

(No Model.)

F. PEASE.  
HEEL MACHINE.

No. 253,758.

Patented Feb. 14, 1882.

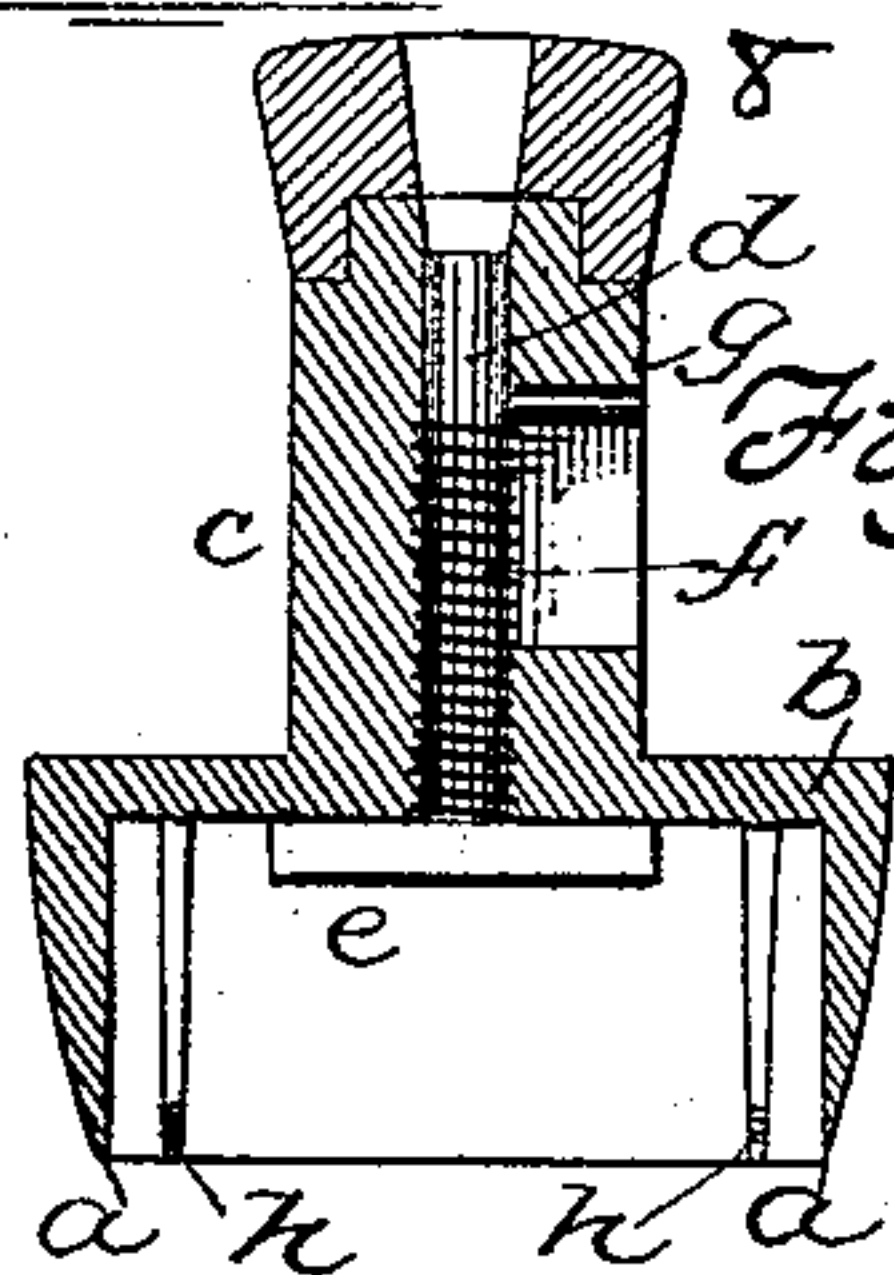
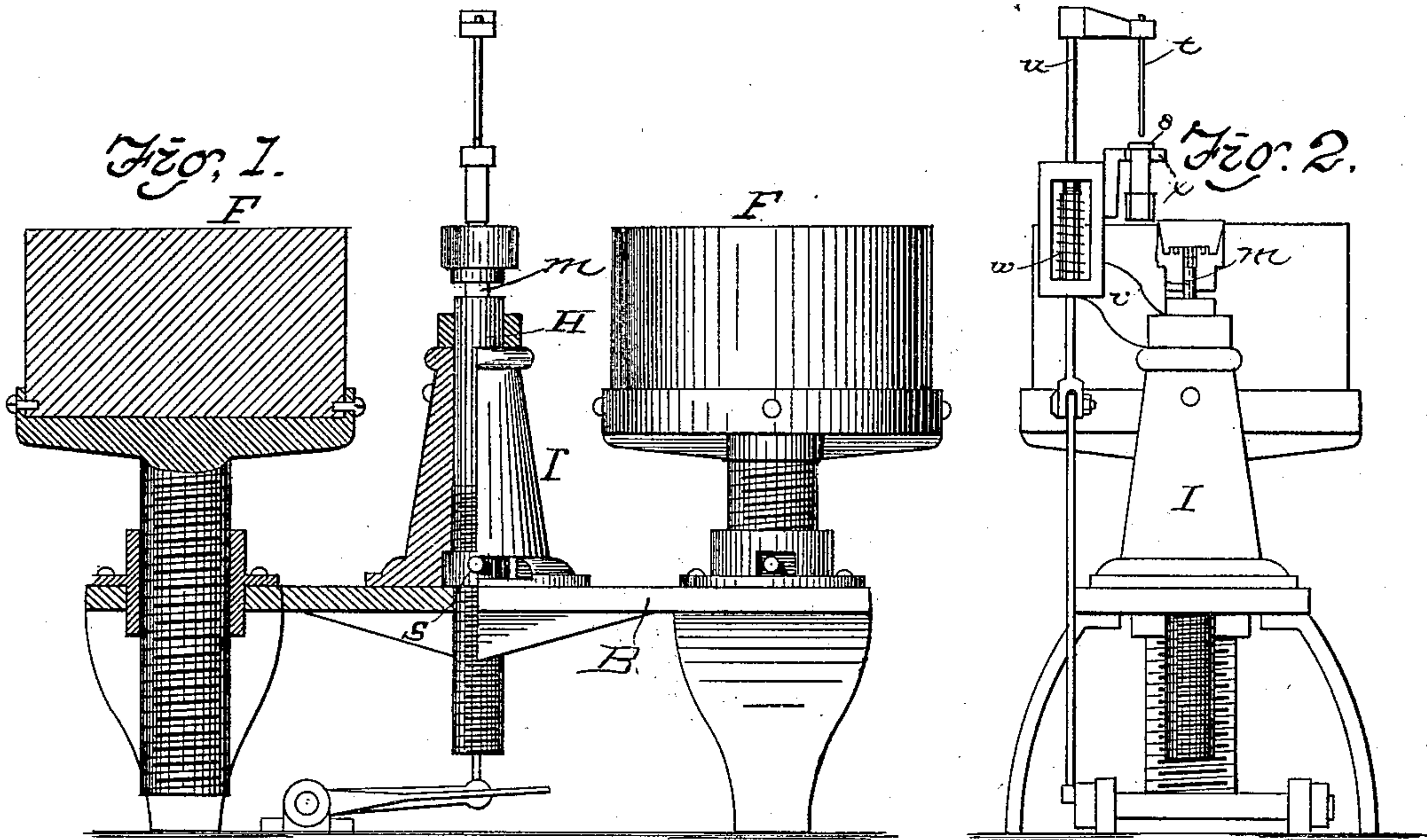


Fig. 4.

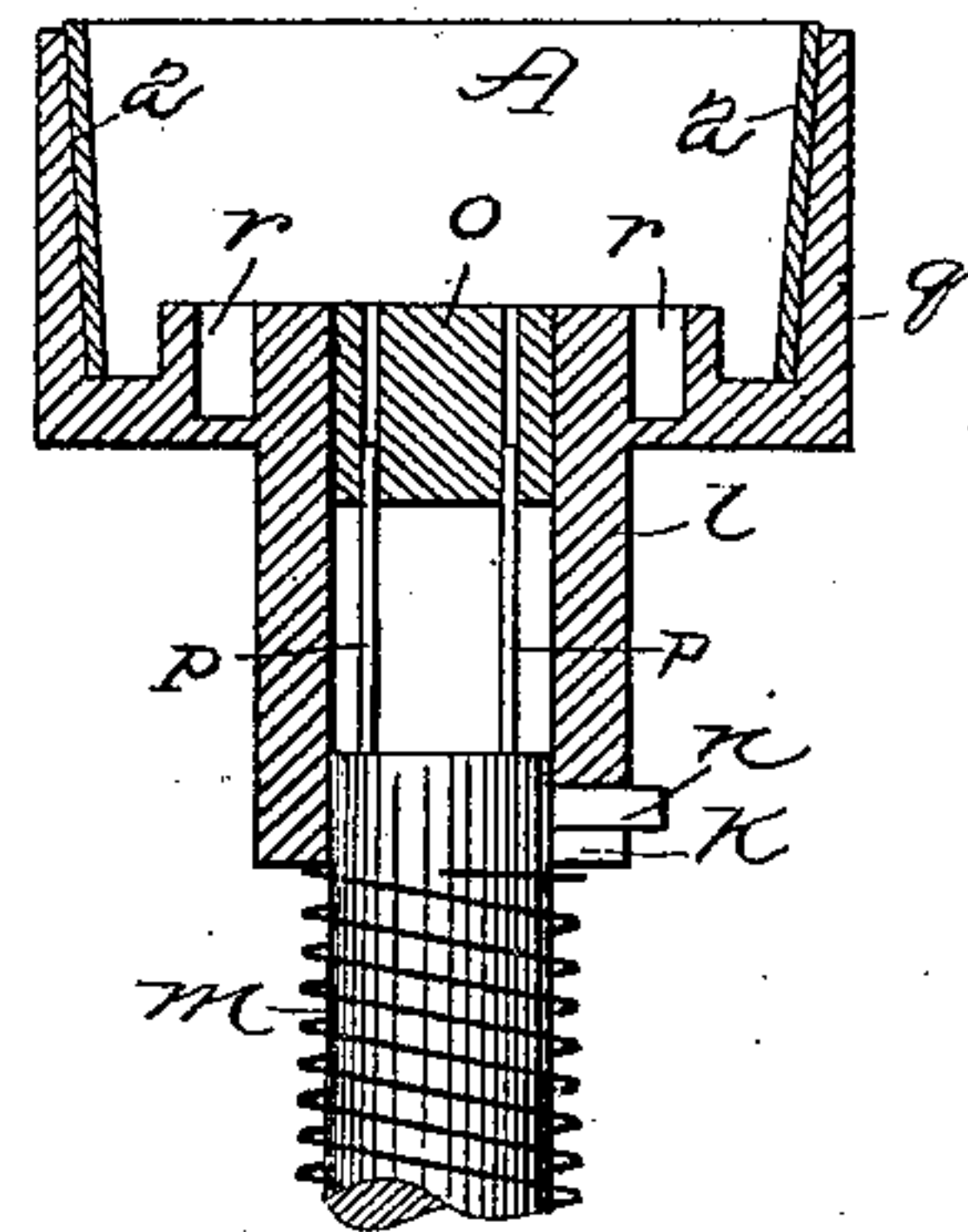


Fig. 5.

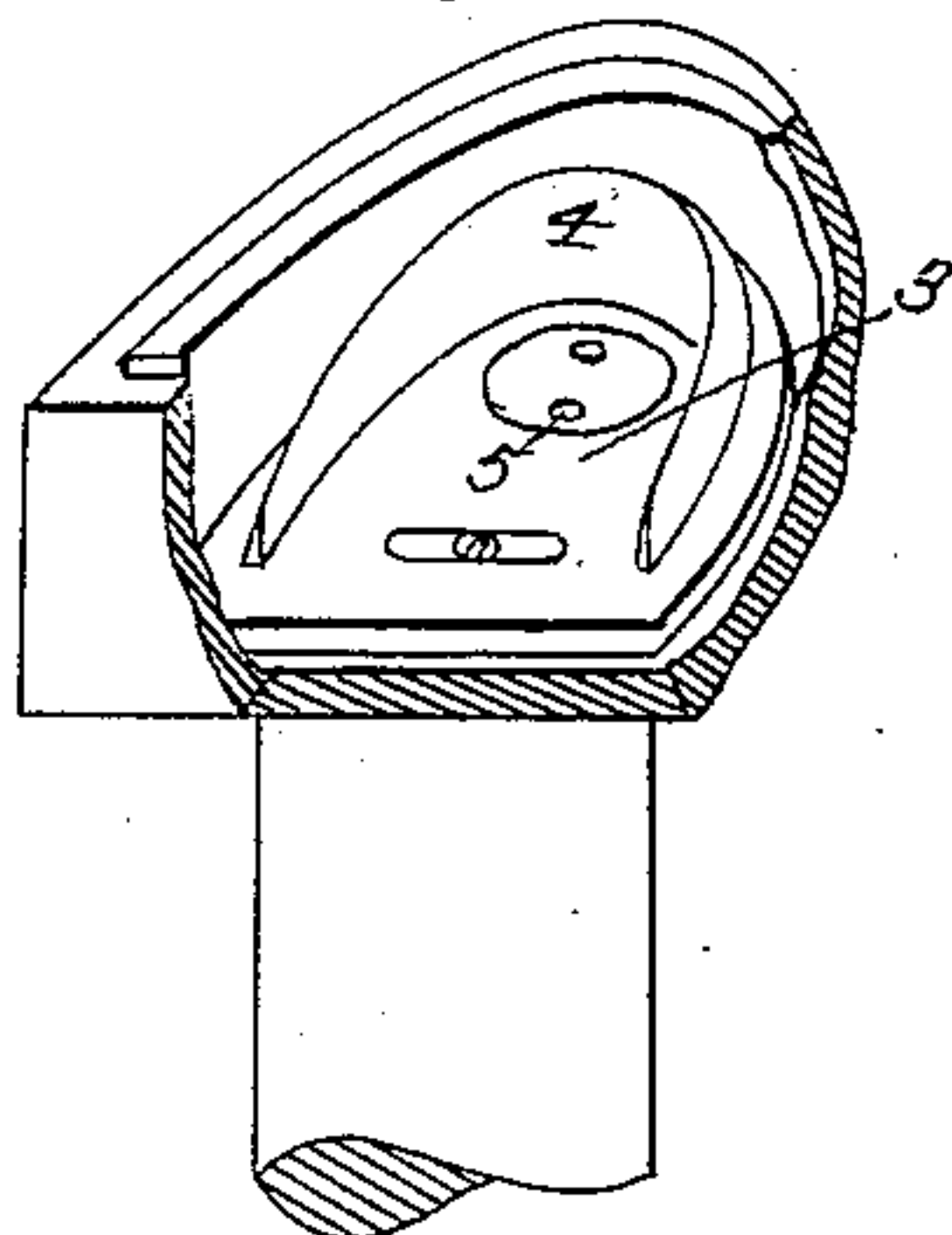
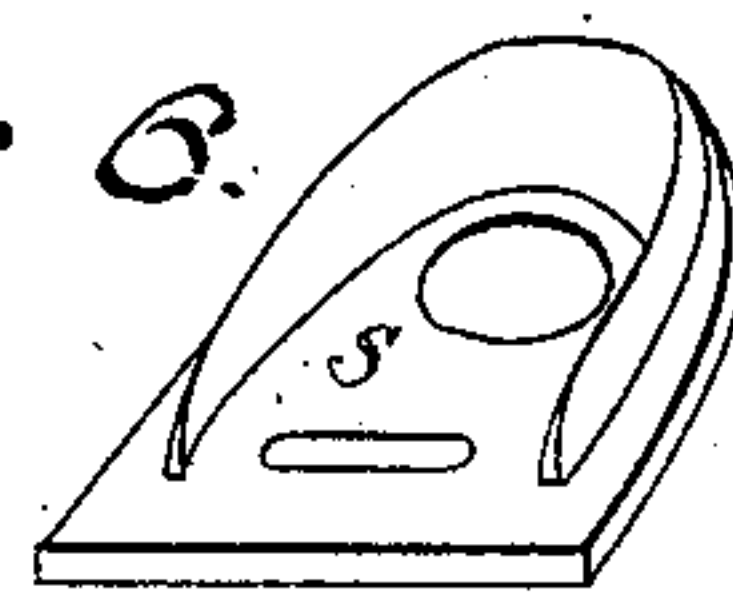


Fig. 6.



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# UNITED STATES PATENT OFFICE.

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## HEEL-MACHINE.

SPECIFICATION forming part of Letters Patent No. 253,758, dated February 14, 1882.

Application filed August 23, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK PEASE, of Lynn, in the county of Essex and Commonwealth of Massachusetts, have invented certain new and  
5 useful Improvements in Heel-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the drawings accompanying this.

10 My invention relates to the making of heel-blanks, the object of it being to facilitate the work of cutting out the lifts and nailing them together. Heretofore various machines and devices have been contrived and used for this  
15 purpose, in some of which the lifts are cut out and collected in a suitable cutter or die, and after being ejected therefrom are nailed and thereby secured together to form the blank. In others the lifts are cut and secured suc-  
20 cessively. As the heels are made in very large numbers, very small saving of time in the cutting and collecting of each blank becomes of importance in the aggregate, and I have endeavored, by the new combination and organi-  
25 zation of parts shown hereinafter, to reduce the necessary movements of the workman in forming blanks for heels out of leather to a minimum, and to render each movement in the manipulation of the apparatus and stock cer-  
30 tain and effective.

My invention consists in the combination of a cutting-die and nailing device adapted to receive the said cutting-die with its accumu-  
35 lated lifts, and to be operated by a blow upon the said die, whereby the lifts are nailed within the die and secured together before the completed blank is ejected. It also consists of certain details of construction ancillary to this main part of my invention.

40 In the general plan of my machine or apparatus it may be stated that I use a cutting-die not greatly different from those heretofore known. The cutting-edge consists of a sharpened flange in the shape of the heel to be  
45 formed, and approximately of the size, with a beveled outer and plane inner surface—that is to say, with the inner surfaces all parallel, or approximately parallel, with each other. This cutting-flange has a bottom and handle affixed  
50 to the bottom, and in the handle a plunger-rod,

on the end of which, within the cavity of the cutter, is a pusher-plate lying close to the bot-  
tom or within it, and adapted to bear against the lift first entering. The other main part of  
the apparatus with which this acts consists of 55 a nail-driving plunger supported on any suitable standard or table, and carrying drivers which act directly on the nails. On this plunger a sleeve is fitted to slide, on the head of  
which is a plate or cup adapted to receive the 60 cutting-die, and with holes in said plate fitted to receive the nails from above and the drivers from below, the whole being under such an arrangement of springs and connected parts  
that when the cutting-die has been charged and 65 placed upon or in the plate or cup, and forced or driven down upon and with the same, the depression of the sleeve and plate or cup and cutting-die therewith will impale the heel-lifts  
upon the nails, and thus secure them together 70 while they are yet in the same die in which they were cut. By this the lifts are connected by the same sort of movement as that used for cutting each lift, and when ejected are secured  
together and are ready to be attached to the 75 boot or shoe. Thus no care is needed in removing the lifts from the die which cuts them, measuring the required amount thereof, and holding them until all the preliminary work  
is completed. All these general features nec- 80 essary to my invention and the specific details of construction are shown in the accompanying drawings, in which—

Figure 1 shows a side elevation, partly in section, of the whole apparatus as organized 85 for work. Fig. 2 is an end view with one block removed. Fig. 3 is a central vertical section of the cutting-die. Fig. 4 is a like section of the nailing device. Figs. 5 and 6 represent a device to be added to that shown in  
90 Fig. 4 for putting up what are known as “deck heels.”

In these drawings, the cutting-flange is represented at *a*, the inner surfaces of which are parallel, or approximately so, while the outer 95 are beveled down to an edge. This flange is connected to a plate, *b*, both flange and plate being of shape and size adapted to the heel which they are intended to form.

To the plate *b* is fixed the handle *c*. This 100



is perforated longitudinally to receive a plunger-rod, *d*, the upper end of which terminates a little below the upper end of the handle. To the lower end of said rod is fixed an ejector-plate, *e*. The plunger-rod and its connected plate are held back by means of a spring, *f*, coiled about said rod, and suitably connected, so that the plate is held normally against the bottom of the cavity of the cutter-die. A pin, *g*, fixed to the rod and working in a slot in the handle, limits the movement of the rod.

To the plate *b*, and inside the die-cavity, are fixed brads *h*. Two are represented, though one may well serve the purpose. It is important that these brads should be roughened at the ends by sharp serrations or otherwise. The office of these brads is to retain the lifts in place as they are cut by the die, and the roughening or serration is required only at the end of the brad, since only the last lift cut is likely or liable to slip off. The brads are really only essential when the die is used to cut thin material. In cutting from thick leather, if the inner surfaces of the cutting-flange are substantially parallel, the lifts will be held in place with sufficient security by frictional contact with the sides without the use of the brads. For this reason, and because the serrations on the brads wear rapidly and need to be renewed, the brads should be removable. It will be understood that the upper end of the handle is fitted to receive blows from a mallet to effect the cutting and nailing.

The plunger of the nailing device is shown at *k*. It may be attached to the table or to any suitable standard or base adapted to rest on the table. On its upper end slides a sleeve, *l*, both sleeve and plunger being preferably round. The sleeve is held up by a spring, *m*, coiled around the plunger *k* and bearing against the lower end of the sleeve. A pin, *n*, in the plunger projects into a slot in the sleeve and limits its vertical movement. On the upper end of the sleeve is a plate or cup, *A*. In the center of this, practically in the bore of the sleeve, is the block *o*, in which the nails are placed to be driven into the lifts. It forms the central part of the plate or cup bottom. Preferably I make two holes, two nails being ordinarily sufficient; but the number is immaterial. In line with these holes are the drivers *p p*, which are set in the upper end of the plunger and project into the lower end of said holes, leaving, however, space enough in said holes for the nails without lifting their points above the upper surface of the block, except when the sleeve and plate are depressed. Obviously the block *o* must be long enough to receive the nails and the ends of the drivers.

In the drawings I have represented the sleeve as provided with a cup-shaped receiver at its upper end. This is in configuration and size adapted to receive the cutting-die heretofore described. The flange *q*, which forms the sides of the cup, serves to keep the die steady and prevent it from springing aside when the

said die is driven down by a powerful blow, necessary when lifts of thick leather are used. Such movement would bend the nails and interfere with the perfectness of the nailing. The flange is not necessary when lifts of thin leather are used.

A small pocket or pockets, *r*, may be formed in the cup or plate to prevent injury to the point or points of the brad or brads, the pocket registering with the said point.

In Figs. 1 and 2 I have shown these devices for cutting and nailing in connection with blocks, a table, and devices for pushing out the nailed blank, all organized into a convenient machine. In these figures the table is shown at *B* set up on suitable legs. At each end is a cutting-block, *F*, set on a flanged plate, which is preferably supported on a threaded post working in a nut fixed in the table. This enables the operator to adjust the block accurately in height to suit him in working. Between the blocks is set the standard *I*, on the top of which the nailing mechanism is supported by means of an adjustable post, *H*. The standard is hollow, and the post *H* works in the bore thereof, being sustained by a nut, *s*, by turning which the post is raised or lowered. In the top of this post *H*, I fix the rod *m*, which carries the drivers. The position of the nailing mechanism is such, as shown in Figs. 1 and 2, that it is convenient to both cutting-blocks, and as the operator cuts and picks up the lifts he may, without changing his position, place the cutting-die, thus loaded or charged, into or upon the nailing part of the apparatus. After the nails have been driven into place and the blank formed it is ejected by means of a conveniently-located rod, *t*. This rod is carried on an arm fixed upon the rod *u*, which passes down through a bracket, *v*, on the standard *I*, and is connected to a treadle, by means of which it may be depressed. A spring, *w*, in a recess in the bracket surrounds the rod and holds it up when not acted on by the treadle. A small slotted arm, *x*, is fixed to the bracket, as shown in Fig. 2, the slot being adapted to receive the head *8* of the handle of the cutter-die. The spring holds the rod *t* a little above and in line with the bore in the head of the handle when the latter is in place in the slot of the arm. Depression of the treadle forces the rod *t* into the bore of the handle so placed and ejects the blank from the cutter.

The cup of the nailing-machine may have an elastic lining, *2*, to break the force of the blow when the parts fit closely, and to prevent chipping of the edge of the die.

In some kinds of work it is desirable to form the heel-blank of two or more sets of lifts of different sizes in order to save material. In this case the smaller blank is formed separately and placed upon the block through which the nails are forced, and upon this blank the cutter-die, properly charged, is placed in the manner heretofore explained. In order, however, to hold the smaller blank securely in place, I



provide a detachable plate, 3, having thereon a guard-flange, 4, fitted to receive the said small blank and hold it securely in proper position. An opening, 5, permits the nails to  
 5 come up through the said plate, and a slot in the front of the plate admits a set-screw to secure this plate to the plate A.

The operation of these devices has been made reasonably apparent by description of them.

10 It may be more particularly stated that after the die has been charged with lifts by repeated cuttings it is set in or upon the plate or cup A, the outer lift resting on the block o. When the die is forced downward by blow on  
 15 the handle or otherwise the whole combined apparatus of die and plate or cup A is forced down upon the plunger-rod which carries the drivers, thus impaling the blank. The cutter is then placed in the slotted arm and the blank  
 20 ejected, as heretofore described. The utility of the brads will be apparent when thin material is cut, the last lift always tending to slip off, as it expands after the compression caused by the cutting. The thread or serrations need  
 25 only be on or near the tapering or reduced end, and serve to hold the last lift. The slipping of this from the die is a serious annoyance and causes loss of time.

I claim—

30 1. The cutting-die of substantially the form described, adapted to receive and retain the lifts required to form a heel-blank, in combination with the nailing device consisting of an upper part, A, adapted to receive the said  
 35 cutting-die and to hold the nails, and a nail-driving device, the whole operating by means of a blow upon the die to drive down both the cutter and cup, and to impale the lifts in the die, all substantially as described.

40 2. The combination of the sleeves sliding upon

the plunger-rod, the spring-support, the nail driver or drivers, the perforated block to hold the nails, and the plate or cup A, provided with a groove for the edge of the cutter and adapted to receive the cutter-die, and by being driven  
 45 down therewith to impale the blank, all substantially as set forth.

3. The described nailing device, consisting of the sleeve, the plunger-rod k, and spring, the plate or cup A, and the nail-driver adapted  
 50 to move in the holes in the nail-holding block, in combination with the vertically-adjustable post H and standard I of the table, substantially as described.

4. The combination of the table, the cutting-  
 55 blocks, and their vertically-adjustable posts arranged on each side of the standard I, and in connection, as described, with the nailing devices mounted thereon, all as set forth.

5. The central standard, I, the nailing devices,  
 60 as described, mounted thereon, the bracket v, vertical rod supported by spring and connected to treadle, and the arm and plunger-rod t, arranged over the slotted arm which supports the cutting-die, all as set forth.

6. The detachable plate s, having a flange,  
 65 4, in combination with the plate or cup A of the described nailing device, all as set forth.

7. In combination with the cutting-die having cutting-flange and cavity to receive the lifts  
 70 of a heel-blank, the tapering brads provided with serrations at their ends, all as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK PEASE.

Witnesses:

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