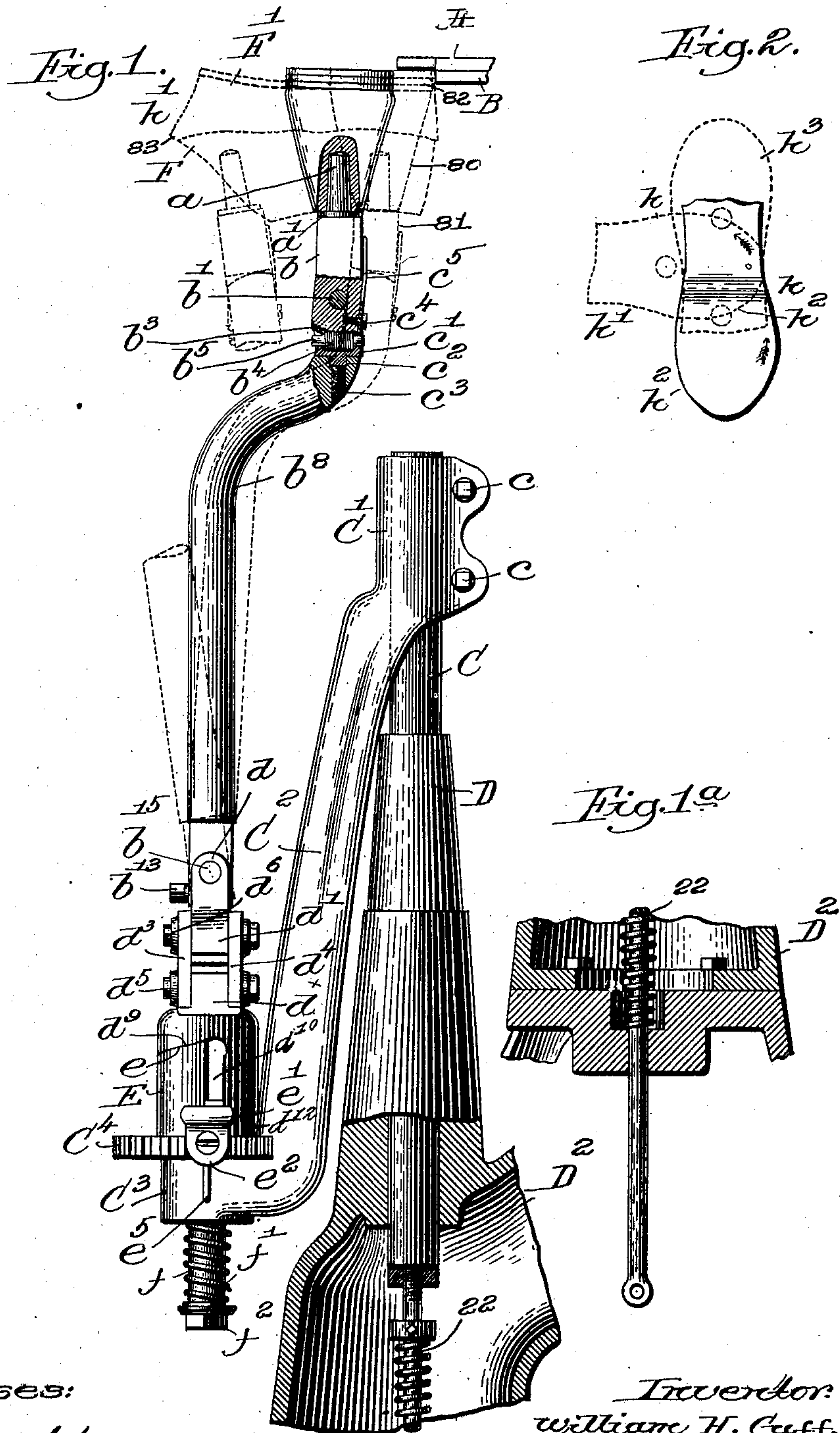


W. H. CUFF.
JACK FOR NAILING AND SLUGGING MACHINES.
APPLICATION FILED JUNE 20, 1899.

919,424.

Patented Apr. 27, 1909.
2 SHEETS—SHEET 1.



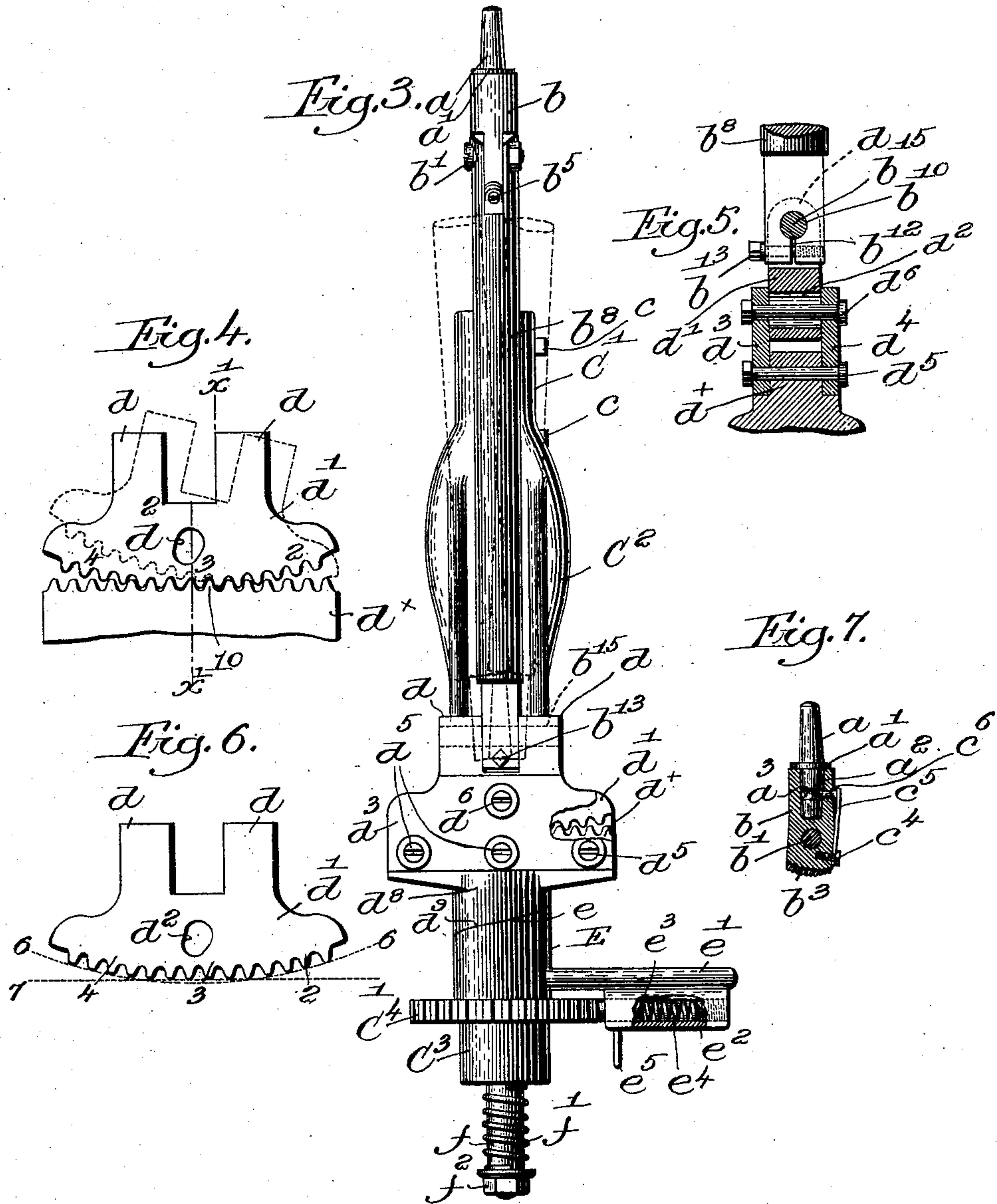
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Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM H. CUFF, OF BRAINTREE, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS,
TO UNITED SHOE MACHINERY COMPANY, A CORPORATION OF NEW JERSEY.

JACK FOR NAILING AND SLUGGING MACHINES.

No. 919,424.

Specification of Letters Patent.

Patented April 27, 1909.

Application filed June 20, 1899. Serial No. 721,203.

To all whom it may concern:

Be it known that I, WILLIAM H. CUFF, of Braintree, county of Norfolk, State of Massachusetts, have invented an Improvement
5 in Jacks for Nailing and Slugging Machines, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

10 In the manufacture of boots and shoes it is customary to secure the heel seat of the sole of a shoe to the lasted shoe with metallic or other suitable fastenings before the last is withdrawn from the upper. Frequently,
15 also, spring and other heels are secured to the upper and inner sole while the last is still within the shoe, and these heels when so secured are often thereafter slugged or otherwise provided with protectors or orna-
20 mentation while the shoe is still on the last. In successfully performing any of these operations, before the last is withdrawn from the shoe, it has been found advantageous to mount the last on a jack-spindle provided
25 with suitable means to engage and retain the last thereon.

This invention herein to be described relates to a jack of this class, and has for its object the production of an improved jack
30 to sustain the last during any of the operations referred to.

The machine in which the jack herein to be described is commonly used has a stationary foot-plate or presser-plate, the under
35 side of which occupies a substantially horizontal position, and said foot-plate has co-operating with it an edge gage preferably adjustable so that the line of nailing or slugging may be properly defined at the de-
40 sired distance from the edge of the stock in which the nails, fastenings, or slugs are to be driven. The last carrying the shoe, a part of which is to receive the nails, fastenings or slugs, has a hole which is entered, as
45 herein provided for, by a last-pin, represented as entering loosely a socket in a last-pin holder, which may be mounted in an adjustable manner on the upper end of a so-called jack-spindle the lower end of which
50 terminates in a rocking foot, preferably pivoted to the spindle, and free to tip on a rocker-bed the shank of which enters a hub extended from and forming preferably a part of the jack frame sustained by any

usual horn-shaft, the latter being preferably 55 supported in a yielding manner as common to nailing and slugging machines. Means are provided for adjusting the rocker-bed and the spindle vertically. In the preferred construction the shank of the rocker-bed is 60 passed through a bed-lifting cam sustained loosely by the jack-frame, and the lower cam shaped end of a projection depending from the rocker-bed rests on the top of the said bed-lifting cam, and said shank below the 65 hub through which it is extended is provided with a depressing spring. The bed-lifting cam is provided with a handle carrying a movable locking pawl or device which coöperates with teeth of the jack- 70 frame so that by turning said bed-lifting cam in one or the other direction the rocker-bed may be elevated or depressed, as desired, to thereby adapt the jack to lasts of different sizes. The last-pin holder is preferably 75 pivotally mounted upon the upper end of the jack-spindle, and means are provided for adjusting said holder to any desired degree of inclination relative to the foot plate. As herein represented the lower end of said 80 holder is provided with worm teeth which are engaged by the teeth of a worm screw, slotted at its end so that it may be engaged by a screw driver.

It is advantageous that the movable sup- 85 port for the last-pin holder be relieved of strain as much as possible during the operation of the machine, and to this end means independent of the movable support are provided which may be quickly adjusted in 90 position and give the relief desired. In the preferred construction for effecting this result the worm screw is sustained, at its side opposite the worm teeth of the last-pin holder, in a concavity of a movable block having 95 coöperating with it an adjusting device shown as a screw, the movement of which causes proper contact of the body of the screw with the worm toothed end of the said last-pin holder. 100

The rocking foot referred to as mounted on the rocker-bed is preferably toothed at its underside and the surface of the rocker bed is preferably toothed throughout. The central portion of the rocking foot is herein 105 represented as shaped to present a face lying in a chord to the circle in which are presented the crowns of the teeth at the opposite

ends of the rocking foot, so that by reason of such construction of said rocking foot the top of the last-pin or holder is maintained in substantially the same horizontal plane whether the jack is held in its normal vertical position or whether the top of the jack is moved to a position toward or away from the machine and at the same time to the right or left of its normal position, a position which has to be assumed when any part of the heel is being nailed except the middle of the heel, the spindle standing in its normal position only when the rear part of the heel is being nailed or slugged.

One of the chief objects of the improvement herein to be described is so to mount the jack-spindle carrying the last that in the operation of driving a series of nails, fastenings or slugs into the stock supported by the last, the upper surface of the stock may always be maintained in substantially the same horizontal plane in contact with the underside of the foot-plate referred to.

The last-pin usually enters loosely the hole in the last, and during the nailing of the heel the pressure thereon is between the foot-plate and the last-pin and consequently the last will be tipped on the pin and the edge of the heel being nailed might tip sufficiently to incline the points of the nails outwardly, and to overcome this undue tipping of the heel the last pin is tipped on the spindle, this tipping being more or less according to size of the heel, it being less with small than with large heels, and the degree of the tip required varies with different manufacturers as some desire to beat down the outer edge of the heel while it is being nailed in order to force the lifts of the heel more closely together and obviate cracks in the heel. When the tipping of the last to insure this beating down of the heel edge is considered necessary, or whenever the tipping desired is more than the average then I find it advisable to cut off more of the bottom of the rocking foot, that is make the chord longer than is necessary to insure the last being always maintained, as hereinbefore explained, in a substantially horizontal position. The lengthening of the chord enables me to compensate for the upward tipping of the rear or heel end of the last that occurs when the last pin is considerably inclined for the purposes stated, and therefore to compensate for this upward tipping during the nailing of the rear part of the heel, I, by the increase in the length of the chord am enabled to secure a slightly lower position of the jack when in its normal or vertical position.

Means are provided for preventing the slipping of the rocking-foot longitudinally on the rocker-bed during the operation of presenting the heel end of a shoe to the driver working through the usual foot-plate.

I preferably effect this result by providing the rocking foot and the rocker-bed with teeth. With such a construction it is possible to always insure an exact position for the foot on the bed whenever the jack-spindle is substantially vertical, and whenever the nails, fastenings, or slugs are being driven into the rounded extremity of the heel or sole.

Figure 1 represents in side elevation a foot-plate, edge gage and part of a horn spindle, the latter sustaining my novel jack. The spindle of said jack is shown by full lines in its normal vertical position and as sustaining a last carrying a shoe, the last, part of the last-pin holder and the jack-spindle being broken away. The spindle, last, and shoe represented by the dotted lines 80 and 81, are in position to receive nails along the side of the heel. Another dotted-line position of the shoe represents the latter in position to receive nails in the rear of the heel, the jack-spindle at such time standing in its normal vertical position. The dotted line farthest to the left represents the position occupied by the jack-spindle when a last is to be placed on the last pin or removed therefrom. Fig. 1^a shows a portion of the framework removed from the lower end of Fig. 1; Fig. 2 is a diagram showing the end of a spring heel in three positions; Fig. 3 represents my improved jack in front elevation, the full lines representing the spindle in its vertical or normal position when the nails or slugs are being driven into the rounded extremity of the heel, the dotted line position at the right showing the jack-spindle in position to commence the operation of driving nails or slugs in a heel near the shank of the shoe, the dotted lines at the left showing the spindle in the position it will occupy when the nailing is being finished; Fig. 4, in full lines, shows the rocking-foot of the jack-spindle sitting on the rocker-bed, the jack-spindle being in its normal vertical position, the dotted lines showing the rocking-foot tipped to occupy the position required for commencing nailing or slugging; Fig. 5 shows the rocking-foot in section in the line a' , Fig. 4, it containing the jack-spindle; Fig. 6 shows the foot by itself; and Fig. 7 shows the upper end of the last-pin holder in vertical section, and the detachable revolving last-pin therein.

Referring to the drawings, let A represent the usual foot-plate or presser-plate common to nailing machines, and B the usual edge gage. This foot-plate and edge gage may be substantially the same as represented in U. S. Patent No. 490621, January 24, 1893.

The horn spindle C is and may be of any usual construction, it being sustained by a spring 22 and adapted to be slid up and down in a suitable sleeve D rising from the

column or framework D^2 of the nailing or slugging machine in usual manner. The spring 22 to sustain the horn in a yielding manner may be of any usual or suitable kind, the range of vertical movement of the spindle under the action of the spring being usually about an inch or an inch and a quarter in extent.

To the upper end of the spindle C I have clamped by suitable clamp screws c a split hub C' of the jack-frame C^2 , having a horizontal extension C^3 , with which is fixed a toothed-plate C^4 . This plate serves as a support for a sleeve E having its upper surface e made as a cam, and provided with a handle e' having a depending ear e^2 , which receives a pawl e^3 acted upon by a suitable spring e^4 , said pawl being free to slide in said ear, the pawl having a pin e^5 , the spring normally keeping the pawl in engagement with the teeth of the plate C^4 , the pawl maintaining the sleeve in its adjusted position. When it is desired to raise or lower the jack spindle to be described, the operator will pull out the pin e^5 to disengage the pawl from said toothed plates C^4 and engaging the handle e' will turn the sleeve E to the left in Fig. 1 when its side face d^{20} will be carried away from the upright edge of the part d^8 of the rocker bed, leaving a space as indicated at d^{10} , and its upper cam-shaped face which contacts with the inclined face d^9 of the part d^8 of the rocker bed raises the rocker bed and spindle. Reverse movement of the sleeve permits the rocker bed and sleeve to move downwardly under the action of spring f' to be hereinafter described.

The last pin a sustaining the last F and shoe F' has, as herein represented, a shoulder a' and a depending shank a^2 provided with an annular groove a^3 . The shank a^2 is made to enter loosely a hole in the upper end of a last-pin holder b pivoted on a bolt b' extended through the slotted upper end of the jack-spindle b^8 , the lower end of said last-pin holder, see Fig. 1, being represented as curved and provided with a series of worm teeth b^3 which are engaged by the teeth of a worm screw b^4 , slotted at one of its exposed ends, as at b^5 , to receive a screw driver by which to rotate the said screw to change the position of the last-holder and pin vertically to thereby adapt it to the condition of the work to be done, as hereinbefore described, the last requiring different positions for the different work to be done. The unthreaded ends of the worm screw b^4 rest in concavities of ears forming part of a block c' having a shank c^2 which is acted upon by an adjusting device c^3 , shown as a screw, the rotation of said screw moving the block toward the pivot b' on the last-pin holder, thereby enabling the contact of the teeth of the worm screw with the teeth of the holder to

be kept uniform, and also to partially remove the strain of the holder on the pin b' . The holder has connected with it, by a screw c^4 , a spring c^5 having at its upper end a pin or projection c^6 which is extended through a hole in the hollow shank of the last-pin holder, said pin or projection entering the notch c^7 in the shank of the last-pin. The pin or projection c^6 prevents the withdrawal of the last-pin from the last-pin holder in operation, but leaves the shank of the pin free to turn in the holder with the last during the operation of turning a shoe about the jack-spindle in the operation of driving nails, fastenings, or slugs into the heel, it being understood that at times, owing to the position of the jack and the condition of the hole in the last, the last pin binds more or less in the hole of the last.

In practice the crown of the last is supported by the shoulder a' of the last-pin. The jack-spindle b^8 is bent or offset substantially opposite the upper end of the sleeve C' as shown in Fig. 1, so that the last-pin may occupy a position directly over the upper end of the horn spindle C , or any position above or with relation to said horn spindle that may be required in moving the last and shoe under the foot-plate. The lower end of the jack-spindle is provided with an opening b^{10} , see Fig. 5, which is split, as at b^{12} , a suitable clamp screw b^{13} extended through threaded holes in said split end enabling it to be clamped firmly upon a stud b^{15} , which is thus fixed with relation to the lower end of the jack-spindle and constitutes a pivot for the same, said stud being adapted to turn freely in holes made in suitable ears d of the rocking foot d' . The rocking foot provided with an elongated opening d^2 rests at its lower side upon, as herein shown, a rocker-bed d^8 having suitable side walls d^3 and d^4 , said side walls being represented as detachable, and as being connected with the rocker-bed by bolts d^5 , herein represented as three in number. The opening d^2 in the rocking foot is entered by a bolt d^6 extended through said side walls, the diameter of said bolt being considerably smaller than the opening d^2 so that the rocking foot may turn and not be bound by the action of the bolt d^6 , the chief purpose of said bolt being to prevent the accidental lifting of the rocking foot from the rocker-bed. The underside of the rocker-bed has a projection d^8 provided with an inclined face d^9 which rests upon the inclined or cam shaped face e of the sleeve E . The rocker-bed also has depending from it a shank f which is extended through the sleeve E and through a hole in the toothed plate C^4 and the extension C^3 and also through a suitable expansion spring f' , the shank f thereafter receiving upon its threaded end a suitable nut, as f^2 , the rotation of said nut on said shank increasing or decreasing the ef-

fective force of the spring f' , so that the inclined face d^9 of the depending foot d^8 , see Fig. 1, of the rocker-bed may rest firmly upon the upper inclined end of the sleeve E.

5 It is necessary at times to adjust the jack spindle b^8 vertically more or less to thereby adapt the jack to the depth of the last being used, it being understood that the larger the last the deeper it is from its crown to its
10 sole, and to do this the operator has simply to turn the sleeve E. The sleeve E and the cooperating inclined face d^9 of the rocker-bed constitute what I shall hereinafter designate as means for varying the vertical
15 position of the jack-spindle, and instead of these particular devices I may employ any other usual device or devices for accomplishing this vertical adjustment, the two faces e and d^9 constituting practically each a part
20 of opposed screw threads.

The underside of the rocking-foot is represented, see Figs. 3, 4, and 6, as provided with blocks of teeth 2, 3, 4, and viewing Fig. 4 it will be noticed that the blocks of
25 teeth marked 2 and 4 are located respectively at the opposite ends of the rocking-foot, and that the crowns of the teeth in said block stand substantially in the arc 6 of a circle represented by dotted lines in Fig. 6, but
30 the crowns of the teeth of the central block 3 stand in a line 7 which constitutes a chord to the arc 6, so that whenever the block of teeth 3 engages the teeth 10 of the rocker-bed, the crowns of the teeth will occupy a
35 position in a substantially horizontal line, and the jack-spindle will occupy its normal or vertical position, and at such time if nails or slugs are being driven, that they will be driven into the extremity of the heel-
40 end of the boot or shoe. When the jack-spindle and its rocking foot are tipped in the direction of the length of said foot on or with relation to the rocker-bed the top of the last-pin will be kept at substantially the
45 same horizontal level and the blocks of teeth 2 and 4, one or the other, will be effectually engaged with the teeth of the rocker bed, and under such conditions, the jack-spindle being inclined from a vertical position, the
50 foot cannot possibly slip longitudinally on or with relation to the rocker-bed, hence it always follows, whenever the jack-spindle is in its normal or vertical position with relation to the length of the rocker-bed, that
55 the teeth of the foot always occupy one and the same relation with the teeth of the bed.

Let it be assumed that a spring heel is to be nailed. The last containing the shoe will be applied to the last-pin in the last-pin
60 holder of the jack-spindle, the last-pin holder having been previously adjusted to give to the last-pin the proper inclination with relation to the axis of the horn spindle C. When the last is so applied to the last-

pin the jack-spindle will occupy the dotted 65 line position at the left in Fig. 1, and the toe of the last may be grasped by the left hand of the operator, the operator standing in front of the jack-spindle. Preparatory to starting the machine to drive nails or slugs 70 the operator holding the last and shoe in his hand, the last being on the last-pin, will push the last and jack-spindle into the full line position, Fig. 1, the jack spindle swinging on the stud b^{15} as a fulcrum, and then in 75 connection with moving the spindle in that direction he will turn the rocking-foot on the rocker-bed thereby adjusting the jack spindle perfectly and at the same time place the side of the heel against the edge gage B, 80 the jack-spindle at such time occupying the dotted line position 81, Fig. 1, and the dotted line position at the right of Fig. 3, the shoe occupying the dotted line position 80. This position of the parts puts that portion of the 85 heel marked h , which terminates in the shank of the shoe, directly under the driver which is to drive the nails or slugs, and with the last and shoe in such position the operator will start the machine, and as the nails 90 or slugs are driven one after another he will gradually move the jack-spindle from its dotted line position at the right in Figs. 1 and 3 into its full line position, the operator during such movement also turning the shoe 95 gradually on the last-pin in the direction of the arrow Fig. 2. As the jack-spindle comes into the full line position, Figs. 1 and 3, the nailing or slugging arrives at the rounded extremity of the heel, or the shoe 100 is brought into the dotted line position 83, see Fig. 1, and the rounded end having been nailed or slugged, and the side h^2 of the heel having been brought against the edge gage B the operator will gradually 105 again move the jack-spindle from the full line positions Figs. 1 and 3 into the dotted line position, Fig. 1, and will continue the movement of the jack-spindle b^8 from the full line position, Fig. 3 into substantially 110 the dotted line position at the left in said figure, the rocking foot completing its tipping stroke upon the rocker-bed, thereby enabling the last and shoe to be moved substantially horizontally in contact with the 115 underside of the foot-plate. The nailing or slugging is completed as the heel comes into the position h^3 , Fig. 2, and the jack-spindle is permitted to again resume its normal vertical position and to turn outwardly into 120 the dotted line position at the left of Fig. 1 when the last and shoe may be removed.

By reason of the shape of the rocking foot sustained on the rocker-bed it is possible that the spindle may be moved during the 125 nailing or slugging operation in the direction to rock the foot on said bed, and the last during such movement will be main-

tained and moved substantially in the same horizontal plane while the nails or slugs are being driven. In other words the rocking surface of the member d' is so constructed that it compensates not only for the lowering of the spindle by tipping toward the machine about the pivot pin b^{15} , but also for such lowering as would have taken place as a result of the tipping of the spindle in a direction at right angles to the before mentioned tipping, had the rocking foot been given a curve corresponding to an arc of a circle.

This invention is not in all cases to be limited to the use of teeth in the rocker-foot, or in the bed, yet the teeth are preferable as they prevent any longitudinal motion of the foot on the bed, and also aid greatly in relieving strains of the outer sides of the rocking foot against the inner sides of the plates d^3 and d^4 rising from the rocker-bed.

Under the term rocking-foot and rocker-bed I mean to include a foot presenting a convexed face for more or less of its length, such foot standing on a substantially horizontal bed, or the foot and bed will be so shaped, one with relation to the other, that as the foot is tipped or rocked on the bed it will retire from contact with one part of the bed and engage another part thereof, this operation being effected as the foot is tipped to and fro on the bed in the operation of nailing or slugging.

In this machine the circle bounding the arc occupied by the ends of the rocking-foot is struck from a center substantially at the surface of the heel end of the last.

This invention is not limited in all instances to the use of the chord at the underside of the rocker foot, for in some cases with a long jack good results may be obtained by the use of a foot the entire under surface of which is in an arc of a circle.

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

1. In a jack, a bed, a rocking-foot having a curved underside sustained by and adapted to rock on said bed, and a jack-spindle joined to said foot and extending therefrom in a direction approximately radial to the curved underside of said foot.

2. The combination with a sustaining bed, of a jack spindle having a tipping movement in one direction and provided with a foot having a curved underside resting on said bed upon which the spindle may rock in another direction, the contour of said curve being such that the upper end of the spindle will move in a substantially horizontal plane during the normal operative movement of the spindle.

3. A rocking-foot and a radial jack-spindle pivotally mounted thereon, combined

with a bed to sustain the underside of said rocking-foot, and means for preventing sliding movement of said foot relatively to said bed.

4. A jack-spindle mounted upon a rocking-foot having its underside shaped to present end portions lying in the arc of a circle, the middle portion of the foot being shaped to present a chord to said arc, and a rocker-bed to sustain said foot, substantially as described.

5. A jack-spindle and a rocking-foot carrying it, said foot presenting at its opposite ends blocks of teeth the crowns of which occupy a position in an arc of a circle, the central portion of said foot between said toothed portions presenting a surface occupying the position of a chord intersecting the arc occupied by the crowns of the teeth referred to, and a rocker-bed to sustain said rocking foot, substantially as described.

6. A jack having a toothed rocker-bed, and having a jack-spindle with a toothed rocking foot arranged to engage and rock upon said rocker-bed and shaped to cause the top of the jack to move in a substantially straight line when the jack is rocked.

7. A jack-spindle having a foot presenting the opposite ends of its lower side in an arc of a circle and provided with a slot, combined with a rocker-bed having side walls, and a bolt inserted through said side walls and the slot of said foot, substantially as described.

8. In a jack, a rocker-bed, a rocking-foot sustained on said bed, said foot rolling from end to end on said bed during changing positions of the spindle, a jack-spindle jointed at its lower end to said rocking-foot centrally between its ends, and means to adjust said rocker-bed, foot and spindle vertically.

9. A jack-spindle bored and split at its lower end, a stud inserted in the bore of said jack-spindle, a clamping device to clamp said stud in said lower end, and a rocking-foot to sustain said stud loosely that it may tip therein; combined with a rocker-bed upon which said foot rests and is free to turn as the spindle is tipped to properly present the last and shoe in position for the shoe to receive nails or slugs, substantially as described.

10. In a nailing machine, a jack-spindle having an attached curved rocking foot, and a bed on which the foot rocks, said foot being shaped to cause the top of the jack to move in a substantially horizontal path and said spindle being movable transversely to the line of rocking movement of said foot on said bed, substantially as described.

11. A jack-spindle, a foot upon which it is mounted, and a rocker-bed on which said foot is free to rock, combined with a last-pin and an adjustable last pin holder car-

ried by said spindle, and means to clamp and retain the last-pin holder in its adjusted position, substantially as described.

12. A rocker-bed, a rocking foot mounted thereon and a jack-spindle pivoted on said foot and, provided with a tipable last holding pin, substantially as described.

13. A rocker-bed, a rocking foot mounted thereon, a jack spindle having its lower end pivoted on said foot centrally between its ends, a last-pin holder at the upper end of said spindle and extended thereabove, and a last-pin removably mounted in said last-pin holder.

14. A jack-spindle and a rocking-foot upon which it is pivotally mounted, and a rocker-bed to sustain said foot; combined with a last-pin having a shank, a last-pin holder pivotally mounted on said jack-spindle, and a locking device coöperating with the shank of the last-pin to retain it in position in said holder, yet leave the pin free to be readily changed and to be rotated in said holder, substantially as described.

15. In a machine of the class described, a rocker-bed, a rocking-foot thereon presenting a part of its underside in the arc of a circle, and a part as a chord to said arc, combined with a jack-spindle having a tipping last-pin, substantially as described.

16. In a machine of the class described, a jack-spindle mounted upon a rocking-foot having its underside shaped to present end portions lying in the arc of a circle, the middle portion of the foot being shaped to present a chord to said arc, and a rocker-bed to sustain said foot, the lower curved side of said foot occupying the arc of a circle struck from the top of the heel end of the last carried by said spindle, substantially as described.

17. The combination with a tipping jack-spindle having a pin to carry a last, of a supporting bed therefor, and a rocking connection between said spindle and bed constructed to afford provision for a movement of the top of the pin in a substantially horizontal plane throughout the driving of a series of slugs or fastenings.

18. The combination with a jack-spindle having a last-pin holder pivoted thereon and provided with worm teeth at its lower end below said pivot, of an adjustable worm arranged to engage said teeth, and separate means mounted in the spindle and arranged to support said worm and relieve the strain on the pivot which sustains the holder.

19. The combination with a jack-spindle and a toothed last-pin holder pivoted thereon and locked at its lower end and provided with a last-pin, of an adjusting device to engage the teeth of said holder, means to sustain said adjusting device, and means to

adjust said sustaining means to insure proper engagement of the adjusting device with the last-pin holder.

20. A jack composed of a rocking-foot curved at its underside, and a jack-spindle pivoted thereon and movable at right angles to the length of said foot, a last-pin mounted on said jack spindle, means to adjust said pin out of line with the longitudinal axis of said spindle, means to lock the last-pin in its adjusted position, and a bed to sustain the rocking-foot in its rolling motion thereon.

21. In a nailing machine, a foot-plate, a tipping non-revoluble jack spindle, and sustaining means constructed and arranged with relation to the jack spindle to insure a substantially horizontal movement of a shoe carried by the spindle throughout the tipping movement of the spindle to present different portions of the shoe in position to receive the action of the driver.

22. In a nailing machine, a jack spindle having normally a compound movement made up of a rocking movement in one direction and a tipping movement in another direction constructed and arranged to compensate for vertical variation of the top thereof due to its movement.

23. In a jack, a rocker-bed, a rocking foot sustained on said bed, and adapted to roll in the direction of its length over the bed during the operation of inserting slugs or fastenings into stock, a jack-spindle jointed to said rocking-foot between its ends, and means to prevent the lifting of the rocking-foot from the rocker-bed.

24. In a nailing machine, a rocker-bed, a rocking-foot, and a jack-spindle pivoted on the foot, said parts having such relation one to the other that a line longitudinally of the jack-spindle and transversely of the rocking-foot will intersect said pivot.

25. The combination with a sustaining bed, of a jack-spindle connected thereto, and having provision independent of said connection for tipping movement, and means to compensate for vertical variation of the top thereof due to the tipping movement of the spindle.

26. In a jack, a bed, a rocking-foot having a curved underside sustained by and to rock on said bed, and a jack-spindle joined to said foot and extending therefrom in a direction approximately radial to the curved underside of said foot, its upper end being at substantially the center of the circle of which said curved underside is approximately an arc, whereby a rocking movement of the foot will cause the upper end of the spindle to move in a substantially horizontal path.

27. The combination with a bed, of a jack-

spindle sustained by and constructed and
arranged to rock thereon during the opera-
tion of the driving of a series of slugs or
fastenings, and means for preventing a slid-
5 ing movement of said spindle relatively to
said bed while the former is being rocked.
In testimony whereof, I have signed my

name to this specification, in the presence of
two subscribing witnesses.

WILLIAM H. CUFF.

Witnesses:

NELSON W. HOWARD,
EMMA J. BENNETT.