Oct. 6, 1931. G. L. BIGNELL 1,826,498

LABEL STRIP FEEDING MEANS FOR PRINTING PRESSES

Filed Dec. 13, 1929 3 Sheets-Sheet 1

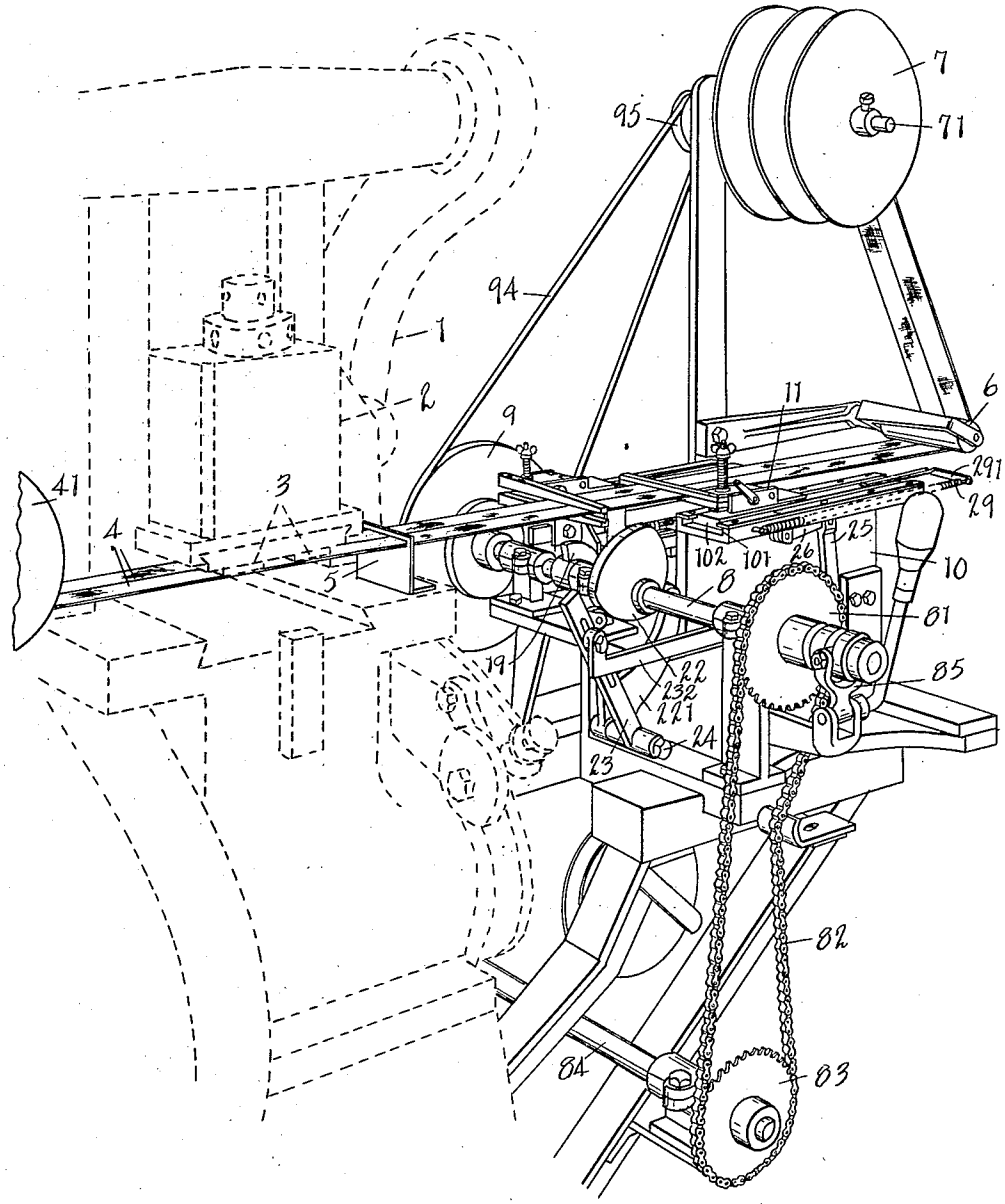


Fig. 1

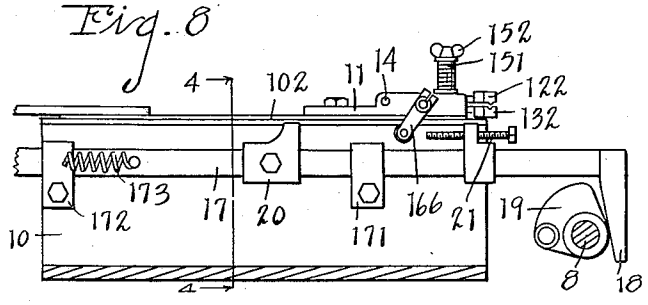


Fig. 8

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LABEL STRIP FEEDING MEANS FOR PRINTING PRESSES

Filed Dec. 13, 1929 3 Sheets-Sheet 2

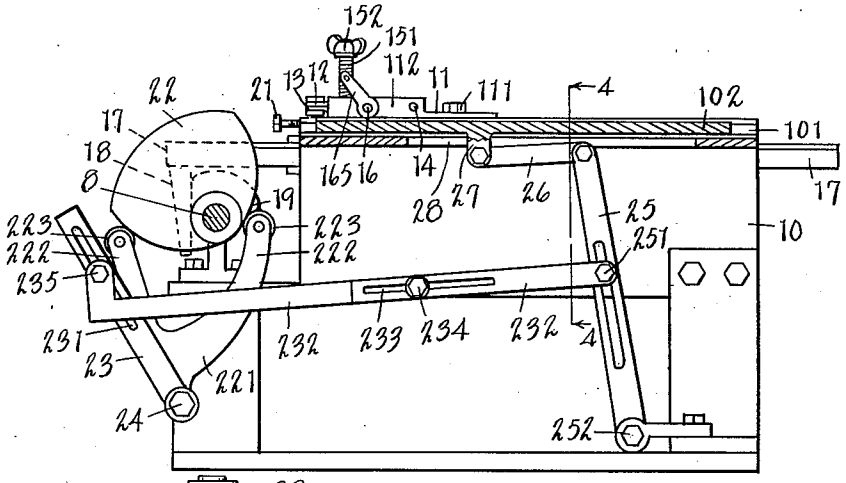

Fig. 3

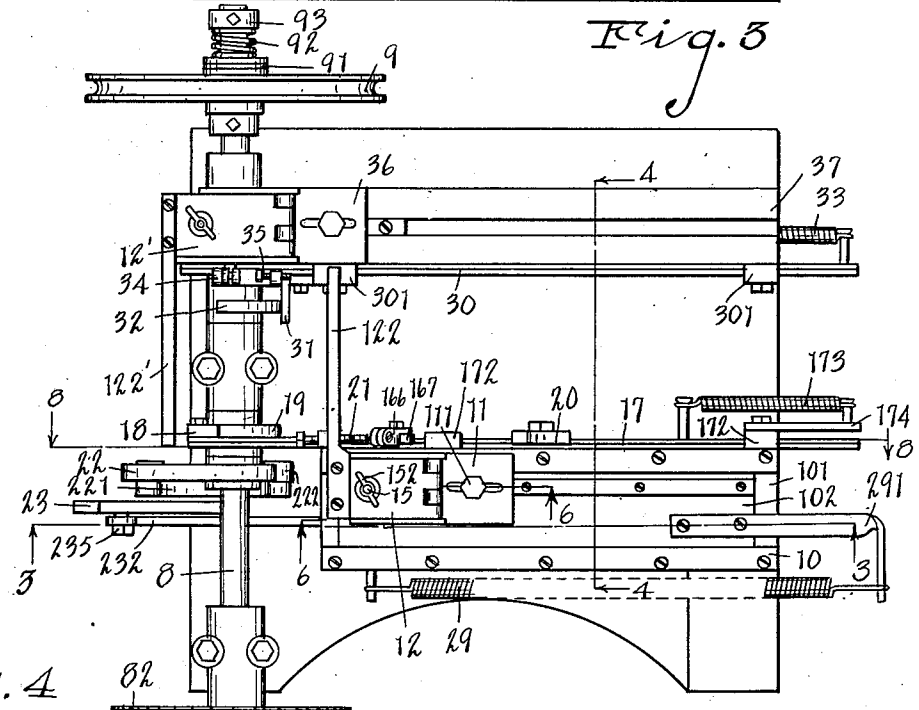

Fig. 2

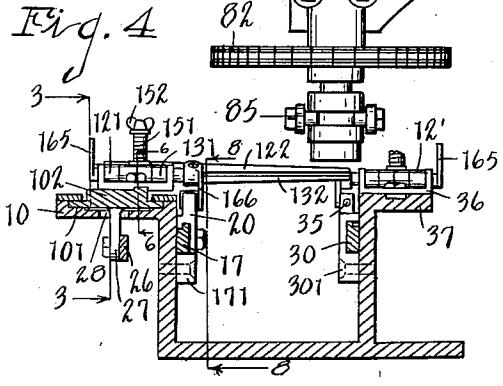

Fig. 4

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LABEL STRIP FEEDING MEANS FOR PRINTING PRESSES

Filed Dec. 13, 1929 3 Sheets-Sheet 3

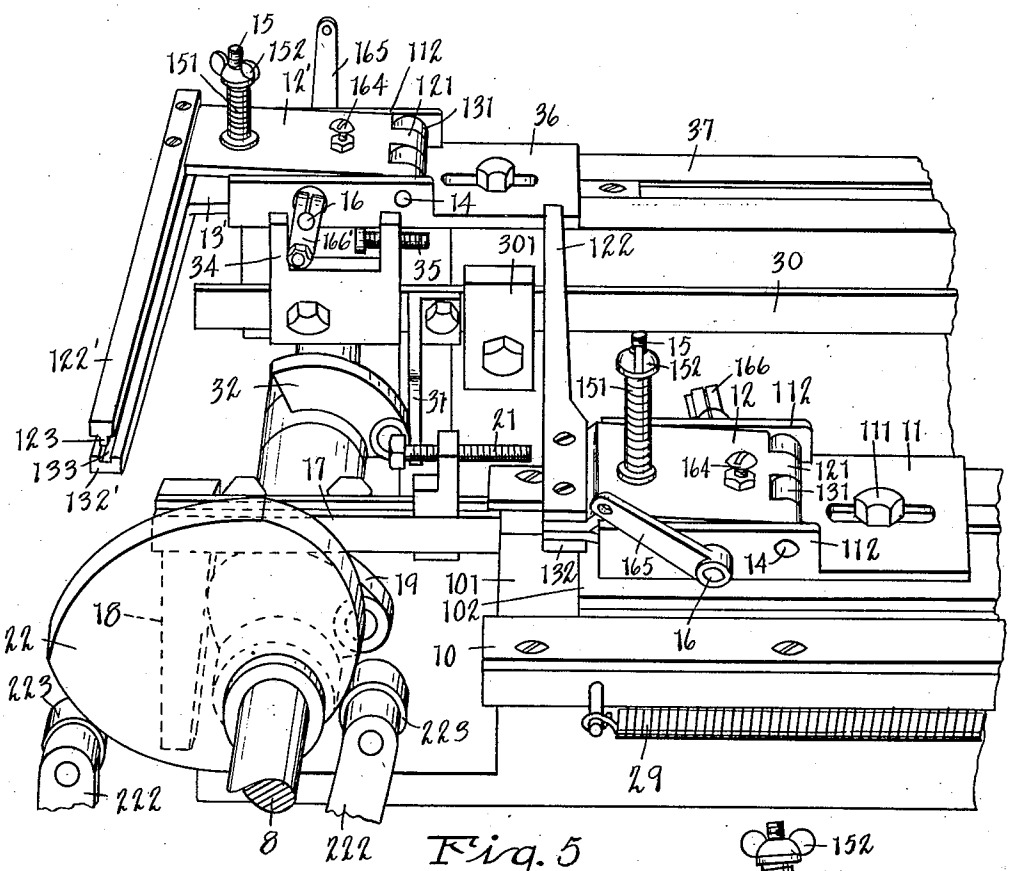


Fig. 5

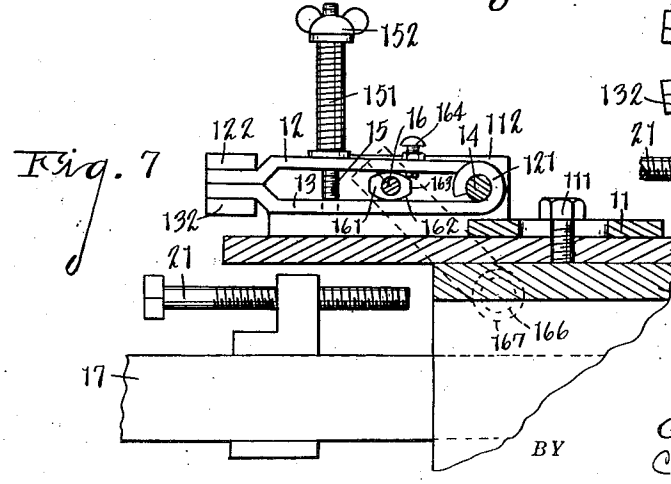


Fig. 7

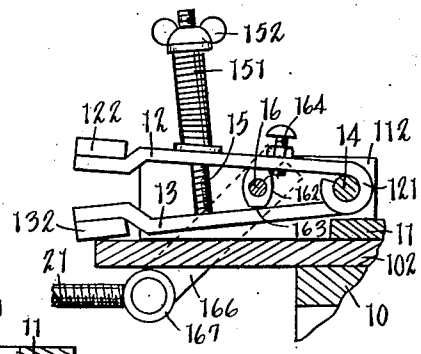


Fig. 6

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1,826,498

# UNITED STATES PATENT OFFICE

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## LABEL STRIP FEEDING MEANS FOR PRINTING PRESSES

Application filed December 13, 1929. Serial No. 413,743.

The main objects of this invention are:

First, to provide a feeding means for labels which can be easily adapted to machines printing one or a plurality of strips.

Second, to provide a feeding means which is automatic and positive in operation.

Third, to provide a means for adjusting the stroke of the feeder to various sizes of labels being printed.

Fourth, to provide means whereby the printed strip or label is held under tension during the return stroke of the feed jaws.

Objects pertaining to details and economies of construction and operation will appear from the detailed description to follow.

A machine embodying my invention is illustrated in the accompanying drawings, in which:

Fig. 1 is a perspective view of my improved feeding means for printing strips of labels or the like, the printing machine being shown in dotted lines.

Fig. 2 is an enlarged top plan view of the feeding means for the label strips, the feed jaws being in initial position.

Fig. 3 is a longitudinal sectional elevation taken on the irregular plane shown by line 3—3 of Figs. 2 and 4, showing the feed carriage and feed jaws and the reciprocating feed means.

Fig. 4 is a reduced vertical cross section on line 4—4 of Figs. 2, 3 and 8.

Fig. 5 is an enlarged detail perspective view of parts of the feeding means taken from the lower left hand of Fig. 2 the feed jaws being in initial position and the cam mechanism of the feed jaws indicated by dotted lines.

Fig. 6 is an enlarged detail sectional elevation taken on the irregular plane indicated by line 6—6 of Figs. 2 and 4 with the feed jaws open, the cam lever being shown in part by dotted lines at the open point and contacting the trip stop.

Fig. 7 is a sectional view similar to Fig. 6 with the jaws in closed or tripped position, the cam lever in tripped position being shown by dotted lines and at the point of completing the tripping action which permits the jaws to close with a quick action.

Fig. 8 is a reduced detail longitudinal sectional elevation taken on line 8—8 of Figs. 2 and 4 showing the feed jaw actuating means, the jaws being in full lines.

The parts of the drawings will be identified by numerals of reference which are the same in all the views.

1 is the printing press, shown by dotted lines in Fig. 1, of an inverted die and plate type, with a double plate and die for printing a plurality of label strips. 2 is the double counter actuated in the usual way. 3 is the inverted die. 4 are the plurality of label strips, supplied from the double reel 41.

5 is the slotted guide for the label strips secured to the base of the printing machine. 6 is the guide pulley for the label strips at the extreme right hand end of the travel of such strips. 7 is a double reel for rewinding the printed label strips mounted by a slip connection on shaft 71. 8 is the main shaft driven by the sprocket 81 through the chain 82 driven by the sprocket wheel 83 mounted on the drive shaft 84. Clutch 85 on shaft 8 throws the machine in and out of gear.

9 is a pulley having a friction driving disc 91 (see Fig. 2) held yieldingly in contact therewith by spring 92 by thrust collar 93 on said shaft 8. A belt 94 from pulley 9 drives the pulley 95 on shaft 71 for winding the printed label strip at the desired speed. The reels 7 have a friction slip connection on shaft 71 which keeps the label strip taut on both reels by driving the shaft 71 at a sufficiently high speed.

10 is the frame of the feed machine. 101 are slideways and 102 is the feed carriage reciprocating therein. 11 is an adjustable jaw bracket having set screw 111 for securing the same adjustably to the feed slide 102, see details in Figs. 2, 3 and 7.

122 are the side flanges on bracket 11 to support and guide the jaws 12 and 13. 12 is the upper jaw and 13 is the lower jaw, which jaws terminate in hinge loops 121 and 131 forming the hinge members. 122 is the extension of the upper jaw 12 having a longitudinal rib 123. 132 is the extension of the lower jaw 13, having a longitudinal groove

133 therein corresponding to and coacting with the rib 123 of extension 122.

With this jaw arrangement the rib fits into the longitudinal groove and insures a positive grip on the label strip, thereby preventing any slipping that would likely occur if the jaw faces were flat. By the use of this feeding means a plurality of labels can be printed. The feeder produces a step by step action, so that labels can be printed on the strip.

14 is the hinge pin in loops 121 and 131 which is also disposed through the flanges 112 for supporting said jaws. The jaws are held yieldingly closed by spring pressure (see Figs. 5 and 6).

15 is a screw bolt secured to the lower jaw 13, and projecting through a slotted hole in the upper jaw 12. 151 is a compression spring surrounding the screw 15. 152 is a thumb nut on the screw bolt 15 for adjusting the tension of the spring 151 and thus clamping the jaws 12 and 13 together when feeding.

The jaws are open on the return stroke of the feeder and close to engage the label strips on reaching initial position. The jaws in each instance are controlled by a cam and trip. 16 is a rockshaft pivoted through the flanges 112 and disposed between the jaws 12 and 13. 161 is an elliptical cam mounted thereon. The cam surface 162 coacts with the inner surface of the jaws to open them and the flat ends 163 act to lock the jaws open, until tripped by lever 166.

164 is a screw stop for the cam when the jaws are open. 165 is a hand operating lever mounted on the rock shaft 16. 166 is the cam actuating lever adjustably mounted on the rockshaft 16 and having a friction roller 167 at its outer end to strike against the stop screw 21.

17 is the reciprocating jaw actuating bar carried by the guides 171 and 172. 173 is the spring, one end secured to the bar and the other end at 174 secured to the base frame 10 to hold the structure yieldingly against its actuating the cam (see Fig. 8). 18 is the cam follower arm mounted on the reciprocating bar 17. 19 is the cam secured to the drive shaft 8 to coact with the arm 18.

20 is a stop fixedly mounted on the bar 17. 21 is an adjustably screw stop mounted on the bar 17 by suitable bracket to coact with the jaw trip lever on the completion of the return stroke of the reciprocating bar. The carriage 102 is reciprocated by the cam action.

22 is a cam (see Fig. 3) secured to the drive shaft 8 to operate the cam follower 221 which consists of a pair of diverging arms 222 having rollers 223 pivoted thereon. 23 is a rocker arm slotted at 231. 24 is the rockshaft which carries the cam follower and rocker arm. 232, 232 are a pair of adjustable arms, slotted at 233 and secured by bolt 234 for longitudinal adjustment, 235 is the shouldered screw pivot connection to arm 23 in slot 231 for adjusting.

25 is the slotted operating lever for the feed carriage. 251 is an adjustable shouldered screw pivotally securing the pitman 232 to the operating arm 25. 252 is the lower pivot or fulcrum for the operating arm 25.

26 is the link connection of lever 25 to the projecting lug 27 on the feed slide 102. 28 is the slot in the frame through which the projecting lug 27 reciprocates. 29 (see Fig. 2) is the return spring for the feed carriage 102 secured to the support 10 at one end and to the slide 102 by the arm 291. The label holding jaw means is identical with the label feeding jaw means and is numbered the same with a prime added.

These holding jaws 12′ and 13′ are operated automatically by stop cam means. 30 is a reciprocating actuating slide bar. 301 are guides for the same. 31 is a cam follower finger on said bar 30, see Figs. 2 and 5. 32 is a cam coacting with the follower and mounted on the main shaft 8. 33 is a spring holding the slide bar 30 and its cam follower 31 yieldingly against the cam 32. (See Fig. 2.)

34 is a fixed stop secured to the reciprocating bar 30. (See Figs. 2 and 5.) 35 is an adjustable screw stop for operating the holding jaw mechanism. The jaw bracket 36 is like the jaw carrier 11 and is adjustably mounted on the support 37 secured to the base.

The label strips are under tension while being printed. The supply reel is under friction, so that there can be no back-lash in the strip. The holding jaws hold the label while the feeder is on its return stroke and releases the same only during the feed motion. This is accomplished by the intermittent action of the cam 32 on the shaft 8 coacting with the follower 31 operating the reciprocating bar 30, see Fig. 5. The adjustable stop 35 secured thereto operates the jaw actuating rocker arm 166′, thereby closing the jaw for holding the label strip on the return stroke of the feed jaw and releasing the same only as the label strips are fed forward. The fixed stop 34 secured to the reciprocating bar 30 operates the rocker arm 166′ to open the jaw, which is timed to release the same during the feeding motion, allowing the printed strip to pass therethrough by the forward movement of the feed jaws.

While this feed mechanism has been shown in conjunction with reels, it can be adapted to deliver the strips to a cutter and they may come from any convenient package or container, although, of course, the delivery reel is much to be preferred.

The feed carriage may be otherwise reciprocated and the benefit of the jaw structure secured. However, in the entire combina-

tion the parts are adapted the one to the other and fit together.

I desire to claim the entire specific combination and also to claim the invention broadly in its combination and parts as pointed out in the appended claims.

Having thus described by invention, what I claim as new and desire to secure by Letters Pattent, is:

1. In a printing and feeder means for label strips, the combination of plural supply reels for label strips with guide adapted to deliver to a power printing press, a frame for the feeding means with a driving shaft, cam shaft and gear, a plurality of rewind rolls for the printed strips, a transverse guide roll adapted to receive the plural strips from the press and deliver to the rewind rolls, a driven shaft therefor on which the rewind rolls are frictionally mounted to slip under tension, a pair of feed jaws with transverse extensions across said label strips to engage and feed the same step by step, a reciprocating feed carriage for said jaws, a cam means for actuating said feed carriage comprising a cam on the cam shaft, a follower with bifurcated arms to embrace the said cam, a rocker arm connected to said cam follower, a lever arm pivoted to the frame with pitman for actuating said feed carriage, an adjustable pitman between the rocker arm and the said actuating lever for reciprocating said carriage, a jaw actuating cam with flat ends disposed between the said feed jaws to open the same, a trip lever for said cam to open the said jaws and to trip to close the same, a slide with stops disposed to act upon said lever at the end of the stroke of said feed carriage one stop timed to open said feed jaws at the end of the said stroke and one adjustably timed to trip to close the jaws at the beginning of the stroke, a pair of holding jaws fixed on the said frame with transverse extensions across the said label strips in advance of the feed jaws, a cam with trip lever between said jaws for actuating the same, the said cam having flattened ends to lock the jaws in open position, a slide with stops to actuate said cam lever, one stop timed to open the jaws during the feeding movement and a second timed to close the same at the end of the movement, and a cam for actuating said slide to open the said jaws for the feeding operation and close the same during the return, whereby the label strips are held under tension by the holding jaws during the return of the feed jaws and are delivered under tension step by step between said jaws through the press and wound up automatically thereafter.

2. In a printing and feeder means for label strips, the combination of plural supply reels for label strips with guide adapted to deliver to a power printing press, a frame for the feeding means with a driving shaft, cam shaft and gear, a plurality of rewind rolls for the printed strips, a transverse guide roll adapted to receive the plural strips from the press and deliver to the rewind rolls, a driven shaft therefor on which the rewind rolls are frictionally mounted to slip under tension, a pair of feed jaws with transverse extensions across said label strips to engage and feed the same step by step, a reciprocating feed carriage for said jaws, a cam means for actuating said feed carriage comprising a cam on the cam shaft, a follower with bifurcated arms to embrace the said cam, a rocker arm connected to said cam follower, a lever arm pivoted to the frame with pitman for actuating said feed carriage, an adjustable pitman between the rocker arm and the said actuating lever for reciprocating said carriage, a jaw actuating cam with flat ends disposed between the said feed jaws to open the same, a trip lever for said cam to open the said jaws and to trip to close the same, a slide with stops disposed to act upon said lever at the end of the stroke of said feed carriage, one stop timed to open said feed jaws at the end of the said stroke and one adjustably timed to trip to close the jaws at the beginning of the stroke, and a pair of holding jaws fixed on the said frame with transverse extensions across the said label strips in advance of the feed jaws with actuating means timed to hold the strip during the return of the feed jaws.

3. In a printing and feeder means for label strips, the combination of plural supply reels for label strips with guide adapted to deliver to a power printing press, a frame for the feeding means with a driving shaft, cam shaft and gear, a plurality of rewind rolls for the printed strips, a transverse guide roll adapted to receive the plural strips from the press and deliver to the rewind rolls, a driven shaft therefor on which the rewind rolls are frictionally mounted to slip under tension, a pair of feed jaws with transverse extensions across said label strips to engage and feed the same step by step, a pair of holding jaws fixed on the said frame with transverse extensions across the said label strips in advance of the feed jaws, a cam with trip lever between said jaws for actuating the same, the said cam having flattened ends to lock the jaws in open position, a slide with stops to actuate said cam lever, one stop timed to open the jaws during the feeding movement and a second timed to close the same at the end of the movement, and a cam for actuating said slide to open the said jaws for the feeding operation and close the same during the return, whereby the label strips are held under tension by the holding jaws during the return of the feed jaws and are delivered under tension step by step between said jaws through the press and wound up automatically thereafter.

4. In a printing and feeder means for label strips, the combination of plural supply reels

for label strips with guide adapted to deliver to a power printing press, a frame for the feeding means with a driving shaft, cam shaft and gear, a plurality of rewind rolls for the printed strips, a transverse guide roll adapted to receive the plural strips from the press and deliver to the rewind rolls, a driven shaft therefor on which the rewind rolls are frictionally mounted to slip under tension, a pair of feed jaws with transverse extensions across said label strips to engage and feed the same step by step, and a pair of holding jaws fixed on the said frame with transverse extensions across the said label strips in advance of the feed jaws.

5. In a printing and feeder means for label strips, the combination of means for delivering a label strip through a power printing press, a pair of feed jaws with transverse extensions across said label strips to engage and feed the same step by step, a reciprocating feed carriage for said jaws, a cam means for actuating said carriage comprising a cam on the cam shaft, a follower with bifurcated arms to embrace the said cam, a rocker arm connected to said cam follower, a lever arm pivoted to the frame with pitman for actuating said feed carriage, an adjustable pitman between the rocker arm and the said actuating lever for reciprocating said carriage, a jaw actuating cam with flat ends disposed between the said feed jaws to open the same, a trip lever for said cam to open the said jaws and to trip to close the same, a slide with stops disposed to act upon said lever at the end of the stroke of said feed carriage, one stop timed to open said feed jaws at the end of the said stroke and one adjustably timed to trip to close the jaws at the beginning of the stroke, a pair of holding jaws fixed on the said frame with transverse extensions across the said label strips in advance of the feed jaws, a cam with trip lever between said jaws for actuating the same, the said cam having flattened ends to lock the jaws in open position, a slide with stops to actuate said cam lever, one stop timed to open the jaws during the feeding movement and a second timed to close the same at the end of the movement, and a cam for actuating said slide to open the said jaws for the feeding operation and close the same during the return, whereby the label strips are held under tension by the holding jaws during the return of the feed jaws and are delivered under tension step by step between said jaws through the press and wound up automatically thereafter.

6. In a printing and feeder means for label strips, the combination of means for delivering a label strip through a power printing press, a pair of feed jaws with transverse extensions across said label strips to engage and feed the same step by step, a reciprocating feed carriage for said jaws, a cam means for actuating said feed carriage comprising a cam on the cam shaft, a follower with bifurcated arms to embrace the said cam, a rocker arm connected to said cam follower, a lever arm pivoted to the frame with pitman for actuating said feed carriage, an adjustable pitman between the rocker arm and the said actuating lever for reciprocating said carriage, a jaw actuating cam with flat ends disposed between the said feed jaws to open the same, a trip lever for said cam to open the said jaws and to trip to close the same, a slide with stops disposed to act upon said lever at the end of the stroke of said feed carriage, one stop timed to open said feed jaws at the end of the said stroke and one adjustably timed to trip to close the jaws at the beginning of the stroke, and a pair of holding jaws fixed on the said frame with transverse extensions across the said label strips in advance of the feed jaws.

7. In a printing and feeder means for label strips, the combination of means for delivering a label strip through a power printing press, a pair of feed jaws with transverse extensions across said label strips to engage and feed the same step by step, a pair of holding jaws fixed on the said frame with transverse extensions across the said label strips in advance of the feed jaws, a cam with trip lever between said jaws for actuating the same, the said cam having flattened ends to lock the jaws in open position, a slide with stops to actuate said cam lever, one stop timed to open the jaws during the feeding movement and a second timed to close the same at the end of the movement, and a cam for actuating said slide to open the said jaws for the feeding operation and close the same during the return, whereby the label strips are held under tension by the holding jaws during the return of the feed jaws and are delivered under tension step by step between said jaws through the press and wound up automatically thereafter.

8. In a printing and feeder means for label strips, the combination of means for delivering a plurality of label strips through a power printing press, a pair of feed jaws with transverse extensions across said label strips to engage and feed the same step by step, and a pair of holding jaws fixed on the said frame with transverse extensions across the said label strips in advance of the feed jaws and means for equalizing the feeding means.

In witness whereof I have hereunto set my hand.

GEORGE L. BIGNELL.