No. 737,929. PATENTED SEPT. 1, 1903.

C. HINZ.

BLIND WIRING MACHINE.

APPLICATION FILED DEC. 4, 1901.

NO MODEL. 6 SHEETS—SHEET 1.

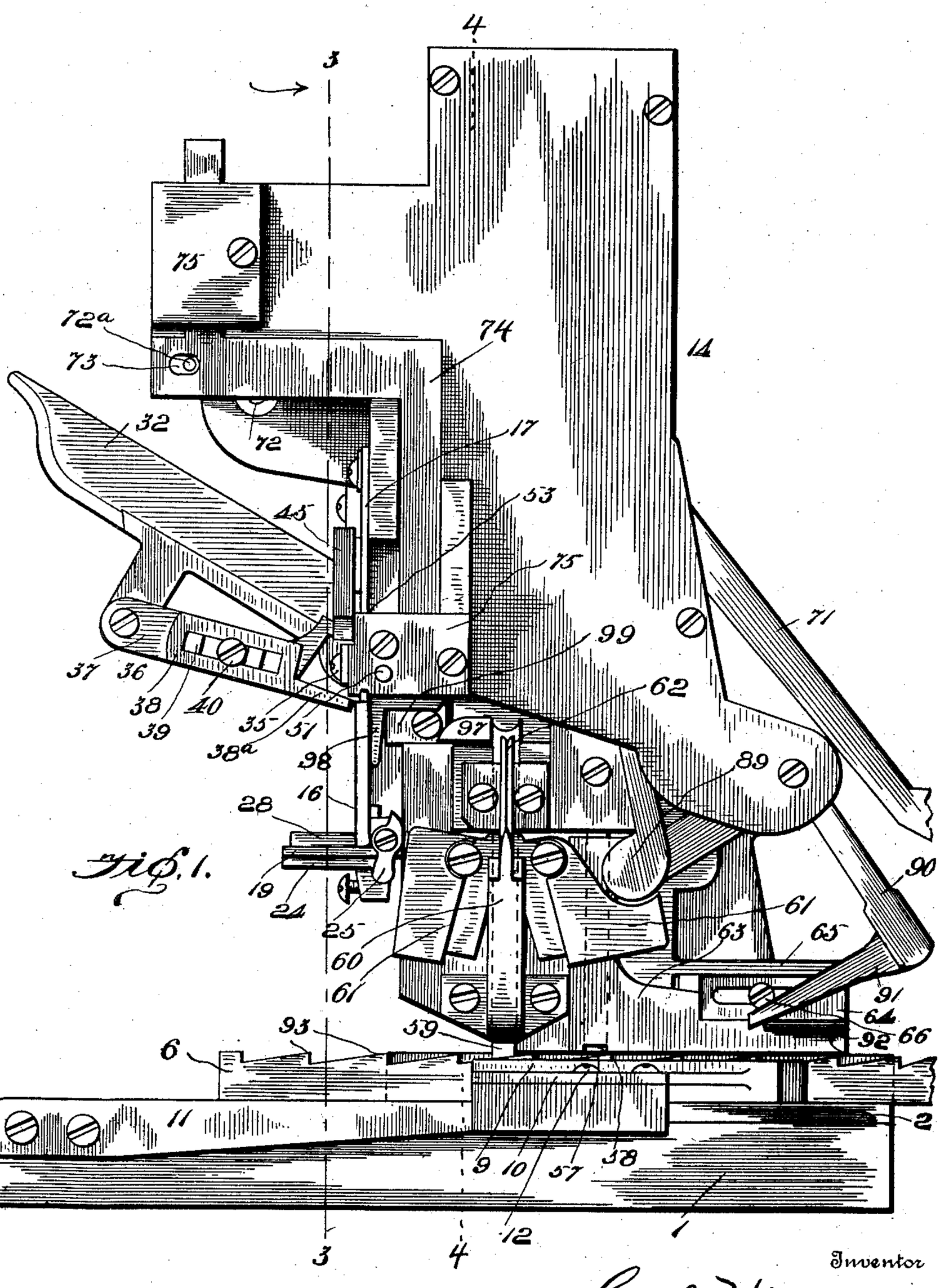


Fig. 1.

Witnesses

Bernard M. Offutt.

W. G. Crowley.

Inventor

Carl Hinz.

By David T. Moore.

Attorney

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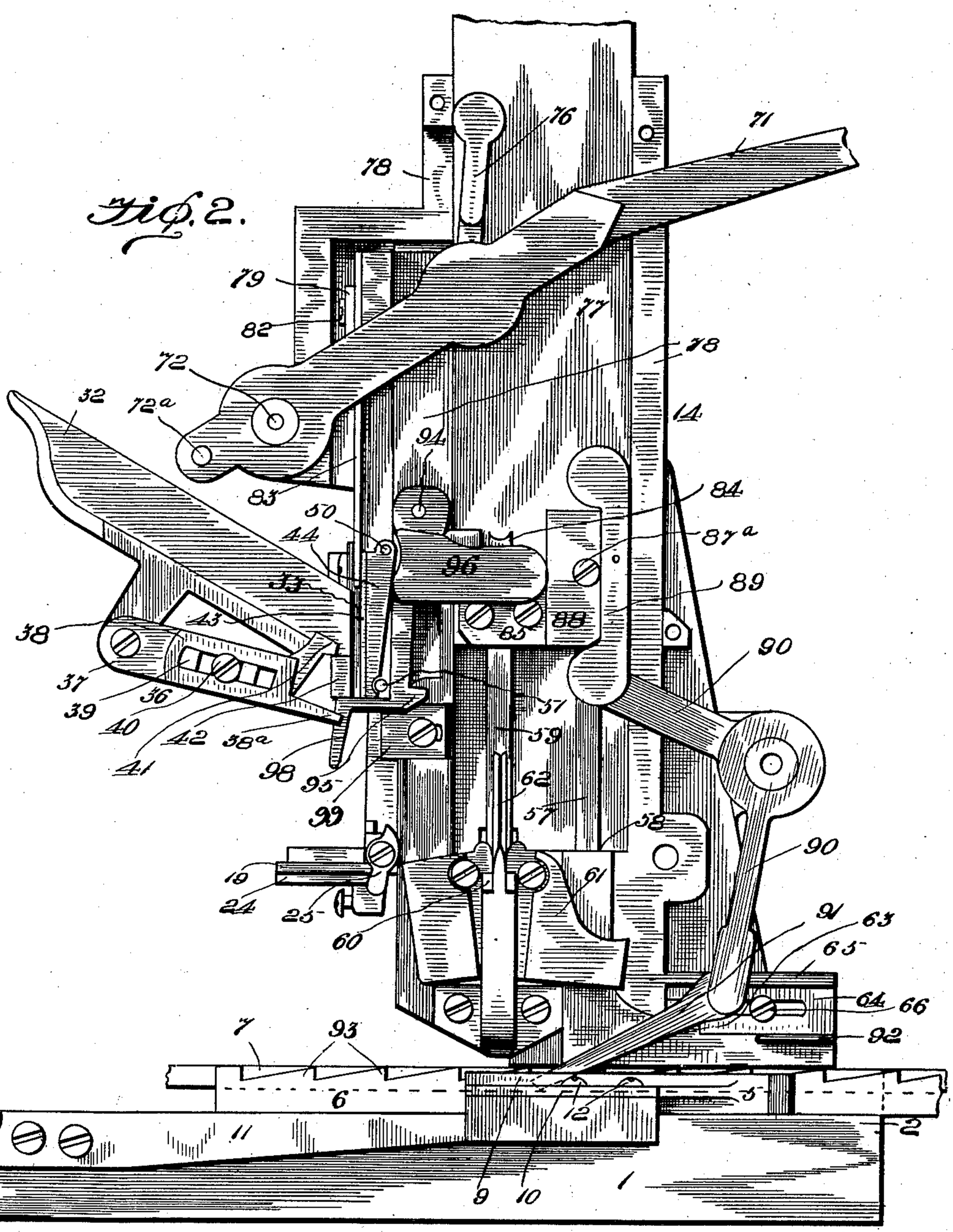
NO MODEL. 6 SHEETS—SHEET 2.

Fig. 2.

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Bernard M. Offutt.

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Carl Hinz.

By David B. Moore.

Attorney

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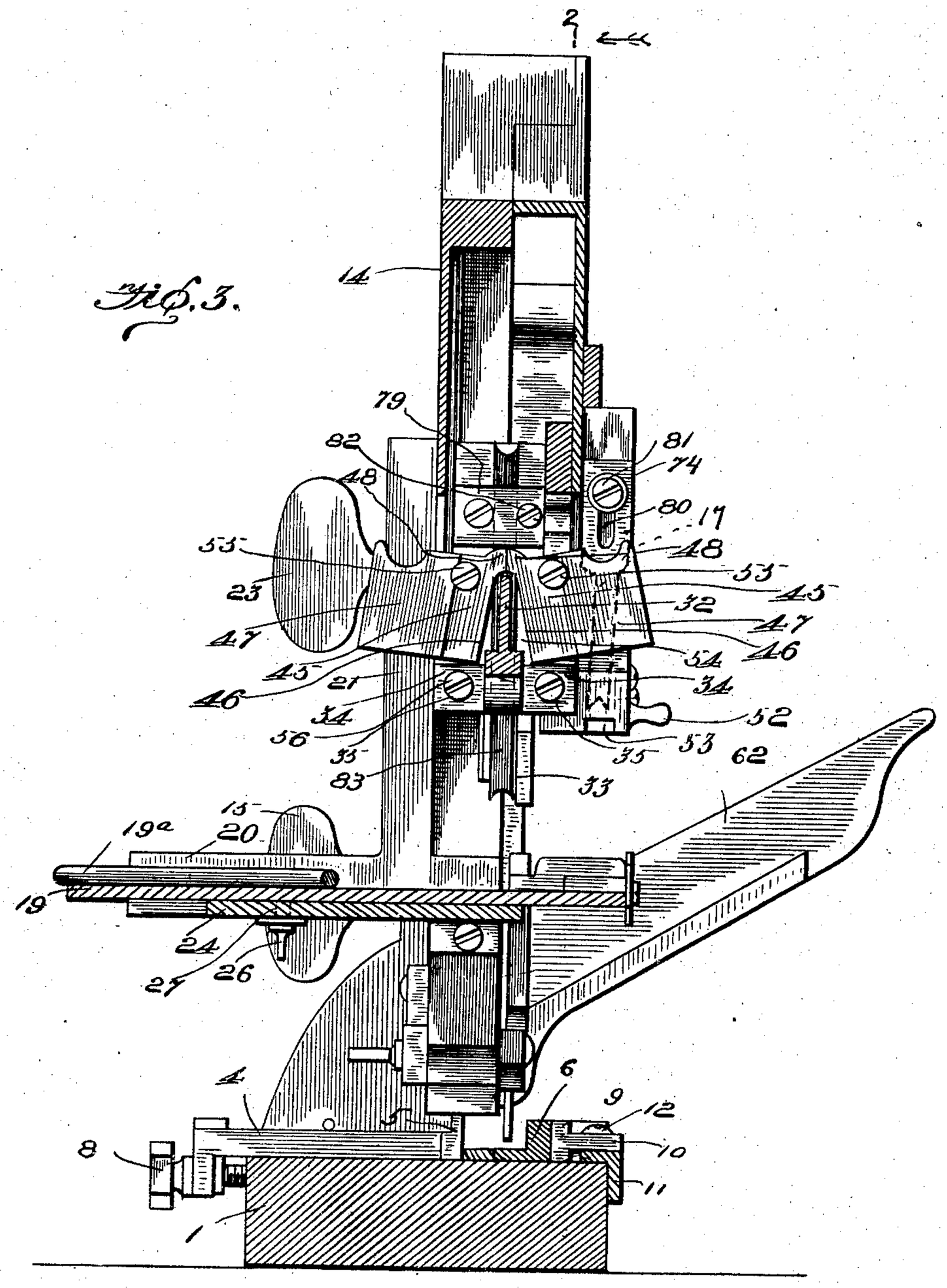
NO MODEL. 6 SHEETS—SHEET 3.

Fig. 3.




Witnesses

Bernard M. Offutt.

W. T. Crowley.

Inventor

Paul Hinz,

By David P. Moore.

Attorney

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C. HINZ.

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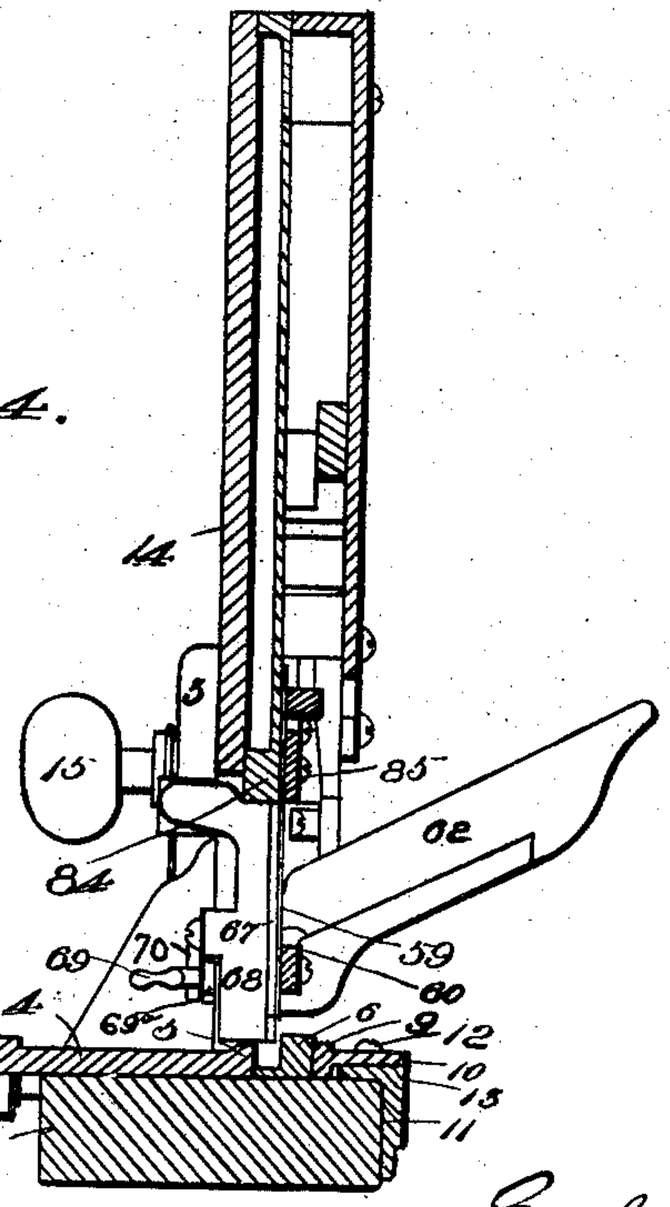
NO MODEL. 6 SHEETS—SHEET 4.

FIG. 4.




Witnesses
Bernard M. Offutt.
A. S. Caldwell

Inventor
Carl Hinz,
by David P. Moore,
Attorney

No. 737,929. PATENTED SEPT. 1, 1903.

C. HINZ.

BLIND WIRING MACHINE.

APPLICATION FILED DEC. 4, 1901.

NO MODEL. 6 SHEETS—SHEET 5.

Fig. 5.

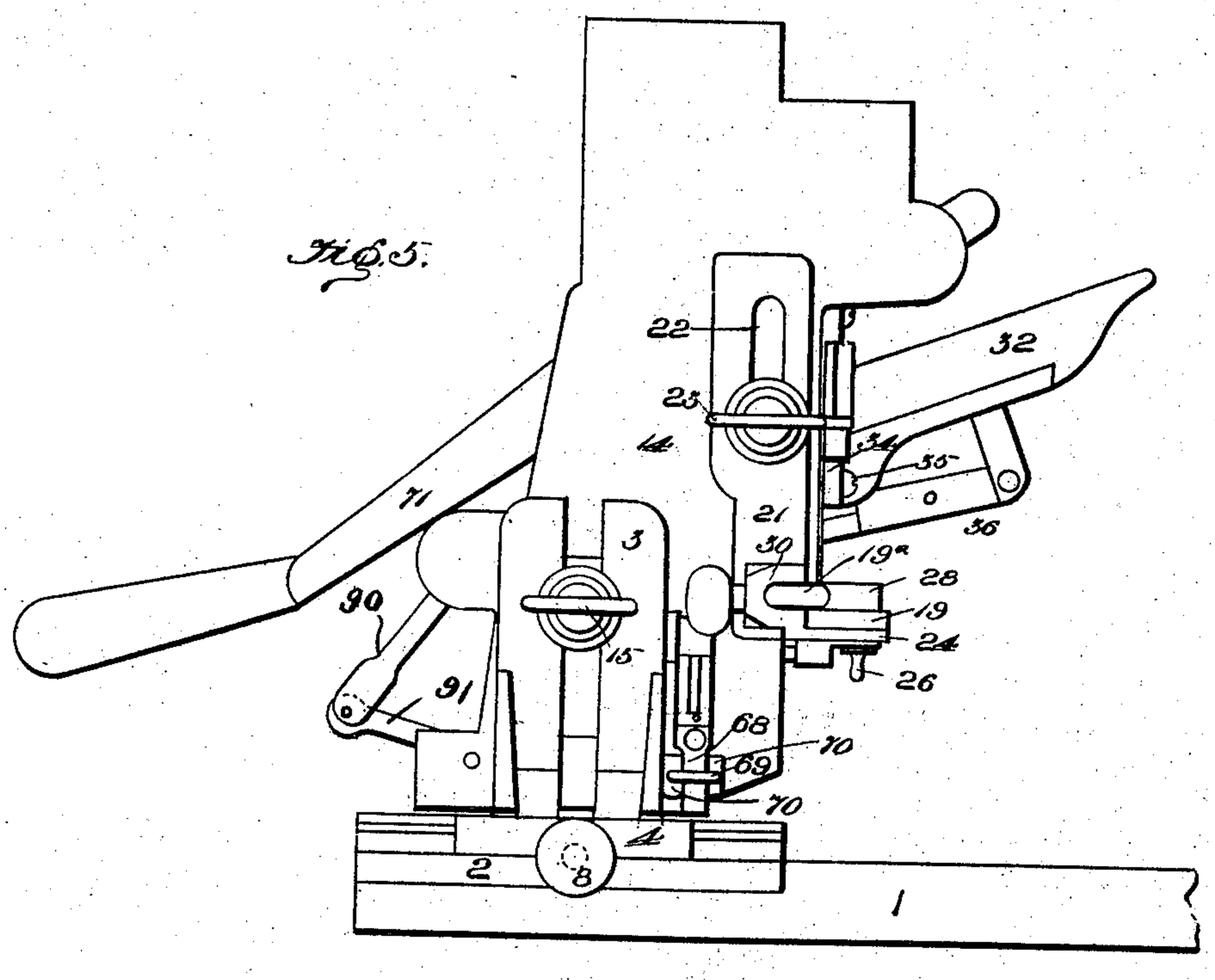



Fig. 6.

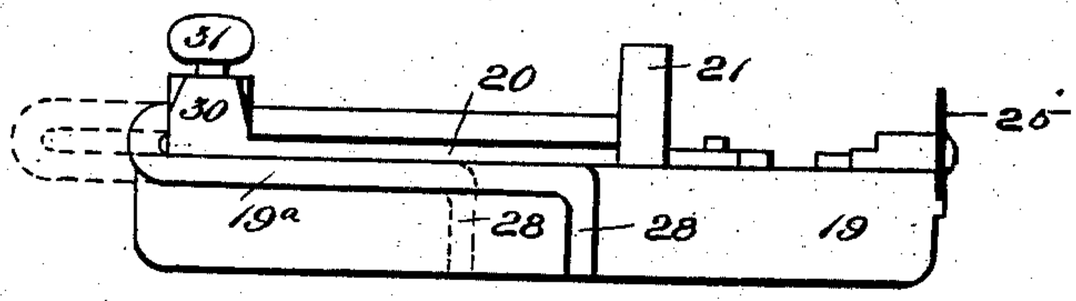
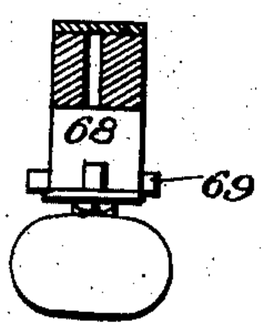



Fig. 7.




Witnesses
Bernard M. Offutt.
A. L. Carnell

Inventor
Carl Hinz,
by David P. Moore,
Attorney

No. 737,929. PATENTED SEPT. 1, 1903.

C. HINZ.

BLIND WIRING MACHINE.

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NO MODEL. 6 SHEETS—SHEET 6.

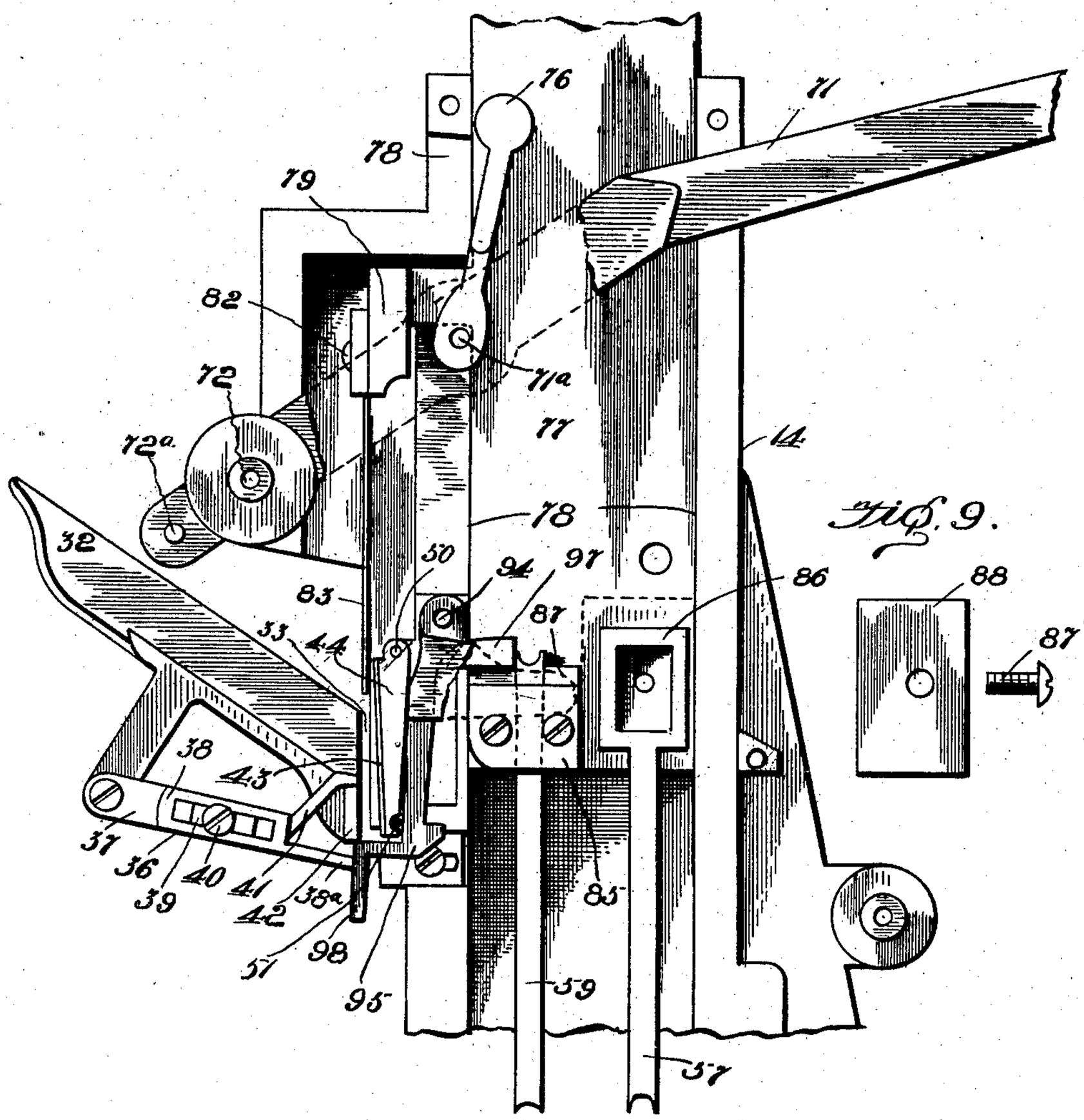


Fig. 9.

Fig. 8.

Witnesses
Bernard M. Offutt Jr.
W. G. Crowley.

Inventor
Carl Hinz
by David F. Moore
Attorney

No. 737,929. Patented September 1, 1903.

# UNITED STATES PATENT OFFICE.

CARL HINZ, OF NEW YORK, N. Y.

## BLIND-WIRING MACHINE.

SPECIFICATION forming part of Letters Patent No. 737,929, dated September 1, 1903.

Application filed December 4, 1901. Serial No. 84,647. (No model.)

*To all whom it may concern:*

Be it known that I, CARL HINZ, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Blind-Wiring Machines, of which the following is a specification.

My invention relates to the class of machines of which those described in Letters Patent No. 207,181, issued to me August 20, 1878, and No. 239,782, issued to me April 5, 1881, are examples and which are employed to drive the wire staples by which the movable slats for the blind or shutter are pivotally joined to the connecting-rod.

My present invention comprises a number of new and useful features, among which I should here mention novel means for adjusting and holding the slat and rod beneath their respective staple-drivers; means for piercing the slat and rod preparatory to receiving the staples, so as to prevent the staples from splitting fine work, such as the rods for inside appliances; novel means for feeding the staples one by one beneath the drivers; novel means for giving access to and removing imperfectly-driven staples from beneath the drivers, and various other improvements, which I shall describe in detail and then particularly point out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, wherein the same parts are designated by like numbers in all the figures.

Figure 1 is a side elevation of my complete machine, a portion of the operating-handle being broken away. Fig. 2 is a side elevation of the machine with the front plate removed, taken substantially on line 2 of Fig. 3 and looking in the direction of the arrow. Fig. 3 is a vertical sectional view taken on line 3 3 of Fig. 1. Fig. 4 is a vertical sectional view taken on line 4 4 of Fig. 1. Fig. 5 is a side elevation of the complete machine, taken from the opposite side from that of Fig. 1. Figs. 6 and 7 are detail views of parts of the machine. Fig. 8 is an enlarged detail view of the upper part of the machine with the portion of the casing removed. Fig. 9 is a detail view of the rod-piercing adjusting means.

In the machine illustrated as embodying my invention 1 is a base which is adapted to be fixed upon a table or other suitable support. 2 is a base-plate countersunk and secured upon the base 1. 3 is a slotted standard erected and preferably cast upon the base-plate 2. 4 is a horizontal frame embracing the foot of the standard 3, adjustable transversely on the base-plate 2 and carrying a longitudinal rail 5, against and along which the blind-rod 7 is guided and fed forward step by step beneath the rod-piercer and staple-driving devices, as hereinafter described, and 8 is the adjustable screw connected to the horizontal rod-guiding frame 4 transversely, and thus properly alining rod 7 beneath its piercer and staple-driving devices. The parts I have thus particularized are substantially shown in my aforesaid procured patent.

As an outside guide for the rod-holder 6 and rod 7 I secure transversely on the base-plate 2 and having a horizontal web 10 a side rail 9, which is secured upon the free head of an elastic plate 11, secured at its other end to the side of the base 1, so that the side rail 9 can yield laterally to accommodate the rod-holders and will always be supported elastically upon the outside of the rod-holder. I attach the rail-web 10 by two screws 12, one of which passes through a slot in said web, so that the rail can be automatically adjusted laterally on said rail-web to be parallel to and bear for its full straight length on the side of the rod-holder 6 however much the spring-rod be flexed.

14 is a vertical frame which carries the staple feeding, driving, and piercing devices and is adjustable vertically on the slotted standard 3 by means of a clamping-screw 15 to accommodate rods and rod-holders of different thicknesses beneath the rod-piercers and staple-driving devices.

For supporting slat 16 on edge in position beneath its piercer 17 and staple-driver 83, hereinafter described, I employ a narrow transverse horizontal table 19, on which the slat rests edgewise, as shown in Fig. 1, its inner side bearing against a rail 20 on a platform 24, supporting the table. Said platform and table are supported adjustably in a vertical and lateral direction on the front of the frame 14 as a guide by means of the hanger 21, having a vertical slot 22, through which

the clamping-screw 23 screws into the side of the frame, so that slats of different widths may be properly accommodated beneath the piercers and staple-driving devices, so that the slats may be tilted slightly with the table with respect to the staple-driver for driving the staples at an angle.

The table 19 carries a stop 25 on its end, against which the end of the slat is rested, and the table 19, with said stop 25, is adjustable transversely on the platform 24 by means of the clamping-screw 26, screwing into the table through the slot 27 in the platform for engaging the end of the slat, so that the proper point on the slat to receive the staple will be brought accurately beneath the piercers 17 and pierced thereby, as hereinafter described, to afterward receive the staple. The stop 25 is pivoted crosswise on the edge of the table 19, so that it can be swung outward out of the way of the slat when the end of the slat rests against the stop 28 on the opposite end of the table 19. The stop 28 is adjusted at such a distance from the staple-driver 83 that after piercing the slat and bringing its other end against the stop 28 the pierced holes in the slat will be brought accurately beneath the staple-driver 83. The stop 28 is formed with the bent end $19^a$ along the rail 20, said end being returned upon itself behind, said rail to slide in the socket 30 on said rail, in which socket it is secured adjustably by the clamping-screw 31. On the front of the frame 14 is fixed a staple-feeding arm 32, inclined downwardly lengthwise to the frame and leading into a vertical staple-chute 33, the open front of which is spanned by lugs 34, supporting the arm and secured to the frame by screws 35, so that the line of staples being hung on the arm 32 they will tend to slide by gravity one by one points downward into the chute 33.

To the base of the staple-feeding rail 32 is pivoted an extensible finger 36, consisting of two parts 37 and 38, connected slidably together by means of the clamping-screw 40. The pivoted finger part 37 has a nose 41 to rest on the shoulder 42 on the frame 14 and limit the fall of the finger. The tip $38^a$ on the adjustable part 38 can rise to permit the upper edge of the slat to be pressed inward against the adjustable rest 99 and will then fall by gravity, being properly adjusted to the thickness of the slat to hold the upper edge of the slat firmly in place during the piercing and staple-driving operations.

The vertical chute 33 is made of exactly the right width and thickness to permit a single staple to be driven freely therethrough; but the back wall of the chute is constituted by a depending flat spring 43, secured at its upper end to a rigid backing 44, so that when a staple rides from arm 32 into the chute 33 it will be bound and held by the lower end of the elastic spring against the inner end of the rail 32; but when the staple-driver 83, which exactly fits the chute, descends the spring 43 will yield slightly to allow the staple to be forced by the driver out of the chute into the upper end of the slat.

To cause the staples to fall one at a time into the chute 33, I pivot on opposite sides of the chute cut-offs 45, whose vertical edges 46 are normally held against opposite sides of the staple-rail 32 by weighted portions 47 of the cut-offs, so as to prevent the staples from riding off the rail. Said cut-offs, however, are formed with upper noses 48, which when the driver descends to force the staple out of the chute are struck by the head 49 of said driver, causing the cut-off edges 46 to swing outward from the sides of the rail and permit a single staple only to ride by said edges against the driver. Then as the driver is raised again the weighted cut-off closes by gravity outside the single staple, cutting off succeeding staples, and when the driver is elevated above the rail the said single staple drops into the chute for the next driving operation.

To facilitate the removal of imperfect or imperfectly-driven staples from the mouth of the chute, the backing 44, carrying the elastic rear wall of the chute 33, depends from a pivot 50, on which it can swing rearward when free. A transverse bolt 51 is mounted to slide through the side of the frame behind the lower end of the backing 44 to lock the same normally forward in position for driving; but on withdrawing the said bolt by its handle 52 outside the frame 14 the backing 44 is freed and permitted to be swung rearward, so as to enlarge the mouth of the chute and permit the ready removal of any obstructions.

The hardened plates 54, constituting the walls of the chute 33, are secured to the front of the frame 14 at their outer ends by the screws 55, which form also the pivots of the cut-offs 45, and at their lower ends by screws 56, passing through slots in the plates 54, so that said plates 54 can be adjusted laterally, and the chute thus widened or narrowed slightly to exactly fit staples of varying widths. Alongside the driver-chute 33 is also formed a vertical chute 53, in which the preliminary slat-piercer 17 is mounted to slide vertically, said piercer being shown in dotted lines, Fig. 3, and is double-pointed to form holes to correspond to the points of the staple.

On the side of the frame 14 and on the line at right angles to the line on the slat-piercers 17 and staple-driver 83 and parallel to and over the path of the blind-rod 7 are the rod-piercer 57 and its vertical chute 58, rod staple-driver 59 and its chute 60, staple cut-offs 61, and the transversely-projecting staple-feeder rail 62, which are substantially like the slat-piercers and staple-driving devices previously described. The rod-piercer 57 and its chute 58 are, however, made adjustable with respect to the rod staple-driver to permit the driving of staples at different

intervals on the rod, for, as hereinafter described, when a staple is driven into the rod the latter is at the same time pierced at the place behind, where after the next forward feed of the rod the next staple will be driven, and the distance between the piercer and driver should thus equal the length of the steps by which the rod is fed forward. For securing such adjustment of the rod-piercing device its chute 58 is formed in the bracket 63, having a slotted horizontal extension 64, which is mounted adjustably in guide 65 on the frame 14 and is secured in position when adjusted with respect to the rod staple-driver by a clamping-screw 66. The bottom of said extension 64 guides the top of the blind-rod 7 and its holder or carrier.

To give access to the chute 60 on the rod staple-driver for removing imperfect staples or other obstructions, I fix the elastic rear wall 67 of said chute on the backing 68, which is hung to the frame at its upper end to swing outward like a door from the opposite side of the frame, and thus open and expose the rear side of the chute at will. The handled cross-bolt 69 on the backing 68 operates a latch $69^a$, which engages lugs 70 on the frame and serves for locking the backing in its normal position.

For operating the slat and rod piercers and staple-drivers and also for feeding the blind-rod forward I here employ, preferably, a single-handle lever 71, which works vertically on a pivot 72, fixed to the frame. The lever 71 operates the slat-piercer on its upward stroke through a pin $72^a$ on the lever riding in the slot 73 in the piercer-carrier 74, which is mounted to slide in vertical guides 75 on the frame 14, the piercer 17 being secured to its carrier 74 by a clamping-screw 81, mounted in the slot 80, formed in the upper end of the piercer 17, so as to be adjustable vertically thereon.

The lever 71 operates slat staple-driver on its downward stroke through a link 76, pivoted to the main carrier 77, and the lever 71 at $71^a$, mounted to slide vertically in guides 78 on the frame 14, the slat staple-driver 83 being secured in a groove on the front of the main carrier 77 by a clamping-plate 79, secured to the carrier by screws 82, so that said driver can be adjusted vertically on the carrier and will be held rigidly in the groove therein. The lever 71 operates the rod staple-driver 59 on its downward stroke, likewise through the carrier 77, the driver 59 being held adjustably in the lower end in said carrier by a clamping-plate 85, secured in the carrier. In like manner the rod-piercer 57 is operated by the lever 71 on its downward stroke, being formed with a rectangular slot 86, held adjustably in place by an outside clamping-plate 88 and screw $87^a$, which passes into the carrier, so that the piercer can be adjusted vertically in the carrier 77 and also horizontally to permit the adjustment of the carrier-chute before referred to.

The lever 71 feeds the blind-rod 7 intermittently forward through a link 89, connected to the carrier 77 and to one arm of an elbow-lever 90, the other arm of which carries a pawl 91, which rides over a rest or guide 92 on the frame 64 and engages ratchet-teeth 93 in the rod-holder 6, so as to feed the rod-holder and the rod forward the length of one tooth at each upward stroke of the lever 71. On the frame 14 is hung from a pivot 94 a lever-catch 95, having a weight 96 to keep it normally out of the path of a projection 97 on the carrier 77. The lever-catch 95, however, has an arm 98, which when a slat is placed on the table 19 in position for piercing and staple driving will be forced inward by said slat and carry the catch 95 into the path of the projection 97 on the carrier, so as to interrupt the descent of the carrier. The adjustment is such that before the descent of the carrier 77 is thus interrupted it will have caused the driver 83 to force the staple into the slat, but will not have effectively operated the rod-piercer 57 and staple-driver 89, because the slat being on edge will not require the lever 71 to be pushed down its full limit, as is the case when the slat is lying flat. The slat being then removed from the table 19 and placed transversely over the rod with its driven staples beneath the rod-driver the lever-catch 35 will be forced by gravity from the carrier, which is then caused by the handle-lever 71 to descend the remainder of its stroke, drive the staple into the rod through the slat-staple, and pierce the rod for the next staple. The next upward movement of the lever 17 can then be used to pierce the next slat and feed the rod forward for the succeeding staple-driving operations.

I claim as my invention—

1. In a blind-wiring machine, the combination, with the frame of a platform held adjustably thereon, an adjustable slat-stop on one end of the platform, and a slat-table adjustable lengthwise of said platform and carrying a slat-stop at its other end.

2. In a blind-wiring machine, the combination, with the frame provided with chutes side by side, a staple-driver in one chute, a staple-like piercer in the other chute, and means for adjusting the piercer and its chute relatively to the staple-driver and its chute.

3. In a blind-wiring machine, the combination with the frame, of a slat staple-driving device, a rod staple-driving device, an operating-lever, operating connections whereby the lever operates the separate staple-driving devices by different parts of a single stroke, and a catch for interrupting the stroke of the lever between its operation of the two staple-driving devices.

4. In a blind-wiring machine, the combination, with the frame of a slat staple-driving

device and supporting device, a rod staple-driving device, an operating-lever and connections whereby it operates the slat staple-driving device before the other, a catch to interrupt the stroke of the operating-lever, and means whereby the catch is operated by the slat.

5. In a blind-wiring machine, the combination, with the frame, of a slat staple-driving device, a slat-piercing device, rod-piercing and staple-driving devices, and operating-lever and connections whereby the lever operates the slat-piercing device on its upward stroke, and the slat staple-driving and rod staple driving and piercing devices on its downward stroke.

6. In a blind-wire-stapling machine, the combination with a base, and a casing mounted thereon, of a lever pivotally mounted within the casing, slat-piercing and staple-driving mechanism connected to the lever upon opposite sides of its pivot, rod-piercing and staple-driving devices below the slat-piercing and staple-driving mechanism operably connected with the lever, and rod-feeding mechanism operably connected to the rod piercing and stapling mechanism adapted to feed the rod forward as said mechanism ascends.

7. In a blind-wire-stapling device, the combination with a base, and a hollow frame mounted thereon, of a lever pivotally mounted within the frame, a frame slidably mounted upon one face of the hollow frame and operably connected to the outer end of the lever to be moved upward and downward by the outer end of the lever, a slat-piercing device adjustably secured by said slidable frame, another frame mounted within the casing and connected to the lever intermediate of the length of the lever, a staple-driving device adjustably secured in said frame and mechanism for holding the slat while being pierced and stapled, and staple-delivering mechanism mounted upon the hollow frame adjacent to the staple-driving device.

8. In a blind-wire-stapling machine, the combination with a base, and a hollow frame mounted thereon, of a sliding frame mounted within the hollow frame and adapted to move vertically therein, a lever fulcrumed within the hollow frame and having a pivotal connection with the sliding frame so as to raise or lower the frame, a rod-piercing device adjustably secured in the lower end of said sliding frame, a staple-driving device adjustably secured in the lower end of said sliding frame to one side of but parallel with the piercing device, rod-feeding mechanism operably connected to the lower end of said sliding plate, and a staple-delivering mechanism adjacent to the staple-driving device.

9. In a blind-wire-stapling machine, the combination with a hollow frame, of a lever mounted therein, slat-piercing and staple-driving mechanism connected to the lever and mounted in the frame upon opposite sides of the lever's pivot, a sliding frame mounted within the frame and pivotally connected to the lever so as to be raised or lowered vertically by the lever, a rod-piercing device adjustably secured to said sliding frame, a staple-driving device parallel with the piercing device adjustably secured to the sliding frame, a rod-feeding device operably connected to the sliding frame, and staple-delivering mechanism adjacent to the staple-driving device.

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

CARL HINZ.

Witnesses:
JOHN T. BOOTH,
LEWIS V. HULSE.