(No Model.) 3 Sheets—Sheet 1.

W. A. LONG.

MACHINE FOR MAKING SUPPOSITORIES.

No. 286,719. Patented Oct. 16, 1883.

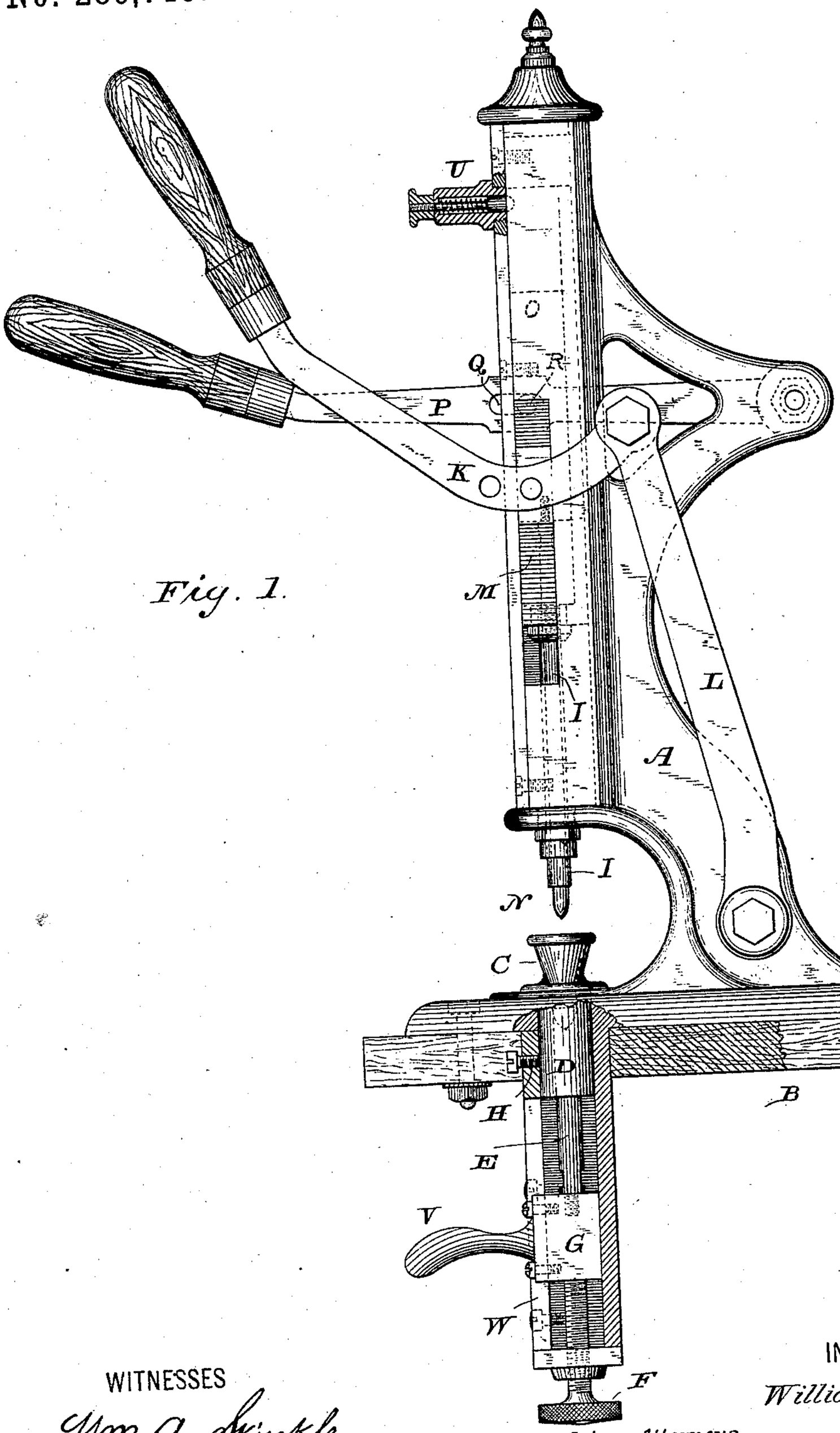

Fig. 1.

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Fig. 3.

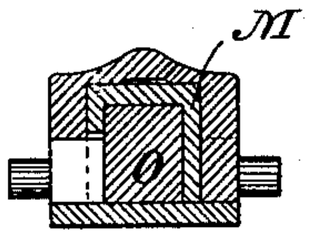

Fig. 2.

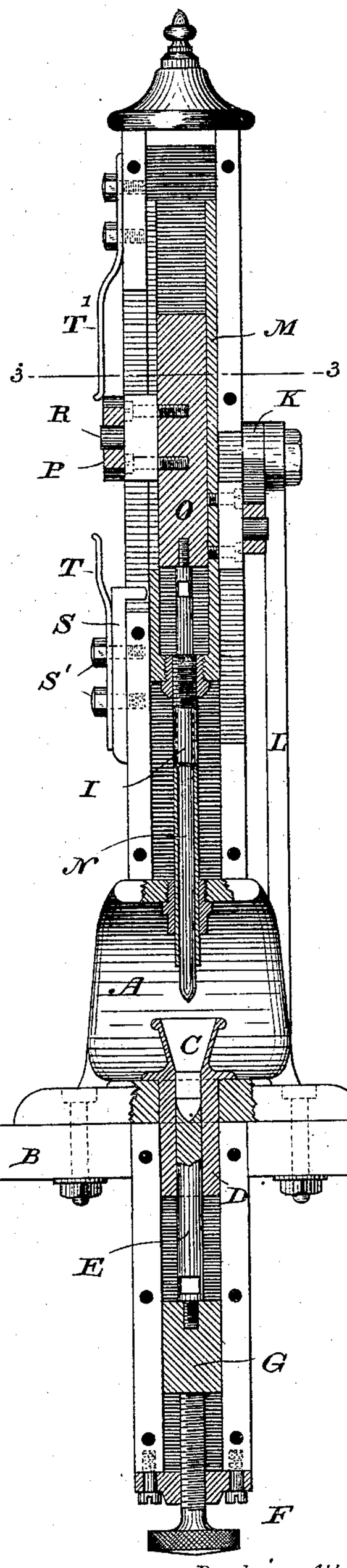

Fig. 4.

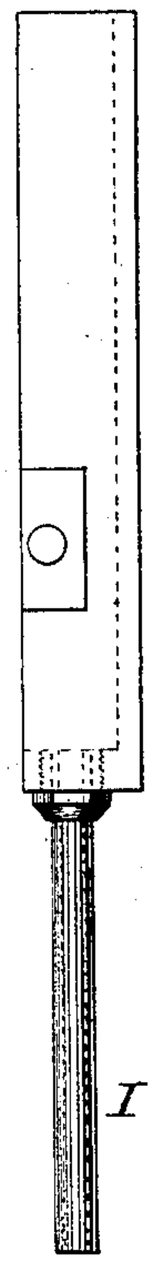

Fig. 5.

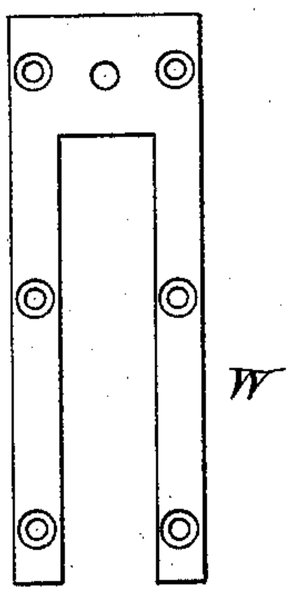

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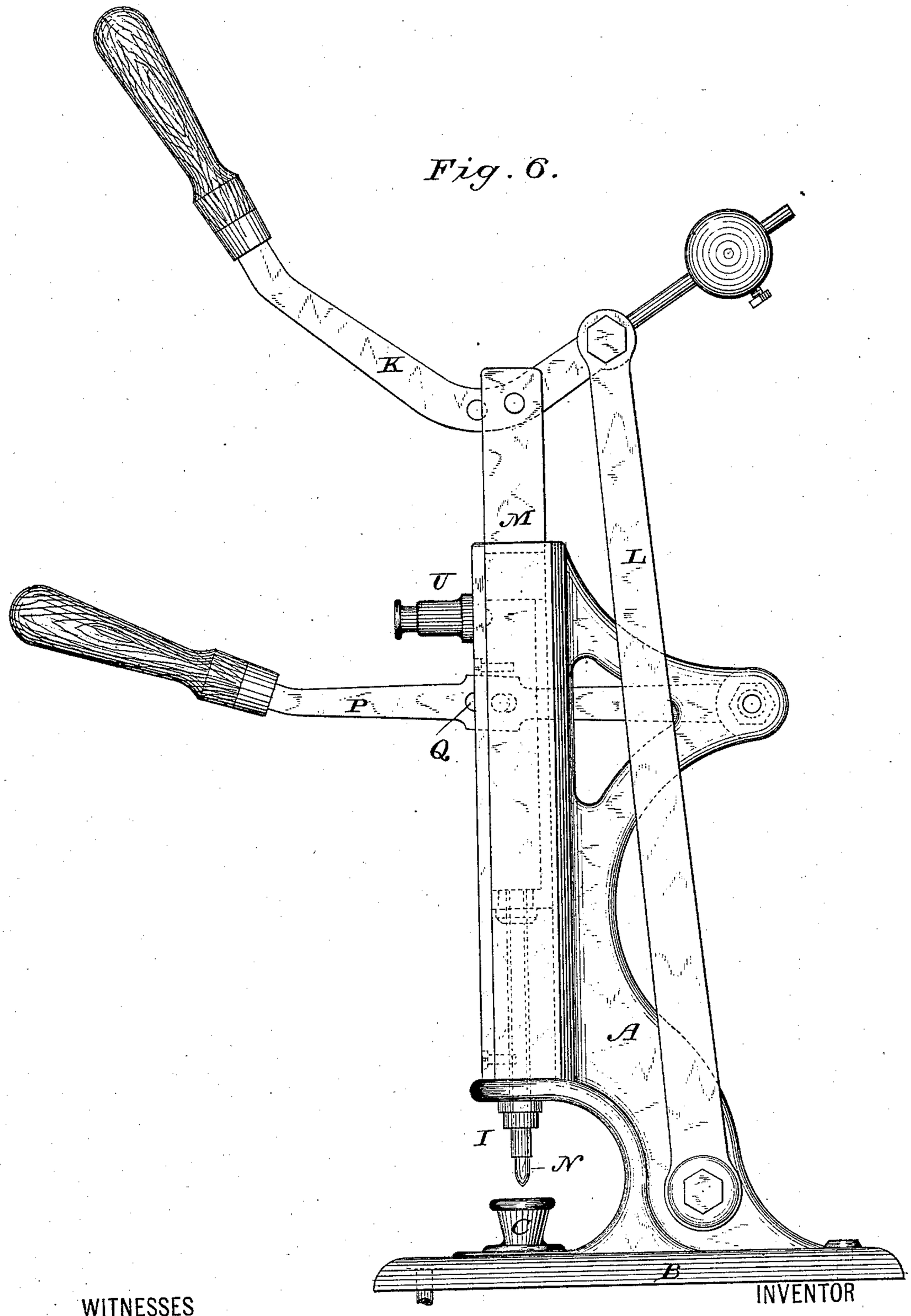
Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM A. LONG, OF STEUBENVILLE, OHIO.

MACHINE FOR MAKING SUPPOSITORIES.

SPECIFICATION forming part of Letters Patent No. 286,719, dated October 16, 1883.

Application filed August 15, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. LONG, of Steubenville, in the county of Jefferson and State of Ohio, have invented certain new and useful Improvements in Mechanism for the Manufacture of Hollow Suppositories, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved machine, partly in section. Fig. 2 is a central vertical section of the same, taken at right angles to Fig. 1. Fig. 3 is a section on the line 3 3 of Fig. 2. Fig. 4 is an elevation of the hollow follower detached, and Fig. 5 is a view of the lower slotted face-plate detached. Fig. 6 shows a modified form of my lever mechanism.

The object of my improvements is to provide for the manufacture of hollow suppositories and kindred medicinal articles with speed and economy.

In the drawings, A indicates a suitable casting or frame, which may rest on any suitable support or table, B.

C indicates a hopper, into which the material for forming suppositories is to be placed in suitable quantity, and beneath which is the matrix into which the material is to be compressed and formed. This matrix is composed of the hollow cylinder D, which may be a continuation of the hopper and the pointing-rod E, provided with a tapering cavity, as illustrated. This pointing-rod is capable of vertical adjustment by means of the thumb-screw F, which impinges against the block G, into which the lower end of the pointing-rod is secured.

H indicates a set-screw for securing the cylinder D in position.

I indicates a hollow follower, having vertical reciprocating motion in suitable ways in the upper part of the frame by means of the compound levers K L.

M indicates the hollow frame or guide of the hollow follower, which works in the ways in the upper part of the frame.

N indicates a pointed plunger working within the hollow follower, and secured at its upper end to a guide-bar, O, which works within the hollow frame M, and is operated by means of the hand-lever P. The slot Q in this hand-lever accommodates the relative movements of the lever and pin R while the plunger is being reciprocated.

S indicates a stop, which may be slotted and made adjustable by means of holding-screws S′, to limit the downward movement of the hand-lever P, and T T′ are spring-clamps for holding the lever in its elevated or depressed position. U indicates a spring-bolt for engaging with the hollow frame M and holding up the hollow follower whenever that is desirable.

Supposing the levers, plunger, and hollow follower to be elevated and the pointing-rod E to be properly adjusted, the operation is as follows: A measured quantity of material—for example, pulverized cacao butter—sufficient to make the proper-sized suppository, is placed in the hopper. The plunger is then depressed by means of its operating-lever into the matrix and held by the spring T. The hollow follower is then brought down with great force by means of the compound levers, which exert the greatest strain at the finishing-point of compression, and the suppository is firmly compressed into the matrix and around the pointed end of the plunger, and thus formed. The plunger is then withdrawn, and its operating-lever is held up by the clamping-spring T′. The hollow follower is then raised and held up by the spring-bolt U. The pointing-rod is next raised by means of the hand-piece V, working in the slot of the lower face-plate, W, and the suppository is expelled. For the next operation the pointing-rod is lowered to place, and then the work just described is repeated.

I prefer the modified form of lever mechanism shown in Fig. 6, in which an extension of the hollow frame M projects out of the top of the main frame and is connected to the weighted lever K, because greater power can be secured.

A skillful operator can work this apparatus with facility, so as to produce suppositories with rapidity, each one subject to a very powerful compression, and finished in a sufficiently-hard condition for convenient packing and use.

It will be observed that the parts forming

the matrix, as well as the plunger and hollow follower, are conveniently detachable, being fastened by means of screws and nuts, the object being that they may be exchanged for other parts of different forms and sizes, just as numerous little tools may be held and operated by the same tool-holder. By this means the apparatus can be adapted to the manufacture of suppositories of all the different sizes required, and also of different forms, and it can be used for making pills of different shapes and sizes.

The details of the mechanism illustrated and described may be varied; but I prefer such as I have set forth.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, with the hollow follower and plunger working within the same, of the hopper, the hollow cylinder, and the pointing-rod, constructed and operating substantially as and for the purposes set forth.

2. The combination of the hollow follower and its hollow frame, the plunger working within the follower, and its guide-bar working within the hollow frame, the plunger and follower being detachable, substantially as and for the purposes described.

3. The combination of the hollow follower, the plunger, and the supporting-frames and operating-levers, with the springs T T', and spring-bolt U, substantially as and for the purposes described.

4. The combination, with the hopper and the cylinder, of the adjustable reciprocating pointing-rod provided with the hand-piece V, substantially as described.

In testimony whereof I have hereunto subscribed my name this 30th day of July, A. D. 1883.

WILLIAM A. LONG.

Witnesses:

JOSEPH B. DOYLE,

H. W. NELSON.