C. C. CHAPMAN.

PRESS.

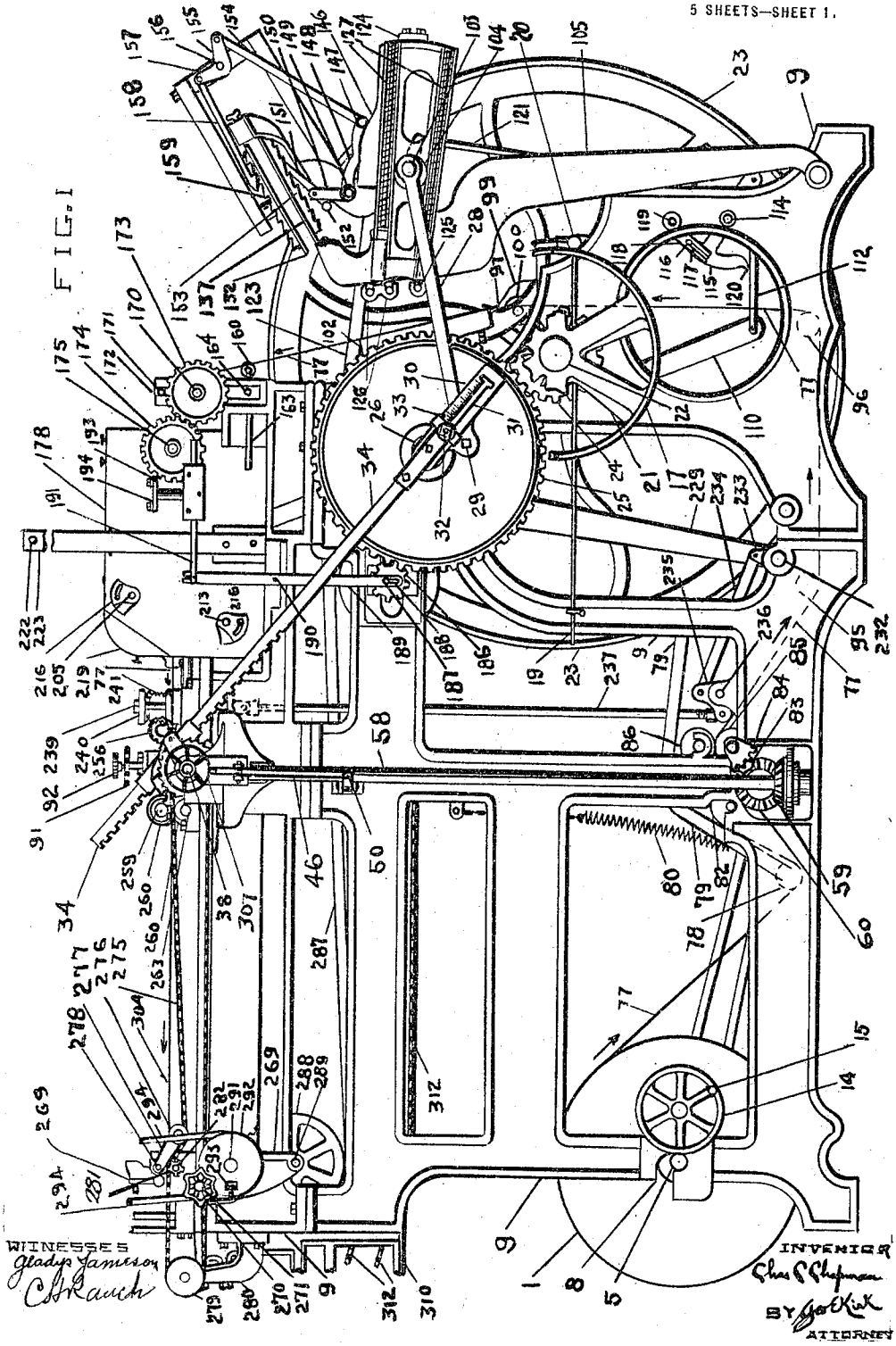
APPLICATION FILED FEB. 20, 1913.

1,260,967.

Patented Mar. 26, 1918.

5 SHEETS—SHEET 1.

FIG. 1



WITNESSES

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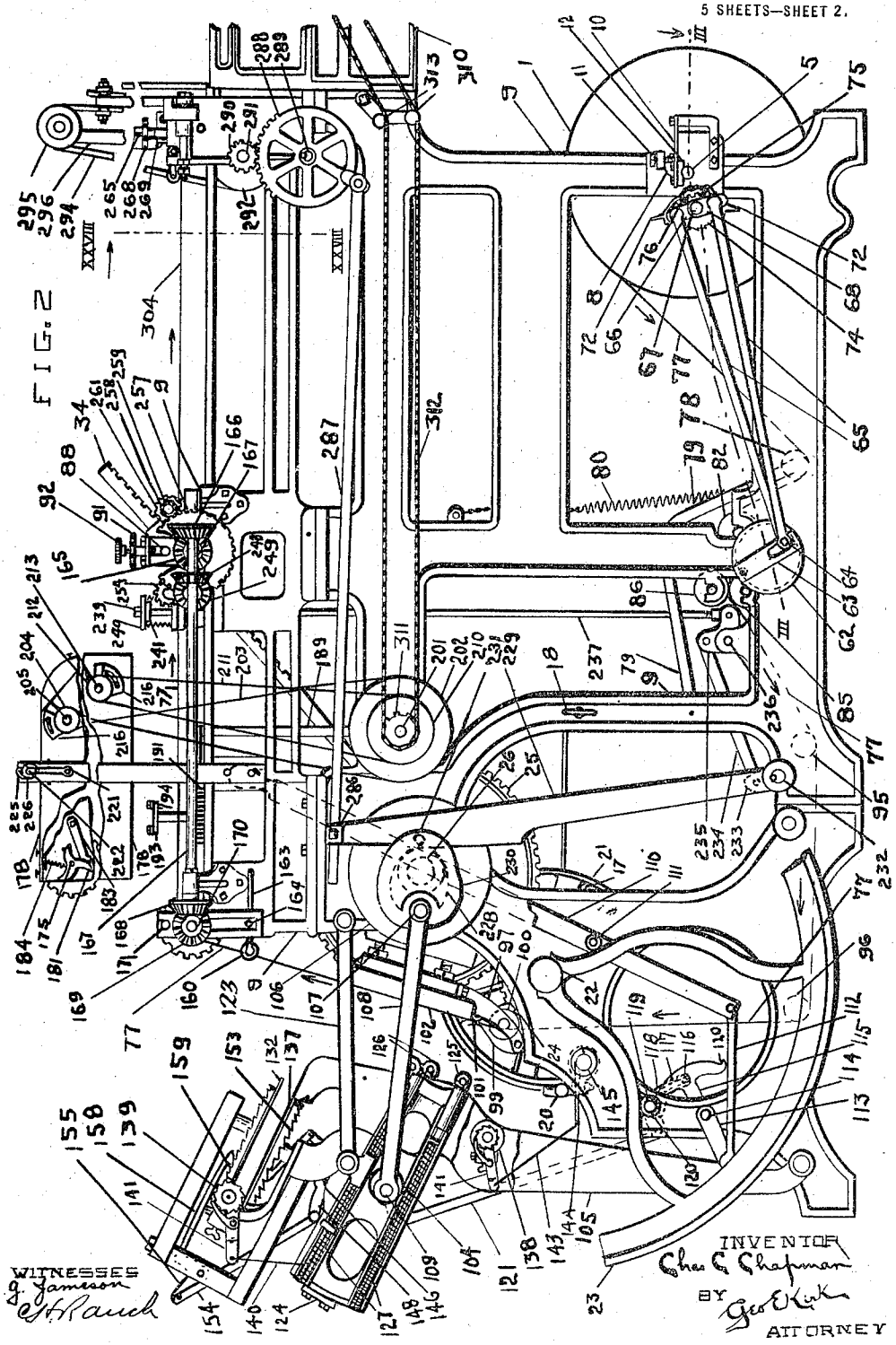
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5 SHEETS—SHEET 2.

FIG. 2



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5 SHEETS—SHEET 3.

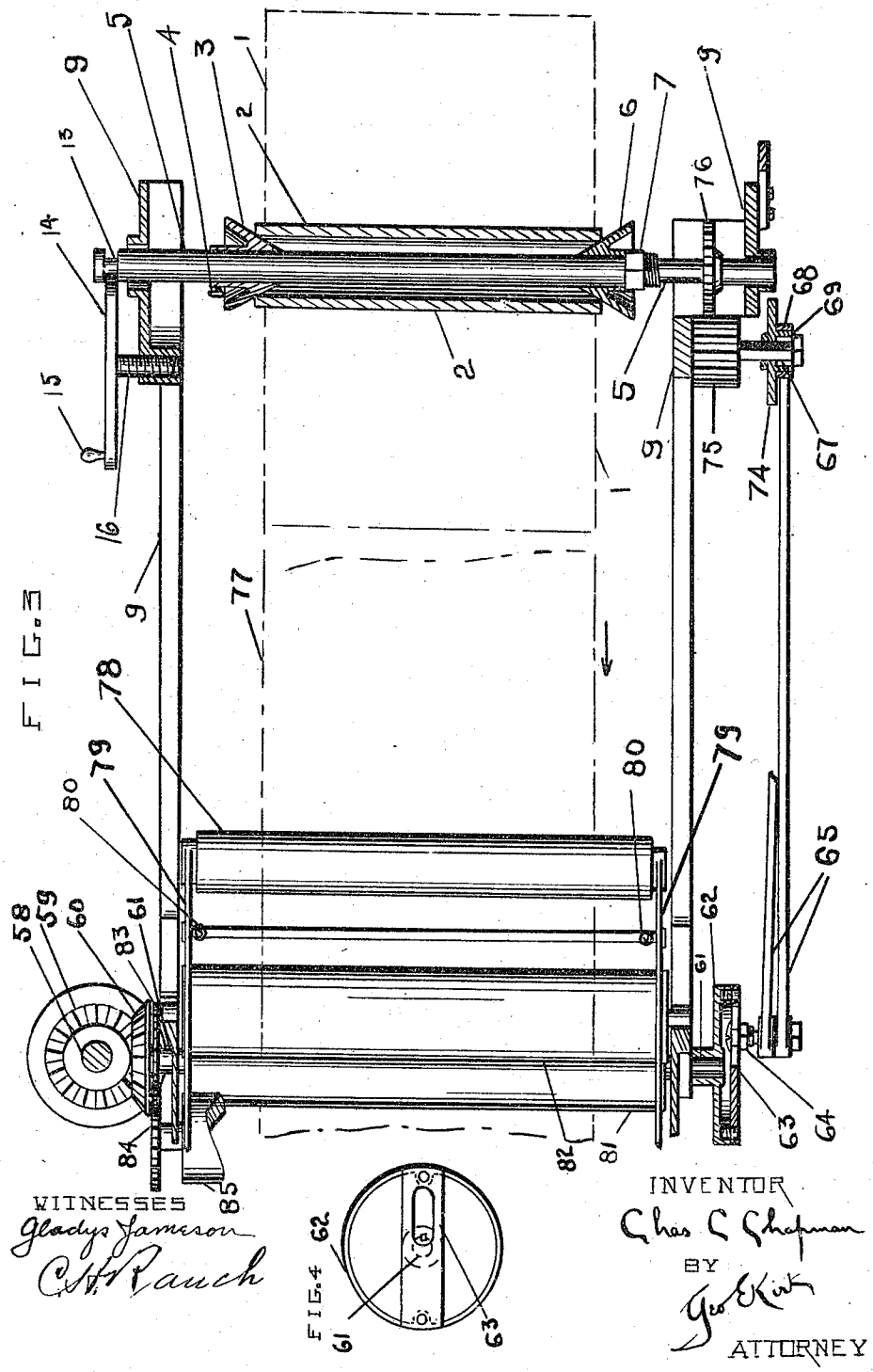


FIG. 3

FIG. 4

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5 SHEETS—SHEET 4.

FIG. 6.

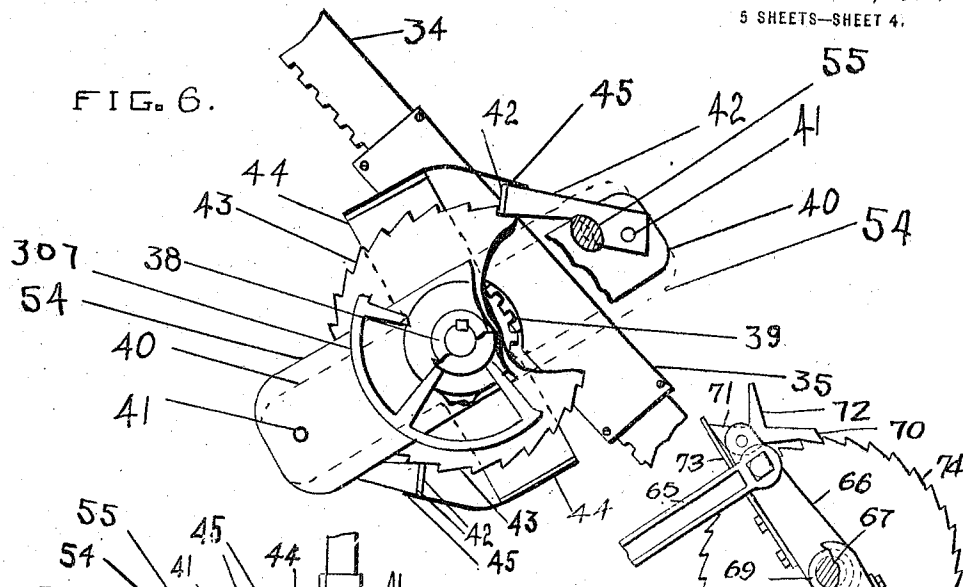


FIG. 5.

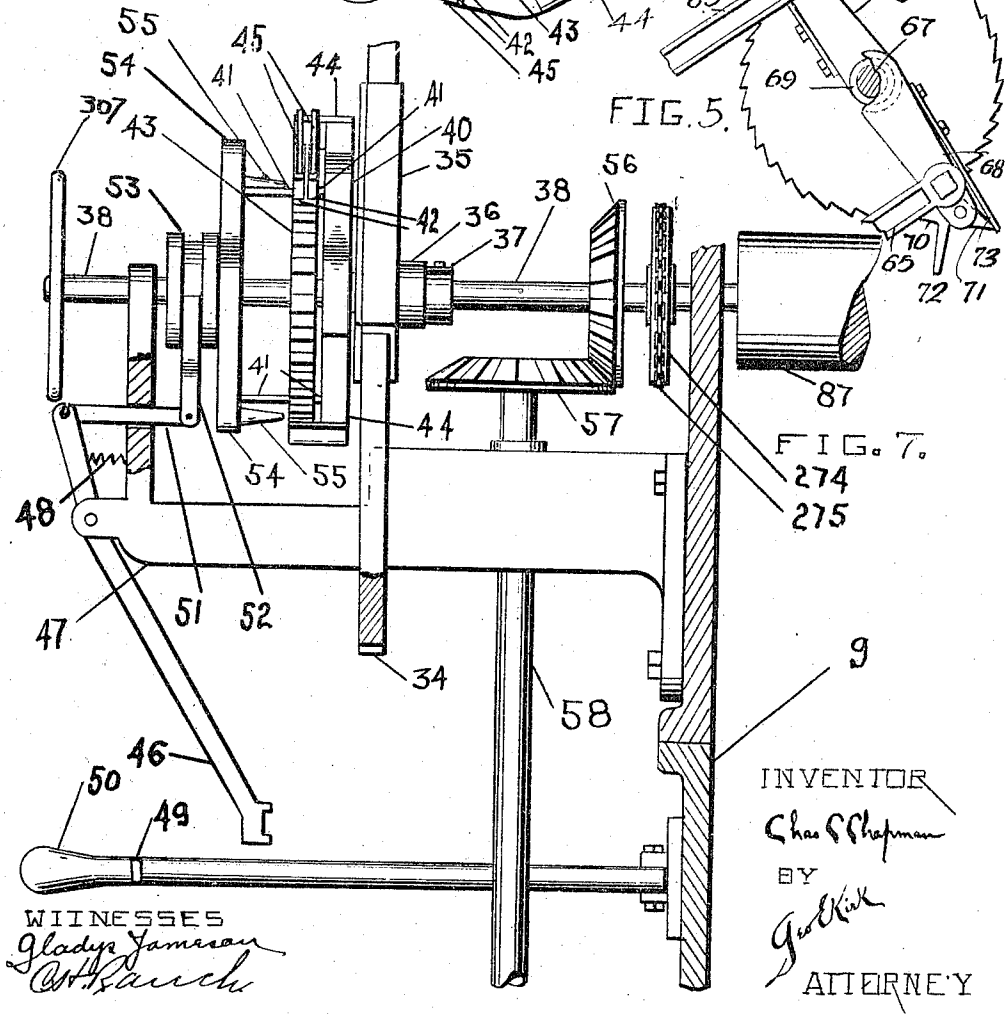


FIG. 7.

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APPLICATION FILED FEB. 20, 1913.

1,260,967.

Patented Mar. 26, 1918.

5 SHEETS—SHEET 5.

FIG. 9.

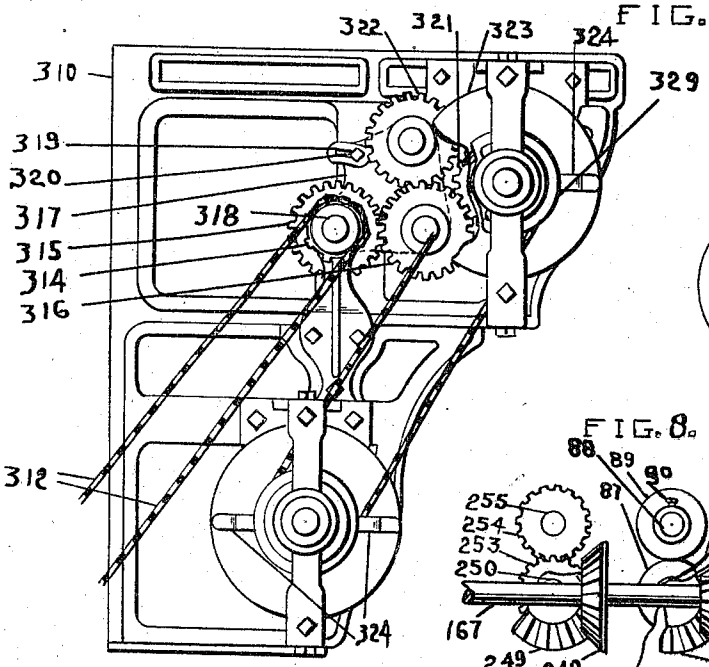


FIG. 11.

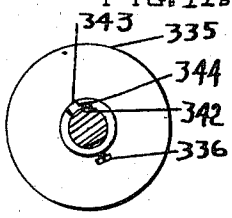
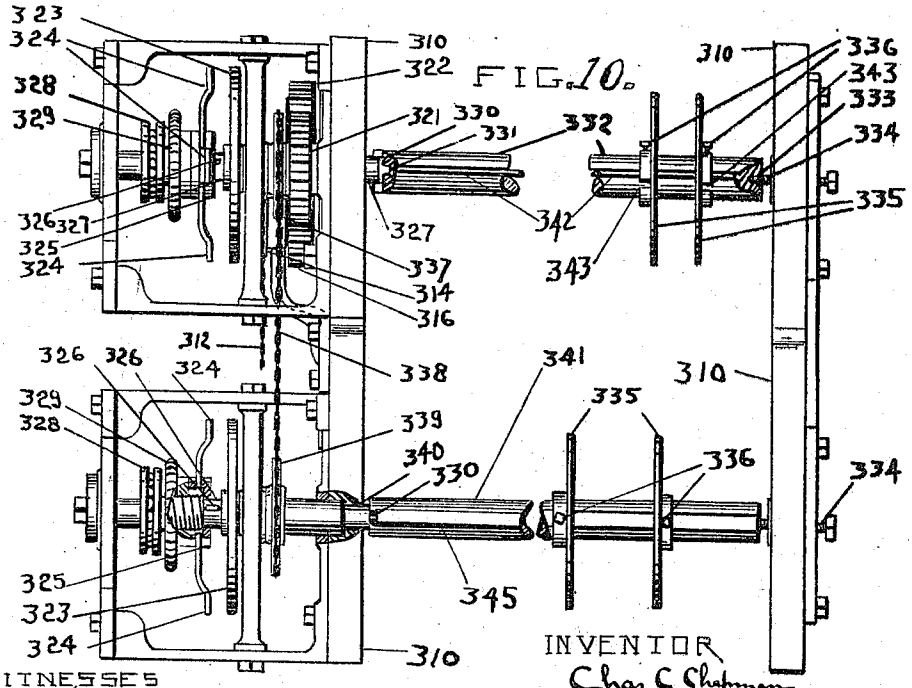


FIG. 8.

FIG. 10.



WITNESSES

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UNITED STATES PATENT OFFICE.

CHARLES C. CHAPMAN, OF TOLEDO, OHIO, ASSIGNOR TO THE TOLEDO WEB PRESS MANUFACTURING COMPANY, OF TOLEDO, OHIO, A CORPORATION OF OHIO.

PRESS.

1,260,967. Specification of Letters Patent. Patented Mar. 26, 1918.

Application filed February 20, 1913. Serial No. 749,576.

To all whom it may concern:

Be it known that I, CHARLES C. CHAPMAN, a citizen of the United States, residing at Toledo, Lucas county, Ohio, have invented new and useful Presses, of which the following is a specification.

This invention relates to the handling of strip material and the turning out automatically therefrom of such product as may be desired.

This invention has utility when embodied in a web feeding and handling mechanism for producing from bolts or rolls of stock various strips, labels, cards, tags, etc., printed, bronzed, perforated, punched, cut, etc., or such of these features as may be desired with a considerable range of possibilities in connection with each thereof.

Referring to the drawings:

Figure 1 is a side elevation, with parts broken away, of an embodiment of the invention in a web press;

Fig. 2 is a side view of the device of Fig. 1 from the opposite side of the press, also with parts broken away;

Fig. 3 is a section on the line III—III, Fig. 2, looking in the direction of the arrow, showing features of the web feeding devices;

Fig. 4 is a side elevation of the adjustable crank for the intermittent grip feeding device drive;

Fig. 5 is a fragmentary side elevation of the intermittent grip mechanism of the web feeding drive;

Fig. 6 is a fragmentary side elevation of the intermittent feed drive with the cut out therefor;

Fig. 7 is a fragmentary elevation of the drive, cut out and connections, from the right of Fig. 6;

Fig. 8 is a fragmentary side elevation of the rotary perforator, feeding and slitting devices drives on a larger scale than the showing of Fig. 2;

Fig. 9 is a side elevation of the rewind device from the side of the mechanism shown in Fig. 2;

Fig. 10 is an end elevation, with parts broken away, of the rewind device, looking from the right in Fig. 9; and

Fig. 11 is a side elevation of a winding guide disk and its mounting.

The roll of strip material or web of paper 1 may be mounted on the core or spool 2, Fig. 3. The cone 3, held by the set screw 4 in position on the shaft 5, may coact with one end of the core 2 of the roll of stock, while the opposing cone 6 may be forced against the opposite end of the core 2 by the nut 7 to lock the roll of paper in position on the shaft 5. Openings 8 (Figs. 1, 2) in the frame 9, allow of ready insertion in position of the shaft 5 carrying the roll of stock.

The spring 10 may be adjusted by the screw 11 for regulating the retarding action of the friction brake shoe 12 on the shaft 5. This device precludes feeding or unrolling of an excess of the stock, even with intermittent driving. Rapid feeding of the stock may be effected and this brake 12 takes up the momentum of the supply roll from the sudden startings.

To permit of accurate alining of the supply of stock as to the devices in the frame 9, the shaft 5 has the annular groove 13 therein near one end (Figs. 1, 3) with which the rim of the wheel 14 may coact. In rotating the wheel 14 by grasping the handle 15, the threaded stem 16 fast to the wheel 14 and engaging the frame, causes the wheel 14 to travel toward or from the frame 9 and carry with it the shaft 5 and the roll of stock 1 thereon.

In the driving of the mechanism, the driving belt may be on the loose pulley 17 (Fig. 1). By pushing the handle 18 (Fig. 2), or pulling the handle 19 (Fig. 1), the belt shifter 20 moves the driving belt to the fast pulley 21 on the main driving shaft 22, having on its opposite end the hand or fly wheel 23. Adjacent the pulley 21, and also fast on the shaft 22, is the pinion 24 in mesh with the gear wheel 25 (Figs. 1, 2) on the shaft 26 extending through the frame 9.

The gear wheel 25 carries the wrist pin 27 for the connecting rod 28. Anchored to the outer end of this fixed wrist pin 27 by the bolt 29 is the crank 30. This crank 30 is set to drive during the remoter travel period of the connecting rod 28 as to the shaft 26. The crank 30 has the radially extending graduated slot 31 engaged by the bolt or wrist pin 32 carrying the indicator 33, and the rack connecting rod 34, each as held in position thereon by the nut 35. The crank embracing form of the indicator 33 materially strengthens the adjustable crank device. The nut 35 may serve to lock the crank pin 32 at any point along the slot 31

and thus fix at the graduations the throw travel of the rack 34 mounted on the crank pin 32 for exactly regulating the feed of each intermittent travel.

The opposite end of the rack 34 is reciprocable in the guide 35 (Figs. 6, 7) having the bearing 36 held in position by the collar 37 on the main drive shaft 38 extending through the frame 9. In its reciprocations, the rack 34 rocks the guide 35 and rotates the pinion 39 with which it is held in mesh by the guide. The pinion 39 is loosely mounted on the intermittent feed drive shaft 38. Rotating with the alternately rotating pinion 39 is the pawl carrier having a pair of diametrically extending arms 40, each of which arms 40 carries a pivot pin 41. Upon each of these pivot pins 41 is mounted a pair of staggered pawls 42. The staggering of these pawls is such that but one of the four pawls 42 is in engagement with the ratchet wheel 43 fixedly mounted on the shaft 38. With a small pitch ratchet wheel 43, and the pawls thus acting but one at a time to divide the pitch into fourths, considerable refinement in the accuracy of the pick up of the reciprocating rack 34 is possible, thus eliminating lost motion. Fixed to travel with the pawl carrier arms 40 are the two arms 44 carrying a spring 45 for each pawl 42 to hold the pawls in engagement with the ratchet wheel 43 to give one direction intermittent rotation to the shaft 38.

To disconnect this adjustable intermittent feed drive, the lever 46 mounted in the bracket 47, may be pulled against the resistance of the spring 48 and held in this drive disconnecting position by engagement with the lug 49 on the arm 50 horizontally swingable as to the frame 9 to which it is pivotally connected. The slotted upper end of the lever 46 engages the slide link 51 connected to reciprocate the fork 52 coacting with the grooved collar 53 on the shaft 38. This collar 53 is fast with the pair of arms 54 into which the pawl mounting pivot pins 41 extend to cause the collar 53 and the arms 54 to travel with the pawls 42 and their actuating mounting. As thus connected, the cams or inclines 55 of the arms 54 are always in position to register with and slide under the pawls 42 upon the outward pull of the lower end of the lever 46, and thus lift the pawls 42 out of engagement with the ratchet wheel 43. This is a simple and effective disconnecting device in a positive drive which is at all times and in all positions ready for use.

The feed drive for supplying the stock from the roll 1 is connected to be driven from the shaft 38 through the bevel gear 56 thereon in mesh with the bevel gear 57 on the vertical shaft 58 (Figs. 1, 3, 7), which has near its lower end a bevel gear 59 in mesh with the bevel gear 60 on the transverse shaft 61 (Fig. 3) extending through the lower portion of the frame 9. The opposite end of this shaft 61 carries the disk 62 (Figs. 2, 3, 4) having the radially slotted crank 63 in which is mounted the adjustable wrist pin 64 for the connecting rods 65. The upper of these connecting rods 65 is pivotally connected to the arm 66 loosely mounted on the shaft 67, while the lower connecting rod 65 is pivotally connected to the arm 68 loosely mounted on the central sleeve portion 69 of the arm 66 (Figs. 2, 3, 5). These arms 66, 68, carry pawls 70 having the cam extensions 71, so that by taking hold of the pawl arms 72 and rocking thereby the pawls 70 toward the extensions 71, the springs 73 will thus serve to hold the pawls 70 out of driving engagement with the ratchet wheel 74 fast on the shaft 67. The springs 73 operate normally to hold the pawls 70 in driving engagement with the ratchet wheel 74 by engaging the extensions 71 as shown in Fig. 5, instead of engaging the opposite sides of said extensions which hold the pawls withdrawn or out of driving engagement with the wheel 74.

This intermittent grip driving device is adjustable to various speeds to actuate the shaft 67 having fast thereon the long pinion 75 in mesh with the pinion 76 fast on the shaft 5. The long pinion 75 takes care of the alining adjustment of the shaft 5 to always remain in mesh with the pinion 76. The adjustments of the wrist pin 64 may serve to give the roll of supply stock such start as may be desired, according to the varying diameter and mass of such roll, as well as the length of feed.

The web or strip of stock 77 from the roll 1, as thus unwound, passes under the take up or gravity roll 78 (Figs. 1, 2, 3) carried by a pair of arms 79 pivotally mounted in the frame 9. The tension springs 80 are adjustable to regulate the tension of the roll 78 on the web 77.

The intermittent grip driving action to start the stock from the roll 1 is merely a loosening or preliminary feeding operation. The definite feeding proper is effected by the roll 81 (Figs. 1, 2, 3) on the shaft 61. The web 77, after passing under the gravity or tension roll 78, passes over the idle roll 82 to increase the arc of contact of the web 77 with the feed roll 81. The effectiveness of this feed roll 81 for frictionally engaging the web 77 for certain definite feeding may be enhanced by a live roll further increasing the arc of contact of the web 77 upon this primary feed roll 81. The pinion 83 on the shaft 61 is in mesh to drive the pinion 84 of this second live roll 85, which has the opposing parallel idler roll 86 holding the web 77 thereagainst on the upper side. In the intermittent starting of the feed roll 81, the sudden pulling up of the stock is to an extent taken care of by the gravity roll 78, thus

removing excessive tension or strains off of the web 77. This roll 78 tends to assist the intermittent driving device in starting the feed from the supply roll 1 and the feed is continued by the action of the rolls 78 and 81 to the definite length of the feed after the intermittent drive has discontinued to rotate the shaft 5, for these rolls 78, 81, may have just sufficient pull to overcome the brake 12.

Simultaneously and in synchronism with this feeding below, there is a feeding above, to insure uniform travel of the web 77 during treatment. The drive shaft 38 has the live feed roll 87 thereon (Figs. 7, 8), and the opposing idler shaft 88 carrying the nip rolls 89 adjustable therealong by the set screws 90 to place the rolls in position to miss the ink of the printing and properly engage the stock. The adjusting hand wheels 91, [illegible], serve to refine the adjustment of the spring 93 (Figs. 1, 2) in its action on the antifriction saddle 94 coacting with the idler shaft 88 to regulate the pressure of the nip rolls 89 on the web 77.

The web 77, in passing from the lower feed rolls 81, 85, may contact the guide rolls 95, 96 (Figs. 1, 2), in its travel to receive such treatment or treatments as may be desired with the mechanism. The web 77 may be so fed from the lower definite feed as not to be under tension in passing the several devices of the mechanism between the rolls 81, 85 and the registering feed roll 87.

In the sequence herein shown, the printing press is the device past the platen of which the web 77 may next travel (Figs. 1, 2). The bracket 97 carries on the transverse rod 98 the tension spring 99, so that the web 77, after passing the marginal guides 100, is held by this spring 99 against the roll 101 just before it reaches the platen 102.

The printing, or sizing for bronzing, may take place on this platen 102. The printing press is driven from the shaft 26 (Figs. 1, 2) on which the gear wheel 25 is fast. The crank 27 adjacent the gear wheel 25, has the connecting rod 28 connected to the eccentric pin 103 on the back shaft 104 mounted in the bed 105 pivotally connected to the lower part of the frame 9. The opposite end of the shaft 26 has the crank disk 106 provided with the wrist pin 107 from which extends the connecting rod 108, similar to the connecting rod 28. This connecting rod 108 extends to the eccentric pin 109 in a similar position but on the opposite end of the back shaft 104. In operation, these connecting rods 28, 108, serve to rock the bed 105 to and from effective position as to the platen 102.

To throw the printing bed 105 out of action, the hand lever 110, having the fulcrum 111 on the side of the frame 9, may be actuated (Fig. 2), and through the link 112 and the crank 113, rock the shaft 114 having the arm 115 carrying the pin 116 coacting with the slot 117 of the bell crank lever 118 on the shaft 119. The arm 115 has a hook 120 at each end of its free arc terminus to engage the shaft 119 and serve as limit stops for throwing this device. The link 121 extending from the bell crank 118, connects to an arm on back shaft 104. With the eccentrics 103, 109, of the back shaft 104 rocked toward the shaft 26 by this throw off device, the connecting rods 28, 108, in rocking the bed 105 toward the platen 102, would not bring the bed into contacting relation, as they would with the eccentrics oppositely thrown. Accordingly with bed thrown off there is no impression made upon the web as it passes the platen.

The printing press is shown as adapted for two color work (Figs. 1, 2). The connecting rod 123 extending from the main frame 9 is attached to the inking roll carrying frame 124 rockably mounted on the back shaft 104. The connecting rod 123 is so disposed that in the rocking of the bed 105, the frame 124 is rocked thereon. Some of the inking rolls are inked by the upper ink distributing disk 132, while other of the rolls have ink distributed thereon by the lower inking disk 137. When operating these inking rolls as described, two color work may be produced by using one color or kind of ink for one set of rolls and another for the other set of rolls, inking one set from the lower fountain 138 and the other set from the upper fountain 139. The upper inking fountain roll 139 is driven by the connections 140 from the inking roll frame 124 to the ratchet arms 141, while a similar movement by the rocking of the frame 124, is transmitted to the ratchet arm 141 of the lower fountain 138 through the connection 143 to the adjustable clamp bracket 144 mounted on the transverse tie rod 145 of the frame 9.

The cam 146 on the roll frame 124 serves to drive the inking disks 132, 137. The roll 147 on the angle lever arm 148 coacts with the cam 146 to rock the lever 148 mounted on the fulcrum 149 in the bed frame 105. The other arm 150 of this angle lever in its rocking reciprocates the gravity pawl 151 having the weighted end 152 to hold the pawl in engagement with the crown ratchet wheel 153 on the lower side of the ink distributing disk 137. Connected to be actuated by the cam 146 simultaneously with the angle lever 148, 150, is the link 154 extending from the angle lever arm 148 to the angle lever arm 155 on the fulcrum 156 having its other arm 157 pivotally carrying the gravity pawl 158 coacting with the crown ratchet 159 on the upper ink distributing disk 132.

After passing the printing press, the web 77, in its intermittent travel, timed by the radial disposal of the crank 30 to be during the travel of the bed 105 when the bed is free from the platen 102, comes to the marginal guides 160 adjustable laterally by the set screws to various positions on the shaft 162 carried by the bars 163, adjustably held as to the frame 9 by the set screws 164 (Figs. 1, 2). The adjustment of the guides 160 properly positions the web and their adjustment permits a setting for any width of web being treated.

An intermediate feeding device for the web 77 is next provided. On the shaft 38, and on the end thereof remote from the driving ratchet 43 (Fig. 2), is mounted the bevel gear 165 in mesh with the bevel gear 166 on the horizontal shaft 167 extending along the frame 9 near the top thereof. On this shaft 167 remote from the gear 166 is the bevel gear 168 in mesh with the bevel gear 169 (Fig. 2) driving the feed roll 170, opposing which is the idler shaft 171 carrying the nip rolls 172 holding the web 77 against the feed roll 170. These nip rolls 172, are adjustable to properly engage the web and clear the printing or size, as are the nip rolls 89.

The web may next pass to the bronzer, instead of by-passing this device. When the bronzer is used, the printing may be with a size or some substance to which the powdered material, as bronze, may be caused to adhere.

The opposite end of the intermediate feed roll 170 from the bevel gear 169, carries the gear wheel 173 (Fig. 1) which is in mesh with the gear wheel 174 when the bronzer is down in operative position. This gear wheel 174 is fast to the feed shaft 175. To assist in the uniformity of this powdered material feed, the shaft 175 (Fig. 2) has the three armed cam 181 riding against the pin 182 on the pivoted arm 183, to force this arm 183 against the resistance of the tension spring 184 away from the shaft 175, so that on the passing of each cam arm 181, the arm 183 is released to have its shoulder 185 knock the shaft 175 and thus jar and loosen the powdered material therealong to preclude clogging of the feed.

To further effect distribution of the powdered material or bronze upon the web 77 during its travel through the bronzer, rubbers are provided, which, besides effecting the distribution uniformly over the sized portions, loosen up to an extent the surplus of the powdered material. The drive for these rubbers is by the pinion 186 (Fig. 1) in mesh with the gear wheel 25. This pinion 186 has the crank pin 187 engaging the slot 188 in the vertically disposed lever 189 having the fulcrum 190 on the frame 9. In the lowering of the bronzer housing 178, the upper slotted end of the lever 189 may come into engagement with the rack 191, so that the rocking of the lever 189 effects a reciprocation of the rack 191 in the guide to rock the connected arms 193, 194.

To remove the excess of bronzing material from the web 77, additional brushes may be provided. The pinion 186 (Figs. 1, 2) is on the shaft 201 extending through the frame 9 and has on the opposite end thereof from the pinion 186 the pulley 202. Coacting with the pulley 202 is the belt 203 extending about the pulley 204 on the shaft 205 in the bronzer housing 178.

In some instances it may be desirable to brush the under side of the web. The pulley 210, adjacent the pulley 202 on the shaft 201, has the straight belt 211 driving the pulley 212 (Fig. 2) in the opposite direction to the pulley 204, so that the shaft 213 through the bronzer housing 178 below the web 77, will actuate its rotary brush on its upper side against the travel direction of the web 77. The powdered material removed by this lower rotary brush accumulates in the lower section of the bronzer housing. This accumulation in the housing 178, as well as in the hood, may be removed from time to time as occasion demands.

These rotary shafts 205, 213, are readily adjustable to nicely position the brushes as to the web being treated. To permit this adjustment, housing engaging eccentrics 215 (Figs. 1, 2) are each provided with a lateral extension 216 having an arc shaped slot which a set screw may engage to lock the shaft in the desired adjusted position of alinement as well as clearance of the brushes in the travel of their nap surfaces against the direction of web movement.

To obtain access to brushes as well as to the hood 208, the bronzer housing door 219 is provided.

To permit the web to by-pass the bronzer, the bronzer may be lifted from its down or operative position (Fig. 1) to its up or inoperative position (Fig. 2). The handle 221 may serve to rotate the shaft 222 mounted in the uprights 223. The two straps 224 extending from the shaft 222 to the bronzer housing 178 are wrapped about the shaft 222 in the ascent of the bronzer. The dog 225, pivotally mounted on one of the uprights 203 to engage the ratchet wheel 226 on the shaft 222, serves to hold the bronzer in its elevated position. Laterally extending arms 227 (Figs. 1, 2) from the bronzer housing 178, coact with the uprights 223 to guide the ascent and descent of the bronzer. The bronzer feed and brush driving elements are disconnected when the bronzer is lifted, and when the bronzer is again brought into operative position, the various driving elements are connected up thereto.

After the web leaves the bronzer, it may

be conveniently treated to any desired perforating, cutting or punching. For irregular or unusual treatment, a reciprocating device or devices effective during the intermissions of the web travel may be used.

On the shaft 26 having the crank disk 106 (Fig. 2) is the cam 228 about the crank to actuate the lever 229, which is held in position by the second cam plate 230, rigidly mounted on the wrist pin 107. The roller pin 231 on the lever 229 coacts with the return or holding cam plate 230. This lever 229 is mounted on the rock shaft 232 extending through the frame 9, to drive said shaft 232, which carries a pair of crank arms 233 connected to the links 234 extending to the angle levers 235 on the parallel rock shaft 236, effective to raise and lower the adjustable upwardly extending rods 237 (Figs. 1, 2). These link rods 237 engage the cross head connected to the bolts 239 mounted in the plunger or press normally maintained in lifted position by the springs 241. The action of these devices is during the intermission of web travel. These perforating, cutting or punching devices for the treatment or treatments desired to give to the web, may be accurately placed in any position along the printed or bronzed web. In the use of these devices without the bronzer, the drive may be effected directly from the rock shaft 232, thus eliminating the shaft 236 and the connections thereto.

For longitudinal treatment of the traveling web, as by a perforating device, the bevel gear 248 on the shaft 167 (Fig. 2) may mesh with the bevel gear 249 on the shaft 250 (Fig. 8). Adjacent the bevel gear 249 and on the shaft 250, is the pinion 253 in mesh with the pinion 254 to drive the parallel shaft 255 at the same rate as the shaft 254 therebelow. The rotary perforating device acts to produce in the web and longitudinally thereof, the line of perforations in the position desired.

In the assemblage of the devices for treatment as herein disclosed, immediately following this perforating device is the upper or main registering feed device including the lower roll 87 and the upper shaft 88 carrying the web contacting nip rolls 89 yieldably held in pressure applying position.

For longitudinal cutting or slitting of the traveling web during its travel, there may be the gear wheel 257 on the shaft 38 (Figs. 2, 8) meshing with the pinion 258 on the shaft 259 transversely of the frame 9 and carrying the upper slitter rolls or wheels 260. This shaft 259 carries the pinion 261 in mesh with the pinion 262 to drive the parallel shaft 263 in synchronism with the shaft 259. This shaft 263 carries opposing slitter wheels in cutting proximity with the slitter wheels 260. These slitter wheels are disposed in the desired adjusted positions along their shafts and locked by set screws in a manner similar to the adjustment of the rotary perforators. These slitter wheels travel in the direction of the web in their rotation as to such web therebetween, but as geared up by the gear wheel 257, their travel is in excess of that of the web, thereby differing in their operation from the rotary perforator wheels. This higher speed travel of the slitter wheels renders their action of cutting more effective.

As thus far treated, the web may still be in strip form and all or any desired portion thereof may be cut up into tags or labels. The rotary perforating device and the rotary slitters or cutting devices need not be adjusted longitudinally of the frame 9, the transverse adjustments of the wheels being sufficient to meet normal needs. However, with the plunger or press perforating device and plunger cutting and punching device, longitudinal adjustment is desirable to give the mechanism a maximum range of utility in caring for different lengths of feed in the production of various articles. For transverse cutting, longitudinal adjustment is taken into account. The after portion of the frame 9 has along the upper side thereof the slots 265 in which are disposed, one on each side of the frame, bolts having their heads at the lower ends (Fig. 2) drawn by the hand wheels 268 at the upper ends to lock the transverse cutting device frame 269 to the mechanism frame 9. To adjust the cutting device frame 269 longitudinally of the frame 9, the hand wheels 268 are rotated to loosen the frame 269, and then the hand wheel 270 on the shaft 271 through the frame 269, may be rotated to cause the shaft 271 to travel along the frame 9.

To take up any slack in the web after passing the upper feed device 87, 89, a web actuating feed device, traveling a little in excess of the web feed, is provided adjacent the transverse cutting device. On the shaft 38 (Fig. 7) is the sprocket wheel 274 driving the sprocket chain 275 (Fig. 1) passing under the gravity belt tightener roll 276 on the arm 277 falling from the pivot pin 278 in the frame 269. This sprocket chain 275 extends about the grooved wheel 279 mounted in the bracket 280 carried by the end of the frame 9. The tightener 276 holds the sprocket chain 275 in mesh with the sprocket wheel 281 on the shaft 282 (Fig. 1) which carries the feed roll. Opposing this live feed roll 283 is the idler shaft 284 carrying the web contacting adjustable nip rolls 285. The disposal of the grooved follower wheel 279 beyond the range of adjustment of the frame 269 permits this web slack take up device to be effective at any position of the frame 269.

In driving the transverse cutting device, the rocking lever 229 (Fig. 1) at its upper

end has the clamp 286 to rockably engage the connecting rod 287. The adjustment of the position of this clamp on the bar 287 takes care of the various positions of adjustment of the cutting device frame 269 to which this bar or rod 287 extends. This rod 287 is pivotally connected to the segment 288 (Fig. 2,) which it serves to rock back and forth on its shaft 289 carried by the frame 269. This segment 288 is in mesh with the pinion 290 on the shaft 291, which it gives an alternating rotary motion. On the opposite end of this shaft 291 (Fig. 1,) is the doubly grooved pulley 292. A clamp locks one end of the belt 294 in one of the grooves while the other end is similarly locked in the other groove of the pulley 292. This belt 294 passes over the long idler 295 carried by the bracket 296 rising from the frame 269. A clamp to one of the reaches of this belt 294 locks one end of a knife to effect a timed up and down movement at intervals of the knife to cut off definite lengths of stock from the web. The tags from this treatment are punched and perforated in two directions.

The necessity for refinements in adjustments throughout the mechanism is apparent with this transverse cutter, as well as with the transverse perforator, the cutting device or punching device, and the printing device. And as to the latter, the intermittent feeds for proper registration in two color work from one impression on the lower form section to exact position for application of the second color thereto when definitely moved upward to the upper form section, is important in turning out proper output. To readily bring the stock or web in position for the initial adjustments, the primary feed shaft 38 (Fig. 1,) may be manually actuated by the hand wheel 307. When once adjusted to the proper position, with the various devices locked, no further attention is needed, for the registry of the several treatments of the web once perfected remains for automatic operation of the several treatments during the running of the mechanism.

The strips or trimmings from the web 77, or any portion or portions of such web which it is desired to rewind as a finished product, or as waste from the current operations to save for future use, may be conducted below the cutting device frame 269 to by-pass the transverse cutting, and be rewound into rolls. The rewind frame 310 is mounted on the mechanism frame 9 at the end remote from the printing press (Figs. 1, 2, 9, 10). The rewind is driven by the sprocket wheel 311 on the shaft 201. Passing about this sprocket wheel 311 is the sprocket chain 312 coacting with the pair of guide tighteners 313 in extending to the follower sprocket wheel 314 driving the adjacent pinion 315, in mesh with the pinion 316 in the frame 317. This frame 317 is pivotally mounted on the shaft 318 in the frame 310, which shaft 318 carries the pinion 315 and the sprocket wheel 314. This frame 317 has the arc shaped slot 319 in which may engage the set screw 320 to lock the frame in adjusted position to have the pinion 316 mesh with the pinion 321. To reverse the direction of the drive of the pinion 321, the set screw 320 is loosened and the frame 317 is rocked to throw the pinion 322 in mesh with the pinion 321. This pinion 322 is carried by the frame 317 and is driven by the pinion 316.

The pinion 321 has sleeve connection to rotate with the friction disk 323. Opposing this friction disk 323 are the radiating spring clutch arms 324 on the hub 325 held by the spline 326 to rotate with the driven shaft 327. Mounted on the shaft 327 is the antifriction thrust bearing 328 against which may abut the hand wheel 329 having its hub threaded on the shaft 327, so that by rotation of this hand wheel, the hub 325 may be moved to bring the yieldable clutch fingers or arms 324 into the desired holding engagement with the friction disk 323 to effect driving of the shaft 327.

The inner end of the shaft 327 has the diametrically extending tongue 330 with the centering extension 331 engaging the roll 332 to effect rotation thereof. The opposite end of this roll 332 has the cone bearing recess 333 adjusted in position in which is the opposing sustaining cone 334. Mere loosening of this roll 332 by backing off of the bearing 334 permits ready removal or replacement of the roll 332 which may carry the guide disks 335 held in the desired adjusted positions by the set screws 336.

In the winding of strips of material having a common cut therebetween, guide disks on the same shaft would tend to distort or twist in the travel out of a straight line. To obviate this difficulty, a pair of winding shafts is provided. Driven by the pinion 321 and adjacent thereto is the sprocket wheel 337 driving the sprocket chain 338 passing about the follower sprocket wheel 339 having a sleeved connection to rotate a second friction disk 323 to coact with which are the opposing friction fingers 324 splined to the shaft 340, in a similar manner to the driving of the shaft 327 from the pinion 321. These friction fingers 324 may be adjusted to regulate the slippage of the friction clutch in driving the rewind shaft 340 connected to actuate the removable roll 341 carrying the guide disks 335.

The rewind shafts or rolls 332, 341, are shown provided with the longitudinal groove for the web engaging and anchoring wire 342 (Fig. 10), which wire may be loosened for inserting the web thereunder by having these wires 342 register with the re-

cesses 343 in the disks 335. When the insertion of the end of the strip or web has been made, the disks 335 are rotated to bring the lesser recesses 344 to lock the wires 342, but partially upstanding from the rolls, in firmly held position. The disks 335 are locked in this adjusted wire locking position by the set screws 336 engaging the flattened sides 345 of the rewind shafts 332, 341. The upstanding of the wires 342 insures such loosening of the wound roll of stock, upon withdrawal of the wires, as to allow of ready removal of the stock from the mounting rolls 332, 341.

The driving of these rewind shafts may be at a rate in excess of the feeding of the web material off from the roll 1, thereby causing the rewind device to keep taut the web passing the upper feed device 87, 89. To prevent excessive strain upon the strip of paper, the slippage of the clutches 323, 324, may be delicately adjusted at any time, even during the operation of the mechanism. As the diameter of the stock upon the roll 1 changes, adjustments may be in order at the rewind, as well as at the crank disk 62, but the remainder of the devices in the mechanism permit automatic continued operation, and these adjustments above mentioned are only necessary under extreme conditions.

In winding the treated strips or webs, it is sometimes desirable to wind with the printing outside, as tickets, while in other instances, as gummed labels, winding of the printing on the inside is preferred. The reversibility of the winding device herein disclosed permits ready change to adapt the mechanism to either of these conditions.

The length of the feeds or intermittent travels of the web for treatment may be accurately adjusted over a wide range by the bolt wrist pin 32 along the slot 31 (Fig. 1). The frame 9 is shown with ample clearance for a similar wide range of adjustments for the transverse cutting device frame 269. The plunger or press for the transverse perforating device and for the cutting or punching device may require as great a range of adjustment along the frame 9 as the knife or transverse cutting device frame 269. Under these circumstances, when a bronzer is also used, the frame 9 may be lengthened accordingly between the upper feed device 87, 89, and the bronzer. While if the bronzer is not to be used, the frame 9 as shown is of ample extent to care for any and all positions which may be desired for the press. This press may be of such form and extent in itself as to turn out even multiple copies at each feed or step in the intermittent travel of the web.

The flexibility of this mechanism gives it a maximum range of utility in many industries in getting out labels, tags, stickers, for marking brands, grades, sizes, in two color, or bronze, and cutting, perforating, punching or marking, as may be desired, and taking off the product as individual pieces or in strips or rolls. The accurate registry of the driving devices permits the printing, even to numbering, and all of the other operations, or such thereof as may be elected at any time, with such precision as to always insure an output of the highest character. The different devices for treatment may be removed for certain occasions, or portions or all of the stock may by-pass some one or more of the devices. The reliability of the mechanism for automatically producing the finished product from the raw stock received as a roll charge at one end is a material contribution in the economic production of many articles. This utility may even extend to the supplementing of treatments to a web bearing some printing, punching, perforating or other marking, as the mechanism is susceptible of most accurate adjustment into registry of the various devices.

What is claimed and it is desired to secure by Letters Patent is:

1. A machine for handling strip material comprising three feeding means for the strip material, a supply roll, a superposed rewinding roll, means for acting upon the material between said rolls, one of said feeding means being an overwind feeding means, a second of said feeding means being an intermittent wind feeding means, and driving means for the feeding means.

2. A machine for acting upon strip material including a frame, means mounted on the frame for acting upon the material, a driving device for the means, a winding device connected to the driving device to be driven in excess of the material supply rate, said winding device being mounted in the frame for receiving the material upon which the means have acted, said device comprising an axially rigid support, an adjustable mounting for one end of the support permitting ready disconnection thereof, and a connectible driving head for the other end of the support.

3. A machine for acting upon strip material including a frame, means mounted on the frame for acting upon the material, a driving device for the means, a winding device connected to the driving device to be driven in excess of the material supply rate, said winding device being mounted in the frame for receiving the material upon which the means have acted, said device comprising a slippable drive, and automatic means for rendering the drive effective, said automatic means being manually adjustable.

4. A machine for acting upon strip material, including means for acting upon the material, a continuous driver for the means,

an intermittent drive for the material, a winding device for the material, and a simultaneously intermittently operable drive for the winding device connected to the continuous driver for actuating the winding device in excess of the winding device supply rate.

5. A machine for acting upon strip material, including means for acting upon the material, a winding device for the material acted upon by said means, and a reversible drive for the winding device comprising a manually adjustable slippable clutch.

6. A machine for handling strip material including a frame, supply means carried by the frame, a pair of material actuating means spaced from each other, means for acting upon the material between said actuating means, a winding device for the material, and a slack take-up running in excess of the material supply rate between the second actuating means and the winding device.

7. A machine for handling strip material including means for acting upon the material, a winding device for the material acted upon, and a drive for the winding device embodying a driver, a driven member, and driving connections between the driver and driven member including an adjustable slippable connection, said driving connections embodying means shiftable to reverse the direction of the driven member.

In testimony whereof I affix my signature in the presence of two witnesses.

CHAS. C. CHAPMAN.

Witnesses:
C. H. RAUCH,
GEO. E. KIEK.