

(No Model.)

B. F. MILLS.
CHECK PERFORATING MACHINE.

No. 581,126.

Patented Apr. 20, 1897.

FIG. 1.

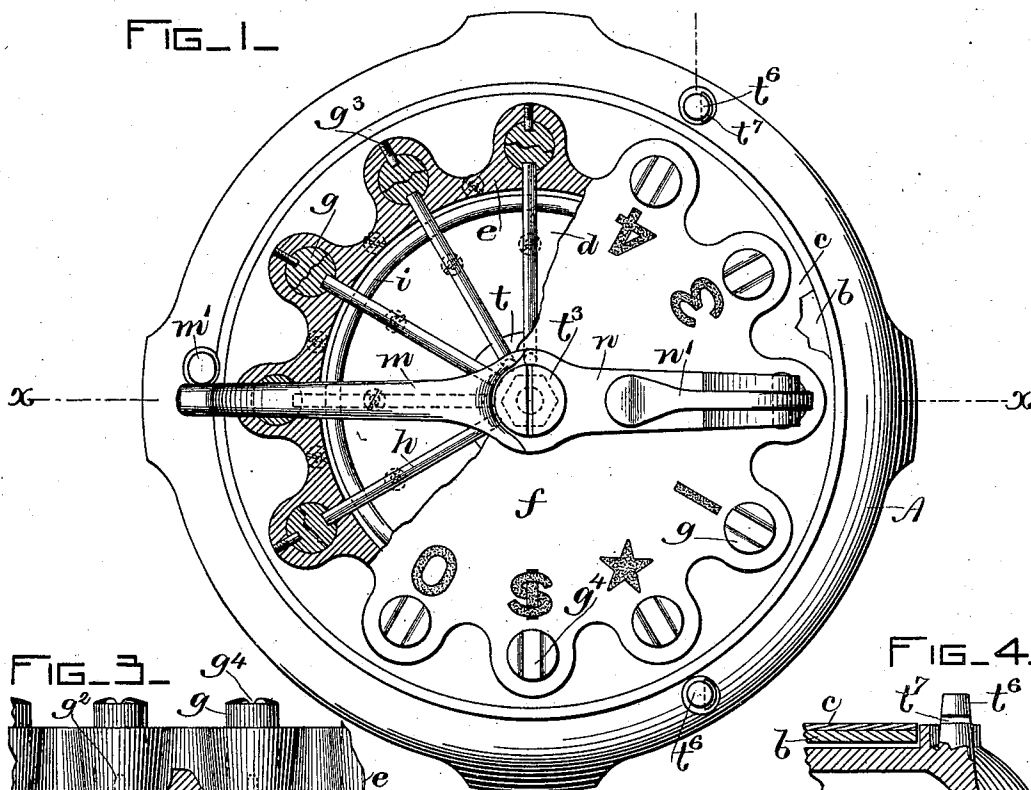


FIG. 3.

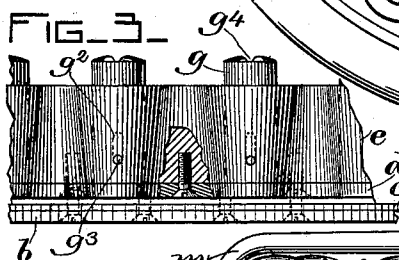


FIG. 4.

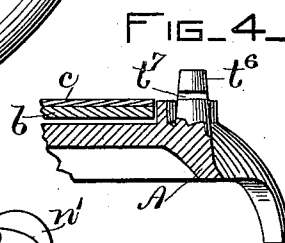


FIG. 2.

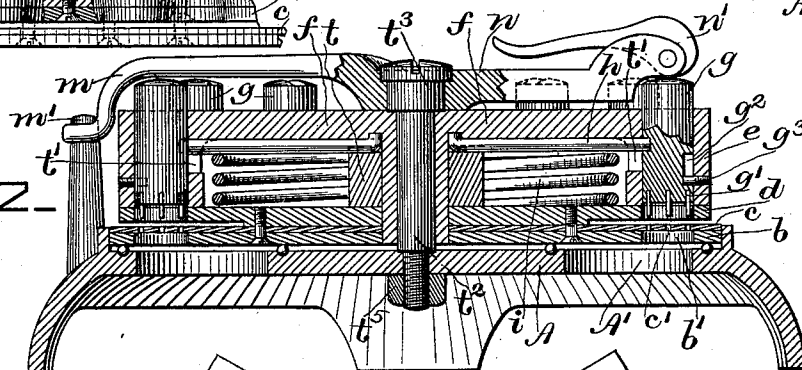


FIG. 5.

WITNESSES

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CHECK-PERFORATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 581,126, dated April 20, 1897.

Application filed November 30, 1895. Serial No. 570,596. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. MILLS, of Cambridge, county of Middlesex, State of Massachusetts, have invented an Improvement in Check-Perforating Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to improve the construction of check-perforating devices; and it consists in many details of construction to be hereinafter pointed out and claimed.

Figure 1 shows in plan view and partial section a check-perforating machine embodying this invention; Fig. 2, a vertical section of the same, taken on the dotted line $x x$, Fig. 1; Fig. 3, a detail showing a portion of the fluted or corrugated side of the rotating shell carrying the perforating-tools; Fig. 4, a detail of one of the slitted guide-pins, and Fig. 5 a modification to be referred to.

The circular or other shaped base A is constructed and arranged to support the operating parts. The circular die-plate consists of a bottom plate b and a top plate c , rigidly secured together. The top plate c is made of thin sheet-steel or other equivalent material and has formed in it, near the edge and at equidistant points, the number-perforations, as at c' , for instance. The bottom plate b is made of brass or other material of suitable thickness and strength and rigidity to reinforce the thin steel perforated plate c , and said plate b has formed in it, near the edge and at equidistant points, circular or other shaped holes b' , arranged beneath the number-perforations. The die-plate $b c$ is rigidly secured, by screws or otherwise, to a circular plate d , which forms the bottom of a shell or case containing the perforating-tools. e represents the circular side wall of said shell or case, and f the top thereof. I do not, however, desire to limit my invention to this manner of securing the die-plate to the shell carrying the perforating-tools, as it is obvious that it may be rigidly secured thereto and adapted to turn therewith in many other ways.

The circular shell or case is preferably formed with regular vertical corrugations or flutes at the sides, as shown in Fig. 1, and through the projections formed by so fluting

the shell or case vertical holes are formed, there being a single hole in each projection, and each hole receives a perforating-tool, which is thereby supported in line with the number-perforations of the die-plate. The corrugations or flutes are made tapering from top to bottom, so that the recesses gradually increase in area toward the bottom, as represented in Fig. 3.

The perforating-tools g are made alike, except that each have the perforations differently arranged, and they each consist of a short cylinder, which may be made hollow, if desired, having projecting from its lower end the perforators or perforating-points g' , and they also have formed in one side, as the outer side, for instance, a slot g^2 , which receives a guide-pin g^3 , projecting through the side wall of the shell or case. The perforating-tools g , which are thus arranged in the vertical holes in the shell or case, each have a hole or slot at the inner side which receive the outer or free ends of the spring-acting arms h , which are located just beneath the top plate f and extend radially from the center of the shell or case.

The spring-acting arms h may be made, as separate and independent arms, of spring wire or equivalent material, and may be held fixedly in place at the center in different ways, as, for instance, a washer or collar t may be placed between the top and bottom plates of the shell or case and the inner ends of the arms h placed between the top of said washer or collar and the top plate, and as said plates are rigidly secured together the inner ends of said arms will be fixedly held in place. In lieu of making these spring-acting arms h separate and independent, as shown in Figs. 1 and 2, they may be formed integral, as shown in Fig. 5, in which case a plate is cut from sheet metal and the arms radiate from a central point. In such case it will be seen that the inner end of the arms are also fixedly held in place.

Vertical slots t' are formed in the inner face of the side wall e of the shell, opening into the vertical holes containing the perforating-tools, and these slots are made of a width substantially equal the diameter or width of the spring-arms h , and said arms pass through said slots and work up and

down therein as the perforating-tools are operated. These vertical slots l' therefore serve as guides for the spring-arms h .

As the inner ends of the spring-acting arms h are fixedly held, and as the perforating-tools move in a true vertical line, it will be understood that the outer ends of said arms h merely enter the holes in said tools, which are formed opposite the vertical guide-slots l' , being free to work slightly in and out as said tools are operated.

The spring-arms h can be made of sufficient stiffness to support and hold the perforating-tools in elevated position, but if they are weak or liable to weaken by continued use I may provide a strong spiral spring i , which is contained within the shell or case beneath said arms and upon which said arms rest, and as any arm is depressed the spiral spring i supplements the spring action thereof in restoring it and thereby raising the perforating-tool.

The shell or case carrying the perforating-tools is detachably connected with the base A by a central screw or post l^2 , which serves as a pivot-pin, balls being interposed between said die-plate and the base A , if desired, as bearings, as shown in Fig. 2. This central pivot is herein represented as having a shouldered head l^3 , a shank, and a reduced end. The shank passes through a central hole in the top plate and thence through a boss formed on the under side of the top plate, which is embraced by the collar or washer l and which passes through the bottom plate and die-plate, and the reduced lower projecting end is screw-threaded and passes through the base A and receives upon it, beneath the base, a nut l^5 . By means of this central screw or post the shell carrying the perforating-tools is free to rotate on the base A .

The perforating-tools g project up through holes formed in the top plate f , and the upper ends thereof are or may be slotted, as at g^1 , or otherwise formed with depressions.

An arm n is loosely mounted on the shouldered head of the central screw, or it may be otherwise centrally pivoted upon the top of the shell or case, and said arm extends radially toward the edge and has pivotally connected to it at its outer end a small cam-lever n' , which has two important functions. First, by swinging said arm n around and over the slotted perforating-tools and then turning the cam-lever it will engage the slot or depression in the tool, and when so engaged the arm may be swung to a certain predetermined point, where the perforating is to be done, carrying the entire shell or case with it, and, second, when such predetermined point is reached further movement of said cam-lever will act to depress the perforating-tool. I do not depend upon this device or arrangement of parts, however, for turning the shell or case to bring any desired perforating-tool into position, as the arm n may be held at rest with the cam-lever elevated and the shell or case

turned by the fingers engaging its fluted sides, which may appear to some the easiest way of turning it.

The bottom plate d of the shell or case is cut away upon its under side annularly at the edge, so as to present a recess in which the check to be perforated may be placed, it bearing against a shoulder formed by so cutting away the plate.

The base A will have a hole A' at the point where the perforating is to be done for the escape of the small pieces of paper, and it is above this hole that the check will be inserted and in line with this hole that the perforating-tools will be brought for the purpose of operating them to perforate the check.

At a suitable distance each side of the point where the perforating is to be done a guide-pin l^6 rises from the base-plate, and to hold the check down in place these guide-pins are slitted, as at l^7 , in a plane substantially flush with the top of the plate on which the check rests.

The check having been inserted and a number punched, the check may then be moved along by hand a sufficient distance for the punched number to be observed between the projections on the sides of the shell or case, such observation being rendered more complete by tapering the recesses as shown, and by so doing the numbers may be punched certain distances apart.

In order that the perforating-tool may always be brought to rest at a certain point, where the perforating is to be done, I have provided an arm m as a rearward extension of the arm n , which terminates just beyond the edge of the rotating shell or case and is adapted to engage a fixed stop m' , rising or projecting from the base. This device, however, limits the movement of the arm n to one direction and may be omitted, but in practice I find it to be a very desirable adjunct.

It will be observed that by having the shell or case, with the die-block attached thereto, made easily detachable from the base A this portion of the apparatus may be removed whenever desired, and if made quite small, as is possible, may be carried in the pocket, and, furthermore, if desired, the arms n and cam-lever may be omitted in such case and the perforating-tools depressed with the fingers.

I claim—

1. In a check-perforating machine, the combination with a die-plate, a shell or case carrying a set of vertically-movable perforating-tools, the spring-arms h to the ends of which the perforating-tools are attached, and the supplementary spring i , substantially as described.

2. In a check-perforating machine, a set of vertically-movable perforating-tools having slotted ends carried by a rotating shell e , the swinging arm n and cam-lever n' , substantially as described.

3. In a check-perforating machine, a corrugated shell or case carrying a set of verti-

cally-movable perforating-tools, the recesses of the corrugations increasing in area toward the bottom, substantially as described.

4. In a check-perforating machine, a rotating shell or case carrying a set of vertically-movable perforating-tools, a swinging arm *n* and pivoted cam-lever *n'* borne by it, adapted to operate the perforating-tool, the rearward extension *m* on said arm *n*, the stop-pin *m'* on the base, which arrests said arm *n* at a

predetermined point where the perforating is to be done, substantially as described.

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

BENJAMIN F. MILLS.

Witnesses:

F. H. DAVIS,
B. J. NOYES.