

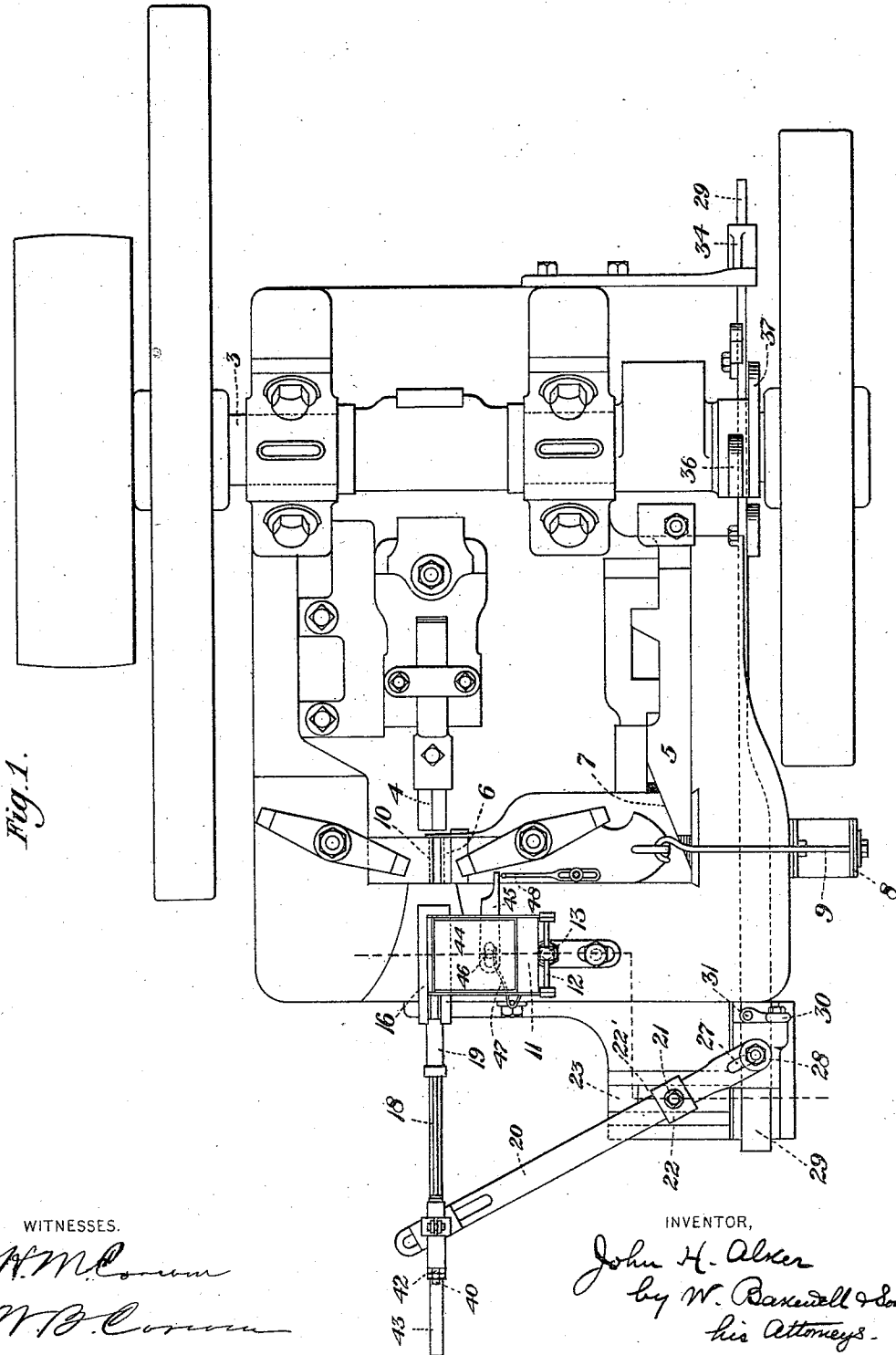
(No Model.)

5 Sheets—Sheet 1.

J. H. ALKER.
BOLT HEADING MACHINE.

No. 530,076.

Patented Dec. 4, 1894.



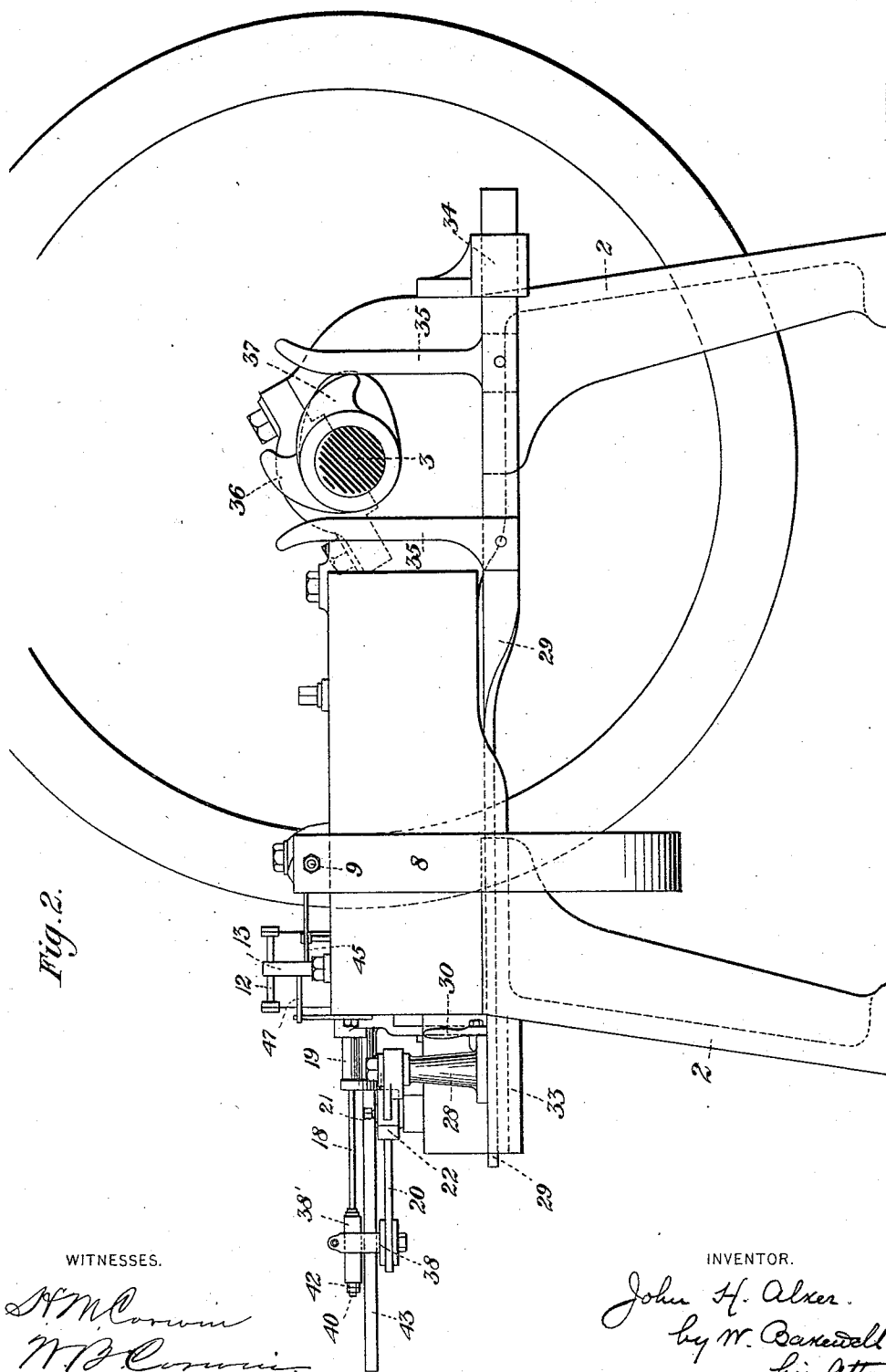
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J. H. ALKER.
BOLT HEADING MACHINE.

No. 530,076.

Patented Dec. 4, 1894.



WITNESSES.

W. M. Corwin
W. J. Corwin

INVENTOR.

John H. Alker.
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his Attorneys.

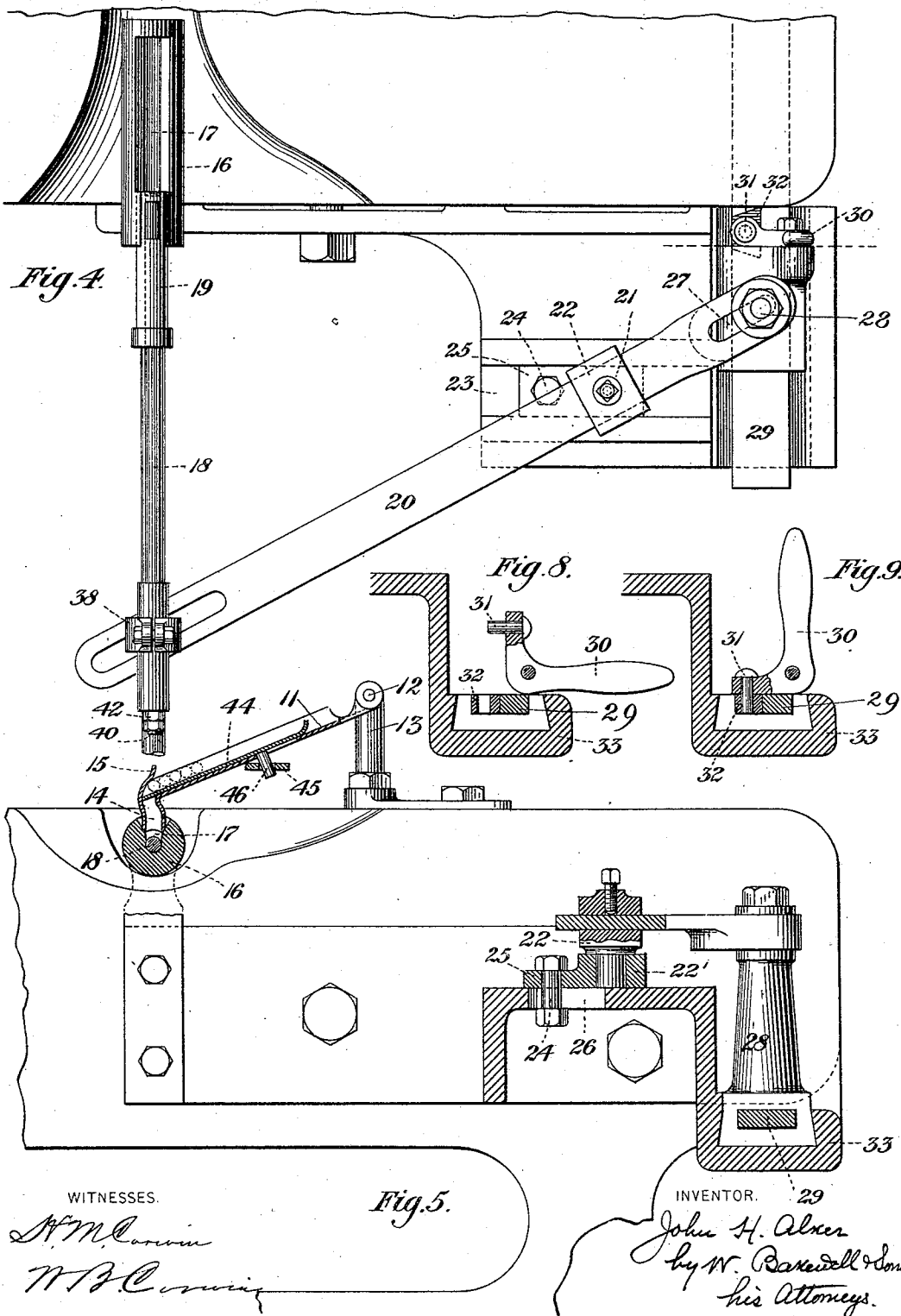
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5 Sheets—Sheet 5.

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Fig. 10.

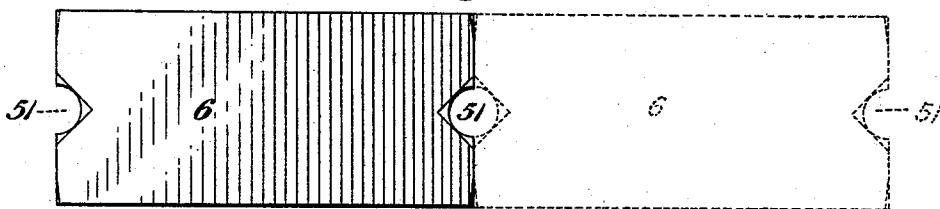


Fig. 11.

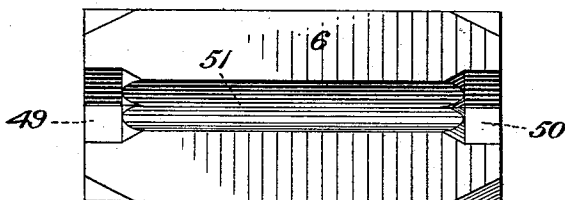
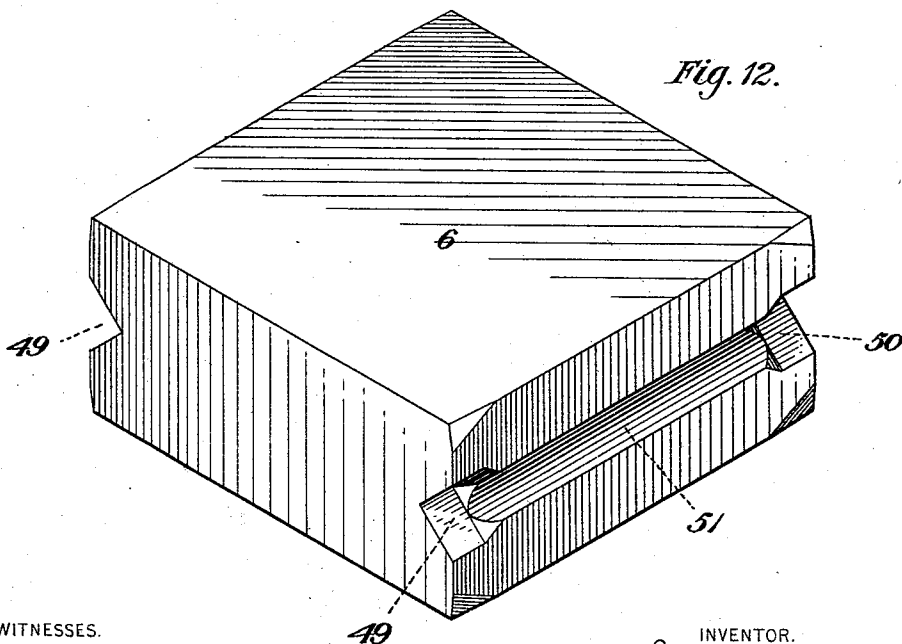


Fig. 12.



WITNESSES.

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UNITED STATES PATENT OFFICE.

JOHN H. ALKER, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE OLIVER
IRON AND STEEL COMPANY, OF SAME PLACE.

BOLT-HEADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 530,076, dated December 4, 1894.

Application filed December 29, 1891. Serial No. 416,466. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. ALKER, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Bolt-Heading Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

10 Figure 1 is a top plan view of my improved machine. Fig. 2 is a side elevation of the same. Fig. 3 is a front elevation. Figs. 4 and 5 are enlarged plan and cross-sectional views, respectively, of the feeding mechanism, Fig. 15 5 being on the line V—V of Fig. 2. Figs. 6 and 7 are enlarged longitudinal sectional views of the feeding rod and attachments. Figs. 8 and 9 are detail views of the fastening device for the lever arm, in open and locked 20 positions respectively; and Figs. 10, 11 and 12 are detail views of the dies employed.

Like symbols of reference indicate like parts in each of the views.

My invention relates to that class of bolt-heading machines wherein the blank is held 25 between reciprocating dies while a hammer strikes its projecting portion and heads up the same, and it consists in an improved feeding device for feeding the blanks to the machine and forcing them forward the proper 30 distance, as well as in the improved construction and arrangement of the parts as herein-after more fully described and set forth in the claims.

35 In the drawings, 2, 2, are the end supports, upon which rests the usual frame in which is mounted the shaft 3, which carries a suitable cam for actuating the heading-die 4, which heading-die moves in guideways and is provided with a suitable strap surrounding the 40 cam. Upon this shaft is also mounted a second cam which actuates the wedge-piece 5, which serves to reciprocate the movable clamping-die 6, having the corresponding 45 wedge-face 7. This movable die is normally held retracted by the flat spring 8, connected thereto by a rod 9. 10 is the stationary die,—these dies having suitable registering grooves which serve to clamp the bolt therein when 50 the dies are closed.

Mounted upon the front end of the machine

is the hopper or inclined bed 11, in which the blanks are placed so that they lie closely one against the other and crosswise of the flat bottom of the hopper. The higher end of this 55 hopper is supported upon a rod 12, which passes through the adjustably-secured vertical post 13, and to the ends of which the side pieces of the hopper are pivoted. The lower end of the hopper terminates in a vertical 60 case or guide 14, the outer side of which has an upwardly-projecting lip 15, which prevents the blanks from leaving the hopper. It will be noticed that the sides of this case are correspondingly bent in concave and convex 65 form, respectively. This is to prevent the canting and sticking of the blank which would occur if the blank fell into the groove. By forming this slot or inclined guideway the blank rolls downwardly and is preserved in 70 parallelism so that no sticking can occur.

The lower portion of the case 14 terminates in a casting 16, having a slot or groove 17, in which reciprocates the feeding-rod 18. In the outer portion 19 of this casting the groove becomes a hole passing through the casting. 75

The feeding rod is actuated by means of the lever 20 pivoted at 21 to the block 22, which is pivoted in a perforated piece 22', adjustably held in the groove 23 of the base by a 80 bolt 24 passing through a flange 25 upon the piece and a slot 26 in the base. The outer end of this lever 20 is slotted at 27, and in this slot moves the post 28 which is carried upon a reciprocating bar 29. The connection 85 of the post to this bar is shown in Figs. 8 and 9. The bar 29 passes through the post, and secured to a flange of the post is the pivoted bell-crank lever 30 bearing upon one arm the rivet or pin 31, the other arm being in the form of a handle. The bar is provided with 90 a steel bushing 32, into which the pin is thrust when the parts are locked together. By this means, whenever for any cause a sudden strain is brought upon the machine, this rivet 95 will be sheared off and prevent breaking of costly parts of the machine. The bar moves in slotted guideways in the casting 33 and in the rear guide 34, and is provided upon opposite sides with the bearing-pieces 35, against 100 which the separate cams 36 and 37 bear. The cam 37 acts to push the bar forward, and as

soon as the outermost point of the cam is passed, the cam 36, bearing upon the other piece 35, retracts the bar. The bar then remains retracted for a short time, when the quick reciprocation is again effected.

In Fig. 7 I illustrate the means for connecting the lever and feed-rod. A clip 38, about the lower part of which the slotted lever passes, is provided with a cylinder 38', having a longitudinal hole 39 in which the rod is carried. A stem 40 upon the rod projects through a small hole in the end of the cylinder, and between the shoulder upon the rod and the inner face of the cylinder bears the spring 41, the amount of compression of the spring being regulated by nuts 42. The clip may be adjusted in various positions upon the cylinder. Through a hole in the clip passes the stationary guide-rod 43, which is secured to the cylindrical casting 16. In the hopper reciprocates the slide 44 actuated by the slotted lever 45, which bears about the post 46 projecting through a slot in the hopper. This lever is normally held so that the slide closes the entrance to the case 14 by a spring 47 bearing against the post, and is actuated against the pressure of the spring by the adjustable tappet 48 upon the reciprocating die 7.

The dies which I employ, as shown in Figs. 10, 11 and 12, have four working recesses in which the head is formed, there being two recesses 49 and 50 at the ends of each groove 51, such groove being formed upon each end of the die. In this way there are four positions in which the die may be used and consequently the life of the die is four times as long as formerly.

The operation is as follows:—The shaft being rotated by suitable power connections the bolts are placed upon the slide in the hopper by an attendant. Upon the forward motion of the reciprocating die the slide 44 is drawn back, allowing a blank to pass in front of the reciprocating feed-rod which is retracted. As the die is retracted the feed-rod pushes the blank forward through the dies a distance which may be regulated by the throw of the lever and presses it against the heading-die which is in forward position, upon which the dies close, and the heading-die, being retracted, moves forward and heads the blank.

The advantages of my invention are obvious. The attendant has merely to place the blanks in the hopper and the headed bolts are ejected from the machine. The parts of the feeder are simple and are operated automatically by the machine, while liability to breakage is obviated by the spring connections and the pin in the lever which is readily sheared off if any sudden strain is brought thereon.

Many changes may be made in the form and arrangement of the parts without departure from my invention, since

What I claim is—

1. A blank-feeder, comprising an inclined bed, of a width corresponding to the length of the blanks, a vertical case at its lower end, a grooved casting beneath the case, and a rod arranged to reciprocate in the groove of said castings; substantially as described.

2. A blank-feeder, comprising an inclined bed, of a width corresponding to the length of the blanks, a rod arranged to reciprocate in the lower part of said feeder, a pin upon the outer end of the rod located in the slot of a lever, and means for actuating said lever; substantially as described.

3. A blank-feeder, comprising an inclined bed or hopper, of a width corresponding to the length of the blanks, a reciprocating rod in the lower part of the feeder, a lever arranged to actuate the rod, and an adjustable fulcrum for said lever; substantially as described.

4. A blank-feeding mechanism comprising an inclined feeder, a reciprocating rod in the lower part thereof, a lever arranged to actuate the rod, a post at the outer end of the lever, and a reciprocating rod passing through the post and secured thereto by a removable pin; substantially as described.

5. As a connection between a lever and its actuating rod, a post upon the lever through which the rod passes, a handle pivoted to the post and carrying a pin, and an aperture in the rod arranged to receive the pin; substantially as described.

6. A blank-feeding mechanism comprising an inclined feeder, a rod arranged to reciprocate in its lower portion, a pin upon the rod about which a slotted lever bears, and an actuating bar having a pin engaging a slot in the other end of the lever; substantially as described.

7. In a blank-feeder, a feeding-rod, a lever having a slot at each end and a movable fulcrum, an actuating rod having a pin entering one of said slots, and a pin upon the feeding-rod engaging the other slot; substantially as described.

8. A blank-feeder, comprising an inclined bed, having a slide therein, and a lower upright case or guide, a lever arranged to actuate said slide, and a tappet upon a movable part and engaging the lever; substantially as described.

9. A blank-feeder, comprising a hopper containing a reciprocating rod, a lever carrying a perforated post, a stem upon the rod passing through the post, and a spring between the post and rod; substantially as described.

In testimony whereof I have hereunto set my hand this 15th day of December, A. D. 1891.

JOHN H. ALKER.

Witnesses:

R. H. WHITTLESEY,
H. M. CORWIN.