

(No Model.)

2 Sheets—Sheet 1.

F. F. RAYMOND, 2d.

HEEL NAILING MACHINE.

No. 354,655.

Patented Dec. 21, 1886.

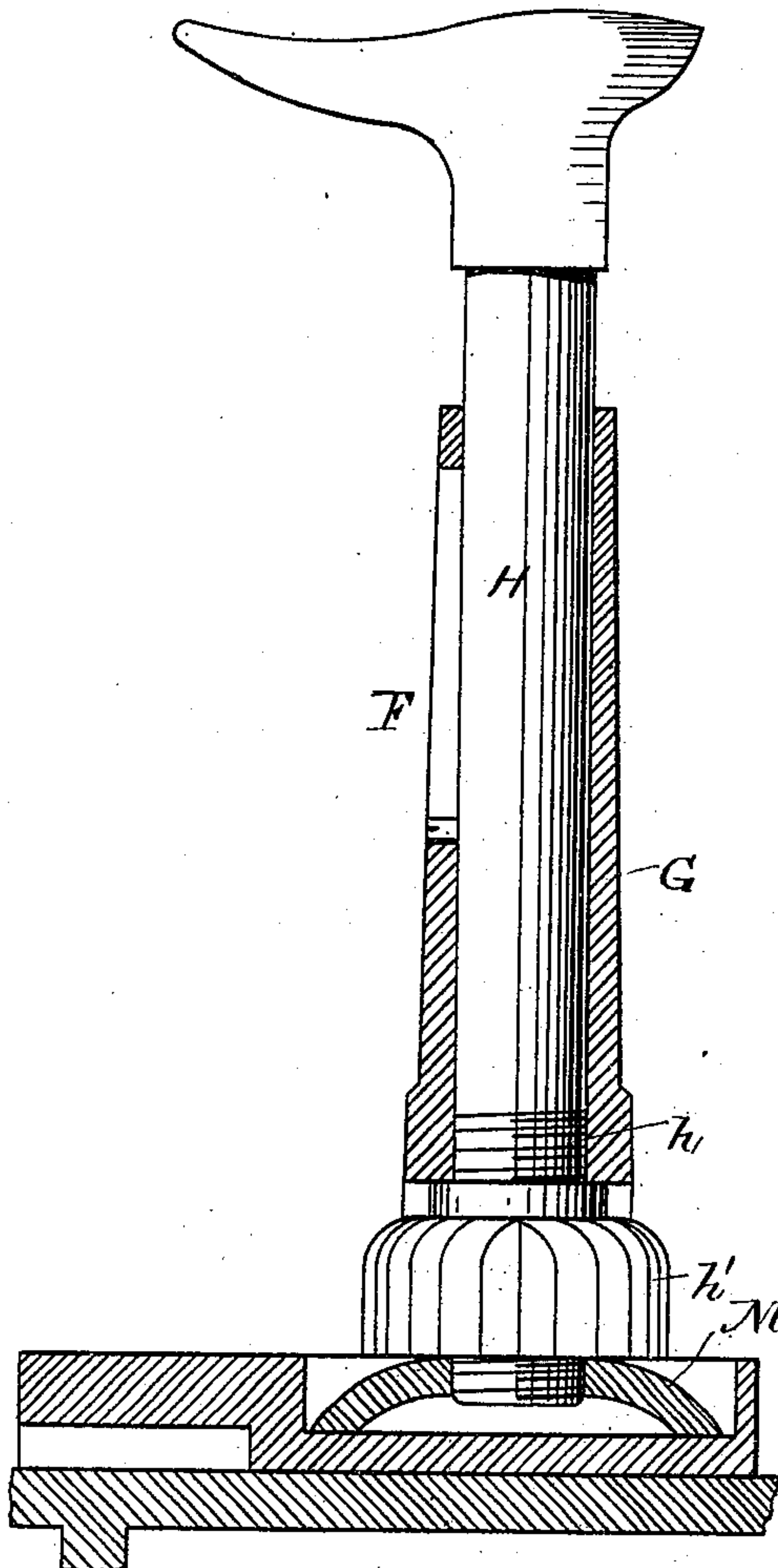


FIG. 1.

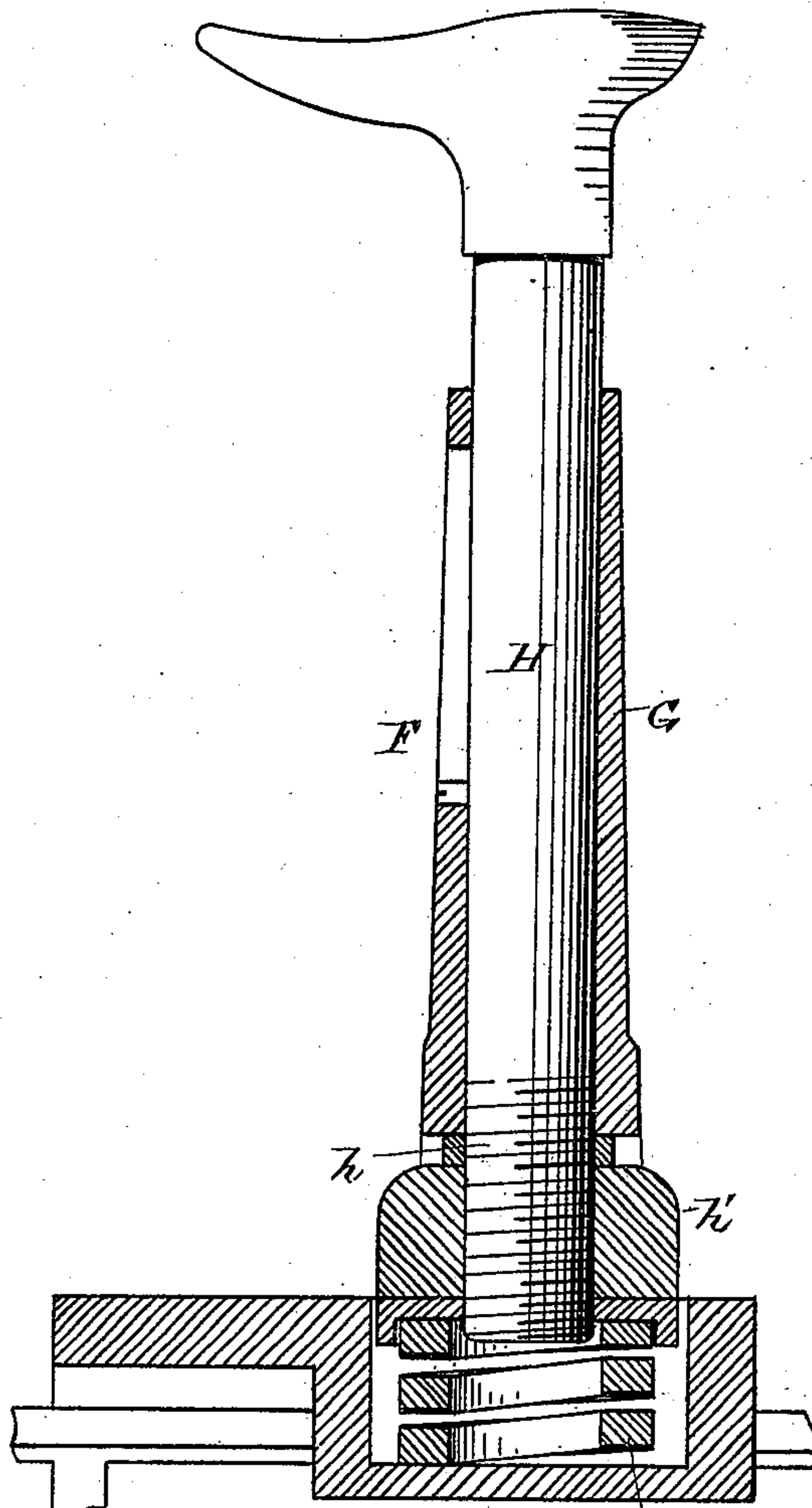


FIG. 2.

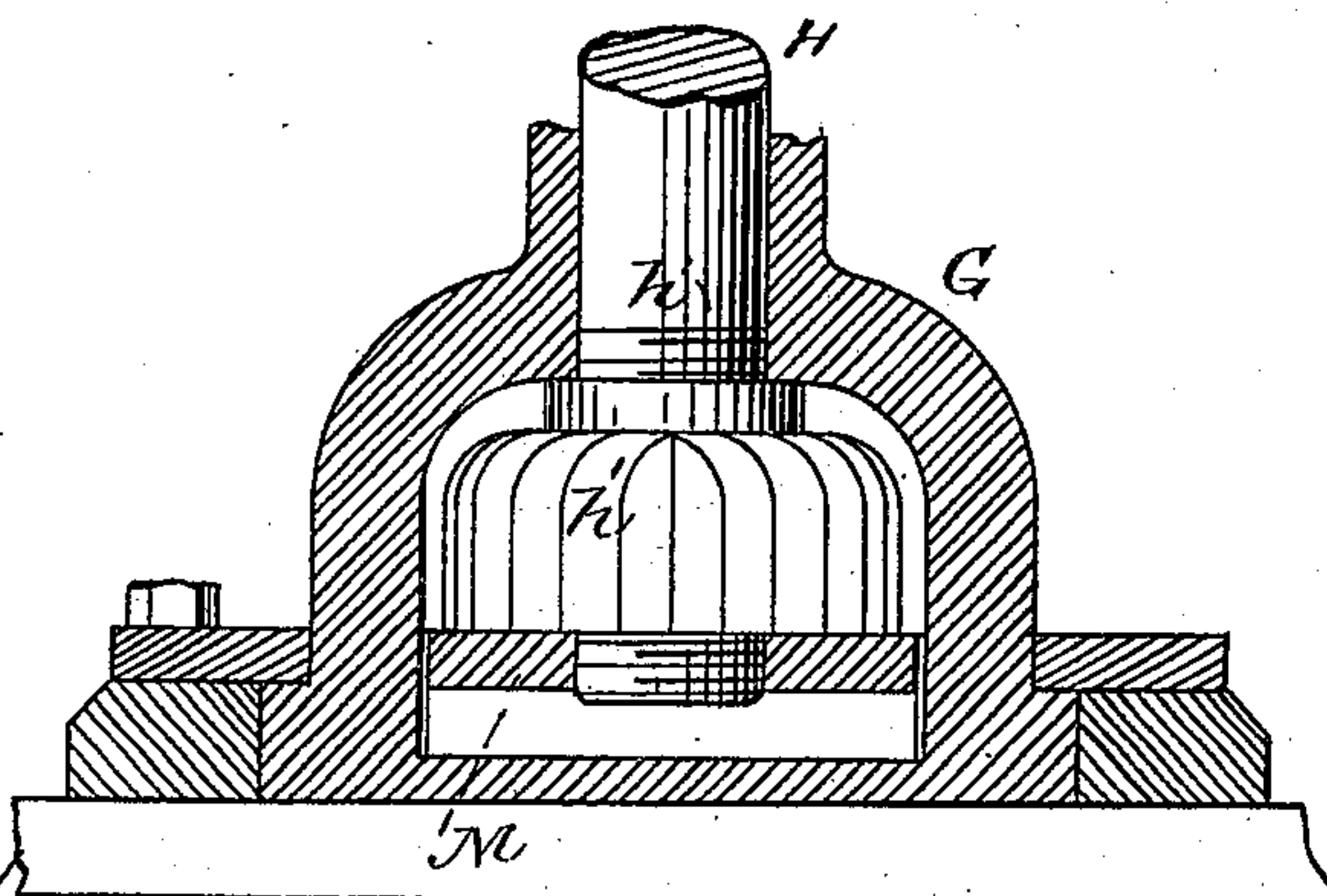


FIG. 4.

WITNESSES.

*Fred. B. Dolan.*  
*Jas. H. Bird.*

INVENTOR.

*F. F. Raymond*

(No Model.)

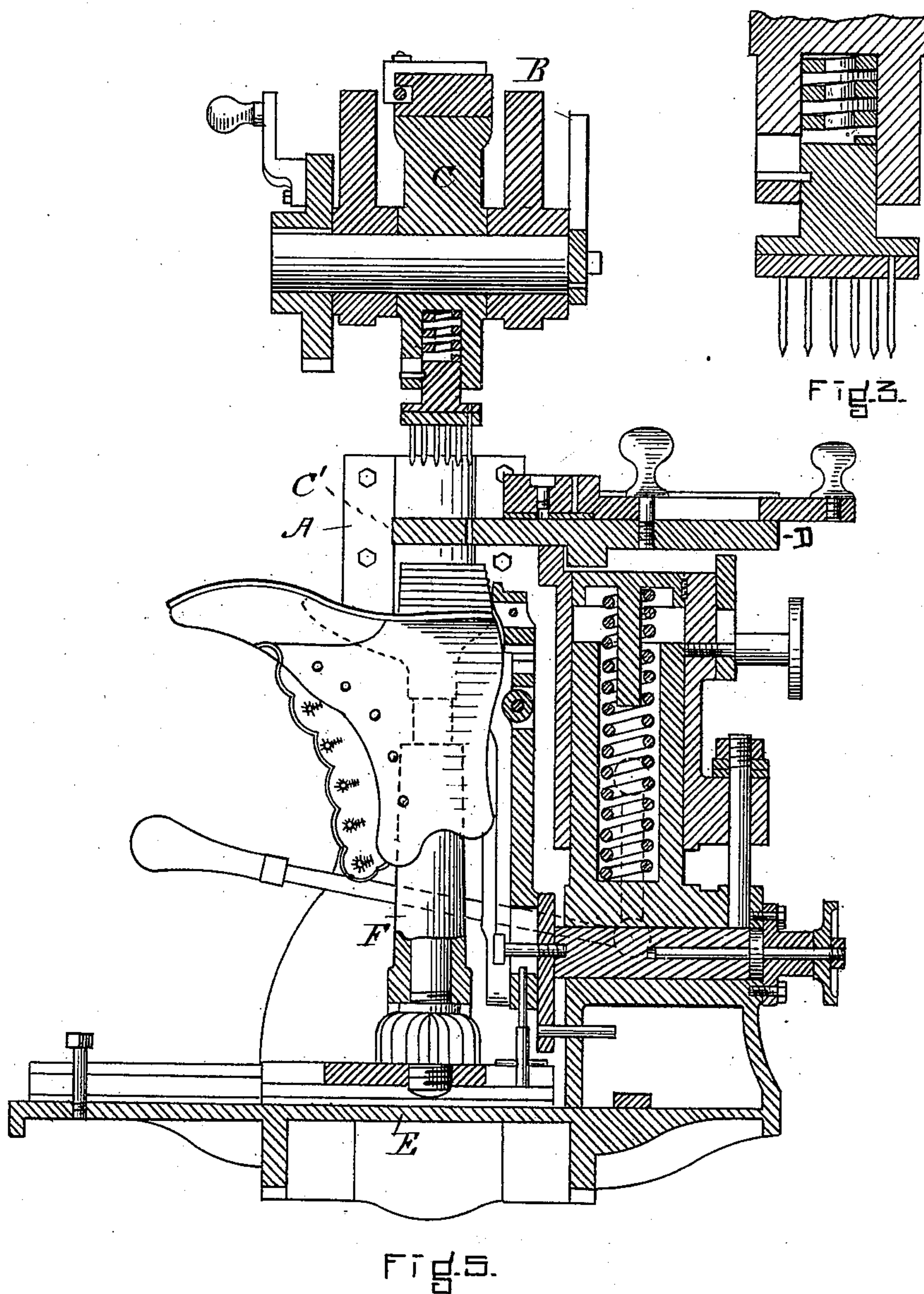
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*Fred. B. Dolan.*  
 *Jas. H. Birck*

INVENTOR.

*F. F. Raymond*



# UNITED STATES PATENT OFFICE.

FREEBORN F. RAYMOND, 2D, OF NEWTON, MASSACHUSETTS.

## HEEL-NAILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 354,655, dated December 21, 1886.

Application filed June 21, 1886. Serial No. 205,767. (No model.)

*To all whom it may concern:*

Be it known that I, FREEBORN F. RAYMOND, 2d, of Newton; in the county of Middlesex and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Heel-Nailing Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

In heel-nailing machines having the construction of the "National Heeling-Machine," so called—that is, a last or work support which is elevated or depressed prior to the operation of the machine, and a pressure block or templet which has an invariable movement or reciprocation—great care is necessary in adjusting or setting the last or work-support, in order that it may not be set so near the limit of movement of the pressure block or templet as to cause a severe strain to be exerted on the working parts of the machine, and I have ascertained that by mounting the jack post or spindle upon a support which is unyielding or rigid during the ordinary working of the machine at ordinary working pressure, and which yields only upon an excess of pressure over and above the ordinary working pressure, to relieve the machine from breaking strain, that this nicety of judgment is not so essential, and that a means is provided for relieving the machine from or preventing such an excess of pressure upon the parts as might otherwise strain or break them. There are of course a number of ways by which this result can be obtained, and in the drawings I have represented some of them, but they all embody the same principle—that is, the use of a jack post or spindle preferably made adjustable, and mounted upon a support of the character indicated to permit the heel to be properly compressed and the nails to be properly driven without yielding, but which will yield upon an excess of pressure, and thereby relieve the machine from excessive strain.

Referring to the drawings, Figure 1 is a view, part in vertical section and part in elevation, of a jack containing the features of my invention. Fig. 2 is a view of the same upon the jack, illustrating the use of a different form of support from that shown in Fig. 1. Fig. 3 is

a view illustrating a modified form of the invention. Fig. 4 is a section further illustrating the construction of the jack. Fig. 5 is a view representing a portion of the machine to which the invention is applied.

In the drawings I have represented the invention as applied to a National Heeling-Machine, and have shown a sufficient portion of the machine to illustrate its use in connection therewith.

A is the frame of the machine.

B is a reciprocating head, carrying a rotary head, C, upon arms projecting from which are mounted the awls, drivers, and spanker.

C' is a pressure or templet block, which is adapted to be moved vertically downward against the heel-blank by the contact of the awl-block therewith, to compress the heel solidly upon the soles of the boot or shoe held by the last or work-support.

E is the bed of the machine. Upon it is mounted a sliding jack, F, which carries a tubular post, G, which supports a jack spindle or rod, H. This jack spindle or rod has a screw-thread, *h*, and a nut, *h'*, by which it is made vertically adjustable, and it is represented in Fig. 1 as mounted upon the support M, which is so constructed, shaped, and held that it is unyielding or rigid during the ordinary working of the machine at ordinary working pressure, and yields only upon an excess of pressure over and above the ordinary working pressure of the machine. Such support, of course, must have two features—it must be unyielding normally, but must also have the character of a spring when subjected to an abnormal condition. It would not be applying the right name to the support to call it a "spring," because it does not perform in the ordinary working of the machine the function of a spring. It is then simply a rigid or unyielding support. The part M has the appearance of a spring, but it in fact does not become a spring until it is called into operation by a set of conditions which do not ordinarily prevail. The rod or spindle H is prevented from turning in its post by a pin secured thereto and extending into a slot or recess formed in the post.

In Fig. 2 I have represented in lieu of a dish-spring the flat support M, a circular sup-



port having the same characteristics, and which is partly held in a cavity or recess formed in the base-plate of the jack.

Of course any other form of support may be employed for providing the last or work-support with this yielding movement upon an excess of pressure.

While I have represented the last or work-support as stationary during the nailing operation, and the pressure or templet plate D as movable, I would say that the invention can be used as beneficially when the templet-plate or pressure-plate D is stationary, and the last or jack is moved positively by a reciprocating head or other device having a fixed or invariable throw, the interposition of the support of the character indicated between the jack spindle or rod and the head acting, of course, to relieve the machine from excess of pressure.

In machines organized as the National is organized—that is, in machines having a downwardly-movable templet or pressure plate, which is adapted to be moved downward by the contact of the awl or a pressure-block therewith—the support, instead of being placed in the jack, can be placed between the awl-reciprocating block and the arm or head carrying it, and this modification of the device is represented in Fig. 3.

I am aware that it is not new to mount a block upon a spring in such a manner that the spring serves to provide a certain degree of adjustment or movement to the part each time the part is operated, as substantially shown in the applicant's patents Nos. 321,756 and 246,945, but this is not the object of

my invention. The spring which I use as an essential element is not a spring, or does not serve as a spring at the times the springs of these other devices serve to act in that capacity. The spring is, in fact, not a spring during the ordinary or safe working of the machine. It is then a support for the jack, intended to be as solid, so far as all practical purposes are concerned, as the jack-post itself, and it is only when the machine is submitted to what otherwise might be a breaking strain that this block or support for the jack then acts as a spring to relieve the excess of pressure, and immediately upon giving this relief it again assumes its function as an unyielding block or support.

Having thus fully described my invention, I claim, and desire to secure by Letters Patent of the United States—

In a heel-nailing machine, the combination of a head provided with an invariable throw, the last or work-support and a bed therefor, and an independent metal support, M, interposed between the head and the bed supporting the last or work-support, adapted to act as a rigid or unyielding support during the ordinary working of the machine at ordinary working pressure, and to yield only upon excess of pressure over and above said ordinary working pressure to release the machine from a breaking strain, substantially as described.

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Witnesses:

FRED. B. DOLAN,  
JAS. H. BIRD.