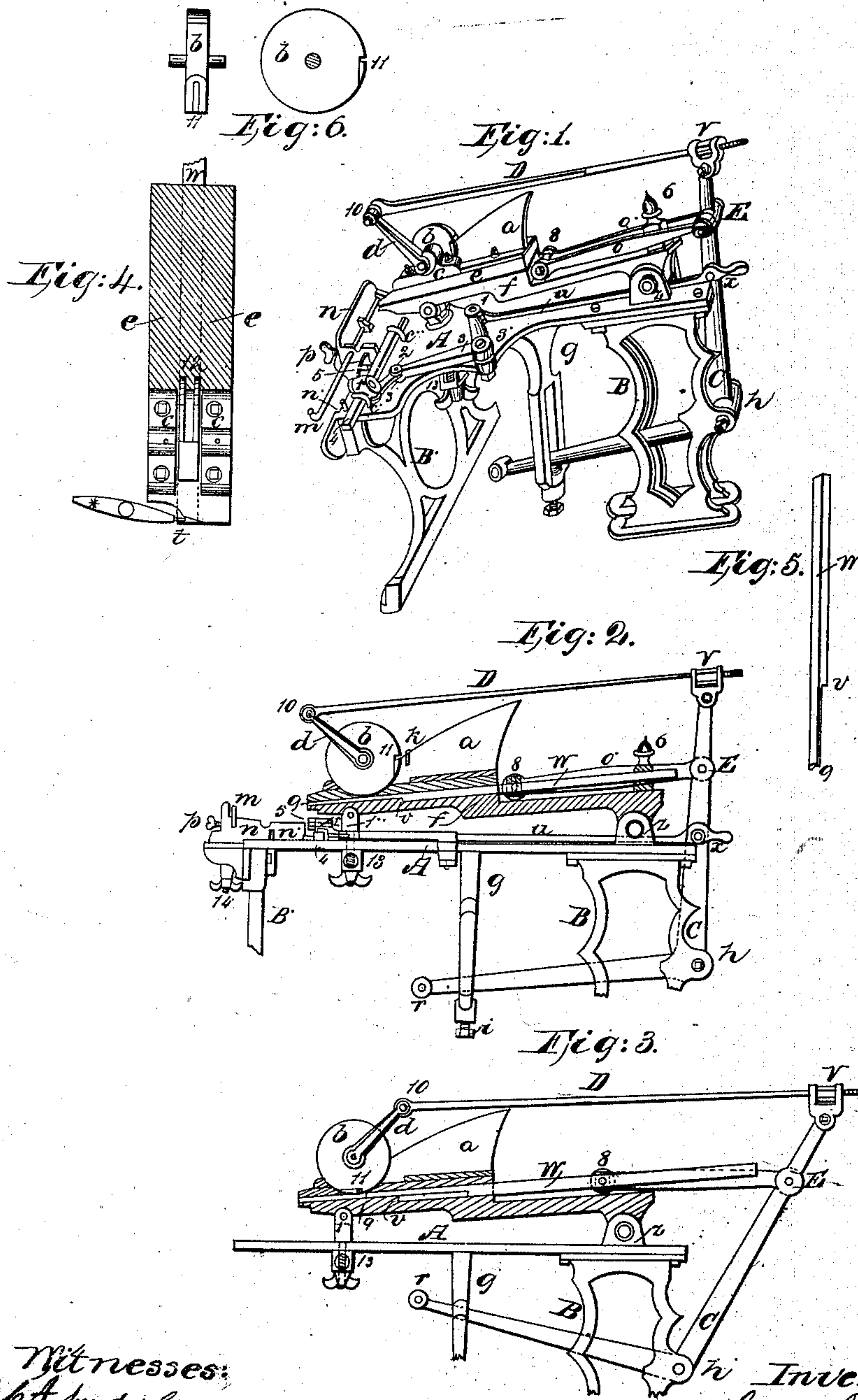


G. PANCAKE.

MACHINE FOR WIRING BLIND SLATS.

No. 77,908.

Patented May 12, 1868.



Witnesses:
 A. Snyder
 J. P. Patton.

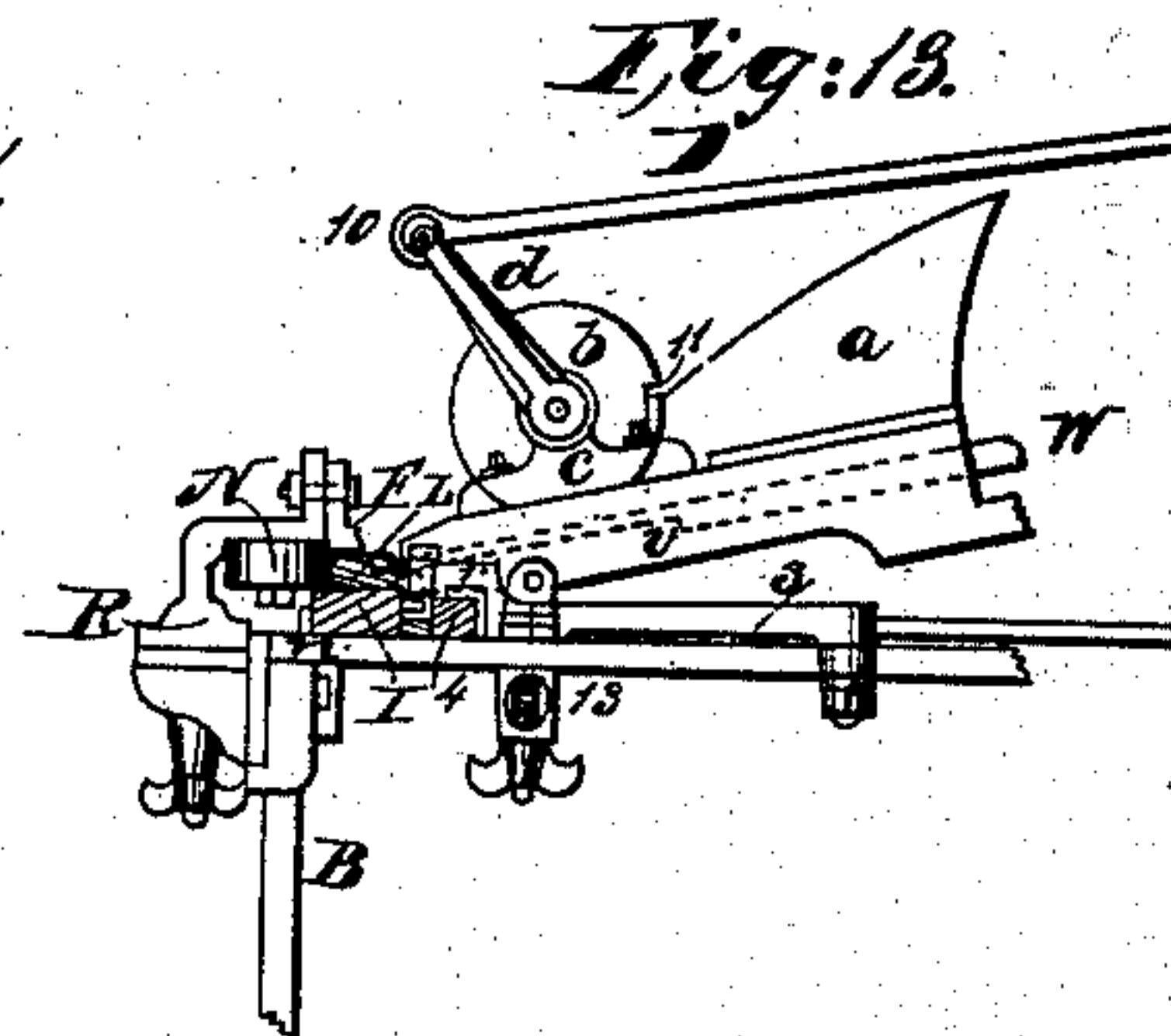
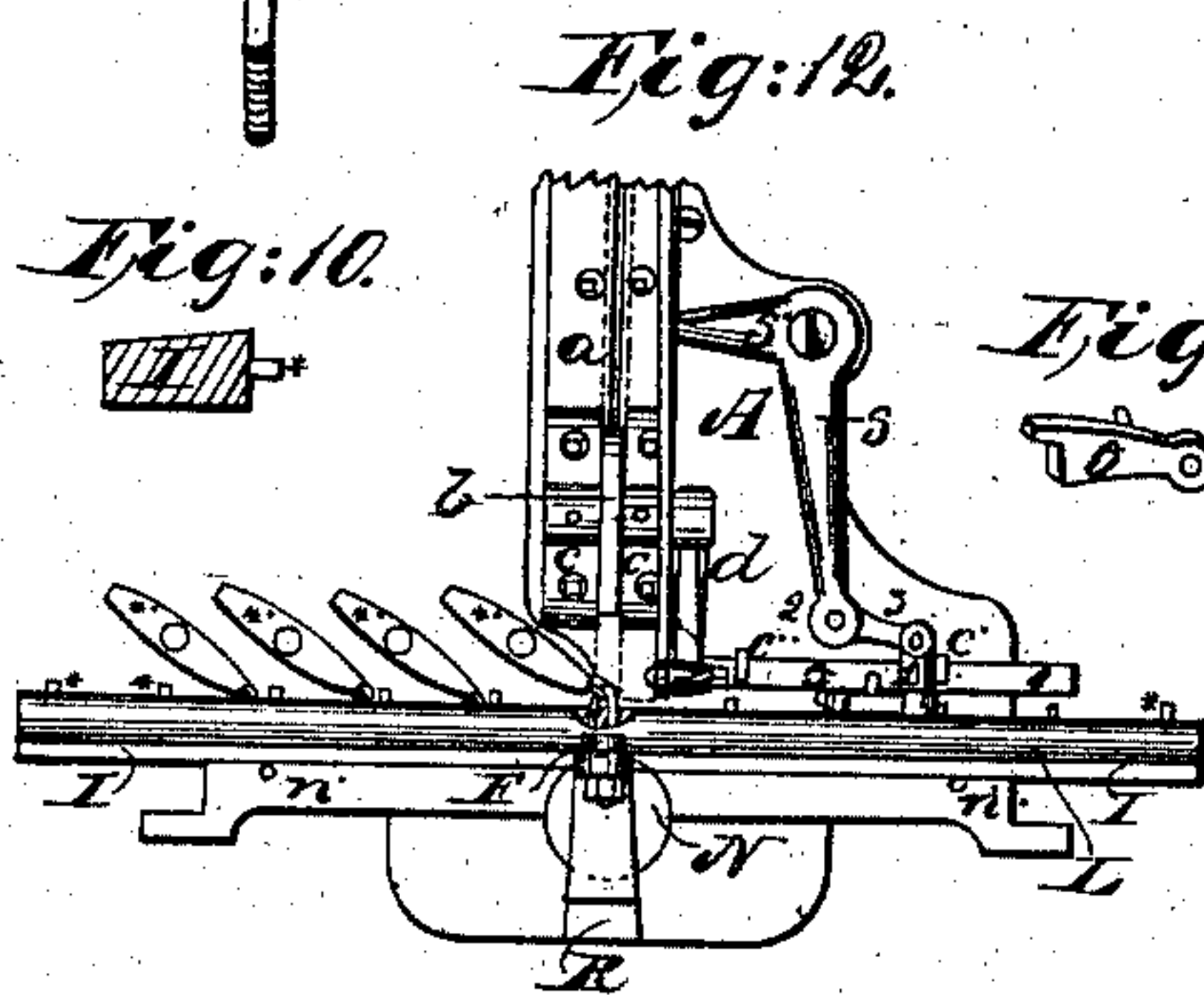
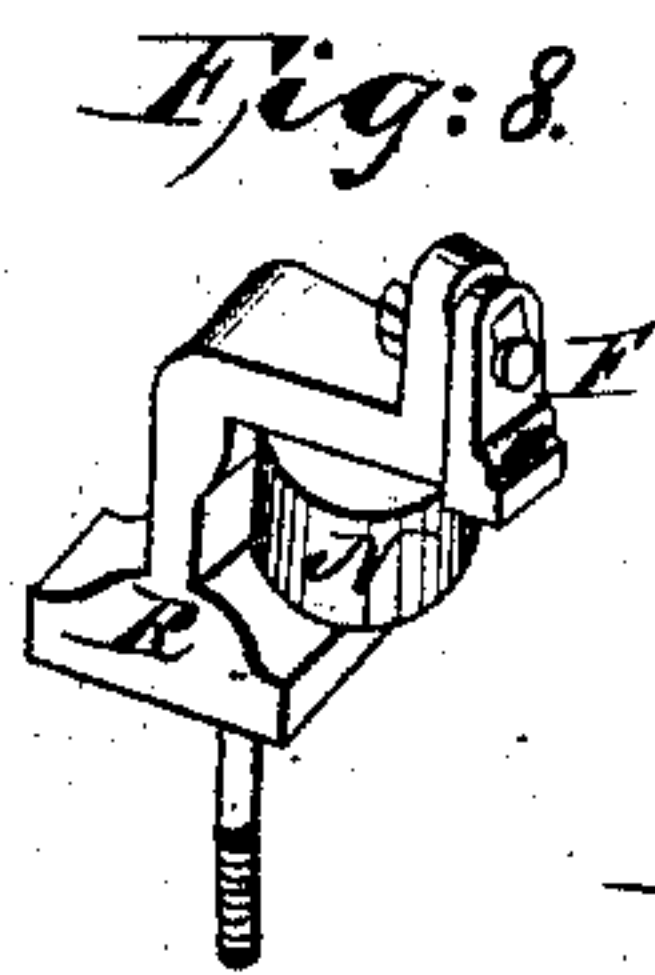
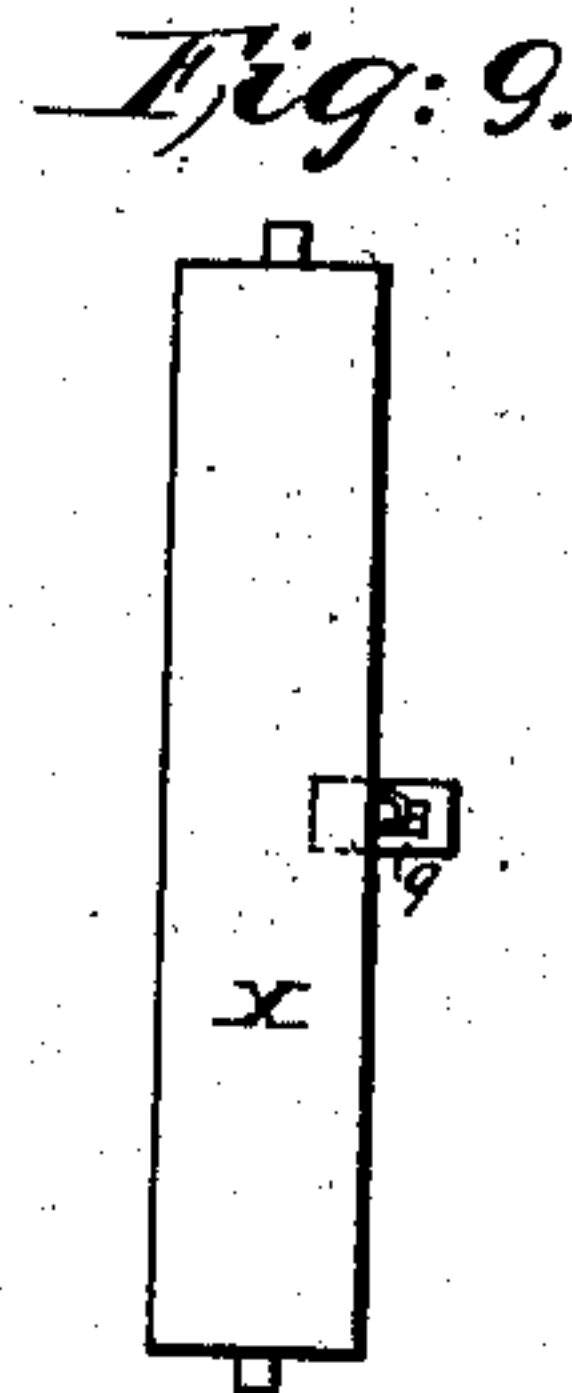
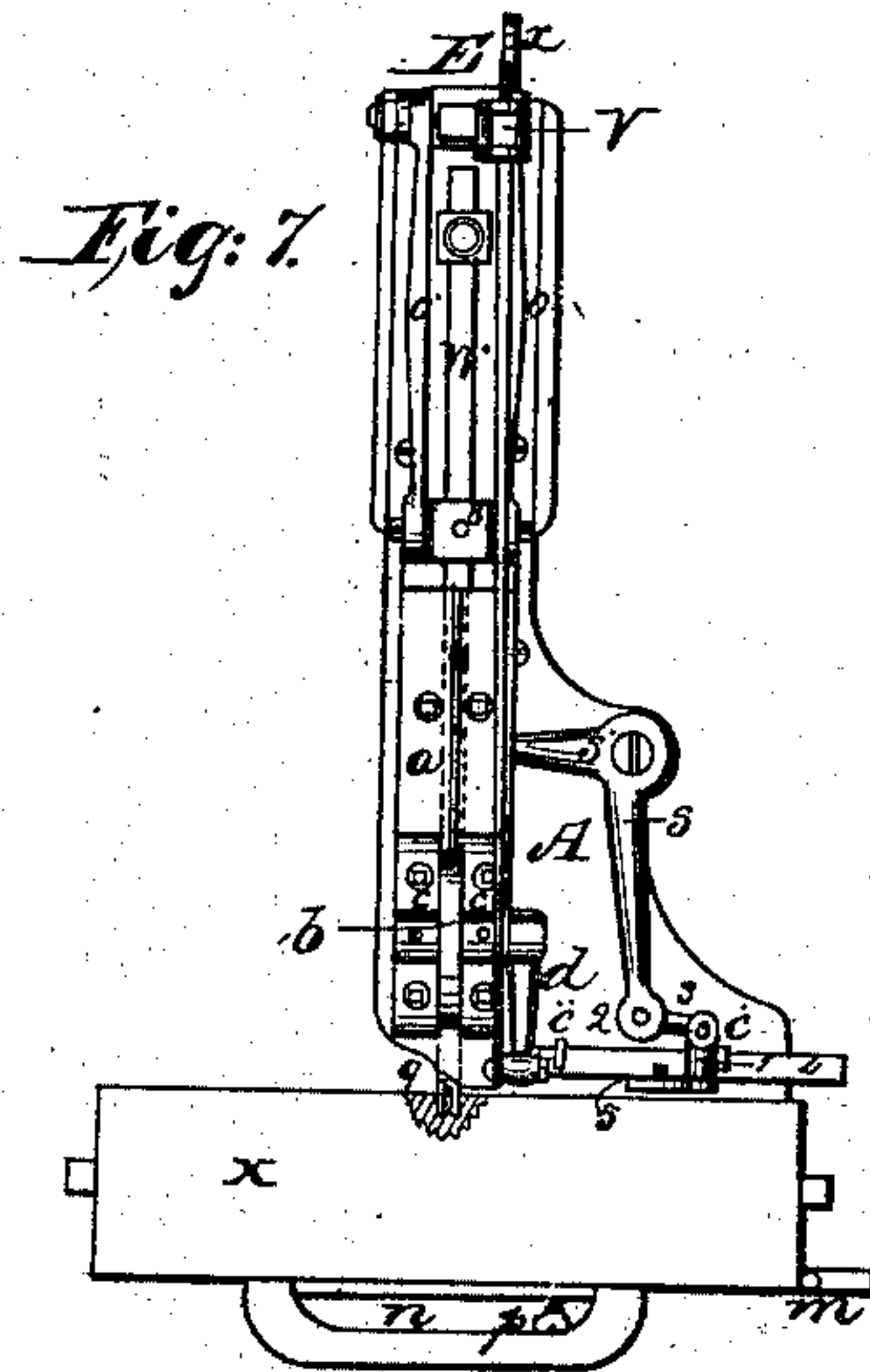
Inventor:
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Witnesses:
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United States Patent Office.

GEORGE PANCAKE, OF HARRISBURG, PENNSYLVANIA.

Letters Patent No. 77,908, dated May 12, 1868.

IMPROVEMENT IN MACHINES FOR WIRING BLIND-SLATS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, GEORGE PANCAKE, of the city of Harrisburg, county of Dauphin, and State of Pennsylvania, have invented a new and useful Improvement in "Blind-Wiring Machines;" and I hereby certify that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, and the letters and figures of reference marked thereon.

The nature of my invention consists in constructing, combining, and arranging the several parts of the device substantially as hereinafter set forth.

This machine is intended for the purpose of inserting staples in proper position in the slats of Venetian blinds, and also to affix said slats in proper place upon the rod or bar that operates them.

In the drawings, making a part of these specifications—

Figure 1 represents a perspective view of the machine.

Figure 2 is a side elevation, a part being in section.

Figures 3 and 13 are sectional side elevations of parts of the machine.

Figures 7 and 12 are plan views of parts of the device, and

Figures 4, 5, 6, 8, 9, 10, 11, are views of parts in detached position.

In all the figures, like letters and numbers represent like parts wherever they occur.

In figs. 1, 2, 3, 7, and 11, A represents the bed-plate of the machine. It is supported upon the legs or braces B B'. The leg, B, that maintains the rear of the machine, is composed of two separate pieces, of similar form and size, which are attached firmly to the under side of the bed-plate A, so as to leave a space intervene between their inner faces. The support, B', is affixed in like manner to the forward end of the bed-plate, and in a transverse position in relation to the leg B.

Upon the bed-plate A the "staple-driver box" is mounted. This consists of a base-piece, *f*, which is given the form substantially as shown in figs. 1, 2, 3. It is held in position on the bed-plate A, at its rear end, by the rounded ears, Z, that embrace a boss that projects from the under side of said base-piece *f*. They are held in connection by a pin or bolt, so as to permit the forward end of the piece *f* to be elevated or depressed, as may be desired.

Near the front end of base-piece *f*, upon its under side, another supporting-device, in form of a knuckle-joint, 1'', fig. 1, is attached, that can be raised or lowered, and also held firmly in either position, by the boxed screw and nut, 13, operating from the lower side of the bed-plate A.

The upper side of base-piece *f* has a groove formed in it centrally, throughout a part of its length. Said groove is intended to receive the staple-driver, W, and is made of proper depth and width to accommodate it.

Upon the top of base-piece *f*, toward its front end, the cap-plate, *e*, is placed. This plate has two parallel concave slots cut or milled from its top face down into its body, substantially as shown at a point, 12, fig. 4. These slots cut through the cap-plate at their front end, and terminate in an oblong rectangular hole. A portion of the material of the cap-plate, between said slots, and in the rear of the hole or opening, is permitted to stand, and forms a projecting rib. This rib has its top face cut away to the arc of a circle, corresponding to the face of the feeding-wheel or disk *b*, (see figs. 2 and 3.) The slots, before mentioned, extend a certain distance in the rear, past the termination of the rib, as seen at 12, fig. 4, for a purpose hereinafter shown.

The feed-wheel *b* is circular in form, and is made of such thickness that its sides will be upon a vertical line with the outer edges of slots 12 in cap-plate *e*, over which said wheel is mounted, it being provided with a journal, on each side, that fits the boxes, *c c*, seen in figs. 1 and 4.

It will be observed that this method of construction and combination forms an opening in the top of the driver-box, immediately under the centre of the wheel *b*, where it is in position, as described.

Immediately in the rear of the feed-wheel *b*, the incline, *a*, is placed in position upon the cap-plate *e*, to which it is firmly fastened. This incline is intended to convey the staples to the feed-wheel *b*, they being placed upon it in such manner that the bow or bent portion will rest upon the upper edge of the incline, down which they slide by their own weight.

The face of the feed-wheel *b* has a tongue or rib cut or formed upon it, the outer edge of which conforms to the circle of the wheel, as shown in fig. 6, at 11. This tongue is intended to receive and retain the staples, as they slide down the incline *a*, upon it, and is of such relative size or depth, in regard to them, that but one will be accommodated at a time.

The staple-driver *W*, (see figs. 1, 3, and 5,) is a strip of metal, ("steel preferred.") It has its front end, 9, hollowed out or curved, as seen in fig. 5, and is otherwise formed substantially as shown in said figure. That portion of its body, from *v* to 9, (see figs. 2, 3, 5,) is reduced in thickness, so as to gauge the same as the wire of which the staples are made, the groove in the driver-box, from *v* to 9, being reduced so as to fit it. It is an essential point that the staple-driver should fit in the box neatly, so that the staple cannot possibly get wedged or be retarded in its passage through said box.

The staple-driver *W* is actuated by the bell-crank *C*. Said crank has its point of suspension or fulcrum at *h*, (see fig. 1,) between ears formed on the separated portions of leg *B*. Its upright arm is connected to said driver by the links *o o'*. Said links are attached by one of their ends to the arm of the crank, *C*, by a bolt, at a point, *E*, fig. 1. Their other ends are connected to the driver by the cross-head 8, (see plate 2, fig. 7.) The rear end of the driver *W* is supported and kept in line by the guide-post 6, that is attached to the back end of the base-piece of the driver-box, (see figs. 1 and 2.)

Motion is communicated to the feed-wheel *b* by means of the crank *d*, that is rigidly fastened to a projecting end of one of its journals, (see fig. 1.) Said crank is connected to the rod *D* at its end 10, the other end of said rod being attached to the upper end of the vertical arm of bell-crank *C*, by a swivel-box embracing the nut *V*, being connected by a set-bolt to said arm, in such manner that an adjusting movement of the swivel-box is allowed.

The nut *V* affords a means of adjustment for regulating the position of the staple-notch on feed-wheel *b*, when necessary, by lengthening or shortening the rod *D*, which would thus change the position of a fixed point on the face of said wheel.

The other arm of the bell-crank *C*, that extends from *h* to *r*, is intended to give motion to the whole machine. It is provided with a boss, *r*, at its outer end. Said boss is perforated with a bolt-hole, to attach it to a rod or other device that connects to a spring-foot treadle (not shown.)

Between the boss *r* and fulcrum *h* the arm is embraced by the slotted arm or guide *g*, (see fig. 1.) Said guide *g* is attached, at its upper end, to the under side of base-plate *A*. (see figs. 1, 2, 3.) The slot formed in it is of a correct length to permit the proper movement of the arm, and of such width as to allow said arm to move freely between or in it.

The lower end of guide *g* terminates in a boss, in which is formed a threaded hole, for the reception of the set-bolt *i*. This bolt is designed to regulate the movement of the bell-crank *C*.

The action of the spring treadle, to which the boss *r* of said crank is attached, is such as to keep the arm up against the upper end of slot in guide *g*, (as shown in fig. 3.) When the crank, *C*, is thus held, the staple-driver *W* is drawn back, as shown in fig. 3.

It is essential that the end 9 of driver *W* should come immediately in the rear of the tongue or staple-notch 11 on feed-wheel *b*, when the driver is fully drawn back, and the different parts of the mechanism should be so proportioned and adjusted that the staple-notch 11 shall assume its proper place, with regard to the incline *a*, when the staple-driver *W* is thrown full forward.

It will be evident, upon inspection, that both the driver *W* and tongue or staple-notch 11 can be properly adjusted by the set-screw *i* and nut *V* on rod *D*.

The slat-bed *n*, figs. 1 and 2, is designed to support and hold in place the blind-slats, during the operation of inserting the staples in them, (see fig. 7, plate 2.) Said slat-bed is formed substantially as shown in figs. 1 and 2. It is provided with a gauge-rod, *m*, the outer end, *m*, of which is turned up at a right angle to the body, as shown in fig. 1. Said rod is held in place by the set-screw *p*, and is intended to act as a guide or gauge, to regulate or determine the position of the slat upon the bed, during the operation of inserting the staples. Said slat-bed *n* is held in place by the bolt and thumb-nut 14 clamping it upon the forward end of the bed-plate *A*, (see fig. 2.)

It being necessary that the staples should be inserted to a proper depth and also given a certain degree of inclination to the side of the slat, and also inserted nearer one edge of the slat than the other, provision is made to accomplish these ends in the following manner:

First, the set-bolt *i*, in guide *g*, as before stated, regulates the movement or throw of the crank, *C*, and therefore of the driver *W*. The alteration of said set-bolt will therefore regulate the depth of insertion of the staples in the slats.

Again, the hole in the forward end of bed-plate *A*, through which the clamping-bolt on slat-bed *n* passes, is slotted oblong, so as to allow said bed to be placed at a proper distance from the forward end of the driver-box, and thus compensate for different widths of blind-slats. Said box can also be raised or lowered, (to give the necessary inclination to the staple, and adjust its distance from the edge of the slat,) by the set-bolt and nut 13, figs. 1, 2, 3, and as raising and lowering the end of the driver-box alters the position of the tongue or staple-notch 11, with regard to the upper edge of the incline *a*, and as, in order to deliver the staples upon the notch properly, the upper edge of the tongue or notch should be a slight distance below the upper edge of the incline *a*, as before stated, such variations can be compensated for by the use of the adjustable nut *V* on rod *D*.

The several parts of the machine described, being arranged together as stated, and adjusted in a proper manner; the operation of inserting staples in blind-slats is as follows:

The gauge-rod *m* is set so that the centre of the slat, (considered lengthwise,) shall come opposite the centre of the front end of the driver *W*.

Staples having been hung upon the incline α , upon communicating motion to the bell-crank C, by tripping the treadle, the staple-notch or tongue 11 will be brought into proper position with regard to said incline, and a staple will be deposited by its own weight upon said tongue 11. Relaxing the pressure of the foot upon the treadle causes the partial rotation of the feed-wheel b by the action of the spring under said treadle, and the staple is carried down the concave slots or grooves 12 in cap-plate e . The machine then assuming the position shown in fig. 3, these slots 12 are cut a sufficient distance back of the central rib to prevent the ends of the staple from catching, and thus be impeded in its passage down said slots. The staple by its own weight then passes through the opening in cap-plate e , and is deposited in the driver-box, immediately in front of the end, 9, of driver W. The next stroke of the machine forces the staple out of the box and into the slot. As shown in fig. 7, plate 2, the staple-notch 11 has been carried back, by this movement, to a proper position to receive another staple from the incline α , and by continuing the operation any number of slats may be properly wired.

The operation of affixing or wiring the slats to the rod or bar L, figs. 12 and 13, involves the use of additional mechanism, which I will proceed to describe.

The bell-crank s , fig. 1, is attached to the bed-plate A at a point, s' , and is intended to communicate motion received from the bell-crank C to other parts, which will be described. The connection between the bell-cranks s and C is made by the rod u , (see fig. 1,) it being fastened by one of its ends to the end, 1, of the bell-crank s , by a knuckle-joint attachment, and has its other end provided with a hook that can be connected to or disengaged from the upright arm of the bell-crank C, as may be desired, a pin or stud, x , fig. 1, projecting from the side of said arm for its accommodation. The other end, 2, of bell-crank s connects by the link 3 to the latch-carrier 1'. This carrier is a piece of metal, shaped substantially as shown in fig. 1, and is rigidly fastened to the guide-bar 4. Said bar is simply a piece of metal of proper length, being square in its body, and slides against a ledge or shoulder formed on the bed-plate A. It is retained in place by the clips or binders $c' c''$, (see fig. 1.)

It will be observed that upon actuating the arm of bell-crank C, a reciprocating motion is given to the guide-bar 4, moving it in a line at a right angle to the direction in which the staple-driver W moves.

The guiding-roller N, attached to the bracket R, is intended to take the position occupied by the slat-bed n , which is removed. A perspective view of the bracket and roller is shown in fig. 8. Said bracket is held in place by a stud or screw-bolt fastened to its under side, and clamping it by a set-nut, 14, to the bed-plate A.

The guiding-roller N is intended to hold down in place the gauge-bar I and blind-rod L, and also facilitate the sliding of the blind-rod L, that is laid upon and clamped to the gauge-bar I, during the operation of fastening the slats to said rod.

The bracket R, that carries the guide-roller N, is further provided with a binding foot, F, upon its front face, that is designed to assist in retaining in place the blind-rod L.

The gauge-bar I is a strip of metal or other proper material, having its sides parallel, and its top face, (upon which the blind-rod lies,) bevelled, as shown in fig. 10, and also in fig. 13, plate 2. Said bar is provided with pins or studs * * *, that are inserted or fastened in the side next the latch-carrier 1'. These pins are placed an equal distance apart, said distance being the same as the space desired to intervene between the staples that fix or fasten the slats to the blind-rod.

The latch 5, shown in perspective in fig. 11, is attached to the latch-carrier 1', so as to play freely upon its rivet, and is intended to rest upon and press against the pins * * *, and at each full stroke of the machine said latch is moved back a sufficient distance to engage with the pin immediately in its rear. "It is intended to be understood that when the staple-driver is fully thrown forward this movement takes place." The return stroke, caused by the action of the spring-treadle, throws the guide-bar 4 forward, and consequently moves the gauge-bar I with it.

The gauge-bar I is partly guided and retained in place by the pins $n' n'$, that are inserted in bed-plate A. Rollers may be substituted if desired.

The front end of the driver-box is cut away, upon the side upon which the slats are held, during the operation of wiring them to the rod. The shape given to it is shown in figs. 4, 7, and 12.

A shoulder is also formed on the front face of the driver-box, underneath the opening or passage in which the driver slides. Upon this shoulder the staple in the slat rests, when said slat is put in position to be wired to the rod, as seen in figs. 4 and 12. The depth of the shoulder is such that the staple, being inserted in the blind-rod, will readily pass into the staple on the slat, and thus fix or fasten it in place on the rod, as shown in fig. 12.

The position of the staple and shoulder on the driver-box is shown in fig. 9.

The several parts of the machine being arranged, as described, the manner of operation is evident. The blind-rod L being placed in position on the gauge-bar I, and fastened to it, and staples being placed upon the incline α , all that is necessary is to place the staple, that is in the slat, in position on the shoulder on the face of the driver-box, as shown in fig. 4, and by giving motion to the bell-crank C, a staple will be inserted in the blind-rod, at the same time coupling or fastening the slat to said rod; the operation being repeated until the rod is filled, or the proper number of slats attached to it.

The advantages obtained by this method of constructing "blind-wiring machines," are substantially as follows: First, the motion of the working parts is positive and absolute, which makes the machine reliable in its action. Again, from the peculiar method of constructing the feeding-mechanism, it is impossible to get more than one staple in the machine at a time, and every staple must be driven home a proper distance before the machine will receive another. Again, in the operation of fastening the slats to the blind-rod, every slat is placed an equal and correct distance from its fellow, and a staple cannot be inserted in the rod unless the proper space between

said slats is obtained. The whole of the parts are simple and durable, being made of metal. They are also easy to construct, and not liable to derangement.

Having thus given a full, clear, and exact description of my improvement, both as regards its construction and manner of operating, and set forth its merits, what I claim as new of my invention, and desire to secure by Letters Patent of the United States, is—

1. Feeding the staples to the driver W by means of the wheel *b*, said wheel being constructed and operating substantially as described.

2. The staple-supplying incline *a*, in combination with the feeding-wheel *b* and driver W, arranged to operate in the manner and by the means substantially as set forth.

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Witnesses:

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