

No. 664,402.

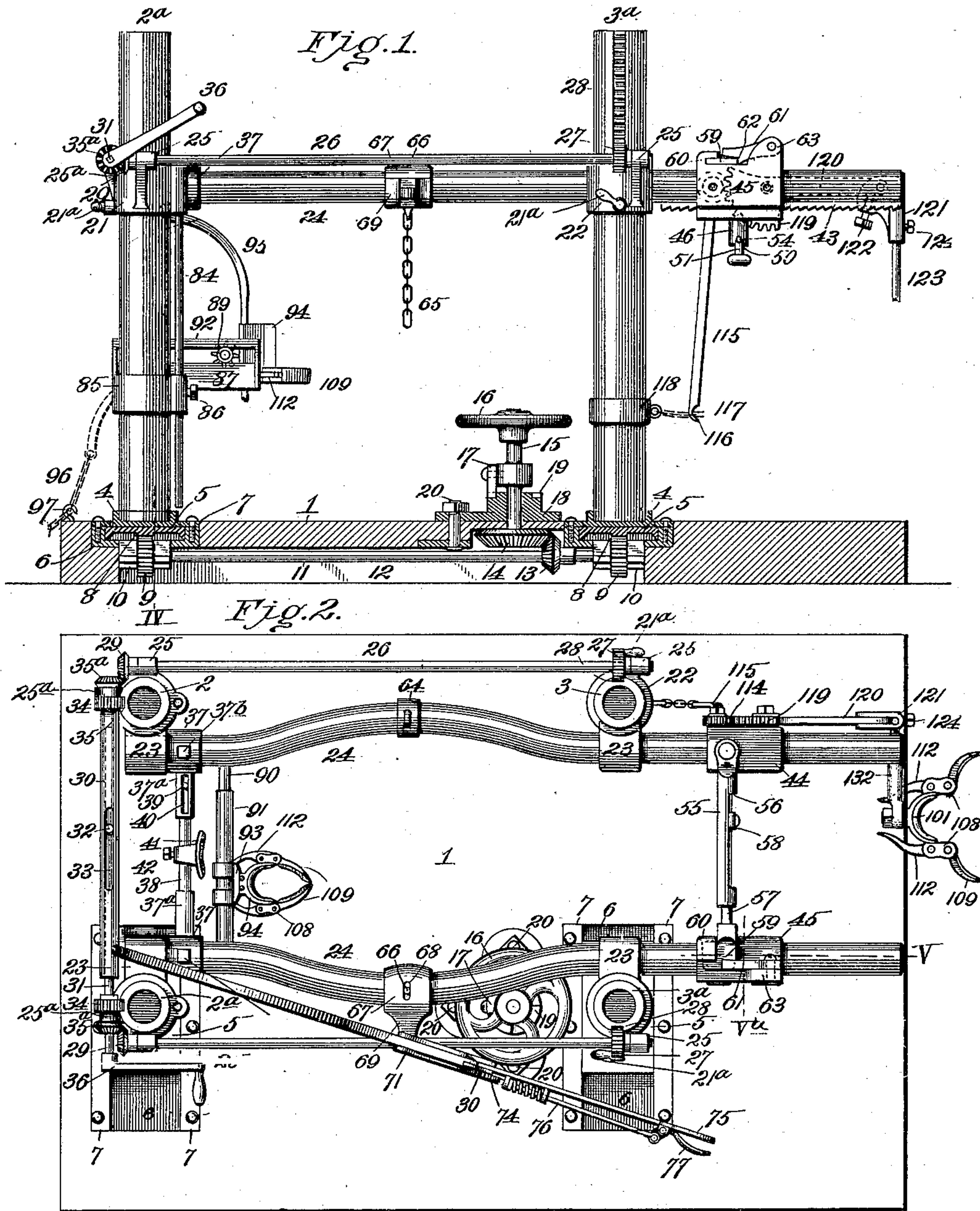
Patented Dec. 25, 1900.

J. A. GRAY.
SHOEING STALL FOR HORSES.

(Application filed Jan. 25, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

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2 Sheets—Sheet 2.

Fig. 4.

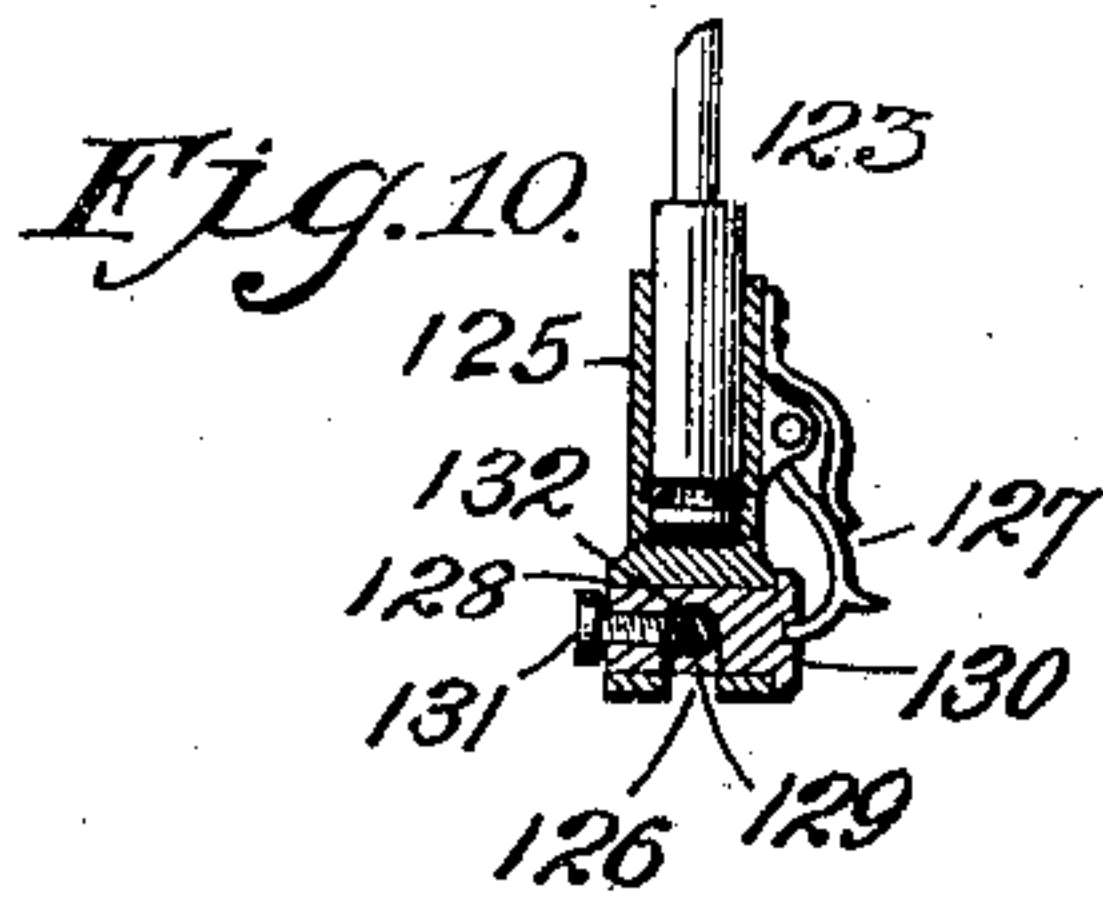
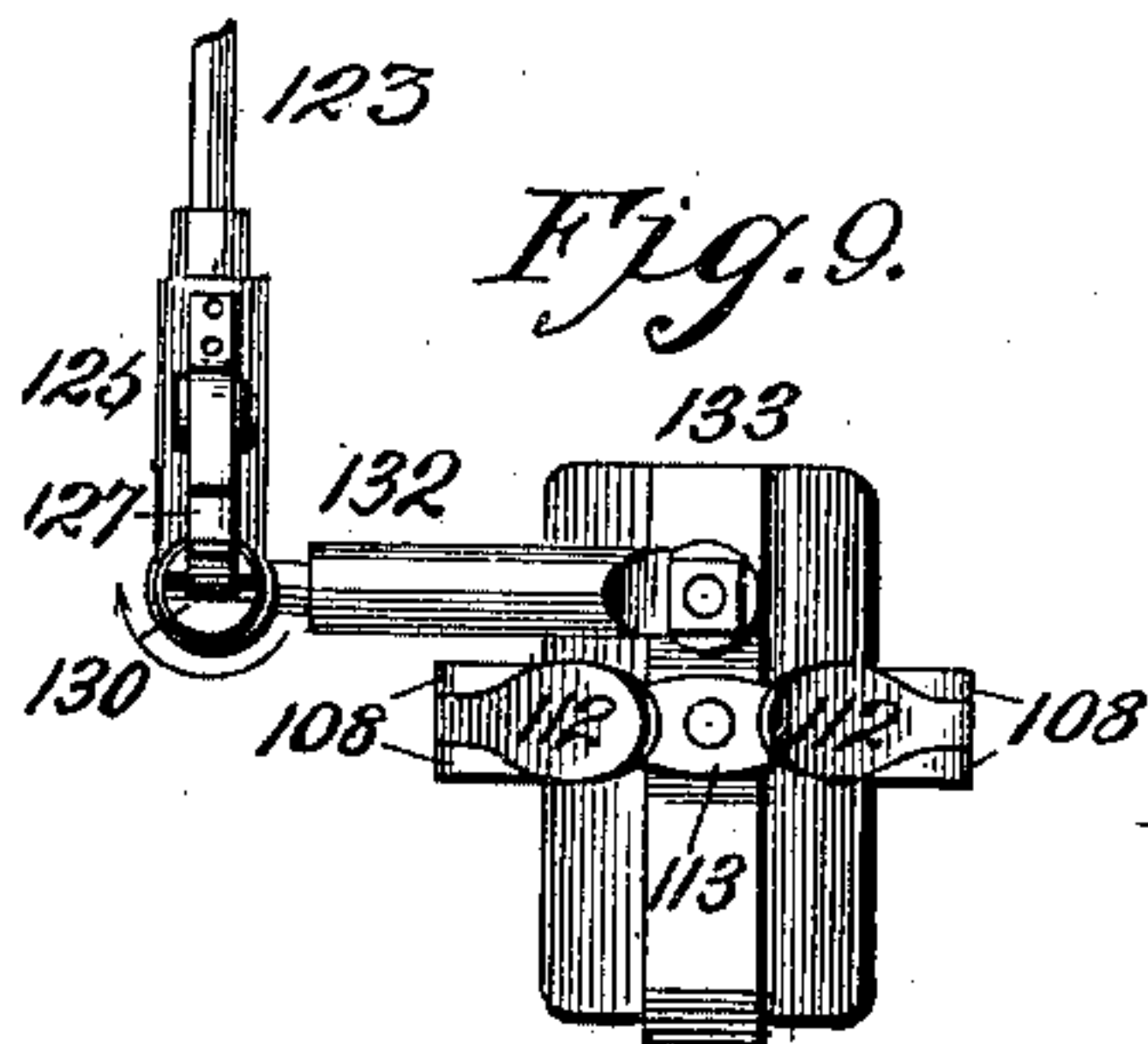
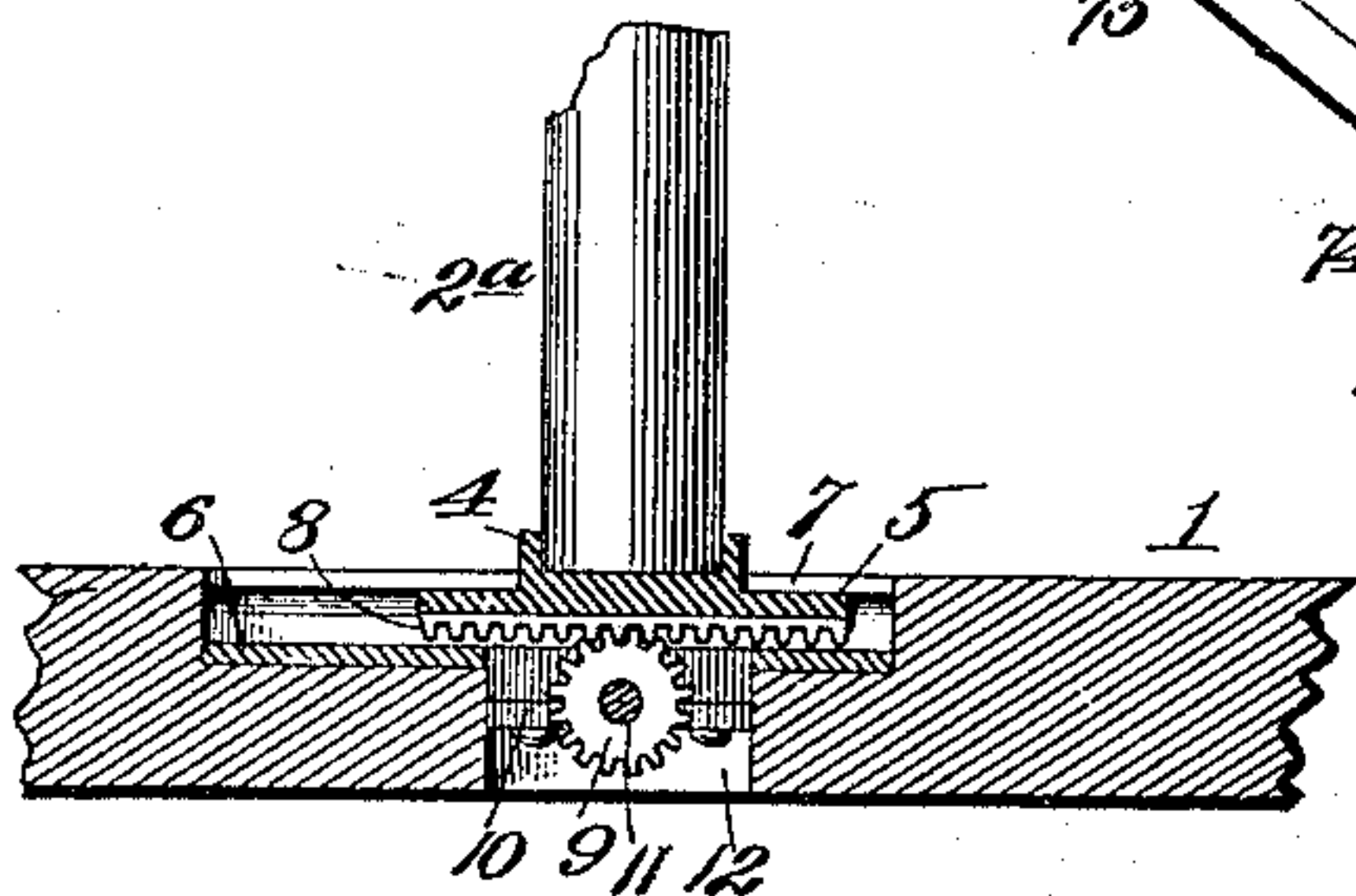


Fig. 3.

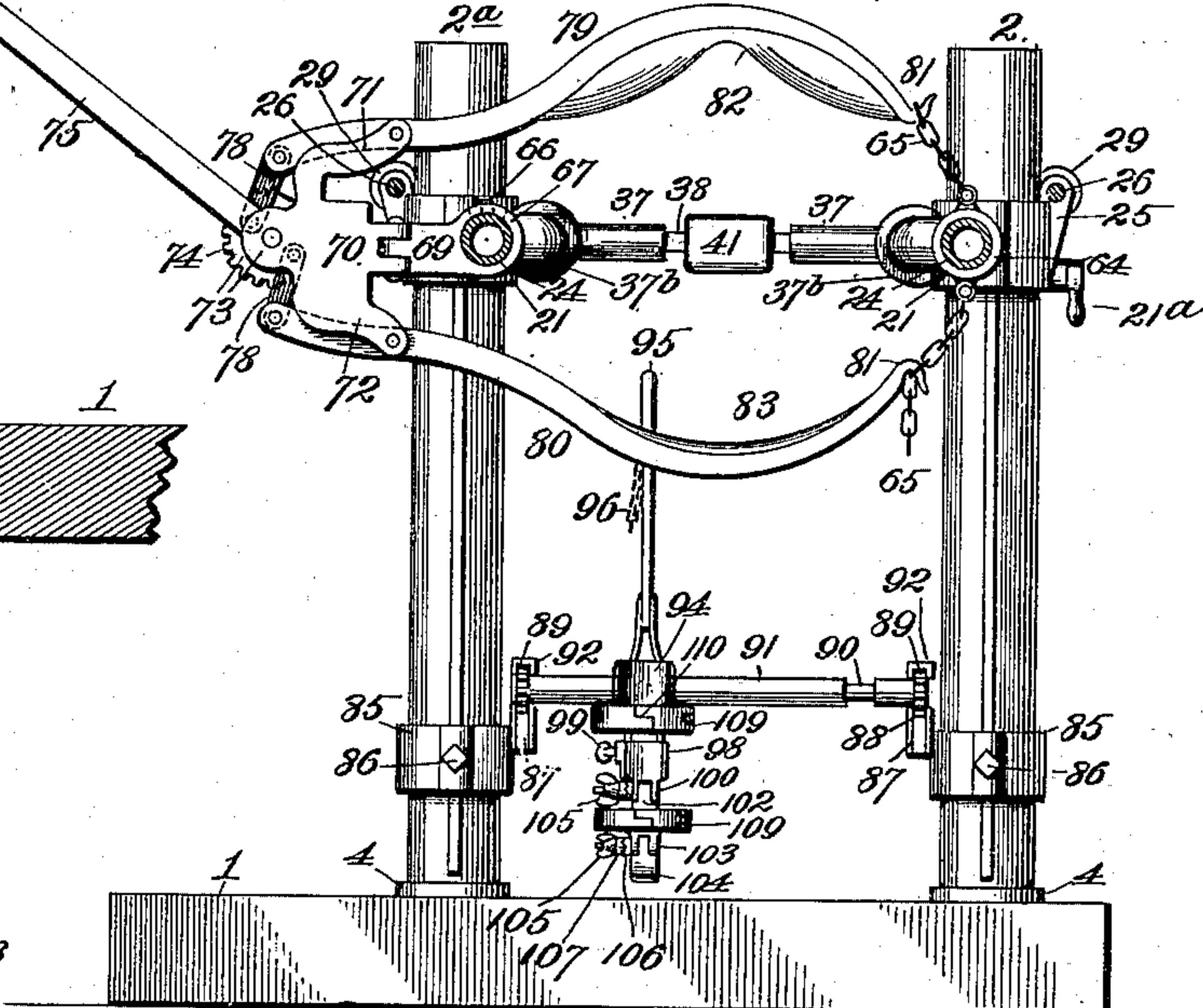


Fig. 6.

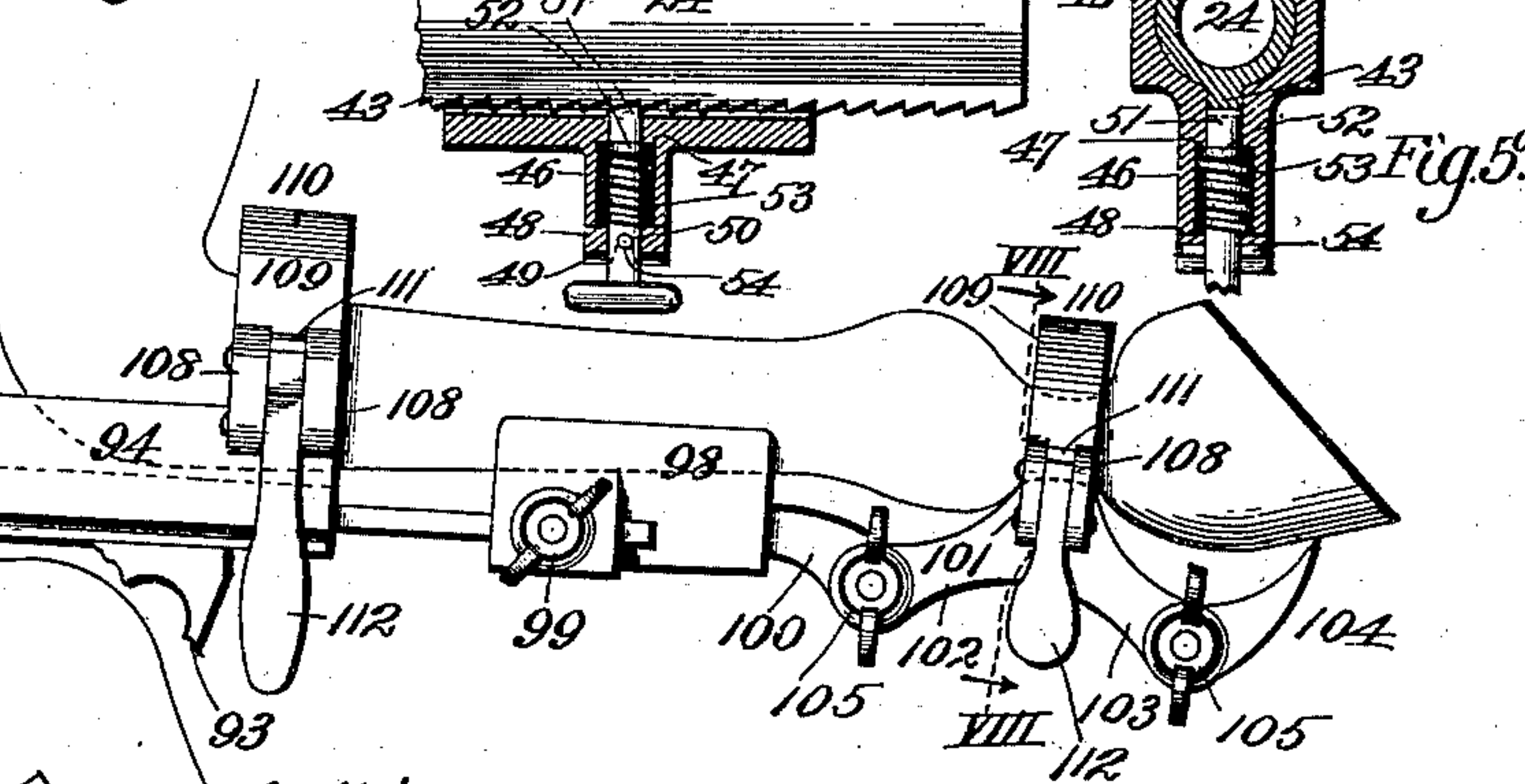


Fig. 5.

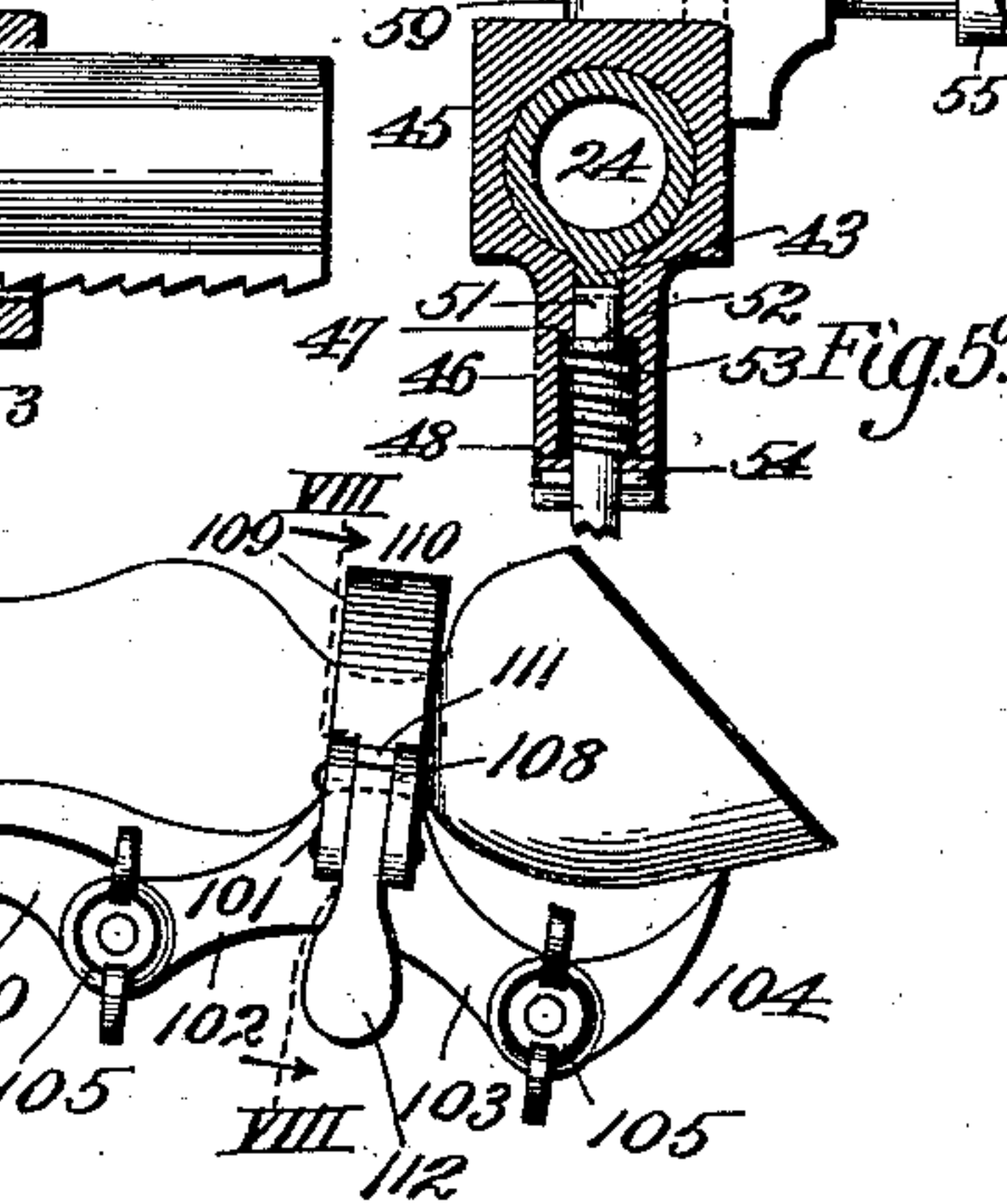


Fig. 7.

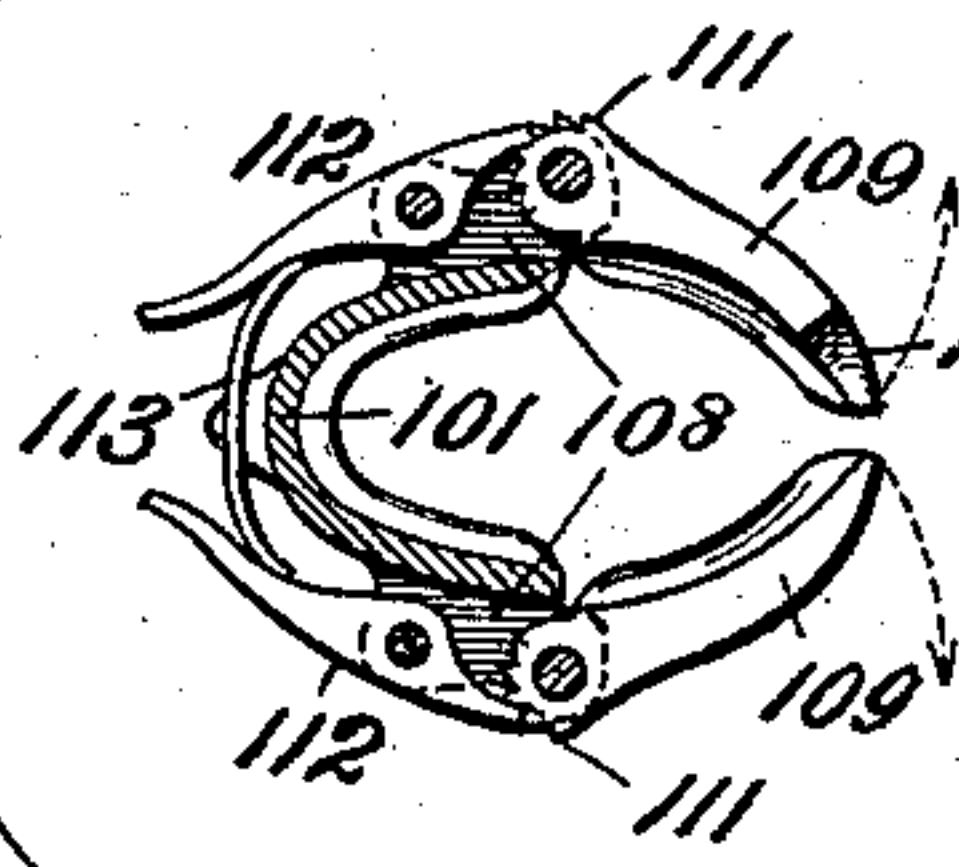
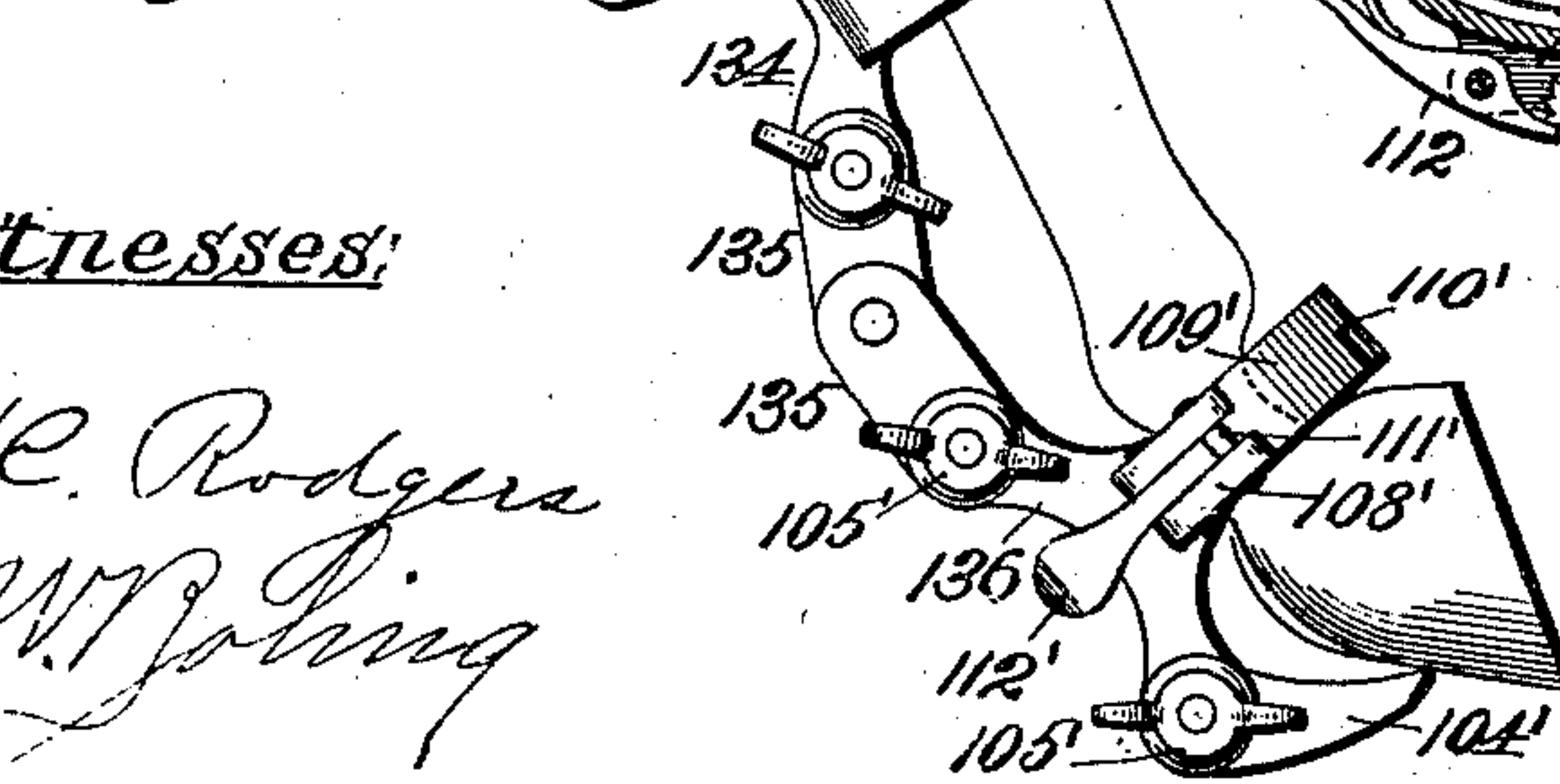


Fig. 8.

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UNITED STATES PATENT OFFICE.

JACOB A. GRAY, OF KANSAS CITY, MISSOURI.

SHOEING-STALL FOR HORSES.

SPECIFICATION forming part of Letters Patent No. 664,402, dated December 25, 1900.

Application filed January 25, 1900. Serial No. 2,763. (No model.)

To all whom it may concern:

Be it known that I, JACOB A. GRAY, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improvements in Shoeing-Stalls for Horses, of which the following is a specification.

My invention relates to shoeing-stalls for horses; and my object is to produce a machine of this character in which the animal shod can be held reliably in the position most convenient for the shoer.

With this general object in view the invention consists in certain novel and peculiar features of construction and combinations of parts, as hereinafter described and claimed, and in order that it may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1 represents a view, partly in section and partly in side elevation, of a shoeing-stall embodying my invention, certain features being omitted from said figure to avoid complicating the same to too great an extent. Fig. 2 is a top plan view of the complete machine with the body-clamp swung to inoperative position. Fig. 3 is a cross-section taken about midway of the machine rearward of the body-clamp and looking toward the front, said figure showing the body-clamp in operative position. Fig. 4 is a transverse section taken on the dotted line IV of Fig. 1, showing the mechanism whereby the width of the machine is varied to accommodate horses of different dimensions. Fig. 5 represents a vertical longitudinal section, and Fig. 5^a a vertical cross-section, of the mechanism for adjusting the machine to accommodate horses of different lengths, said sections being taken on dotted lines V and V^a, respectively, of Fig. 2. Fig. 6 is an enlarged detail view showing the mechanism for clamping the animal's fore leg in the necessary position for operation upon the hoof. Fig. 7 is a similar view showing the mechanism for clamping and holding the hind leg in proper position for shoeing purposes. Fig. 8 is a cross-section taken on the line VIII VIII of Fig. 6. Fig. 9 is a detail view of part of the rear-leg-clamping mechanism. Fig. 10 is a vertical section of part of the same.

Referring now to the drawings, where like numerals designate corresponding parts, 1

designates a platform upon which are immovably erected standards 2 3 near one edge of the platform and about a horse's length apart. 2^a 3^a designate similar but movable standards erected upon the platform, the former to one side of front standard 2 and the latter to one side of rear standard 3.

4 designates socket-plates in which the standards are rigidly secured, the plates of standards 2^a 3^a being secured to or formed integral with the slide-plates 5, adapted for parallel movement upon the plates 6, seated in the platform, said plates 5 being held reliably in operative position by the guard-plates 7, secured to the sides of plates 6 and overlapping the upper sides of plates 5, as shown most clearly in Fig. 1.

8 designates a rack-bar secured to or formed at the under side of each plate 5 and extending in line with the companion standards 2 3, said rack-bars being engaged by the cog-wheels 9, projecting up through plates 6 between bearings 10, depending from said plates and mounted rigidly upon shaft 11, journaled in said bearings and occupying a channel 12 in the under side of the platform.

13 designates a small bevel-gear secured upon shaft 11 and meshing with a crown-gear 14 upon the lower end of vertical shaft 15, carrying a hand-wheel 16 at its upper end and a pivoted dog 17, the latter adapted for engagement with one of the ratchet-teeth 19 of the casting 18, in which said shaft is journaled, said casting being bolted, as at 20, or otherwise rigidly secured to the platform.

In practice if it is desired to accommodate the width of the stall to a particular animal the operator grasps the hand-wheel 16, and to contract the frame turns it inward and toward the adjacent standard 3^a. This action through the medium of the train of gearing described causes the slide-plates 5 to simultaneously and at equal speed move inward, the dog 17 slipping from one tooth to another of the circular series of ratchet-teeth 19, thereby automatically locking the movable standards in the position to which they are adjusted against any power which may be brought to bear upon them by an animal confined in and therefore embraced by the opposite sides of the stall, as hereinafter appears. To laterally expand the stall, the operator

trips the dog 17 and throws it backward to inoperative position. The hand-wheel is now turned in the opposite direction and the standards moved outward, and in this connection it will be noted that power applied by the animal within the stall will tend to move said standards outward as soon as the dog 17 is tripped.

21 22 designate sleeves fitting slidingly upon the standards 2 2^a and 3 3^a, respectively, and provided with inwardly-projecting tubular arms 23, said sleeves being secured rigidly at the desired point by set-screws 21^a, carried thereby to impinge upon the standards. Secured in said arms are the side bars 24 of the stall, preferably of circular tubing and bowed outward at a point between the front and rear standards to conform more nearly to the contour of the animals to be confined between them, and in practice these side bars are preferably to be padded, that a uniform pressure may be applied upon the animal from his fore to his hind quarters irrespective of his condition—that is, whether he is fat or lean. As the use of these pads, however, is not new, it was deemed best to omit them from the drawings. The sleeves 21 22 are provided with outwardly-projecting bearing-arms 25, in which the opposite ends of parallel shafts 26 are journaled, cog-wheels 27 upon said shafts being always in engagement with the vertical rack-bars 28, formed with or secured in the rear standards 3 3^a, and upon the front ends of shaft 26 are bevel cog-wheels 29. An extensible shaft consists of the tube 30 and the rod 31, fitting telescopically together, the latter being provided with a pin 32, projecting through a slot 33 of the former, whereby the extensibility of the shaft is limited and a synchronous rotatable movement of the rod and tube obtained. Secured rigidly upon said shaft, which is journaled in arms 25^a (similar to arms 25) of sleeves 21, are small cog-wheels 34, engaging the vertical sets of ratchet-teeth 35, formed or secured in the front standards 2 2^a, and in order that movement imparted to the extensible shaft by means of crank-handle 36 on one end thereof may be imparted to shafts 26 said extensible shaft is provided with the bevel cog-wheels 35^a, meshing continuously with the smaller cog-wheels 29, hereinbefore referred to. By this construction it is obvious that the rotation of the crank-handle in one direction or the other simultaneously elevates or lowers sleeves 21 22 and the side bars 24, thereby adapting the machine to accommodate exactly the height of the animal to be confined within the stall.

37 designates collars slidably mounted on the side bars near sleeve 21 and provided with inwardly-projecting tubular stems 37^a, and 38 a cross-rod having its ends fitting telescopically in said stems and prevented from rotatable movement or total disconnection with said stems by a pin 39, engaging slot 40 in one of said stems. (See Fig. 2.) This

cross-rod or breast-bar is provided with a padded breast-plate 41 for the animal, secured reliably at the proper point upon the rod by means of set-screws 42. As this breast-plate should always be in the center of the stall irrespective of the width of the latter, the reason for this adjustment upon rod 38 is obvious, and to adapt it to animals of different lengths it is adjustable on the side bars, being secured rigidly at the desired point by set-screws 37^b or otherwise. That portion of the side bars projecting rearward from the standards 3 3^a is parallel, and secured to the under side of each is a ratchet-tooth bar 43, and mounted slidingly upon said parallel extensions are the sleeves 44 45, each provided with a depending tubular arm 46, enlarged internally to provide the downwardly-disposed shoulder 47. 48 designates a collar secured at the lower end of each arm 46 and provided with the shallow and deep notches 49 50, respectively, at right angles to each other. 51 is a handled dog extending slidingly through the extension and collar and beveled to engage the corresponding ratchet-tooth bar 43. 52 is a collar or enlargement upon said rod, and 53 a spring bearing at its opposite ends against the notched collar 48 and the collar or enlargement 52 and holding the latter up against the shoulder 47 and the dog in engagement with the ratchet-tooth bar 43 as long as the pin 54, secured to the dog, occupies the deep notch 50. While the parts are so arranged the operator can push the sleeves 44 45 forward, the dogs 51 successively engaging each tooth of the ratchet-tooth bars 43. When it is desired to move the sleeves rearward, the handled dogs are grasped, and as they are withdrawn from engagement with the ratchet-tooth bars 43 they are turned to cause the pins 54 to engage the shallow notches 49, which thus prevent the dogs from reengagement with the ratchet-tooth bars. The sleeves are now free to be moved rearwardly.

An extensible breech-bar consists of the tubular portion 55 and the rod 57, fitting telescopically together, the former having an elongated slot 56 and the latter a pin or projection 58, adapted to play back and forth within said slot, limiting the extensibility of the breech-bar and preventing the rod member turning in member 55. The tube member is pivoted to sleeve 44 to swing in a horizontal plane, and the rod member terminates in a hook 59, adapted to engage the hook 60, projecting from sleeve 45, and in order that the connection thus established between the sleeves may be reliable a vertically-operating dog 61 is provided with a shoulder 62 for engagement with the rear edge of hook-terminal 59, said dog being pivoted to the lug 63, projecting upward from the corresponding sleeve, as shown clearly in Figs. 1 and 2.

By the construction above described it will be apparent that after the animal is properly confined between the side bars and against

the breast-bar the breech at the rear end of the machine can be closed by swinging the breech-bar across said breech and causing the engagement of hook 59 with hook 60, said engagement being made reliable by the proper manipulation of the locking-dog 61, as hereinbefore explained. The extensibility of the pivoted breech-bar at the same time accommodates varying widths of the stall.

10 Secured to one of the side bars, at the middle of its bowed portion, is a collar 64, provided with a pair of short chains 65, and from the opposite side bar a pin 66 projects through a short slot 68 of the collar 67 in order that
15 the latter may have a slight pivotal movement on the side bar. Said collar is also provided with an outwardly-projecting arm 69, to which is pivoted in a horizontal plane a bracket 70, having arms 71 72 above and
20 below and arms 73 rearward of its center, one of the last-named arms being peripherally toothed and forming the sector 74. Lever 75 is pivoted between arms 73 to work vertically and carries a spring-actuated dog 76 for
25 engagement with the toothed sector and the grip-lever 77, whereby said dog may be retracted when it is desired to manipulate the lever. At opposite sides of its center the lever is connected by link 78 with the outer
30 ends of the body-clamp, consisting of the upper jaw 79, pivoted to arm 71 of the bracket, and the lower jaw 80, pivoted to arm 72 of the bracket. Said body-clamp jaws terminate in hooks 81 and are padded, as at 82
35 and 83 or otherwise, to conform to and firmly embrace the upper and lower portion of the animal's body.

Assuming that the body-clamp mechanism occupies the inoperative position (shown in
40 Fig. 2) and that the jaws have been swung apart or opened by the depression of the lever, it is obvious that the clamp affords no obstruction to the entrance of the animal within the stall and after such entrance that
45 the operator can swing such mechanism until the jaws extend transversely of the stall. The lever is then operated to cause the jaws to embrace the animal tightly above and below in order to restrain him from attempting
50 to lie down in the stall or jump, attempts at front, back, or side movement being defeated by the breast, breech, and side bars. To relieve the said jaws of an injurious strain imposed by the animal in an attempt to struggle, the chains 65 are engaged with hooks 81,
55 thereby anchoring the latter firmly to the opposite side bars, as shown clearly in Fig. 3. In case the side bars are not at the exact height they should occupy it is clear that the
60 pivoted sleeve 67 will effect the automatic adjustment of the clamping-jaws to accommodate the animal confined, especially as the upper jaw is provided with the back pad or cushion 82 and the lower jaw with the belly
65 pad or cushion 83, of any suitable material.

The following description relates to the

mechanism whereby the horse's legs are held in position most convenient for shoeing purposes.

84 designates a pair of vertical rods depending from sleeves 21, and 85 a pair of collars vertically adjustable upon said standards and rods 84, set-screws 86 being utilized to secure collars 85 in the plane desired.

87 designates a pair of parallel rack-bars 75 carried by the collars 85 and formed at the outer and inner ends of the teeth with upwardly-projecting guard-flanges 88 to hold in reliable engagement with said rack-bars the cog-wheels 89, secured upon opposite ends of
80 an extensible cross-bar composed of a tube 91 and a rod 90, fitting telescopically together, the cog-wheels being prevented from rising from engagement with the rack-bars by means of the guard-arms 92, secured to the rack-
85 bars and forming longitudinal slots (see Fig. 1) wherein said cog-wheels may travel from one end of the rack-bars to the other. 93 is a collar sleeved to operate horizontally upon said extensible cross-bar, and 94 a segmental
90 clamp-block for engagement with the fore leg just below the knee, a lever 95, projecting from the upper end of said block, carrying a chain 96, adapted for engagement with a hook or equivalent device 97, secured to the front
95 end of the platform. (See Fig. 1.)

98 designates a clamp-block adjustably mounted upon an extension of segmental block 94 in order to accommodate animals of
100 different length of leg, and 99 a set-screw for clamping said block 98 reliably at the desired point.

100 is a lug projecting from block 98, to which is pivoted the upper arm 102 of the small segmental clamp-block 101 for engagement
105 with the leg just below the ankle-joint, and 103 the lower arm of said block, to which is pivoted the dog 104 for engagement with the front side of the hoof, 105 designating wing-nuts mounted on the pivots of said ankle-joint clamp-block and adapted to lock
110 the latter at the desired angle of adjustment relative to lug 100 and dog 104 by forcing the toothed collars 107 into engagement with the toothed lugs 106 of the clamp-block lug 100
115 and clamp-block arm 103. (See Fig. 3.)

108 designates a pair of parallel lugs projecting from each side of each clamp-block, and 109 a pair of segmental arms pivoted between the lugs of each block and adapted to
120 tightly clasp the rear side of the leg, and thereby secure the clamp-blocks firmly in position, and in order that this may be done with more stability and upon legs of different size the free ends of said arms 109 are
125 stepped at opposite sides at 110, so that they may overlap and interlock with each other when in operative position. (See Figs. 3 and 8 in particular.) To secure the clasp-arms reliably in operative position, their head ends
130 are provided with ratchet-teeth 111 for engagement by the dogs 112, pivoted between

lugs 108, and held in reliable engagement with said clasp-arms by the springs 113. (See Fig. 8.)

Assuming that the animal is properly confined within the stall and that his left fore leg is to be shod and the fore-leg clamp to be in position shown in full lines, Fig. 1, and in Figs. 2 and 3, and that the clasp-arms are opened, the operator first adjusts sleeves 85 to the required height and then places the padded clamp-block 94 against the leg and slightly below the knee-joint and clamps it in such position by swinging clasp-arms 109 of said block around the rear side of the leg, said clasp-arms being also padded at their inner sides (see Fig. 8) in order that the contour of the leg may be accommodated and the clamp-block more reliably secured. The operator next adjusts the slide-block to accommodate the length of the leg between the knee and hoof and then adjusts the ankle-joint clamp-block properly and secures it in position by manipulating its clasp-arms as described with reference to clasp-arms of clamp-block 94. The animal is then free to raise or lower his leg or swing it in any direction, and the operator by grasping the lever 95 and swinging it down to the position shown in dotted lines, Fig. 1, causes the leg to bend at the knee and swing approximately to the position shown in Fig. 6, where it is secured by the engagement of chain 96 with hook 97. After clamp-block 98 is secured by the manipulation of the set-screws 99, which of course may be done before the leg is raised, the operator grasps the hoof and forces it upward to approximately the position shown in Fig. 6, and securing it reliably in such position by the proper manipulation of the wing-nuts 105 is free to shoe the animal or perform any operation on the hoof he desires and is not under the necessity of supporting the leg or endangering himself in an attempt to shoe a vicious or high-spirited animal. By the arrangement of the parts shown the lever 75 of the body-clamp projects upward and is therefore not in the way of the operator while at work. When the shoeing or other operation is completed, the wing-nuts are first loosened and then the chain 96 is disengaged from the hook 97, permitting the animal to lower his leg, from which the clamp mechanism is easily and quickly removed by pressing inward upon the rear ends of dogs 112, so as to disengage them from the clasp-arms 109.

When it is desired to operate upon the animal's rear hoof, the following mechanism is employed to raise and clamp the animal's leg in the required position.

114 designates a cog-pinion which is pivoted to the outer side of sleeve 44 or sleeve 45, accordingly as the right or left hind hoof is to be operated upon, and said pinion is provided with a lever 115, terminating preferably in a hook 116, adapted to engage one of the links of the chain 117, anchored to an im-

movable anchoring-ring 118 of the adjacent standard 3 or 3^a.

119 designates a segment-shaped toothed lever pivoted upon the same sleeve as and meshing with the cog-pinion 114 and having its arm 120 pivotally carrying the clip 121, the movement of said clip in a vertical plane with relation to said segment-arm being limited by the set-screw 122, secured to the clip and adapted to impinge upon said segment-arm. (See Fig. 1.) A set-screw 124 of said clip impinges upon a vertical rod 123, adjustably carried by the clip, and rotatably mounted upon the lower end of said rod is a sleeve 125, provided with a semicircular slot 126 at its lower end and carrying a spring-actuated dog 127.

128 designates a short shaft mounted in the lower end of sleeve 125 and formed with a diametric slot 129, registering with the slot 126, with the grooved head 130 at one end for engagement by dog 127 and with a threaded hole at its opposite end which registers with the slot 129 and has mounted therein a clamping-screw 131 to impinge upon and secure rigidly in said slot a rod 132, the relation of the parts being such that the engagement of dog 127 with the grooved head of shaft 128 locks the rod 132 in a horizontal position at one side or the other of the sleeve.

Assuming that the rear-leg-clamp mechanism is suspended from the right-hand side of the stall, as in Fig. 2, it will be noticed that rod 132, as in Figs. 2 and 9, projects toward the opposite side of the stall. When it is suspended from the opposite side of the stall, the rod 132 is caused to project in the opposite direction by tripping dog 127 and swinging said rod and the clamp mechanism (hereinbefore described) carried thereby in the direction indicated by the arrow, Fig. 9, until it has described exactly a half-circle, when the dog 127 automatically snaps in the groove of the shaft-head and locks the parts in such new position.

133 designates a clamp-block which is pivoted to the opposite end of rod 132 and is adapted to be padded internally. It is adapted for engagement with the front side of the animal's hind leg just below the hock-joint, and in order that it may be securely clamped thereon it is provided, like block 94, with parallel lugs 108', carrying similar clasp mechanisms 109', 110', 111', and 112'. The block 133 is provided with a depending arm 134, connected by the links 135, constituting a toggle-joint, to the segmental clamp-block 136, similar in all respects to clamp-block 101, and adapted, like the former, to engage the leg just below the ankle-joint and to be clasped thereon by a clasp mechanism similar to that carried by clamp-block 101 and numbered 108', 109', 110', 111', and 112'. The clasp mechanism of blocks 133 and 136 are used in conjunction with springs (not shown) corresponding in function and location to spring 113, (see Fig. 8,) as will be readily under-

stood. Also, like said clamp-block 101, it is provided with a pivoted dog 104' to raise the hoof to the desired position and with wing-nuts 105' to secure the toggle-joint and said dog 5 rigidly with reference to clamp-blocks 133 and 136. In practice the length of the leg between the hock and ankle joints is accommodated by bending the toggle-joint more or less.

10 To position the rear hind leg to receive a shoe, the leg-clamping mechanism just described is arranged as shown in Fig. 2 most clearly. The clamp-block clasps are then secured to the leg, as shown in Fig. 7, and at 15 this time the animal is free to swing his leg forward or backward, because the sleeve 125 rotates on rod 123 to accommodate such movement, it being understood, of course, that before the clamp-blocks are attached the height of the animal is accommodated by the 20 vertical adjustment of rod 123, to the end that clamp-block 133 may be properly disposed and the rod 132 has been axially rocked in the shaft 128 to set the clamp-block at the desired angle (to accommodate the leg) to the 25 sleeve 125, such relation being fixed by causing set-screw 131 to impinge upon the said rod. The operator now grasps the lever 115 and swings it downward, and thereby operating the segment 119 raises the clamping 30 mechanism and incidentally the animal's leg to the requisite position, where it is secured by the engagement of the chain 117 with the lower end of said lever. The toggle-joint 35 wing-nuts are now manipulated to secure the relation of links 135 to the clamp-blocks, and then the dog 104 is pivotally operated to dispose the hoof in the most convenient position to be shod or otherwise operated upon 40 and in such position is secured by the corresponding wing-nut. When the operation is completed, the operator first loosens said wing-nuts and then frees the lever from chain 117 to permit the horse to lower his leg. The 45 clamp-blocks are then removed and the mechanism—embodying the leg-clamping mechanism, the lever 115, and the parts connecting said leg-clamping mechanism with the lever—transferred to the opposite side of the 50 frame, if it be desired to shoe the other hoof, the lever 115 and arm 120 being secured in the same relation as before, but upon the outer side of sleeve 45. When the parts are thus disposed, the arm 132, carrying the leg-clamping mechanism, is swung, in the manner indicated by the arrow, Fig. 9, from one 55 side of rod 123 to the opposite side in order to project toward the animal confined in the stall.

60 From the above description it will be apparent that I have produced a shoeing-stall for horses which embodies the features of advantage enumerated as desirable in the statement of invention, and it is to be understood that while I have described and illustrated the preferred embodiment of my invention I reserve the right to make such

changes in its detail construction, form, arrangement, or proportion of the parts as shall not involve a departure from the spirit and 70 scope or sacrifice any of the advantages of the invention.

Having thus described the invention, what I claim as new, and desire to secure by Letters Patent, is— 75

1. A shoeing-stall, provided with side bars, a breast-bar, a breech-bar, and a body-clamp arranged to swing in substantially a horizontal plane, substantially as described.

2. A shoeing-stall, provided with a leg-clamping mechanism suspended therefrom, and consisting of a series of parts pivotally 80 connected together so as to accommodate leg movement of the knee and ankle joints, a dog forming one of said series of parts, to support the hoof in convenient position to be 85 operated upon, means for holding the series of parts rigidly together, and means to effect the vertical adjustment upon the stall of the entire leg-clamping mechanism, substantially 90 as described.

3. A shoeing-stall, provided with a pivotally-suspended leg-clamping mechanism, embodying a plurality of clamping devices, a 95 hoof-elevating dog pivoted to the lower clamping devices, and means to secure said clamping devices and dog at any angle to each other desired, substantially as described.

4. A shoeing-stall, provided with a pivotally-suspended leg-clamping mechanism, embodying a plurality of extensibly-connected 100 clamping devices, a hoof-elevating dog pivoted to the lower clamping devices, and means to secure said clamping devices and dog at any angle to each other desired, substantially 105 as described.

5. A shoeing-stall, provided with a pivotally-suspended leg-clamping mechanism, embodying a plurality of clamping devices, comprising a pair of clamp-blocks carrying pivoted 110 clasp-arms and spring-actuated dogs to lock said arms in operative position, a hoof-elevating dog pivoted to the lower clamp-block, and means to secure said blocks and dog at the desired angle with relation to each 115 other, substantially as described.

6. A shoeing-stall, comprising a platform, a pair of front and a pair of rear vertical standards, sliding sleeves mounted on said standards, side bars connecting said sliding 120 sleeves, a breast-bar and a breech bar movable with the side bars, and a rack-and-pinion connection between said standards and said sleeves whereby the latter may be vertically adjusted upon the former, substantially as 125 described.

7. A shoeing-stall, embodying vertical standards, side bars connecting the front and rear standards and guided thereby, a breast-bar and a breech-bar movable with the side 130 bars, a rack-and-pinion connection between the standards and the side bars, shafts for said pinions geared together, and means to operate the same, substantially as described.

8. A shoeing-stall, embodying vertical standards, side bars connecting the front and rear standards and guided thereby, a breast-bar and a breech-bar movable with the side bars, a rack-and-pinion connection between the standards and the side bars, shafts for said pinions geared together, means to operate the same, and means to secure the side bars at the desired point of adjustment, substantially as described.

9. An expansible shoeing-stall, embodying vertical standards, side bars connecting the front and rear standards, extensible breast and breech bars, a rack-and-pinion connection between the side bars and the standards, an extensible shaft for the pinions of the front standards, and parallel shafts for the pinions of the rear standards, and geared at their front ends to said extensible shaft, substantially as described.

10. In an expansible shoeing-stall, a transversely-extending shaft, and a leg-clamping mechanism pivotally mounted on said shaft and adapted to swing in the direction of the length of the stall, and adjustable on said shaft transversely of the stall, substantially as described.

11. In an expansible shoeing-stall, an extensible shaft extending transversely thereof and adjustable longitudinally of the stall, and a leg-clamping mechanism pivotally suspended from said shaft, substantially as described.

12. In a shoeing-stall, a transverse shaft, a leg-clamping mechanism pivotally suspended from said shaft, and means to vertically adjust the latter, substantially as described.

13. In a shoeing-stall, a transverse shaft, a leg-clamping mechanism pivotally suspended from said shaft, and means to effect the vertical and longitudinal adjustment of the said shaft; the longitudinal adjustment to be in the direction of the length of the stall, substantially as described.

14. A shoeing-stall, embodying a pair of front standards, a pair of rack-bars extending longitudinally of the stall and vertically adjustable upon the front standards thereof, a transverse shaft, pinions thereon engaging said rack-bars, and a leg-clamping mechanism pivotally suspended from said shaft, substantially as described.

15. A shoeing-stall, embodying a pair of front standards, parallel rack-bars secured to the front standards and extending longitudinally of the stall, guide-frames secured to said rack-bars to form guide-slots, a transverse shaft, pinions mounted thereon and engaging said rack-bars within said guide-slots, and a leg-clamping mechanism pivotally suspended from said shaft, substantially as described.

16. A shoeing-stall, embodying a pair of front standards and parallel guide-bars, sleeves fitting slidably on said standards and guide-bars, set-screws to lock said sleeves at the desired point, and a leg-clamping mechanism supported from said sleeves, substantially as described.

17. A shoeing-stall, embodying side bars, ratchet-tooth bars carried thereby, breech-bar-carrying sleeves adjustably mounted on said side bars, and spring-actuated dogs for engagement with the ratchet-tooth bars to lock the sleeves at the desired point, substantially as described.

18. A shoeing-stall, embodying side bars, sleeves adjustable thereon one of which has a lug, a breech-bar pivoted to one sleeve and having a hook on its free end for engaging said lug, and a dog to lock the bar and sleeve in such hooked relation, substantially as described.

19. An expansible shoeing-stall, embodying side bars, adjustable sleeves thereon, and an extensible breech-bar pivoted to one sleeve and detachably engaged with the other, substantially as described.

20. An expansible shoeing-stall, embodying side bars, sleeves adjustable thereon, and an extensible breech-bar, comprising a tube and a rod member fitting telescopically together, one pivoted to one sleeve and means for detachably engaging with the other sleeve, substantially as described.

21. A shoeing-stall comprising a framework provided with a pivoted arm, a leg-clamping mechanism pivotally carried by said arm, and operating means therefor, substantially as described.

22. A shoeing-stall, provided with a pivoted arm at one side, a leg-clamping mechanism pivotally carried by said arm, and means for securing the arm in a substantially horizontal position, substantially as described.

23. A shoeing-stall, comprising a suitable framework, an adjustable sleeve thereon, an arm pivoted to said sleeve, a leg-clamping mechanism pivotally carried by said arm, and means to secure the latter in a substantially horizontal position, substantially as described.

24. A shoeing-stall, embodying a suitable bifurcated support, a shaft journaled therein, and provided with an opening registering with said bifurcation, and with a diametric groove at one end, a spring-actuated dog engaging said groove, a leg-clamping mechanism and an arm secured in said shaft-opening and carrying said clamping mechanism, and adapted to swing in the bifurcation of the support, substantially as described.

25. A shoeing-stall, embodying a suitable bifurcated support, a shaft journaled therein, and provided with an opening registering with said bifurcation and with a diametric groove at one end, a spring-actuated dog engaging said groove, a leg-clamping mechanism, an arm engaging said shaft-opening and carrying said clamping mechanism and adapted to turn or rock in said opening, and means to prevent said arm turning or rocking in said shaft-opening, substantially as described.

26. A shoeing-stall, embodying a rotatable sleeve suitably supported, a leg-clamping mechanism, an arm pivotally attached to the lower end of said sleeve and carrying said clamping mechanism, and means to secure said arm in a substantially horizontal position, substantially as described.

27. A shoeing-stall, embodying a rotatable sleeve suitably supported, a leg-clamping mechanism, an arm carrying said clamping mechanism and pivotally attached to the lower end of said sleeve to swing from one side of the arm to the other and journaled in said sleeve so as to be rocked or turned on its own axis, and means to secure said arm in a substantially horizontal position, substantially as described.

28. A shoeing-stall, comprising a suitable framework, a rod longitudinally adjustable with relation to said framework, an arm pivotally connected to said rod, a leg-clamping mechanism pivotally carried by said arm, means for elevating said rod, arm and leg-clamping mechanism, and means for securing the same in such elevated position, substantially as described.

29. A shoeing-stall, comprising a suitable framework, a clip provided with means for securing it to either side of the framework, suspended from the same, a rod adjustable in said clip, a leg-clamping mechanism, and an arm carrying said clamping mechanism and pivotally connected to said rod so as to swing from one side of the same to the other, substantially as described.

30. A shoeing-stall, comprising a suitable framework, a pivoted clip suspended therefrom, a rod adjustable in said clip, a leg-clamping mechanism, an arm carrying the same and pivotally connected to said rod, and means for raising or lowering said clip and securing it at the desired point, substantially as described.

31. A shoeing-stall, comprising a suitable framework, a lever mounted thereon, a clip pivoted to said lever, a rod adjustable in said clip, a leg-clamping mechanism, an arm carrying the same and pivotally connected to said rod, and means to secure the clip and lever at the desired point, substantially as described.

32. A shoeing-stall, comprising a suitable framework, a sleeve longitudinally adjustable upon the framework, a toothed lever mounted upon said sleeve, a leg-clamping mechanism, an arm supported from the lever and carrying said leg-clamping mechanism, and a second lever mounted on the sleeve provided with teeth engaging the teeth of the first-named lever, and means to secure said second lever at the desired point of adjustment and there-

by hold one of the animal's legs above the ground, substantially as described.

33. A shoeing-stall, embodying a platform, stationary standards upon said platform, slide-plates mounted on said platform, standards erected on said slide-plates, a side bar connecting the stationary standards and a side bar connecting the standards upon said plates, breast and breech bars connecting the side bars, a shaft, a rack-and-pinion connection between said shaft and said slide-plates, and means to operate said shaft, substantially as described.

34. A shoeing-stall, provided with a body-clamp, consisting of an upper jaw and a lower jaw supported at one side of the stall, and a connection between the opposite side of the stall and the adjacent ends of said jaws, substantially as described.

35. A shoeing-stall, provided with a body-clamp, consisting of an upper jaw and a lower jaw, supported at one side of the stall, and a flexible connection adjustably connecting the opposite side of the stall with the adjacent ends of the jaws, substantially as described.

36. A shoeing-stall, provided with a sleeve pivoted thereon to rock vertically, and a body-clamp mounted upon said sleeve, and consisting of an upper jaw and a lower jaw, substantially as described.

37. A shoeing-stall, provided with a body-clamp arranged to swing in a horizontal plane, and consisting of an upper jaw and a lower jaw pivotally mounted to operate vertically, substantially as described.

38. A shoeing-stall, provided with a pivoted sleeve which rocks vertically, and a body-clamp pivoted to said sleeve and adapted to swing horizontally, substantially as described.

39. A shoeing-stall, provided with a pivoted sleeve which rocks vertically, and a body-clamp pivoted to said sleeve and adapted to swing horizontally, and consisting of a bracket and a pair of jaws pivoted to said bracket to move vertically, substantially as described.

40. A shoeing-stall, provided with a body-clamp, consisting of a bracket pivoted to swing horizontally, a pair of jaws pivoted to said bracket to rock vertically, a lever pivoted to said bracket, links connecting the lever and said jaws at opposite sides of the fulcrum, and means to lock the lever at the desired point of adjustment, substantially as described.

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

JACOB A. GRAY.

Witnesses:

J. W. BOLING,
G. Y. THORPE.