Nov. 20, 1956 F. M. CARROLL 2,771,029

WEB CUTTING AND FEEDING DEVICE FOR PRINTING MACHINES

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FIG. 9.

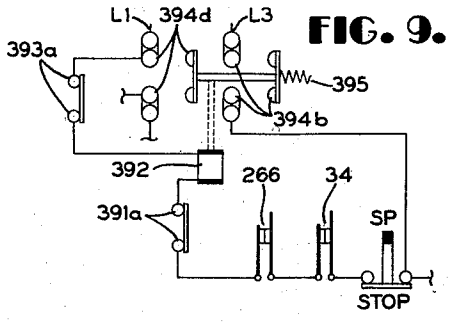


FIG. 1.

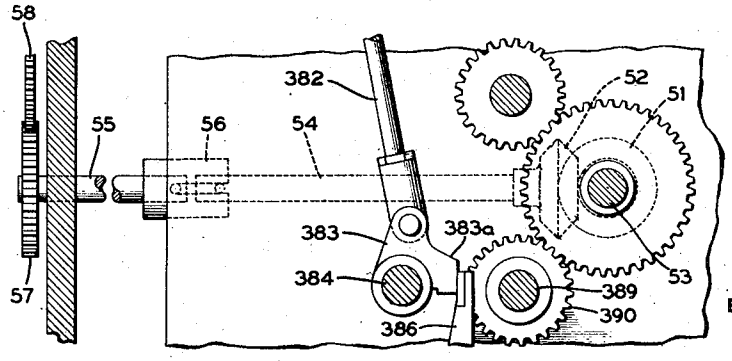


FIG. 2.

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FIG. 3.

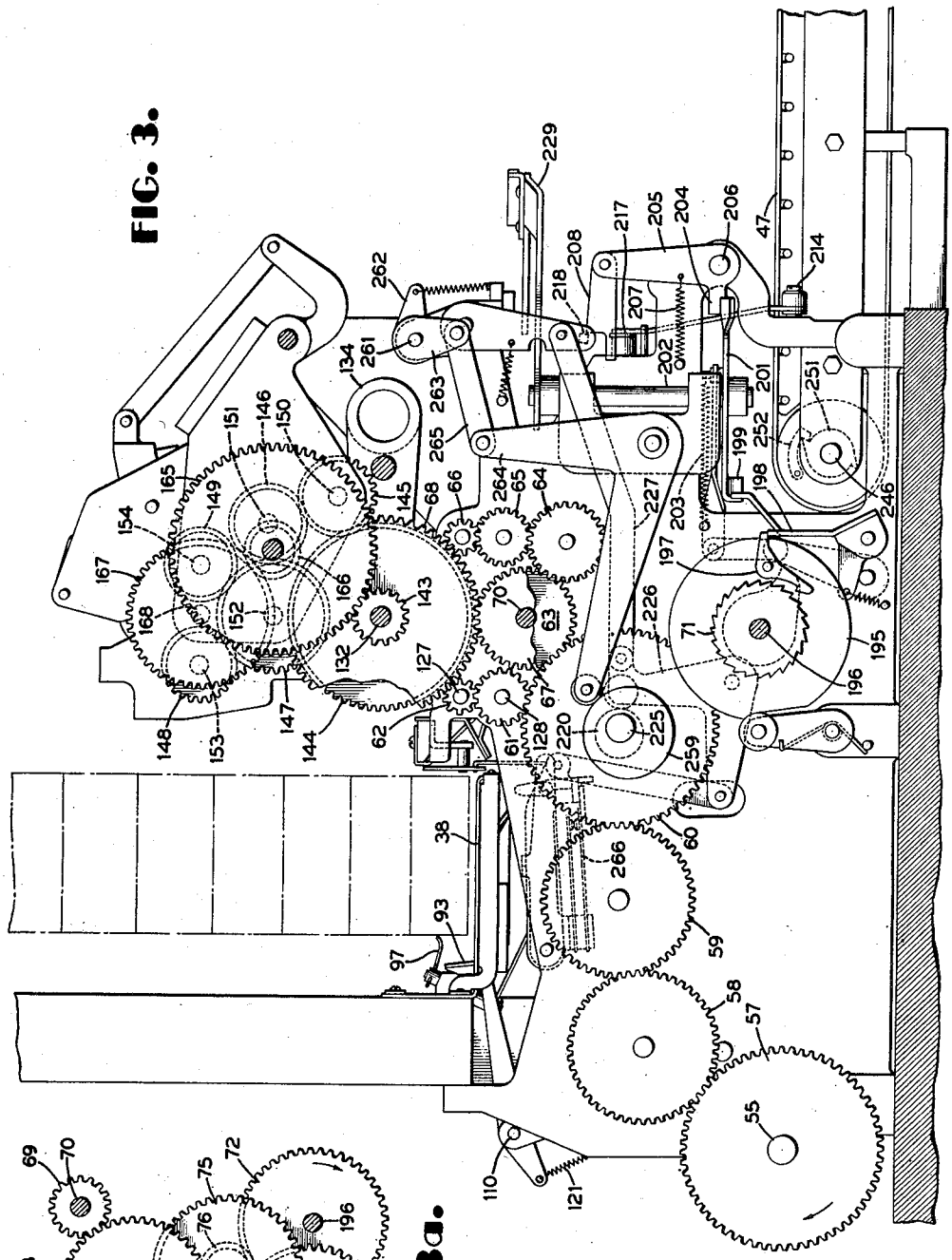


FIG. 3a.

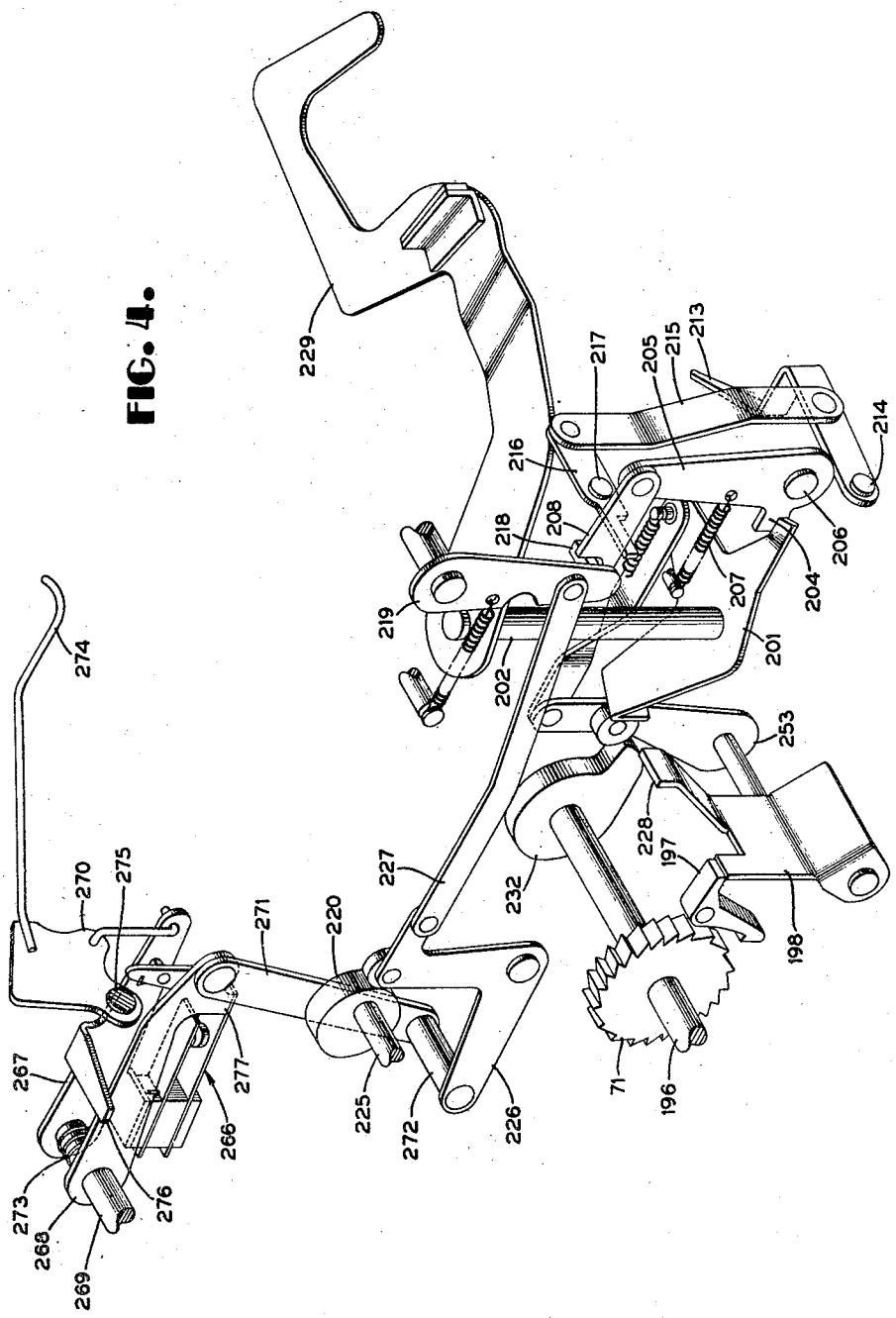
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WEB CUTTING AND FEEDING DEVICE FOR PRINTING MACHINES

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FIG. 4.



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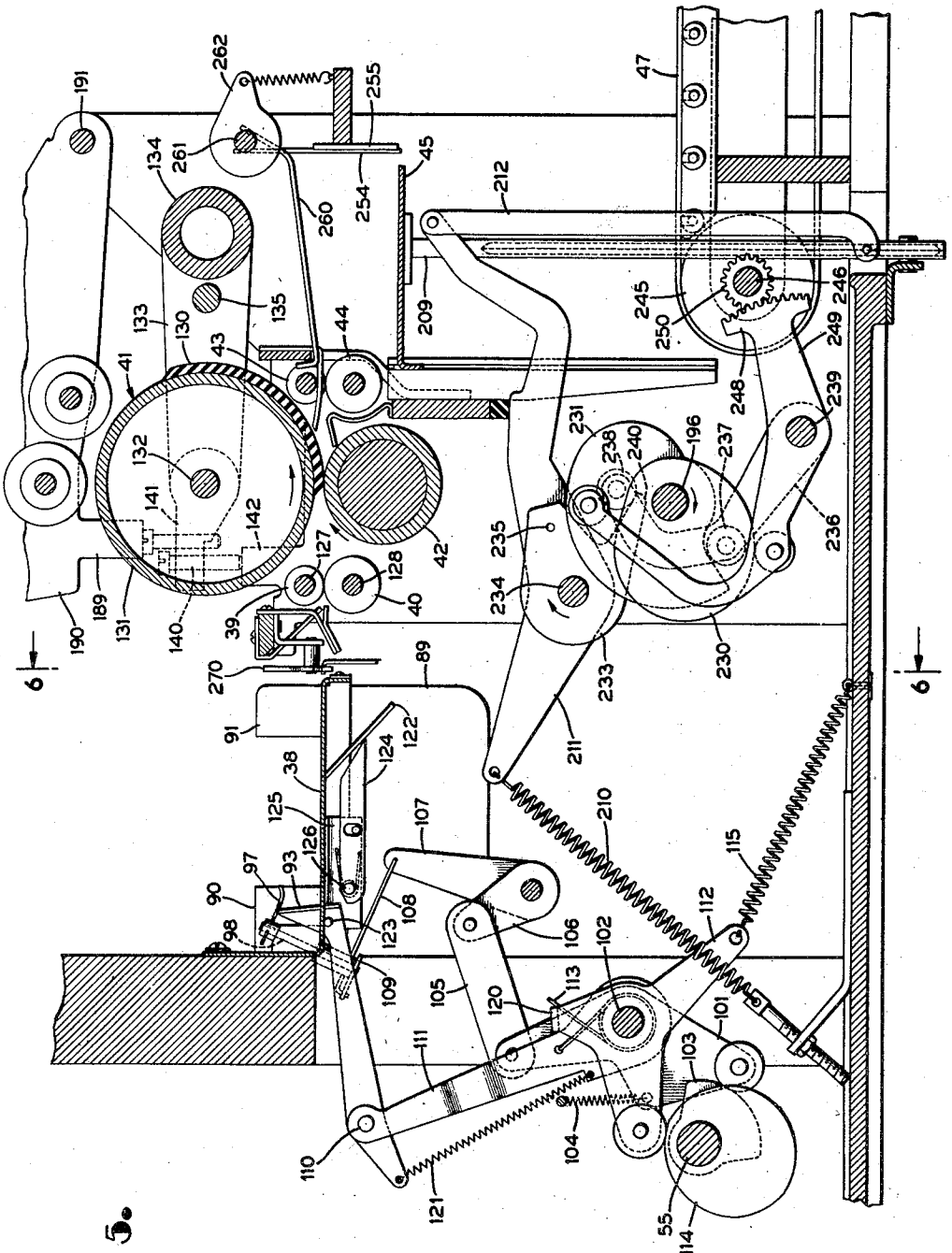


FIG. 5.

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WEB CUTTING AND FEEDING DEVICE FOR PRINTING MACHINES

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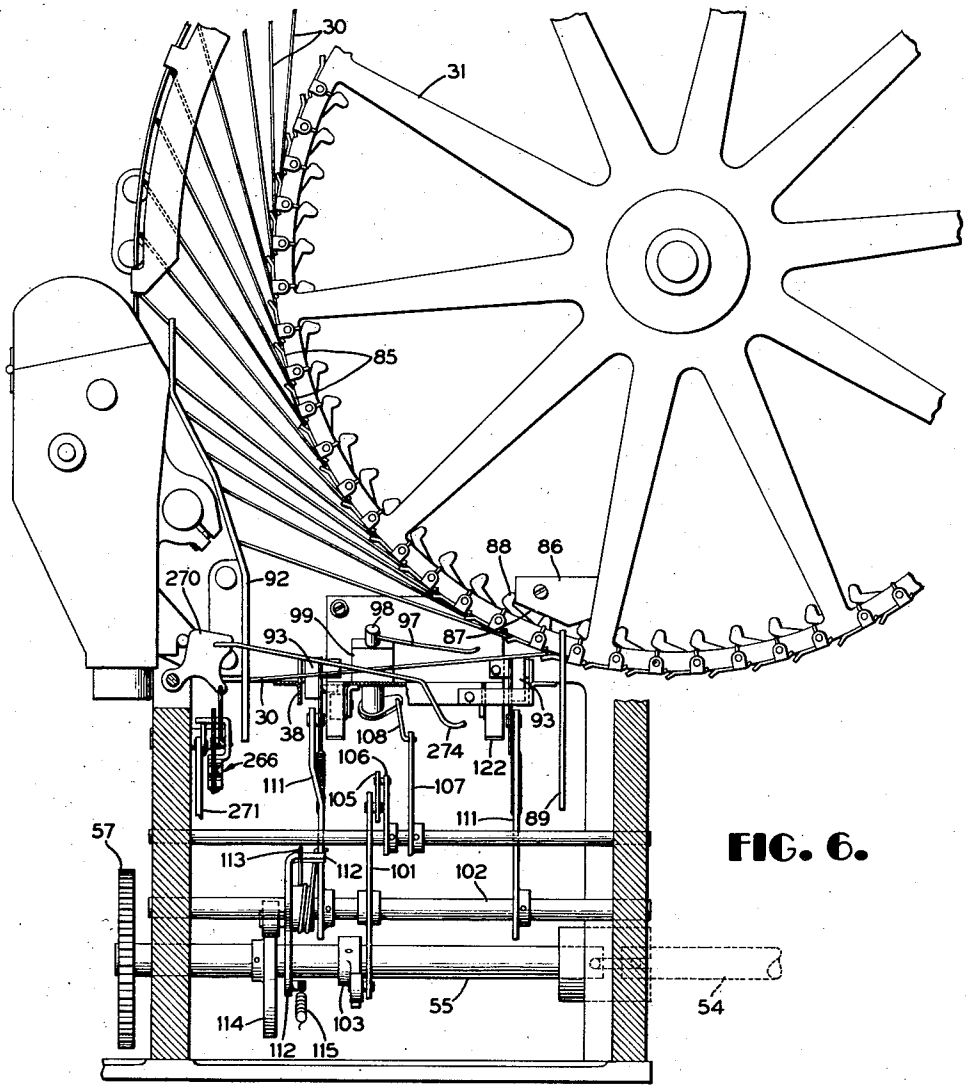


FIG. 6.

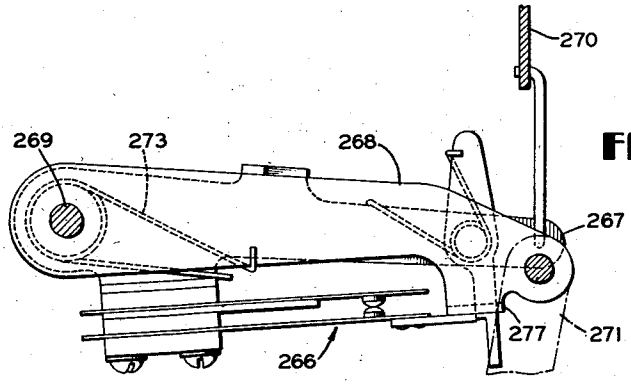


FIG. 7.

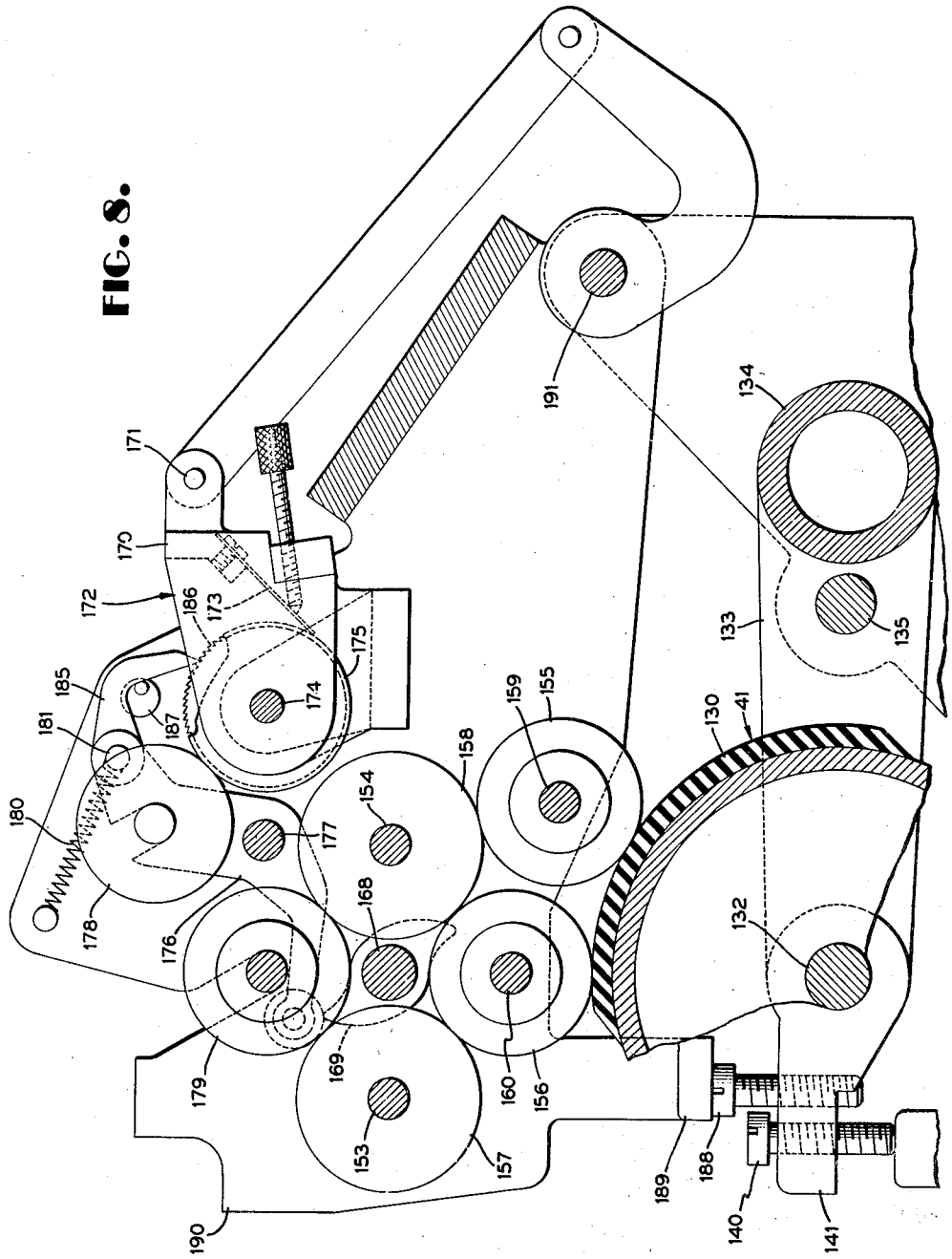
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WEB CUTTING AND FEEDING DEVICE FOR PRINTING MACHINES

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FIG. 8.



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United States Patent Office 2,771,029 Patented Nov. 20, 1956

2,771,029

WEB CUTTING AND FEEDING DEVICE FOR PRINTING MACHINES

Fred M. Carroll, Binghamton, N. Y., assignor to International Business Machines Corporation, New York, N. Y., a corporation of New York

Application April 30, 1952, Serial No. 285,134

3 Claims. (Cl. 101—227)

This invention relates to printing devices and more particularly to means for preparing record cards having printed matter on reverse and obverse sides, from a web of suitable material.

Due to the fact that record cards, more commonly known as tabulating cards, are used primarily for accounting purposes, they are required to be precisely accurate as to length and position of printed matter. As is well known by persons familiar with the art of preparing said cards, ordinary printing and cutting machines have not been found satisfactory. A highly satisfactory tabulating card printing machine which operates on a blank continuous strip of material to print record forms thereon which are cut apart to form card lengths, each with a printed form on one side of a card, is described in Patent No. 2,181,935, issued to Fred M. Carroll on December 5, 1939.

It is frequently quite desirable to have printed matter appear on both sides or faces of a record card. In accordance with the foregoing, it is the general object of this invention to provide an improved machine for rapidly producing record cards having printed matter on reverse and obverse sides thereof and stacking them in stacks for removal by the operator.

Another object of this invention resides in the combination of means for rapidly producing record cards having printed matter on one side thereof and novel means for rapidly removing said cards therefrom for printing on the reverse side of said cards.

A more specific object of this invention resides in the provision of improved means for stopping machine operation upon detecting a card jam.

Other objects of the invention will be pointed out in the following description and claims and illustrated in the accompanying drawings, which disclose by way of example, the principle of the invention and the best mode which has been contemplated, of applying that principle.

In the drawings:

Fig. 1 is a diagrammatic view of the printing machine.

Fig. 2 is a view of the main drive mechanism for the reverse side card printing apparatus.

Fig. 3 is a left side elevation of the reverse side card printing unit looking in the direction of the arrow in Fig. 1.

Fig. 3*a* is a view of the gear train for driving the card stacking mechanism.

Fig. 4 is a perspective view of the card stacking mechanism and jam detecting apparatus.

Fig. 5 is a sectional view of the reverse side card printing unit looking in the direction of the arrow in Fig. 1.

Fig. 6 is a sectional view of the reverse side card printing unit card feeding mechanism taken along lines 6—6 of Fig. 5.

Fig. 7 is a view of the jam detecting contact.

Fig. 8 is a sectional view of the inking unit looking in the direction of the arrow in Fig. 1.

Fig. 9 is a circuit diagram for the jam detecting apparatus.

General description

As the apparatus for operating on a blank continuous strip of material whereby record forms which are cut apart to form card lengths printed on only one side thereof, is described in detail in the aforecited Carroll Patent No. 2,181,935, the said apparatus will be described only briefly herein.

Referring to Fig. 1, a web of record card material **10** is fed off a supply roll **11**, around a swivel-supported guide roll **12**, through the slot of a thickness-detecting element **13**, over a guide roll **14**, around a tension-reacting roller **15**, and between a guide roller **16** and a striping roller **17**. The latter paints an intermittent stripe along an edge of the continuously feeding web. From the striping roller, the web passes around a roller **18**, then between a roller **19** and a co-working plate (not shown, plate 39 of Fig. 11, Patent No. 2,181,935), around the corner of straightening block **20** along guide plate **21**, past an emergency cutter (not shown, cutter 72 of Fig. 11, Patent No. 2,181,935), and into the grip of feed rollers **22** and **23**. The latter feed the web through a printing couple **24—25** which prints successive card forms on a single face of the web. The web then proceeds through plates of a jam detecting device (not shown, plates 87 of Fig. 1, Patent No. 2,181,935), then between rotary shear devices **26** and **27**, and into a pair of vertical fluted rollers **28** and **29**. As the web is moving upwardly, blades suitably attached to the rotary shear devices **26** and **27** coact with a scissors action to shear the web and form a separate tabulating card **30**, now above the cutting blades. As the card continues its upward feed due to its own momentum and due to its being fed upwardly by rotation of the cutting blade upon which the card is resting, it is clamped by suitable clips on a conveyor drum **31** which continuously rotates in a counterclockwise direction. The cards thereon move past a hanging wire **32** to control movement of the wire in accordance with the degree of straightness of the cards. Wire **32** controls a switch **33** to control a solenoid for regulating the position of roller **19** and its co-working plate, thereby regulating the angle which the web makes with the straightener block **20**. The straightening action is thus automatically adjusted in accordance with the sensing of the cards by wire **32**.

The cards proceed past wire **32** to a corner clipper (not shown) adjustable to clip either left or right-hand upper corner (see Fig. 32 of Patent 2,181,935). After passing the corner clipper, the cards cause a paddle wheel (not shown, wheel 193 of Fig. 18, Patent No. 2,181,935) to rotate so as to actuate a card counting mechanism.

After passing the card-controlled paddle wheel, the cards are released from conveyor drum **31** onto a table **38** which guides each card **30** toward feed rolls **39** and **40**. As the description advances, the operation of the mechanism by which the said cards are successively released from drum **31** onto table **38**, and then fed singly from table **38** toward feed rolls **39** and **40** of the reverse side card printing mechanism, will be explained in detail.

The cards are advanced by feed rolls **39** and **40** past a printing couple **41—42** toward feed rolls **43** and **44** which, in turn, advance the said cards toward a stacker plate **45**. After a stack of cards has been acquired, such as the stack **46**, an actuating mechanism to be described hereinafter causes conveyor belts **47** to move the stack away from stacker plate **45** to a position on the conveyor for removal therefrom by the operator.

Main drive mechanism

Referring to Fig. 2, power is supplied to the reverse side card printing mechanism through a pair of bevel gears **51** and **52** fixed to shafts **53** and **54**, respectively.

The idler gear that directly drives gear **390** (Fig. 3, Patent No. 2,181,935) is also mounted on the shaft **53**. It may be seen by examining Fig. 3 of the aforecited patent, No. 2,181,935, that the link **382** is connected at its upper end to the base plate of the printing machine drive motor and at its lower end to the lever **383** having an arm **383***a* extending horizontally. Lever **383** is fixed to shaft **384** provided with a manual operating rod. When the printing machine is running, arm **383***a* is supported by the top of the vertical arm of the bell crank latch **386**. In this position of arm **383***a*, lever **383** is at its counterclockwise limit, link **382** is raised so that power is applied from the drive motor to shaft **53** by means of a suitable gear train. Thus, the reverse side card printing mechanism main drive shaft **55** which is connected to shaft **54** through a coupling **56**, is rotated continuously during the entire time that the printing machine is operating.

Referring to Fig. 3, main drive gear **57** which is fixed to shaft **55** actuates gear train **58—62** to rotate the first set of feed rolls **39** and **40** (Fig. 5); gears **58**, **59**, **60**, **63**, **64**, **65** and **66** to rotate feed rolls **43** and **44** (Fig. 5); and gears **58**, **59**, **60**, **63**, **67** and **68** to operate the printing couple **41—42** (Fig. 5). As is shown in Fig. 3*a*, gear **69** is attached to shaft **70** for rotation therewith in order to continuously rotate clutch disc **71** fixed to gear **72** through a gear train comprising gears **73**, **74**, **75**, **76**, **77**, **78** and **72**.

Card feed mechanism

Referring to Fig. 6, before a tabulating card **30** reaches a horizontal position, the clip **85** carrying the card is released from the card and held released until the card drops by gravity onto table **38**. The release of the clip from the card is effected by a stationary block **86** having an inclined cam surface **87** which meets the extension **88** of the clip **85**, and cams the clip extension downwardly to rock the clip counterclockwise. This action of the clip frees it from the inner, or right-hand side of the card. Extension **88** continues to ride along the cam surface of block **86** to maintian the clip released from the card until the clip completely departs in a horizontal direction from the right-hand or inner end of the card. At the moment of release of the card, its clip **85** is passing through a slot formed within a vertical plate **89**, and the card is substantially horizontal with its right-hand edge, at either side of the clip, abutting the extensions **90** and **91** (Fig. 5) of the said plate. Thus, as the clip continues its movement toward the right and passes freely through the aforesaid slot, the plate **89** positively prevents the card from following.

When the clip leaves the card, the latter drops with its left side edge guided by plate **92** and its right edge by plate **89**. The said plates guide each card as it is pushed toward the first set of feed rolls **39** and **40** by card pushers **93**.

As is shown in Figs. 5 and 6, a finger **97** is provided to hold the card against table **38** during the time that the pushers **93** are advancing the card towards the first set of feed rolls. The finger **97** is attached to a short shaft **98** freely mounted in a block **99** which is set at a suitable angle so that the finger will move downwardly as it is pivoted clockwise over the card on table **38**.

The mechanism for rocking finger **97** once during each reverse side card printing mechanism card feed cycle is shown in Fig. 5. Cam follower **101** oscillates about shaft **102** under control of cam **103** fixed to main drive shaft **55**. A bias spring **104** maintains continuous contact between cam **103** and the cam follower roller. As the tabulating card is being released from a clip **85** onto table **38** (Fig. 6), the cam follower roller is on the high portion of cam **103** and finger **97** is at the counterclockwise limit so as not to obstruct positioning of the card on the said table. Immediately thereafter the cam follower roller drops on the low dwell of cam **103**, thereby allowing cam follower **101** to move in a clockwise direction so that finger **97** is pivoted in a clockwise direction over table **38** to position and to hold the card thereon. The said finger positions the card on table **38** prior to the time that pushers **93** contact the edge of the card, and holds the card on the table until after the card is gripped by the first set of feed rolls **39** and **40**. As is shown, finger **97** is rocked each card cycle by means of connecting links **105**, **106** and **107**, rod **108**, and lever **109** fixed to shaft **98**.

As shown in Fig. 5, the card pushers **93** are in a position to contact the trailing edge of a card on table **38** in order to advance it to the first set of feed rolls **39** and **40**. Each of the said card pushers is pivotally mounted at a point **110** to an arm **111** which, in turn, is fixedly attached to a shaft **102** and resiliently connected to cam follower **112** through a spring **113**. Cam follower **112**, freely mounted on shaft **102**, is caused to oscillate once each card feed cycle under the control of a cam **114** fixed to shaft **55**. Continuous contact between cam **114** and the cam follower roller is maintained by a bias spring **115**. During the time that cam follower **112** is pivoted in a clockwise direction about shaft **102** the said pushers are moved to the right by spring **113**; however, during the time that cam follower **112** is pivoted counterclockwise and said pushers are positively moved to the left by an extension **120** on follower **112**. As the description advances, the purpose for having the resilient connection between follower **112** and arm **111** will be explained in detail in conjunction with the jam detecting apparatus. In order to allow more rapid operations, means are provided for lowering the card pushers below the level of table **38** during their movement to the left. Each pusher **93** is biased in a counterclockwise direction by spring **121** so that as they are moved to the right, contact is maintained between guides **122** attached to table **38** and a stud **123** on each pusher **93**. Prior to the time that the pushers are moved to the left, stud **123** passes between the inclined portion of guide **122** and the inclined surface of a block **124** which is pivotally connected to a bracket **125** at point **126**, and biased upwardly by a conventional spring means. As a result thereof, during the time that the pushers are moved to the left, each pusher stud **123** will ride on the under surface of its associated block **124** and the pushers will be maintained thereby beneath the level of table **38**. The pushers are returned to the left a distance sufficient to permit the said studs to pass beyond each of the blocks **124** and into contact once again with each of the guides **122** in preparation for advancing a succeeding card.

Printing and inking apparatus

As explained hereinbefore, each succeeding card on table **38** is advanced therefrom into the grip of feed rolls **39** and **40** by pushers **93**. Referring to Fig. 5, the said feed rolls are fixedly attached to their respective feed roll shafts **127** and **128** to which continuously rotating gears **62** and **61** (Fig. 3) are also fixedly attached. Under control of the said feed rolls, each succeeding card is advanced into the printing couple **41—42** for applying printed data on the reverse side thereof.

The printing drum **41** comprises a printing plate **130** that is suitably attached to a cylinder **131** which, in turn, is attached to a shaft **132** for rotation therewith. As shown in Fig. 3, shaft **132** is maintained continuously rotating by the aforedescribed gear train which drives gear **68**. Platen **42**, fixedly attached to shaft **70** (Fig. 3), is also maintained continuously rotating by means of the aforedescribed gear train which drives gear **63**.

Referring again to Fig. 5, shaft **132** is supported for rotation by arms **133** extending from member **134** which is pivotally mounted on stub shafts **135** of the side frames on either side of the printing mechanism. Adjusting

screws 140 (only one is shown) projecting through extensions 141 of arms 133 provide a means for applying the correct printing pressure as between printing plate 130 and platen 42. As is shown, the said adjusting screws rest upon an abutment 142 of the main frame, and by varying the projection of the said screws within extensions 141, the printing drum 41 may be raised or lowered as arms 133 pivot about studs 135.

The apparatus for applying ink to the printing plate 130 is shown in Fig. 8, and the gear train for operating the said apparatus is shown in Fig. 3. Referring specifically to Fig 3, gears 143 and 144 are fixed to shaft 132 for rotation therewith. As described hereinbefore, shaft 132 is rotated continuously by gear 68 which is fixedly attached thereto and driven by the gear train actuated by main drive gear 57. Continuously rotating gear 144 actuates the gear train comprising gears 145, 146, 147, 148 and 149 fixed to their respective shafts 150, 151, 152, 153 and 154 for rotating ink carrying rolls 155, 156, 157 and 158 fixedly attached to shafts 159, 160, 153 and 154, respectively, shown in Fig. 8. Gear 143 (Fig. 3) actuates the gear train comprising gears 165, 166 and 167, said gear 167 being fixedly attached to shaft 168, for rotating cam 169 (Fig. 8) also fixed to shaft 168.

Referring to Fig. 8, a member 170, pivotally mounted on shaft 171, supports an ink reservoir 172, a plate 173 and a shaft 174 to which ink roll 175 is fixed. As cam 169 rotates in a counterclockwise direction, cam follower 176 is caused to oscillate about stud 177 whereby transfer ink roll 178 supported by the said cam follower is caused to alternately contact ink roll 175 and ink roll 179. Roll 178 is driven in a counterclockwise direction by the rolls 175 and 179 as their respective surfaces alternately make contact. A spring 180 connected, at one end, to the main frame, and, at its other end, to a stud 181 attached to follower 176, biases the said follower counterclockwise. A pawl 185, freely mounted on stud 181, advances ink roll 175 each time that follower 176 pivots clockwise by engaging the teeth of a ratchet 186 fixed to shaft 174. Pawl 185 rides on an eccentric stud 187 which determines the relative position at which pawl 185 will engage ratchet 186, thereby regulating the amount of rotation imparted to ratchet 186 and controlling, in part, the amount of ink transferred from ink roll 175 to transfer roll 178. Plate 173 also aids the control of the amount of ink transferred from roll 175 to roll 178, and more particularly the control of the quantity of ink taken by roller 175 from the ink reservoir.

As a result thereof, a regulated quantity of ink is transferred from roller 175 onto roller 179 by transfer roller 178. The said ink is distributed thereafter to continuously rotating metallic rollers 157 and 158 which, in turn, distribute the ink to rollers 155 and 156 making contact with printing plate 130.

The contact pressure between inking rollers 155 and 156, and printing plate 130 may be altered by varying the projection of adjusting screw 188 in extension 141. As is shown in Figs. 5 and 8, the extension 189 of the inking unit side frame 190 rests upon the upper portion of adjusting screw 188 in order that the said frame may be moved about shaft 191 as the projection of the threaded body of screw 188, supported by extension 141, is varied.

Ejecting and stacking mechanism

The machine includes mechanism for grouping the cards in stacks of a substantially predetermined number and conveying the stacks separately on a conveyor for removal therefrom by the operator.

Continuously rotating gear 72 (Fig. 3*a*), has fixed to it a multi-tooth clutch disc 71 (Fig. 3), beside which is a clutch disc 195 fixed to cam shaft 196 and having a clutch dog 197 pivoted thereon. The integral unit comprising gear 72 and disc 71 is freely mounted on shaft 196. The dog is normally disengaged by a latch 198, which can be released by the oblique flange 199 of a lever 201 fixed to a rock shaft 202. The other end of lever 201 is normally latched against the action of a spring 203 (Fig. 3) by an extension 204 of a latch 205 pivotally mounted on a stub shaft 206.

The latch 205 is normally held at the counter-clockwise limit of its movement by a spring 207, thereby extending member 208 to the left.

Referring to Fig. 5, during the normal operation the cards which are fed out of the last feed rolls 43 and 44 come to rest upon a stacker plate 45 which is mounted upon a vertical support 209 and counterbalanced upwardly by a spring 210 connecting the base with a crank 211 joined to the vertical support 209 by a connecting link 212. As the weight of cards on plate 45 increases, the table will be lowered gradually until it strikes a lever 213 (Fig. 4) which is pivotally mounted on a frame member at connection 214 (Fig. 3); the extended operating end of lever 213 projects above the level of conveyor belts 47. As shown in Fig. 4, lever 213 is connected by a link 215 to a second lever 216 pivotally mounted on a frame member at connection 217. Therefore, as lever 213 is moved clockwise by stacker plate 45, lever 216 also pivots clockwise so as to raise member 208 into the path of a lug 218 on arm 219. Arm 219 is caused to oscillate once each card cycle by continuously rotating cam 220 (Fig. 3) fixed to shaft 225, through a cam follower 226 and a connecting link 227. Thus, when member 208 is raised into the path of lug 218 as aforedescribed, the said member will be moved to the right during the time that the cam follower roller is on the high portion of cam 220, thereby unlatching lever 201 for rotation under the action of spring 203. As a result thereof, flange 199 will engage an extended end 228 (Fig. 4) of latch 198 in order to unlatch dog 197 for engagement with the clutch disc 71.

In addition to the foregoing, the rotary movement of shaft 202 will cause an auxiliary card stacker plate 229, also fixed to shaft 202, to pivot into position to receive the cards fed from the last set of feed rolls 43 and 44 while the stacking cycle is in progress.

Referring to Fig. 5, the clutch having been tripped as described hereinbefore, cam shaft 196 will complete one revolution prior to being latched again. Cams 230, 231 and 232 (Fig. 4), fixedly attached to shaft 196, cause the following sequence of events: stacker plate 45 to be lowered below the surface of conveyor belts 47 in order that the card stack may rest directly upon the said belts; conveyor belts 47 to be moved to the right in order to carry the said stack therewith away from stacker plate 45; and the stacking mechanism to be restored to its latched condition. The foregoing will now be described in detail. A member 233, freely mounted on shaft 234, is connected to crank 211 by a shear pin 235. As cam 231 rotates in a clockwise direction, cam follower 236, attached to a cam follower roller 237 and a roller 238, pivots in a counterclockwise direction about shaft 239 on which it is freely mounted. This action causes roller 238 to act upon an ear 240 of member 233 so as to lower stacker plate 45 below the level of conveyor belts 47.

The conveyor unit comprises a pair of driven rollers 245 fixed to a shaft 246, a pair of idler rolls 247 (Fig. 1) and a pair of continuous conveyor belts 47 arranged in a conventional manner around the said rolls. A gear sector 248 forming an integral part of cam follower arm 249 meshes with a gear 250 fixed to a ratchet wheel 251 (Fig. 3), both of which are freely mounted on shaft 246. As cam 230 rotates clockwise, cam follower 249 is caused to oscillate about shaft 239 whereby gear 250 first rotates counterclockwise in order to permit dog 252 (Fig. 3), pivotally connected to roll 245, to engage ratchet 251, and then rotate clockwise so as to move the conveyor belts to the right by means of the ratchet drive.

The belts are advanced sufficiently to carry the stack of cards clear of stacker plate **45**. Thereafter, stacker plate **45** moves upwardly as the ear **240** follows the clockwise movement of roller **238**.

Referring to Fig. 4, after the foregoing operation has been completed, the high lobe of cam **232** causes a cam follower **253** to rotate clockwise in order to latch lever **201** on extension **204**, thereby permitting dog **197** to latch. The auxiliary card stacker plate **229**, being fixed relative to lever **201**, will be restored to a position away from the last set of feed rolls **43** and **44**. The cards which have accumulated during the stacking operation are removed from plate **229** by a block **255** (Fig. 5) and allowed to drop on stacker plate **45**.

As stated hereinbefore, during the normal operation the cards which are fed out of the last set of feed rolls come to rest upon stacker plate **45**. In order to assure proper stacking, means are provided whereby each succeeding card is positively placed on top of the card stack after the said card has been released from the grip of rollers **43** and **44** (Fig. 5). A stacker finger **260** and a card aligner plate **254** are each fixed to a member **261** which, in turn, is fixed to a spring biased lever arm **262**. It may be seen in Fig. 3 that member **261** has fixed thereto a crank arm **263** which is caused to rock once each card cycle by means of cam follower **264** and connecting link **265** as cam **259**, fixed to shaft **225**, rotates. Referring again to Fig. 5, as member **261** rocks with arm **263**, it carries along with it stacker finger **260** and aligner plate **254**. The timing of this mechanism allows finger **260** to move counterclockwise against the side of a card just as the card is released from the grip of the last set of feed rolls **43** and **44**, thereby positively positioning the said card on top of a stack of cards held by plate **45**. Immediately thereafter, the said finger is moved clockwise so as not to obstruct the passage of a succeeding card being advanced by the last set of feed rolls, and the aligner plate **254** is brought into contact with the leading edge of the last card positioned on the said stack of cards so as to align the leading edges of all the cards in the stack.

Jam detecting device

A jam contact and operating mechanism therefore are provided to stop the operation of the printing machine in the event that a card becomes jammed while being fed by the card pushers towards the first set of feed rolls.

Referring to Figs. 4 and 7, the normally closed contact **266** is mounted upon lever **267** which, with lever **268**, is pivotally mounted upon a stub shaft **269** fixed to the main frame. The relative position of the said levers is controlled by the relative positions of their respective links **270** and **271** to which they are joined. Link **271** is fixed to connecting rod **272** which, in turn, is fixed to cam follower **226**. Thus, lever **268** is caused to oscillate about shaft **269** once each card cycle. Due to the fact that lever **267** is resiliently connected to lever **268** by spring **273**, lever **267** also rocks about shaft **269** once each card cycle. This action causes link **270** and jam detecting finger **274** to pivot in a clockwise direction about stub shaft **275** as link **271** moves downwardly, and to pivot counterclockwise as link **271** moves upwardly. Lever **267** is positively driven in a counterclockwise direction by the action of lever **268** on lip **276**.

As is shown in Fig. 6, the curved end of finger **274** moves beneath the card feed level, i. e., the level of card receiving table **38**, during the course of its clockwise movement. In the event that a card becomes jammed while being fed towards the first set of feed rolls, finger **274** will be stopped at, or above, the card feed level during its clockwise movement. Referring to Fig. 4, it may be seen that stopping finger **274** will also stop lever **267** and contact **266** attached thereto. However, lever **268** will continue to pivot in a clockwise direction as link **271** moves downwardly. As a result of the foregoing, extension **277** of lever **268** will operate upon the lower contact strap to open contact **266**. As to be explained hereinafter, this causes the printing machine to stop.

Referring to Fig. 5, the card pusher mechanism is resiliently connected to cam follower **112** by spring **113**. If for some reason the forward motion of card pushers **93** is interrupted, e. g., a card jam, the pivotal movement of arm **111** will be stopped while that of cam follower **112** will continue.

As the reverse side card printing unit described herein is an auxiliary part of the printing machine described in the aforecited Patent No. 2,181,935, and the electrical circuit of the latter machine is explained in detail therein, the said circuit will be described only briefly herein to the extent that it is affected by the jam detecting contact **266**.

Referring to Fig. 9, contact **266** is shown connected intermediate points **391***a* and contact **34** of the circuit shown in its entirety in Fig. 35 of the aforesaid patent. When a card jam occurs and normally closed contacts **266** are opened thereby, the printing machine circuit is affected in exactly the same manner as when normally closed contacts **34** are opened; namely, magnet **392** is de-energized so as to open the drive motor main line contacts **394***b* and **394***d*. In addition thereto, means are provided for permitting latch **386** (Fig. 2) to pivot clockwise, thereby withdrawing its support from arm **383***a* of lever **383**. Consequently, the drive motor and its supporting base plate will drop sufficiently to loosen the printing machine driving belt. As a result of the foregoing, the driving connection of the drive motor to the gearing of the printing machine is released while at the same time the motor, its circuit having been broken, coasts to a stop.

While there have been shown and described and pointed out the fundamental novel features of the invention as applied to a preferred embodiment, it will be understood that various omissions and substitutions and changes in the form and details of the device may be made by those skilled in the art, without departing from the spirit of the invention. It is the intention, therefore, to be limited only as indicated by the scope of the following claims.

What is claimed is:

1. In a machine for forming record cards from a web having means for printing successive impressions on one face of the web, and means for cutting the web into separate cards, each bearing a single impression; the combination of a card receiver having a receiving bed and a pivotally mounted card stripping and depressing element arranged to be oscillatable over said receiving bed; a continuously operating rotary conveying mechanism for gripping one edge of a card after being cut and, during turning, correspondingly turning the card into position for reception by said receiver, said receiving bed thereof arranged in the plane of rotation of said conveyor mechanism so that each card gripped thereby is moved directly into said card receiver; means for oscillating said card stripping and depressing element in a timed relationship to said rotary conveyor mechanism so that said stripping and depressing element is moved away from and out of alignment with said receiving bed to be ineffective during the period of movement of a card from said conveyor mechanism into said card receiver and is moved towards and into alignment with said receiving bed to be effective immediately thereafter so as to position each succeeding card onto said receiving bed; a rotary printing means adjacent said card receiver for printing impressions on the reverse face of each succeeding card; card feeding means including reciprocable card pushers for acting upon the trailing edge of a card in said card receiver so as to advance the card from said card receiver to said rotary printing means; means for rendering said card feeding means operative in a timed relationship to said rotary conveyor mechanism so that a card is pushed from said card receiver during the period that said stripping and depressing element is effective to position the card onto said receiving bed; means for normally maintaining said pushers above the surface of said re-

ceiving bed; and means for moving said pushers below the surface of said receiving bed during the period said card stripping and depressing element is ineffective to position a card on the card receiving bed, to thereby permit a next following card to be moved from said rotary conveyor mechanism onto said receiving bed.

2. A machine for forming separate individual record cards from a web of sheet material, of the type including means for printing successive impressions on one side of the web; means for severing the web into card lengths on each of which one of said impressions is exactly registered; and a drum type conveyor by which the severed cards are conveyed in overlapping spaced relationship; in combination with a card receiver having a receiving bed arranged in the plane of rotation of said drum type conveyor so that each card gripped thereby is moved into position for deposition into said receiving bed; means for stripping the cards in succession from said drum onto said receiving bed of said card receiver; a pivotally mounted card stripping and depressing element adjacent said receiving bed; means for oscillating said element in a timed relationship to the movement of said drum so that said element is moved away from and out of the plane of said receiving bed during the deposition of a card from said drum onto said receiving bed effected by said stripping means, and moved into the plane of and towards said receiving bed immediately thereafter to position each succeeding card onto the surface of said receiving bed; rotary printing means adjacent said card receiver and arranged to print on the reverse side of each card caused to be fed past said rotary printing means; card feeding means including a pair of card pushers for advancing successive cards singly from said card receiver to said rotary printing means, said pushers normally being maintained above the surface of said receiving bed; means for rendering said card feeding means operative in a timed relationship to said drum type conveyor so that a card is moved from said card receiver toward said rotary printing mechanism during the period said pivotally mounted card operating element is effective to position a card onto said receiving bed; and camming means for moving said pair of pushers below the surface of said receiving bed during the period a card is being stripped from said drum into said card receiver while said pivotally mounted card operating element is in a position away from said receiving bed.

3. In a machine of the class described, the combination of a card receiver having a card receiving bed and a movable card stripping and depressing element so constructed and arranged adjacent said card receiving bed as to move towards and into the plane of, and away from and out of the plane of said card receiving bed, a continuously operating rotary conveying mechanism for gripping one edge of a card and, during turning, correspondingly turning the cards conveyed in an overlapping spaced relationship into position for reception by said card receiver, means including card pushers for feeding successive cards, one-by-one, by said card receiver, means for moving said card stripping and depressing element in a timed relationship to said card feeding means so as to position each succeeding card onto said card receiving bed, means for normally acting upon said pushers to maintain the same above the surface of said card receiving bed, means for rendering said card feeding means operative in a timed relationship to said rotary conveyor so that each card is moved by said pushers from said card receiver during the periods that said card stripping and operating element is effective to position a card onto said card receiving bed, and means for camming said pushers below the surface of said card receiving bed during the periods that said card stripping and depressing element is ineffective to position a card onto said card feeding bed.

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