

(No Model.)

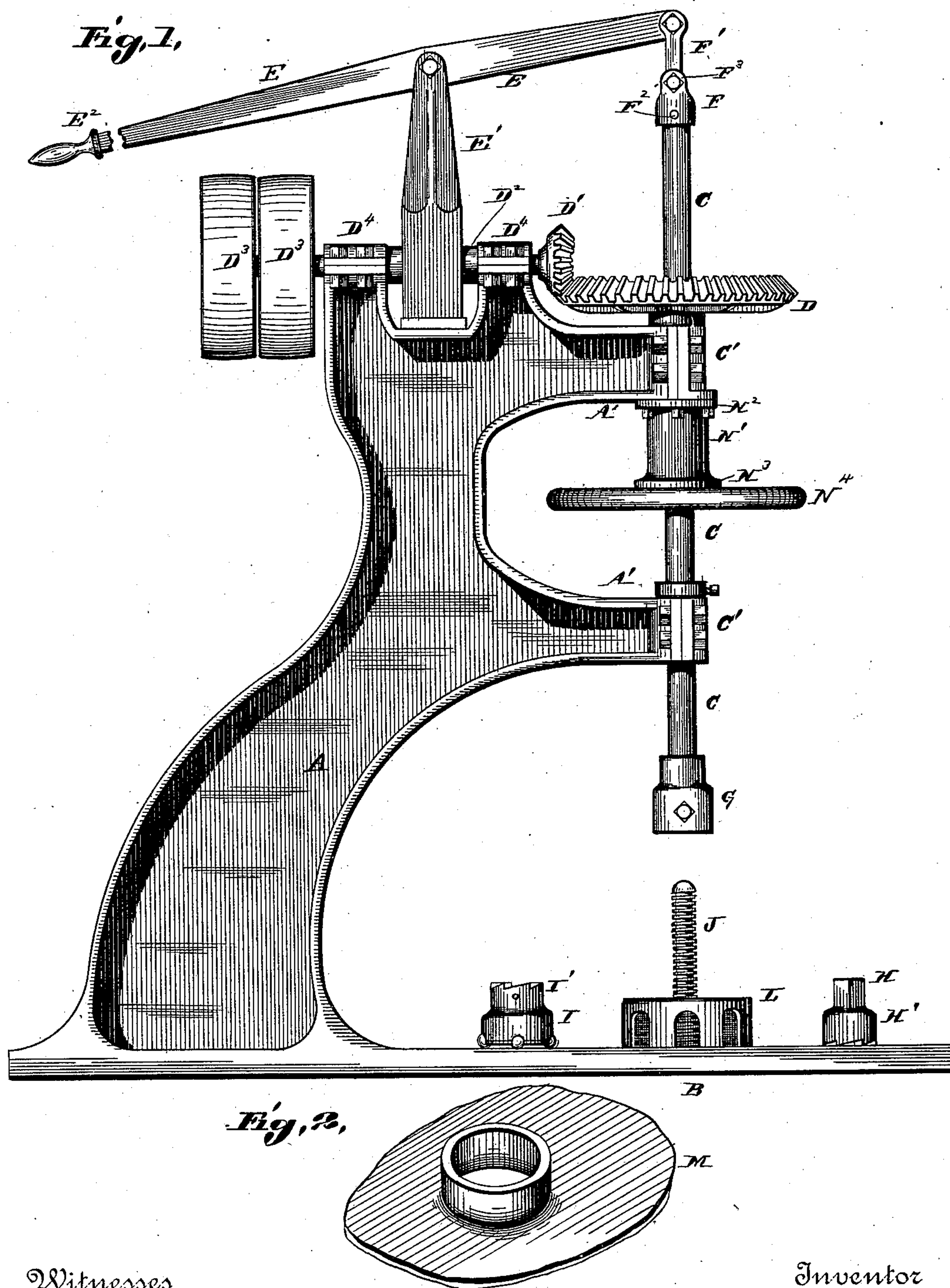
3 Sheets—Sheet 1.

J. O'BRIEN.

COMBINED FLANGING MACHINE AND DRILL PRESS.

No. 362,308.

Patented May 3, 1887.



Witnesses

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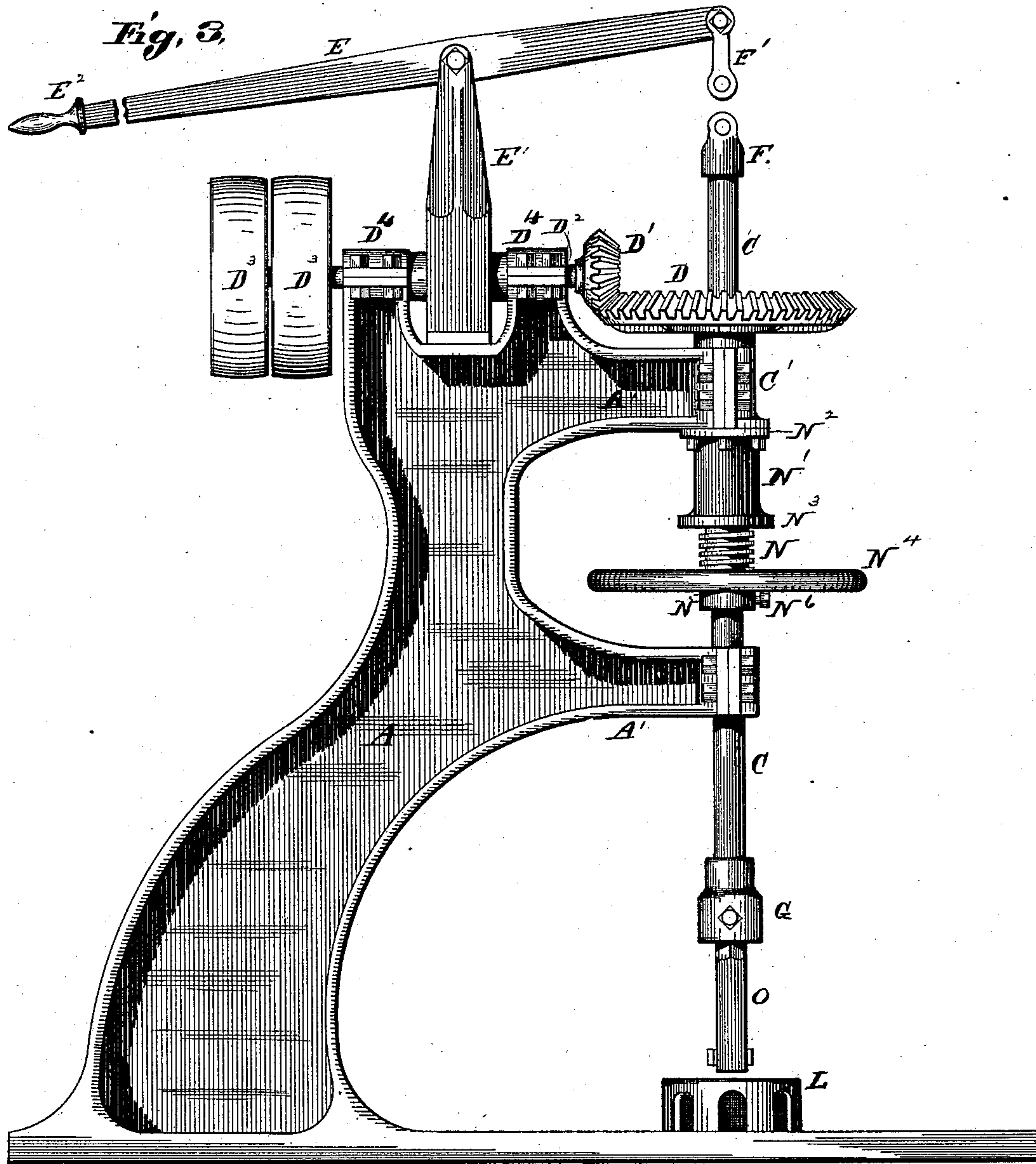
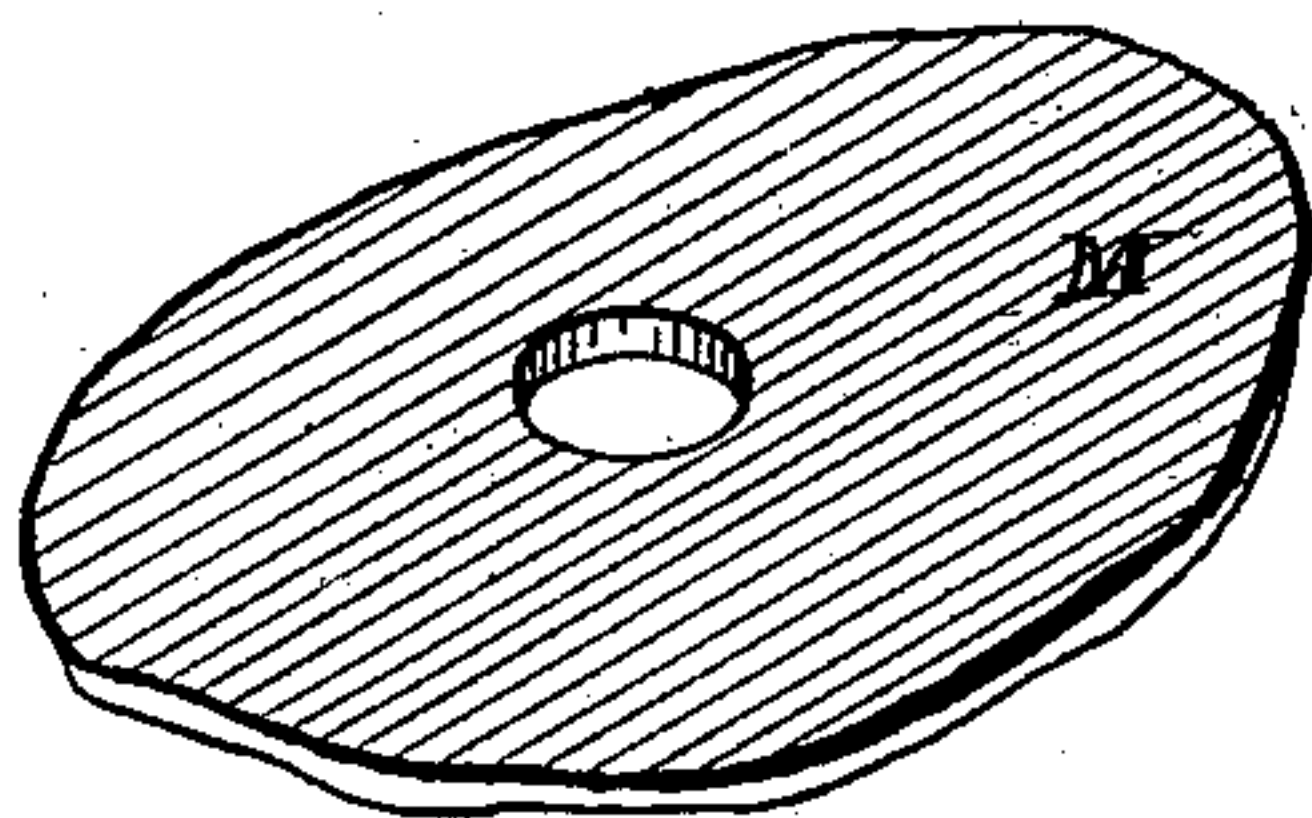


Fig. 4.



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Fig. 5,

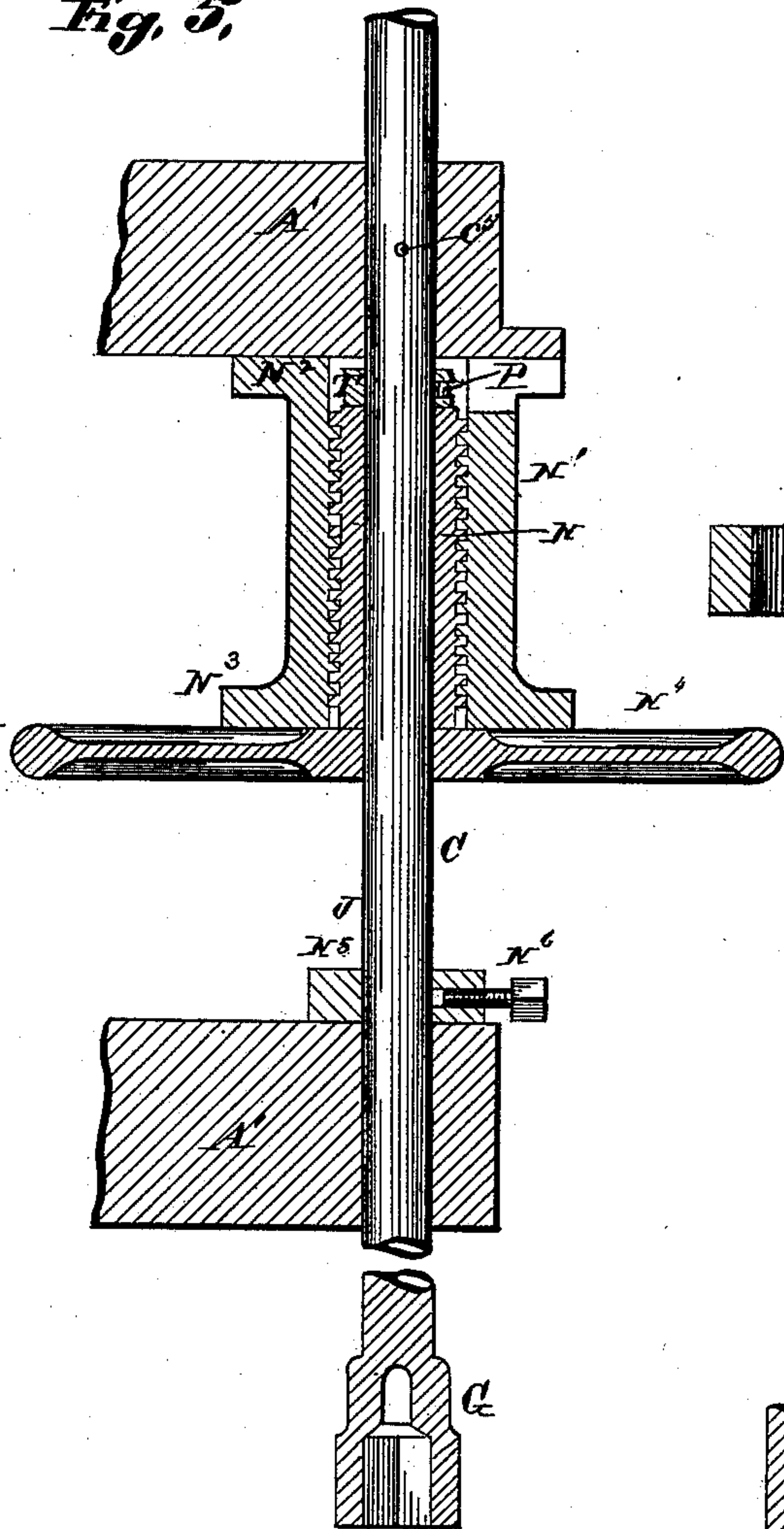


Fig. 6,

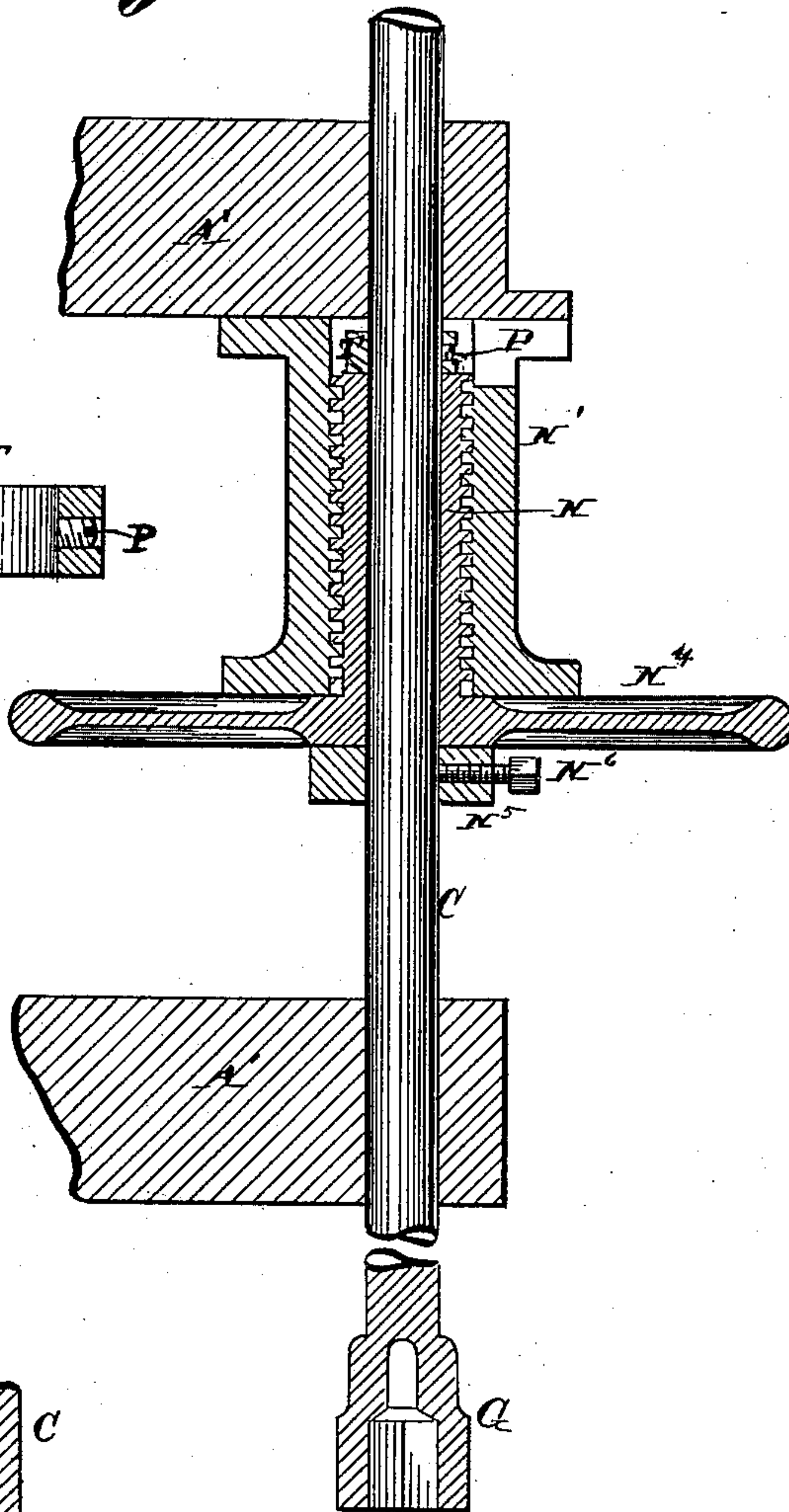
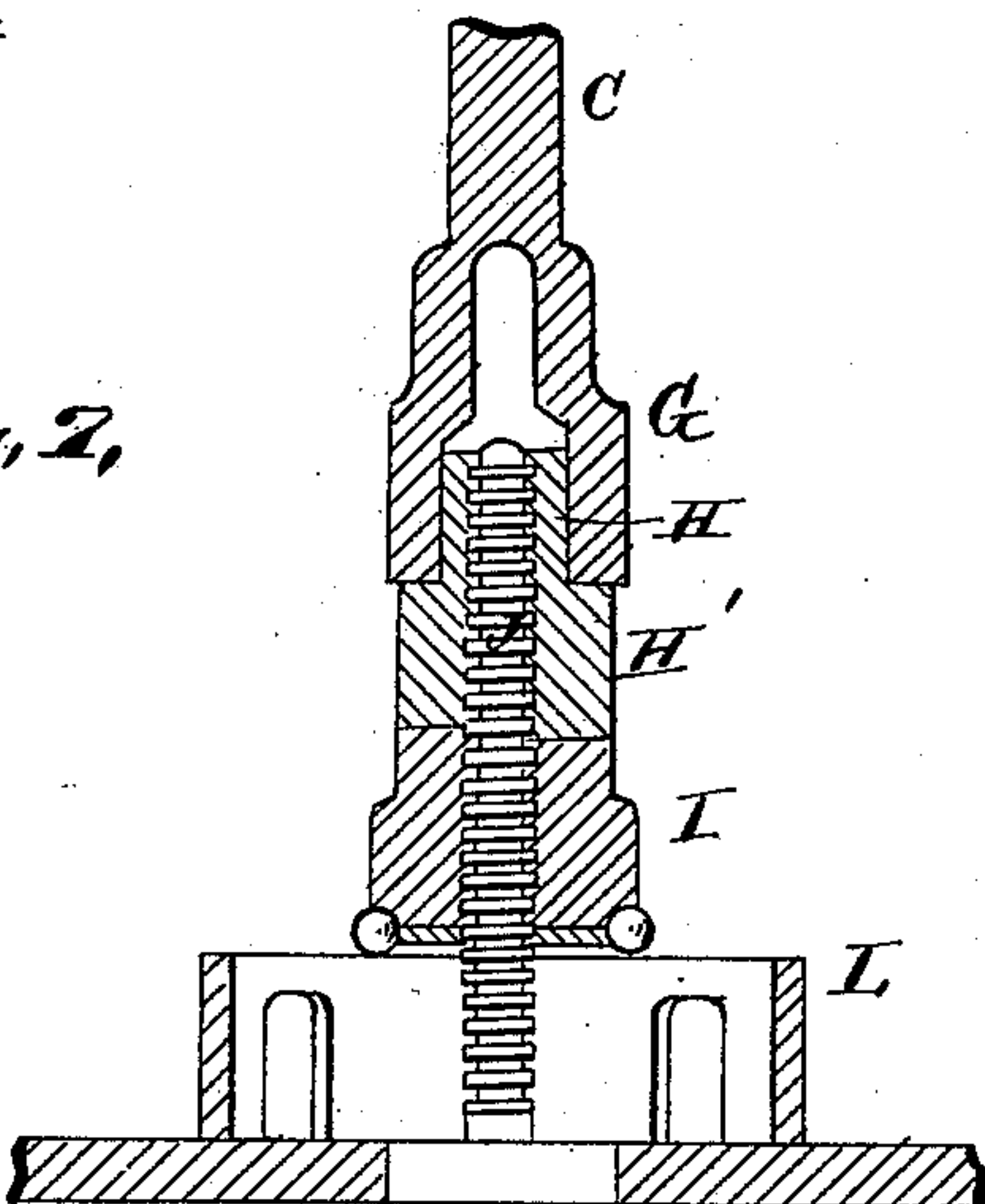


Fig. 2,



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN O'BRIEN, OF ST. LOUIS, MISSOURI.

COMBINED FLANGING-MACHINE AND DRILL-PRESS.

SPECIFICATION forming part of Letters Patent No. 362,308, dated May 3, 1887.

Application filed October 18, 1886. Serial No. 216,518. (No model.)

To all whom it may concern:

Be it known that I, JOHN O'BRIEN, a citizen of the United States, residing at the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Combined Boiler-Flanging Machines and Drill-Presses, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a side elevation of the device, showing it in position as a flanging-machine. Fig. 2 is a detail perspective view of a boiler-head, showing a flanged flue-hole. Fig. 4 is a similar view before the hole is flanged. Fig. 3 is a similar view to Fig. 1, showing the device in position as a drill-press. Figs. 5 and 6 are vertical sections through the device that is used on the machine when applied as a drill-press, the shaft being shown in side view. Fig. 7 is a vertical section through the chuck arrangement and former, and also the anvil or support of the flanging mechanism.

My invention relates to an improved machine intended for interchangeable use as a flanging-machine or a drill-press, and which can be readily and quickly changed from one to the other; and my invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Referring to the drawings, A represents a frame supported by a suitable base, B, and having extensions A', through which passes a vertical shaft, C, journaled in boxes C', by which it is connected to the extensions A' of the frame. This shaft is provided with a cog-wheel, D, with which it has a feather-and-groove connection, and into which meshes a pinion, D', on a driving-shaft, D², provided with tight and loose pulleys D³, and which is secured to the frame A by journal-boxes D⁴. The shaft C is thus turned; but its free vertical movement, owing to its feather-and-groove connection with the cog-wheel D, is not interfered with.

When the device is in use as a flanging-machine, there is connected to the shaft C a lever, E, fulcrumed on a standard, E', extending upward from the frame A, the outer end of the lever terminating in a handle, E².

As a means for connecting the shaft to the lever, I have shown a collar, F, connected to

the end of the lever by means of a link, F', which slips over the upper end of the shaft and is held thereon by a connecting-pin, F², the collar being connected to the link F by a bolt, F³. On the lower end of the shaft is secured a chuck, G, which receives the non-circular end H of a hollow clutch-collar, H', the teeth on the lower end of the collar meshing into teeth on the upper end, I', of the collar I, as shown in Fig. 7. The collar is screw-threaded, to receive a screw-threaded shaft or rod, J, which feeds the former downward as the shaft C is turned.

The anvil or table L, on which rests the piece of metal M, being flanged, is made hollow, as shown in Fig. 7; but in this, *per se*, I claim no invention.

Surrounding the shaft C, near the upper journal-box, C', is a sleeve, N. Surrounding this sleeve N, and having screw-threaded connection therewith, is a second sleeve, N', having an upper flange, N², bolted to the upper extension, A', and the upper box, C', and the lower end of this sleeve is preferably provided with a flange, N³.

On the lower end of the sleeve N is formed or secured a hand-wheel, N⁴, for turning said sleeve, whereby it is caused to move up or down, according to the direction in which it is turned, by reason of the engagement of the threads on its exterior with the threads on the interior of the fixed sleeve N'.

N⁵ is a collar fitting loosely on the shank C below the hand-wheel and sleeve N, and provided with a binding-screw, N⁶, and T a collar similarly fitted upon said shaft above the sleeve, and likewise provided with a binding-screw, P, whose end is adapted to enter a slight depression, C⁵, in the shaft C. This collar is of such diameter that it may rise and fall freely within the hollow sleeve N' when its binding-screw is screwed in, so as to clamp it to the shaft. When both of these collars are clamped to the shaft by their respective binding-screws, one above and one below the sleeve N, as shown in Figs. 3 and 6, it is manifest that there can be no relative longitudinal movement between the parts C, N, N⁵, and T, and that the shaft C or sleeve N may revolve freely independently of each other, the collars N⁶ and T moving with the shaft; hence, to move the shaft longitudinally in its bearings,

either upward or downward, it is simply necessary to turn the hand-wheel N^4 in one or the other direction, as may be required to produce the desired result.

5 When the device is being used as a drill-press, the collar and former H' and I are removed, and a tool, O , secured in the chuck G . The lever E is next disconnected from the shaft C by removing the pin F^2 or the bolt F^3 , (the latter is shown removed in Fig. 3.) and the shaft C is fed by the hand-wheel N^4 .

10 It will now be seen that when the sleeve N is turned downward in the sleeve N' by means of the hand-wheel N^4 the drill will be fed down upon its work, the shaft C being prevented from slipping through the sleeve N as it is turned down by means of the collar N^5 , and when the wheel is reversed and turned in the other direction the drill will be raised, owing to the shaft C being prevented from slipping or moving in the sleeve N by the collar T .

20 When the device is used as a flanging-machine, there is no connection between the shaft C and either of the sleeves, the hand-wheel N^4 , or the collar N^5 ; but the shaft works freely through them, and operates as though those parts were not present.

30 It will thus be readily understood how the device can be quickly changed from a machine suitable for flanging boiler-heads or other pieces of metal to a drill-press, and how, by simply turning outward on the screws P and N^6 , the feed can be changed to make it suitable for a flanging-machine.

35 I claim as my invention—

40 1. In a combined flanging-machine and drill-press, in combination with a vertical shaft provided with means for the attachment of the former or feeder and mechanism by which it is rotated, the inner sleeve provided with a hand-wheel and surrounding the shaft, stationary outer sleeve having screw-threaded con-

nection with the inner sleeve, and collars located above and beneath the inner sleeve, substantially as and for the purpose set forth. 45

2. In a combined flanging-machine and drill-press, a vertical shaft and mechanism for rotating it, in combination with an inner sleeve provided with a hand-wheel, a pair of collars located, respectively, above and below said sleeve, and having screws for securing them to the shaft, whereby the latter is held against longitudinal movement in either direction independently of the sleeve, and an outer stationary sleeve having screw-threaded connection with the inner sleeve, substantially as and for the purpose set forth. 55

3. In a combined flanging-machine and drill-press, a vertical shaft and mechanism for rotating it, in combination with a lever removably connected to the shaft, a sleeve provided with a hand-wheel and surrounding the shaft, loose collars surrounding the shaft located, respectively, above and below the sleeve and having clamp-screws, and an outer stationary sleeve having screw-threaded connection with the inner sleeve, substantially as and for the purpose set forth. 60

4. In a combined flanging-machine and drill-press, in combination with the vertical shaft and mechanism for rotating it, a lever removably connected to the upper end of the shaft, a sleeve surrounding the shaft and provided with a hand-wheel, collars located above and beneath said sleeve and provided with set-screws for securing them to the shaft, and the outer stationary sleeve having screw-threaded connection with the inner sleeve, all arranged and operating substantially as and for the purpose set forth. 70 75

JOHN O'BRIEN.

In presence of—

GEO. H. KNIGHT,
JOS. WAHLE.