(No Model.)

3 Sheets—Sheet 1.

C. F. ROTH.

NAIL PLATE FEEDER.

No. 368,551. Patented Aug. 16, 1887.

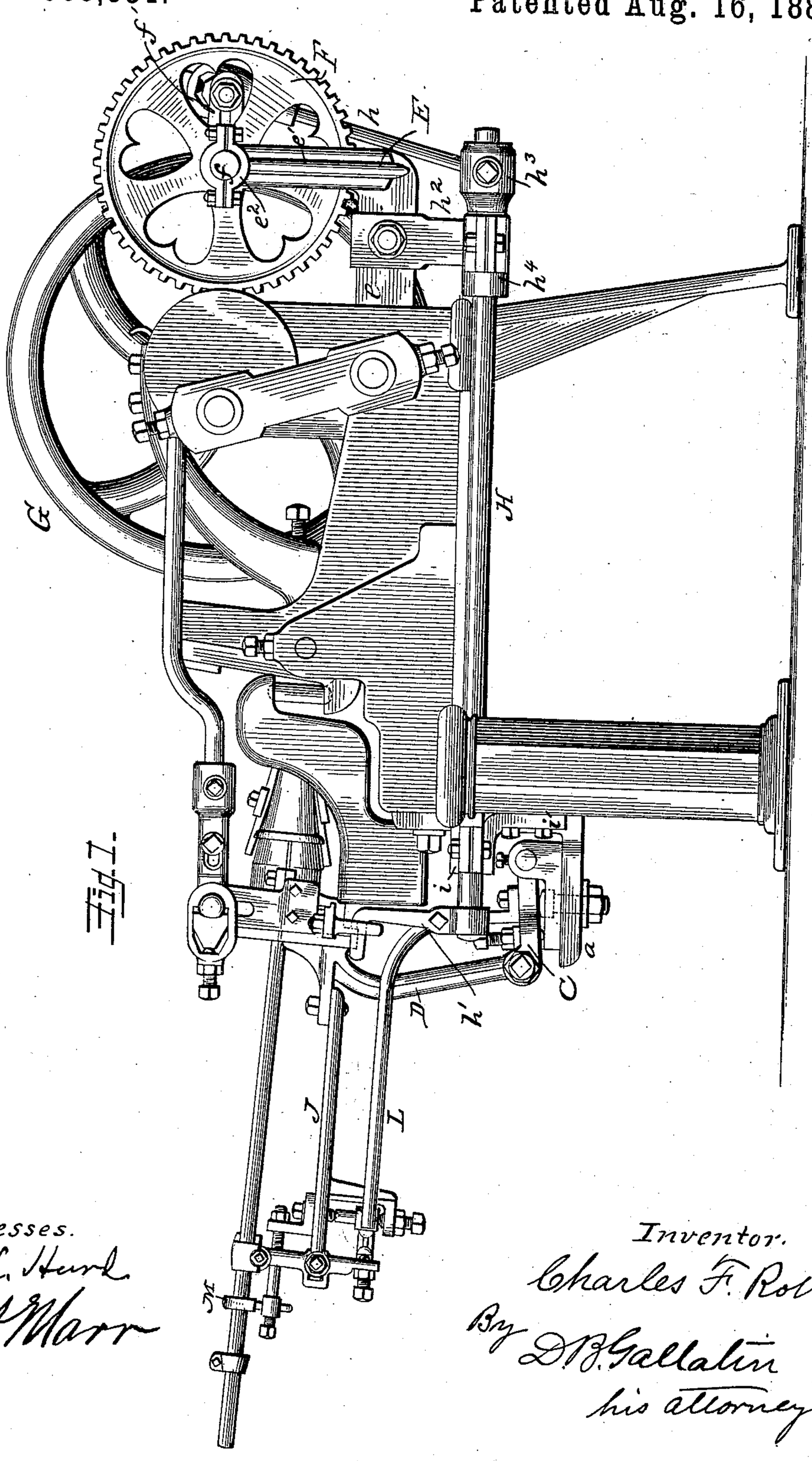

Fig. 1.

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(No Model.)

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Fig. 2.

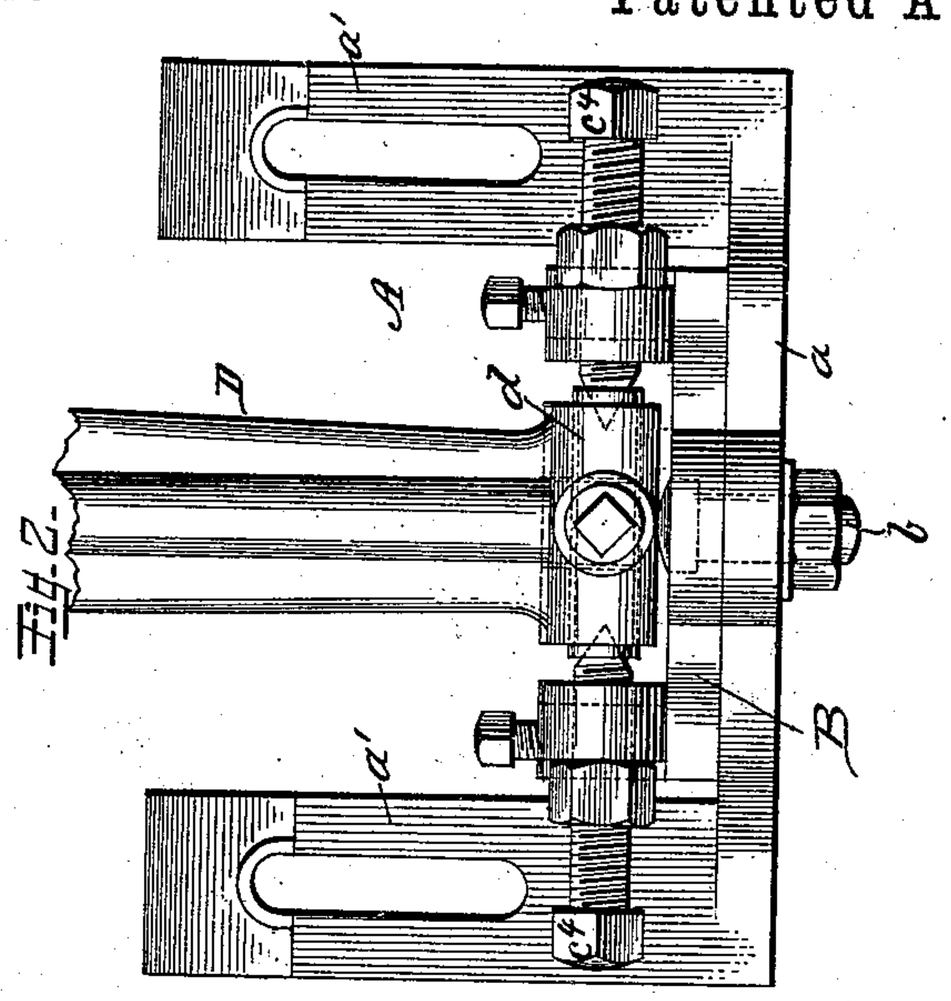
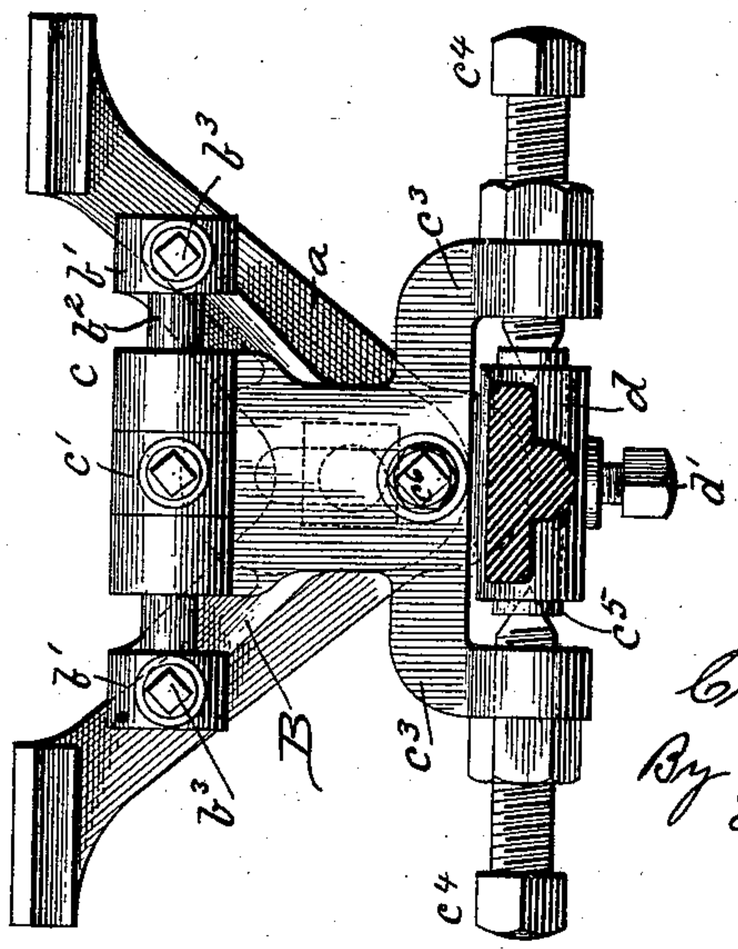


Fig. 3.

Fig. 4.



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3 Sheets—Sheet 3.

C. F. ROTH.

NAIL PLATE FEEDER.

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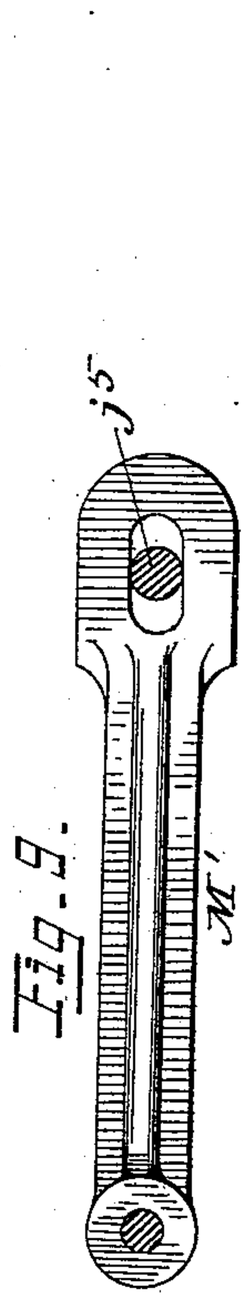
Fig. 9.

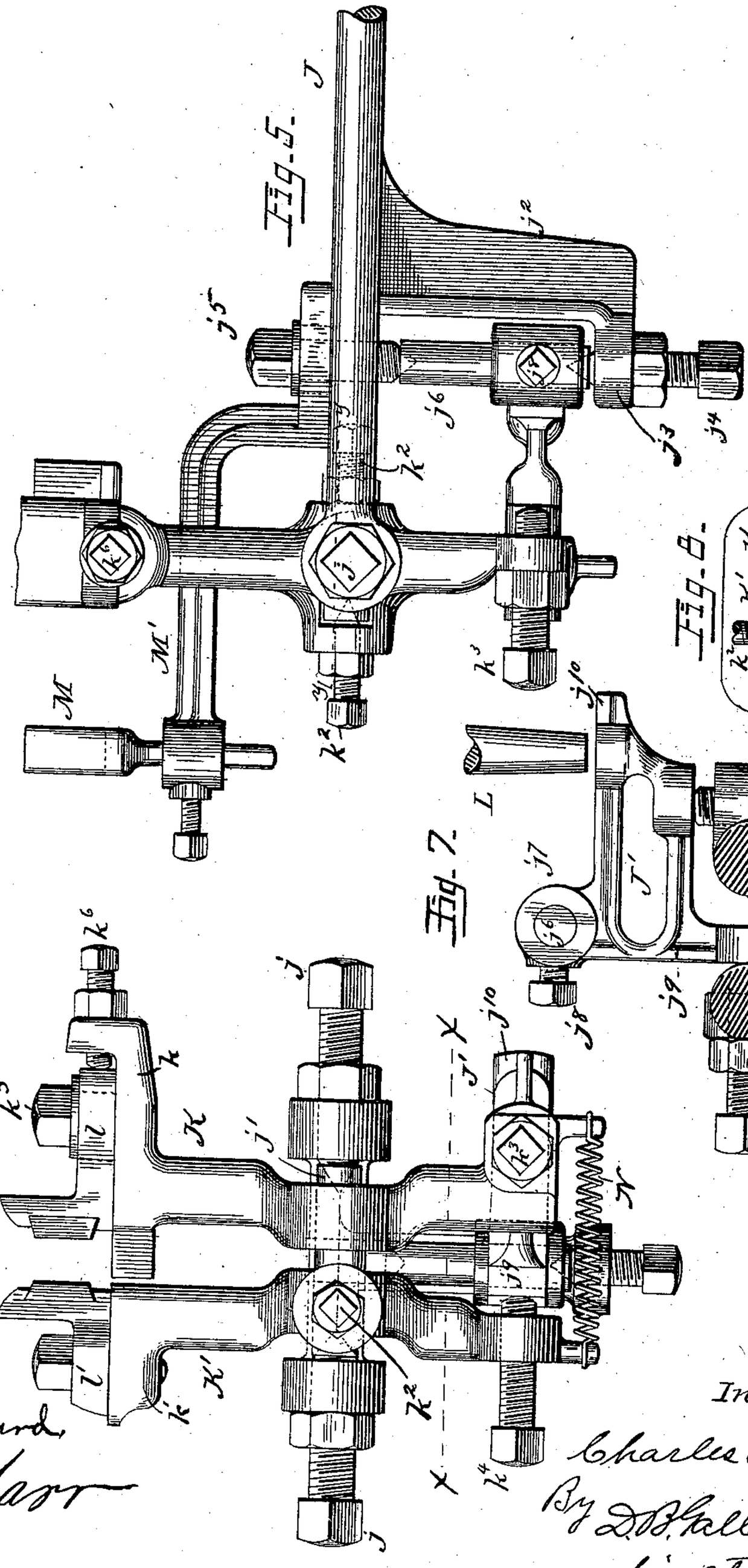
Fig. 5.

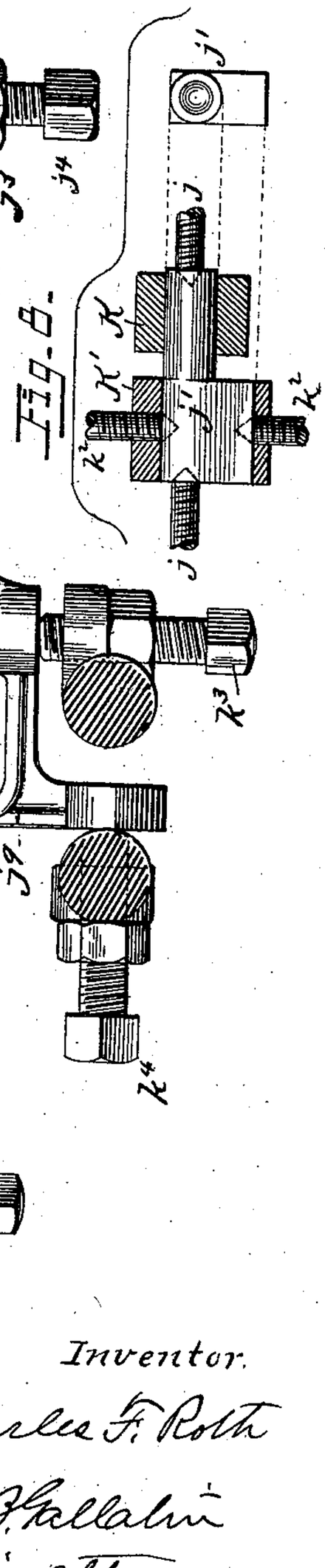
Fig. 8.

Fig. 7.

Fig. 6.

Witnesses.

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UNITED STATES PATENT OFFICE.

CHARLES F. ROTH, OF MIDDLEPORT, OHIO, ASSIGNOR OF ONE-HALF TO JAMES SAMUEL BOGGESS, OF SAME PLACE.

NAIL-PLATE FEEDER.

SPECIFICATION forming part of Letters Patent No. 368,551, dated August 16, 1887.

Application filed April 29, 1887. Serial No. 236,578. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. ROTH, a citizen of the United States, residing at Middleport, in the county of Meigs and State of Ohio, have invented certain new and useful Improvements in Nail-Plate Feeders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates, first, to the means for attaching the feeder to the nail-machine and for adjusting the same, and, second, to the feeding-fork by which the nail-plate is fed along as the nails are cut therefrom; and it consists in the construction, arrangement, and combination of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, which illustrate my invention, Figure 1 represents a side elevation of a nail-machine with my feeder attached; Fig. 2, a front elevation; Fig. 3, a side elevation, and Fig. 4 a plan view, of the bracket, the saddle, and the connection between the latter and the barrel-stock; Fig. 5, a side elevation of the feeding-fork; Fig. 6, a front elevation of the same; and Fig. 7, a horizontal section on the line *x x*, Fig. 6. Fig. 8 is a horizontal section on the line *y y*, Fig. 5; and Fig. 9 is a plan view of the adjustable bracket that supports the fork M.

The nail-machine illustrated in Fig. 1 embodies no part of my invention. It is of the usual type, and, being well known, need not be described.

I will first describe the bracket and saddle and the means for connecting the feeder to the machine.

A designates a bracket, which is attached to the bed of the nail-machine and which supports the feeder. It has an angular horizontal base, *a*, and two vertical slotted arms, *a' a'*, by which it is bolted to the bed of the machine, the slots permitting vertical adjustment.

B designates the saddle, which is mounted on the base of the bracket A, and is secured thereto by a clamping-bolt, *b*, which passes through both these parts, as shown. The bolt *b* passes through a slot in the base *a*, whereby adjustment of the saddle toward and from the machine is permitted, while the swivel-connection formed by the bolt permits the saddle to be turned in a horizontal plane to set the feeder at any desired angle with respect to the machine.

The saddle B has two vertical ears, *b' b'*, at its rear part, which support a transverse rod, b^2, the latter being fixed in said ears by set-screws b^3 b^3.

C designates a connecting-arm by which the barrel-stock is connected with the saddle B. This arm has a barrel, *c*, at one end, through which the rod b^2 passes, forming a hinge-connection between the arm and the saddle. The barrel *c* is cut out centrally to receive a collar, *c'*, which is also mounted on the rod b^2. It carries a set-screw, by which it is fixed to the shaft to hold the parts in laterally-adjusted position. At its outer end the arm C is forked, as represented in Fig. 4. The arms c^3 c^3 of this fork carry pointed screws c^4 c^4, which support between them a short shaft, c^5, upon which is mounted the barrel-stock D, the latter being formed with a sleeve, *d*, at its lower part, through which the shaft c^5 passes. The sleeve *d* is clamped upon the shaft c^5 by a set-screw, *d'*, whereby the wear occasioned by the vibration of the barrel-stock is thrown entirely upon the screws c^4 and shaft c^5, which parts when worn out may be easily and cheaply renewed or replaced. Vertical adjustment of the barrel-stock and barrel is effected by a screw, c^6, which passes through the arm C, and bears upon the saddle B, as shown best in Fig. 3.

E designates a bracket which supports the gear-wheel F at the back of the machine. This bracket has a horizontal arm, *e*, which is bolted to the bed of the nail-machine, and two vertical arms, *e'*, between which the wheel F works, its shaft *f* being supported by boxes e^2 at the upper ends of said arms. This permits the wheel to be located well toward one side of the machine, away from the fly-wheel G, whereby the attendant is afforded more convenient access to this part of the machine for the purpose of oiling and adjusting the parts.

Heretofore the rock-shaft H, through which motion is imparted to the barrel, has usually

been set at an angle to the line of the machine. This is ojectionable for the following reasons, viz.: first, when the parts work at an angle they have a tendency to bind, which causes the machine to run hard, and necessitates the application of greater power than would otherwise be required; second, this binding creates friction, which causes the parts to wear, and injuriously affects the durability of the machine, and, third, the shaft necessarily runs under the machine, where it is in the way of the nails as they drop down. In order to obviate these objections and enable the shaft to be set approximately straight with the machine, I place the crank f' on the farther end of the shaft f, and arrange the arm of shaft H, with which the pitman h connects, to stand in a direction opposite to that from which the view illustrated in Fig. 1 is taken. By this means I bring the end of shaft H around so that the latter stands substantially straight with and at one side of the machine, where it is out of the way of the nails as they drop down from the machine; also, it causes the arm h', by which the rack that oscillates the barrel is reciprocated, to vibrate in a plane corresponding with the line of movement of said rack, whereby friction is reduced and a freer and easier operation is permitted.

The rear end of shaft H is supported by a hanger, h^2, which is adjustable on the arm e of bracket E. The collar h^3, which carries the arm (not shown) with which the pitman h is connected, prevents forward movement of the shaft, and a collar, h^4, on the opposite side of the bearing prevents movement in the opposite direction. The shaft may, however, be adjusted longitudinally either by shifting the collars, which are secured in place by set-screws, or by shifting the hanger h^2 on the arm e. The forward end of the shaft is supported in the bearing formed in or on a transverse bar, i, which rests on brackets i', which are adjustably secured to the machine or to its supports.

I will now describe the feeding-fork.

J designates the supporting-bar, which is bolted to an arm of the barrel-stock, as represented in Fig. 1. Its outer end is forked, and the arms of this fork carry pointed screws $j\ j$, which support between them a short shaft, j', and upon this shaft are mounted the levers K K', which constitute the principal part of the feeding-fork. These levers are shaped substantially as shown in Figs. 5 and 6. They stand vertical and have at their upper ends horizontal arms $k\ k'$, to which removable jaws $l\ l'$ are attached. The rod j' passes centrally through the levers K K', and its axis forms also the axis upon which they vibrate toward and from the machine in the operation of feeding the nail-plate along. The lever K' has a flexible connection, which is formed by pointed screws $k^2\ k^2$, which enter the opening from opposite sides and enter cavities in an enlarged and flattened part of the shaft. These screws form the center upon which the lever K' vibrates toward and from the lever K to open and close the jaws $l\ l'$, the opening through the lever K being large enough to permit such vibration.

j^2 is a bracket formed on the under side of bar J. This bracket has a horizontal arm, j^3, which carries an upwardly-projecting screw, j^4.

In the bar J, vertically above the screw j^4, is a pointed screw, j^5, and between these screws and supported thereby is a short vertical shaft, j^6. This shaft carries an angular or bell-crank lever, J', which has at its angle a hub, j^7, through which said shaft passes. The lever is adjustable vertically on the shaft, and is secured in adjusted position by a set-screw, j^8. Its arm j^9 projects between the lower ends of the two levers K K', and its other arm, j^{10}, projects laterally. (See Fig. 7.) L is the push-rod, which is secured to the arm C, its front end standing in the path of the arm j^{10} of the lever J', so as to arrest and turn the latter when the parts are moved forward in the operation of feeding. As soon as the push-rod strikes the arm j^{10}, the lever is turned on, or with the shaft j^6, the first effect of which is that the arm j^9 strikes and vibrates the lever K' and causes its jaw l' to close toward the opposite jaw, l, and grasp the nipper-rod, (not shown,) which lies between the two. When the nipper-rod is firmly grasped, the arm j^{10} strikes the leg of lever K, whereby the two levers are vibrated together and the nipper-rod and nail-plate are fed along toward the machine. Adjusting-screws $k^3\ k^4$ in the legs of the levers K K' enable the parts to be adjusted so as to properly effect the movements and operations above described. The jaw l is adjustably clamped to the arm k, provision for adjustment being made by a slot in the jaw, (indicated in dotted lines in Fig. 6,) through which the clamping-screw k^5 passes. A screw, k^6, bearing against the outer end of the jaw assists in holding it in adjusted position.

M is a supporting-fork, which supports the nipper-rod in proper position to be acted on by the jaws of the feeding-fork, as usual. This fork is supported by a bracket, M, which is adjustably secured to the bar J by the screw-bolt j^5, as represented in Figs. 5 and 9.

N is a spring, which draws the legs of the levers together and opens the jaws when released by the lever J'.

It is to be observed that by the construction above described all the wear is thrown upon small simple parts, which may be made of steel and hardened, or cast in chill-molds, if preferred, and when worn out may be renewed or replaced at slight expense.

Having thus fully described my invention, I claim as new—

1. The combination, with a nail-machine and with the barrel-stock of a nail-plate feeder, of the triangular bracket adapted to be bolted to the bed of the machine and having a slotted horizontal base, a, the saddle B,

mounted on said base and secured by a clamping-bolt which passes through the slot in the base, and a connection between said saddle and the barrel-stock, whereby the barrel-stock and barrel may be simultaneously adjusted backward or forward and radially, substantially as shown and described.

2. The combination, with the bracket A, adapted to be bolted to the nail-machine and having a horizontal base, of the saddle B, mounted on said base and pivotally connected thereto by a clamping-bolt, and a connection between said saddle and the barrel-stock, whereby the barrel may be set at any desired angle with respect to the machine by a single adjustment, substantially as shown and described.

3. The combination, with the bracket A, adapted to be bolted to the nail-machine, of the saddle B, mounted upon the horizontal base of said bracket and pivotally connected thereto by a clamping-bolt, the barrel-stock and barrel, and a laterally-adjustable connection between said saddle and the barrel-stock, whereby both an angular and a lateral adjustment of the barrel-stock and barrel may be effected, substantially as shown and described.

4. The combination, with the bracket A and saddle B, of the arm C, hinged to the saddle at one end and having a fork at the opposite end, the arms of which fork carry pointed screws c^4 c^4, and the barrel-stock D, the foot of which is supported between said screws, substantially as shown and described.

5. The combination, with the bracket A, saddle B, and hinged arm C, the latter having a fork at one end, the arms of which carry pointed screws c^4 c^4, of the barrel-stock D, having at its foot a sleeve, *d*, and a short transverse rod, c^5, in said sleeve, the rod being secured between said pointed screws, substantially as shown and described.

6. The combination, with a nail-machine, of a forked bracket, E, detachably connected to the back of the machine, the vertical arms of said bracket provided with boxes or bearings, and the gear-wheel F, arranged between said arms and its shaft in said boxes or bearings, and a crank-and-pitman connection between said shaft and the arm of the rock-shaft H, substantially as shown and described.

7. The combination, with a nail-machine, of a bracket, E, bolted to the back thereof, a hanger, h^2, adjustably connected with the horizontal arm of said bracket and having at its lower end a box or bearing, and the rock-shaft H, supported in said bearing, substantially as shown and described.

8. The combination, with a nail-machine and with the rock-shaft of a nail-plate feeder, of the bracket E, secured to the back of the machine and having a horizontal arm, *e*, of a hanger, h^2, supported on said arm and having a bearing for the shaft, and a transverse bar, *i*, supported at the front of the machine and having a bearing for said shaft, substantially as shown and described.

9. The combination, with the fork-levers K K′, provided with grasping-jaws at their upper ends, of the angular lever J′, one of the arms of which operates to close the jaws and the other to vibrate them toward the nail-machine, and a feed-bar, L, to actuate said angular lever, substantially as shown and described.

10. The combination, with the bracket A, saddle B, and adjustable arm C, hinged to the saddle, of the barrel-stock D and feed-bar L, both carried by said arm C, and the feeding-fork supported by an arm of the barrel-stock, whereby the arm C, barrel-stock D, feeding-fork, and feed-bar L are all adjustable together, substantially as shown and described.

In testimony whereof I affix my signature in presence of witnesses.

CHARLES F. ROTH.

Witnesses:
W. L. McMASTER,
P. F. ZEISE,
LEWIS HAAG.