July 10, 1928. 1,676,567

W. LOWERY

AUTOMATIC FEED MECHANISM FOR HEADING MACHINES

Filed Aug. 11, 1921 4 Sheets-Sheet 1

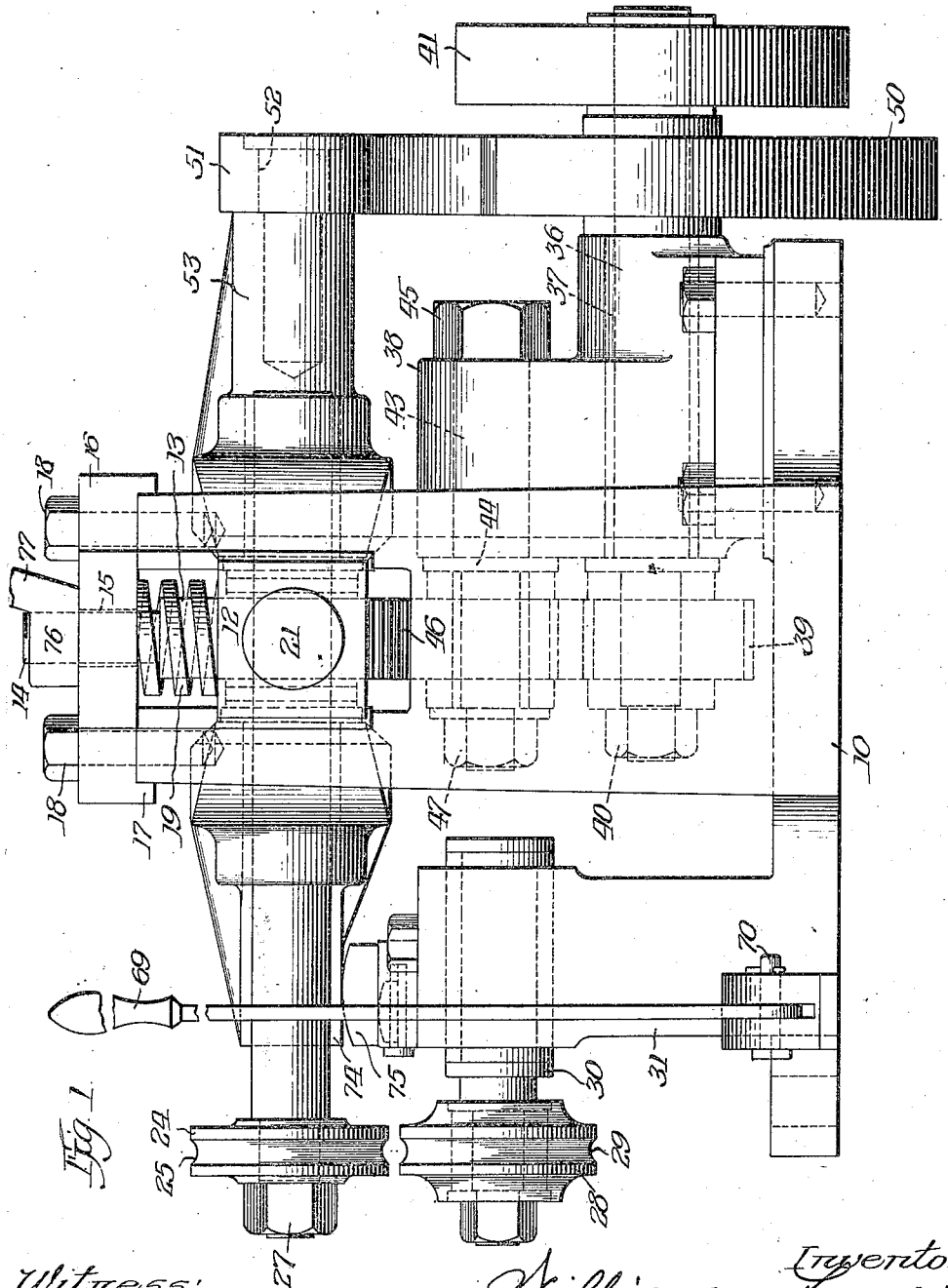


Fig. 1.

Witness:
Geo. E. Dennison

Inventor
William Lowery
By Dodwell, Geis & Hardin
Attys.

July 10, 1928. 1,676,567

W. LOWERY

AUTOMATIC FEED MECHANISM FOR HEADING MACHINES

Filed Aug. 11, 1921 4 Sheets-Sheet 2

Fig. 5

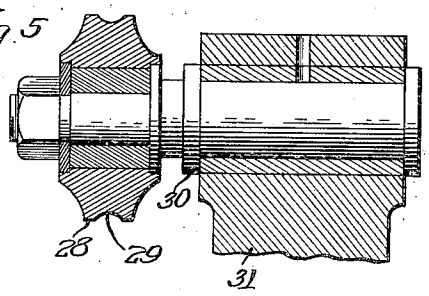


Fig. 2

Witness:
Geo. E. Dorion

Inventor
William Lowery
By Osmond, Gris & Marden
Attys.

July 10, 1928. 1,676,567

W. LOWERY

AUTOMATIC FEED MECHANISM FOR HEADING MACHINES

Filed Aug. 11, 1921 4 Sheets-Sheet 3

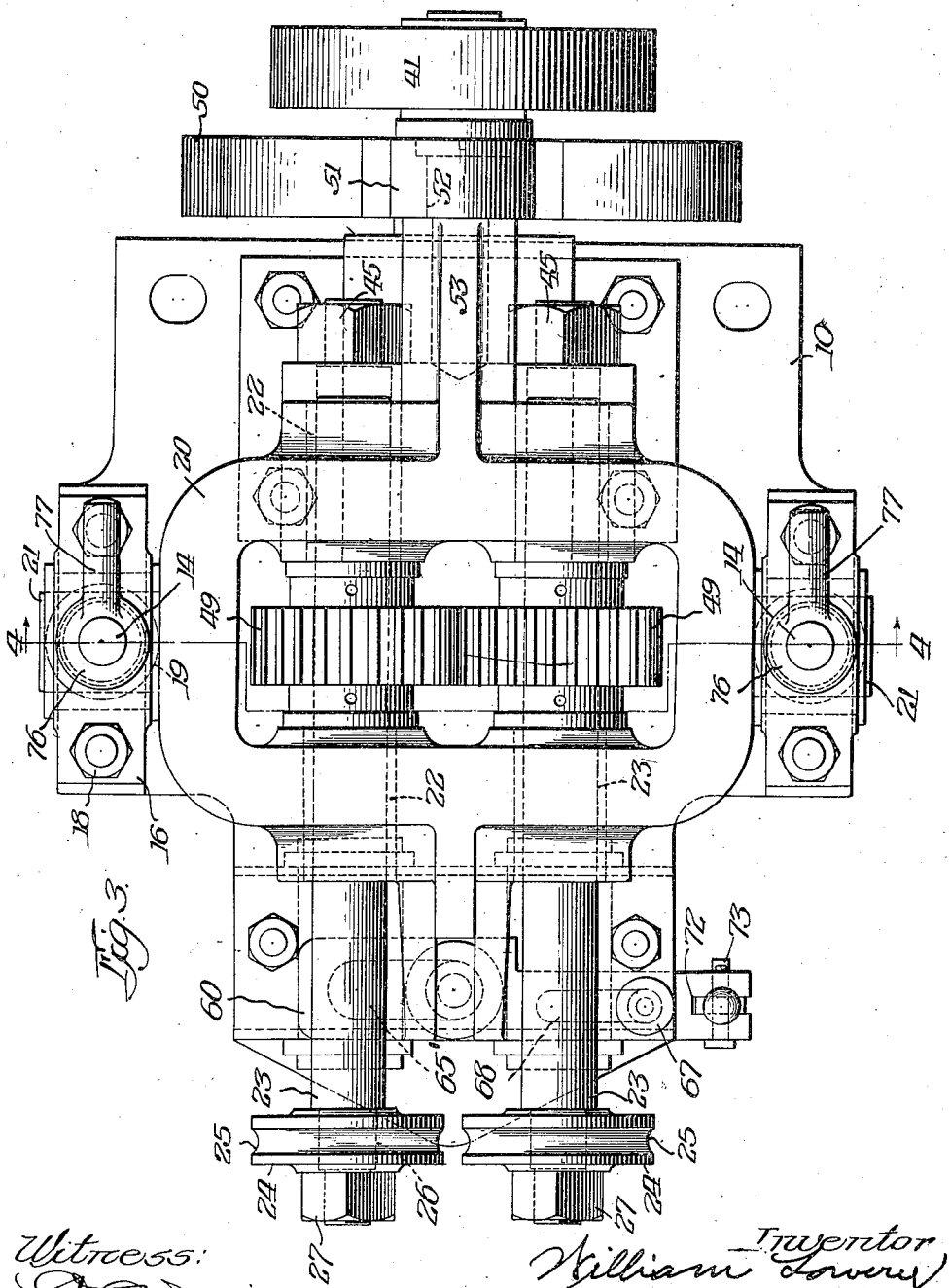


Fig. 3.

Witness:

Inventor
William Lowery

By Cromwell, Greist & Parker
Attys.

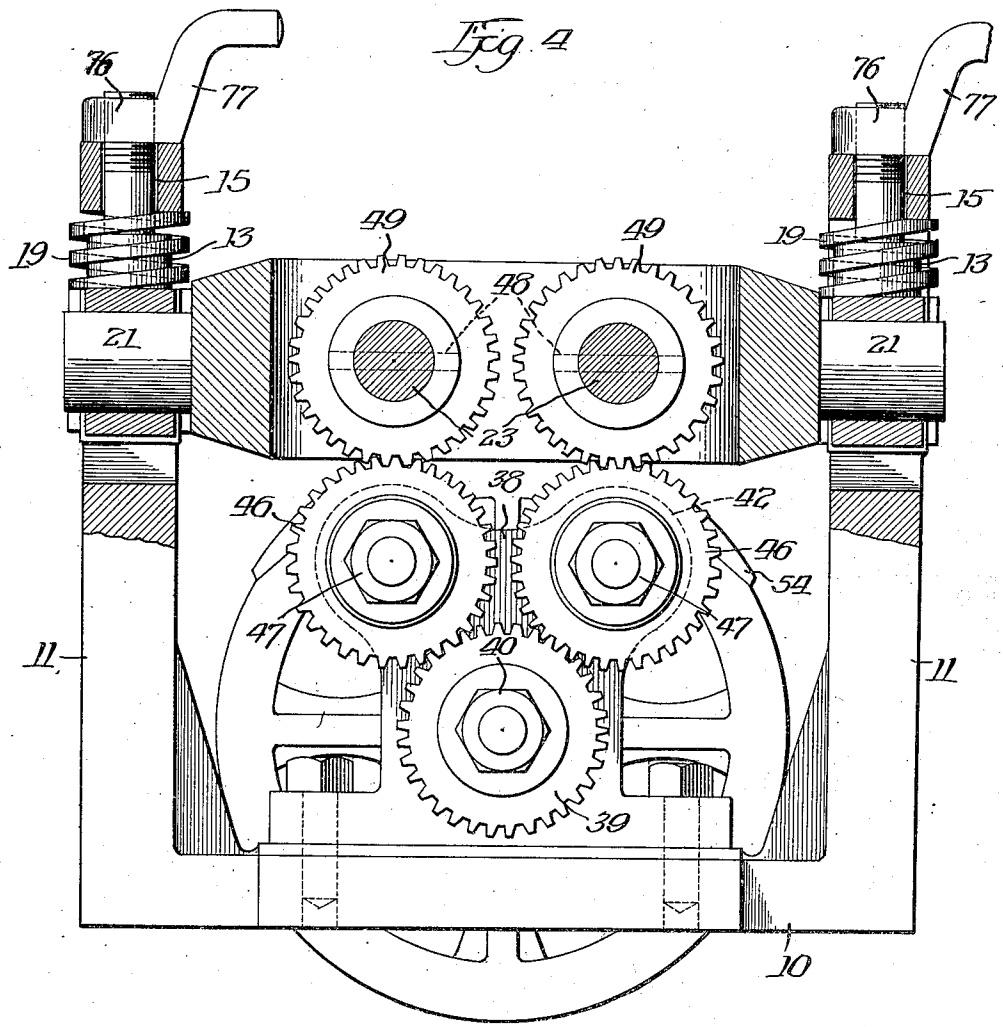
July 10, 1928. 1,676,567

W. LOWERY

AUTOMATIC FEED MECHANISM FOR HEADING MACHINES

Filed Aug. 11, 1921 4 Sheets-Sheet 4

Fig. 4



Witness
Fred C. Dyson

Inventor
William Lowery
By Osmond, Yeiser & Madden
Attys

Patented July 10, 1928. 1,676,567

UNITED STATES PATENT OFFICE.

WILLIAM LOWERY, OF HAMMOND, INDIANA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO HAMMOND BOLT & NUT COMPANY, A CORPORATION OF INDIANA.

AUTOMATIC FEED MECHANISM FOR HEADING MACHINES.

Application filed August 11, 1921. Serial No. 491,396.

The present invention is related to heading machines for the production of rivets, bolts, and the like, and more particularly is concerned with means for feeding the stock thereto.

In the usual type of heading machines commonly employed the heated stock is fed into the same by hand. It is obvious, therefore, that the output of the machine is limited to the capacity of the operator, and such output varies with the varying skill and ability of the particular operators handling the machine. Furthermore, the stock can be heated in short lengths only, due to the necessity for manually handling the same and reheating the stock, and this also curtails the output of the header.

The main and primary object of the present invention is the provision of an automatic feed mechanism through the medium of which the objections above recited may be overcome, and by which the output of a heading machine may be materially increased, thereby obtaining greater economy in the operation of these machines, and likewise permitting handling of the stock with greater facility and ease.

A further object of the invention is to provide a feed mechanism of the character set forth the parts of which are so organized and related as to render the same easily accessible for adjustment or repair, and also to insure positive feeding of the heated stock in a continuous and uniform manner as the same is introduced to the feed mechanism.

The invention also seeks to provide automatic feed mechanism wherein is embodied simple and efficient means for interrupting the feed movement thereof when occasion may require, thereby enabling the machine to be operated with safety to the operator as well as to prevent impairment of the structure of the machine itself.

Further objects and advantages will appear as the nature of the improvements is better understood the invention consisting substantially in the novel construction, combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and finally pointed out in the appended claims.

A practical embodiment of the invention is presented in the disclosure herein, but this is not to be taken in a limiting or restrictive sense, the disclosure being intended to delineate to the art an appropriation of the concept and its application in practical form to the purposes for which the invention is contemplated.

In the drawings—

Fig. 1 is a front elevation of an automatic feed mechanism of the character recited embodying the principles of and constructed in accordance with the present invention;

Fig. 2 is a side elevation of the same viewing the machine at the point where the feed rolls are located;

Fig. 3 is a top plan view;

Fig. 4 is a vertical central sectional view on the line 4—4, Fig. 3; and

Fig. 5 is a detail sectional view through one of the supporting rolls and its spindle.

Referring now in detail to the accompanying drawings, the numeral 10 designates the base of the herein described feed mechanism. This is formed of suitable material, such as cast iron, and is fashioned in suitable dimensions to accommodate the working parts of the machine. Rising from opposite edges of the base 10 is a pair of vertical standards 11, the upper ends of these standards being bifurcated, the bifurcation of each of the standards 11 receiving a bearing block 12. These bearing blocks preferably are flanged at their opposite edges in order to embrace the sides of the bifurcated ends of the standards 11, each of the blocks 12 having a neck 13 from which rises a screw-threaded stem 14, which stems pass through perforations 15 in cap plates 16 arranged to span the bifurcations of the standards 11. These cap plates 16 have depending terminal flanges 17 which embrace the standards 11, the cap plates being also perforated for the passage of securing bolts 18 by means of which they are held in fixed relation to said standards.

Interposed between each block 13 and the cap plate 16 immediately thereabove is a coil spring 19 the lower end of which bears against the bearing block while at its upper end contacts with the cap plate. The purpose of these springs presently will appear.

Arranged between the standards 11 is an elongated substantially rectangular supporting frame 20. The ends of this frame are provided with outwardly extending oppositely disposed trunnions 21, and one of said trunnions is received by the bearing block 12 which is mounted in the contiguous standard 11. This arrangement provides

for rocking movement of the supporting frame 20 in the bearing blocks 12, as will also presently appear, the rocking of said frame 20 occurring in the movement of the feeding instrumentalities as the latter are driven during the operation of the machine.

The longer sides of the frame 20 are each provided with a pair of bearings 22, the bearings of one side of the frame being in alignment with the bearings at the opposite side thereof, and said bearings 22 receive a pair of feed roll shafts 23 the outer ends of which extend to a substantial distance beyond the supporting frame 20, which ends are provided with positively driven feed rolls 24. The peripheries of these rolls 24 are grooved in order readily to fit the heated stock from which the rivet, bolt or the like is to be produced, these grooves being designated by the numeral 25. Preferably, the rolls 24 are keyed to the shafts 23 in order to rotate therewith, but other suitable means for this purpose may be employed. The ends of the shafts 23 are reduced, as at 26, to which reduced portions the rolls 24 are fitted, and the extremities of said shafts are screw-threaded for receiving fastening nuts 27 whereby the rolls 24 further are held in position on said shafts.

At a point immediately below each of the feed rolls 24 is located a supporting roll 28. These rolls are substantially the same construction as the rolls 24, being provided with peripheral grooves 29 for the reception of the heated stock, and it is to these rolls 28 that said stock is introduced from a suitable heating furnace located in proximity to the heading machine, in accordance with the practice generally followed in this art, for heating the lengths of the stock in order to permit their proper manipulation in the heading machine in the production of the rivet, bolt or the like. Each of the supporting rolls 28 is loosely mounted on a spindle 30, in order to freely rotate thereon, and said spindles are received by a vertical post 31 which rises upwardly from the base 10 at a point substantially midway between the standards 11. The upper end of said post 31 has formed therein a pair of square notches 32, each of said notches receiving a sectional bushing 33, said bushings receiving the spindles 30. Spanning the notches 32 and the bushings 33 therein is a cap plate 34 which is held in position by a pair of bolts 35, or their equivalents, and displacement of the spindles 30 and their bushings 33 thereby is prevented.

For driving the feed roll shafts 23 a shaft 36 is employed. This shaft is mounted in a bearing 37 formed in the lower portion of a bearing bracket 38, which bracket is bolted, or otherwise suitably fastened, to the base 10 at the side portion thereof which is opposite to the post 31. The inner end of the shaft 36 is reduced in diameter and has a driving pinion 39 applied thereto and held in fixed relation thereon in order to rotate with said shaft, a fastening nut 40, or its equivalent, preventing longitudinal displacement of the pinion 39 from said shaft. By reference to Fig. 4 it will be observed that the pinion 39 is at the mid-portion of the bracket 38. At the opposite end of the shaft 36 is mounted a driving pulley 41 which derives its power from a pulley on the heading machine (not shown) with which the automatic feed mechanism herein described is associated.

The upper end of the bracket 38 has a pair of divergent perforated ears 42 which receive a pair of supporting spindles 43. These spindles are provided with flanges 44 which abut against the inner faces of the ears 42, while the outer ends of said spindles are screw-threaded and receive fastening nuts 45 by which the spindles 43 are held in fixed position in said ears 42 and prevented rotating. The inner ends of the spindles 43 are reduced and provide journals on which are rotatably mounted a pair of idler pinions 46, the inner extremities of the spindles being screw-threaded and receiving fastening nuts 47 by means of which longitudinal displacement of the pinions 46 from the spindles 43 is prevented. Again referring to Fig. 4, it will be noted that the pinions 46 are in mesh with the pinion 39, and as the latter rotates with the driving shaft 36 the pinions 46 are given rotation in the same direction with each other.

Keyed to the feed roll shafts 23, as by pins 48 or their equivalent, is a pair of pinions 49, each of the latter being in mesh with the idler pinion 46 immediately therebelow. Thus is established driving relation between the shafts 23 and the driving shaft 36, but said pinions 49 operate in a reverse direction to the direction of movement of the pinions 46. By the construction just described it will be apparent that on operation of the driving shaft 36 the feed rolls 24 will be rotated by their shafts 23, and when the heated stock has been introduced between said rolls 24 and the supporting rolls 28 the stock will be advanced uniformly and continuously to the heading machine as rapidly as the rivet, bolt or the like is formed therein.

For effecting the engagement of the feed rolls 24 with the stock, and thereby also effecting a clamping action between the rolls 24 and the rolls 28, it is necessary that the rolls 24 be moved towards the rolls 28. In this movement the supporting frame 20 is rocked on the trunnions 21. This movement is accomplished by a cam wheel 50 which is mounted on the driving shaft 36. The wheel 50 is in contact with an anti-friction roller 51 held in position by a bolt 52 threadably

engaged with an outwardly projecting stud 53 formed on the supporting frame 20 at the side thereof remote from the feed rolls 24. On the periphery of the cam wheel 50 is arranged a plurality of cam shoes 54, 55 and 56, each of which is detachably held in position on the wheel 50 by a fastening screw 57. Each of the terminal shoes 54 and 56 has a rib 58 and 59, respectively, which ribs are received by notches extending transversely of the face of the wheel 50. Due to this construction of the cam shoes 54, 55 and 56, the duration of depression of the feed rolls 24 into contact with the heated stock may be regulated, thus providing for the feeding of different lengths of the stock to the heading machine determined by the length of the rivet, bolt or the like which is being formed. In the engagement of the cam shoes with the contact roller 51 the latter will be raised, and this effects the swinging or rocking action of the supporting frame 20 to provide for the gripping of the stock between the rolls 24 and 28.

It has been indicated that one of the objects of the invention is the provision of means for rendering the feed inactive when occasion may require, whereby to enable the machine to be operated with safety to the operator, as well as to prevent impairment of the construction of the machine itself. This condition may arise where the header may be jammed by a mutilated blank, and it is desired to cause a cessation of the feed of the remaining stock. In these circumstances it is highly desirable that the feed rolls 24 shall assume a condition in which the rotation thereof will not effect advancing of the stock. To the accomplishment of this end a slide 60 is arranged upon the cap plate 34, which slide is provided at one end with a raised supporting shoulder 62, the inner end of said shoulder being curved, as at 63, in order to permit the same readily entering beneath the head of a releasing pin 64. The shank of this pin 64 is received by a socket 65 which is formed in the post 31 at a point between the notches 32 thereof, and within said socket 65 is positioned a spiral spring 66. The inner end of the shank of the releasing pin 64 is reduced and penetrates the spring 66, the upper end of the shank thus affording a shoulder against which the upper end of the spring contacts. The enlarged portion of the shank of the pin 64 is received by an elongated slot 65′ which is formed in the slide 60, said slot being of a width corresponding substantially to the diameter of the enlarged portion of the shank of the pin 64 to permit free sliding movement about said pin, and said slide 60 is held in position on the cap plate 34 by a fastening screw 67 which passes through an elongated slot 68 formed in said slide. The screw 67 and the pin 64 preserve the slide 60 in proper alignment with the cap plate 34 to insure proper presentation of the shoulder 62 to the under side of the head of the pin 64.

Normally the shoulder 62 occupies the position illustrated in Fig. 2, in which position the pin 64 is capable of being depressed, but when the shoulder 62 is moved beneath the head of the pin 64 it is obvious that depression of said pin will be prevented.

For actuating the slide 60 an operating lever 69 is employed. The lower end of this lever is mounted on a pin 70 carried by a fulcrum block 71 located at the lower end of the machine frame, and said lever 69 is received by a bifurcation 72 formed in the end of the slide 60, being held therein by a pin 73.

It has been stated that the pin 64 is capable of depression in which movement the spring 66 obviously is compressed. This movement of the pin 64 is caused by contact of an outwardly extending stud 74 carried by the supporting frame 20 at the side thereof which is opposite to the stud 53. Such occurs when the supporting frame 20 is rocked under the action of the cam wheel 50 for moving the feed rolls 24 into clamping engagement with the stock. To establish proper contact between the stud 74 and the head of the pin 64 the upper surface of said head is rounded, as at 75, and this permits proper engagement of said stud with said head. The releasing function of the pin 64 arises after the cam shoes 54, 55 and 56 have passed from beneath the contact roll 51. It is desirable at this time that there shall be a positive movement of the feed rolls 24 away from the rolls 28. Therefore, after the cam shoes referred to have passed from beneath the contact roll 51 the latter is free to move downwardly to a limited extent, thus permitting the spring 66 to expand and force the head of the pin 64 upwardly, which movement rocks the supporting frame 20 in a direction opposite to the movement imparted to said frame by engagement of the cam shoes with the contact roll 51.

In the event that the supporting shoulder 62 is moved beneath the head of the pin 64 to interrupt feeding action of the rolls 24 on the stock, it is obvious that with the passage of the cam shoes 54, 55 and 56 at that time beneath the contact roll 51 possible injury to the supporting frame 20 and the appurtenant parts may result. To preclude this the springs 19 are interposed between the bearing blocks 12 and the cap plates 16 hereinbefore described. Consequently, on the elevation of the contact roll 51 by the passage of the cam shoes therebeneath the fulcrum of the supporting frame 20 is shifted from the trunnions 21 to the head of the releasing pin 64, the latter being in-

capable of depression by reason of the supporting shoulder 62 occupying a position beneath the same. But the supporting frame 20 may move upwardly against the compression of the springs 19, which yield under such movement, and thereby avoid damage to the supporting frame 20 and the parts associated therewith.

For regulating tension of the springs 19 a nut 76 is mounted on the screw-threaded extremity 14 of each of the blocks 12, said nuts 76 bearing against the upper surface of the cap plates 16 and being provided with handles 77 for their convenient rotation.

In associating the herein described feed mechanism with the heading machine with which it is to be used, it is preferable that the feed mechanism be supported on the frame work of the heading machine. Obviously, any suitable means may be provided for this purpose, such as a shelf carried by the frame of the heading machine, and on such support the feed mechanism will be placed and securely fastened. It is not deemed essential to illustrate any particular form of support for this purpose, it being sufficient to indicate the desirability of the same and the fact that the positioning of the feed mechanism necessarily will be at the feed end of the heading machine.

In the operation of the hereindescribed feed mechanism, it being assumed that the same has been positioned in operative relation to the heading machine as above described, and it being further assumed that the relation of the parts is such as to permit depression of the feed rolls 24 into engagement with the heated stock, the latter is drawn from the heating furnace by the operator and introduced to the bight of the first feed roll 24 and the supporting roll 28 immediately therebeneath. It is understood, also, that the driving pulley 41 is being operated from the heading machine and the driving shaft 36 is being rotated thereby. Under such conditions, when the cam shoes 54, 55, and 56 engage the contact roll 51 the latter is elevated and the supporting frame 20 rocked upon its trunnions 21. Through the pinion 39, the idler pinions 42, and the pinions 49, the feed roll shafts 23 are rotated in unison with the driving shaft 36. In the slight rocking movement of the frame 20 it will be apparent that the teeth of the pinions 49 preserve their meshed relation with the teeth of the pinions 46, so that the driving of the shafts 23 is not interfered with. As the feed rolls 24 approach the heated stock which is supported by the rolls 28 a clamping action follows, and the stock is advanced positively by the rotation of the rolls 24. The extent of advancing movement of the stock is determined by the length of the cam shoes 54, 55 and 56, as previously described, so that after these shoes have passed from beneath the contact roll 51 the releasing pin 64, under the impulse of the spring 66, moves upwardly, thereby elevating the rolls 24 to free the same from their clamping action on the stock. This precludes further advance of the stock, and no further gripping of the feed rolls is effected until the cam shoes again come into contact with the roll 51, whereupon a further feed of the stock ensues. If, perchance, occasion arises for interrupting the feeding action of the rolls 24, notwithstanding the fact that the shafts thereof are continuing their rotation under the driving action of the shaft 36, the lever 69 is manipulated to draw the supporting shoulder 62 of the slide 60 beneath the head of the pin 64. Thereupon, the pin 64 is prevented moving downwardly and becomes the fulcrum point for the supporting frame 20 in its rocking movement when elevated by the cam shoes. On such upward movement the springs 19 become compressed, thereby establishing yielding buffers to the upward movement of the frame 20, and the latter is freed from possible injury, as well as the parts associated with the same. In this locked relation of the parts, the springs 19 expand to force the frame 20 downwardly after the cam shoes have moved from beneath the contact roll 51, and so long as the supporting shoulder 62 remains beneath the head of the pin 64 the action just described will continue. However, when said supporting shoulder has been moved from beneath the head of the pin 64 the fulcrum of the frame 20 is shifted back to the trunnions 21, and on elevation of the contact roll 51 to rock the feed rolls 24 into clamping engagement with the stock, the spring 66 becomes compressed and again acts to release the feed rolls 24 from their engagement with the stock after the cam shoes move from beneath the contact roll 51.

To vary the period of depression of the feed rolls 24 for engagement with the heated stock, and thus provide for the manufacture of rivets, bolts and the like of different lengths, the terminal shoes 54 and 56 may be replaced by other shoes of varying length. This controls the period of contact of the shoes with the roll 51, and permits the feed of the stock only so long as these shoes are traversing the roll 51.

I claim:

1. In feed mechanism of the class described, the combination with stock-feeding means, of a support therefor having intermittent rocking movement to advance and retract the feeding means to and from the stock, a stock support cooperating with said feeding means for advancing the stock in the feeding movement, and intermittently-acting means for actuating said rocking support to engage the feeding means with the stock.

2. In feed mechanism of the class described, the combination with stock-feeding means, of a support therefor having intermittent rocking movement to advance and retract the feeding means to and from the stock, a stock support cooperating with said feeding means for advancing the stock in the feeding movement, intermittently-acting means for actuating said rocking support to engage the feeding means with the stock, and means for releasing the feeding means from engagement with said stock.

3. In feed mechanism of the class described, the combination with stock-feeding means, of a rocking support therefor, a stock support with which said feeding means cooperate for advancing the stock, intermittently-acting means for automatically moving the feeding means into cooperative relation with said stock support for advancing the stock, and means acting in opposition to said moving means to release the feeding means from engagement with the stock.

4. In feed mechanism of the class described, the combination with stock-feeding means, of a rocking support therefor, a stock support with which said feeding means cooperate for advancing the stock, intermittently-operating means acting upon said support for automatically rocking the same in one direction to move the feeding means into cooperative relation with said stock support for advancing the stock, and means also acting upon said support for rocking the latter in the opposite direction to release the feeding means from engagement with the stock.

5. In feed mechanism of the class described, the combination with stock-feeding means, of a rocking support therefor, a stock support with which said feeding means cooperate for advancing the stock, means for intermittently engaging the feeding means with the stock for advancing the latter, means for releasing the feeding means from engagement with the stock, and means for interrupting engagement of the feeding means with the stock to stop the feeding action of the feeding means.

6. In feed mechanism of the class described, the combination with a mechanically driven stock-feeding instrumentalities, of intermittently-acting means for automatically effecting engagement of said instrumentalities with the stock for advancing the latter, and means for releasing said instrumentalities from engagement with the stock.

7. In feed mechanism of the class described, the combination with stock-feeding instrumentalities, of intermittently-acting means for automatically effecting engagement of said instrumentalities with the stock for advancing the latter, means for releasing said instrumentalities from engagement with the stock, and means for interrupting engagement of the feeding instrumentalities with the stock.

8. In feed mechanism of the class described, the combination with stock-feeding instrumentalities, of stock-supporting instrumentalities with which the feeding instrumentalities cooperate for advancing the stock, means serving to move the feeding instrumentalities into co-operative relation with the supporting instrumentalities and by which the extent of feed of the stock is determined, and means for moving the feeding instrumentalities away from the supporting instrumentalities when the feed of the stock to the predetermined extent has been effected.

9. In feed mechanism of the class described, the combination with stock-feeding instrumentalities, of stock-supporting instrumentalities with which the feeding instrumentalities co-operate for advancing the stock, means serving to move the feeding instrumentalities into co-operative relation with the supporting instrumentalities and by which the extent of feed of the stock is determined, means for moving the feeding instrumentalities away from the supporting instrumentalities when the feed of the stock to the predetermined extent has been effected, and means for interrupting the feed of the feeding instrumentalities to stop the feeding action thereof.

10. In feed mechanism of the class described, the combination with stock-feeding instrumentalities, of stock-supporting instrumentalities with which the feeding instrumentalities cooperate for advancing the stock, means for moving the feeding instrumentalities into cooperative relation with the supporting instrumentalities, means for moving the feeding instrumentalities away from the supporting instrumentalities when the predetermined length of the stock has been fed, and means interposed between the feeding and supporting instrumentalities and serving to bar movement of the feeding instrumentalities towards the supporting instrumentalities when interruption of the feed of the stock is desired.

11. In feed mechanism of the class described, the combination with stock-feeding instrumentalities, of stock-supporting instrumentalities with which the feeding instrumentalities cooperate for advancing the stock, means for moving the feeding instrumentalities into cooperative relation with the supporting instrumentalities, means for moving the feeding instrumentalities away from the supporting instrumentalities when the predetermined length of the stock has been fed, and a manually-operable device interposed between the feeding and supporting instrumentalities and serving to bar movement of the feeding instrumentalities

towards the supporting instrumentalities when interruption of the feed of the stock is desired.

12. In feed mechanism of the class described, the combination with supporting means for the stock, of stock-feeding means mounted for intermittent movement relatively to said supporting means, means for imparting such intermittent movement to said stock-feeding means, and means for interrupting the intermittent movement of the stock-feeding means to prevent advancement of the stock.

13. In feed mechanism of the class described, the combination with supporting means for the stock, of stock-feeding means mounted for intermittent movement relatively to said supporting means, means for imparting such intermittent movement to said stock-feeding means, means for interrupting the intermittent movement of the stock-feeding means to prevent advancement of the stock, and means for releasing the feed mechanism from engagement with the stock.

14. In feed mechanism of the class described, the combination with supporting means for the stock, of stock-feeding means mounted for intermittent movement relatively to said supporting means, means for imparting such intermittent movement to said stock-feeding means, manually-operable means for interrupting the intermittent movement of the stock-feeding means to prevent advancement of the stock, and means for releasing the feed mechanism from engagement with the stock.

15. In feed mechanism of the class described, the combination with stock-feeding means, of a rocking support therefor, a yieldable mounting for said support adapted to permit bodily movement thereof, means for actuating said rocking support to effect engagement of the feeding means with the stock, and means for preventing engagement of the feeding means with the stock.

16. In feed mechanism of the class described, the combination with stock-feeding means, of a rocking support therefor, a yieldable mounting for said support adapted to permit bodily movement thereof, means for actuating said rocking support to effect engagement of the feeding means with the stock, means for preventing engagement of the feeding means with the stock, and means acting in opposition to the means for rocking the support to effect engagement of the feeding means with the stock, whereby to release the feeding means from such engagement.

17. In feed mechanism of the class described, the combination with stock-feeding means, of a rocking support therefor, a yieldable mounting for said support adapted to permit bodily movement thereof, means for actuating said rocking support to effect engagement of the feeding means with the stock, a manually-operable device for preventing engagement of the feeding means with the stock, and a means acting in opposition to the means for rocking the support to effect engagement of the feeding means with the stock, whereby to release the feeding means from such engagement.

18. In feed mechanism of the class described, the combination with a stock support, of stock-feeding means mounted for rocking movement towards and away from said stock support to clamp the stock therebetween and to advance the same when so clamped, means for moving the stock feeding means towards said support, and spring actuated means for moving the stock feeding means away from said support when the predetermined length of the stock has been fed.

19. In feed mechanism of the class described, the combination with a stock support, of stock-feeding means mounted for rocking movement towards and away from said stock support to clamp the stock therebetween and to advance the same when so clamped, means for moving the stock feeding means towards said support, and a spring pressed plunger cooperating with the stock feeding means for moving the latter away from said support when the predetermined length of the stock has been fed.

20. In feed mechanism of the class described, the combination with a stock support, of stock-feeding means mounted for rocking movement towards said stock support to clamp the stock therebetween and to advance the same when so clamped, a cam wheel cooperating with the stock feeding means for moving the same towards said support, and a spring pressed plunger also cooperating with the stock feeding means for moving the latter away from said support when the predetermined length of the stock has been fed.

21. In feed mechanism of the class described, the combination with a stock-feeding roll, of a rocking support for said roll, a stock-supporting roll adapted for cooperation with said feeding roll for advancing the stock, means acting on said rocking support to swing the feeding roll into engagement with the stock supported by the supporting roll, and oppositely acting means for actuating the rocking support to swing the feeding roll out of engagement with said stock.

22. In feed mechanism of the class described, the combination with a plurality of stock-supporting rolls, of a plurality of feed rolls arranged in proximity thereto, a rocking support on which said feed rolls are mounted and by which the same are moved into and out of operative relation

with the stock supporting rolls, a cam wheel cooperating with said rocking support for moving the feed rolls into operative relation with the stock supporting rolls, whereby to clamp the stock and advance the same, and means for actuating said rocking support to release the feed rolls from such clamping relation with the stock.

23. In feed mechanism of the class described, the combination with a plurality of stock-supporting rolls, of a plurality of feed rolls arranged in proximity thereto, a rocking support on which said feed rolls are mounted and by which the same are moved into and out of operative relation with the stock supporting rolls, a cam wheel cooperating with said rocking support for moving the feed rolls into operative relation with the stock supporting rolls, whereby to clamp the stock and advance the same, means for actuating said rocking support to release the feed rolls from such clamping relation with the stock, and means interposed between the feed rolls and the supporting rolls for limiting movement of the former towards the latter, whereby to interrupt feed of the stock.

24. In feed mechanism of the class described, the combination with a supporting base, of a supporting frame journaled therein and capable of rocking movement with respect thereto, a plurality of feed roll shafts carried by said frame, feed rolls mounted on said shafts, supporting rolls associated with said base and mounted in proximity to said feed rolls, said supporting rolls being adapted to hold the stock for engagement by the feed rolls, a cam wheel cooperating with said rocking frame to effect engagement of the fed rolls with the stock, and means operating in opposition to the action of said cam wheel for releasing the feed rolls from engagement with the stock when the predetermined length of the stock has been fed.

25. In feed mechanism of the class described, the combination with a supporting base, of a supporting frame journaled therein and capable of rocking movement with respect thereto, a plurality of feed roll shafts carried by said frame, feed rolls mounted on said shafts, supporting rolls associated with said base and mounted in proximity to said feed rolls, said supporting rolls being adapted to hold the stock for engagement by the feed rolls, a cam wheel cooperating with said rocking frame to swing the latter in one direction, whereby to engage the feed rolls with the stock, and a spring-pressed plunger also cooperating with said rocking frame to swing the latter in the opposite direction, whereby to release the feed rolls from engagement with the stock when the predetermined length of the stock has been fed.

26. In feed mechanism of the class described, the combination with a supporting base, of a supporting frame journaled therein and capable of rocking movement with respect thereto, a plurality of feed-roll shafts carried by said frame, feed rolls mounted on said shafts, supporting rolls associated with said base and mounted in proximity to said feed rolls, said supporting rolls being adapted to hold the stock for engagement by the feed rolls, a cam wheel cooperating with said rocking frame to swing the latter in one direction, whereby to engage the feed rolls with the stock, a spring-pressed plunger also cooperating with said rocking frame to swing the latter in the opposite direction, whereby to release the feed rolls from engagement with the stock when the predetermined length of the stock has been fed, and means interposed between the feed rolls and stock-supporting rolls and cooperating with said spring-pressed plunger to lock the feed rolls against movement towards the stock supporting rolls.

27. In a feed mechanism of the class described, the combination with stock-feeding means, a rocking support therefor, means yieldably mounting said support allowing bodily movement of the support, automatic means for rocking the support to effect engagement of the feeding means with the stock, and resilient means for moving the stock-feeding means away from the stock when a predetermined length of the stock has been fed.

In testimony whereof I have hereunto signed my name.

WILLIAM LOWERY.