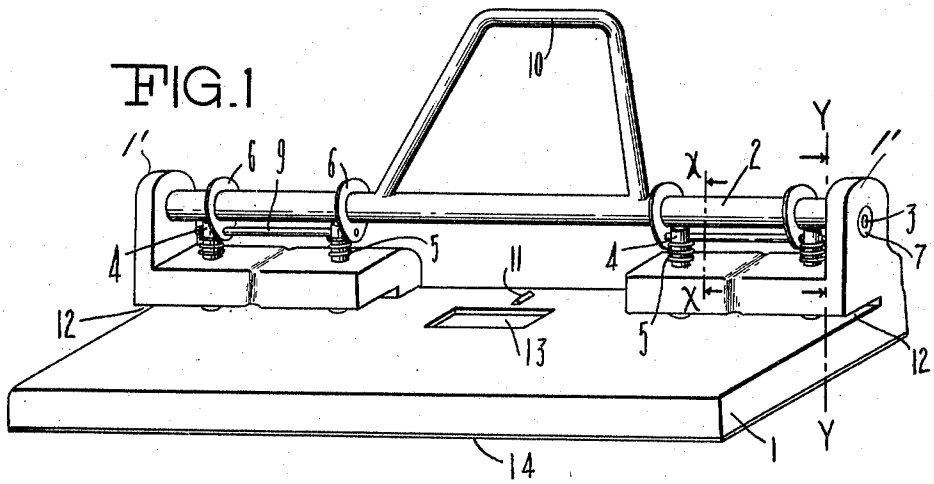
B. WEBSTER.

PERFORATOR.

APPLICATION FILED DEC. 4, 1915.

1,312,067. Patented Aug. 5, 1919.

FIG. 1



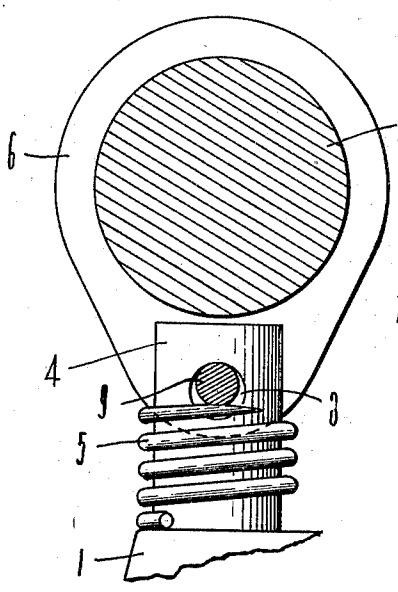


FIG. 2

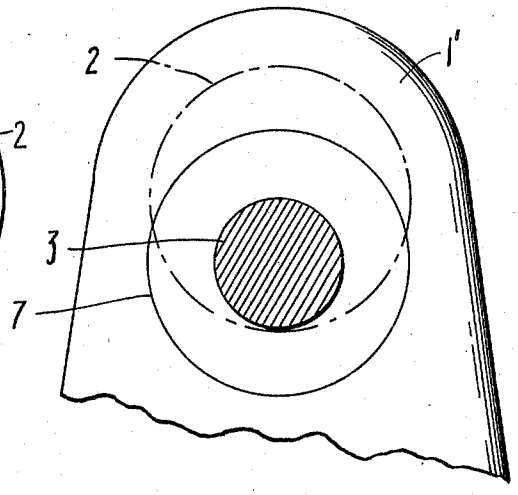


FIG. 3

Bradford Webster INVENTOR.

BY

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UNITED STATES PATENT OFFICE.

BRADFORD WEBSTER, OF NEWARK, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO PARAGON BINDER CORPORATION, OF NEWARK, NEW JERSEY, A CORPORATION OF NEW YORK.

PERFORATOR.

1,312,067. Specification of Letters Patent. Patented Aug. 5, 1919.

Application filed December 4, 1915. Serial No. 65,057.

To all whom it may concern:

Be it known that I, BRADFORD WEBSTER, of Newark, Essex county, New Jersey, have invented certain new and useful Improvements in Perforators, of which the following is a specification.

My invention relates principally to perforations for punching paper and the like for filing purposes. It has for its object to provide a perforator of greater power, permanence, and simplicity of structure.

In the drawings similar characters of reference refer to similar parts in the different views.

Figure 1 is a general perspective view of an embodiment of my invention. Fig. 2 is a vertical cross-section of the upper part of the device on the line X—X of Fig. 1. Fig. 3 is a vertical cross-section and elevation on the line Y—Y of Fig. 1.

In my invention I use preferably a metal body casting 1, provided with bearing portions for the drive-pins or punching pins 4, with bearings for the drive shaft 2, with a centering lug 11, with throats 12 for receiving the paper, and with a discharge opening 13 in its upper portion for removing punchings. The throats 12 cross transversely the openings in which the punching pins 4 work. To the bottom of the body member 1 is fixed a plate of metal, wood, binders' board or the like, preferably flush with the bottom of the member 1 and provided with a soft covering 14 extending out under the bottom edges of the member 1. Thus this plate and covering 14 contain the punchings and at the same time provide a soft bottom that will not scratch wooden surfaces.

The body member 1 is provided with extensions 1′ which serve as bearings for the drive shaft 2. The bearing portions of the drive shaft 2 consist of integral pin extensions 3 at each end, the axes of said pin extensions being eccentric of the main axis of the shaft. When the handle 10 is in its position of rest several degrees back of perpendicular, the main axis of the shaft 2 is above the axes of the pins 3. The shaft 2 is placed above the pins 4 so that rotation by the handle 10 will cause said shafts to bear against the tops of pins 4 and drive them down by direct contact.

To make it possible to get the great stability and permanence resulting from an integral body casting, the opening in one of the uprights 1′ is slightly larger in diameter than the shaft 2. When the shaft 2 is in position, this opening is filled by the bushing 7, which is held in fixed relation with said shaft 2 by riveting or otherwise fastening the end of pin 3 over the outer surface of bushing 7. This fixed relation of shaft 2 and bushing 7 holds shaft 2 positively within the body member 1 between the uprights 1′ as shown in Fig. 3, a substantial part of the main end surface of the shaft 2 always resting against part of the inner surface of the upright 1′.

To connect the punching pins with the drive shaft and to return positively the punching pins after they have been driven down, I provide a cross-pin 9 through the holes 8 of one or more punching pins 4. The holes 8 are substantially larger than the cross-pin 9 to allow a lost-motion connection between the drive shaft 2 and punching pins 4, and to allow the punching pins 4 to hang normally free and clear of the surface of the shaft 2 until pushed up against same by working contact below. I connect the cross-pin 9 with the shaft 2 by the collars 6 which ride snugly on the shaft 2 and move up and down as the axis of the shaft 2 moves up and down by eccentric rotation in the uprights 1′.

To maintain a general state of buoyancy and tension in the drive mechanism, I place the coil springs 5 around each punching pin 4 between an upper surface of the body member 1 and the cross-pins 9. This tends to raise the collars 6 more snugly up against the drive shaft 2 at all times. It is evident that the tension of the springs 5 through the coaction of the cross pins 9 and collars 6 tend to raise the drive shaft 2 so that its main axis is directly above the axes of the pins 3.

The lost motion connection between the drive shaft 2 and the pins 4 is important in enabling the collars to ride freely on the said shaft. By this lost-motion connection the drive shaft does not come into working relation with the tops of the punching pins until both are in motion downward.

I do not limit myself in any way further than is indicated in the claims which follow.

I claim:

1. In a perforator, in combination: a body member, a drive shaft provided with end

extensions eccentrically placed with respect to the axis of said shaft, and a bearing member; said drive shaft holding said bearing member within said body member; said bearing member holding said drive shaft positively in driving position and positively within said body member.

2. In a perforator the combination of a perforating pin, a drive shaft rotating across the top of said pin and separated therefrom in its normal position when not driving said pin, said shaft during a portion of its rotation contacting with the top of said pin to drive the latter, means associated with the shaft for positively returning said perforating pin to its initial position after performing its function of perforating a material and resilient means for aiding the return of said shaft to its initial position and the perforating pin to its initial position and for holding them in buoyant working relation.

3. In a perforator, in combination: a perforating pin, a drive shaft rotating eccentrically across the top of said pin and driving in direct contact with same, and a collar riding snugly on said shaft, provided with a lost motion connection with said pin, and adapted to reciprocate said pin after driving.

4. In a perforator the combination of a body with bearing portions and throats, the latter for receiving material to be perforated, a perforating pin guided in an opening in said body, a drive shaft supported in bearings and rotating eccentrically across the top of said perforating pin, a collar riding on said shaft, a cross pin located in an opening in said collar and in an opening in the perforating pin, the latter opening being larger in diameter than the cross pin and a spring bearing between the cross pin and said body.

5. In a perforator the combination of a pair of perforating pins, a drive shaft rotating eccentrically across the tops of said pins, a pair of collars riding on the shaft, one adjacent to one of said perforating pins and the other collar adjacent to the other perforating pin, a cross pin connecting said collars and extending through openings in said perforating pins, the openings in the perforating pins being larger in diameter than the cross pins and a pair of springs bearing up against said cross pins.

BRADFORD WEBSTER.

Witnesses:
H. L. BURD,
W. R. PATTERSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."