

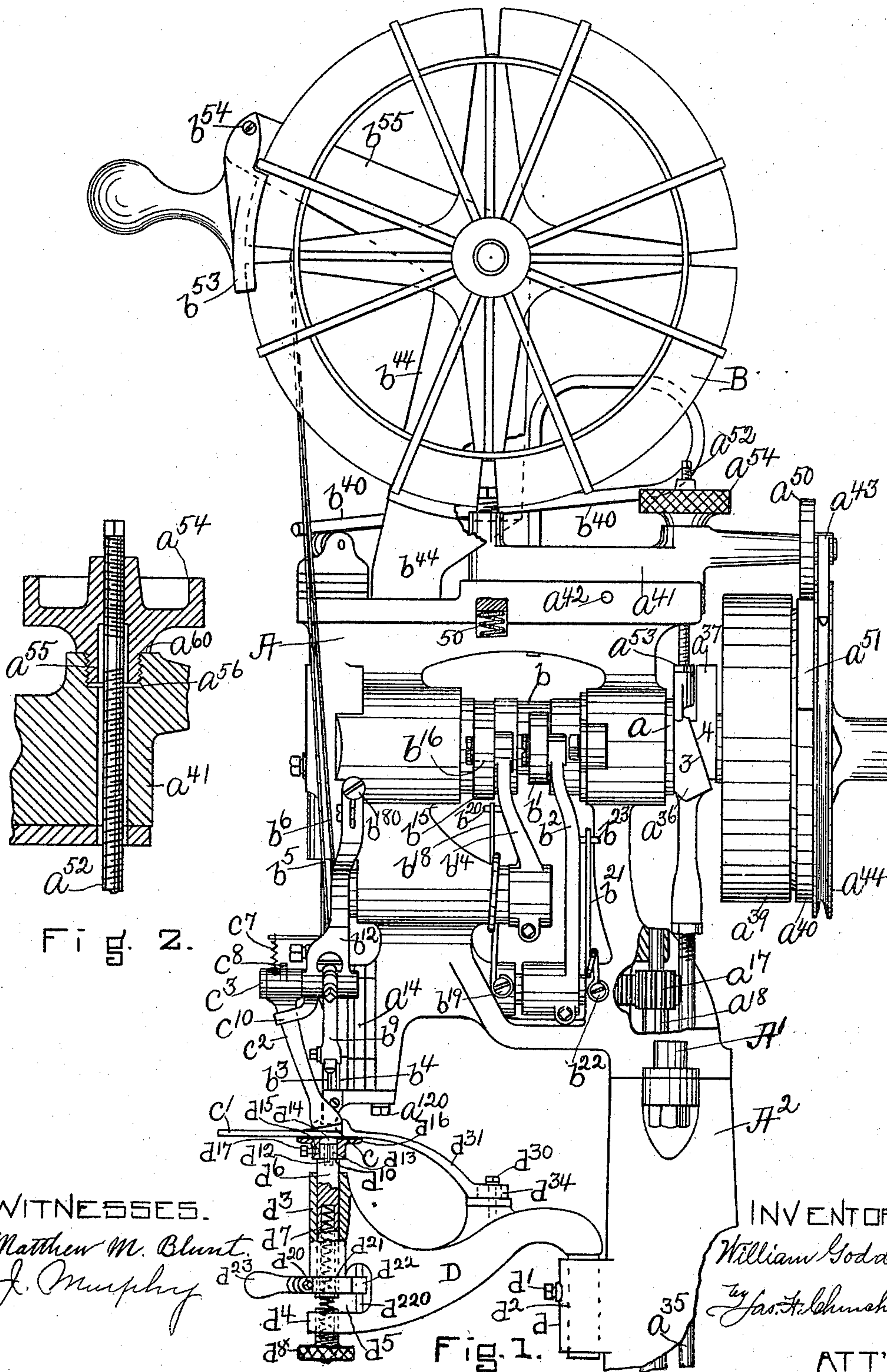
(No Model.)

4 Sheets—Sheet 1.

W. GODDU.
NAILING MACHINE.

No. 584,735.

Patented June 15, 1897.



(No Model.)

4 Sheets—Sheet 2.

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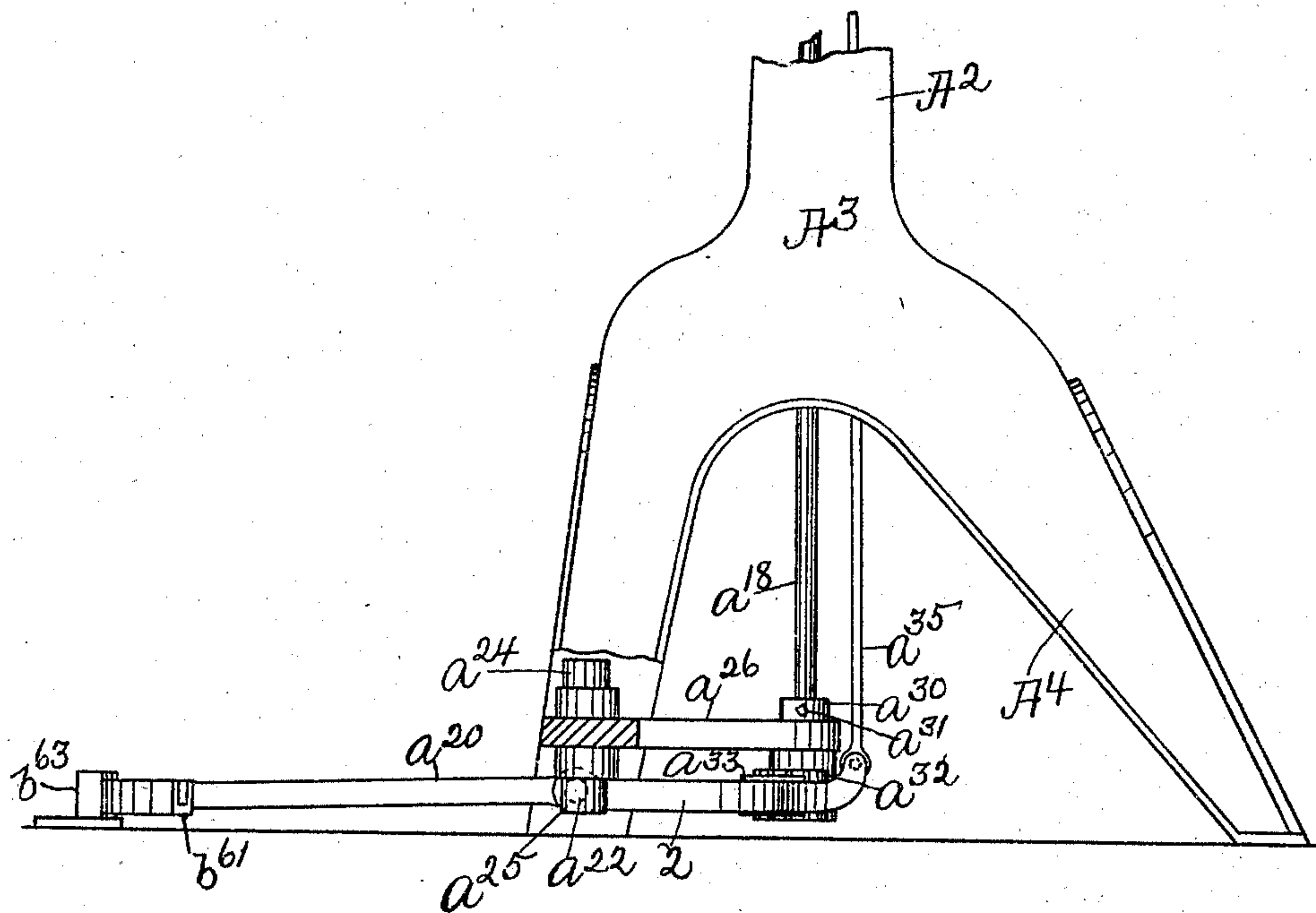


Fig. 3.

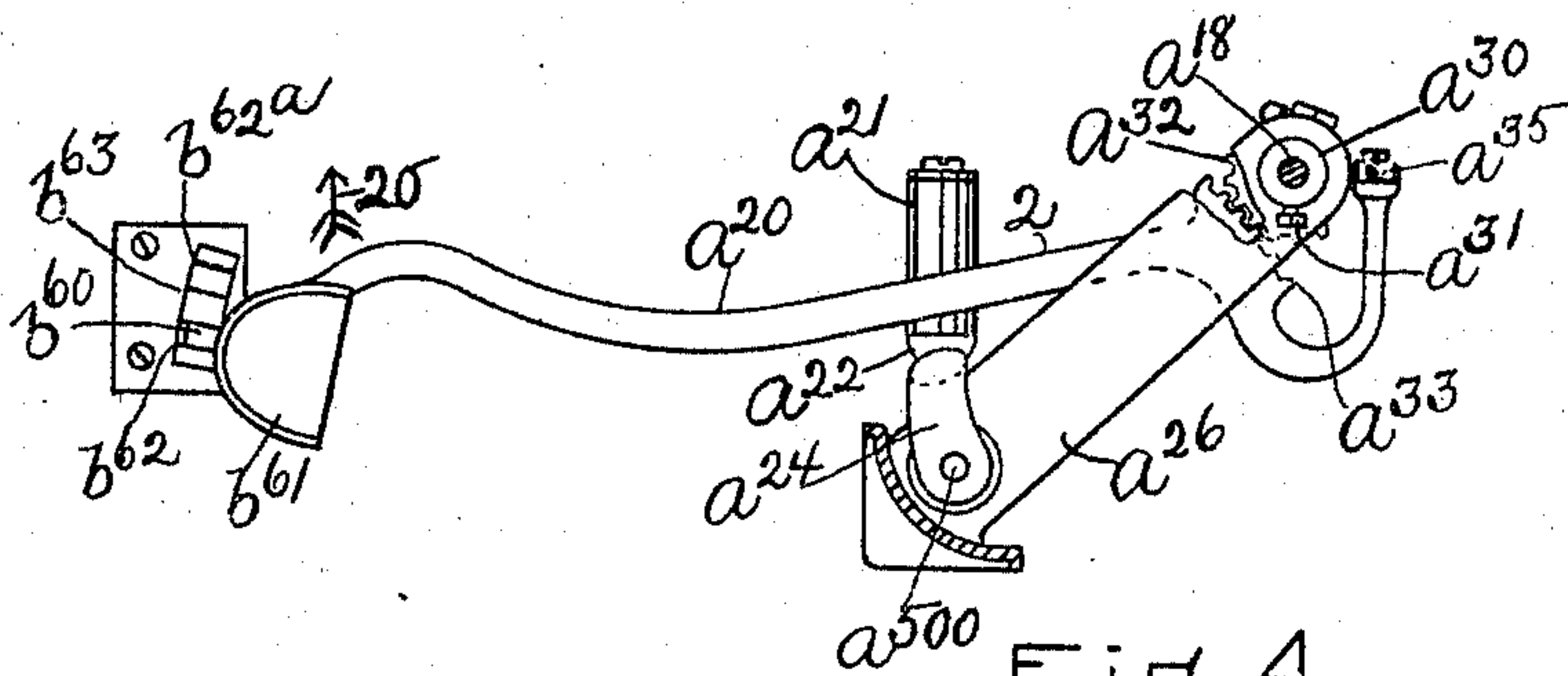


Fig. 4.

WITNESSES.

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ATT'Y

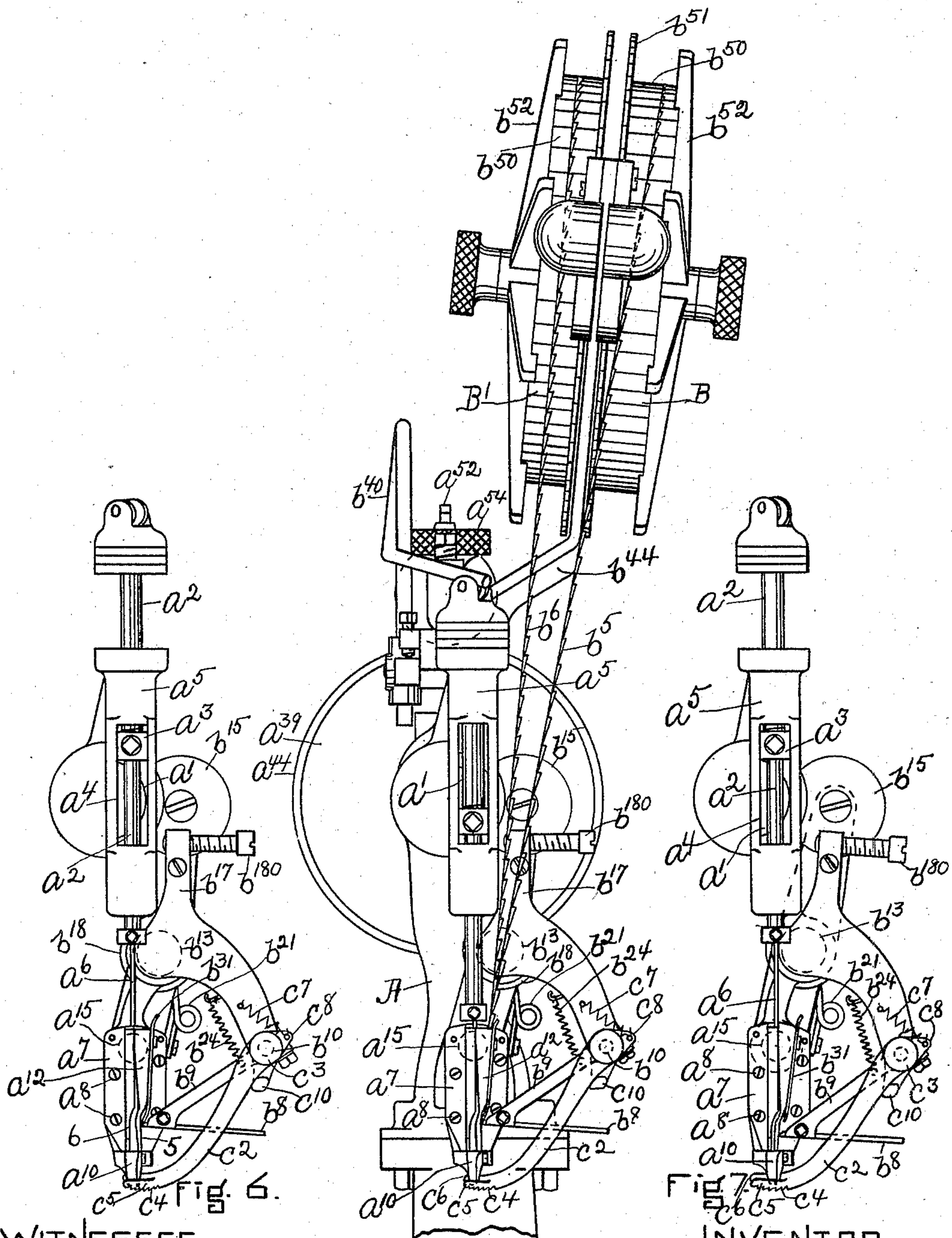
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Fig. 5.

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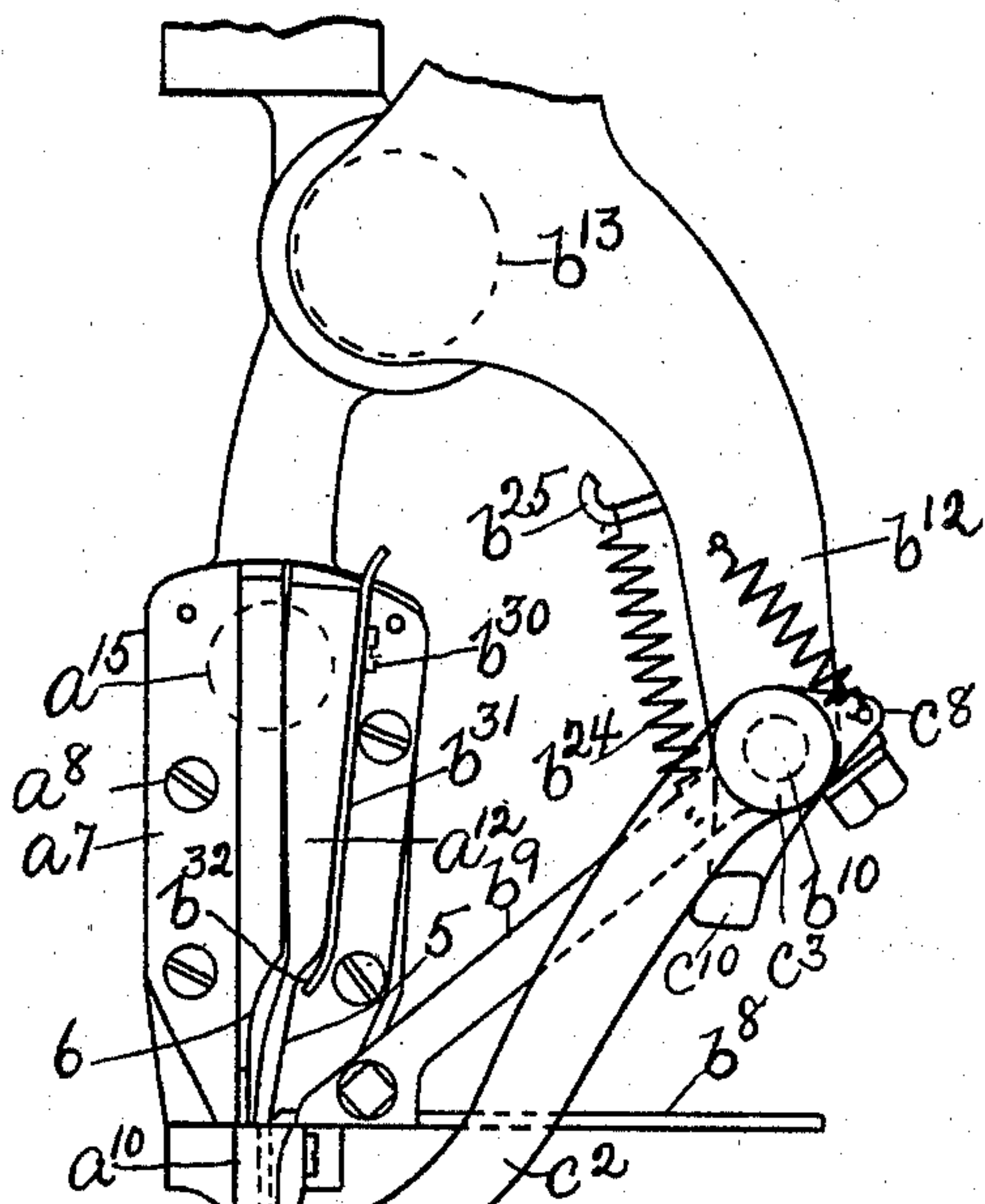
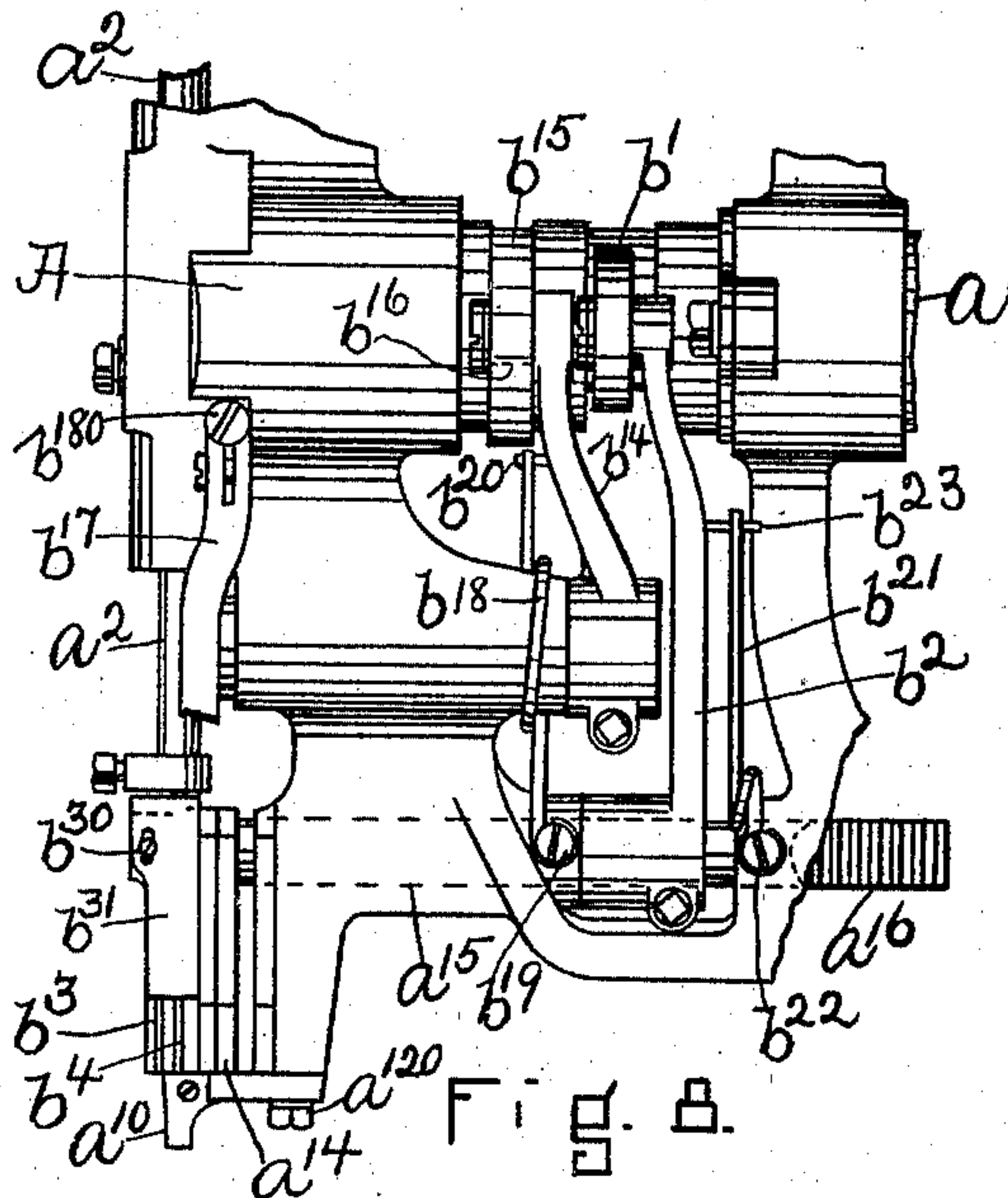
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4 Sheets—Sheet 4.

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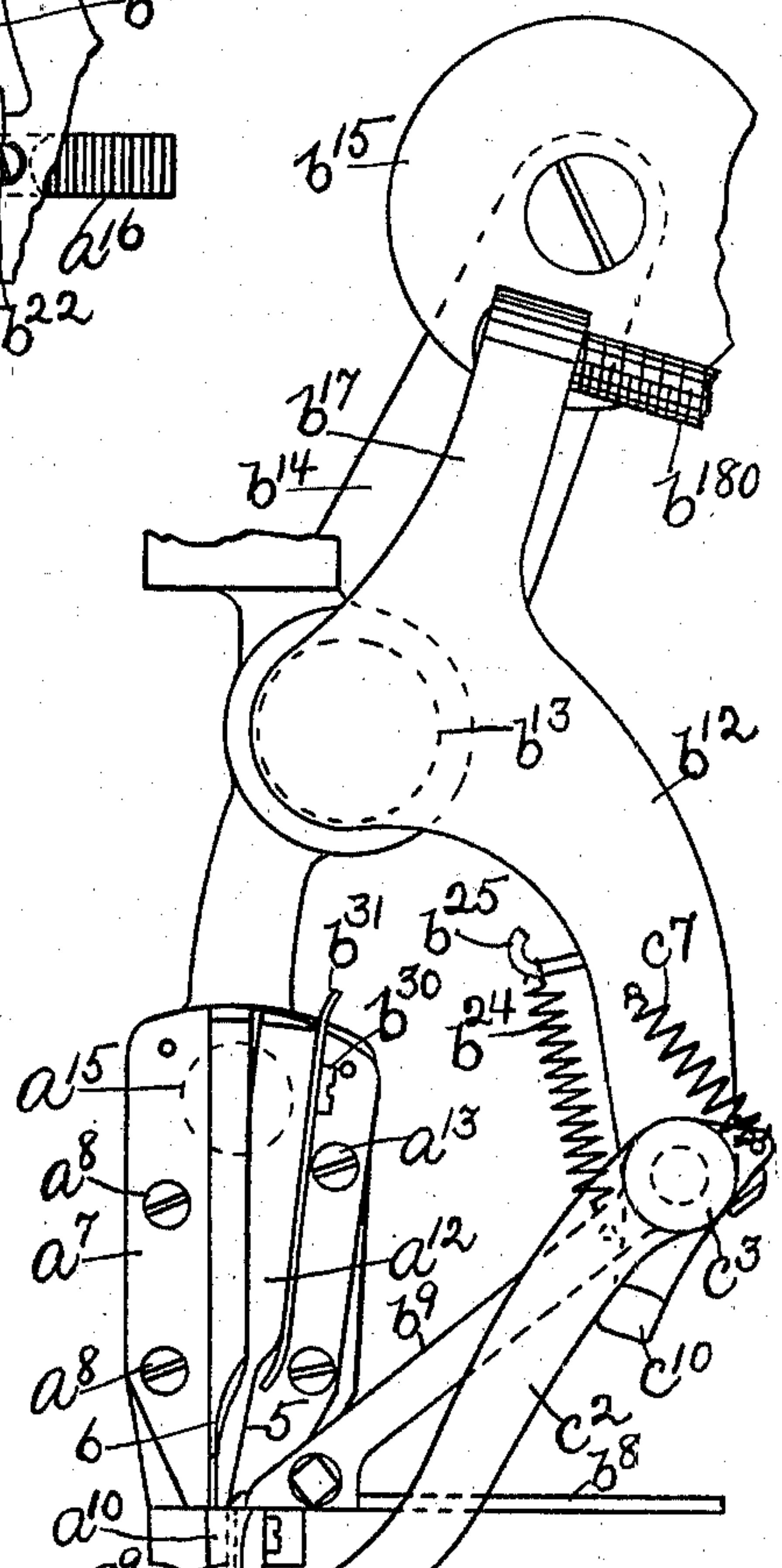


Fig. 10
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UNITED STATES PATENT OFFICE.

WILLIAM GODDU, OF WINCHESTER, MASSACHUSETTS.

NAILING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 584,735, dated June 15, 1897.

Application filed January 15, 1897. Serial No. 619,302. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GODDU, residing in Winchester, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Nailing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and numerals on the drawings representing like parts.

10 This invention relates to nailing-machines, and is herein shown as embodied in a machine especially designed and adapted for use in the manufacture of boots and shoes and of the character commonly known as a "string-nail tacker."

15 The machine referred to is provided with a carrier for a plurality of strings of nails, which carrier is movable bodily with relation to a nose-piece, so as to bring a selected string of nails into proper working position with relation to the said nose, and in accordance with this invention the movement of the string-nail carrier is placed under control of the foot of the operator, and for the best results the said carrier is operatively connected, as will be described, to the treadle, which operates the clutch or starting mechanism of the machine, whereby the operation of the machine and the positioning of the string-nail carrier 30 may be effected by one lever or treadle.

The invention further has for its object to improve and simplify the construction of the machine, as will be described, whereby a more efficient and rapid machine may be obtained.

35 Another feature of this invention consists in providing the machine with a novel construction of work-support and with a novel feed mechanism for the work, which feed mechanism is especially applicable for feeding the rands when the machine is employed for tacking rands to the sole of a boot or shoe.

These and other features of this invention will be pointed out in the claims at the end of this specification.

45 Figure 1 is a side elevation of a sufficient portion of a nailing-machine embodying this invention to enable it to be understood; Fig. 2, a detail in section to be referred to; Fig. 3, a side elevation of the base or lower portion of the machine shown in Fig. 1 with parts broken away; Fig. 4, a sectional detail of the treadle mechanism preferred by me; Fig. 5,

a front elevation of the machine shown in Fig. 1; Figs. 6 and 7, details in front elevation to be referred to; Fig. 8, a detail in side elevation to be referred to; Figs. 9 and 10, details in front elevation and on an enlarged scale to be referred to.

Referring to the drawings, A represents an open framework or head of the machine, which is secured, as by screws A', to a hollow upright or standard A², attached to a hollow base A³, provided, as shown, with supporting-legs A⁴. The head A supports in suitable bearings a main shaft a, which is preferably made of substantially large diameter to enable it to be turned down in parts to form cams integral with the said shaft. The main shaft a is provided at its front end with a lifting-cam a', of a construction common to machines of this class, which lifts a driver-bar a², provided with a block a³, reciprocating in a guideway a⁴ in a cap or front piece a⁵, attached to the head A.

The driver-bar a² has secured to its lower end a driver a⁶, movable in a suitable opening or passage-way (not shown) in a guide block or piece a⁷, detachably secured to the head A, as by screws a⁸, the driver-guide a⁷ being secured to the head A, so that its passage-way is in line with a passage-way a⁹ in a nose a¹⁰, attached, as by screw a¹²⁰, to the head A. (See Fig. 1.)

The driver-guide a⁷ is stationary on the head and is extended toward the nose to afford a long bearing for the driver, and the said guide has coöperating with it and the nose a¹⁰ a movable multiple string-nail carrier a¹², secured, as by screws a¹³, to a crank or arm a¹⁴ on a rock-shaft a¹⁵, having bearings in the lower portion of the head A, the rear end of the rock-shaft having gear-teeth a¹⁶, (see Figs. 1 and 8,) which are engaged by a gear or pinion a¹⁷, fast on a rock-shaft a¹⁸, extended down through the hollow upright A² and base A³ and operatively connected to a treadle or lever a²⁰, so as to be rotated or turned thereby, as will be described.

The treadle or lever a²⁰ in the present instance is provided with a hub a²¹, loosely mounted on a pivot pin or rod a²² to move in a vertical plane, and the pivot a²² for the said treadle is itself rotatable in a plane substantially at right angles thereto—namely, in a

substantially horizontal plane—and in the present instance the pivot pin or rod a^{22} is provided with forked arms a^{24} a^{25} , which embrace an arm or bar a^{26} , extended from one of the legs A^4 , and to which bar or arm the forked arms a^{24} a^{25} are pivotally connected, as by the pin a^{500} , (see Fig. 4,) to swing or move in a substantially horizontal plane.*

The arm a^{26} forms a bearing or support for the lower end of the rock-shaft a^{18} , which is provided above the arm a^{26} , as herein shown, with a collar a^{30} , secured to the shaft, as by set-screw a^{31} , and below the arm a^{26} the rock-shaft a^{18} has fast on it a segmental gear a^{32} , with which meshes a toothed segment a^{33} on the arm 2 of the treadle or lever a^{20} , so that movement of the treadle a^{20} in a substantially horizontal plane, with the pivot or pin a^{500} as a center, will produce a rotary movement of the shaft a^{18} , which rotary movement effects a longitudinal movement of the shaft a^{15} by means of the gear a^{18} and gear-teeth a^{16} . The toothed segment a^{33} on the arm 2 of the treadle or lever a^{20} meshes with the segmental gear a^{32} somewhat loosely, (see Fig. 4,) so as to permit of the movement of the arm 2 of the treadle a^{20} in a vertical plane without effecting any movement of the rock-shaft a^{18} .

The movement of the arm 2 of the treadle a^{20} in a vertical plane is designed to effect the starting of the machine in operation, and to this end the arm 2 of the treadle a^{20} is extended beyond the toothed segment a^{33} , and has connected to it the lower end of a link a^{35} , extended up through the hollow upright A^2 and having its upper end connected to one member a^{36} of a clutch mechanism, which member is provided with a bevel-face 3, which coöperates with a correspondingly-beveled face 4 on the other member a^{37} of the said clutch mechanism.

The members a^{36} a^{37} of the clutch, as herein represented, embrace the reduced portion of the shaft a and control the engagement of a loose pulley a^{59} with a disk a^{40} , fast on the reduced portion of the shaft a . The upward movement of the link or rod a^{35} , effected by a movement of the arm 2 of the lever or treadle a^{20} in a vertical direction, causes the beveled face 3 of the member a^{36} to travel up the beveled face 4 of the member a^{37} of the clutch and thereby forces the loose pulley a^{59} into engagement with the disk a^{40} , and when the treadle a^{20} is released by the foot of the operator the movable member a^{36} of the clutch is lowered by means of a spring-actuated brake-lever a^{41} , pivoted, as at a^{42} , in a slot in the head A and having its rear end acted upon by a spring 50, (see Fig. 1,) the front end of the lever a^{41} being provided with a brake-shoe a^{43} , adapted to engage a grooved brake wheel or disk a^{44} , fast on the main shaft a and represented as integral with the disk a^{40} . The brake-lever a^{41} also has mounted upon it a roller a^{50} , adapted to ride upon the periphery of the disk a^{40} , the latter having a portion of its circumference cut away to form a re-

cess a^{51} , into which the roller a^{50} enters, so as to permit the brake-shoe a^{43} to engage the brake-wheel a^{44} , the brake-shoe a^{43} being disengaged from the brake-wheel a^{44} when the full periphery of the disk a^{40} is passed under the roller a^{50} . The brake-lever a^{41} is positively engaged with the movable member a^{36} of the clutch mechanism by a rod a^{52} , (see Fig. 2,) having at its opposite ends right and left hand screw-threads, one of the screw-threads, as the right-hand screw-thread, engaging a threaded socket in the member a^{36} and being secured therein by a nut a^{53} , and the other or left-hand screw-threaded end of the rod a^{52} engaging a thumb-nut a^{54} , provided with a screw-threaded extension or hub a^{55} , which engages a screw-threaded socket a^{56} in the brake-lever a^{41} , the screw-threaded extension a^{53} forming on the nut a^{54} a shoulder a^{60} , (see Fig. 2,) which abuts against the lever a^{41} .

By means of the construction just described the clutch member a^{36} is positively and adjustably connected with the brake-lever a^{41} , so that by means of the adjusting-nut a^{54} the clutch member a^{36} may have its bevel-face 3 adjusted with relation to the bevel-face 4 of the coöperating member a^{37} , and the positive connection referred to effects a positive downward movement of the member a^{36} when the brake-shoe a^{43} is engaged with its brake-wheel a^{44} to stop the machine. Furthermore, the connection referred to permits the operator to release the brake-shoe a^{43} from engagement with the brake-wheel a^{44} , so as to enable the main shaft to be turned by hand, which is desirable in adjusting or timing the machine, without disturbing the adjustment of the clutch member a^{36} with relation to the clutch member a^{37} . By reference to Figs. 1 and 2 it will be seen that when the machine is at rest the nut a^{54} may be turned so as to carry upward the lever a^{41} and thus remove the brake-shoe a^{43} from the brake-wheel a^{44} , which releases the shaft a and permits it to be rotated by hand, if so desired.

It will further be noticed that the screw-threads on the rod a^{52} are fine as compared with the screw-threads on the hub a^{55} , so that the nut a^{54} may travel upon the screw-threaded rod a^{52} a considerable distance without disengaging the nut from the lever a^{41} , and therefore the brake-shoe may be disengaged from its brake-wheel without disengagement of the nut a^{54} from the brake-lever. Furthermore, it will be seen that when the nut a^{54} is turned in the reverse direction the shoulder a^{60} will abut against the lever a^{41} at or about the time the brake-shoe engages the brake-wheel and that the adjustment of the clutch member a^{36} with relation to the clutch member a^{37} is not disturbed.

From the above description it will be seen that the starting and stopping of the machine is under the control of the foot of the operator through the treadle a^{20} , and the positioning of the movable string-nail carrier a^{12} with relation to the driver a^6 and the nose-piece

a^{10} is also under the control of the foot of the operator through the same treadle or lever a^{20} , which construction leaves both hands of the operator free to attend to his work.

5 The string-nail carrier a^{12} normally occupies a position out of line with the passage in the nose a^{10} , and the shaft a^{15} is adapted to be rocked, so as to place the selected string-nail on the carrier into position to be fed into the nose and then to be moved still farther in the same direction to permit the nail inserted into the passage in the nose a^{10} to be severed from the selected string-nail. These successive movements of the carrier a^{12} are effected, as herein shown, by means of a cam b on the shaft a , operating upon a roller b' , carried by a crank or arm b^2 , fast on the rock-shaft a^{15} , the cam b being properly shaped and timed, so as to effect the progressive movements of the carrier a^{12} . The carrier a^{12} in the present instance is shown as provided with two passages $b^3 b^4$, (see Figs. 1 and 8,) into which the string-nails $b^5 b^6$ (see Fig. 5) are inserted, the said string-nails being in practice wound upon suitable reels B B'. (See Fig. 5.) Each of the string-nails referred to consists, as herein shown, of a series of connected headed and pointed tapering nails, and the nails comprising the two string-nails are designed in practice to be of unequal length, so that different lengths of nails may be driven from the same machine. The carrier a^{12} has coöperating with it a combined feeding and cutting mechanism consisting, essentially, of a knife or blade b^8 , secured to the lower end of an arm b^9 , constituting a cutter-carrier and which is pivoted, as at b^{10} , to a crank or arm b^{12} on a rock-shaft b^{13} , having bearings in the head A and provided at its opposite end with a crank or arm b^{14} , carrying a roller b^{15} , which is acted upon by a cam b^{16} , forming part of the shaft a . The rock-shaft b^{13} is also provided with a crank or arm b^{17} , represented as integral with the crank or arm b^{12} and as carrying an adjustable stop or screw b^{180} , which is adapted to make contact with the head A of the machine, as will be described. The crank b^{14} on the rock-shaft b^{13} has its roller b^{15} kept in engagement with its coöperating cam b^{16} , as herein shown, (see Figs. 1 and 8,) by means of a suitable spring b^{18} , having one end fastened, as at b^{19} , to the frame of the machine and its other end bearing against a pin b^{20} on the arm b^{14} , and the crank or arm b^2 on the shaft a^{15} has its roller b' kept in engagement with the cam b by a spring b^{21} , fastened to the frame, as at b^{22} , and engaging a pin b^{23} on the said arm. The cutter-carrier b^9 has secured to it one end of a spring b^{24} , having its other end fastened to a pin or hook b^{25} , extended from the crank or arm b^{12} , the said spring acting to keep the knife or blade b^8 in engagement with the carrier a^{12} .

65 The string-nail carrier, as herein shown, is provided with an offset lower portion 5, and the stationary driver-guide a^7 has its lower

end cut away or recessed, as at 6, so as to permit the offset portion 5 of the string-nail carrier to move beyond the line of the passage a^9 in the nose a^{10} when the knife b^8 is moved across the horizontal upper surface of the nose to sever the nail in the nose from the string-nail.

The carrier a^{12} has detachably secured to it, as by a screw b^{30} , a yielding cover or guard b^{31} for the string-nails, having a bent end or finger b^{32} , which is adapted to engage the heads of the nails and prevent backward and upward movement of the string-nails. The driver-bar a^2 , which is lifted by the cam a' , is moved in an opposite direction by the spring b^{40} . The reels B B', upon which the string-nails are coiled, are removably secured to an upright standard or arm b^{44} , secured to or forming part of the head A, and each of the said reels, as herein shown, comprises a rim or periphery b^{50} , provided with a side plate b^{51} , secured to it, and a detachable spider b^{52} , which constitutes the other side plate for the rim.

The side plates b^{51} of the reels B B' have coöperating with them suitable friction-shoes b^{53} , pivoted, as at b^{54} , to an arm or extension b^{55} of the upright b^{44} .

The operation of the machine, as thus far described, may be briefly set forth as follows: As represented in Figs. 1 and 5, the multiple carrier a^{12} is in what may be termed its "normal" position, with its slot or passage-way b^3 in position to be moved toward and into line with the passage in the nose a^{10} . When in this position, the lever or foot-treadle a^{20} occupies the position represented in Fig. 4, with a projection b^{60} on the heel-plate b^{61} of said lever engaging a slot b^{62} in the gage plate or block b^{63} , fastened to the floor or other support. If now it is desired to drive nails from the string b^5 , which is supposed to be located in the passage-way b^3 of the carrier a^{12} , the operator depresses the heel-plate b^{61} and thereby turns the lever or treadle a^{20} on its pivot a^{22} , which movement of the lever elevates the rod a^{35} , the clutch member a^{36} , and the brake-lever a^{41} . The elevation of the parts referred to releases the brake-shoe from engagement with the brake wheel or disk a^{44} and engages the loose pulley a^{39} with the disk a^{40} , thereby starting the machine in operation.

During the operation of the machine the driver a^6 is withdrawn from the nose a^{10} and up into its stationary guide a^7 , so as to clear the offset portion 5 of the string-nail carrier. (See Figs. 5 and 6.) When the driver has been lifted, the head of a nail on the string b^5 is engaged by the knife b^8 , and the latter commences its downward or feed movement, which is effected by the cam b^{16} , as above described, and substantially simultaneously with or just previous to the commencement of the downward movement of the knife b^8 the carrier-shaft a^{15} is rocked a sufficient distance to place the passage b^3 into line with the passage in the nose a^{10} , and when in this position (shown in Figs. 7 and 9) the carrier

a^{12} remains stationary while the knife b^8 is feeding the string-nail into the passage in the nose, and when the knife is brought into engagement with the top surface of the nose a^{10} (see Figs. 9 and 10) the head of the nail is substantially flush with the said surface, and the knife and string-nail carrier are then simultaneously moved toward the stationary guide a^7 a sufficient distance to permit the knife to completely sever the nail in the nose from the string in the passage-way b^3 of the carrier. The string-nail carrier and knife are then moved back into their starting position, (represented in Fig. 6,) so as to uncover the passage in the nose and permit the driver to descend into the nose and force the nail into the material. When the carrier a^{12} is moved back into its starting position, (represented in Fig. 6,) the knife b^8 is also moved back with the crank b^{12} , and at the same time it is moved upward from the position shown in Fig. 9 to that shown in Fig. 6 by the spring b^{24} .

When it is desired to drive the nails of the string b^6 , the operator releases the pressure upon the heel-plate b^{61} , which action places the operation of the machine under control of the disk a^{40} , so that as soon as the recess a^{51} comes under the roller a^{50} the brake-lever a^{41} is turned on its pivot by its spring and the brake-shoe a^{43} is engaged with a pulley a^{44} and the machine is stopped. The operator then turns the lever a^{20} in a horizontal plane in the direction indicated by arrow 20, Fig. 4, until the projecting lug b^{60} is in line with the slot or recess b^{62a} in the gage-block b^{63} , which movement rocks the shaft a^{18} through the toothed segment a^{33} and the segmental gear a^{32} , and by means of the gear a^{17} and gear-teeth a^{16} moves the rock-shaft a^{15} longitudinally and places the slot or passage b^4 in the carrier a^{12} into line with the nose. The machine is now in condition to be started to drive nails from the string b^6 , and this is effected by the operator depressing the treadle, so as to release the brake and operate the clutch. The carrier rock-shaft a^{15} is limited in its movement in one direction by the engagement of the carrier a^{12} with the stationary guide a^7 and in the opposite direction by the roll b' engaging its cam b , or it may be by the adjusting-screw b^{180} engaging the head A of the machine, and by means of the adjusting-screw b^{180} the roller b' may be accurately positioned with relation to its coöperating cam b , so as to enable the movement of the cutter-arm b^9 to vary according to the length of nails.

The machine herein shown is well adapted for tacking rands c (see Fig. 1) onto the sole c' of a boot or shoe, and to effect this particular work in a highly satisfactory manner the machine is provided with a feed mechanism for the work, which latter is illustrated as the rand and sole.

The work-feed mechanism consists, as herein shown, of a lever c^2 , movable with the string-nail feed mechanism and mounted, in

the present instance, upon the pivot b^{10} (see Figs. 1, 9, and 10) and retained thereon by screw c^3 tapped into the said pivot. The lever c^2 is preferably slotted or forked at its front or lower end to straddle the nose a^{10} , and has its lower or bottom surface serrated, roughened, or provided with teeth c^4 to engage the work and insure the same being fed forward by the lever c^2 , as will be described. The rands c of boots or shoes are usually made on a bevel, as represented in Fig. 1, and for the best results the fingers c^5 c^6 of the forked lever c^2 are inclined so as to conform to the beveled or inclined surface of the rand.

The feed-lever c^2 is preferably spring-pressed down upon the work, which may be accomplished by means of a spring c^7 , fastened at one end to a lug or arm c^8 on the lever c^2 and at its other end to the crank b^{12} . The work-feed lever c^2 is moved forward to feed the work by a lug or finger c^{10} on the crank b^{12} , which extends back of the feed-lever c^2 and against which it is held by the spring c^7 , so that as the crank b^{12} moves forward to carry or feed the nail into the nose a^{10} the work-feed lever c^2 will also be moved forward from the position shown in Fig. 6 to that shown in Fig. 9, and when the crank b^{12} has moved forward to sever the nail in the nose the lever c^2 will be moved forward to the limit and the work will be properly positioned to receive the nail in the nose when the driver descends.

The work is preferably held upon a support of a construction as will now be described.

Referring to Fig. 1, the post A^2 is shown as provided with a lug or projection d , having a socket in which is removably secured, as by a set-screw d' , the depending arm d^2 of a bracket D, provided at its outer end with two hollow vertical arms d^3 d^4 substantially in line with the nose a^{10} and separated from each other by a space or opening d^5 . The hollow arm d^3 contains within it a rod or post d^6 , having a socket in its lower portion for the reception of a supporting-spring d^7 , which latter is extended into a socket in an adjusting-screw d^8 , vertically movable in and through a threaded opening in the arm d^4 of the bracket D. The upper end of the rod d^6 is reduced in diameter to form a shoulder d^{10} , and the reduced portion is provided with a longitudinal slit d^{12} , and is also provided with a socket which extends, as shown in Fig. 1, into the solid portion of the rod d^6 , and in which is inserted a stem or pin d^{13} , having a rounded head d^{14} , which forms a removable top for the rod d^6 , and which in practice is preferably made of hardened steel. The rod d^6 has also fitted upon its reduced portion a sleeve d^{15} , which rests upon the shoulder d^{10} and which has a substantially wide annular rim or flange d^{16} , having its upper surface substantially in line with the upper surface of the head d^{14} , so as to form a substantially broad or wide supporting surface or head for the post d^6 . The sleeve d^{15} is secured to the

reduced portion of the post or rod d^6 by a set-screw d^{17} , which bears against one-half of the split portion of the post and which serves to secure the sleeve on the post and also to bind or clamp the pin or stem d^{13} of the head d^{14} . The post d^6 is yieldingly supported by the spring d^7 and is capable of moving vertically in the hollow arm d^3 , and to prevent rotation of the post d^6 the lower portion of the said post has clamped to it by a set-screw d^{20} a split collar d^{21} , having projecting fingers d^{22} , only one of which is shown in Fig. 1, but which straddle a pin or rod d^{23} , carried by the arms d^3 d^4 . The collar d^{21} is shown as provided with a handle d^{23} to enable the operator to lower the post, and the said collar also serves as a stop to limit the upward movement of the post d^6 . The bracket D has also secured to it, as by screw d^{30} , an arm d^{31} , extended over the head of the work-support and constituting a gage for the work, the said gage being adjustably secured to the bracket D to be moved toward and from the post by the screw d^{30} , extended through a slot d^{34} in said gage or arm. In practice the operator holds the work against the end of the gage d^{31} , which insures the nails or tacks being driven into the work a uniform distance from the edge of the work.

By making the shaft a of substantially large diameter the operating-cams may be made integral with it, which avoids imperfect working of the machine due to the cams becoming loose on the shaft and which also simplifies the construction and lessens the cost of the machine. The brake mechanism is so adjusted with relation to the operating parts of the machine that the shaft a is stopped in its rotation with the knife b^8 and its carrier b^9 in their elevated or starting position with the knife resting on the shield or guard b^{31} , so that the multiple string-nail carrier may be shifted without danger of the string-nails striking the said knife, and to absolutely avoid the danger of the nails striking the knife, which might break the string-nail or bend it so as to render the machine inoperative, the lever which shifts the string-nail carrier is locked from movement to effect the shifting of the carrier until the brake has engaged and stopped the main shaft of the machine.

When the machine is used for other work than tacking rands, the rand feed attachment may be removed and the work-supporting bracket D may be swung around out of the way by loosening the screw d^7 , and when swung around it may be again secured by the said set-screw.

I claim—

1. In a machine of the character described, the combination of the following instrumentalities, viz: a multiple string-nail carrier, a shaft provided with teeth and to which said carrier is attached, a vertically-arranged rock-shaft provided with a gear in mesh with the teeth on the rock-shaft, and means located

below the multiple string-nail carrier to rotate said rock-shaft, substantially as described.

2. In a machine of the character described, the combination of the following instrumentalities, viz: a multiple string-nail carrier, a rock-shaft to which it is attached, a crank attached to said rock-shaft, a string-nail feed mechanism, and a main shaft having cams integral therewith and of less diameter than the diameter of the said shaft, to act on the said crank and the said feed mechanism, substantially as described.

3. In a machine of the character described, the combination of the following instrumentalities, viz: a reciprocating driver, a nose having a passage in line with said driver, a stationary driver-guide having a guideway in line with the passage in the nose and extended toward the said nose to form a substantially long bearing for the driver, a multiple string-nail carrier having its lower end offset and normally out of line with the driver and the passage in the said nose, mechanism to move the offset portion of the multiple string-nail carrier into line with the passage in the nose and across the same, and a cutter to sever the nail in the nose from the string-nail in the said carrier, substantially as described.

4. In a machine of the character described, the combination of the following instrumentalities, viz: a reciprocating driver, a nose having a passage in line with said driver, a stationary driver-guide having a guideway in line with the passage in the nose and extended toward the said nose to form a substantially long bearing for the driver, a multiple string-nail carrier, a cutter or knife co-operating with said carrier and with the said nose, an arm carrying said knife, a rock-shaft provided with the crank b^{12} to which the knife-carrying arm is secured, a second crank b^{17} attached to the said rock-shaft, and an adjusting-screw b^{180} carried by the crank b^{17} , substantially as described.

5. In a machine of the character described, the combination of the following instrumentalities, viz: a multiple string-nail carrier, a rock-shaft provided with gear-teeth and to which said carrier is attached, a vertically-arranged rock-shaft, a gear on said rock-shaft in mesh with the teeth on the rock-shaft to which said carrier is attached, a foot-treadle movable in a substantially horizontal plane, and gearing connecting said foot-treadle with the vertically-arranged rock-shaft, substantially as described.

6. In a machine of the character described, the combination of the following instrumentalities, viz: a work-support, a string-nail feed mechanism consisting of a cam-actuated rock-shaft provided with a crank, a knife-carrier pivotally connected to said crank, and a knife secured to said carrier to engage said string-nails, and a work-feeding arm or lever pivotally connected with said crank or arm and movable with the knife-carrier to feed

the work as the string-nail is being fed, substantially as described.

7. In a machine of the character described, the combination of the following instrumentalities, viz: a work-support, a bracket in which said work-support is vertically movable, a spring to sustain said work-support, a spring-supporting screw adjustable in an arm of said bracket below and in line with said work-support and means attached to said work-support to lock the same against rotation, substantially as described.

8. In a machine, of the character described, the combination of the following instrumentalities, viz: the post d^6 having its upper portion reduced in diameter to form a shoulder, split longitudinally, and provided with a socket, a pin or stem inserted in said socket and provided with a head, a sleeve fitted over the reduced portion of the post d^6 and provided with an annular flange substantially in line with the head on the said pin, and means to fasten said sleeve to the post d^6 and clamp the said pin or stem, substantially as described.

9. In a machine of the character described, the combination of the following instrumentalities, viz: the bracket D provided with the arms d^3 d^4 , a post provided with a socket in its lower end, a spring inserted in said socket, an adjusting-screw extended through the arm d^4 and provided with a socket for the reception of the lower end of said spring, a collar secured to the said post between the arms d^3 d^4 and provided with a handle to lower the post, and means to prevent the said post rotating, substantially as described.

10. In a machine of the character described, the combination of the following instrumentalities, viz: a starting mechanism for said machine, a lever movable in a substantially vertical and in a substantially horizontal direction, means to connect the said lever with the said starting mechanism, a rock-shaft capable of longitudinal movement, a string-nail

carrier attached to said rock-shaft to move therewith, and means to connect said rock-shaft with the said lever to effect longitudinal movement of the rock-shaft by the movement of the said lever in a substantially horizontal direction, substantially as described.

11. In a machine of the character described, the combination of the following instrumentalities, viz: a multiple string-nail carrier having a rocking and a longitudinal movement, a knife cooperating with said string-nail carrier, a carrier for said knife, a guard or shield for the string-nails attached to said string-nail carrier and with which said knife cooperates in its normal or starting position, a rotatable shaft provided with cams to rock said string-nail carrier and to effect the movement of the said knife, a lever connected to the string-nail carrier to effect its longitudinal movement, and a brake mechanism for said shaft adjusted with relation to the cams thereon, to stop the rotation of the said shaft with the said knife in its starting or normal position with the said shield or guard between the knife and the string-nails, whereby the string-nail carrier may be moved longitudinally without danger of the string-nails engaging the said knife, substantially as described.

12. In a machine of the character described, the combination of the following instrumentalities, viz: a multiple string-nail carrier, a longitudinally-movable rock-shaft to which said carrier is attached, a foot-treadle, and intermediate mechanism to connect said foot-treadle with the said rock-shaft to effect longitudinal movement thereof, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM GODDU.

Witnesses:

JAS. H. CHURCHILL,
J. MURPHY.