Jan. 23, 1951

H. W. MILLER

2,539,313

HOG RINGER MECHANISM

Filed Oct. 21, 1948

4 Sheets-Sheet 1

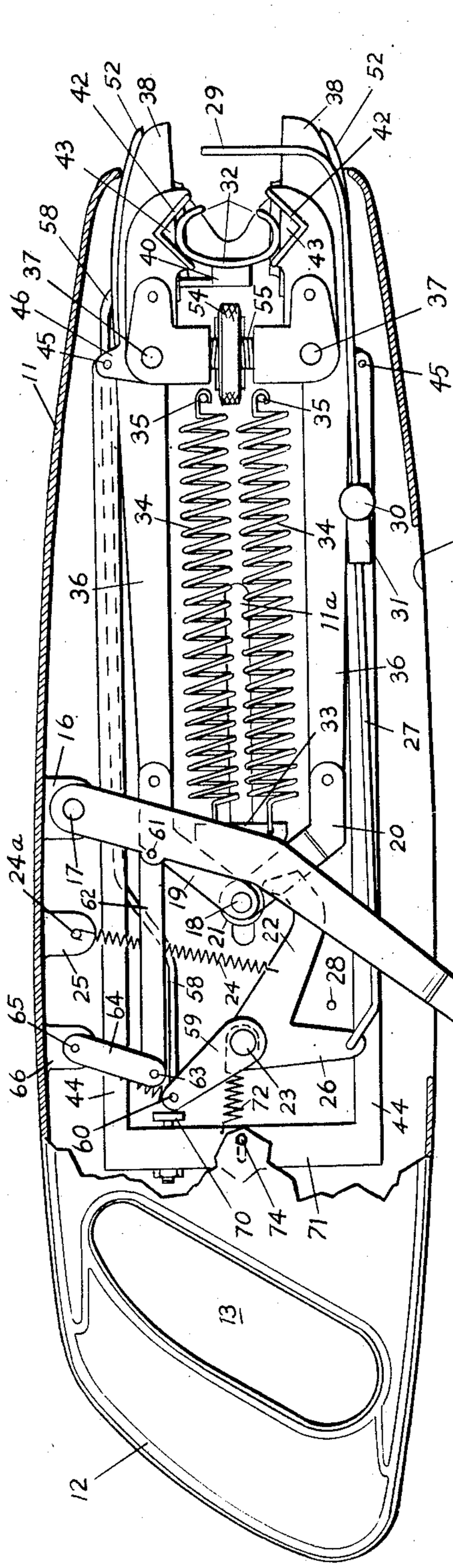

Fig. 1

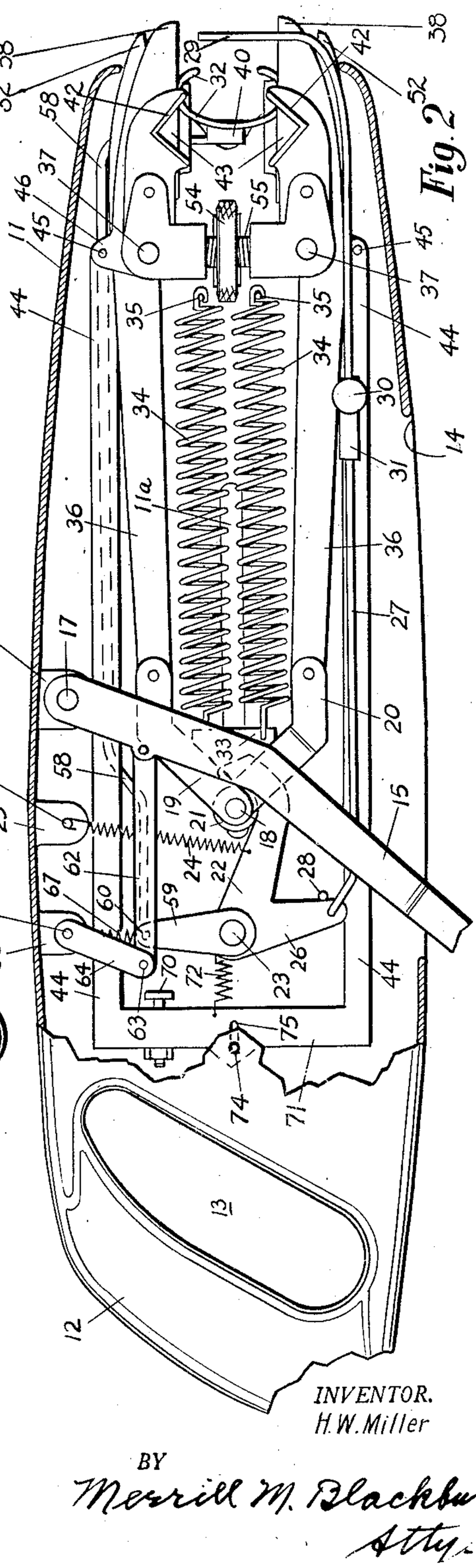

Fig. 2

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4 Sheets-Sheet 2

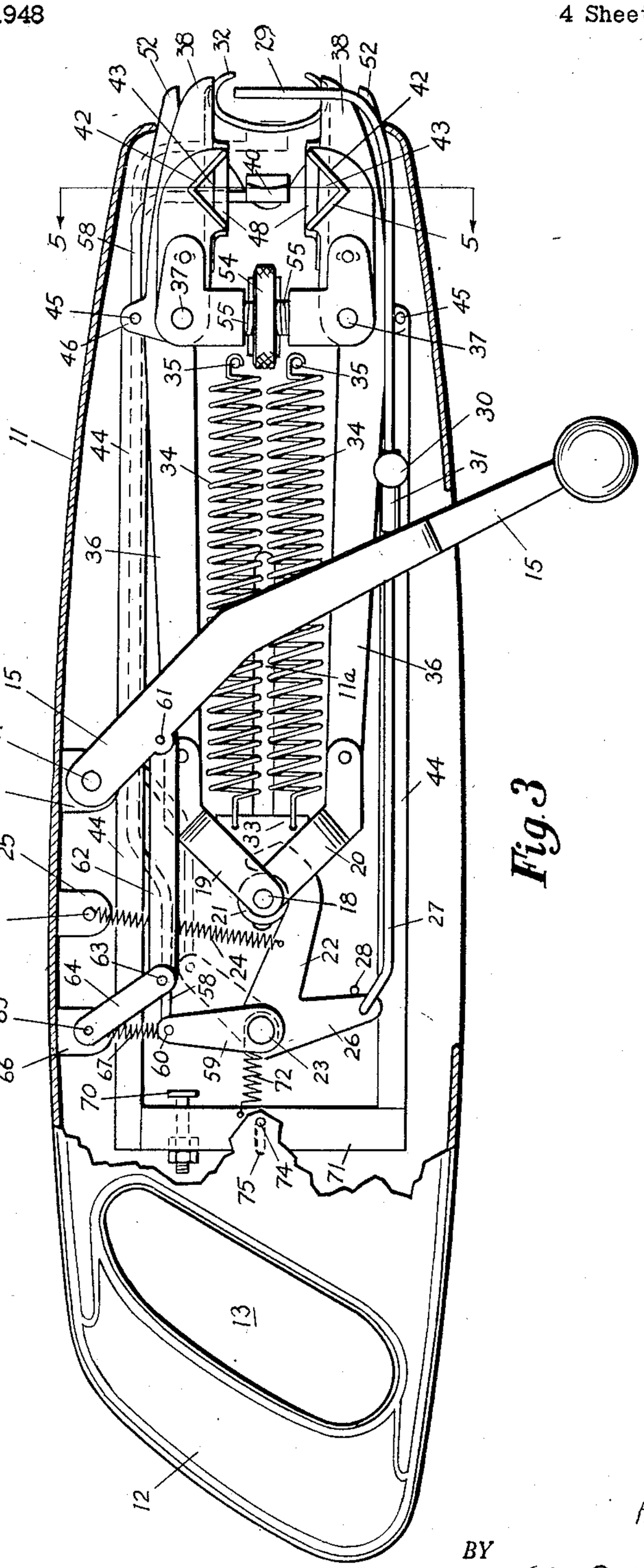

Fig. 3

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HOG RINGER MECHANISM

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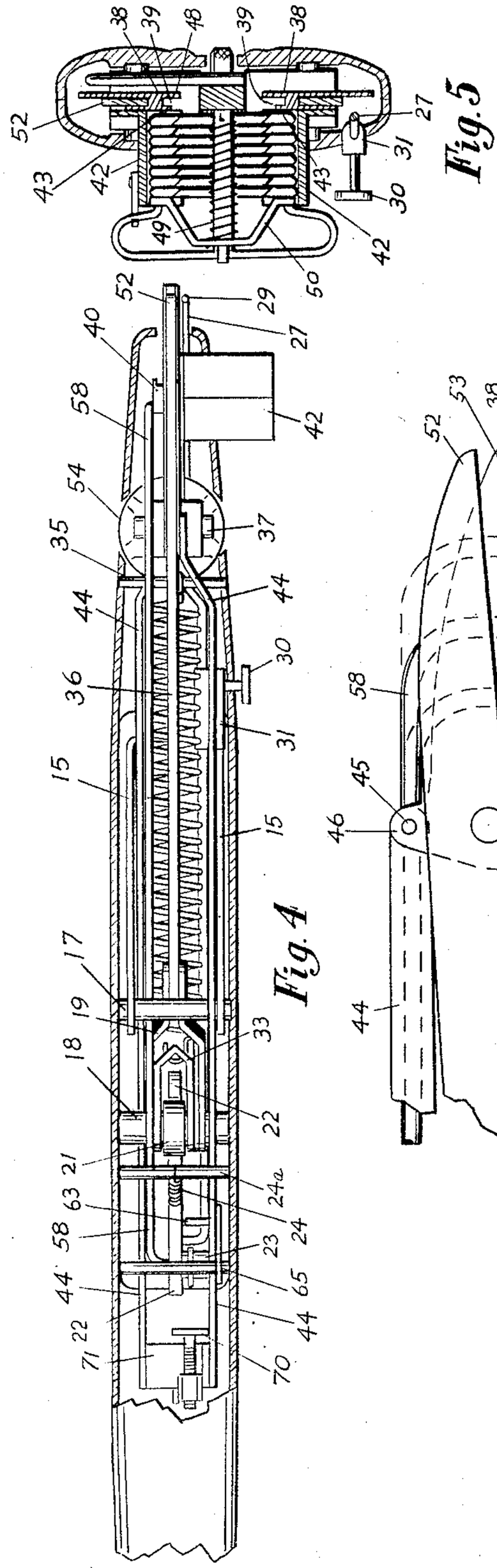

Fig. 4

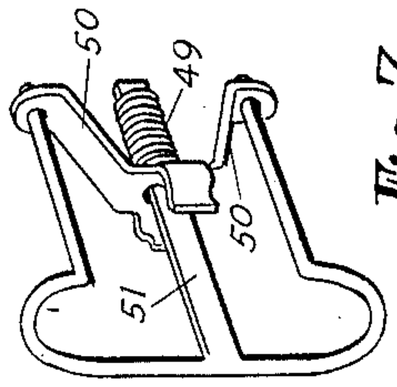

Fig. 7

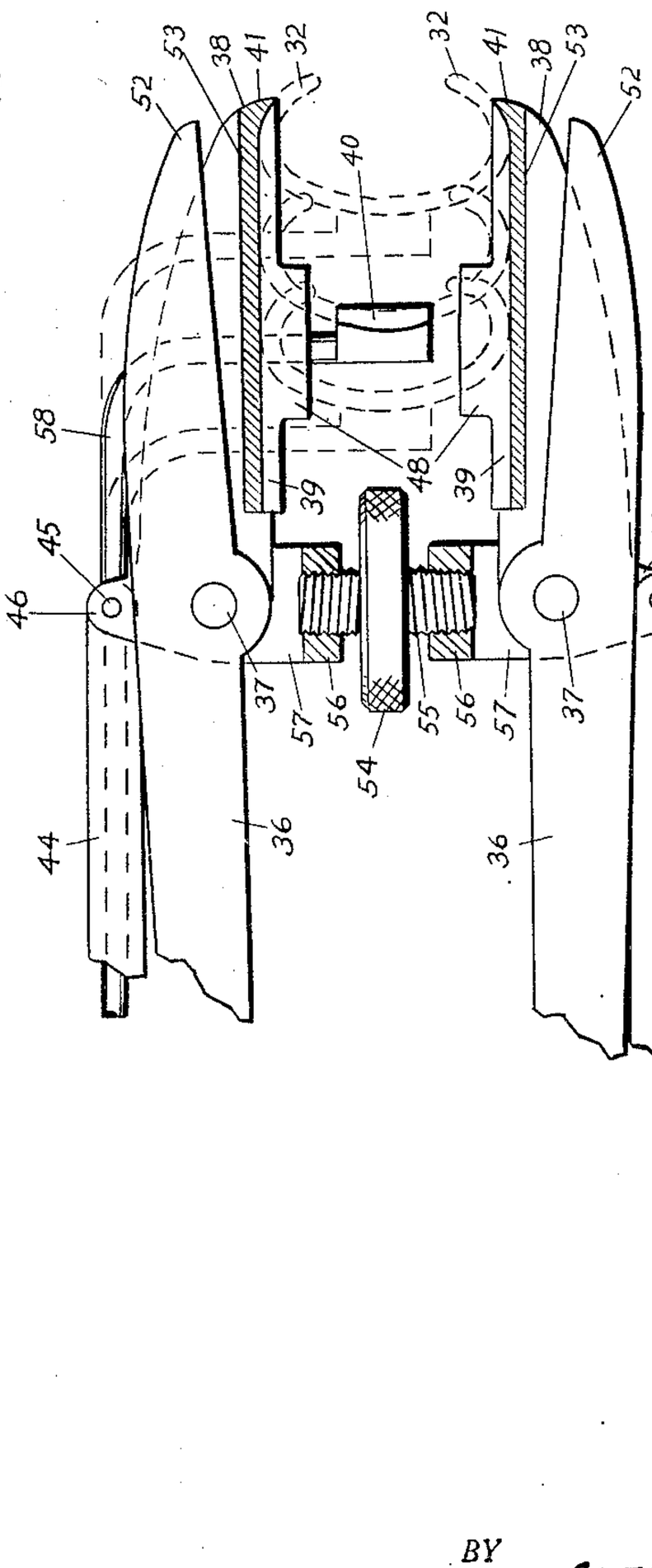

Fig. 6

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HOG RINGER MECHANISM

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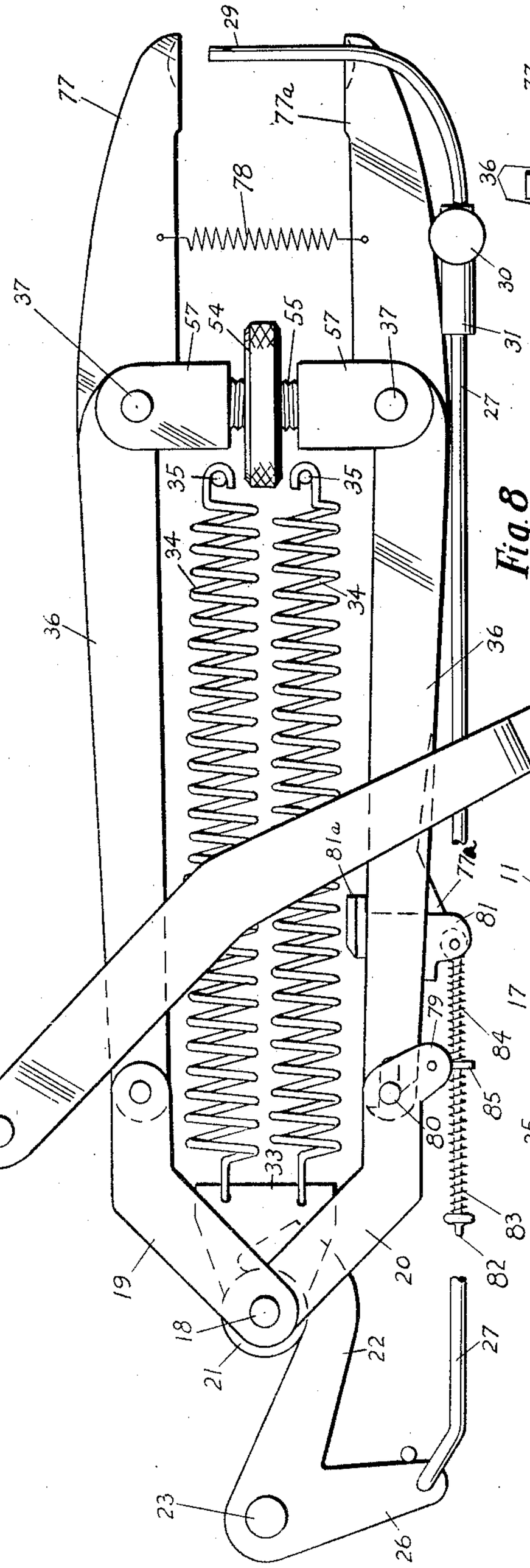

Fig. 8

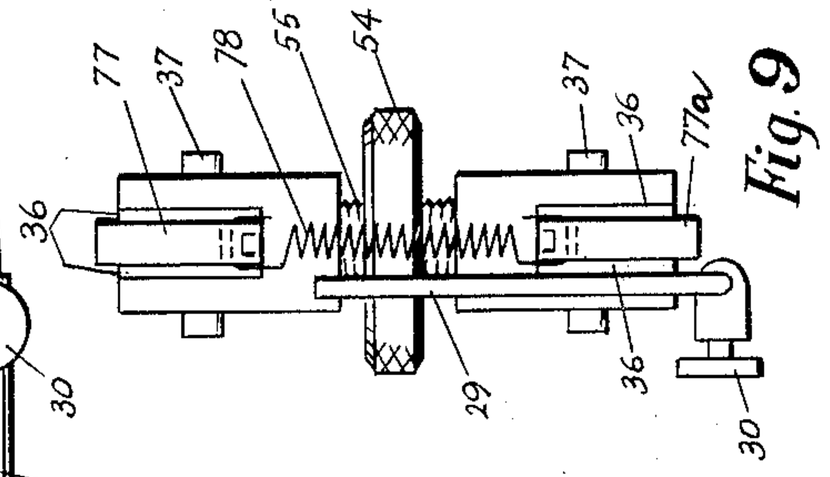

Fig. 9

Fig. 10

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Patented Jan. 23, 1951 2,539,313

UNITED STATES PATENT OFFICE

2,539,313

HOG RINGER MECHANISM

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Application October 21, 1948, Serial No. 55,758

11 Claims. (Cl. 128—332)

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My present invention relates to hog ringers of the general type disclosed in the application of Sylvester P. Callaway, Serial No. 31,153, filed June 4, 1948, now Patent #2,466,928, issued March 3, 1949, and comprises various improvements on the structure disclosed in said application. Among the objects of this invention are the provision of a hog ringer of the general type indicated which will to a greater extent be automatic in its operation than the machine of the application referred to above; the provision of a machine of the type indicated which will, when placed against the nose of a hog, automatically apply a ring to the hog's nose and then open up to release a ring and permit the hog to move away freely from the position occupied by him when the ring is being applied; the provision of a ringer of the type indicated having means for adjusting the size thereof to fit rings of different sizes; and such further objects, advantages, and capabilities as will hereafter appear and as are inherent in the construction disclosed herein. My invention further resides in the combination, construction, and arrangement of parts illustrated in the accompanying drawings and, while I have shown therein what is now regarded as the preferred embodiment of this invention, together with a modification thereof, I desire the same to be understood as illustrative only and not to be interpreted in a limiting sense.

In the drawings annexed hereto and forming a part hereof:

Fig. 1 is a partial side view of a structure in accordance with this invention, part of the casing and the cocking handle being broken away to show the interior construction and to reduce the amount of space required for the drawing;

Fig. 2 is a view similar to Fig. 1, with parts broken away and with the interior mechanism in a different position of adjustment;

Fig. 3 is a view similar to Figs. 1 and 2 with parts of the interior mechanism in different positions of adjustment;

Fig. 4 represents a partial longitudinal section in plan view showing the relationship of the parts in the casing;

Fig. 5 represents a transverse section substantially along the plane indicated by the line 5—5, Fig. 3, with a charge of rings in the magazine and the ring feeder in place;

Fig. 6 is an enlarged sectional elevation of the forward part of the ringer with a ring shown in broken lines in three positions between the ring-holding jaws;

Fig. 7 is a perspective view of the ring feeder, shown in elevation in Fig. 5;

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Fig. 8 is a side elevation of the operative mechanism of a modified form of construction in which the rings are fed manually and individually to the ring-closing jaws;

Fig. 9 is a front elevation of the structure shown in Fig. 8, and

Fig. 10 is a fragmentary side elevation of the rear portion of the mechanism shown in Fig. 8, the same being shown in a partially perspective position.

As shown in Figs. 1, 2, and 3, a housing 11, which contains the mechanism, has a handle 12 at one end and a finger opening 13 defining the handle. An opening 14 extends along an edge of the housing 11 for the passage of the cocking handle 15. The handle 15 is connected to a lug 16 by a pivot 17.

A pair of pivot posts 37 is mounted in the housing 11 in the forward part thereof. Each post 37 has pivoted thereon a bifurcated member 57, which members are held in adjusted position by a left and right hand thumb screw 54 which is threaded into the connecting web 56 of each of said members 57.

A pair of ring-holding jaws 38 is pivoted, individually, on pivot posts 37. A pair of operating levers 36 is also pivoted, individually, on posts 37. Levers 36 have forward ends 52 which are engageable in channels in jaws 38 for moving the jaws together. The rearward ends of the levers 36 are connected, individually, to toggle arms 19, 20 which are interconnected by pivot 18. Pivot 18 is movable in longitudinal guide slot 11*a* in the housing 11. Pivot 18 carries a roller 21 and a spring connector 33 mounted thereon. Springs 34 engage connector 33 and are anchored on pins 35 near the forward end of the housing. The pivot 18 is engageable by the cocking handle 15 upon rearward movement of the latter, whereby to move the pivot 18 rearwardly.

A hook 22, engageable with the pivot 18 in rearward position thereof, is mounted on post 23 for rotation, and is biased into hooked position by spring 24 anchored on pin 24*a* carried by boss 25 in the housing 11. An arm 26 is fixed for movement with hook 22. A pin 28 is mounted in the housing for engaging arm 26 and thereby limiting movement of hook 22 into hooked position. An operating rod 27 is pivoted to arm 26 and has a sleeve 31 secured at its forward end. A rod 29 is held in adjusted position in sleeve 31 by set screw 30. The rod 29 has its forward end bent laterally to a position between the ring-holding jaws 38.

In operation, when rod 29 is moved rearwardly

by the septum of an animal, the hook 22 releases the pivot 18 for motion by the springs 34. The toggle then moves the jaws 38 together until pivot 18 is between the pivotal connections of arms 19 and 20 and the levers 36. Continued motion of pivot 18 in the slot 11*a* moves the forward ends 52 of the levers 36 apart. This provides immediate release of the ring after closure. The device may then be recocked by rearward motion of the arm 15.

One arm of each bifurcated member 57 is extended forwardly and carries an angular guide 42 for a ring magazine. The guides 42 are facing and the distance between them may be adjusted by thumb screw 54 for carrying various sized rings. As shown in Figs. 5 and 7, a spring follower is employed which comprises a frame 51 having three parallel arms. A follower bar 50 is slidable on the three arms and is biased toward the free ends of the arms by the spring 49 which is secured at its ends to bar 50 at its center and to the free end of the center arm. The spring follower may be held in position between the guides 42 as by hooks illustrated in Fig. 5

To load the magazine, rings are placed between the guides 42. The spring follower is then hooked in position with the follower bar 50 pressing against the rings. The jaws 38, in normal position, close the lower ends of the guides 42 and prevent passage of rings. The facing surfaces of jaws 38 are provided with channels 39 for the reception of rings from the guides 42. The jaws 38 on the sides of the channels 39 away from the guides 42 are provided with extensions 48 to stop rings in the plane of channels 39 when received from the guides 42. The channels 39 are curved toward each other at their forward ends to provide stops 41 to hold a ring in position 32 ready for application.

The following mechanism is provided for opening the jaws 38 and for moving rings in the channels 39 forwardly. A rectangular frame, which comprises the bars 44 and crossbar 71, is slidably mounted in the housing on pin 74 which is received in slot 75 in crossbar 71. The frame is biased to forward position by the tension spring 72 which is connected to the crossbar 71 and to the pivot 23. The forward ends of bars 44 are connected to extensions 46 on the jaws 38 by pivots 45. Rearward motion of the frame opens the jaws 38, thereby to allow passage of one ring onto extensions 48.

A link 62 is connected at one end to handle 15 by pivot 61. The link 62 is connected at its other end to one end of the link 64 by the pivot 63. The link 64 is connected at its other end to a boss 66, integral with the housing 11 by the pivot 65. An arm 59 is mounted on the post 23 for free rotation thereon. The free end of the arm 59 has connected thereto a tension spring 67 which, in turn, is connected to the pivot 65. In normal position, the spring 67 will bias the arm 59 to a position between the post 23 and the pivot 65. From this position, the arm 59 may be moved in either direction. The pivot 63 is extended to the plane of the arm 59 whereby to engage the arm 59 and move it in either direction. An adjustable abutment 70 is mounted in the crossbar 71 for engagement by the arm 59. Rearward movement of the handle 15 moves the pivot 63 rearwardly and, in turn, the arm 59 which, by engaging the abutment, moves the frame rearwardly until the pivot 63 slips past the end of the arm 59. The spring 72 then moves the frame to forward position.

The rod 58 is connected at its rear end to the arm 59 by the pivot 60. The forward end of the rod 58 is turned laterally to a point between the jaws 38 and terminates in a ring-engaging head 40 which is grooved in its front face to receive a ring.

In operation, the rod 29, as shown in Fig. 3, is engaged with the septum of an animal, whereby to move the rod 29 to the rear. This unhooks the toggle and pivots the arms 36 under action of the springs 34. The jaws 38 are closed by the levers 36 and close ring 32 on the septum. Completion of spring operation of the toggle releases the jaws 38, whereby the animal is immediately released.

The handle 15 is then moved rearwardly and engages the pivot 18 and moves it rearwardly, as above described, to cocked position. At the end of this rearward movement, the pivot 63 moves the frame to the rear and opens the jaws 38. Simultaneously, the rod 58 is moved to the rear. With the jaws open and the head 40 to the rear, another ring drops into the jaws. The handle 15 is then moved forward. The pivot 63 then moves the rod 58 forwardly, whereby the ring is moved forwardly. Upon completion of the forward motion of the handle 15, the arm 59 is freed from engagement with the pivot 63. Therefore, the arm 59 returns to normal position. The ringer is then again in loaded operating position.

In the form of Figs. 8 to 10, the upper lever and upper jaw 77 are constructed to move as a unit, although structurally, they may be separate. The lower lever 36 is formed of spaced apart laminae, between which there is mounted a stop 81 for reciprocation. The lower jaw 77*a* extends in both directions from its pivot 37, with the rear arm thereof between the laminae of the lever 36. The stop 81 has a shoulder on its forward side for engaging the rear end of the jaw 77*a* for moving the jaw to closed position. To operate the stop 81, an extension 79 is provided on the toggle arm 20 which supports a pivoted guide 85. A rod 82 has a knob on one end, extends through the guide 85, and is pivoted to the stop 81. Springs 83 and 84 are positioned on the rod 82 on opposite sides of the guide 85. The spring 78 engages both the jaws 77 and the jaw 77*a* to bias the latter toward the former.

This described structure is for use without the magazine and associated parts. With the parts in released position, as shown in Fig. 10, a ring is placed in operating position between the jaws. In this position, the jaw 77*a* is pivoted away from the shoulder 81*a*. The handle 15 is moved to the rear. The shoulder 81*a* moves out so that it passes the end of the jaw 77*a*. Further motion of the handle 15 turns the extension 79 and moves the stop 81 forwardly. When the levers 36 come together, the stop 81 will snap to engaging position over the end of the jaw 77*a*. Upon release of the hook 22, the toggle will move the levers 36 and, therefore, move the jaws 77 and 77*a* together. Upon completion of the movement of the toggle past dead center with the strain released, the spring 83 will move the stop 81 free of the jaw 77*a*. The animal can then unsnap the ring from the jaws.

It is of course understood that the specific description of structure set forth above may be departed from without departing from the spirit of this invention as disclosed in the foregoing specification and as defined by the appended claims.

Having now described my invention, I claim:

1. In a hog ringer having an enclosing casing;

a pair of pivotally mounted ring-closing jaws having their ring-holding ends facing each other and spaced to receive between them rings to be applied to hogs' noses, adjustable means for adjusting the space between the jaws to fit rings of different sizes, said jaws having their non-adjacent faces longitudinally grooved for the reception of the forward ends of a pair of levers, longitudinally extending levers in the casing mounted to turn on the pivots of the jaws and having their forward ends in the grooves of the jaws, the opposite ends of the levers having toggle members mechanically connecting them, and spring means connected to the toggle mechanism to force the ends of the levers apart whereby to force the jaws to close on and compress a ring between the jaws to closed position.

2. In a hog ringer having a casing; a pair of jaw pivots mounted in said casing and supported in sockets in the walls thereof, jaw actuating levers pivoted on said pivots, jaws pivotally mounted on said pivots, the levers serving to close the jaws when actuated, said jaws having grooves in their edges directed away from each other, the jaw-actuating levers being received in said grooves, and mechanism for actuating said levers and jaws into operative positions.

3. A structure as defined by claim 2 in which there is means for adjusting the holding space between the jaws to fit hog rings of different sizes.

4. A hog ringer comprising, in part, a pair of ring-closing jaws pivotally and adjustably connected to adjust them for holding rings of different sizes, said jaws having extensions beyond the pivots, toggle mechanism for actuating said extensions whereby to close and open the jaws, spring means for actuating the toggle mechanism, a latch for holding the spring means extended for actuating the toggle mechanism to exert power upon the ring-closing jaws, and trigger means terminating adjacent the ring-holding ends of the ring-holding jaws and, when pressed, serving to release the latch, whereby to free the toggle mechanism to cause closing of the ring-holding jaws.

5. In a hog ringer, a pair of ring-closing jaws, spacing means for holding the jaws in operating position, means connected with the spacing means to adjust the jaws to different spacings, spring actuated means to act on said jaws and cause closing thereof, latching means to hold the spring-actuated means in operative position, and trigger means for releasing the latching means.

6. In a hog ring having a casing; a pair of jaw pivots mounted in said casing and supported in sockets in the walls thereof, jaw actuating levers pivoted on said pivots, jaws pivotally mounted on said pivots, the levers serving to close the jaws when actuated, said jaws having grooves in their edges directed away from each other, the jaw-actuating levers being received in said grooves, mechanism for actuating said levers and jaws into operative positions, said mechanism for actuating said levers being a toggle means pivoted at the ends thereof to the ends of said levers, and spring means connected to said toggle means to move the toggle from a closed position with the jaws open through a dead center position in which the jaws are closed and to a second

closed position of said toggle means past dead center in which the jaws are released.

7. An animal ringer comprising a pair of jaws mounted for pivotal movement together and apart, jaw-operating levers pivotally mounted for closing said jaws upon movement apart of the ends of said levers remote from said jaws, at least one of said jaws being mounted for motion toward closed position of said jaws independently of the jaw-operating levers, and spring-actuated toggle means pivoted to said lever ends remote from said jaws for moving from a closed toggle position through dead center and to a second closed toggle position, whereby upon such movement the jaws are closed and then released by said remote lever ends being drawn together by said toggle means.

8. An animal ringer comprising a pair of jaw-operating levers, each pivotally mounted so that, upon separation of the operating ends of said levers, the jaw ends of said levers move together, a toggle pivoted individually to the operating ends of said levers, the joint of said toggle being movable from a position at one side of dead center, through dead center, and to a position at the other side of dead center whereby upon complete movement of said toggle in one direction the jaw ends of said levers move together and then apart.

9. An animal ringer as defined in claim 8 in which latch means are provided releasably to hold said toggle in a position away from dead center, and spring means for moving said toggle upon release of said latch means through and past dead center.

10. An animal ringer comprising a pair of jaw-operating levers pivotally mounted, a pair of jaws engageable individually by said levers and movable thereby to closed position upon movement of said levers apart at their ends remote from said jaws, said jaws being movable independently of said levers when said lever ends are together, means independent of said levers for biasing said jaws together, a toggle having its ends pivoted to said remote lever ends, latch means for holding said toggle in one direction away from dead center, spring means for moving said toggle to and past dead center upon release of said latch means, and operating means for returning said toggle to position in which it is held by said latch means.

11. An animal ringer as defined in claim 10 in which a magazine is provided to hold a succession of rings against the sides of said jaws, and means actuated by said operating means for moving said jaws apart when said remote lever ends are together, whereby a ring of said succession is allowed to be fed to a position between said jaws.

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