from a carrier tape or backing strip to textile articles such as hosiery or socks.

It is common practice to provide indicia, labels, or the like on textile articles by bringing the article into contact with a face of a carrier strip, such as paper, bearing the printed matter to be transferred. The matter is printed on the backing strip in a material subject to heat whereby heating of the backing strip while in contact with the textile article causes the printed indicia to be softened to adhere to the textile material. Subsequent separation of the carrier strip and the article leaves the printed label on the textile article.

It has been common practice heretofore to bring successive articles into contact with successive imprints on the backing strip while both are held stationary and to thereafter employ a heated iron or the like to heat the backing strip and press the indicia into the textile material while the latter is stationary. The carrier or backing strip or tape on which successive imprints appear are well known and readily available. The imprints on the strip contain a substantial amount of material whereby the characters of the indicia actually stand out from the face of the carrier tape a substantial distance.

The machine of the present invention employs such conventional carrier tapes and utilizes a supply of such tape to imprint successive articles in a continuous process. The articles are moved continuously through the machine and the tape is indexed, by novel mechanism to be described, to bring successive imprints thereon into position to meet successive articles and to move therewith and at the same speed through a transfer station at which heat and pressure are applied to the tape and article to effect the desired transfer. The machine is so constructed, as will be described, that the articles move continuously through the machine without stopping at any point therein.

It is therefore an object of this invention to provide a transfer machine capable of transferring imprints to successive articles by a continuous process.

It is another object of this invention to provide a transfer machine of the type indicated wherein the articles to be imprinted move continuously therethrough and wherein an indicia-bearing tape is intermittently stopped with successive indicia thereon stationary at a predetermined position in advance of the transfer station and to thereafter feed the transfer tape through the transfer station at the same linear speed as the articles.

Still another object of this invention is to provide a machine as set forth in the preceding paragraph wherein means are provided for effecting a fine adjustment of the position occupied by successive imprints on the tape when stationary.

A further object of this invention is to provide a trans-

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fer machine that is relatively simple in construction, economical to produce and dependable in operation.

A still further object of this invention resides in the provision, in a transfer machine, of novel tape feeding and take-up means.

An additional object of the invention is to provide novel coordinating means to properly time the cyclic functioning of different parts thereof.

Further and additional objects and advantages will become apparent to those skilled in the art as the description proceeds in connection with the accompanying drawings, wherein:

Fig. 1 is a side elevational view of a machine embodying the present invention;

Fig. 2 is an end view, on an enlarged scale, of the machine shown in Fig. 1 as viewed from the right hand end thereof;

Fig. 3 is a vertical sectional view, on a further enlarged scale, of a fragmentary portion of the machine shown in Figs. 1 and 2 and taken substantially along the line 3—3 of Fig. 2;

Fig. 4 is a fragmentary side view of a portion of Fig. 2 as viewed substantially from the line 4—4 of Fig. 2;

Fig. 5 is a fragmentary sectional view, on an enlarged scale, taken substantially along the line 5—5 of Fig. 3;

Fig. 6 is an enlarged fragmentary sectional view taken substantially along the line 6—6 of Fig. 3; and

Fig. 7 is a schematic wiring diagram of some of the control circuits in the machine illustrated.

The machine shown in Figs. 1 and 2 comprises a framework having upstanding legs 2, lower longitudinal frame members 4 and transverse frame members 6. The machine may be mounted on suitable casters or rollers 8. Longitudinal side plates 10 are fixed to the upper ends of the legs 2 and extend therebeyond as indicated at 12 and 14 in Fig. 1. Suitable transverse spacing means are provided at the upper ends of the legs 2 and the frame includes transverse spacer bars 16 (see Fig. 3) between plates 10. The projecting portions 12 and 14 of the side plates 10 constitute mounts or brackets for conveyor rollers, to be described. The projecting portions 12 are provided with aligned slots 18 for slidably guiding shaft 19 and preventing rotation thereof. Adjacent the inner end of each slot 18 a suitable abutment 22 is formed. An adjusting screw 24 effects adjustment of the shaft 19 along the slots 18 in an obvious manner. Bearings 20 are mounted on an idler roll 26 and rotatably support the same on shaft 19. An endless conveyor belt 28 is trained over idler roll 26. At the other end of the machine the conveyor belt 28 is trained over a drive roller 30 mounted in suitable bearings 32 carried by the extensions 14. The shaft 34 on which drive roller 30 is fixed, extends laterally of the extensions 14 and is provided with a sprocket wheel 36 on the end nearest the viewer of Fig. 1 and a sprocket wheel 38 at its opposite end (Fig. 2).

A sub-frame supported on the longitudinal frame members 4 comprises a transverse member 40 (Fig. 2) having upstanding brackets 42. The brackets 42 support parallel guide rods 44 on which a motor mount 46 is slidable. An adjusting screw 48 is journaled in the brackets 42 and extends between the guide rods 44. Outwardly of the machine frame the screw 48 is provided with a hand wheel 50 and threadably engages a boss (not shown) on the motor mount 46. Thus, the motor mount 46 may be manually adjusted along the guide rods 44, on at least one of which a stop collar 52 is provided to limit movement of the motor mount to the right as viewed in Fig. 2. A suitable motor 54 is mounted on the motor mount 46 and is provided with a variable diameter drive pulley 56 on its shaft. The pulley 56 is of a well-known type and need not be described in detail, but includes

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axially movable flange members defining a groove for a drive belt and spring means to urge the opposed flanges together to normally tend to increase the effective diameter of the pulley. A speed reducing mechanism 58 is also mounted on the transverse sub-frame member 40 and is provided with a driven pulley 60 over which drive belt 62 is trained. The drive belt 62 is also trained over the motor pulley 56. As will be obvious, adjustment of the motor 54 to the left of its position shown in Fig. 2 will cause the tension applied to belt 62 to spread the flanges of the pulley 56 apart permitting the belt to move radially inwardly of the split pulley and thus reduce its effective diameter to vary the speed at which the speed-reducing mechanism 58 is driven. Clearly, the hand wheel 50 may be manipulated to produce the desired speed of operation of the speed-reducing mechanism 58. The speed reducer 58 has an output shaft 64 on which a sprocket wheel 66 is fixed.

A drive chain 68 is trained over the sprocket wheel 66 and around the sprocket wheel 38 on drive roller shaft 34. Thus, operation of the motor 54 causes the conveyor belt 28 to be driven continuously, at a reduced speed. The direction of drive is such that the upper "run" of the conveyor belt 28 moves to the right as viewed in Fig. 1.

A pair of upstanding side plates 70 are mounted, by bolts 72 or the like, on the side plates 10 of the machine frame to extend a substantial distance upwardly above the conveyor belt 28 and on opposite lateral sides thereof. A rod 73 extends between the plates 70 and is fixed thereto at its ends to function as a brace or spacing member for the plates 70 and further to adjustably support transfer heads, to be described later. A further transverse bar 74 extends between the plates 70, in the position indicated in Fig. 1, and its ends are fixed to the plate 70 by cap screws 76 or the like. Bearing blocks 78 and 80 are mounted on the outer faces of the plates 70 and rotatably support transverse shafts 82 and 84, respectively. The shafts 82 and 84 are, respectively, provided with sprocket wheels 86 and 88 fixed to their near ends as viewed in Fig. 1. A sprocket chain 90 is trained over the sprocket wheel 36 on shaft 34, previously described, and also over the sprocket wheels 86 and 88. A chain tightener 92 is mounted for adjustment along a slot 94 in side plate 10 and may be adjusted along the slot to regulate the tension in the chain 90, in an obvious manner.

From the structure thus far described, it will be clear that the conveyor belt 28 and transverse shafts 82 and 84 are constantly driven by motor 54 at a uniform rate and in timed relation to each other.

Referring now to Fig. 4, which is a fragmentary view of a portion of the side of a machine at the other end of shaft 84, it will be seen that the shaft 84 is provided with a spur gear 96 fixed to its rearmost end. The spur gear 96 meshes with a spur gear 98 normally freely rotatable on a shaft 100 suitably journaled in the side plate 70 seen in Fig. 4 and also journaled in a bearing 102 on the other side of the machine outwardly of the side plate 70 seen in Fig. 1. Referring again to Fig. 4, the shaft 100 and gear 98 are adapted to be drivingly connected by a one-revolution clutch indicated generally at 104. The one-revolution clutch 104 may be of any known or suitable type and will not be described in detail except to point out that one of the clutch members is fixed to shaft 100 and the other is fixed to gear 98. The clutch members are normally resiliently engaged but are self-disengageable by rotation of the clutch when a stop element 106 thereon is held stationary. As is usual in clutches of this type, if the member 106 is free to rotate, the clutch members engage to effect a driving connection between the parts. In the embodiment shown in Fig. 4, a lever 108 is pivotally mounted on a bracket 110 carried by the side plate 70 and a spring 111 is arranged to urge the lever 108 to rotate about its pivot 112 in a counterclockwise direction. The lever will, therefore, normally tend to rotate counterclockwise under the influence of the spring

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111 to position its right hand end 114 in the path of rotation of the stop member 106. The stop member 106, clutch 104, gear 98, and shaft 100, rotate clockwise as viewed in Fig. 4. Therefore, the stop member 106 will engage and be held stationary by the end 114 of lever 108. Under these conditions, the clutch 104 is disengaged and gear 98 is permitted to turn freely on shaft 100. A solenoid 116 having a movable armature 118 is mounted on a suitable bracket 117 (Fig. 2) secured to the plate 70 in such position that the armature 118 engages the left end of the lever 108. When the coil of solenoid 116 is energized its armature 118 is caused to move upwardly to tilt lever 108 in a clockwise direction. As will be described later, the solenoid 116 is energized only momentarily to withdraw the end 114 of member 108 from the path of stop member 106 and thus permit the clutch 104 to engage whereupon shaft 100 is driven by gear 98. Before the shaft 100 has finished one complete revolution, the solenoid 116 is again de-energized to lower its armature 118 and permit lever 108 to rock counterclockwise to again position its end 114 in the path of stop member 106. When the shaft 100 has completed a single revolution, stop member 106 engages end 114 and is actuated to thereupon disengage the members of clutch 104 and stop rotation of shaft 100.

Referring now to Fig. 3, the shaft 100 has mounted thereon a rotary iron or presser member 120. The member 120 extends substantially the full distance between the side plates 70 and is provided with a channel 122 embracing the shaft 100. By means of drive pins 124 or the like, the presser member 120 is fixed to the shaft 100. The presser member 120 is provided with a segmental cylindrical peripheral surface portion 126 concentric to the axis of shaft 100. The outer boundaries of the remainder of the member 120 are all nearer the axis of shaft 100 than the surface 126. The presser member 120 is further provided with longitudinal passageways 128 in which heating elements 130 are housed. Any suitable means, such as brushes and slip rings (not shown) may be provided to conduct electric current to the heating elements 130 to heat the presser member 120 to a desired relatively high temperature. It is contemplated that suitable control means be provided to regulate the operation of the heating elements 130 and maintain member 120 at a substantially uniform temperature.

A pair of parallel shafts 132 are journaled in the side plates 70 and extend laterally therebetween on opposite sides of the shaft 100. The shafts 132 are provided with suitable rollers 134 also extending substantially the full distance between side plates 70. The rollers 134 are fixed to their shafts 132 which are freely rotatable in suitable supporting bearings.

As clearly seen in Fig. 3, the constantly driven transverse shaft 84 is provided with a friction sleeve 138, which may be rubber or the like, on its outer periphery. The sleeve 138 and shaft 84 are rigidly fixed together for unitary rotation and sleeve 138 thus comprises a feed roller extending across the machine between plates 70.

As is apparent from Fig. 2, the transfer machine of the present invention is preferably provided with three transfer heads 140, two of which are shown by dotted line in Fig. 2. The transfer heads 140 are all of identical construction, except that they may be of different widths, therefore, only one will be described in detail.

Referring now to Fig. 3, each transfer head comprises a carrier plate 142 having a bushing 144 fixed thereon and embracing the transverse shaft 73 previously described. The carrier plate 142 is further provided with a notch 146 embracing the transverse spacer bar 74 previously described. The bushing 144 is provided with a suitable thumb screw 148 whereby the carrier plate 142 may be locked in a selected position along the shaft 73. The transverse guide bar 74 acts to partially support and guide the carrier plate 142 on the machine frame.

A portion of the carrier plate 142 and a portion of a bracket 150 mounted on the plate 142 but spaced therefrom are provided with aligned notches 152 at their upper edges (see also Fig. 5) to rotatably receive a mandrel 154 adapted to have a supply of transfer tape 156 mounted thereon. A guide roller 158 is rotatably mounted on the plate 142 and over which tape 156 may be trained. The roller 158 establishes a predetermined rectilinear path for tape 156 from the roller 158 to the foremost guide roll 134, previously described. In operation of the machine a supply of transfer tape 156 is threaded as shown to pass over guide roll 158, around the spaced guide rollers 134 and below the shaft 100, thence upwardly over a portion of the periphery of the constantly rotating feed roller 138 to a suitable take-up reel 160. The take-up reel 160 is provided with trunnions 162 freely rotatable in vertical slots 164 in a portion of the plate 142 and a bracket 166 fixed thereto. The dimensions of the slot 164 are such that the outer periphery of the reel 160 may engage and rest on the periphery of constantly rotating shaft 82, previously described.

A lever structure 168 is pivotally mounted, at 170, on the carrier plate 142 and comprises spaced side members 172 (see also Fig. 6) and suitable spacers 174 and 176. Between the spacers 174 and 176 a presser roller 178 is journaled on a pivot 180 carried by the lever structure 168. The lever structure 168 and roller 178 are so proportioned and positioned that swinging movement of the lever structure 168 about its pivot 170 causes roller 178 to move toward and from the periphery of feed roll 138. A spring 182 is anchored at one end 184 to the carrier plate 142 and at its other end to the transverse member 174 of lever structure 168. Thus, spring 182 tends to retract presser roll 178 from feed roll 138. A solenoid 186 is suitably mounted on the carrier plate 142 and is provided with a movable armature 188 pivoted to link 190 which, in turn, is pivoted to transverse member 176 of lever structure 168. The arrangement is such that energization of the coil of solenoid 186 causes its armature 188 to move downwardly and thus force presser roll 178 against feed roller 138 against the action of spring 182.

Also fixedly mounted on the carrier plate 142 is an anvil member 192 arranged closely adjacent the rectilinear path of the tape 156 between guide rollers 158 and 134. The anvil 192 is so positioned that the tape 156 moves therepast substantially in surface contact with a face of the anvil. A bracket 194 is adjustably mounted on carrier plate 142 to permit adjustment to the right or left of the position shown in Fig. 3 by means of an adjusting screw 196. A suitable quick acting switch 198 of high sensitivity is mounted on bracket 194 and is provided with a switch actuator 200 normally urged toward the anvil 192. The type of switch employed is commonly referred to as a microswitch. The microswitch 198 is normally closed but is opened upon movement of the actuator 200 to the left of a predetermined position. Microswitch 198 controls solenoid 186 in such manner that when the microswitch is closed, the solenoid 186 is energized and when microswitch 198 is open the solenoid 186 is de-energized.

The tape 156 is of a type bearing longitudinally spaced imprints comprising the indicia material to be transferred to the desired articles. The indicia, as stated previously, is of material having substantial body and projects outwardly from the face of the carrier tape 156 a substantial distance as generally indicated at 201. The bracket 194 is so adjusted that when the actuator 200 presses against the bare carrier tape 156 which, in turn, engages anvil 192, the microswitch 198 is closed and solenoid 186 is energized. When a raised imprint 201 enters between the actuator 200 and anvil 192, the actuator 200 is moved to the left sufficiently to open switch 198,

de-energize solenoid 186, and permit spring 182 to retract presser roll 178 from feed roll 138 and thereby stop feed of the tape 156. The frictional bearing of the tape 156 against anvil 192 and friction in guide rollers 158 and 134 and friction in slots 152 is normally sufficient to prevent feed of tape 156 by constantly rotating feed roll 138, even though the tape is in contact with the latter. If desired, a suitable friction brake device may be provided to restrain the tape. To effect feed of the tape 156 it is necessary that presser roll 178 firmly press the tape against feed roll 138. As will be obvious, the constantly rotating shaft 82 in frictional engagement with the periphery of take-up reel 160 constantly urges the reel to rotate in a direction to take-up or wind all slack in tape 156. When tape 156 is being fed by feed roll 138, the roll 160 is free to rotate by virtue of its frictional contact with shaft 82. However, when presser roller 178 is in the retracted position shown, the tape 156 is stationary and the shaft 82 merely slips on the periphery of the reel 160 without actually driving the same. The position of anvil 192 and actuator 200 is so related to the position of the foremost guide roller 134 and shaft 100 that the raised indicia 201 adjacent anvil 192 stops feed of tape 156 with another raised indicia 201 positioned slightly in advance of the transfer station, which may be identified as the position directly below the axis of shaft 100. In different rolls of tape 156 the spacing between indicia 201 may vary slightly and since one of the indicia always stops at the anvil 192, means are provided to adjust the position of the indicia 201 near the transfer station. To effect this adjustment a cage member comprising side elements 202 and 204 (Figs. 3 and 5) is provided with a pair of spaced rollers 206 journaled therebetween on axles 208 constituting spacing members for the side elements 202 and 204. The cage member is pivotally mounted on an axis defined by the pivot pin 210 fixed at one end to the carrier plate 142 closely adjacent the path of the tape 156. As illustrated, the axis of pivot pin 210 is between the axes of rollers 206 and the rollers 206 are disposed on opposite sides of the tape 156. The side member 204 of the cage device is provided with an ear 212 to which an adjusting link 214 is pivoted. The adjusting link is provided with a slot 216 through which a clamping screw 218 extends into threaded engagement with the carrier plate 142. The lefthand end of adjusting link 214, as seen in Fig. 3, is provided with a flange extending past the forward edge of carrier plate 142 and through which an adjusting screw 220 is threaded. As will be obvious, the clamping screw 218 may be loosened and screw 220 manipulated to slide link 214 to the right or left and thus swing rollers 206 about the axis of pin 210. By swinging the cage device and the rollers 206 clockwise as seen in Fig. 3, it will be apparent that the tape will be caused to follow a modified path between anvil 192 and guide rollers 134 and that the length of such path will be increased. Since the indicia 201 are a fixed distance apart on the tape 156, an increase in the length of the tape path from the anvil to the guide roller 134 will result in the tape being brought to a standstill with the foremost indicia 201 spaced a greater distance in advance of the transfer station below the axis of shaft 100. In the manner described, adjustment may be effected to position the leading indicia 201 at the desired spacing ahead of the transfer station.

Referring now to Figs. 2 and 3, a further transverse member 222 extends across the frame of the machine below the lowermost edges of the side plates 10 and 70 and functions as a spacer or brace and as a support for a bracket 224 in which a shaft 226 is journaled. The shaft 226 extends outwardly through the side plates 10 and 70 on the side shown in Fig. 1 and has a hand wheel 228 fixed thereto. Adjacent the bracket 224, shaft 226

is provided with a miter gear 230 meshing with a second miter gear 232 resting on transverse member 222. The miter gear 232 is provided with a threaded axial bore threadedly engaging a stem 234 fixedly attached to and depending from a carrier element 236. The element 236 is in the form of a table having depending brackets 238 at opposite lateral edges thereof. Parallel links 240 are pivoted to the depending brackets 238 and are pivoted at their other ends to fixed brackets 242 secured to a transverse member 16 of the machine frame. A platform 244 underlies the upper run of conveyor belt 28 in supporting relation thereto in an area underlying the shaft 100 and guide rollers 134. Depending pins 246 fixed to the platform 244 extend slidably through the carrier element 236. Heads on the lower ends of the pins 246 limit upward movement of the platform 244 relative to the carrier element 236. Each of the pins 246 is surrounded by a compression spring 248 and the springs 248 urge the platform upwardly to the limit of its movement relative to carrier element 236.

By the structure just described, the hand wheel 228 may be rotated to vertically adjust the position of carrier element 236 and thus vary the normal vertical position of the platform 244. In operation, the platform 244 is positioned at such elevation as to hold the upper run of the conveyor belt 28 a distance below the lower peripheries of guide rollers 134 slightly more than the normal thickness of the articles to be imprinted by the machine, so that the articles do not normally engage the tape at the peripheries of guide rollers 134. This spacing is provided so that leading and trailing portions of the articles can move freely below rollers 134 before and after the actual imprinting cycle, while tape 156 is stationary. However, the normal distance from belt 28 to the cylinder containing surface 126 of presser 120 is less than article thickness so that surface 126 forces tape 156 downwardly from its normal path during the imprinting cycle.

The transverse brace member 74 previously described not only serves to partially support and guide carrier plate 142 but also supports a sensitive switch 250 by means of a suitable bracket 252 (Figs. 2 and 3). The switch 250 is provided with an actuator having a depending finger 254 normally resting lightly against the upper surface of the conveyor belt 28 a short distance in advance of the transfer station. The switch 250 controls solenoid 116, previously described, and is so arranged that when the switch is closed solenoid 116 is energized to remove the end of lever 108 from the path of stop member 106 of one-revolution clutch 104. Upward movement of the actuating finger 254 closes switch 250 to energize solenoid 116. In Fig. 3, A designates an article on the conveyor 28 approaching the control finger 254. As the article advances to the right it will lift finger 254, thus closing switch 250 and energizing solenoid 116 to release the one-revolution clutch 104 for a single cycle of operation. Thereafter the approach of the article A to the transfer station causes the rotary presser member 120 to commence a single rotation. The rearmost edge of article A passes the finger 254 before the one-revolution clutch completes a full cycle.

As is evident from Fig. 2, the machine is provided with a single switch 250 and control finger 254 positioned below one of the transfer heads 140. Each of the transfer heads 140, however, is provided with all of the mechanism and instrumentalities previously described as being mounted on and carried by the carrier plate 142. The take-up reel driving shaft 82, the tape feed roller 138, guide rollers 134, and the segmental rotary presser member 120 extend across the machine below all of the transfer heads 140 and thus serve all three heads. Since there is only one segmental presser member 120 for all of the transfer heads, the operation of all three heads

must be timed to the same single cycle of operation. It is contemplated that articles A be delivered to the conveyor belt and placed thereon so that some portion of each article passes under each of the heads 140. It will be obvious that only the portion of each article that passes under the finger 254 is effective to release the one-revolution clutch and it is, therefore, necessary that the articles be so arranged that the desired portions thereof pass beneath the heads 140 simultaneously.

Referring now to Fig. 1, numeral 256 indicates a control panel which may be provided with the necessary or desirable control instrumentalities such as a master switch for all the electrical circuits of the machine, a switch for starting and stopping motor 54, a suitable switch and/or rheostat for controlling the operation of the heating elements 130 in the presser member 120, and manual switches 258 to be described later.

Referring now to the circuit diagram of Fig. 7, it will be obvious that closing switch 250 will result in energization of solenoid 116 and releasing the one-revolution clutch 104 for a single cycle of operation to rotate the heated transfer member 120 through one complete revolution. Fig. 7 shows the microswitch 198 and solenoid 186 of each head 140 as being arranged in series across the power line whereby opening of the switch 198 will de-energize solenoid 186 to stop feed of tape 156 in the manner described. The three manual switches 258 previously referred to are provided, one for each head 140, so that the operator may exercise manual control of the individual tape feeding devices. As shown, each switch 258 is arranged in parallel with its corresponding microswitch 198 so that the operator may at any time close a switch 258 to energize its corresponding solenoid 186 and effect feed of tape 156 on a selected head 140, even though the associated microswitch 198 may be open. It is often desirable to enforce feed of one of the tapes independently of its automatic operation when initially threading the tape into the machine or for other reasons.

The operation of the machine herein described is as follows:

The articles A are sequentially placed on the conveyor belt 28 at the left end of the machine as seen in Fig. 1 and arranged as previously described. The articles may be placed on the conveyor 28 manually or by automatic machinery, such placement not being part of the present invention. Assuming the machine to be already in operation and the individual heads 140 laterally adjusted on spacer shaft 72 to be in proper alignment with the desired portions of the articles, the tapes 156 and the rotary presser member 120 will be stationary while shafts 82 and 84 are rotating. In this position there will be an indicia imprint 201 on each of the tapes 156 stationary at about the position indicated in the drawing slightly in advance of the transfer station. As each article A advances to the right, a portion of it passes under control finger 254, thus energizing solenoid 116 and drivingly connecting shaft 100 to shaft 84 to start the shaft 100 rotating in a counterclockwise direction as seen in Fig. 3. The parts are so proportioned that the peripheral speed of the segmental surface 126 of member 120 is equal to the linear speed of the conveyor 28. As the article A advances toward the transfer station, the leading edge of the surface 126 approaches the stationary tape 156 and engages that tape at about the time the leading edge of article A reaches a position immediately therebelow. By virtue of the force of springs 248, the surface 126 firmly pinches the tape 156 between itself and the article A and presses both the tape and article downwardly against the force of the springs 248 while the article is advancing to the right and the surface 126 is in rolling contact therewith. This action forcibly feeds the tape 156 to the right at the same speed as the article A and the heated surface 126 thereafter rolls over the moving article and that portion of tape 156 bearing the indicia 201. The indicia is thus heated and transferred to the

article A. As the imprinted article moves to the right beyond the transfer station, the tape 156 changes direction around the rearmost guide roller 134 and is thus stripped from the article leaving the indicia 201 on the article rather than the tape.

As the rolling action of the surface 126 starts movement of tape 156, the indicia 201 then adjacent the anvil 192 is moved downwardly past the actuator 200 of microswitch 198 and thereafter the actuator moves to the right a distance equal to the height of the indicia 201, which distance is sufficient to close microswitch 198 and energize solenoid 186. The solenoid 186 is thus energized immediately after starting a transfer cycle and presses roller 178 downwardly to pinch the tape 156 between roller 178 and continuously rotating feed roll 138, the surface of which causes the tape to feed at the same linear speed as the conveyor 28. The segmental rotary transfer member 120 completes its cycle of operation and may come to rest in the position indicated, free of the tape 156 therebelow, before the next succeeding indicia 201 has been brought to the desired position in advance of the transfer station. The segmental surface of member 120 leaves the tape 156 while the heated portion of the latter is still in contact with the moving article A. The tape will continue to feed, however, since microswitch 186 is still energized, until the heated part of the tape is stripped from the article by the second guide roll 134, without smudging the imprint just transferred, and until a raised indicia 201 reaches a position between anvil 192 and actuator 200. Thus feed of the tape 156 with article A therebelow is started by the rotary segmental transfer member 120 but feed of the tape is stopped to properly index the indicia 201 only by microswitch 198 which is entirely independent of the cycle of operation of the one-revolution clutch.

While a single specific embodiment of the invention is shown and described herein, that embodiment is merely illustrative of the invention and not limiting. The invention embraces all modifications falling fairly within the scope of the appended claims.

We claim:

1. In a machine for transferring successive indicia imprints from a tape having longitudinally spaced raised indicia imprints thereon to successive articles; means defining a transfer station, first means for moving spaced articles successively through said station along a predetermined path at a substantially uniform speed, second means for guiding said tape through said station along said path, cyclically operable means for intermittently feeding a predetermined length of said tape along said path at the same linear speed as said articles, control means responsive to an article approaching said station for initiating operation of said cyclically operable means whereby said articles and tape move through said station in unison, with said raised indicia in predetermined fixed relation to said article, irrespective of the spacing of successive articles on said first means, and presser means at said station movably mounted for movement in unison with said tape and article and arranged to press said tape and indicia against said article while the latter are moving through said station.

2. A machine as defined in claim 1 wherein said presser means comprises a rotatable member mounted at said station for rotation about an axis transverse to said path, and means responsive to said control means for driving said rotatable member through a single revolution, said rotatable member having a segmental peripheral portion

arranged to rollingly engage said tape and press the same against an article while said tape and article are moving through said station.

3. A machine as defined in claim 1 wherein said cyclically operable means includes a tape feeding device, detecting means adjacent the path of said tape approaching said station, said detecting means being responsive to raised indicia on said tape to stop operation of said tape feeding device and thereby stop said tape, said detecting means being so positioned that said tape is stopped thereby with one of said indicia a predetermined distance ahead of said transfer station.

4. A machine as defined in claim 3 wherein said second means includes adjustable guide elements for changing the length of the path of said tape between said detecting means and said transfer station whereby to adjust said predetermined distance.

5. A machine as defined in claim 4 wherein said adjustable guide elements comprise a pair of spaced parallel guide rollers on opposite sides of said path and means mounting said guide rollers for adjustment in opposite directions transversely of said path.

6. A machine as defined in claim 5 wherein said last-named means comprises a frame on which said rollers are rotatably mounted, said frame being pivotally adjustable about an axis closely adjacent and transverse to said path and between said rollers.

7. In a machine for transferring indicia from a tape having longitudinally spaced raised indicia thereon to successive articles; a conveyor belt for successively conveying spaced articles at a substantially uniform speed, drive means for driving said conveyor, means for guiding said tape along a path having a portion closely adjacent the surface of said belt at a transfer station and extending in the direction of movement of said belt, said means for guiding said tape including a feed roller constantly driven by said drive means, a movable roller for selectively pressing said tape against said feed roller to be advanced thereby, and means engageable by raised indicia on said tape for controlling movement of said movable roll, a rotatable member at said transfer station having a surface portion arranged to rollingly engage and press said tape at said station toward said conveyor belt during a portion of a rotation of said member, and transmission means actuated by an article on said belt approaching said station for drivingly connecting said rotatable member to said drive means to be rotated thereby, whereby said rotatable member presses said tape against a predetermined portion of each article, irrespective of the spacing between successive articles on said conveyor belt.

8. A machine as defined in claim 7, wherein said transmission means comprises a one-revolution clutch and a control member therefor positioned in the path of movement of said article.

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