Sept. 26, 1961 K. H. BROWNLEE 3,001,310

MACHINE FOR APPLYING TRANSFERS

Original Filed March 21, 1956 8 Sheets-Sheet 1

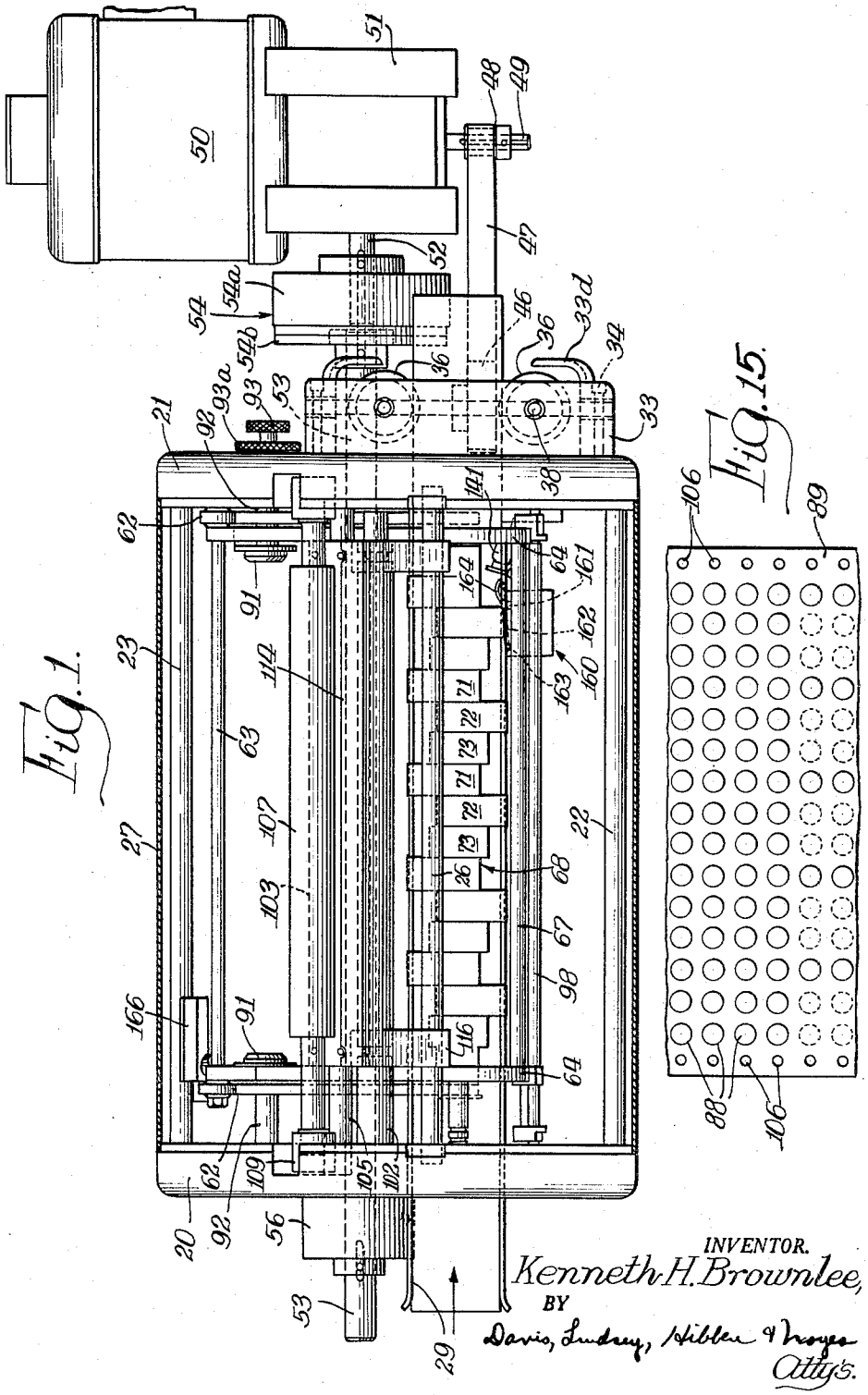


Fig. 1.

Fig. 15.

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MACHINE FOR APPLYING TRANSFERS

Original Filed March 21, 1956 8 Sheets-Sheet 2

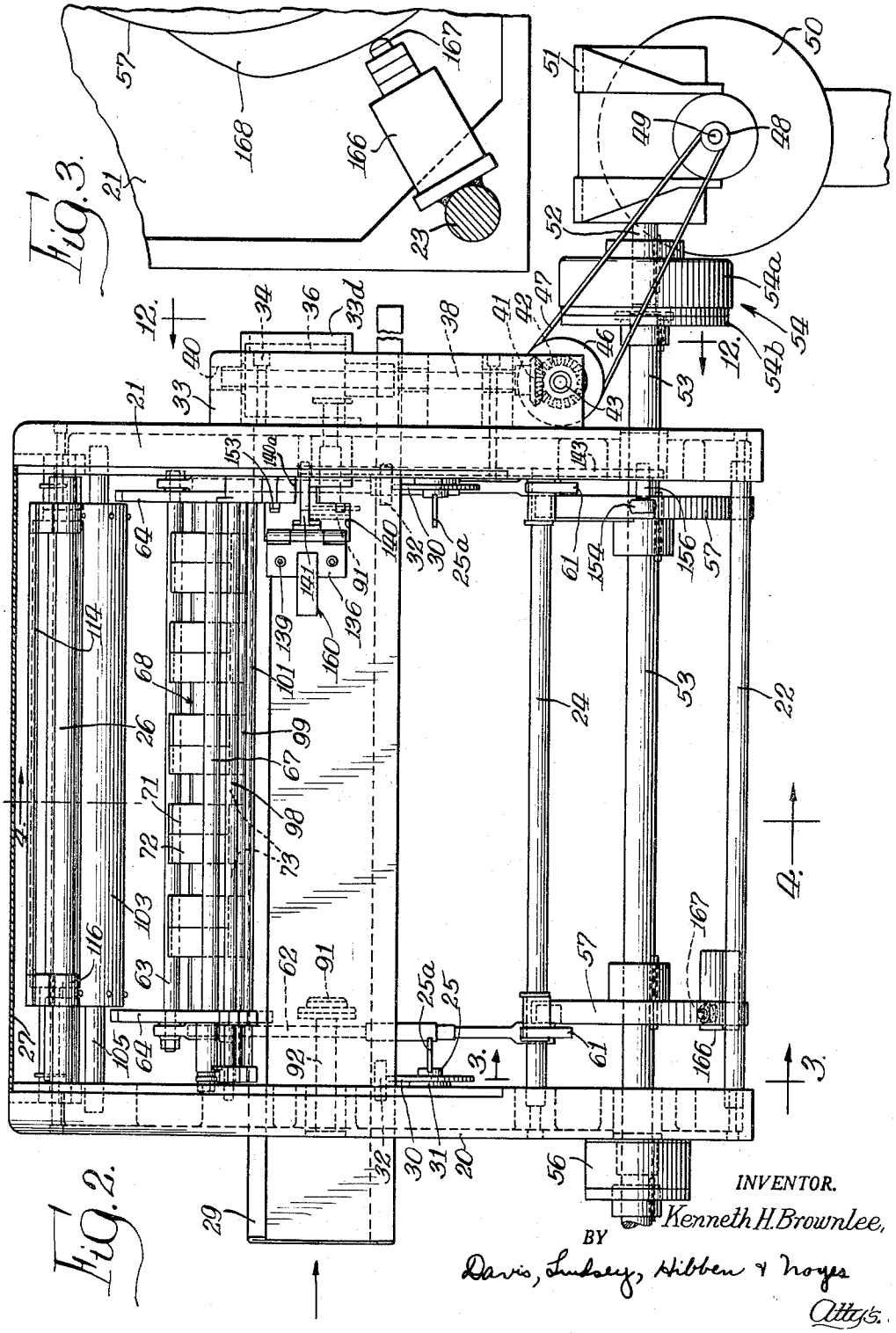


Fig. 3.

Fig. 2.

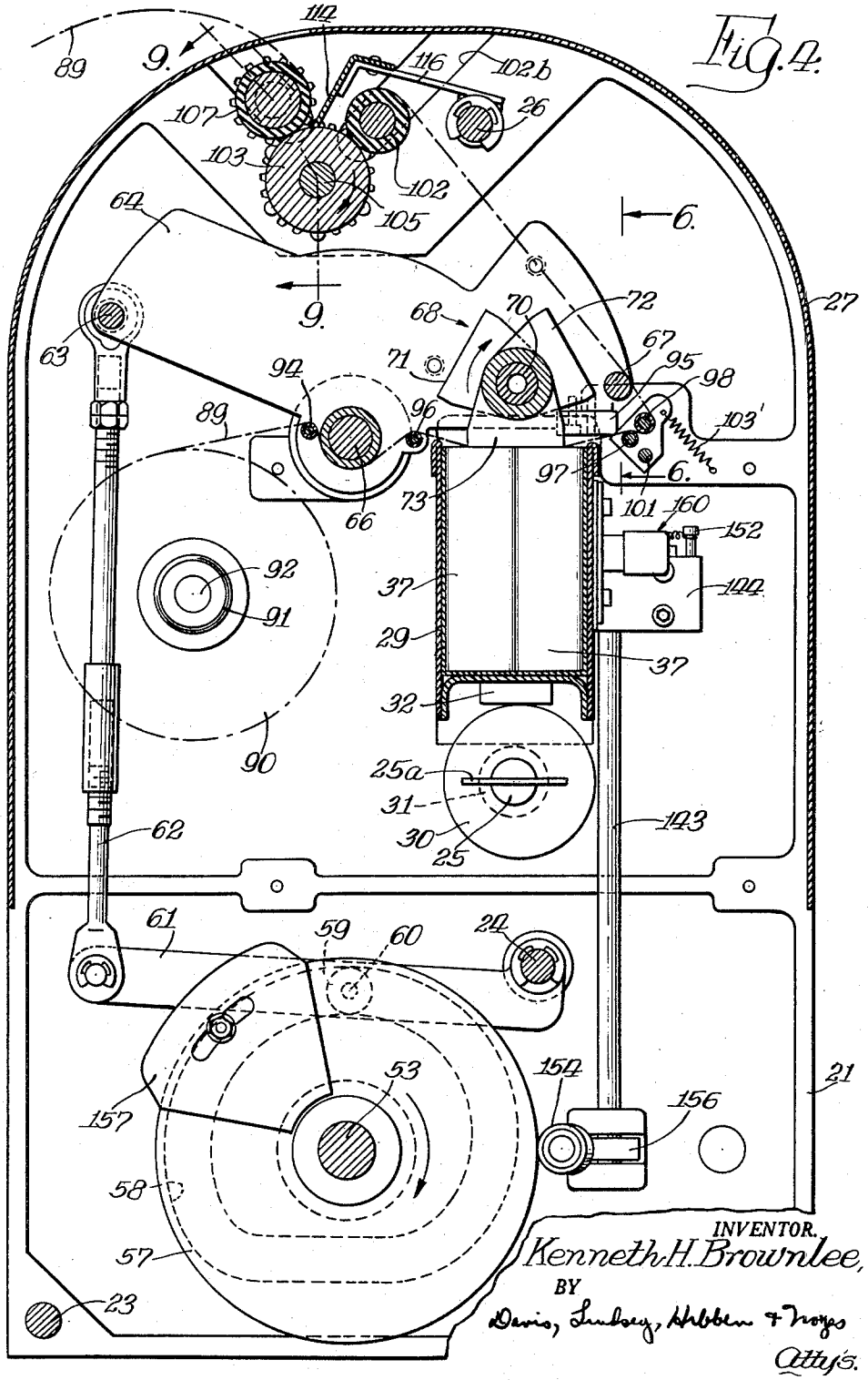
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MACHINE FOR APPLYING TRANSFERS

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Fig. 4.



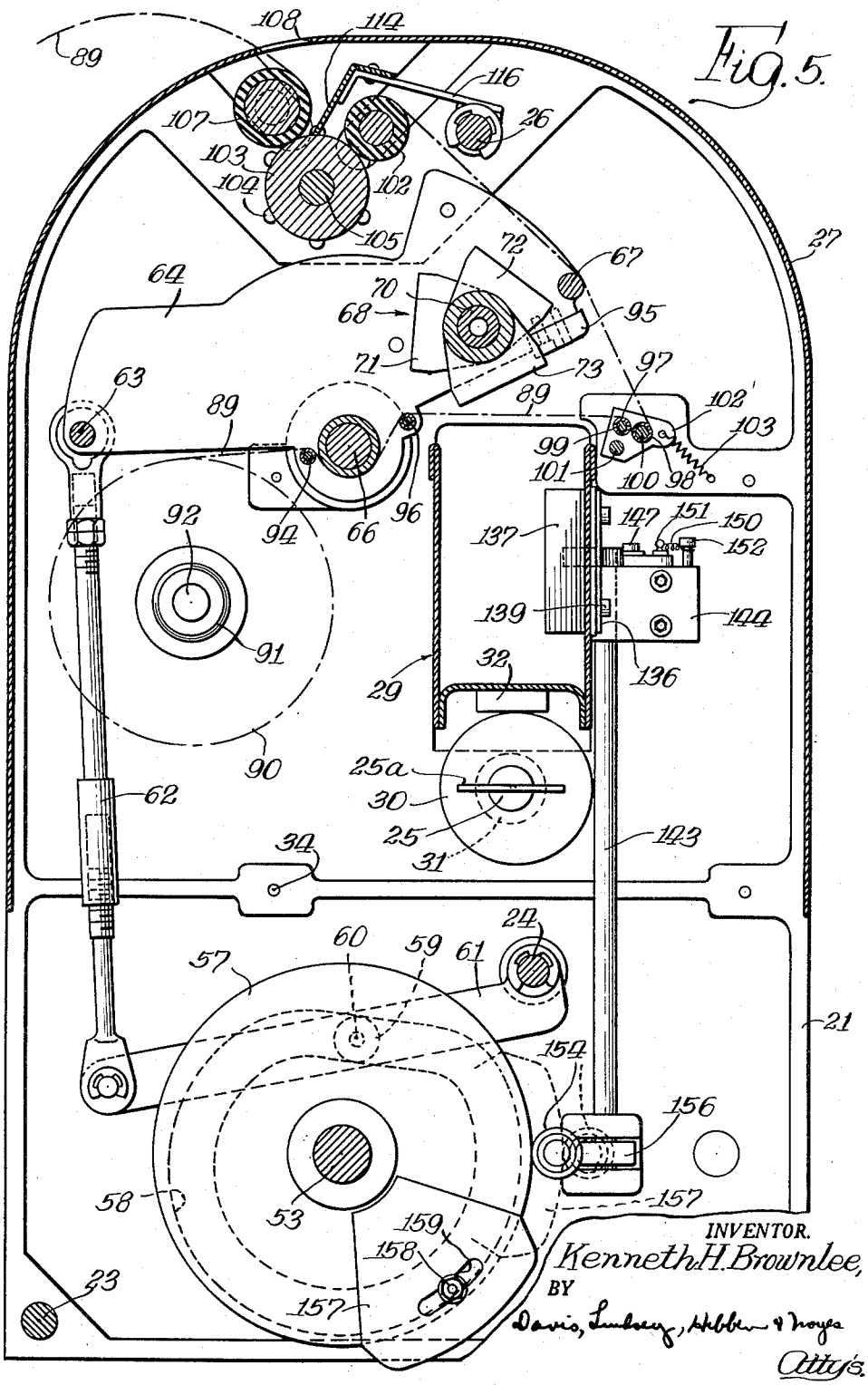
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Fig. 5.

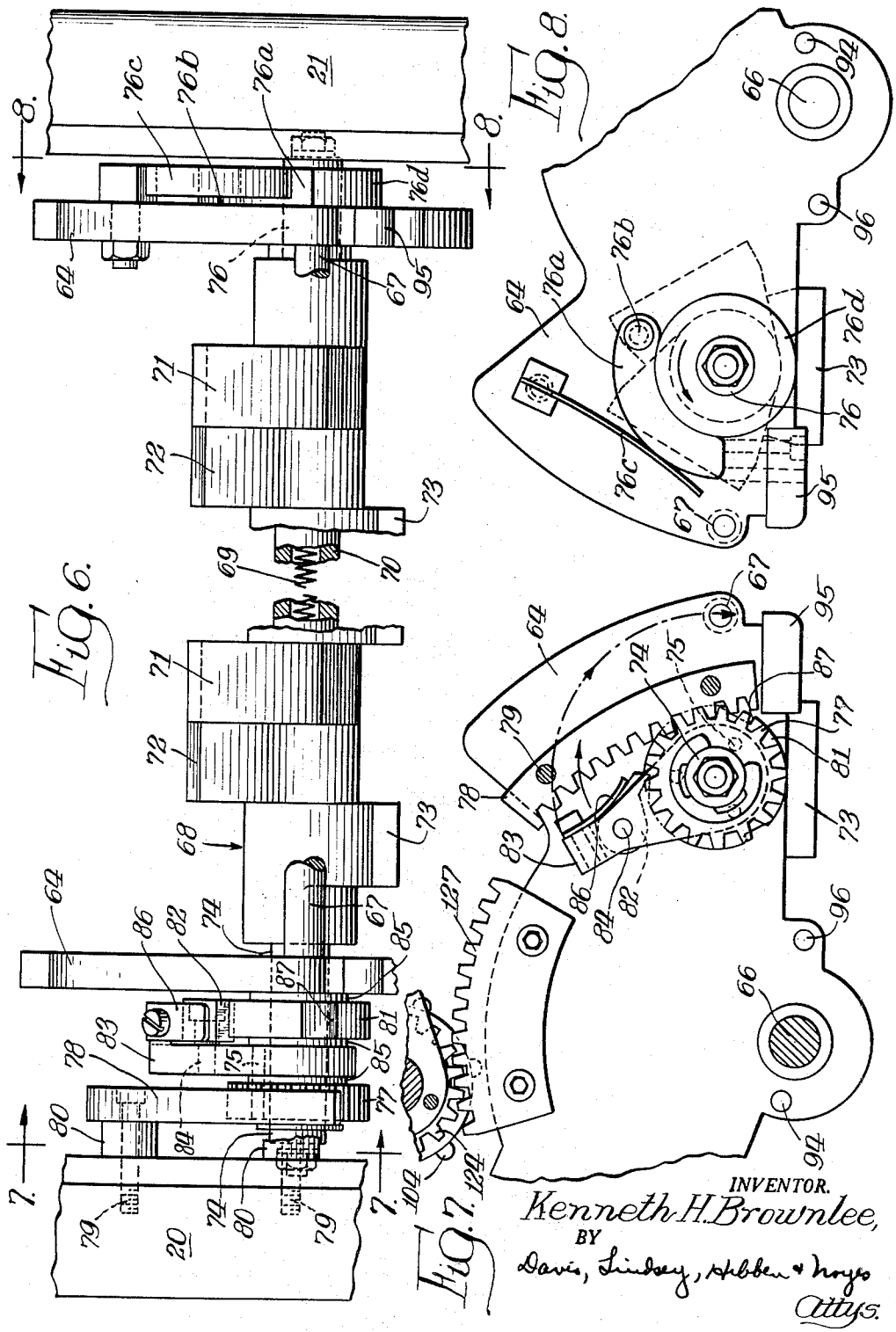


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MACHINE FOR APPLYING TRANSFERS

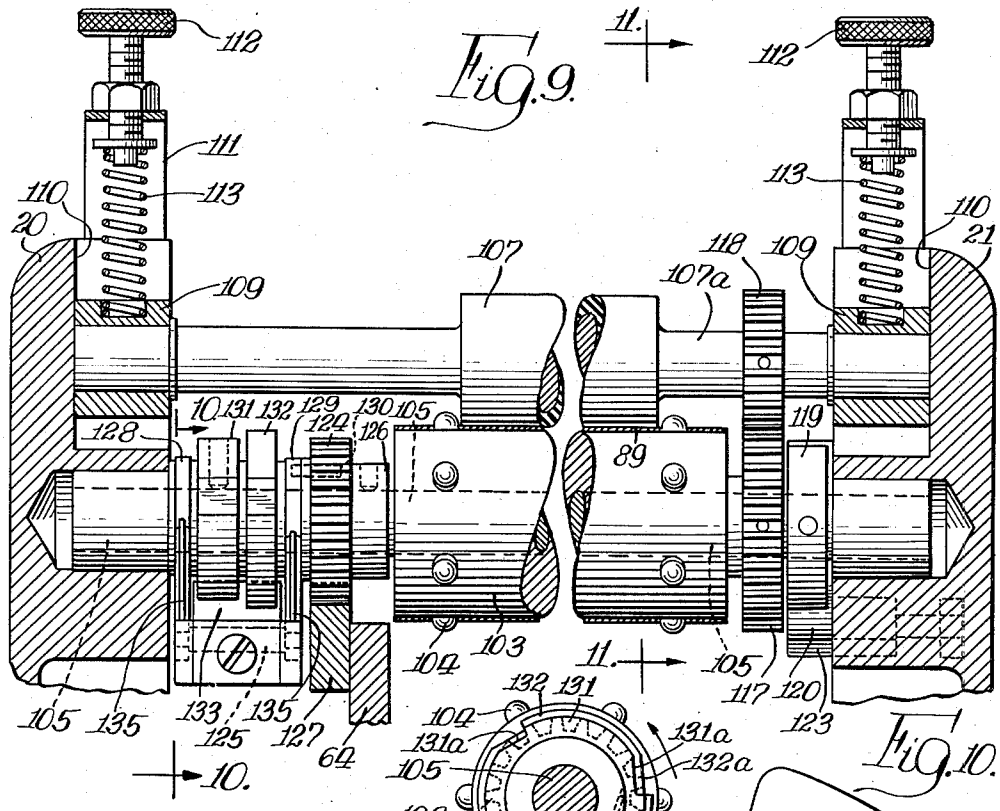
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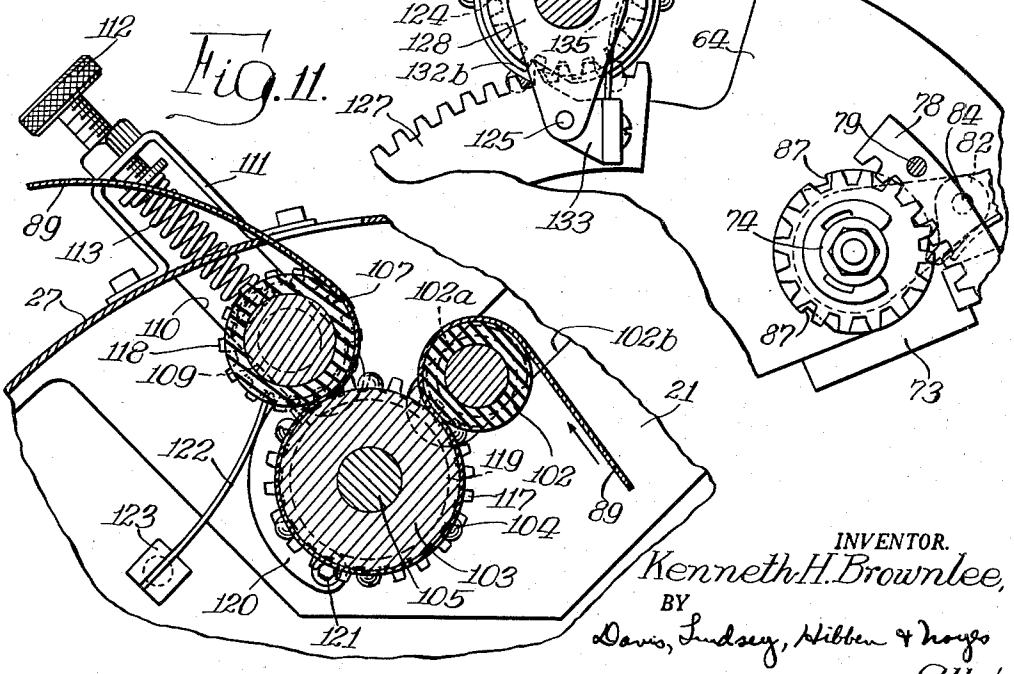


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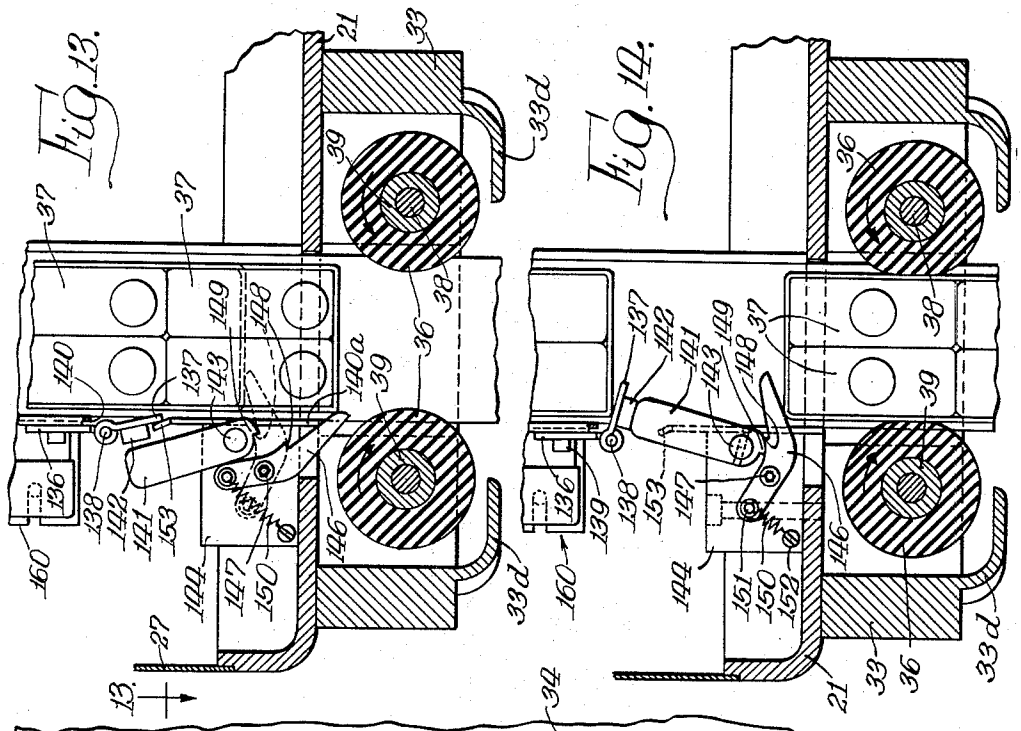


FIG. 13.

FIG. 14.

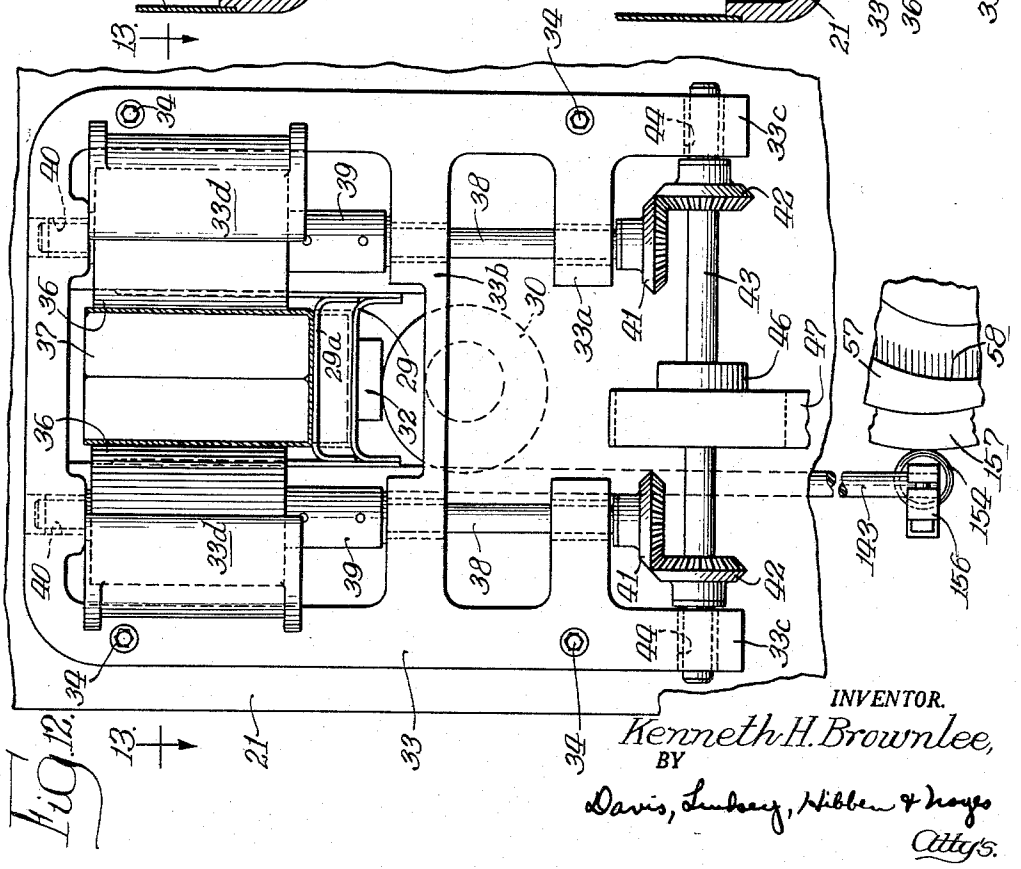


FIG. 12.

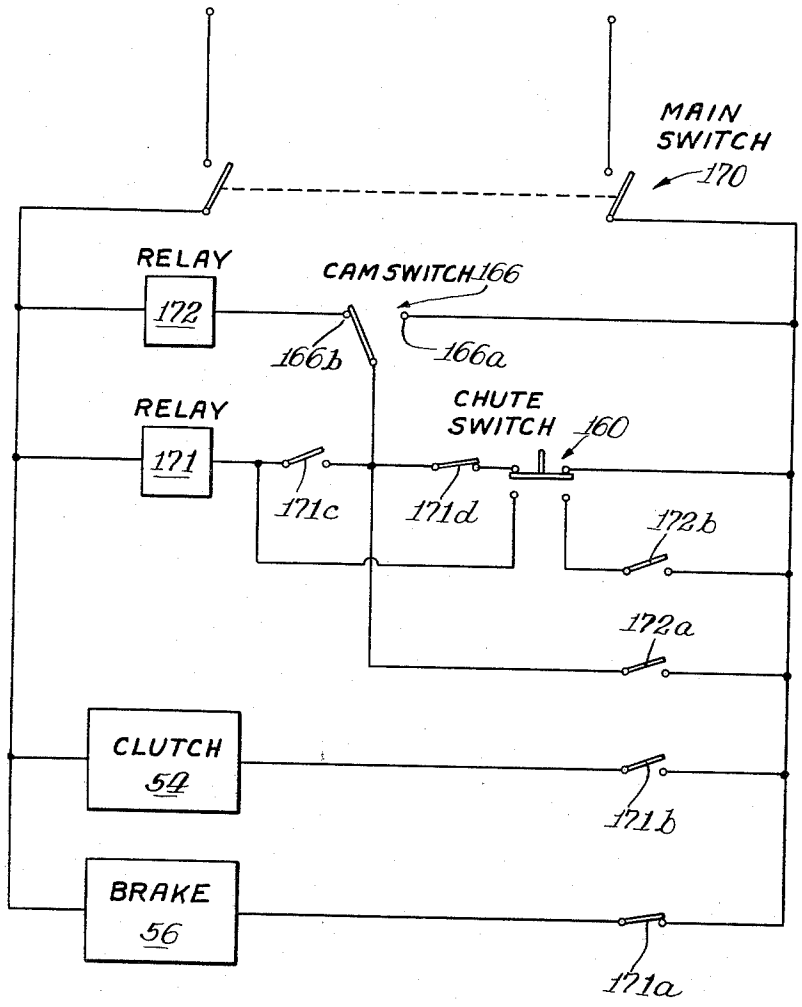
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MACHINE FOR APPLYING TRANSFERS

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Fig. 16.



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3,001,310

MACHINE FOR APPLYING TRANSFERS

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Continuation of application Ser. No. 572,937, Mar. 21, 1956. This application Oct. 19, 1959, Ser. No. 847,860

28 Claims. (Cl. 156—361)

This application is a continuation of my copending application Serial No. 572,937, filed March 21, 1956, now abandoned.

This invention relates to a machine for applying decalcomania transfers and more particularly to a machine adapted to apply a plurality of such transfers simultaneously to a plurality of articles. The present invention constitutes an improvement over the transfer applying machines shown in my earlier Patents Nos. 2,493,522 and 2,493,523 and has particular utilization and advantage in the application of revenue stamps to packages, such as cigarette packages, prior to sale to the general public. It is to be understood, however, that the machine of the present invention has application to the marking of a wide variety of other articles with a wide variety of other types of decalcomania transfers.

It has been found that the application of water applied transfers in the form of revenue stamps, labels or stickers to packages to be marked which requires moistening the transfers so as to release them from the carrier paper sheet and then adhering them to a plurality of packages by the water method by addition of adhesive or by solvent activation of adhesive, is so time consuming and expensive as to render such transfers unsuited for revenue tax stamp purposes. This was particularly true where many thousands of individual cigarette packages demand the application of tax stamps thereto in a relatively short period of time.

On the other hand tax stamp transfers which are applied by heat lend themselves to more rapid application to the cigarette packages and eliminate the use of water, solvents, and many manual operations. However, the handling of such heat-applied transfers has presented some difficulties and disadvantages resulting from machine operation, such as imperfect release of the transfers from the carrier sheet, imperfect adherence to the package or article being marked, relatively slow operation of the machine thus reducing the required high rate of marking, malfunctioning of the machine, and the necessity of manual operations of the machine in carrying out the transfer release and applying process.

It is, therefore, one of the principal objects of the present invention to provide an improved machine adapted to apply decalcomania transfers to articles.

Another object of the invention is to provide a machine adapted to apply decalcomania transfers simultaneously to a plurality of articles which is automatic in operation through its cycles and requires no manual operation on the part of an attendant except the feeding thereto of articles to be marked if any auxiliary automatic feeding mechanism forming no part of the present invention is not provided.

A further object of the invention is to provide a machine of the foregoing character wherein the transfer applying mechanism is automatically set in operation by the insertion in the machine of an article to be marked and which cycle of operation is automatically terminated upon removal of the article from the machine.

Still another object of the invention is to provide a machine of the foregoing character wherein operation of the transfer applying mechanism is automatically initiated by the insertion into the machine of successive groups of articles to be marked simultaneously.

A still further object of the invention is to provide a transfer applying machine having a mechanism for automatically feeding a carrier sheet bearing the transfers through a marking zone and a mechanism comprising a heated platen adapted to be automatically moved to and out of contact with said carrier sheet, said mechanisms being operable automatically in timed relation.

Another further object of the invention is to provide a transfer applying machine having a mechanism for automatically feeding a transfer carrying sheet through a marking zone and a mechanism comprising a heated platen having a plurality of transfer engaging sides and adapted to be automatically moved to and from transfer applying position in contact with said carrying sheet, said mechanisms being synchronized in their operation and said sheet feeding mechanism being automatically operable once during a predetermined plurality of cycles of machine operation and said platen being automatically operable and rotatable every cycle of machine operation to bring said platen sides successively into operable position for applying a plurality of transfers from different groups of transfers on said sheet to different groups of articles as they are successively passed through the machine.

Other objects and advantages of the invention will become apparent from the subsequent detailed description taken in conjunction with the accompanying drawings, wherein:

FIG. 1 is a top plan view of a decalcomania transfer applying machine comprising a preferred embodiment of the present invention, the cover being removed therefrom;

FIG. 2 is a front elevational view of the machine shown in FIG. 1;

FIG. 3 is a broken away elevational view of the cam-operated switch for controlling the brake mechanism;

FIG. 4 is a transverse vertical sectional view taken on the line 4—4 in FIG. 2, looking in the direction of the arrows, showing the heated platen in transfer applying position;

FIG. 5 is a view similar to that of FIG. 4 showing the heated platen in raised position;

FIG. 6 is a front elevational view taken on the line 6—6 in FIG. 4, looking in the direction of the arrows, and showing the heated platen with a section thereof broken away and also showing the platen actuating mechanism;

FIG. 7 is a vertical sectional view taken on the line 7—7 in FIG. 6, looking in the direction of the arrows;

FIG. 8 is a vertical sectional view taken on the line 8—8 in FIG. 6, looking in the direction of the arrows;

FIG. 9 is a longitudinal view taken on the irregular line 9—9 in FIG. 4, some of the parts being shown in elevation and other parts being shown in section;

FIG. 10 is a vertical sectional view taken on the line 10—10 in FIG. 9, looking in the direction of the arrows;

FIG. 11 is a vertical sectional view taken on the line 11—11 in FIG. 9 and showing the paper drive roller and pressure roller;

FIG. 12 is an elevational view of the right end of the machine from the line 12—12 in FIG. 2, looking in the direction of the arrows;

FIG. 13 is a horizontal sectional view taken on the line 13—13 in FIG. 12 and showing the carton stop mechanism in retracted position;

FIG. 14 is a view similar to FIG. 13 showing the carton stop mechanism in blocking position;

FIG. 15 is a plan view of a section of a strip of paper carrying a plurality of decalcomania transfers and shown somewhat diagrammatically; and

FIG. 16 is a diagram of the electrical circuit of the

switches and relays for controlling the electric brake and electric clutch.

The declacomania transfer applying machine shown in the drawings constitutes a preferred embodiment of the present invention and, referring to FIGS. 1, 2, 4 and 5, comprises left and right end plates or castings **20** and **21**, respectively, secured together in spaced relation by front and rear spacer rods **22** and **23** at the lower portions of said end plates and by cross shafts **24** and **26**. Access to the interior of the machine is afforded through a removable curved cover plate **27** supported by the end plates **20** and **21**.

Extending longitudinally through the machine and supported in openings in the end plates **20** and **21** is an open-ended and open-topped chute **29** which is of proper dimensions and length to accommodate cartons containing a plurality of cigarette packages to which the decalcomania transfers are to be applied. As shown in FIG. 12, an auxiliary channel-shaped plate **29***a* may be inserted within the chute **29** in order to make the chute **29** shallower and to accommodate packages of cigarettes of the regular or shorter size. When cigarette packages of the longer size are to be marked, the plate **29***a* may be removed. To provide for a fine adjustment, the chute **29** is vertically movable by means of spaced cam adjustment disks **30** (FIGS. 2, 4 and 5) rotatably mounted on stub shafts **31** projecting inwardly from the end plates **20** and **21**. The cam disks **30** engage bearing pads **32** secured to the under surface of the chute **29** and rotation of the disks will effect raising or lowering the chute as desired. The disks **30** may be locked in adjusted position by lock screws **25** having finger pieces **25***a* secured thereto.

As shown in FIGS. 1, 2, 12, 13 and 14, a housing **33** is secured by bolts **34** to the outer side of the right end plate **21** and supports rotatably mounted rubber ejection rollers **36** which serve to grip and eject the cartons after the packages **37** therein have each been marked simultaneously with a transfer. Each roller **36** is secured through its core **39** which projects downwardly therefrom to the upper portions of spaced vertical shafts **38** which are journaled in bosses **33***a* and web portions **33***b* of the housing **33**. The upper ends of the shafts **38** are journaled in recesses **40** in the upper portion of the housing **33**. On the lower end of shafts **38** are bevel gears **41**, which are in constant mesh with bevel gears **42** secured on a horizontal rotatable cross shaft **43** journaled in bearing openings **44** in the lower ends **33***c* of the housing **33**. Shield plates **33***d* are formed on the outer face of the housing **33** and extend in front of the rollers **36** to partially enclose the same.

A pulley **46** is secured on shaft **43** and a belt **47** drivingly connects the pulley **46** to a pulley **48** of reduced size on the end of the armature shaft **49** of an electric motor **50**. A speed reducer **51** driven from the armature shaft **49** has an output shaft **52** in alignment with a cam or driving shaft **53** which extends longitudinally through the machine and is journaled in bearings in the end plates **20** and **21**. The right end of the cam shaft **53** projects beyond the outer face of the end plate **21** and is adapted to be clutched to the output shaft **52** by an electric clutch **54** of the well known type, the details of which need not be shown for the purposes of this invention. The clutch **54** comprises clutch members **54***a* and **54***b* keyed to the shafts **52** and **53**, respectively. The clutch **54** is operated to engage and disengage the clutch members **54***a* and **54***b* through a system of relays and switches to be described presently. On the left end of the cam shaft **53** which projects beyond the outer face of the left end plate **20** is an electrically operable brake **56** which is adapted to be applied when the clutch **54** is disengaged and to be released when the clutch is engaged. The brake **54** which is of the well known type serves to prevent the cam shaft **53** and the mechanism operated therefrom from coasting beyond the desired cycle of operation, thereby affording positive and precise operation.

As shown more particularly in FIGS. 2, 4 and 5, the cam shaft **53** has keyed to it adjacent the left and right inner faces of the end plates **20** and **21**, box cams **57** of similar construction having cam tracks **58** formed in the vertical side faces thereof. Cam followers or rollers **59** are rotatably supported on pivot pins **60** carried by right and left cam lever arms **61** intermediate the ends thereof and these rollers project into the cam tracks **58** of the box cams **57** so that rotation of the box cams **57** will effect a pivotal raising or lowering movement of the cam lever arms **61**. The forward ends of the lever arms **61** are pivoted on the cross shaft **24** and their rearward ends are pivotally secured to the lower forked ends of vertical connecting rods **62** which extend upwardly and have their upper ends pivotally connected to the left and right ends, respectively, of a movable cross rod **63** and extending therebetween.

A pair of spaced rocker plates **64** are rockably mounted adjacent the inner faces of the end plates **20** and **21**, respectively, on a fixed cross shaft **66** supported by and extending between the end plates **20** and **21**, and they are connected at their rearward ends by the cross rod **63** and at their forward portions by a cross rod **67**. By the foregoing construction, rocking movement of the rocker plates **64** to and from transfer applying position will be effected by rotation of the cam shaft **53** through the box cams **57**, rollers **59**, lever arms **61**, connecting rods **62** and cross shaft **63**.

A heated iron or platen **68** by which the transfers are applied to the cigarette packages, as shown more particularly in FIGS. 1, 2 and 4 to 6, inclusive, is rotatably carried by and between the rocker plates **64** and comprises an electric heating element or coil **69** disposed within a tube **70** press fitted within the main body portion of the platen. The platen is provided with three groups or sets of radially projecting heat conducting projections or units **71**, **72** and **73** having flat heated surfaces, these groups of units being disposed at 120° intervals. The flat heated surfaces of the projections **71**, **72** and **73** are adapted to be brought into successive contact with the decalcomania transfers as the platen **68** is rotated relative to the rocker plates **64** on each cycle of machine operation by a mechanism which will now be described.

Referring to FIGS. 6 and 7 of the drawings, the platen **68** has left and right shaft ends **74** and **76** fixed to the ends of the tube **70** and extending through the rocker plates **64** and being rotatable with respect thereto. The outer left end of the platen shaft **74** has a spur gear **77** loosely mounted thereon and adapted to mesh with the internal teeth of a stationary gear segment **78** secured to the inner face of the end plate **20** by screws **79** and spaced therefrom by spacing collars **80**. Mounted on the shaft **74** between the spur gear **77** and the left rocker plate **64** is a pawl and ratchet mechanism comprising a ratchet **81** secured to the shaft **74** for rotation therewith, a pawl **82** engageable with the ratchet and a pawl crank **83** loosely mounted on the shaft **74** and having a pin **84** upon which the pawl **82** is pivotally mounted. The pawl crank **83** and the gear **77** are secured together for unitary rotation by a plurality of studs **75**. The pawl **82** is pressed against the ratchet **81** by a leaf spring **86** carried by the pawl crank **83**. The ratchet **81** is provided with three notches **87** of equal depth and equally spaced about its outer periphery at 120° intervals and the pawl **82** is adapted to engage within these notches. The gear, pawl crank, ratchet and rocker plate are maintained in spaced relationship on the shaft **74** by washers **85**.

Thus, as the rocker plates **64** are rocked upwardly by rotation of the cam shaft **53** from their FIG. 4 to their FIG. 5 position wherein the platen **68** is out of contact with the paper web **89** or is in non-applying position, the spur gear will be rotated clockwise approximately 120° by its engagement with the stationary gear segment **78**.

Rotation of the gear 77 will rotate pawl crank 83 a like amount also in a clockwise direction so that the pawl 82 will engage in a notch 87 and force rotation of the ratchet 81 and the platen shaft 74. Hence, the platen 68 will be rotated clockwise also to an extent of 120° so as to bring another of the three groups of heated platen projections into operable downwardly projecting position for engagement with the paper web 89. As the rocker plates 64 are returned to their lowered position of FIG. 4 so that the platen 68 will be in transfer applying position, the platen 68 will not be rotated inasmuch as the pawl crank 83 and gear 77 will be rotated in a counterclockwise direction and the pawl 82 will ride over the notches 87 of the ratchet.

As shown in FIGS. 6 and 8, a brake mechanism for holding the platen 68 in the position to which it has been moved upon rocking of the plates 64, is disposed at the right side of the platen and comprises a brake shoe 76*a* pivoted on a pin 76*b* carried by the right rocker plate 64. The brake shoe 76*a* is pressed by a spring 76*c* on the rocker plate 64 into frictional engagement with a drum 76*d* secured on the right platen shaft 76. Thus, when the platen 68 is moved downwardly into engagement with the paper web 89, it is held by the brake mechanism with the selected group of projections in proper position for flat over-all engagement with the surface of the paper web 89.

As shown in FIGS. 4, 5 and 15, the decalcomania transfers 88 are carried on a sheet of waxed paper 89 in the form of a supply roll 90, and, referring to FIGS. 1 and 2, the supply roll 90 may be supported on left and right cones 91 fixed on the ends of stub shafts 92 extending inwardly from the end plates 20 and 21. The right cone 91 and shaft 92 may be adjusted longitudinally of the machine by an adjusting screw 93 and a lock nut 93*a*. The paper web 89 with the transfers on the under surface thereof extends from the paper roll 90 forwardly of the machine over a roller 94, under the shaft 66, over another roller 96 and thence across the open top of the chute 29 and beneath the heated platen 68 to guide rollers 97 and 98.

The paper guide rollers 97 and 98 are supported on rods 99 and 100, respectively, which along with a tie rod 101 extend between and are carried by left and right pivoted rod holders 102'. The rod 100 is supported at its respective ends in the end plates 20 and 21. The rod holders are urged in a clockwise direction, as viewed in FIGS. 4 and 5, by springs 103' anchored on end plates 20 and 21. As shown in FIGS. 4, a bumper 95 carried by the rocker plates 64 engages the upper inner corners of the rod holders 102' when the rocker plates lower the platen to transfer appiying position and rocks them in a counterclockwise direction so as to lower the roller 97 and provide the necessary slack in the paper web 89 which is required when the platen 68 moves the paper web 89 down into the chute against the upper surfaces of the packages. In FIG. 5, the bumper 95 is shown raised out of engagement with the rod holders 102' so that the roller 97 is in raised position with the paper web 89 also in raised position and extending substantially horizontally over the top of the chute 29 so as not to interfere with the passage of articles along the chute 29.

The paper web 89 passes between the rollers 97 and 98 and then up over the tie rod 67 and rearwardly around an idler roller 102 journaled in a bearing block 102*a* in inclined slots 102*b* in the end plates 20 and 21. The paper web then passes into engagement with a driving roller or sprocket 103, as shown in detail in FIGS. 9, 10 and 11, secured on a rotatable shaft 105 and having a plurality of lugs or teeth 104 adapted to be received within marginal perforations 106 in the paper web 89. The sprocket roller 103 is intermittently driven by a mechanism presently to be described and pulls the paper web 89 off the roll 90 and over the chute 29 as above described. The paper web passes from the sprocket roller 103 around a pressure roller 107 and thence upwardly out of the machine through an elongated slot 108 in the cover 27. As shown more particularly in FIGS. 9 and 11, the left and right ends of the pressure roller 107 are journaled in bearings 109 which are slidable in inclined slots 110 in the end plates 20 and 21. Brackets 111 are secured to the cover 27 and have adjusting screws 112 for regulating the thrust force of springs 113 compressed between the screws and the bearings 109. Adjustment of the screws 112 will adjust the pressure loading of the paper feeding mechanism.

As shown in FIGS. 4 and 5, an elongated stripper plate 114 extends longitudinally of the machine and engages the upper surface of the paper web in front of the pressure roller 107 so as to cause the paper web to become disengaged from the sprocket teeth 104 and to pass around the pressure roller 107 and out through the cover slot 108. The stripper plate 114 is riveted at each of its ends to strap members 116 mounted on the spacer rod 26.

Adjacent the right end of the sprocket roller 103 is a spur gear 117 in mesh with a spur gear 118 on the pressure roller shaft 107*a* so that the pressure roller 107 is driven by the sprocket shaft 105. Pinned to the shaft 105 adjacent the spur gear 117 is a brake drum 119 which is engaged on its outer periphery by a brake shoe 120 pivotally mounted on a pin 121 projecting inwardly from the right end plate 21. A pressure spring 122 held in a stud 123 on the end plate 21 engages the brake shoe 120 and forces the shoe to bear against the drum with the desired pressure, thus holding the paper drive roller 103 in its advanced position against reverse rotation and thus holding the paper web with the desired degree of tautness.

Referring more particularly to the paper roller drive mechanism shown in FIGS. 7, 9 and 10 of the drawings, a spur gear 124 is loosely mounted on the roller shaft 10 as a floating member for rotation relative thereto and is spaced from the sprocket roller 103 by a collar 126. The gear 124 is in mesh with an external gear segment 127 mounted on the upper edge of the left rocker plate 64 so that rocking movement of the plate 64 will effect rotation of the spur gear 124. A pair of cranks 128 and 129 are loosely mounted on the shaft 105 and are connected together by a connecting pin 125 for unitary operation. The crank 129 is connected to the spur gear by a plurality of pins 130 whereby rotation of the spur gear 124 will rock the cranks 128 and 129. Between the cranks 128 and 129 on the shaft 105 are ratchets 131 and 132 which are engaged by a pawl 133 carried by the connecting pin 125 and urged into engagement with the ratchets 131 and 132 by spaced leaf springs 135. The ratchet 132 is loosely mounted on the shaft 105 whereas ratchet 131 is the drive ratchet and is fixed to the shaft whereby rotation of the ratchet 131 will effect rotation of the shaft 105 and hence rotation of sprocket roller 103.

The ratchet 132 is of larger diameter than the ratchet 131 (FIG. 10) and each ratchet is provided on its outer periphery with three notches spaced approximately 120° apart. All of the notches 131*a* of the ratchet 131 are of equal depth. Two of the notches 132*a* of the ratchet 132 are more shallow than the third notch 132*b*, which is deeper and of a depth equal to the notches 131*a* of the ratchet 131. By this relationship of notch depth, movement of the pawl 133 will engage in the shallow notches 132*a* and rotate the ratchet 132 upon each rocking movement of the rocker plate 64 and rotation of the ratchet 131 will not be effected until the pawl engages in the deep notch 132*b* of the group. As seen in FIG. 10, as the pawl 133 falls into the deep notch 132*b*, it will also project into one of the three correspondingly deep notches 131 of the drive ratchet 131 so that both ratchets will be rotated, the rotation of the drive ratchet 131 causing rotation of the shaft 105 and hence a feeding

rotation of the paper drive roller **103**. By this pawl and ratchet construction, the paper drive roller **103** is rotated only once every three rocking movements of the rocker plate **64**. This is in contrast to the heated platen operating means which functions upon each rocking movement of the rocker plate **64**.

As shown in FIGS. 1, 2, 4, 5, 13 and 14, a carton stop is provided in the chute **29** near the inner side of the right end plate **21**. This stop comprises a pair of hinge plates **136** and **137** joined together by a hinge pin **138**. The hinge plate **136** is stationary and is secured to the outer side of the vertical wall of the chute **29** by screws **139**. The other hinge plate **137** constitutes the stop member and is adapted to be projected through an opening **140** in the wall of the chute into carton or article blocking position and, as shown in FIGS. 13 and 14, is held in the path of the cartons by a releasable stop lever **141**, the free left end of which engages a pad **142** on the adjacent movable hinge plate **137** and the right end of which is pinned to the upper end of a rock shaft **143**. This shaft **143** extends downwardly in the machine through a bearing block **144** secured to the end plate **21**.

A notched latch **146** is pivoted on a pin **147** on the upper side of the bearing block **144** and its notch **148** is adapted to engage a lug **149** on the end of the stop lever **141** as the lever **141** is pivoted by rotation of shaft **143**. The latch **146** is urged in a counterclockwise direction, as viewed in FIGS. 13 and 14, by a spring **150** tensioned between a pin **151** on the latch **146** and a pin **152** on the bearing block **144**. The rearward end of the latch **146** projects into the chute through the elongated slot **140***a* in the chute wall which extends to the right from the larger opening **140**. A pair of spaced tongues **153** project into the opening **140** and serve as a stop against which the side edge of the hinge plate **137** strikes so as to be limited in its pivotal movement.

The lower end of the rock shaft **143** has secured thereto a cam follower comprising a roller **154** carried by a movable arm **156** which is clamped to the shaft **143**. The roller **154** engages the outer periphery of the right box cam **57** and is adapted to be actuated by a cam lobe **157** secured to the box cam by a bolt **158** extending through an arcuate slot **159** of the lobe. This bolt and slot connection permits the lobe **157** to be mounted in the box cam **57** in the desired position for actuation of the cam follower at the proper point of time in the cycle of machine operation. In FIGS. 4 and 5, the cam roller **154** is shown in solid lines in engagement with the outer periphery of the box cam **57** and out of engagement with the lobe **157**. In this position, the cam arm **156** and the shaft **143** are not turned and the carton stop mechanism is in the stop or blocking position shown in FIG. 14 with the hinge plate **137** held in projected position in the chute **29**. In FIG. 5, the cam lobe **157**, as shown by the broken lines, has been rotated into engagement with the cam roller **154**, also shown in broken lines, and has forced the roller to the position shown with the result that the cam follower arm **156** has been rotated to cause rotation of the shaft **143**.

Rotation of the shaft **143** by the box cam lobe **157** will be in a counterclockwise direction as viewed in FIGS. 13 and 14 so as to rotate the stop arm **141** inwardly out of holding or blocking engagement against the hinge plate **137** and to permit the hinge plate **137** to be forced inwardly by a carton or article into a position substantially parallel with the chute well. When this occurs, the cigarette carton may be pushed beyond the stop and into engagement with the projecting end of the latch **146** which also will be turned on its pivot and forced out of the way by the carton. Movement of the carton to the right is continued until the front end thereof is engaged by the rotating ejection rollers **36** which thereupon grip the sides of the carton and eject the carton at a rate more rapid than the rate of insertion of the following carton next to be marked for a purpose to be explained more fully hereinafter. By the time the rear end of the carton containing the packages to which transfers have been adhered by the heated platen **68** has cleared the stop **137** and the latch **146**, the lobe **157** has also passed out of engagement with the cam follower **154** thus permitting the stop arm **141** to be rotated clockwise so as to force the hinge plate **137** into the chute to its carton stopping position for engagement with the next succeeding carton.

Referring to FIGS. 1, 2, 4, 5, 13 and 14 of the drawings, a microswitch designated generally by the numeral **160** is secured on the side wall of the chute **29** immediately preceding the carton stop **137**. The microswitch which may be of the usual form comprises a switch actuating plunger **161** extending at right angles to the chute wall and an arm **162** pivoted at **163** to the chute and extending in the direction of movement of the cartons through the chute. An arcuate plate **164** is secured on the outer free end of the pivoted arm **162** and is adapted to project into the chute into the path of movement of the cartons. The free end of the pivoted arm **162** engages the outer end of the switch actuating plunger **161** so that when a carton is pushed into and along the chute, the side face of its leading portion will engage the curved plate **164** and depress the plunger **161**. Actuation of the microswitch **160** will through the system of relays presently to be described, de-energize and release the brake **56** and energize and actuate the electric clutch **54** to engage the same and drive the cam shaft **53**.

A second microswitch that is cam operated is shown in FIGS. 2 and 3 of the drawings. This microswitch designated generally by the numeral **166** is of the usual type of two way switch and is supported on the left end portion of the front lower tie rod **22**. The switch comprises an actuating plunger **167** projecting into the path of movement of and engageable with a cam lobe **168** carried by the left box cam **57** for rotation therewith. This lobe is positioned on the left box cam **57** so as to actuate the microswitch plunger **167** to one position just before the heated platen **68** and rocker plates **64** reach their fully raised position and to release the switch to its other position after the down stroke of the platen has commenced. Actuation of the microswitch **166** will effect engagement of the brake **56** which will lock the shaft **53** against further rotation and hold the platen in its raised position until the chute switch **160** is released and again depressed by another carton to initiate the cycle of operation.

The heating element **69** of the platen **68** and the electric motor **50** are electrically connected to a source of electric current through circuits which may be separate from the clutch and brake actuating circuit and each is provided with separate manual switches (not shown) so that the motor and heating element may be operated as desired without being affected by automatic operation of the microswitches **160** and **166**.

In FIG. 16, the electrical circuit for controlling the clutch **54** and the brake **56** is shown diagrammatically. When the main switch **170** is closed, the circuit is closed through the brake **56** through the normally closed switch **171***a* controlled by the relay **171**, thus applying the brake. However, the switch **171***b* which is controlled by the relay **171** and which is in the line to the clutch **54** is normally disengaged. Also the relay **172** is energized when the main switch **170** is closed thus closing the switches **172***a* and **172***b*.

When a carton closes the chute microswitch **160** by engagement therewith, relay **171** is energized and opens switch **171***a* in the line to the brake so as to release the same and also closes the switch **171***b* in the line to the clutch to engage the same. Energization of the relay **171** also closes the switch **171***c* and opens the normally closed switch **171***d*. The relay **172** remains energized.

With the circuits thus established, the machine proceeds on its cycle of operation as above described.

During the movement of the platen 68 in its down stroke to transfer applying position, the cam switch 166 is released by the cam lobe 168 on the left box cam 67 and this switch then transfers to the contact 166*a* from 166*b* with the result that the relay 172 is deenergized and the relay switches 172*a* and 172*b* are opened. However, the relay 171 is held in energized condition through the cam switch 166 in its right position through contact 166*a* so that the brake 56 remains off and the clutch 54 remains engaged.

As platen breaks off contact from the paper web 89 when it starts its movement to raised position after having applied transfers to the articles in the carton, the carton is moved ahead in the chute 29 by the next succeeding carton and is rapidly ejected from the machine by the rollers 36. A space is created between the front end of the entering carton and the rear end of the departing carton due to the rapid rate of ejection and the slower rate of feed and hence pressure is relieved from the arm 162 and the chute switch 160 is free to restore itself to its initial position. This restoration of the switch 160 does not, however, affect the brake or the clutch mechanism since they continue to be held in their released and engaged positions, respectively, through the other relay switches. However, shortly before the rocker arms 64 and the platen 68 reach their fully raised position, the cam switch 166 is again actuated by the cam lobe 168 on the left box cam 57 so as to transfer the cam switch 166 back to the left to its 166*b* contact position. This causes the relay 171 to become deenergized so as to open the clutch relay switch 171*b* and disengage the clutch 54 and simultaneously to close the brake relay switch 171*a* and apply the brake 56. The relay 172 likewise is energized.

The next carton then engages and operates the chute switch 160 which, as described above, releases the brake 56, engages the clutch 54, and the transfer applying cycle of the machine is again repeated.

It is to be noted that the electrical circuit shown in FIG. 16 and described is of such character that the chute switch 160 must be released and again closed to initiate successive cycles. Since all revenue stamps used must be paid and accounted for, this requirement serves as a safety factor and prevents the machine from repeating or passing on to its next cycle and from applying a second group of pairs of transfers on the same packages that have already been stamped. Thus, as long as a marked carton remains in the chute 29, it holds the chute switch 160 in engaged position and recycling or a repeat marking is prevented. The cycle for the next marking operation can only be initiated by removing the stamped carton, which thereby creates a space between the cartons and permits the switch 160 to be released, and then by again depressing the switch 160 by the next succeeding carton to be marked.

In operation of the machine, the leader portion of the waxed paper web 89 bearing the transfers 88 on the under surface thereof is first pulled off the supply roll 90 and fed through the various rollers and secured around the drive roll 103 as above described, the first two rows of decalcomania transfers being disposed over the chute 29 and the heated platen 68 being in raised position. With the platen heated to the desired degree of temperature by energization of its element 69 and with the motor 50 in operation, the machine is ready to receive and to apply a plurality of transfers to a plurality of articles such as cigarette packages 37 in cartons. At this point in the cycle, the brake 56 is applied and is holding the cam shaft 53 against rotation and the clutch 54 is disengaged so that no drive is being transmitted to the machine from the operating motor 50.

A carton containing the usual ten packages 37 of cigarettes in upstanding position and which has been opened to expose the upper surfaces of the packages is then pushed into the chute 29 and into engagement with the hinged stop 137 which at this point of the cycle is held in projected blocking position in the chute 29 by the arm 141 and positions the packages in proper alignment under the platen 68. However, just immediately prior to engagement of the front edge of the carton with the stop 137, the carton will engage the pivoted switch arm 162 and depress the plunger 161 of the chute microswitch 160 which through the relays above described will engage the clutch 54 and disengage the brake 56. This will release cam shaft 53 for rotation and it will be rotated through the engaged clutch 54 to operate the machine through its transfer applying cycle.

Rotation of the shaft 53 will rotate the left and right box cams 57 and cause the cam rollers 59 on the pivoted arms 61 to roll up to the high points of the cams which results in rocking the rocker plates 64 clockwise as viewed in FIGS. 4 and 5 and lowering the heated platen 68 downwardly until one group of heated projections 73 engage the upper surface of the web 89. Just before the heated platen 68 reaches its fully depressed position, the bumper 95 engages the rod holders 102' and pivots them downwardly in a counterclockwise direction so as to provide sufficient slack in the paper web 89 to reach the upper surfaces of the packages within the open carton as pressure is applied thereagainst by the heated projections 73. During this engagement, every third pair of transfers 88 in the two rows over the chute 29 are released from the paper web and are adhered securely by heat to the upper surfaces of the packages 37.

Upon continued revolution of the cam shaft 53, the rollers 59 drop down into the lower point of the cam so as to lower the cam arms 61 and the connecting rods 62 and hence rock the plates 64 in a counterclockwise direction and raise the heated platen 68 out of engagement with the paper web 89. The cam lobe 157 is positioned on the right box cam 57 so that it engages the cam roller 154 immediately after the heated platen has broken off contact with the paper web as it is being raised. At this point in the cycle, the cam lobe 157 moves the cam roller 154 to its broken line position of FIG. 5 so as to rotate the stop holding arm 141 and permit the stop 137 to be pushed out of the way as another carton of cigarettes is inserted in the chute 29 to push the carton of marked packages into the space between the rollers 36.

The rollers 36 rotate at a very rapid rate and faster than the rate of feed of the unmarked cartons into the machine with the result that the marked carton will be rapidly ejected to open up a space between the marked and unmarked cartons and permit the stop member to be projected back into the chute 29 and held in carton blocking position by the arm 141. The cam lobe 157 remains in engagement with the stop actuating roller 154 only during a short duration of the cycle and that engagement is broken off in sufficient time to permit the stop 137 to be reestablished in blocking position as soon as the space is opened up when the marked carton is rapidly ejected.

As explained above, as the left rocker arm 64 is rocked toward its raised position of FIG. 5, the gear 77 is caused to rotate by the fixed gear segment 127, and through the pawl and ratchet mechanism associated therewith the platen 68 is caused to rotate 120° and to bring the next group of heated projections 72 into the down position for engagement with the next spaced pairs of transfers when the machine is thereafter operated through its cycle.

The box cams 57 continue to rotate and the rocker arms 64 and the heated platen 68 continue to move to raised position until top dead center is reached. Immediately before the fully raised position is reached, the cam lobe 168 on the left box cam 67 engages and operates the microswitch 166 so as to apply the brake 56 and disengage the clutch 54, and thereafter until the chute

switch 160 is operated by the next succeeding carton to be marked, the platen 68 and arms 64 remain in raised position.

When the next carton is pushed into position against the stop 137, the chute microswitch 160 is actuated to release the brake 56 and apply the clutch 54. The cycle above described is repeated and each of the packages of cigarettes are marked with a transfer of the second group of pairs.

Upon completion of marking the second carton of packages, the platen 68 and rocker plate 64 are again raised and the platen is again rotated to bring the third set of heated projections 71 into the down position for engagement with the third and only remaining groups of pairs of transfers 88 in the two rows over the chute 29. The cycle is again repeated as a third carton is moved into position and the second carton removed, and the packages in the third carton are likewise marked with transfers. Removal of the third groups of pairs of transfers will complete the removal of all transfers in the two rows on the paper web over the chute 29 and hence when the rocker arms 64 and the platen 68 are raised upon completion of the marking of the third carton, not only will the platen 68 be rotated another 120° to bring the set of heated projections 73 into operable position but the paper drive roller 103 will likewise be rotated so as to pull another section of the paper web 89 off the supply roll 90 and bring two more rows of transfers 88 into proper registry over the top of the chute 29 for application to three more succeeding cartons of cigarette packages.

Although there has been shown in the drawings and described above a preferred embodiment of the present invention, it is to be understood that changes and modifications may be resorted to without departing from the spirit and scope of the appended claims.

I claim:

1. A machine for applying transfers to groups of articles simultaneously comprising a frame, an elongated rotatable platen for applying transfers to said articles and being movable to and from transfer applying position, said platen having a pair of platen shafts extending from its opposite ends and having groups of transfer applying means on a plurality of its sides adapted to be brought successively into operable position upon rotation of said platen for engagement with successive groups of transfers, rocker means supported on said frame and including spaced rocker plates having said platen shafts journaled therein and rockable to and from transfer applying position, a driving shaft, means operably connecting said driving shaft and said rocker means for rocking said plates to and from transfer applying position, and means operable upon rocking movement of said rocker means for rotating said platen to present a successive group of transfer applying means in operable position, said last-named means comprising a pawl and ratchet mechanism supported on one of said platen shafts and operatively connected to said platen for rotating the latter, and stationary gear means mounted in fixed relation on said frame and operatively connected to said pawl and ratchet mechanism for actuating the latter in response to rocking movement of said rocker means.

2. A machine according to claim 1 further characterized in that said pawl and ratchet mechanism includes a ratchet member rigid with said one platen shaft, pawl means rotatably supported on said one platen shaft and engageable with said ratchet member, and a gear member rotatably supported on said one platen shaft and rigidly interconnected with said pawl means; and said stationary gear means comprises a gear sector engaged with said gear member.

3. A machine for applying transfers to groups of articles simultaneously comprising a platen for applying transfers to said articles and being movable to and from transfer applying position, said platen being rotatably mounted and having groups of transfer applying means on a plurality of its sides adapted to be brought sucessively into operable position upon rotation of said platen for engagement with successive groups of transfers, means rotatably supporting said platen and movable to and from transfer applying position, a driving shaft, means operably connecting said driving shaft and said platen supporting means for moving said supporting means to and from transfer applying position, and means operable upon movement of said platen supporting means in one of its directions of movement for rotating said platen to present a successive group of transfer applying means in operable position comprising a stationary non-rotary gear element, a rotatable gear member movable with said platen supporting means and in mesh with said gear element to rotate upon movement of said platen supporting means to and from transfer applying position, and drive means interconnecting said platen and said gear member for transmitting rotation of said gear member to said platen only upon movement of said platen supporting means in one of its directions of movement.

4. A machine according to claim 3 further characterized in that said drive means has a plurality of driving positions corresponding in number to the number of groups of transfer applying means spaced about said platen for transmitting rotation of said gear member to said platen only upon movement of said platen supporting means away from transfer applying position.

5. A machine according to claim 4 further characterized in that said drive means comprises pawl and ratchet means.

6. A machine for applying transfers to groups of articles simultaneously comprising a platen for applying transfers to said articles and being movable to and from transfer applying position, said platen being rotatably mounted and having groups of transfer applying means on a plurality of its sides adapted to be brought successively into operable position upon rotation of said platen for engagement with successive groups of transfers carried on a web, rocker means including spaced rocker plates rotatably supporting said platen and rockable to and from transfer applying position, feeding mechanism for supporting said web, a driving shaft, means operably connecting said driving shaft and said rocker means for rocking said plates to and from transfer applying position, means movable with said rocker means and operable during each cycle of operation upon movement of said rocker means for rotating said platen to present a successive group of transfer applying means in operable position, and means interconnecting one rocker plate and said feeding mechanism and operable once every predetermined number of cycles of machine operation for operating intermittently said feeding mechanism for effecting intermittent movement of said web relative to said platen, said last-named means comprising a gear element fixed to said one rocker plate for rocking therewith, a gear member in mesh with said gear element to be rotatably driven thereby on movement of said one rocker plate, and ratchet means interconnecting said gear member and said feeding mechanism for actuating said feeding mechanism once every predetermined number of cycles of machine operation to move said web relative to said platen.

7. A machine according to claim 6 further characterized in that said feeding mechanism includes a feed roller with a roller shaft extending rigidly therefrom; said gear element comprises a gear sector; said gear member is rotatably supported on said roller shaft and engages said gear sector; and said ratchet means comprises a pawl member rotatably supported on said roller shaft and rigidly interconnected with said gear member, and a pair of ratchet members supported on said roller shaft and engaged by said pawl member, one of said ratchet members being rotatable on said roller shaft for movement during each cycle of machine operation and the other

of said ratchet members being rigid with said roller shaft for rotating said feed roller once every predetermined number of cycles of machine operation.

8. A machine for applying transfers to groups of articles simultaneously comprising a platen for applying transfers to said articles and being movable to and from transfer applying position, said platen being rotatably mounted and having groups of transfer applying means on a plurality of its sides adapted to be brought sucessively into operable position upon rotation of said platen for engagement with successive groups of transfers carried on a web, spaced rocker plates rotatably supporting said platen and rockable to and from transfer applying position, feeding mechanism for supporting said web, a driving shaft, means operably connecting said driving shaft and said rocker plates for rocking said plates to and from transfer applying position, means operable during each cycle of operation upon movement of said rocker plates for rotating said platen to present a successive group of transfer applying means in operable position and comprising a stationary non-rotary gear element, a rotatable gear member movable with said rocker platen and in mesh with said gear element for rotation of said gear member upon movement of said rocker plates to and from transfer applying position, drive means interconnecting said platen and said gear member for transmitting rotation of said gear member to said platen upon movement of said rocker plates in one direction, and means operable once every predetermined number of cycles of machine operation for operating intermittently said feeding mechanism for effecting intermittent movement of said web and comprising a second gear element carried by one of said rocker plates, a second gear member in mesh with said second gear element and adapted to be rotated upon movement of said rocker plate and said second gear element, and drive means interconnecting said second gear member and said feeding mechanism.

9. A machine for applying transfers to groups of articles simultaneously comprising a frame, a platen having groups of transfer applying means on a plurality of its sides, rocker means for moving said platen to and from a transfer applying position and comprising a pair of spaced rocker plates rockably supported on said frame with said platen being rotatably mounted between said plates, said transfer applying means being adapted to be brought successively into operable position upon rotation of said platen for engagement with successive groups of transfers carried on a web, a web drive roll rotatably mounted on said frame adjacent said rocker means, actuating means operably connected with said rocker means for rocking the latter to and from transfer applying position, a pair of pawl and ratchet mechanisms operably connected to said platen and to said web drive roll, respectively, for effecting rotation thereof, and a pair of actuating elements one of said elements being mounted in fixed relation on said frame and the other of said elements being carried by said rocker means for movement therewith, said actuating elements being cooperable with said pawl and ratchet mechanisms for actuating the latter whereby to rotate said platen and shift said web in response to rocking movement of said rocker means.

10. A machine for applying transfers to groups of articles simultaneously comprising a platen for applying transfers to said articles and being movable to lowered transfer applying position and to raised non-applying position, said platen being rotatably mounted and having groups of transfer applying means on a plurality of its sides adapted to be brought successively into operable position upon rotation of said platen for engagement with successive groups of transfers, means rotatably supporting said platen and movable to and from transfer applying position, a chute adapted to receive and support said articles in transfer applying position, a driving shaft, means operably connecting said driving shaft and said platen supporting means for moving said supporting means to and from transfer applying position, an electrically operable clutch for connecting and disconnecting said driving shaft to a source of power, a switch at said chute actuable by insertion of said articles in said chute for energizing said clutch to connect said driving shaft to a source of power, an electrically operable brake adapted to be applied to said driving shaft to hold the same against rotation, a second switch actuatable when said platen is moved to its raised non-applying position for applying said brake and disengaging said clutch, and means operable upon movement of said platen supporting means for rotating said platen to present a successive group of transfer applying means in operable position.

11. A machine for applying transfers to groups of articles simultaneously comprising a platen for applying transfers to said articles and being movable to lowered transfer applying position and to raised non-applying position, said platen being rotatably mounted and having groups of transfer applying means on a plurality of its sides adapted to be brought successively into operable position upon rotation of said platen for engagement with successive groups of transfers, means rotatably supporting said platen and movable to and from transfer applying position, a chute adapted to receive and support said articles in transfer applying position, a driving shaft, means operably connecting said driving shaft and said platen supporting means for moving said supporting means to and from transfer applying position, an electrically operable clutch for connecting and disconnecting said driving shaft to a source of power, an electrically operable brake adapted to be applied to said driving shaft to hold the same against rotation, a switch in said chute actuatable by insertion of said articles in said chute for energizing said clutch to connect said driving shaft to a source of power and for deenergizing said brake to release said brake from said driving shaft, a second switch actuatable when said platen is moved to its raised non-applying position for applying said brake and disengaging said clutch, and means operable upon movement of said platen supporting means for rotating said platen to present a successive group of transfer applying means in operable position.

12. A machine for applying transfers to groups of articles simultaneously comprising a platen for applying transfers to said articles and being movable to lowered transfer applying position and to raised non-applying position, said platen being rotatably mounted and having groups of transfer applying means on a plurality of its sides adapted to be brought successively into operable position upon rotation of said platen for engagement with successive groups of transfers, means rotatably supporting said platen and movable to and from transfer applying position, a chute adapted to receive and support said articles in transfer applying position, a driving shaft, means operably connecting said driving shaft and said platen supporting means for moving said supporting means to and from transfer applying position, an electrically operable clutch for connecting and disconnecting said driving shaft to a source of power, an electrically operable brake adapted to be applied to said driving shaft to hold the same against rotation, a switch in said chute actuatable by insertion of said articles in said chute for energizing said clutch to connect said driving shaft to a source of power and for deenergizing said brake to release said brake from said driving shaft, a second switch actuatable when said platen is moved to its raised non-applying position for applying said brake and disengaging said clutch, electrically operated means in circuit with said switches whereby said brake is held in applied position until said chute switch has been released by removal of said articles and again actuated by another group of articles, and means operable upon movement of said platen supporting means for rotating said platen to present a successive group of transfer applying means in operable position.

13. A machine for applying transfers to articles, comprising a platen for engaging a web and applying transfers therefrom to said articles, means for supporting said platen, said supporting means and said platen being movable to and from a transfer applying position, means for holding an article in transfer receiving position relative to said platen and said web, actuating means connected to said supporting means for moving said supporting means and said platen to and from said transfer applying position, a clutch for connecting and disconnecting said actuating means relative to a source of power, a brake for releasing and arresting said actuating means and control means for said clutch and said brake, said control means including means responsive to positioning of an article at said transfer receiving position for simultaneously releasing said brake and effecting operation of said clutch to connect said actuating means to the power source, and said control means also including means operable in timed relation to movement of said supporting means away from transfer applying position for simultaneously applying said brake and effecting operation of said clutch to disconnect said actuating means from the power source.

14. A machine for applying transfers to articles, comprising a platen for engaging a web and applying transfers therefrom to said articles, means for supporting said platen, said supporting means and said platen being movable to and from a transfer applying position, means for holding an article in transfer receiving position relative to said platen and said web, actuating means connected to said supporting means for moving said supporting means and said platen to and from said transfer applying position, a clutch for connecting and disconnecting said actuating means relative to a source of power, a brake for releasing and arresting said actuating means, first control means responsive to positioning of an article at said transfer receiving position for simultaneously releasing said brake and effecting operation of said clutch to connect said actuating means to the power source, second control means operable in timed relation to movement of said supporting means away from transfer applying position for simultaneously applying said brake and effecting operation of said clutch to disconnect said actuating means from the power source, and means interconnecting said first and second control means whereby said brake is held in applied position and said clutch is held in disconnected position by said second control means until an article has been removed from said transfer receiving position and a succeeding article has been moved into said transfer receiving position to initiate a further actuation of said first control means.

15. A machine for applying transfers to articles comprising a platen for engaging a web and for applying transfers therefrom to said articles and being movable to and from transfer applying position, means for supporting said platen and movable to and from transfer applying position, a chute adapted to receive and support said articles in transfer receiving position adjacent said platen, a driving shaft, means operably connecting said driving shaft and said platen supporting means for moving said supporting means to and from transfer applying position, a movable stop in said chute engageable with an article for positioning said article in said transfer receiving position, cam means on said driving shaft, and means operably connecting said cam means and said stop for releasing said stop upon completion of said transfer applying operation and disengagement of said platen from said web.

16. A machine for applying transfers to articles comprising a platen for engaging a web and for applying transfers therefrom to said articles and being movable to and from transfer applying position, means for supporting said platen and movable to and from transfer applying position, a chute adapted to receive and support said articles in transfer receiving position adjacent said platen, a driving shaft, means operably connecting said driving shaft and said platen supporting means for moving said supporting means to and from transfer applying position, a movable stop in said chute engageable with an article for positioning said article in said transfer receiving position, means operably connecting said driving shaft and said stop for releasing said stop upon completion of said transfer applying operation and disengagement of said platen from said web, an electrically operable clutch for connecting and disconnecting said driving shaft from a source of power and a switch positioned at said chute adjacent said stop and adapted to be actuated by insertion of said articles in said chute for energizing said clutch to connect said driving shaft to a source of power, said stop being adapted to position said articles in engagement with said switch.

17. A machine for applying transfers to artides, comprising a platen for engaging a web and applying transfers therefrom to said articles, means for supporting said platen, said supporting means and said platen being movable to and from a transfer applying position, a driving shatf connectable to a source of power, actuating means operably connecting said supporting means and said driving shaft for moving said supporting means and said platen to and from said transfer applying position, movable stop means engageable with an article for positioning an article in transfer receiving positon relative to said platen and said web, control means responsive to the positioning of an article at said transfer receiving position for effecting the connection between said driving shaft and the source of power, and means operably interconnecting said driving shaft and said stop means for releasing the latter in timed relation to movement of said supporting means and said platen away from said transfer applying position upon completion of a transfer applying operation.

18. In a machine of the class described including transfer applying means movable to and from transfer applying position for affixing transfers to articles, the combination of a chute adapted to have articles fed successively therethrough, means including an article actuated control element associated with said chute for initiating movement of the transfer applying means toward transfer applying position in response to positioning of an article in transfer receiving position in the chute, movable stop means associated with said chute for engaging an article and temporarily holding the article in said transfer reeciving position and in contact with said control element, and means for releasing said stop means in timed relation to movement of the transfer applying means away from transfer applying position.

19. A machine for applying transfers to articles comprising a platen for engaging a web and for applying transfers therefrom to said articles and being movable to and from transfer applying position, means for supporting said platen and movable to and from transfer applying position, a chute adapted to receive and support said articles in transfer receiving position adjacent said platen, a driving shaft, means operably connecting said driving shaft and said platen supporting means for moving said supporting means to and from transfer applying position, a movable stop in said chute engageable with an article for positioning said article in said transfer receiving position, means operably connecting said driving shaft and said stop for releasing said stop upon completion of said transfer applying operation and disengagement of said platen from said web, an electrically operable clutch for connecting and disconnecting said driving shaft from a source of power, a switch positioned at said chute adjacent said stop and adapted to be actuated by insertion of said articles in said chute for energizing said clutch to connect said driving shaft to a source of power, said stop being adapted to position said articles in engagement with said switch, and means for ejecting a marked article from said machine at a rate faster than its rate of feed into the chute

whereby a space is formed between an article being ejected and an article being fed to permit said stop to assume its article engaging position in said chute and to permit release of said switch.

20. In a machine of the class described, the combination of reciprocable transfer applying means movable to and from transfer applying position for affixing transfers to articles, a chute having an inlet and an outlet and adapted to have articles fed successively therethrough, means including a control element normally projecting into said chute and adapted to be actuated by contact with an article fed into transfer receiving position in said chute for initiating an operating cycle of said transfer applying means to and away for transfer applying position, control means operable in timed relation to movement of said transfer applying means away from transfer applying position for terminating said operating cycle until the next subsequent actuation of said control element, and ejection means adjacent the outlet of said chute for ejecting an article from the chute at an increased rate of speed compared to the feed rate of the next succeeding article whereby to provide a space between the successive articles, said control element being releasable into said space and thereby restored to projecting position in said chute for subsequent actuation by the next succeeding article.

21. A machine according to claim 20 further characterized in that said ejection means comprises a pair of rapidly driven rollers at opposite sides of the chute for engaging and moving the articles.

22. A machine according to claim 20 further characterized by the provision of movable stop means adjacent said control element and adapted to project into said chute for engaging and temporarily holding an article in said transfer receiving position and in contact with said control element, and means for releasing said stop means in timed relation to movement of said transfer applying means away from transfer applying position to permit passage of the article through the chute beyond the released stop means, said stop means also being adapted to return to projecting position through said space along with said control element.

23. A machine for applying transfers to articles, comprising a platen for engaging a web to apply transfers therefrom to articles, means for supporting said platen, said supporting means and said platen being movable to and from a transfer applying position, a chute adapted to receive and support the articles in transfer receiving position adjacent the platen, a drive shaft, means interconnecting said drive shaft and said platen supporting means for moving said platen supporting means and said platen to and from said transfer applying position, an electrically operated clutch connected between said drive shaft and a source of power, an electrically operated brake engageable with said driving shaft to hold the same against rotation, a movable stop in said chute for engaging and holding an article in said transfer receiving position, a first switch connected in circuit with said clutch and said brake and disposed in said chute adjacent said stop to be engaged by the article when the latter is in said transfer receiving position, said first switch being operable to effect engagement of said clutch for connecting the drive shaft to its source of power and to effect disengagement of said brake upon engagement by the article, means driven by said drive shaft for releasing said stop upon completion of the transfer applying operation, and a second switch connected in circuit with said clutch and said brake and operable upon said platen being moved from said transfer applying position to disengage said clutch and engage said brake.

24. A machine according to claim 23 in which said drive shaft is provided with cam means and said second switch and said stop releasing means are actuated by said cam means upon predetermined rotation of said drive shaft following the engagement of said clutch and disengagement of said brake.

25. In a machine of the class described, the combination of reciprocable transfer applying means movable to and from transfer applying position for affixing transfers to articles, power driven means including a clutch and a brake for operating said transfer applying means, a chute adapted to have articles fed successively therethrough, means including a control element associated with said chute and adapted to be actuated by contact with an article positioned in said chute in transfer receiving position for engaging said clutch and releasing said brake whereby to initiate movement of said transfer applying means toward transfer applying position, movable stop means associated with said chute for engaging and temporarily holding the article in said transfer receiving position and in contact with said control element, means for releasing said stop means in timed relation to movement of said transfer applying means away from transfer applying position upon completion of a transfer application to an article, and control means operable in timed relation to movement of said transfer applying means away from transfer applying position for disengaging said clutch and applying said brake whereby to stop operation of said transfer applying means until a subsequent actuation of said control element.

26. A machine for applying transfers to groups of articles simultaneously comprising a platen having a plurality of transfer applying means for engagement with successive groups of transfers carried on a web, rocker means supporting said platen therebetween and rockable to and from transfer applying positon, feeding mechanism for supporting the web, a drive shaft, means operably connecting said drive shaft and said rocker means for rocking the latter to and from transfer applying position, means operable upon each cycle of movement of said rocker means for effecting relative movement between said platen and the web for aligning successive groups of transfers with said applying means, and means interconnecting said rocker means and said feeding mechanism and operable once every predetermined number of cycles of operation of said rocker means for effecting intermittent feeding movement of the web relative to said platen, said last-named means comprising a gear element fixed to said rocker means for rocking therewith, a gear member in mesh with said gear element to be rotatably driven thereby on movement of said rocker means, and ratchet means interconnecting said gear member and said feeding mechanism for actuating said feeding mechanism once every predetermined number of cycles of machine operation to move said web relative to said platen.

27. A machine for applying transfers to groups of articles simultaneously comprising a platen for applying transfers to said articles and being movable to lowered transfer applying position and to raised non-applying position, means supporting said platen and movable to and from transfer applying position, a chute adapted to receive and support sadi articles in transfer applying position, a drive shaft, means operably connecting said drive shaft and said platen supporting means for moving said supporting means to and from transfer applying position, an electrically operable clutch for connecting and disconnecting said driving shaft to a source of power, a switch at said chute actuatable by insertion of said articles in said chute for energizing said clutch to connect said driving shaft to a source of power, an electrically operable brake adapted to be applied to said driving shaft to hold the same against rotation, and a second switch actuatable when said platen is moved to its raised non-applying position for applying said brake and disengaging said clutch.

28. A machine for applying transfers to groups of articles simultaneously comprising a frame; an elongated rotatable platen for applying transfers to said articles and being movable to and from transfer applying position, said platen having a pair of platen shafts extending from

its opposite ends and having groups of transfer applying means on a plurality of its sides adapted to be brought successively into operable position upon rotation of said platen for engagement with successive groups of transfers carried on a web; spaced rocker plates rockably supported on said frame and having said platen shafts journaled therein and rockable to and from transfer applying position; feeding mechanism including a feed roller having a pair of roller shafts extending therefrom and journaled in said frame; a driving shaft; means operably connecting said driving shaft and said rocker plates for rocking said plates to and from transfer applying position; means operable during each cycle of operation upon movement of said rocker plates for rotating said platen to present a successive group of transfer applying means in operable position and comprising a pawl and ratchet mechanism supported on one of said platen shafts and operatively connected to said platen for rotating the latter, and stationary gear means mounted in fixed relation on said frame and operatively connected to said pawl and ratchet mechanism for actuating the latter upon movement of said rocker plates in one direction; and means operable once every predetermined number of cycles of

machine operation for operating intermittently said feeding mechanism for effecting intermittent movement of said web and comprising a second pawl and ratchet mechanism supported on one of said roller shafts and operatively connected to said feed roller for rotating the latter, and second gear means carried by one of said rocker plates and operatively connected to said second pawl and ratchet mechanism for actuating the latter.

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CERTIFICATION OF CORRECTION

Patent No. 3,001,310 September 26, 1961

Kenneth H. Brownlee

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 6, line 37, for "10" read -- 105 --; column 13, line 22, for "platen" read -- plates --; column 14, line 4, for "actuable" read -- actuatable --; column 16, line 22, for "shatf" read -- shaft --; column 17, line 14, for "for" read -- from --; column 18, line 58, for "sadi" read -- said --.

Signed and sealed this 3rd day of April 1962.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

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