No. 689,721. Patented Dec. 24, 1901.

W. A. HOLLAND.

HOG RINGER.

(Application filed Mar. 27, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

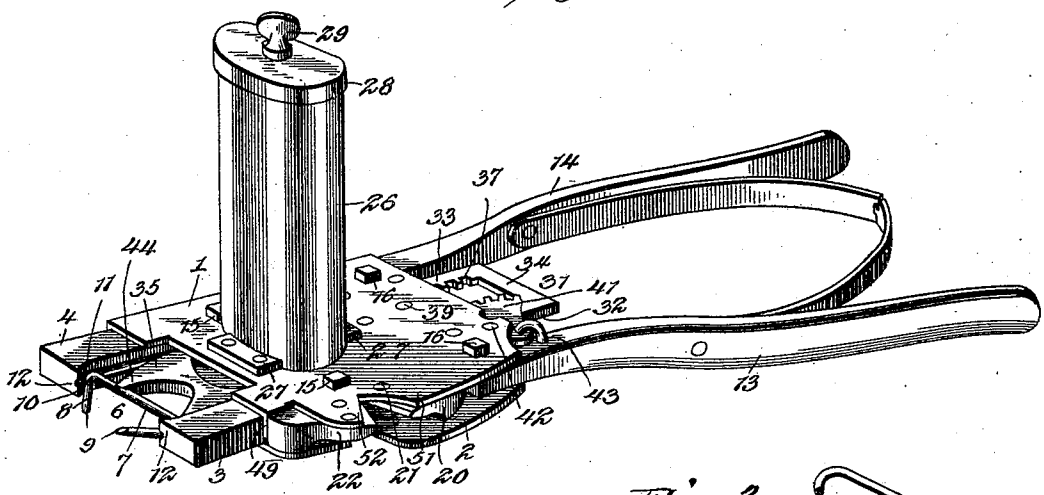


Fig. 3.

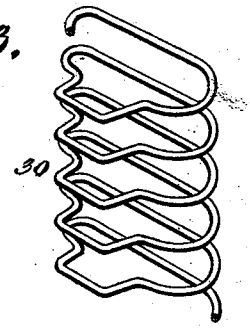


Fig. 2.

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Fig. 4.

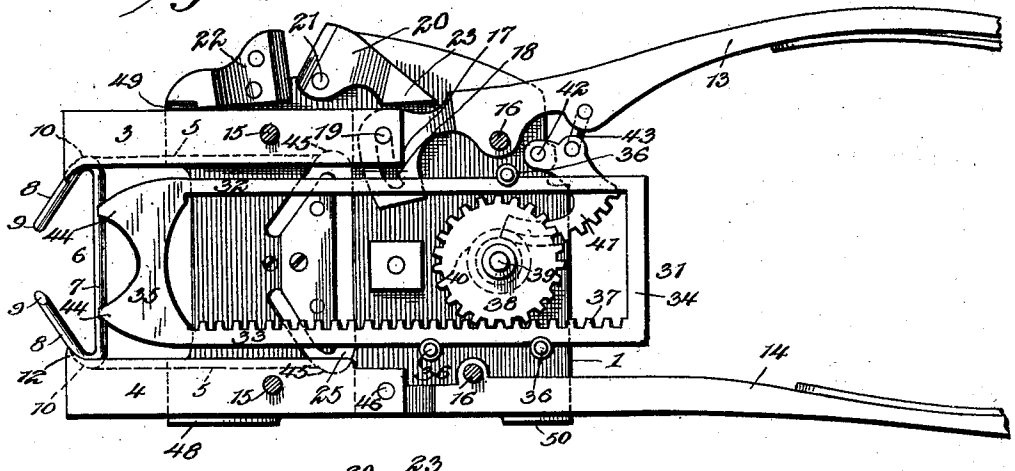


Fig. 5

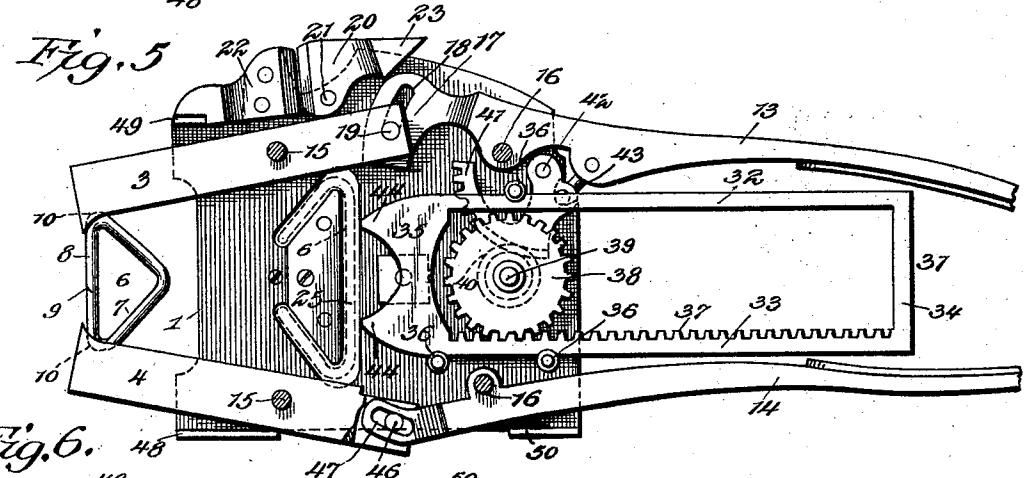


Fig. 6.

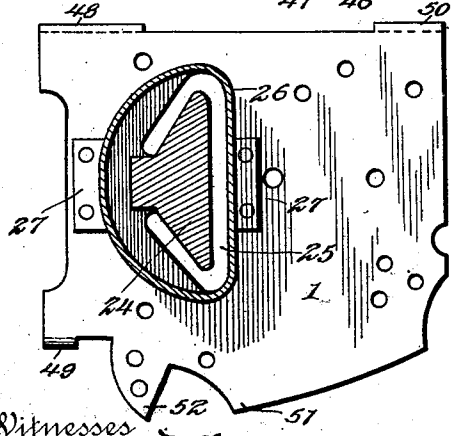
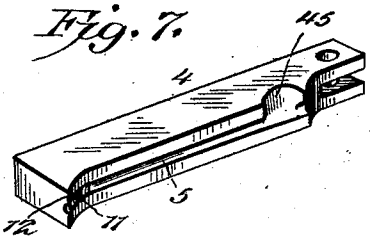


Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM ALBERT HOLLAND, OF LONDON, OHIO, ASSIGNOR OF ONE-FOURTH TO SAMUEL P. WILSON, OF LONDON, OHIO.

HOG-RINGER.

SPECIFICATION forming part of Letters Patent No. 689,721, dated December 24, 1901.

Application filed March 27, 1901. Serial No. 53,119. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ALBERT HOLLAND, a citizen of the United States, residing at London, in the county of Madison and State of Ohio, have invented a new and useful Hog-Ringer, of which the following is a specification.

This invention relates to hog-ringers; and the object in view is to provide a simple, convenient, and reliable implement especially adapted for the use of farmers and ranchmen, shippers, &c., for the purpose of enabling rings to be rapidly applied to hogs and other animals.

The hog-ringing implement contemplated in the present invention comprises a pair of clenching-jaws, together with operating means therefor, and blank-feeding mechanism by means of which the blanks from which the rings are afterward formed are taken and successively fed to the proper point between the clenching-jaws, by means of which the blanks are folded and clenched. The blank-feeding mechanism is operatively associated with the jaw-actuating devices, which are preferably in the form of lever-handles, and one of said lever-handles has a limited movement relatively to the jaw with which it connects for the purpose of enabling the reciprocatory feeder of the feeding mechanism to be partially retracted before the jaws are compressed in the act of clenching the blanks.

The invention also contemplates a novel form and arrangement of blank-magazine whereby the same may be readily refilled and also has reference to the provision of a wire-cutter by means of which an improperly-applied ring may be cut into and removed from the animal preparatory to the application of another ring.

The invention also contemplates means for properly positioning and limiting the movement of the operating-handles and clenching-jaws, together with means for guiding the reciprocatory element of the feeding mechanism.

With the above and other objects in view, the nature of which will appear more fully as the description proceeds, the invention consists in the novel construction, combination, and arrangement of parts, as hereinafter fully described, illustrated in the drawings, and incorporated in the claims hereto appended.

In the accompanying drawings, Figure 1 is a perspective view of a hog-ringer constructed in accordance with the present invention, showing the reciprocatory feeder moved forward in the act of placing a blank between the engaging portions of the clenching-jaws. Fig. 2 is a sectional view taken longitudinally of the magazine and reciprocatory feeder. Fig. 3 is a detail perspective view of the follower-spring. Fig. 4 is a plan view of the implement with the adjacent frame-plate removed to show the arrangement of the interior mechanism, the reciprocatory feeder being shown in its forward or advanced position in the act of placing the blank between the clenching-jaws. Fig. 5 is a similar view showing the feeder retracted and the blank clenched. Fig. 6 is a detail section through the guide-post of the magazine and the casing thereof, showing one of the frame-plates to which the casing is attached. Fig. 7 is a detail perspective view of one of the clenching-jaws.

Similar numerals of reference designate corresponding parts in all the figures of the drawings.

The implement contemplated in this invention comprises, essentially, a frame or casing which is preferably composed of a pair of frame-plates 1 and 2, arranged in parallel relation to each other and at a sufficient distance apart to enable the operative parts of the mechanism to be mounted between the same and to be journaled or otherwise mounted upon pins, bolts, or pivots, the opposite ends of which are received in openings or sockets in said frame-plates.

In carrying out the present invention I employ a pair of clenching-jaws 3 and 4, each of which is provided in its inner edge or surface with a longitudinally-extending guide-groove 5, adapted to be traversed by the blanks of which the rings are formed, one of such blanks being illustrated in Figs. 1 and 4 and the completed or clenched ring being illustrated in Fig. 5, the blank being designated by the numeral 6. The blanks are each formed of a single length of wire, the central portion of which is left straight, or substantially so, as

indicated at 7, and the terminal portions 8 of which are bent at acute angles and provided with reversely-tapered extremities 9, so that when said extremities are brought together into overlapping relation, as shown in Fig. 5, they will form a connection similar to an ordinary spliced joint. The portions of the blank at the junction of the parts 7 and 8 are sufficiently rounded, as shown at 10, to prevent the same from breaking and also to enable such rounded portions to be frictionally and oppositely engaged and held by means of the toothed, serrated, or roughened engaging portions 11 of the outer ends of the jaws, the said teeth or serrations 11 extending transversely of the outer portions of the guide-grooves 5. This feature of the roughening or serrating the engaging portions of the clenching-jaws is best illustrated in Fig. 7, wherein it will also be noticed that each jaw is provided with an inwardly-extending terminal portion which forms a limiting-shoulder 12, adapted to arrest the outward movement of the blanks and to sustain the blanks successively in position to be bent and clenched by the jaws 3 and 4.

The jaw-operating means consists of a pair of lever-handles 13 and 14, connected, respectively, to the jaws 3 and 4 by means of a pin-and-slot engagement. The jaws are fulcrumed intermediate their ends on the fulcrum-pins 15, and the lever-handles are also fulcrumed intermediate their ends on the fulcrum pins or bolts 16. Both sets of pins or bolts 15 or 16 pass through openings in the frame-plates 1 and 2, and thereby in addition to forming the pivots for the jaws and levers they constitute the means whereby the frame-plates are securely connected and held together for inclosing the operating mechanism hereinafter described. One of the lever-handles 13 is provided at its inner end with a transversely-elongated lateral extension 17, which is provided with a slot 18, extending lengthwise thereof, for the reception of a pin 19, which is carried by the inner end of the clenching-jaw 3, the jaw 3 and lever-handle 13 being connected together in this manner in order that a limited amount of movement may be imparted to the lever-handle 13 in either direction without affecting or vibrating the clenching-jaw 3. The object in making this provision is to provide for a certain amount of retraction of the reciprocatory feeder, as will hereinafter more fully appear. Another object in providing for said limited amount of movement of the lever-handle 13 without affecting the jaw 3 is to effect a vibration and operation of a pivotally-mounted cutter 20, which is pivoted at 21 between the frame-plates and which coöperates with a fixed cutter 22, also mounted between the frame-plates and held rigidly. These two cutters, comprising the fixed and pivotal parts, form an efficient wire-cutter by means of which the blanks or rings may be severed whenever occasion arises therefor. The pivoted cutter 20 is provided with a wedge-shaped heel end 23, against which the extension 17 of the lever-handle 13 operates, the said extension 17 being preferably rounded to form, as it were, a cam-surface which operates against the wedge-shaped terminal portion 23 of the pivotal cutter for vibrating the pivoted cutter toward the fixed cutter.

Mounted rigidly upon one of the frame-plates and extending laterally therefrom is a guide-post 24, which may be of any suitable length and which forms a support and guide for the blanks 6 in the manner illustrated in Fig. 2. Said post is secured at its inner end rigidly to the adjacent frame-plate of the implement, and in cross-section it corresponds to the internal shape of the blanks 6, which are slightly larger than the post, so that they may slide freely lengthwise thereof until they pass through a slot or opening 25 in the adjacent frame-plate, which opening corresponds in shape to the blanks. The guide-post 24 is inclosed by a casing 26 (best illustrated in Fig. 6) and within which the blanks move. Said casing is secured at its inner end to the adjacent frame-plate by means of foot-flanges 27 and is provided at its outer end with a flanged closing-cap 28, which fits upon and around the outer extremity of the casing and is held in place by means of a thumb-screw 29 or an equivalent device passing into a socket in the outer end of the guide-post 24. Surrounding the outer end of the post 24 is a follower-spring 30, the coils of which are shaped to correspond to the cross-sectional shape of the guide-post, as shown in Fig. 3. Said spring is adapted to be removed from the casing after detaching the cap 28 for the purpose of replenishing the supply of blanks, and said spring when in place acts to force the blanks inward, so that they will successively pass through the opening or slot 25 into the path of the reciprocatory feeder, which will now be described.

The mechanism for feeding the blanks to their final position between the clenching-jaws embodies a reciprocatory feeder 31, which is preferably in the form of an open rectangular frame comprising parallel side bars 32 and 33, connected at one end by the rear cross-bar 34 and at their opposite or forward ends by a notched feeder-head 35. In order to properly guide and steady the feeder in its reciprocatory movements, guide-rollers 36 are interposed between the frame-plates, which guide-rollers are preferably grooved to receive the side bars of the reciprocatory feeder. One of the side bars of the feeder is provided with teeth 37 and, in fact, constitutes a rack-bar which meshes with the larger member 38 of a double gear wheel or pinion journaled upon a shaft 39, extending between the frame-plates. The other or smaller member 40 of said gear-wheel meshes with and is actuated by a gear-segment 41, which is rotatably mounted upon a pin or bolt 42, connecting the frame-plates of the implement. The gear-

segment 41 is operatively connected with one of the lever-handles by means of a link 43, so that as said lever-handle is vibrated or moved inward and outward rotary action is transmitted to the gear-segment 41, which in turn rotates the double gear-wheel, which is in mesh with the rack-bar portion of the reciprocatory feeder, thereby reciprocating said feeder back and forth in accordance with the direction in which the lever-handle is moved. The head of said reciprocatory feeder when retracted moves to a position in rear of the slot or opening 25 and allows a blank to be forced downward by the action of the spring 30 in front of the feeder-head. The feeder-head comprises the spaced and notched points 44, which at the beginning of the forward movement of the feeder engage the base portion or main bar of the blank and advance the blank toward the points of the clenching-jaws, the rearward position of the feeder being illustrated in Fig. 5 and the forward position thereof being shown in Fig. 4. In order to enable the blanks to enter the grooves 5 of the clenching-jaws, said jaws are provided with the notches or entrance-recesses 45 in the sides thereof adjacent to the discharge end of the magazine and also in line with the corner portions of the slot or opening 25 in the adjacent frame-plate. As the feeder moves back and forth it forms a cut-off for the blanks, which are thereby prevented from entering and passing through the slot 25, so as to get in the way of the feeder. In this manner the blanks are successively fed forward one by one and placed in proper position between the clenching-jaws, and this operation takes place during the act of moving the lever-handles apart or away from each other. Upon moving the lever-handles toward each other the reciprocatory feeder is immediately retracted and is moved backward a considerable distance before the lever-handle 13 begins to operate upon the clenching-jaw 3, which is due to the slotted engagement between the lever-handle 13 and its jaw 3. If desired, the same provision may be made and the same kind of joint used between the other lever-handle 14 and its jaw 4; but this is not necessary, and I therefore have shown the handle 14 and jaw 4 as having a loose pivotal connection consisting of a pin 46, carried by the jaw 4, and a slot 47, formed in the adjoining end of the lever-handle, which form of joint admits of the necessary amount of play between said parts. The lever-handles are normally held outward away from each other by means of a sectional handle-spring 47.

The frame-plates, one or both of them, are provided with corner-flanges 48 and 49 to form jaw-stops for limiting the outward movements of the jaws 3 and 4, and the frame-plates may also be provided with stop-flanges 50 for limiting the outward movements of the lever-handles. One of the frame-plates is also preferably provided with the laterally-extending portions 51 and 52 to form supports for the pivoted and fixed members 20 and 22, respectively, of the wire-cutter.

In operation it is only necessary to vibrate the lever-handles, and in so doing the blanks are automatically fed forward and placed in proper position between the clenching-jaws and clenched in the form of triangular-shaped rings. The implement may be handled quickly, and the rings may be easily and rapidly applied to the animals. The magazine may be constructed to contain any desired number of blanks, and when the blanks have become exhausted the supply may be readily replenished by removing the cap 28 and follower-spring 30.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described the invention, what I claim is—

1. In a hog-ringer, the combination of a pair of clenching-jaws, a reciprocatory blank-feeding mechanism, and a blank-holding magazine disposed intermediate of the clenching-jaws and the blank-feeding mechanism.

2. In a hog-ringer, the combination with a pair of clenching-jaws and operating means therefor, a reciprocatory blank-feeding mechanism operated by the jaw-operating means, and a blank-holding magazine disposed intermediate of the clenching-jaws and the blank-feeding mechanism.

3. In a hog-ringer, the combination with a pair of clenching-jaws, and operating means therefor, of a blank-holding magazine, and a reciprocatory blank-feeder actuated by the jaw-operating means.

4. In a hog-ringer, the combination with a pair of clenching-jaws and operating lever-handles therefor, of a blank-holding magazine, a reciprocatory blank-feeder comprising a rack, and rack-actuating gearing operated by one of the lever-handles.

5. In a hog-ringer, the combination with a pair of clenching-jaws, and lever-handles therefor, of a blank-magazine, a reciprocatory blank-feeder, and feeder-operating means comprising the rack and gear-segment, the latter being actuated by one of the lever-handles.

6. In a hog-ringer, the combination with a pair of clenching-jaws, and lever-handles therefor, of a blank-magazine, a reciprocatory blank-feeder, and feeder-operating means comprising a rack-bar and a gear-segment, the latter having a linked connection with one of the lever-handles.

7. In a hog-ringer, the combination with a pair of clenching-jaws and operating means therefor, of a blank-holding magazine, a re-

ciprocatory blank-feeder actuated by the jaw-operating means, and guide-rollers for said feeder.

8. In a hog-ringer, the combination with a pair of clenching-jaws and lever-handles therefor, of a blank-magazine, a reciprocatory blank-feeder, and feeder-operating means comprising a rack-bar, a gear-segment operated by one of the handles, and a gear-wheel interposed between the rack and segment.

9. In a hog-ringer, the combination with a pair of clenching-jaws, and lever-handles therefor, of a blank-magazine, a reciprocatory blank-feeder and feeder-operating means comprising a rack, a gear-segment actuated by one of the lever-handles, and a double gear-wheel comprising gear elements of different sizes, respectively, in mesh with the gear-segment and rack.

10. In a hog-ringer, the combination with a pair of clenching-jaws and operating means therefor, of a blank-holding magazine and a reciprocatory blank-feeder actuated by the jaw-operating means and comprising a notched head.

11. In a hog-ringer, the combination with a pair of clenching-jaws and lever-handles therefor, of a blank-magazine, a reciprocatory blank-feeder, and feeder-operating means connected with one of the lever-handles, the feeder comprising a pair of notched blank-engaging points spaced apart, substantially as and for the purpose specified.

12. In a hog-ringer, clenching-jaws and blank-feeding mechanism coacting therewith, in combination with handles, one of which has a limited movement independent of one of the jaws, and blank-feeding actuating mechanism carried by the said handle, the limited independent movement of the said handle permitting the blank-feeding mechanism to be partially retracted before the clenching-jaws operate.

13. In a hog-ringer, clenching-jaws, and blank-feeding mechanism coacting therewith, in combination with handles one of which has a slot-and-pin connection with the adjacent jaw to permit the handle to have a limited movement independent of the said jaw, and blank-feeding actuating mechanism carried by the said handle.

14. In a hog-ringer, the combination with reciprocatory blank-feeding mechanism, of clenching-jaws provided with longitudinal guide-grooves for the blanks, and means for operating said jaws.

15. In a hog-ringer, the combination with blank-feeding mechanism, of clenching-jaws provided with longitudinal guide-grooves for the blanks and also provided with entrance-recesses leading to said grooves, and means for operating said jaws.

16. In a hog-ringer, the combination with reciprocatory blank-feeding mechanism, of clenching-jaws provided with longitudinal guide-grooves for the blanks, the said jaws terminating in limiting-shoulders, and means for operating said jaws.

17. In a hog-ringer, the combination with reciprocatory blank-feeding mechanism, of clenching-jaws provided with longitudinal guide-grooves for the blanks, the jaws terminating in serrated limiting-shoulders, and means for operating said jaws.

18. In a hog-ringer, the combination with reciprocatory blank-feeding mechanism and clenching-jaws, of a magazine comprising a guide-post, a surrounding casing, a removable follower-spring surrounding the post within the casing, and a detachable cap for the casing.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM ALBERT HOLLAND.

Witnesses:
R. W. BOYD,
JAMES WITHROW.