

March 30, 1943.

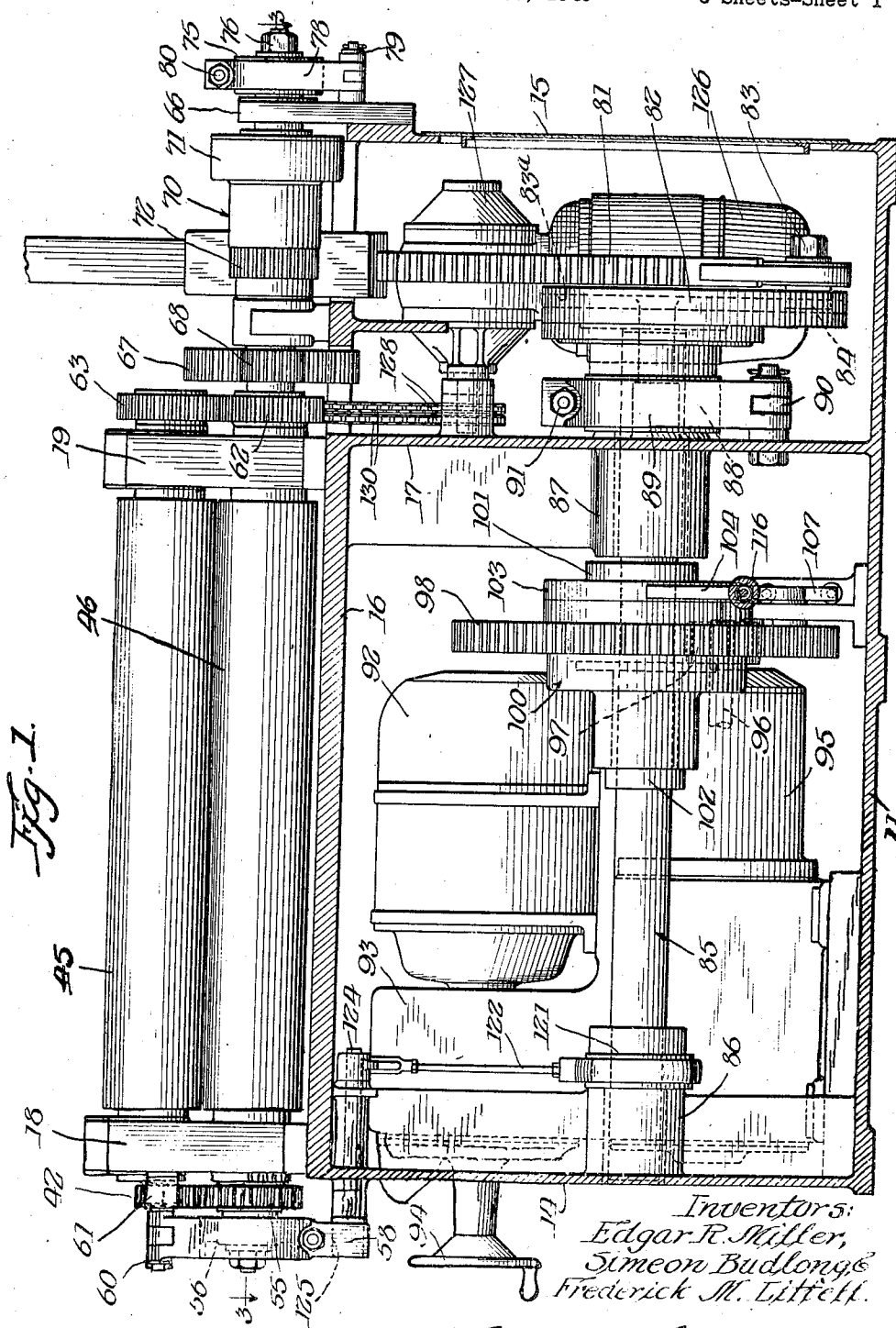
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2,315,446

FEEDING AND STRAIGHTENING MACHINE

Filed Dec. 30, 1940

5 Sheets-Sheet 1



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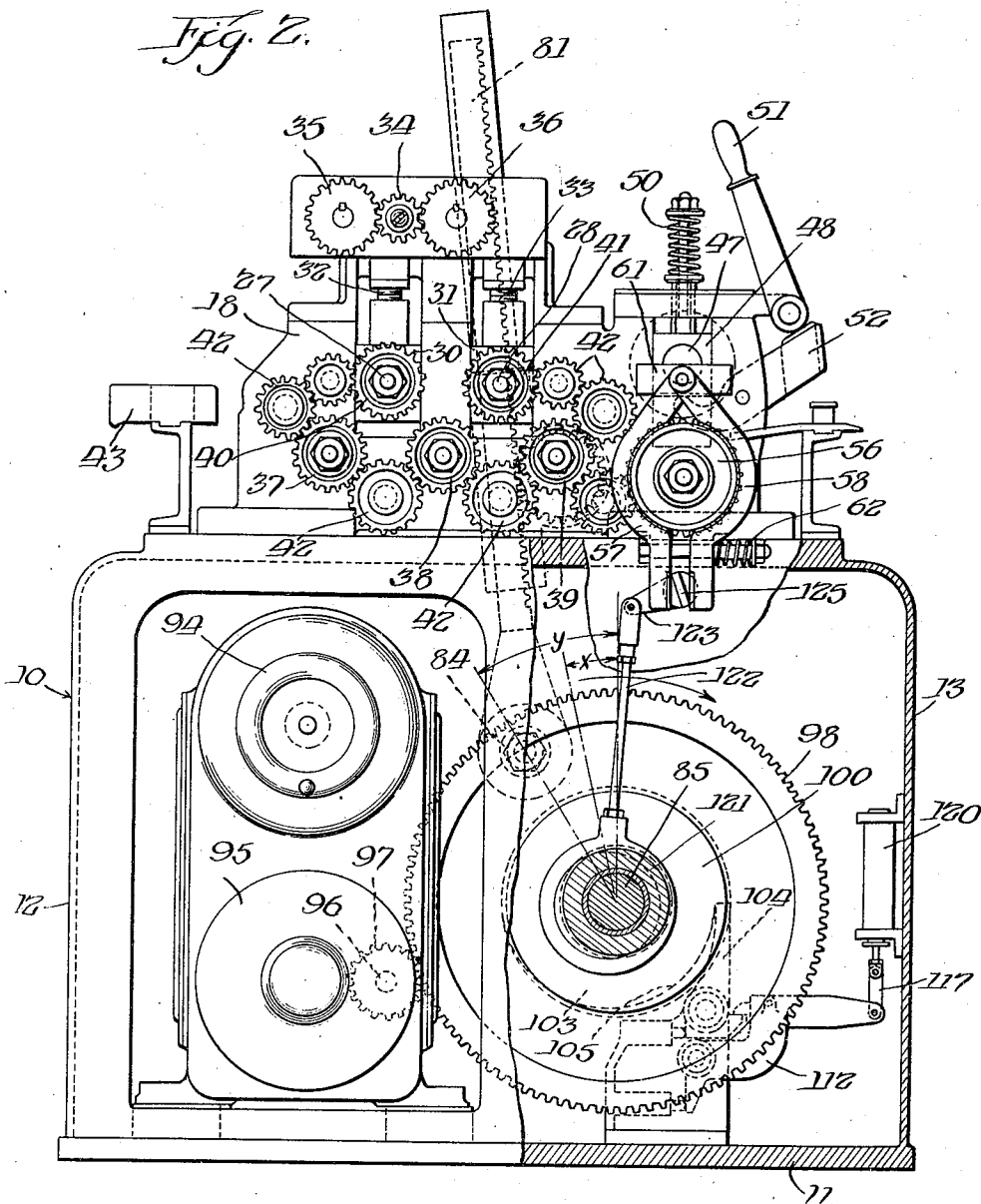
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FEEDING AND STRAIGHTENING MACHINE

Filed Dec. 30, 1940

5 Sheets-Sheet 2



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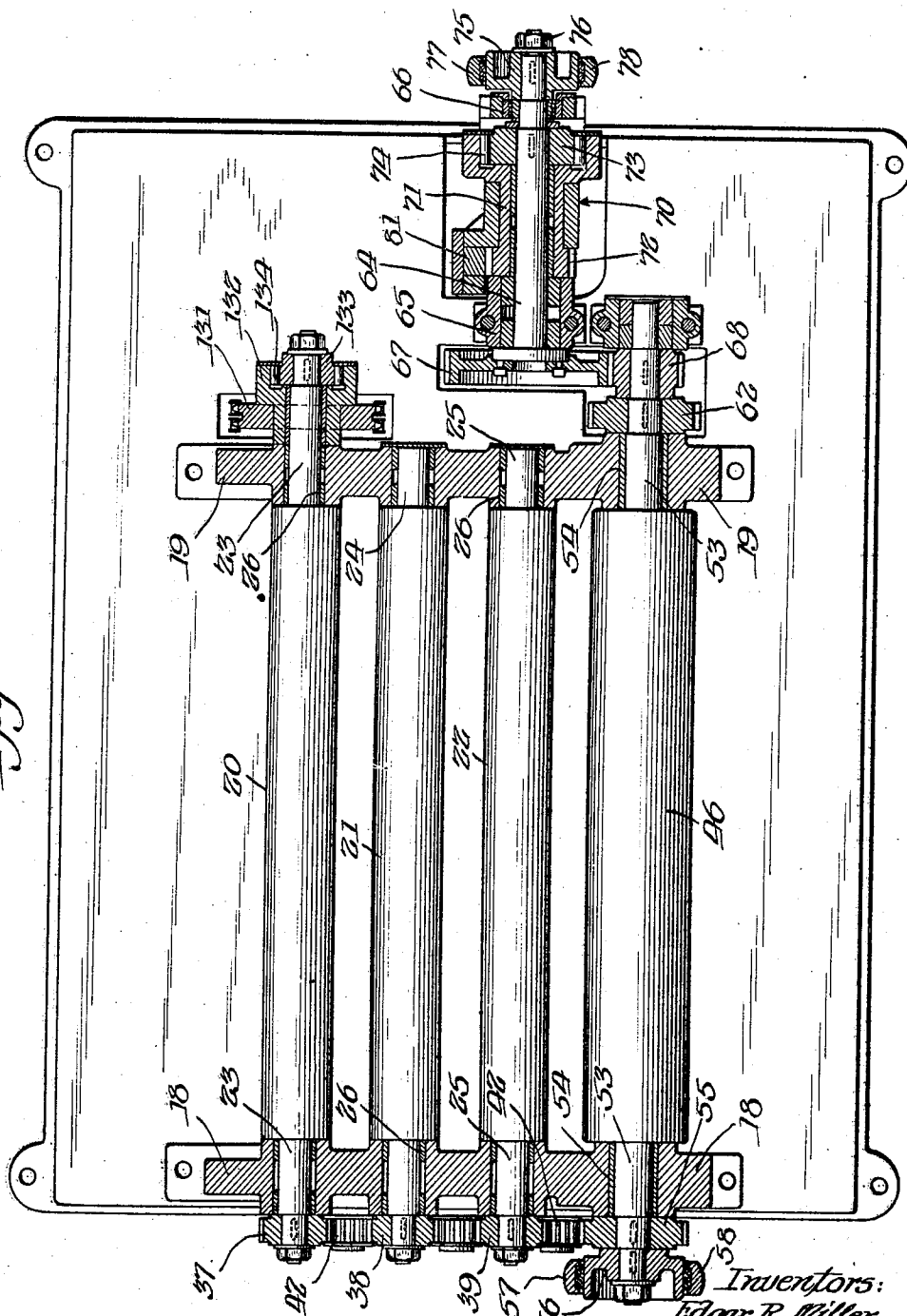
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Filed Dec. 30, 1940

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Fig. 3.



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March 30, 1943.

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FEEDING AND STRAIGHTENING MACHINE

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Fig. 4.

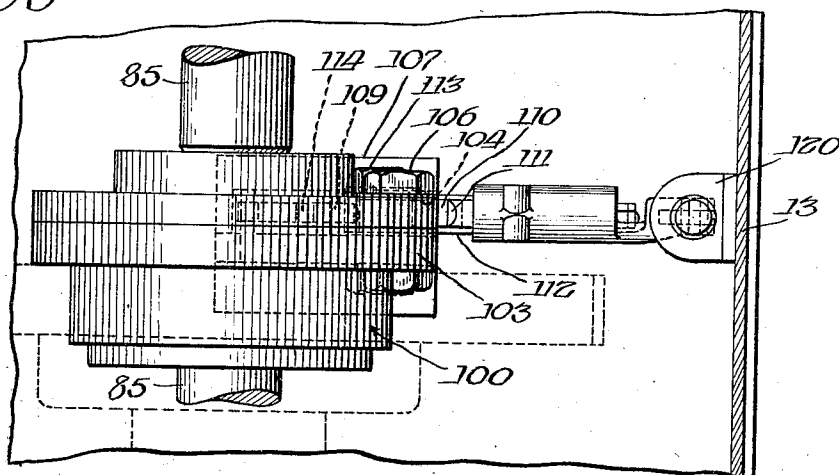
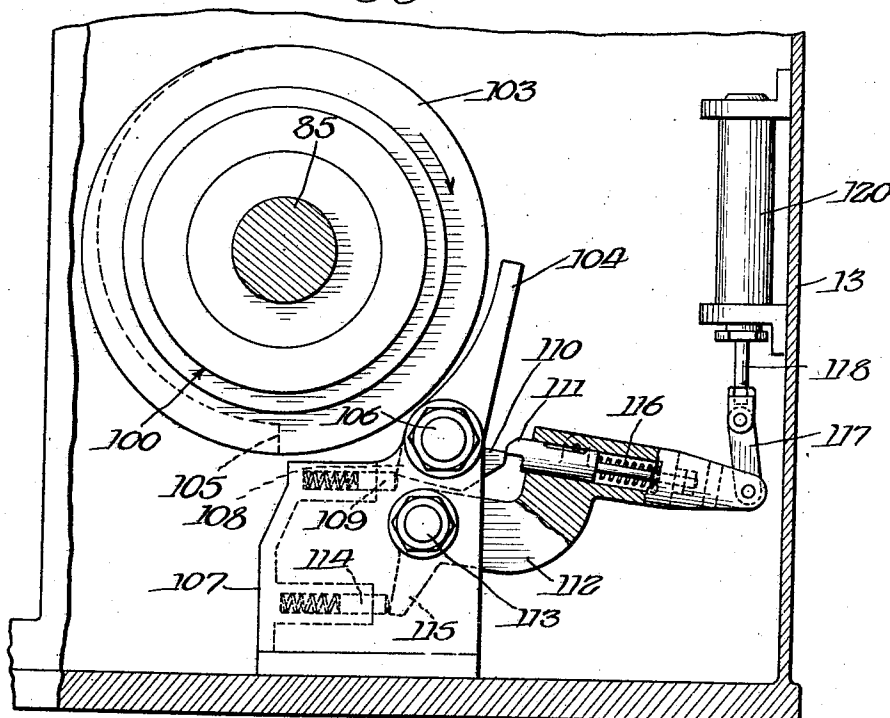


Fig. 5.



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Filed Dec. 30, 1940

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Fig. 6

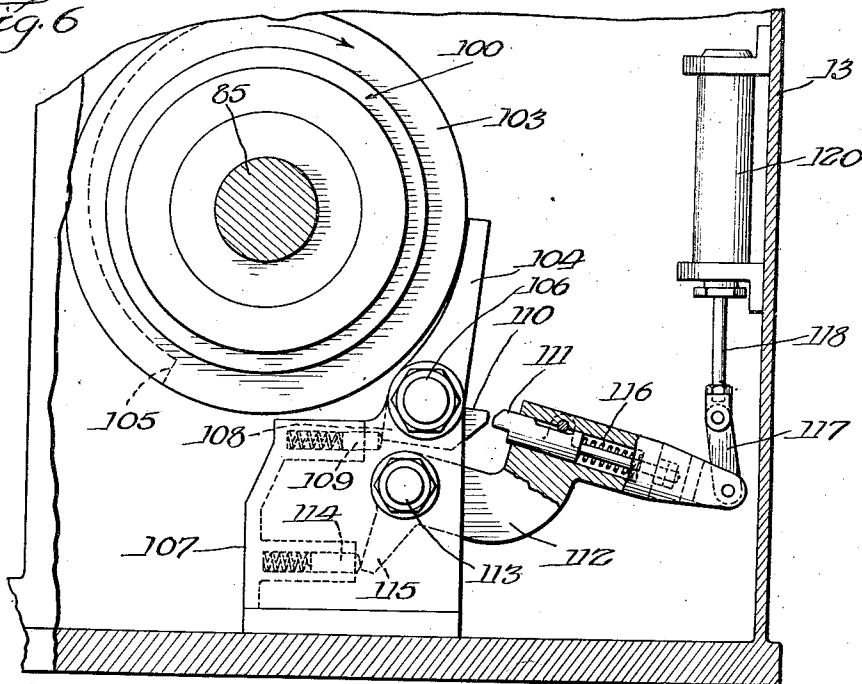
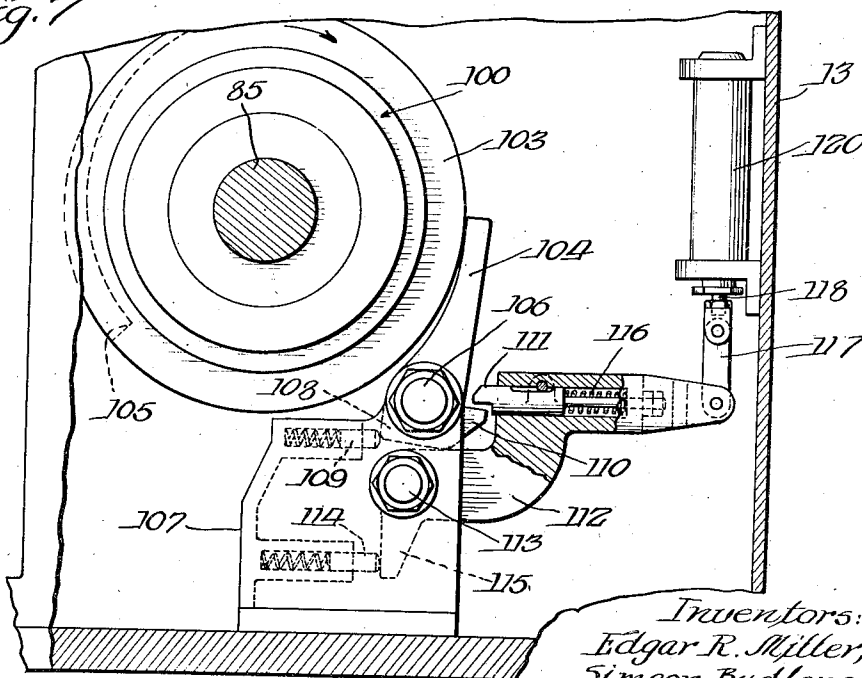


Fig. 7



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UNITED STATES PATENT OFFICE

2,315,446

FEEDING AND STRAIGHTENING MACHINE

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Application December 30, 1940, Serial No. 372,316

7 Claims. (Cl. 271-2.4)

The invention relates to the feeding of metal strip material for punch presses and the like and has reference more particularly to a straightening and feeding machine which may be adjusted to any feed length desired within the limits of the apparatus.

An object of the invention is to provide improved feeding apparatus for feeding measured lengths of metal strip material and which will straighten said material prior to the feeding operation on the same.

Another object is to provide straightening and feeding apparatus which will embody improved means for maintaining absolute accuracy in the feeding operation and which will be adjustable to vary the feeding length within the limits of the particular device.

A further object is to provide a device of the character described which will embody run-in mechanism for the straightening rolls to facilitate insertion of the metal strip material, which will be electrically operated so that the control of the same can be effected through switch means, and which will be economical to manufacture.

The feeding rolls of the apparatus of the invention are driven by rack and pinion means with the rack having connection with a crank so that the rolls are rotated according to the laws of simple harmonic motion. Therefore, another object is to rotate the feeding rolls in a manner to secure a gradual acceleration from a period of rest and to gradually decelerate prior to coming to rest again.

Another object of the invention is to provide automatically operating brake means for frictionally holding the feeding rolls to prevent overrun during the decelerating portion of the feeding operations.

With these and various other objects in view the invention may consist of certain novel features of construction and operation, as will be more fully described and particularly pointed out in the specification, drawings and claims appended hereto.

In the drawings which illustrate an embodiment of the invention and wherein like reference characters are used to designate like parts—

Figure 1 is a vertical transverse sectional view of the straightening and feeding mechanism of the invention showing the feeding rolls and the intermittent driving means therefor;

Figure 2 is a side elevational view of the improved apparatus of the invention with parts shown in section to illustrate the eccentric drive for the friction brake;

Figure 3 is a horizontal transverse sectional view taken substantially along line 3—3 of Figure 1;

Figure 4 is a detail view in plan elevation of the tripping or release mechanism for the main operating clutch;

Figure 5 is a side elevational view of the clutch tripping mechanism, parts being shown in section and in released position;

Figure 6 is a view similar to Figure 5 but showing the clutch tripping parts in a further released position; and

Figure 7 is another view showing the clutch tripping parts prior to re-engagement of the clutch.

Referring to the drawings, more particularly Figures 1, 2 and 3, the straightening and feeding rolls of the invention are suitably supported and the drive means therefor are housed by a frame 10 having the usual base 11, front and rear walls 12 and 13, side walls 14 and 15, and a top supporting wall 16. The frame is provided with a partition 17 extending vertically from the base and joining with the top supporting wall 16, the said partition being disposed parallel with the side walls 14 and 15 and extending for substantially the length of said walls.

The straightening rolls of the present apparatus are suitably supported on the top supporting wall 16, the said wall having spaced supporting members 18 and 19 extending in parallel relation with each other and in the direction of travel of the metal strip material to be fed by the present apparatus. The supporting members 18 and 19, as best shown in Figure 3, suitably journal the three lower straightening rolls 20, 21 and 22. The said rolls are in horizontal alignment and spaced with respect to the top supporting plate 16 and each roll is provided with a shaft indicated, respectively, by numerals 23, 24 and 25, the said shafts extending beyond the ends of the rolls and these projecting ends fit within journal openings in the supporting members 18 and 19. Each journal may be provided with a metal bushing 26 which facilitates rotation of the rolls by substantially reducing friction and which additionally assists in the lubrication of said bearings. Upper straightening rolls 27 and 28 are likewise suitably journaled by the supporting members 18 and 19 in proper relation with respect to said lower rolls. Whereas, the lower rolls are journaled in fixed relation, the upper rolls are journaled in bearing blocks 30 and 31 mounted for vertical movement within slots formed in the upper portion of the supporting members.

It will be noted that the blocks are disposed in substantial vertical alignment with the spaces between the lower straightening rolls and as a result of vertical adjustment of the blocks the upper straightening rolls 27 and 28 can be located in desired position with respect to the lower rolls. The blocks are supported in adjusted position by the vertical screw members 32 and 33, respectively, which in turn are mounted for rotation so that they effect vertical movement of the blocks in an up or down direction, depending on the direction of their rotation. Any conventional structure may be provided for effecting rotation of the screws, the structure shown in Figure 2 illustrating means whereby both screws are simultaneously rotated. A crank or any suitable handle may be releasably connected with the central pinion 34 and upon rotation of this pinion gears 35 and 36 will rotate to cause rotation of their respective shafts which have a suitable geared relation with the vertical screws 32 and 33.

It will be observed by reference to Figures 2 and 3 that the three lower straightening rolls and the two upper straightening rolls are operatively connected by gears so that they rotate in unison. A gear is keyed to the left hand projecting end of the shaft of each lower roll, as shown in Figure 3. For example, the gear 37 is fixed to the shaft of lower roll 20, gear 38 to the shaft of lower roll 21, and gear 39 to the shaft of lower roll 22. In a similar manner the upper rolls 27 and 28 have keyed to their respective shafts a gear 40 and 41. Pinions 42 are suitably positioned so as to have meshing engagement with the gears for the straightening rolls and said pinions thus operatively connect the rolls so that they rotate in unison. The material presented to the straightening rolls is supplied, for example, by a coil of said material and the same is initially supported by the transverse ledge 43 disposed at an elevation approximately in horizontal alignment with the entrance opening between the upper and lower straightening rolls. The function of the straightening rolls is to bend the material in a direction opposite to the curvature which the material assumes as a result of the same being wound in the form of a coil and for this reason the contacting surface of the upper straightening rolls will depend below the contacting surface of the lower rolls. The degree of bend given to the material during its passage through the straightening rolls may be regulated by adjustment of the upper rolls as previously described. From the straightening rolls the material is presented to the feeding rolls which, in accordance with the invention, are rotated intermittently and for a predetermined extent to accurately feed the material in desired lengths. The construction of said feeding rolls and the drive for intermittently rotating the same will now be described.

The feeding rolls 45 and 46 are journaled by the spaced supporting members 18 and 19 in vertical alignment with each other with roll 45 being located directly over roll 46. Whereas, the bottom roll is fixed as regards position, the top roll may be vertically moved since the shaft 47, Figure 2, of said roll is carried by the bearing blocks 48 mounted in vertical slots as shown. The spring 50 applies sufficient tension to maintain roll 45 adjacent roll 46 for feeding the metal strip material engaged therebetween. However, whenever necessary, the handles 51 may be pulled down to actuate the fulcrums 52 which will function to lift the blocks against the tension of the

spring and thus elevate the top roll with respect to the lower roll. The shaft 53 for the said lower roll is provided with bushings 54 at its respective ends and the portion of the shaft extending beyond on the left end, Figure 3, has keyed thereto a gear 55 which meshes with one of the pinions 42 and thus this feeding roll is geared to the straightening rolls. Also keyed to this end of shaft 53 is a brake drum 56 having the friction brake members 57 and 58 in contacting relation. Said brake members are pivoted at 60 to a stud shaft which projects outwardly from a bridge 51. The coil spring 62 is carried by and associated with the lower end of the member in a manner to apply the necessary tension to maintain the members in frictional contact with the brake drum. Said members are automatically separated by means to be presently described during the accelerating portion of each feeding operation. During the decelerating portion of each feeding operation the brake members are allowed to frictionally engage the brake drum 56 and thus the feeding rolls are frictionally held to resist any tendency of the same to overrun.

The right hand end of shaft 53 has the gear 62 keyed thereto and this gear meshes with a similar gear 63, Figure 1, on the shaft of roll 45 so that the feeding rolls are operatively connected to rotate in unison. The drive to the feeding rolls takes place through an auxiliary drive shaft 64, suitably journaled by the top supporting wall at 65 and 66, the latter preferably providing a roller bearing to minimize friction. The gear 67 carried by the auxiliary drive shaft meshes with the drive pinion 68 which is keyed to the shaft 53 and disposed adjacent the pinion 62. In accordance with the invention the auxiliary drive shaft is rotated intermittently in one direction only to thus impart similar rotation to the feeding rolls, it being required that the feeding rolls have rotation intermittently and to a predetermined extent in order to feed the metal strip material in proper lengths. The auxiliary drive shaft is driven in one direction only through the instrumentality of an overrunning clutch indicated generally by numeral 70 and which comprises a sleeve member 71 mounted for free rotation on the auxiliary drive shaft and having formed integral therewith the pinion 72. The inner clutch member 73 is keyed to drive shaft 64 and interposed between the inner clutch member and the sleeve are a plurality of rollers 74. The rollers are carried by the sleeve and the same provide the overrunning feature of the clutch which is such that when the pinion 72 is rotated in one direction the rollers engage the clutch member 73 and rotation is thus imparted to the auxiliary shaft. However, when the pinion 72 and the said sleeve integral therewith is rotated in an opposite direction the rollers 74 do not grip the inner clutch member and the auxiliary shaft thus remains stationary.

It is desirable to hold the auxiliary drive shaft stationary during rotation of the clutch sleeve in said opposite direction as above described, during which rotation is not imparted to said drive shaft. For this purpose the invention provides a brake drum 75 suitably keyed to the extreme right hand end of the drive shaft 64, shown in Figure 3, and which is retained on said end by the nut 76. Brake members 77 and 78 have frictional contact with the periphery of the brake drum, said members being pivotally secured to stud 79, shown in Figure 1, and resiliently held in frictional relation with the brake drum by a

coil spring, not shown, carried by and associated with the upper free end of the members by means of a rod 80 in a manner as described with respect to brake members 57 and 58. However, members 77 and 78 are maintained at all times in frictional contact with the brake drum 75 so that the auxiliary drive shaft can not rotate inadvertently and the friction brake also effectively eliminates backlash from the driving gears. This is desirable since a more accurate feeding operation is thereby secured.

The auxiliary drive shaft is rotated intermittently by means of a reciprocating rack 81 associated with the overrunning clutch 70 in a manner to have meshing engagement with the pinion 72 formed integral with the sleeve of the clutch. The opposite end of the reciprocating rack is pivotally secured to the face plate 82 by means of an adjustable connection including nut 83. Face plate 82 is provided with a diagonally extending slot 83a substantially T-shaped and which is designed to receive a lug 84 of substantially similar shape which extends forwardly through the slot, connecting with the end of the rack 81 and providing a threaded end for receiving the nut 83 whereby the pivot for the rack is held to the face plate in desired adjusted position. It will be understood that the position of this pivot lug on the face plate will determine the degree of movement of the rack and thus the feeding length of the material fed by the rolls 45 and 46.

The face plate 82 is carried by the main operating shaft 85 journaled at one end by bearing 86 extending inwardly from the side wall 14 and at its other end by bearing 87, likewise extending inwardly from the partition wall 17. Between the face plate 82 and partition wall 17 the main driving shaft 85 is provided with a brake drum 88 having in frictional contact therewith a pair of brake members 89, pivoted at 90 and resiliently held in frictional contact with the brake drum by a coil spring, not shown, carried by the rod 91, which is associated with the free upper end of the members in a manner to apply the necessary tension thereto.

The main drive shaft 85 is driven by means of any suitable source of power such as the electric motor 92 suitably supported within the frame of the apparatus and having associated therewith a variable speed drive including an upper part 93 having a rotatable handle 94 and a lower part 95 from which projects a shaft 96 having a pinion 97. As a result of the variable drive interposed between the electric motor and pinion 97 the said pinion may have variable speeds, depending on the adjustment of the drive through handle 94. Pinion 97 meshes with the large main gear 98 mounted for free rotation on the main operating shaft 85. Although the gear 98 is normally independent of the main shaft, the same may be operatively connected therewith in order that the feeding rolls will perform a feeding operation. This connection and disconnection of the main gear with the operating shaft is accomplished through an improved form of clutch indicated in its entirety by numeral 100. The clutch passes through the central part of the gear and may comprise any type of conventional clutch structure having an inner member keyed to shaft 85 and an outer member fixed to the gear 98. The end collars 101 and 102 maintain the clutch in proper position longitudinally of the shaft 85. A cam disc 103 located adjacent collar 101 has associated therewith a pivoted latch 104 as more particularly shown in Figures 5, 6 and 7. Said

latch in combination with the cam disc provides the tripping mechanism for clutch 100 and when the cam disc is held against rotation by means of the latch having location within recess 105, the clutch is disengaged thereby and the main gear 98 is accordingly disconnected from shaft 85. The gear is thus able to rotate freely on said shaft and the shaft is held stationary by the friction brake including the drum 88 and the brake members 89. The invention provides tripping mechanism embodying improved structure for withdrawing the latch 104 from recess 105 in the cam disc 103, thereby allowing the cam disc to rotate, since the clutch will automatically connect the main gear 98 with shaft 85 immediately upon release of the cam disc. With the parts in connected relation shaft 85 will rotate, causing reciprocation of the rack 81 and rotation of the auxiliary drive shaft and the feeding rolls to perform a feeding operation.

Referring more particularly to Figures 5, 6 and 7, the latch 104 is shown as pivoted at 106 to support 107. The shoulder 108, provided by the latch below the pivot point, is engaged by the resilient detent 109 to thereby yieldingly hold the latch against the periphery of the cam disc. The shoulder 110, also provided by said latch, has operative association with the pawl 111 carried by rocker arm 112, suitably pivoted to support 107 at 113. The rocker arm is yieldingly held in an elevated position by the spring detent 114 which has contact with the depending ear 115 formed integral with the rocker arm and thus normally pawl 111 will be substantially horizontally disposed and positioned above and directly over shoulder 110. The coil spring 116 yieldingly biases the pawl 111 to maintain its nose end projecting outwardly in position over shoulder 110. The rocker arm has connection through link 117 with the piston rod 118 of an air cylinder 120, which cylinder is suitably supported on the inside surface of the front wall 13. When the piston rod 118 is caused to move downwardly by the admission of air to cylinder 120 or by other means, it will be seen that the rocker arm 112 is rotated in a clockwise direction, imparting downward movement to the pawl 111. As will be clearly understood by reference to Figure 5, said downward movement of the pawl will engage shoulder 110 of the latch, rocking the latch to withdraw the same from its recess 105. Cam disc 103 is released and the clutch is thus automatically engaged to positively connect gear 98 to shaft 85. The cam disc will rotate in a clockwise direction, as shown in Figure 5, and rotation of the parts will continue as long as latch 104 remains withdrawn.

The invention has provided trip means which will operate to withdraw the latch so that the clutch will become engaged and which trip means will continue in operation to eventually release the latch so that the same may again drop into recess 105 at the end of one complete revolution of the cam disc. This insures that one feeding operation, and only one, will result for one actuation of the tripping mechanism. The manner in which latch 104 is released is clearly shown in Figure 6, wherein it will be seen that the pawl 111 has moved out of contact with shoulder 110 by reason of continued downward movement of the rocker arm 112. The resilient detent 109 is effective to force latch 104 into contact with the periphery of the cam disc 103. When the air pressure within cylinder 120 is released the rocker arm will move upwardly in a counter-clockwise

direction and pawl 111 will engage shoulder 110, passing over the shoulder to be eventually located above the same, as shown in Figure 7. The cam disc will rotate until the shoulder formed by recess 105 is caused to engage the latch 104, which will occur when the disc and main operating shaft have completed one complete revolution. The latch will thereupon hold the cam disc against rotation and the clutch will be disengaged until again tripped.

The friction brake for the feeding rolls including the brake members 57 and 58, operating on the brake drum 56, are automatically released by means connecting with the main shaft 85. The same consists of an eccentric 121 on the shaft 85, which actuates a connecting rod 122 having connection by means of link 123 with a brake release shaft 124. The brake release shaft carries at its outer end a wedge 125 which is located between the depending ends of the brake members 57 and 58. With the clutch 100 disengaged and shaft 85 at rest the wedge 125 will have a position such as shown in Figure 2, whereby the brake members 57 and 58 are separated to release the feeding rolls for rotation. This releasing action on the brake members continues during the first part of the feeding operation when the rolls are accelerating. During the decelerating portion the brake is applied and any tendency of the rolls to overrun is prevented.

When shaft 85 is stationary the pivot lug 84 will be located as shown in Figure 2, the same forming an angle with respect to the vertical indicated by the letter γ . This position is approximately fifteen degrees in advance of the top dead center position which is approximately α degrees from the vertical. When the clutch is tripped the drive, including the reciprocating rack, will be required to move this distance between a stationary position and the top dead center position before the auxiliary drive shaft will be operated to impart rotation to the feeding rolls. This preliminary movement allows the drive means to attain speed and the distance from stop to a dead center position also permits the parts to run beyond the stop position and still maintain a margin of safety. As the reciprocating rack travels downwardly the direction of rotation imparted to pinion 72 and the sleeve 71 is such as to operatively connect this overrunning clutch with the auxiliary drive shaft and the feeding rolls are rotated to produce a feeding operation. The operation continues until the rack reaches its lowermost dead center position since from then on the rack will travel upwardly, reversing the rotation of the clutch 70 and as described, this reverse rotation is not imparted to the auxiliary drive shaft. At about mid-point in this up travel of the rack the brake members are released and they are held released for about 180 degrees. Therefore the brake for the feeding rolls is applied when the rack reaches approximately the mid-point in its down travel.

The run-in mechanism for the straightening rolls shown in Figure 1 includes a conventional electric motor 126 having associated therewith a driving head 127 which provides the companion sprocket pinions 128. The chains 130 mesh with said sprocket pinions and with the sprocket gear 131 fixed to the hub of an overrunning clutch including a sleeve 132 and an inner clutch member 133. Said latter member is keyed to shaft 23 of the straightening roll 20 and by means of the rollers 134, interposed between the sleeve and the inner clutch member, the said straightening roll

and the other rolls operatively connecting therewith may be driven. It will be understood, however, that the direction of rotation of gear 131 and the sleeve 132 will determine whether or not the clutch will be operative to connect therewith the roll 20. The run-in mechanism is provided to facilitate initial insertion of the metal strip material. The material is fed at a fairly rapid rate by said mechanism until the desired length has been fed through the feeding rolls, whereupon the mechanism is stopped and the feeding rolls are closed preliminary to starting the feeding operations. It will be understood that the feeding rolls and also the straightening rolls may be rotated by the run-in mechanism for the purpose described since the clutch 70 will permit rotation in this direction. Also when the run-in mechanism is stationary and the intermittent feeding mechanism is operative to rotate the rolls said feeding rotation is permitted by reason of the overrunning clutch including sleeve 132 and the inner clutch member 133.

The apparatus of the invention may be adjusted to feed any length within the limits of the device by merely changing the throw of the reciprocating rack 81. This changes the degree of rotation of the feeding rolls and thus the length of material fed thereby for any one operation. A feature of the present apparatus resides in the friction brake which is automatically actuated and is in a release position when the rolls are at rest. On decelerating motion of the rolls the brake is applied to prevent overrun. This overrun of the rolls might take place were it not for the holding action of the brake since the one way clutch 70 on the auxiliary drive shaft permits such rotation beyond that which the drive means will impart thereto. Other brake means are provided in the interest of accuracy and the run-in mechanism facilities and also materially speeds up the insertion in the apparatus of the initial length of material.

The invention is not to be limited to or by details of construction of the particular embodiment thereof illustrated by the drawings, as various other forms of the device will of course be apparent to those skilled in the art without departing from the spirit of the invention or the scope of the claims.

What is claimed is:

1. Apparatus for feeding metal strip material including a pair of feeding rolls operating to engage the material therebetween and to feed the material when the rolls are rotated, said feeding rolls drawing the material through a plurality of straightening rolls in advance of said feeding rolls gearing operatively connecting the rolls whereby the straightening and feeding rolls rotate in unison, an auxiliary drive shaft having geared relation with one of said feeding rolls, a clutch member on the shaft, a rotatable sleeve on the shaft, a rack having geared relation with the sleeve and rotating the sleeve in opposite directions as the rack reciprocates, said clutch member forming with said sleeve an overrunning clutch whereby rotation in one direction only is imparted to said auxiliary drive shaft and thus in a feeding direction to the rolls, and a brake yieldingly applying a friction holding action to the auxiliary drive shaft for eliminating back-lash in said gearing.

2. Apparatus for feeding metal strip material, in combination, a pair of feeding rolls operating to engage the material therebetween and to feed the material when the rolls are rotated

in a feeding direction, means rotating said rolls to effect a feeding operation including a main operating shaft, a gear mounted on said shaft for rotation independently thereof, means rotating the gear continuously during operation of the apparatus, a clutch interposed between the gear and shaft for operatively connecting the gear thereto when the clutch is released, and means for releasing the clutch.

3. Apparatus for feeding metal strip material, in combination, a pair of feeding rolls operating to engage the material therebetween and to feed the material when the rolls are rotated in a feeding direction, mean rotating said rolls to effect a feeding operation including a main operating shaft, a gear mounted on said shaft for rotation independently thereof, means rotating the gear continuously during operation of the apparatus, a clutch interposed between the gear and shaft for operatively connecting the gear thereto when the clutch is released, a latch member normally effective to hold the clutch latched whereby the shaft is disconnected with respect to the gear, and means for releasing the clutch by withdrawing the latch, said means being constructed and arranged to permit said latch member to engage and latch the clutch following a complete revolution of the main operating shaft.

4. In a feeding and measuring device for metal strip material, in combination, a pair of feeding rolls having operation to engage the material therebetween and to feed the material when the rolls are rotated in a feeding direction, an operating shaft, a rack having an eccentric connection with the operating shaft and providing a drive for the feeding rolls, an overrunning clutch included in said drive for imparting rotation to the feeding rolls during movement of the rack in one direction only, whereby said rack has an inoperative stroke for half of each revolution of the shaft and an operative stroke during the remainder half revolution, a source of power for rotating the operating shaft, control means holding the shaft disconnected from the source of power and in a stationary position with the rack located intermediate its inoperative stroke, and other means for releasing the control means to thereby cause rotation of the shaft, whereby initial rotation of the shaft completes the inoperative stroke of the rack and upon further rotation the rack is operative to impart rotation to the feeding rolls.

5. In a feeding and measuring device for metal strip material, in combination, a pair of feeding rolls having operation to engage the material therebetween and to feed the material when the rolls are rotated in a feeding direction, an operating shaft, a rack having an eccentric connection with the operating shaft and providing a drive for the feeding rolls, an overrunning clutch included in said drive for imparting rotation to the feeding rolls during movement of the rack in one direction only, whereby said rack has an inoperative stroke for half of each revolution of the shaft and an operative stroke during the remainder half revolution, a source of power for rotating the operating shaft, control means hold-

ing the shaft disconnected from the source of power and in a stationary position with the rack located intermediate its inoperative stroke, other means for releasing the control means to thereby cause rotation of the shaft, whereby initial rotation of the shaft completes the inoperative stroke of the rack and upon further rotation the rack is operative to impart rotation to the feeding rolls, a friction brake normally effective to hold the feeding rolls stationary preventing rotation thereof, and means maintaining said brake released during the inoperative half-revolution of the shaft and for rendering said brake effective for approximately the operative half-revolution of the shaft.

6. In a feeding and measuring device for metal strip material, in combination, a pair of feeding rolls having operation to engage the material therebetween and to feed the material when the rolls are rotated in a feeding direction, an operating shaft, a rack having an eccentric connection with the operating shaft and providing a drive for the feeding rolls, an overrunning clutch included in said drive for imparting rotation to the feeding rolls during movement of the rack in one direction only, whereby said rack has an inoperative stroke for half of each revolution of the shaft and an operative stroke during the remainder half revolution, a source of power for rotating the operating shaft, control means holding the shaft disconnected from the source of power including a clutch on the shaft, a latch member having releasable engagement with the clutch and positioned to hold the clutch and thus the operating shaft in a stationary position with the rack located intermediate its inoperative stroke, and other means for withdrawing the latch to release the clutch and cause rotation of the shaft, whereby initial rotation of the shaft must first take place before the rack is operative to impart rotation to the feeding rolls.

7. In a feeding and measuring device for metal strip material, in combination, a pair of feeding rolls operating to engage the material therebetween and to feed the material when the rolls are rotated in a feeding direction, said feeding rolls drawing the material through a plurality of straightening rolls located in advance of said feeding rolls, gearing connecting said rolls whereby the straightening and feeding rolls rotate in unison, a rack and pinion drive for the rolls including an overrunning clutch imparting rotation to the rolls during movement of the rack in one direction only, run-in mechanism having a geared connection with the straightening rolls for rotating the rolls in a feeding direction to facilitate initial insertion of the metal strip material, and an overrunning clutch included in said connection whereby the rolls may be driven in a feeding direction by the run-in mechanism and may also be rotated in the same direction by the rack and pinion drive while the run-in mechanism remains at rest.

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