No. 859,220. PATENTED JULY 9, 1907.

P. J. HEALY.

DEVICE FOR FEEDING AND CUTTING STRIPS.

APPLICATION FILED OCT. 22, 1906.

3 SHEETS—SHEET 1.

Fig. 1.

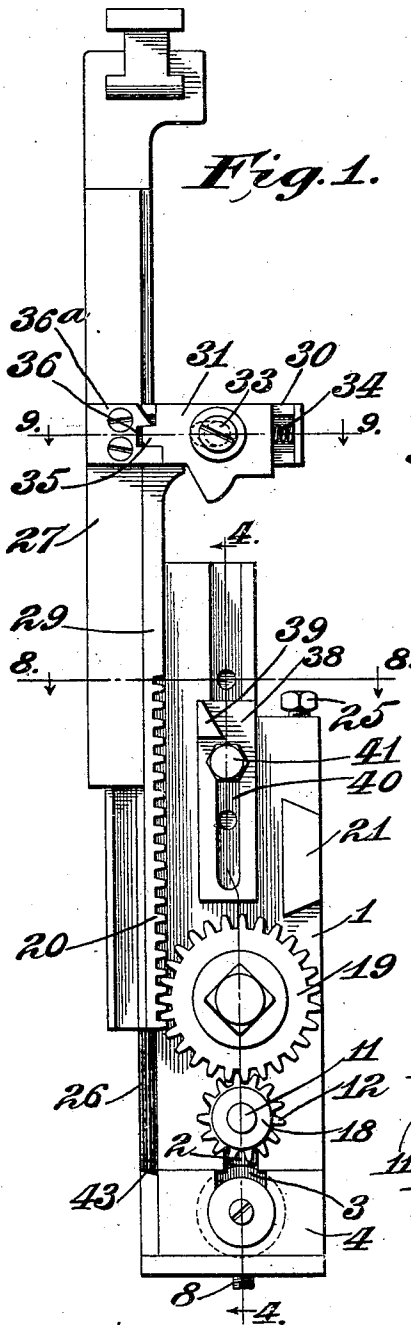
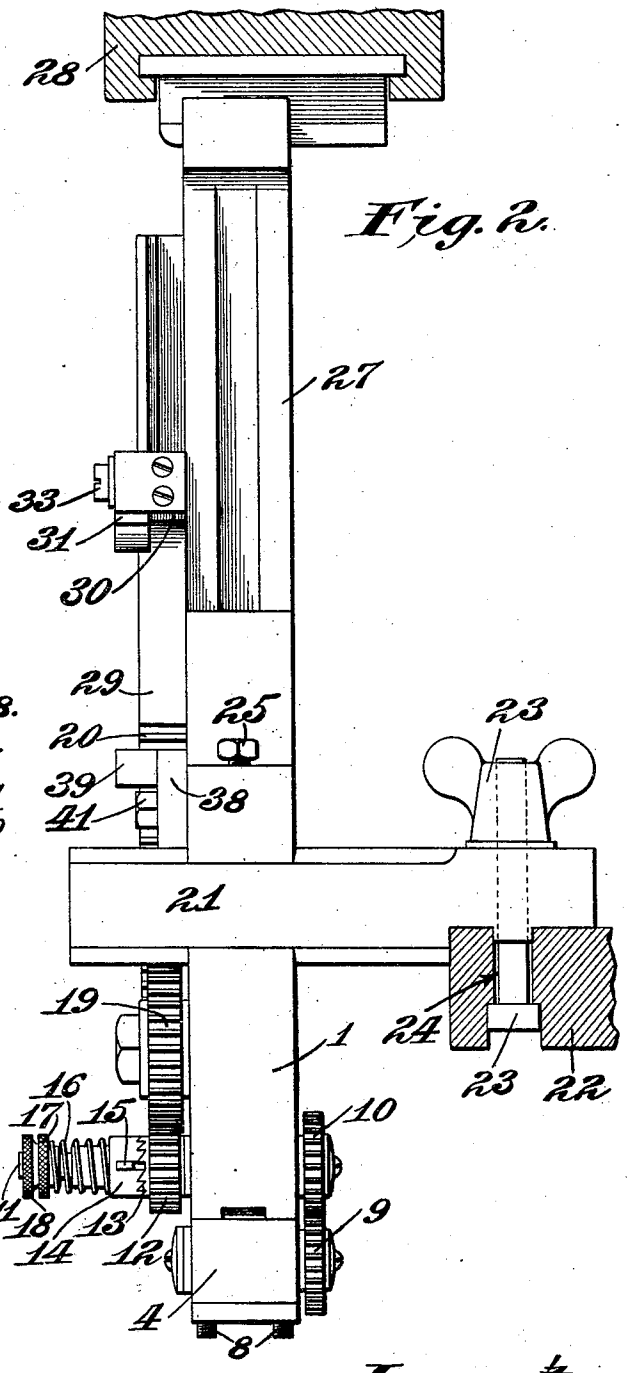


Fig. 2.



Witnesses:

G. A. Pennington

J. B. Megown

Inventor:

Philip J. Healy,

By Cameron & Cameron,

Attys.

THE NORRIS PETERS CO., WASHINGTON, D. C.

No. 859,220. PATENTED JULY 9, 1907.

P. J. HEALY.

DEVICE FOR FEEDING AND CUTTING STRIPS.

APPLICATION FILED OCT. 22, 1906.

3 SHEETS—SHEET 2.

Fig. 3.

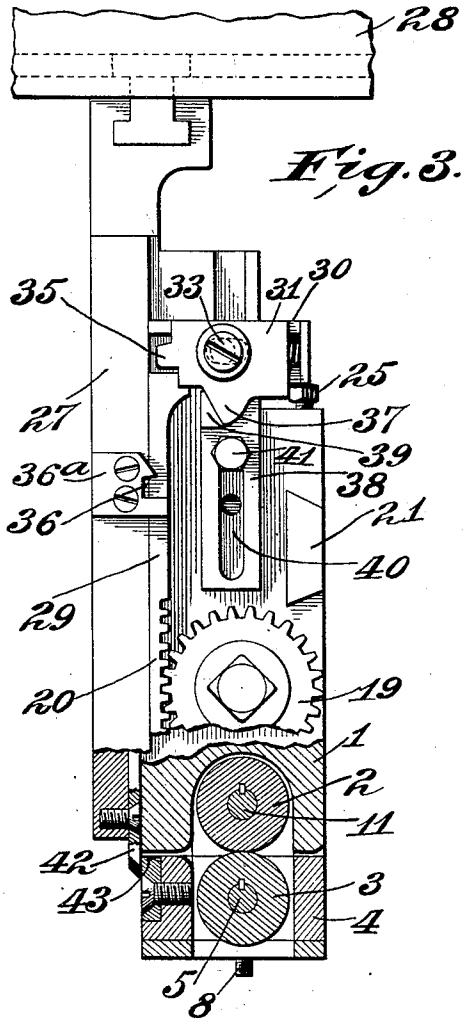


Fig. 4.

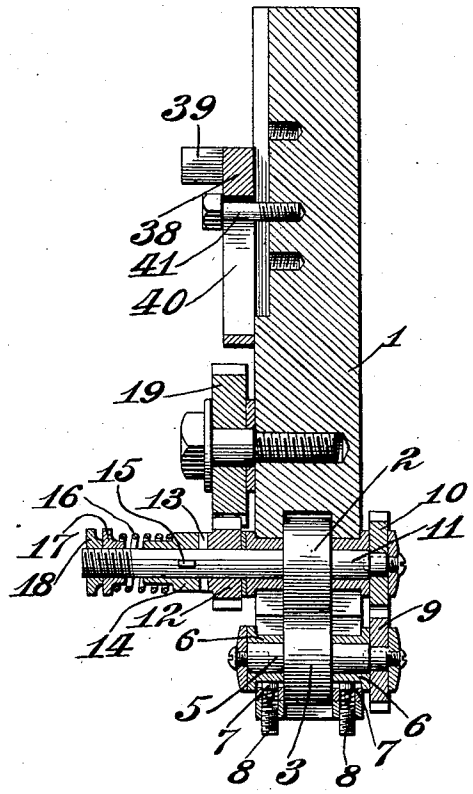
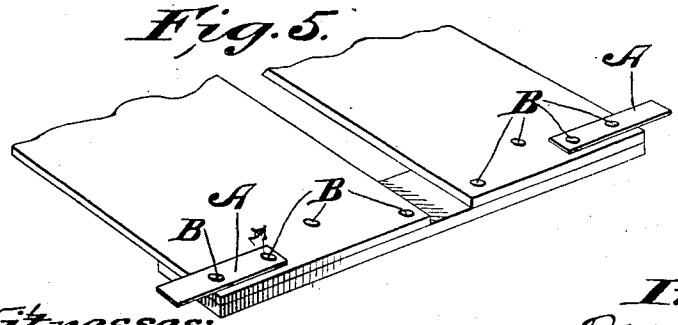


Fig. 5.



Witnesses:

G. A. Pennington

J. B. Megown

Inventor:

Philip J. Healy,

By Cameron & Cameron,

Attys.

THE NORRIS PETERS CO., WASHINGTON, D. C.

No. 859,220. PATENTED JULY 9, 1907.

P. J. HEALY.

DEVICE FOR FEEDING AND CUTTING STRIPS.

APPLICATION FILED OCT. 22, 1906.

3 SHEETS—SHEET 3.

Fig. 6.

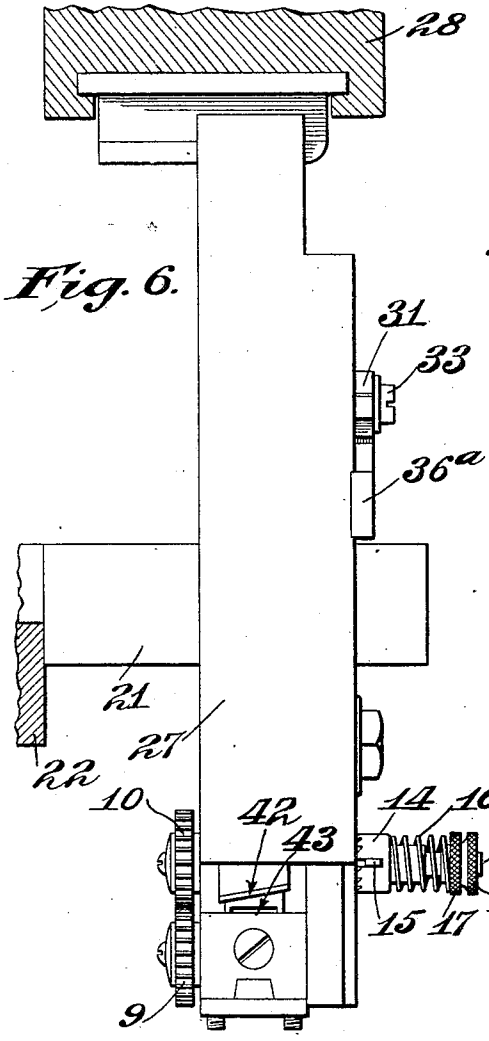


Fig. 7.

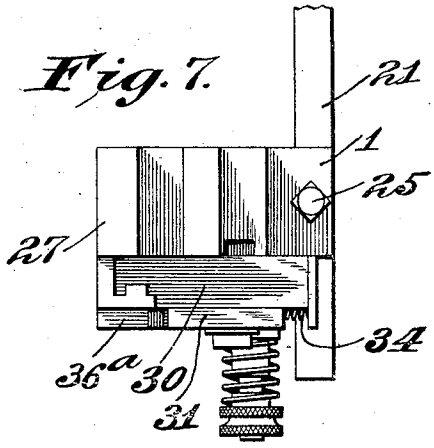


Fig. 8.

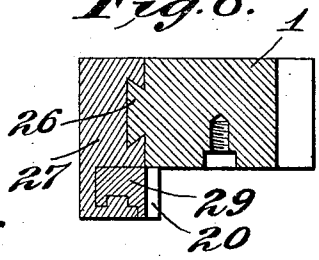
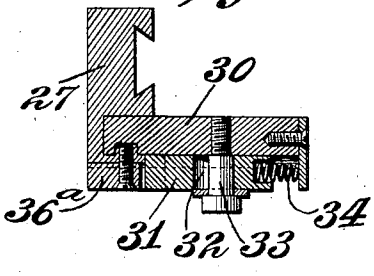


Fig. 9.



Witnesses:

G. A. Pennington

J. B. Megown

Inventor:

Patrick J. Healy,

By Cornet Davis,

Attys.

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

PHILIP J. HEALY, OF EAST ST. LOUIS, ILLINOIS, ASSIGNOR TO HEALY BOX COMPANY, OF EAST ST. LOUIS, ILLINOIS, A CORPORATION OF ILLINOIS.

DEVICE FOR FEEDING AND CUTTING STRIPS.

No. 859,220. Specification of Letters Patent. Patented July 9, 1907.

Application filed October 22, 1906. Serial No. 340,088.

To all whom it may concern:

Be it known that I, PHILIP J. HEALY, a citizen of the United States, and a resident of the city of East St. Louis, county of St. Clair, and State of Illinois, have invented a new and useful Improvement in Devices for Feeding and Cutting Strips, of which the following is a specification.

My invention relates to a machine for feeding and cutting off strips, and particularly to an attachment whereby sheet metal corner strips may be delivered to a box nailing machine.

The principal objects of the invention are to provide a device of simple mechanical construction adapted for attachment to and actuation by the moving parts of a machine such as a nailing machine.

It consists in the parts and in the arrangements and combinations of parts hereinafter described and claimed.

In the accompanying drawing, which forms part of this specification, and wherein like symbols refer to like parts wherever they occur, Figure 1 is a front elevation of my device with the rack in its uppermost position; Fig. 2 is an end elevation thereof; Fig. 3 is a front elevation of the device with the rack in its lowermost position, and with the lower portion of the device shown in section; Fig. 4 is a vertical cross-section of the device on the line 4—4 and looking in the direction of the arrow shown in Fig. 3. Fig. 5 is a view illustrating two strips applied to the corners of a box; Fig. 6 is an end view looking in the direction opposite that of Fig. 2; Fig. 7 is a plan view of the attachment; Fig. 8 is a cross-section on the line 8—8 of Fig. 1; and, Fig. 9 is a horizontal section on the line 9—9 of Fig. 1.

The body piece of my attachment is a block I having a semi-cylindrical socket in its lower end in which is mounted a feed roll 2 whose periphery extends very slightly past the lower end of said block. A second feed roll 3 is mounted in a socket in a block 4 secured to the lower end of said base block. The spindle 5 of the lower roll 3 is mounted in tubular shells or thimbles 6 against whose lower sides bear spring-actuated followers or plungers 7. The pressure of said followers is regulated by means of threaded plugs 8 working in the interiorly threaded socket openings in which said springs are located.

The projecting end of the spindle 5 of the lower roll has a gear wheel 9 thereon which meshes with a gear wheel 10 on one of the projecting ends of the spindle 11 of the upper roll. The other projecting end of the spindle of the upper roll has a gear wheel 12 loosely mounted thereon. This last mentioned gear wheel has ratchet teeth 13 formed on the face of its hub in position to engage with similar teeth formed in the face of a sleeve 14 which is slidably mounted on said spindle but is locked against rotary movement thereon by means of a pin 15 projecting through an elongated slot in the sleeve. The ratchet teeth on the gear and on the sleeve are held normally in engagement by means of a helical spring 16 which bears at one end against said slidable sleeve and bears at the other end against the head of a screw threaded nut 17 which works on the threaded end of said spindle. The position of this nut may be varied to adjust the force of the spring and it is held in any adjusted position by means of a set nut 18. The loose gear wheel 12 meshes with a gear wheel 19 journaled on the main body block of the device in position to mesh with a reciprocating rack 20.

The body block has an undercut groove or guideway in its side and in this guideway fits a beveled bar or arm 21 which is firmly clamped to a supporting member 22 mounted on or supported by the frame of the nailing machine. The position of this arm 21 may be varied by loosening its clamping device 23 and by sliding said arm to any desired position lengthwise of an elongated slot 24 provided therefor in the supporting member. The position of the body block may also be varied lengthwise of said arm 21 and it may be clamped in its adjusted position by means of a set screw 25 provided for the purpose.

One vertical side of the body block has an undercut rib or tongue 26 formed thereon to fit in a rabbeted groove provided therefor on an actuating bar 27, whereby said actuating bar is mounted on said body piece so as to slide vertically thereon. This actuating bar 27 is connected by any suitable means to a crosshead 28 or other reciprocating portion of the nailing machine or other source of power. This vertically sliding actuating bar has a vertical guideway formed therein, and in this guideway is slidably mounted a rack bar 29, whose rack 20 is in position to mesh with the gear wheel 19, as hereinbefore mentioned. The upper end of said rack bar 29 has a lateral extension 30 which has a laterally movable engaging piece 31 mounted thereon. Preferably, this engaging piece has a horizontally elongated slot 32 through which a headed bolt 33 extends into the lateral extension of the rack bar; and against the outer end of said engaging piece bears a helical spring 34 whose other end bears against an abutment provided therefor on the outer end of said lateral projection. By this arrangement, the engaging piece is yieldingly pressed inwardly, that is, toward the vertical actuating bar 27. The inner end of said engaging piece has a square shouldered tooth or projection 35, which normally interlocks with a notch or socket 36 provided therefor on said actuating bar or on a piece 36^a specially provided thereon for the purpose. The upper edge of this piece 36^a is beveled so that the engaging piece can be pressed outwardly thereby. On the lower side of said laterally movable engaging piece 31 is a lug 37 whose inner shoulder is beveled or inclined. Mounted on the body block is a plate 38 which has a beveled lug

39 arranged in the path or line of movement of the lug on said engaging piece. When the engaging piece of the rack bar is moved against the beveled lug on said body piece, said engaging piece is moved laterally against the force of the spring and is disengaged from the actuating bar. So long as the engaging piece is interlocked with the actuating bar, the actuating bar and the rack bar move together; but the downward movement of the rack bar ceases when the engaging member is disengaged from the actuating bar. As the extent of the movement of the feed rolls depends upon the movement of the rack bar from which the motion is transmitted, it is desirable to make the movement of the lug adjustable. For this purpose, the plate 38 on which the beveled lug is mounted is provided with an elongated slot 40, and this plate is clamped firmly in position by means of a headed bolt 41 passing through said slot. By this or other suitable means, the vertical position of the beveled lug may be varied whenever desired, and the travel of the rack bar will be shortened or lengthened accordingly. The lower end of the actuating bar is provided with a knife or cutter 42 which cooperates with a knife edge 43 provided therefor on the delivery side of the body block.

The operation of my device is as follows: The attachment is mounted upon the box nailing machine, or other suitable machine, and adjusted to proper position with reference to the operating mechanism which it feeds. The relative position of the strip sections A delivered by my device and of the nails B driven by the nailing machine is illustrated. The strip of metal which is generally supplied from a reel, is forced between the feed rolls. The springs bearing against the lower roll permit varying thicknesses of strips to be accommodated and cause the strips to be firmly clamped between the rolls. The actuating bar being suitably connected to the crosshead or other reciprocating part of the nailing machine reciprocates therewith. In the uppermost position of the crosshead, the actuating bar and the rack bar are locked together by the engaging piece at the upper end of said rack bar so that during the initial portion of the downward stroke of the actuating bar, the rack bar moves therewith. So long as the rack bar moves downwardly, the rack thereon transmits the movement through the gear in engagement therewith to the feed rolls, and the turning of the feed rolls feeds the strip which is clamped between them. The forward delivery of the strip continues until the tappet actuated locking device disengages the rack bar from the actuating bar and cuts off the further movement of said rack bar; that is, the feeding movement of the strip continues from the beginning of the downward stroke of the actuating bar until the disengaging member of the rack bar strikes the adjustably mounted lug on the body piece and is disengaged from its counterpart member of the actuating bar. The actuating bar continues to move with the crosshead which has a definite stroke, and this movement causes the knife on the actuating bar to pass the knife edge on the body block, whereby the section of the strip delivered by the rolls past said knife edge is severed. It is noted that the severing of the strip occurs at the end of the downward stroke of the crosshead and of the actuating bar, so that the feeding device serves not only to position the strip but to hold it in position until the nails shall have entered it. On the up stroke of the crosshead and of the actuating bar, the rack bar remains stationary until the inclined piece on the actuating bar bears against the engaging tooth, whereupon the rack bar is interlocked with the actuating bar and moves upwardly therewith. The upward movement of the rack bar has no effect upon the device for the reason that the transmission train is inoperative at the spring clutch or ratchet tooth engagement of the loose gear with its spindle.

Obviously, the construction hereinbefore described admits of considerable modification without departing from my invention, and I do not wish to be limited to the details of construction hereinbefore described.

What I claim as my invention and desire to secure by Letters Patent is:

1. A strip feeding device comprising a base, feed rolls mounted thereon, a bar slidably mounted on said base, means for actuating said bar, a rack detachably connected to said bar to slide therewith and arranged to transmit motion to said feed rolls, and means for automatically detaching said rack from said bar.

2. A strip feeding device comprising a base, feed rolls mounted thereon, a bar slidably mounted upon said base, means for actuating said bar, a rack detachably connected to said bar to slide therewith and arranged to transmit motion to said feed rolls, said rack having a laterally movable member arranged to interlock with a part on said bar, and said base having a part adapted to coöperate with said interlocking member to disengage said rack.

3. A strip feeding device comprising a base, feed rolls mounted thereon, a bar slidably mounted on said base, means for actuating said bar, a rack detachably connected to said bar to slide therewith and arranged to transmit motion to said feed rolls, said rack having a spring actuated laterally movable member arranged to interlock with a part on said bar, and a rack mounted on said base and adapted to disengage said laterally movable member from said bar.

4. A strip feeding device comprising a base, feed rolls mounted thereon, a bar slidably mounted on said base, means for actuating said bar, a rack detachably connected to said bar to slide therewith and arranged to transmit motion to said feed rolls, said rack having a spring actuated laterally movable member arranged to interlock with a part on said bar, and a lug adjustably mounted on the base adapted to disengage said laterally movable member from said bar.

5. A strip feeding device comprising a base, feed rolls mounted thereon, a bar slidably mounted on said base, means for actuating said bar, a rack detachably connected to said bar to slide therewith and arranged to transmit motion to said feed rolls, said rack having a spring actuated laterally movable member arranged to interlock with a part on said bar, and a lug on the base adapted to disengage said laterally movable member from said bar.

6. A strip feeding and cutting device comprising a base, feed rolls mounted therein, a knife bar slidably mounted on said base, means for actuating said bar, a rack detachably connected to said bar to slide therewith and arranged to transmit motion to said feed rolls, said rack having a spring actuated laterally movable member arranged to interlock with a part on said bar and a lug on the base adapted to disengage said laterally movable member from said bar.

7. A strip feeding device comprising a base, feed rolls mounted thereon, a bar slidably mounted on said base, means for actuating said bar, a rack detachably connected to said bar to slide therewith and arranged to transmit motion to said feed rolls, said rack having a spring actuated laterally movable member arranged to interlock with a part on said bar, and a lug on the base adapted to disengage said laterally movable member from said bar, said rack having a tappet actuated member arranged to detachably fasten said rack to said bar.

8. A strip feeding and cutting device comprising a base, feed rolls mounted therein, a knife bar slidably mounted on said base, means for actuating said bar, a rack detach-

ably connected to said bar to slide therewith and arranged to transmit motion to said feed rolls, said rack having a spring actuated laterally movable member arranged to interlock with a part on said bar and a lug on the base adapted to disengage said laterally movable member from said bar, said rack having a tappet actuated member arranged to detachably fasten said rack to said bar.

9. A strip feeding device comprising a base, feed rolls mounted thereon, a bar slidably mounted on said base, means for actuating said bar, a rack detachably connected to said bar to slide therewith and arranged to transmit motion to said feed rolls, said rack having a spring actuated laterally movable member arranged to interlock with a part on said bar, and a lug on the base adapted to disengage said laterally movable member from said bar, the transmission train being arranged to work idly during the return movement of the actuating mechanism.

10. A strip feeding and cutting device comprising a base, feed rolls mounted therein, a knife bar slidably mounted on said base, means for actuating said bar, a rack detachably connected to said bar to slide therewith and arranged to transmit motion to said feed rolls, said rack having a spring actuated laterally movable member arranged to interlock with a part on said bar and a lug on the base adapted to disengage said laterally movable member from said bar, the transmission train being arranged to work idly during the return movement of the actuating mechanism.

11. The combination with a reciprocating member, of strip feeding and cutting mechanism comprising a supporting member having feed rolls mounted thereon and provided with gears, a bar slidably mounted on said supporting member and a knife mounted on said bar, a rack slidably mounted on said bar in operative relation to said gears, and means for detachably holding the rack to said bar to slide therewith.

12. The combination with a reciprocating member, of strip feeding and cutting mechanism comprising a supporting member having feed rolls mounted thereon and provided with gears, a bar slidably mounted on said supporting member and a knife mounted on said bar, a rack slidably mounted on said bar in operative relation to said gears, means for detachably holding the rack to said bar to slide therewith, and means for disengaging said rack from said bar.

13. The combination with a reciprocating member, of strip feeding and cutting mechanism comprising a supporting member having feed rolls mounted thereon and provided with gears, a bar slidably mounted on said supporting member and a knife mounted on said bar, a rack slidably mounted on said bar in operative relation to said gears, means for detachably holding the rack to said bar to slide therewith, and adjustable means for disengaging said rack from said bar.

In witness whereof I have signed my name to this specification in the presence of two subscribing witnesses this 10th day of October, 1906, at St. Louis, Mo.

PHILIP J. HEALY.

Witnesses:
J. B. MEGOWN,
J. M. WYNKOOP.