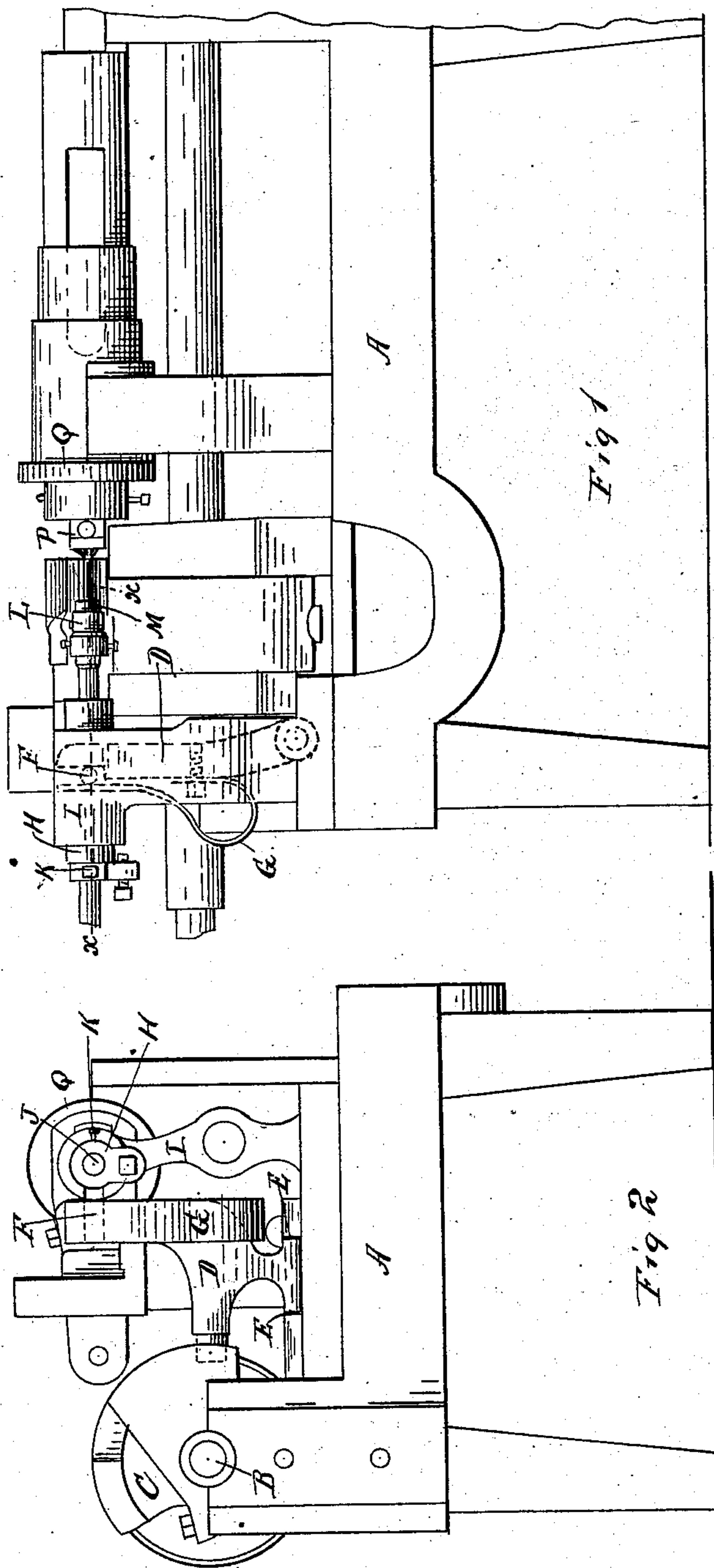


(No Model.)

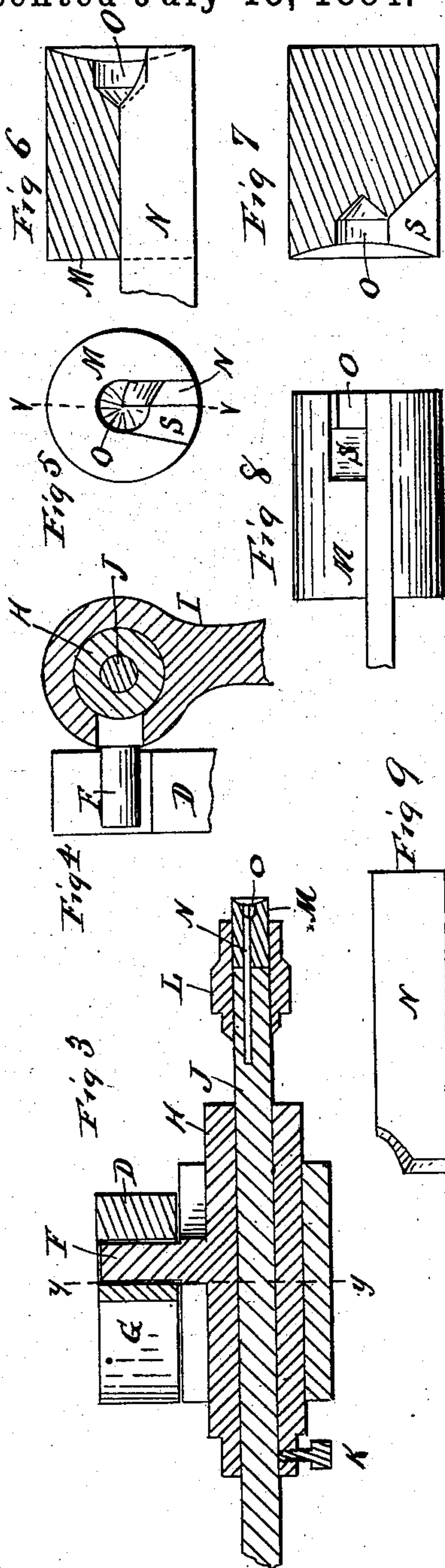
C. F. WARDELL.  
WOOD SCREW MACHINE.

No. 302,068.

Patented July 15, 1884.



Witnesses  
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# UNITED STATES PATENT OFFICE.

CHARLES F. WARDELL, OF CHICAGO, ILLINOIS.

## WOOD-SCREW MACHINE.

SPECIFICATION forming part of Letters Patent No. 302,068, dated July 15, 1884.

Application filed May 7, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES F. WARDELL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in a Wood-Screw Machine; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, which form a part of the same.

Like letters indicate the same parts in all the different figures.

My invention relates to machines for the manufacture of wood-screws; and it consists in the novel construction of the pointing mechanism, whereby the point of the blank is directed to the cutting-knife and is relieved from all liability of breaking the machine in case the point of the blank is bent or split; and my invention also consists in the combination of mechanisms which hold and operate the spindle, and which carry the cutting-tool that cuts the point of the screw.

In the accompanying drawings, illustrating my invention, Figure 1 shows a side elevation of a machine containing my improvements; Fig. 2, an end elevation of the same; Fig. 3, a sectional view of a detached portion of the same, taken at the line *x x*, Fig. 1. Fig. 4 is a cross-section on the line *y y*, Fig. 3. Fig. 5 is an end view of the bushing. Figs. 6 and 7 vertical central sections of the same, taken at the line *v v*; Fig. 8, a horizontal view of the same; and Fig. 9 is a perspective view of the cutting-knife.

In the accompanying drawings, A represents the frame of the machine, which carries the operating part.

B is a shaft with suitable bearings on the frame, and is provided with suitable means for receiving the driving-power of the machine.

C is a double-acting cam on the shaft B, which operates a pivoted lever, D. This lever is pivoted to the frame of the machine at E and imparts motion to the pin or arm F.

G is a spring attached to the pivoted lever D at one end, which passes up on the opposite side of the arm F and operates it, as hereinafter described.

H is a sliding sleeve, provided with the pin or arm F, and is operated by it and the spring

which is vibrated with the pivoted lever D, and is caused to slide back and forth in the sleeve I, which is supported on the machine.

J is a bar or spindle, which passes through the sleeve H, and is held therein at any desired position by means of the set-screw K. This bar or spindle J carries the pointing-tool for pointing the screw.

L is a socket firmly secured to the end of the spindle J.

M is a bushing set into the socket L against the end of the spindle J, as clearly shown in Fig. 3.

N is a knife or cutting-tool, that is placed in a slot in the end of the spindle J and in the bushing M, so that its edge will act upon the point of the screw-blank to cut it to a desired point. This knife is held in place by the socket L, fastened around the end of the spindle J, and serves to keep the bushing M from turning in the socket. The knife is also set up, when ground, by sliding it along parallel with the spindle J and bushing M. This combination of the knife with the spindle, bushing, and socket makes it necessary to make the knife of the special shape shown in Fig. 9. The end of the bushing M is concave, as shown in Figs. 6 and 7, and at its center it has a recess, O, of the size and shape of the point of the screw. The cutting-edge of the knife extends into this recess O, as clearly shown in Fig. 6, so as to cut the end of the blank screw to the desired point as it passes into the recess O. S is a slot extending into one side of the recess O, through which the chips cut from the screw-blank in pointing it pass away from the knife.

P are ordinary gripping-clamps for holding the blank screw while it is being pointed and screw-threaded.

Q represents the ordinary portion of a screw threading and pointing machine, which serves the purpose of holding the ordinary clamps, P.

I have not deemed it necessary to show the devices which feed the screw-blank into the machine, nor the cutting-tools which cut the screw-thread on the screw-blank. These are of any ordinary construction, and form no part of my invention.

In wood-screw-pointing machines heretofore in use the end of the screw-blank passes through a hole in the bushing before it reaches



the pointing-knife, and I have found from experience that the screw-blank frequently does not enter the hole, and prevents the operation of the machine; and I also find that when the blank is being pointed the end of the blank will frequently split or bend, so that the screw-blank cannot readily be withdrawn from the cutting-tool. To obviate these objections I bevel the end of the bushing so that the blank will be directed to the recess O, where the cutting-tool is placed.

The operation of my machine is as follows: The screw-blank is fed into the gripping-clamps P of the machine, and is held firmly therein, so that the blank screw projects therefrom, as shown in Fig. 1, when the cam C strikes the pivoted lever D, and through the arm or pin F and spring G moves the sleeve forward, carrying the spindle J, which carries the socket L, with the bushing M and knife N, to the end of the screw-blank, which blank passes into the recess O, being directed to said recess by the concave end of the said bushing. The knife N commences pointing the blank as it is moved toward it by the force from the cam C and spring G. This cam is so constructed as to move the bushing toward the screw-blank a certain fixed distance, this force being communicated from the spring G, which passes up behind the arm F. In case the screw-blank is a little longer than ordinary, the spring G will yield, so that the cutting-tools are thrown only to a certain distance upon the point of the blank, which causes every screw-blank to be pointed alike. When the screw-blank is pointed, one part of the cam ceases to act upon the pivoted lever D, and the pivoted lever D, receiving its reverse motion from the other part of the cam, restores the sleeve H to its former position, removing the bushing M from the screw-blank, leaving it to be acted upon by the

thread-cutting tool and discharged from the machine. There is no liability of the bushing catching upon the end of the screw-blank as in other machines.

It will be observed that the screw-pointing tool is operated by the vibrating lever D; but the spring G, which is vibrated with the lever D, allows a slight yield to adapt the forward movement of the socket to screw-blanks of slightly-varying lengths.

My machine is simple, cheaply constructed, and very efficient in its work.

Having thus fully described the construction and operation of my improvement, what I claim, and desire to secure by Letters Patent, is—

1. The bushing M, having a concave end and recess O, the recess being of the same diameter and shape as the end of the screw and at the center of the concave, in combination with the socket L, cutting-knife N, and spindle J, substantially as specified and shown.

2. The bushing M, provided with the recess O and slot S, in combination with socket L, spindle J, and knife N, the knife being placed in a slot made in the bushing M and spindle J, and held firmly in place by the socket L, and adjustable parallel with the spindle and bushing, as specified and shown.

3. The combination, in a screw threading and pointing machine, of the cam C, pivoted lever D, sleeve H, arm F, and spindle or bar J, substantially as specified and shown.

4. The combination of the cam C, pivoted lever D, sleeve H, arm F, spindle J, and spring G, substantially as and for the purposes specified.

CHARLES F. WARDELL.

Witnesses:

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