No. 836,658. PATENTED NOV. 20, 1906.

C. A. WEIDNER.

PERFORATOR.

APPLICATION FILED MAY 29, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

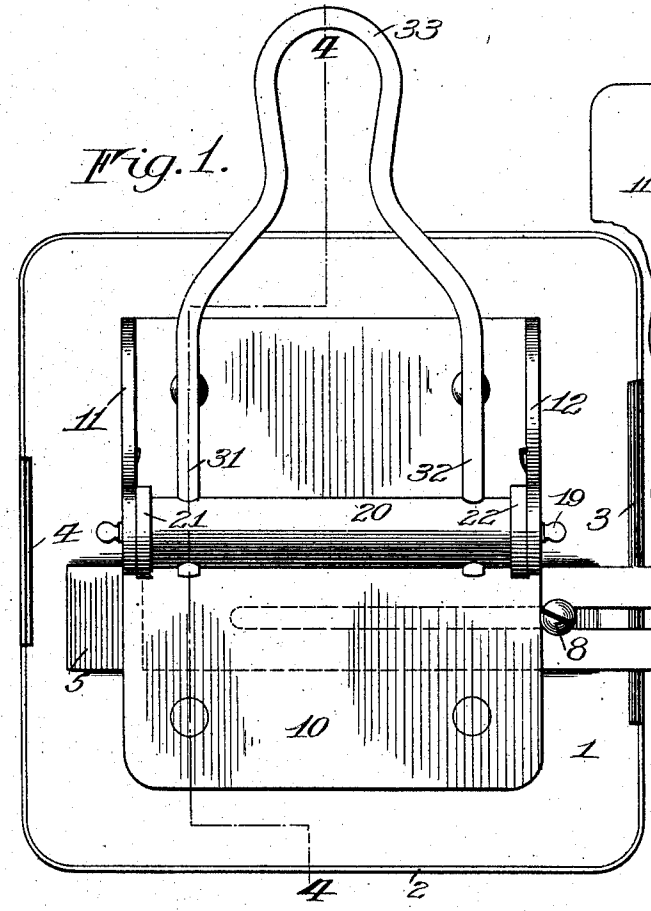


Fig. 3.

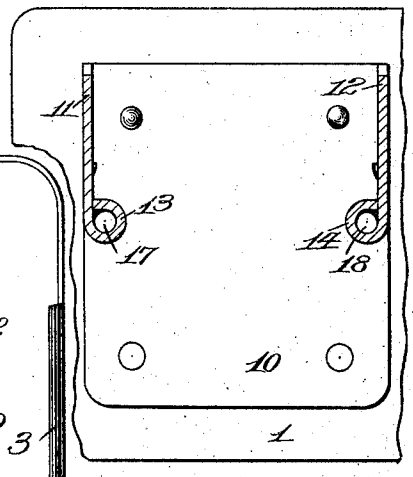
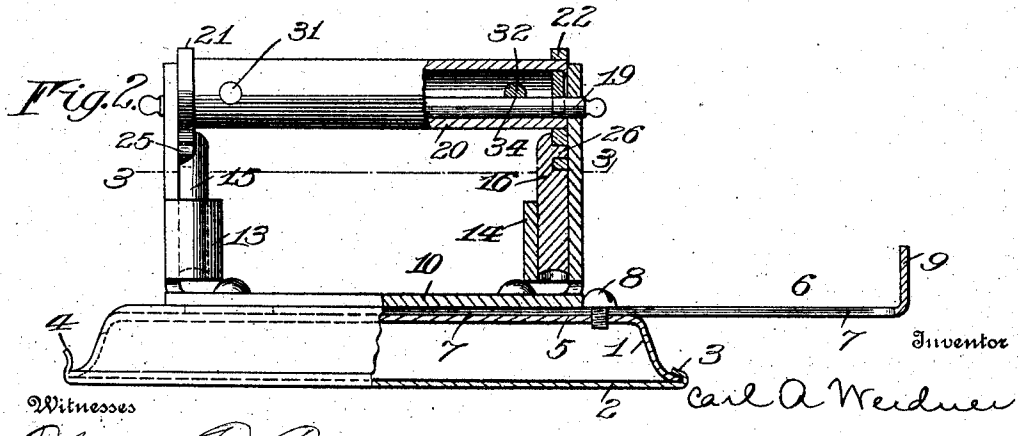


Fig. 2.



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2 SHEETS—SHEET 2.

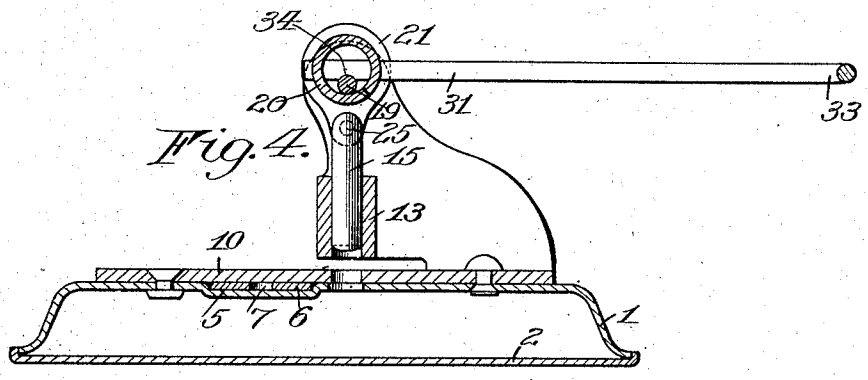


Fig. 4.

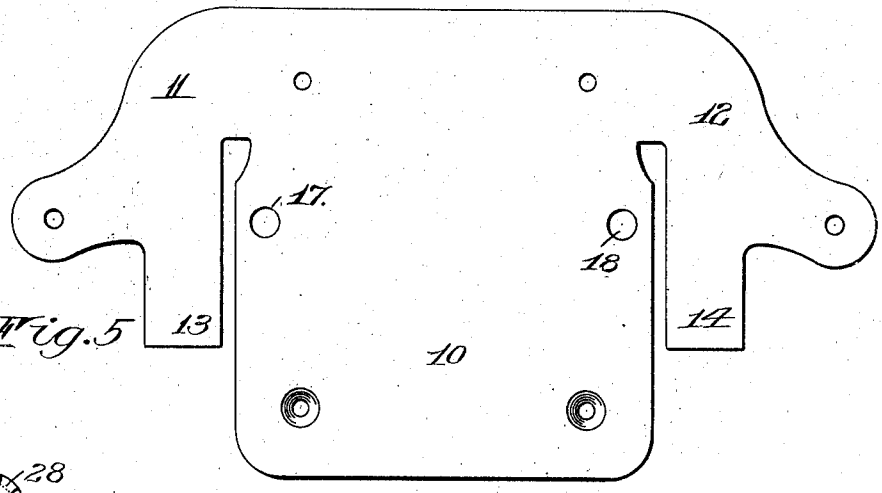


Fig. 5

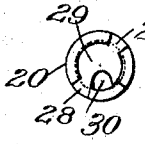


Fig. 8.

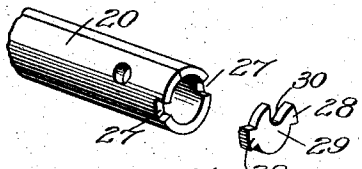
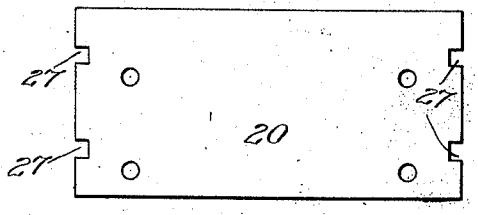


Fig. 7.

Fig. 6.



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UNITED STATES PATENT OFFICE.

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PERFORATOR.

No. 836,658. Specification of Letters Patent. Patented Nov. 20, 1906.

Application filed May 29, 1905. Serial No. 262,729.

To all whom it may concern:

Be it known that I, CARL A. WEIDNER, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Perforators; and I do hereby declare the following to be a full, clear, and exact descr'ption of the same, reference being had to the accompanying drawings, forming a part of the specification, and to the reference-numerals marked thereon.

My present invention relates to improvements in devices for perforating letters and other documents and papers in such a way that they may be readily filed away on the well-known receiving-wires, which serve as a binder; and the purpose of the invention is to provide a device of this kind which shall be light and neat in appearance and efficient in operation and which is formed from sheet material to facilitate and cheapen its cost and minimize the manual labor required in its manufacture.

To these and other ends the invention consists in certain improvements and combinations and arrangements of parts that will be hereinafter more fully described, the novel features being pointed out more particularly in the annexed claims.

In the drawings, Figure 1 is a plan view of a perforator constructed in accordance with my invention. Fig. 2 is a front elevation of the device shown in Fig. 1, parts being shown in section. Fig. 3 is a plan view of the device with the parts above the line 3 3 of Fig. 2 removed. Fig. 4 is a sectional view on the line 4 4 of Fig. 1. Fig. 5 is a plan view of a sheet-metal blank prior to its being bent up to form the base-plate and standards. Fig. 6 is a sheet-metal blank before being rolled up to form the shaft. Fig. 7 is a perspective view of the shaft after being formed, showing how the end piece is fitted thereto; and Fig. 8 is an end view of the shaft with the end pieces fitted thereto.

In the several views the same numerals of reference designate similar parts.

Various methods of construction may be employed in carrying the invention into practice; but I generally prefer that shown in the accompanying drawings, the device comprising a subchamber 1, formed, preferably, of sheet material dished out to form a receptacle for the punchings, a cover 2, preferably of sheet metal, engaging the edges of the base and having a hook 3 to engage one of the edges as a hinge, and a spring-catch 4, engaging the opposite edge of the subchamber for yieldingly retaining the cover in position as a closure for the receptacle. This chamber or receptacle may be readily stamped into form, and its upper surface is flat, except for the narrow shallow depression 5, which forms a transversely-arranged slot to receive the gage 6, the latter being adjustable longitudinally in the slot and provided with a slot 7 for the securing-screw 8, the latter being secured to the lower receptacle, the free end of the gage being upturned to form a stop 9.

On the upper flat surface of the receptacle and over the gage 6 is riveted or otherwise secured the supporting-base for the operating parts of the device, comprising a base-plate 10, having the bearing-standards 11 and 12 extending upwardly at opposite sides thereof, and on these standards are carried the guides 13 and 14 to receive the reciprocatory punches 15 and 16, respectively, apertures 17 and 18 being formed in the base-plate in line with their corresponding guides to serve as dies for the punches, which operate at substantially right angles to the plane of the base-plate. This plate 10 is preferably formed of comparatively heavy material and may be best formed from a blank, such as shown in Fig. 5, the standards 11 and 12 being formed by bending up the corresponding wings or extensions into parallelism and at right angles to the body of the blank, the guides 13 and 14 for the punches being formed by rolling up the corresponding forward extensions on the wings for the standards into tubular or rounded form, and as the standards are bent into proper position the guides will rest above the base-plates, with their bores in alinement with the apertures 17 and 18 therein, and as the standards and punch-guides now occupy their permanent positions relatively to the base-plate it is preferable to pass a reamer through the bores of the guides and the corresponding apertures beneath them in the base-plate, as this will bring the apertures of the parts into alinement and will insure an accurate fit of the punches in relation to their guides and the coöperating dies in the base-plate.

The upper ends of the standard are provided with apertures to receive the pivot-pin 19, which extends longitudinally of the ec-

centric shaft 20, the latter being preferably hollow and extending between the standards, and on this eccentric shaft are journaled the connecting devices 21 and 22, which rest immediately adjacent to the inner sides of the corresponding standards and are connected to the reciprocatory punches 15 and 16, respectively, by the laterally-projecting pins 25 and 26 of the punches, which rest in the corresponding apertures in the connecting devices to form a pivotal connection therewith, the parts being held in cooperative relation by the standards, which act as stops for preventing separating motion of the connecting devices. This eccentric shaft is preferably formed by rolling up a blank similar to that shown in Fig. 6 to form a cylindrical body, the circular edge at each end of the shaft being provided with the dovetail recesses 27 to receive the radially-arranged projections 28 of the end pieces 29, the latter being adapted to fit into the ends of the shaft and secured by any desirable means and are provided with the eccentrically-arranged apertures 30 to admit the pivot-pin 19 in such a way that the shaft 20 will rotate eccentrically about the pivot-pin.

Passing transversely through the eccentric shaft 20 are the arms 31 and 32 of an operating-handle 33, the said arms being provided with segmental recesses 34, in which the pivot-pin 19 rests while it is in operative position, thus serving as a lock for positively retaining the handle in position, and as this pivot-pin also serves to retain the eccentric-shaft in position between the standards the connecting devices will be held in coöperative relation with the punches.

In operating a perforator of this kind the letters, papers, or other documents to be perforated are supported on the base-plate and inserted beneath the punches and their guides, and one of the lateral edges of the letter is brought into engagement with the stop 9 of the gage, the latter being adjustable as hereinbefore described in order that the perforations may be made in the proper place and at any required distance from its edge.

The operating-handle is so attached to the eccentric shaft that when it occupies the position shown in Fig. 4 the punches will be elevated, and while the paper is in position beneath them the handle is brought forward and pressed downwardly, and this will obviously rotate the eccentric shaft to force the punches downwardly into coöperative relation with their corresponding dies in the top plate, the punches being thus operated simultaneously to form two or more perforations in the paper, my invention in its present form being shown as applied to a double or duplex punch.

The punchings of paper are forced through the apertures 17 and 18 of the top plate and are collected in the receptacle beneath and may be readily removed by releasing the spring-catch 4 of the cover, which permits the latter to be removed.

I claim as my invention—

1. In a perforator, a supporting-base formed from a blank of sheet material, the body portion thereof forming a base-plate having extensions bent up therefrom to form bearing-standards, punch-guides formed on their respective extensions, punches arranged to operate therein, and an operating-shaft supported by the standards for actuating the punches.

2. In a perforator, a supporting-base formed from sheet material, the body portion thereof forming a base-plate having extensions bent up therefrom to form bearing-standards, and portions on the extensions rolled into tubular form to serve as guides, in combination with the punches arranged to operate in the guides, and an operating-shaft supported by the standards for actuating the punches.

3. In a perforator, a supporting-base formed from a blank of sheet material having a body portion adapted to form a base-plate, extensions arranged on opposite edges of the body portion adapted to be bent up therefrom to form bearing-standards, and portions carried by the extensions and arranged substantially parallel with the body portion, adapted to be rolled up to form guides, in combination with the punches adapted to operate in the guides, and a shaft supported by the standards for operating the punches.

4. In a perforator, a supporting-base formed of sheet material, a base-plate, extensions bent up at an angle to the base-plate to form bearing-standards, and guides formed by rolling portions of the material on the standards into tubular form, apertures being formed in the base-plate in alinement with the bores of the tubular guides, in combination with the punches arranged to operate in the guides, and a shaft supported by the standards for operating the punches.

5. In a perforator, the combination with a supporting-base and a base-plate secured to the top of the base and forming a guiding-slot between it and the base, and having a standard thereon, and the punch mounted to operate thereon, of a gage capable of being adjusted in said slot relatively to the punch for gaging the perforations at different distances from the edges of the material operated upon.

6. In a perforator, the combination with a supporting-base, having a substantially flat base-plate, and a standard supporting a movable punch, of a receptacle secured to the under side of the top plate having a depression therein forming a guiding-slot extending transversely beneath the base-plate, and an adjustable gage adapted to operate in the said slot.

7. In a perforator, the combination with a supporting-base having bearing-standards thereon and punches mounted to reciprocate on the standards, of a shaft rolled from sheet material, devices operated upon by the shaft and connected to the punches, and a pivot-pin supported by the standards and passing eccentrically through the shaft.

8. In a perforator, the combination with a supporting-base having bearing-standards thereon, and punches mounted to reciprocate relatively to the base, of a shaft rolled from sheet material and having recesses extending inwardly from its opposite ends, and end pieces fitted to the shaft having projections to coöperate with the recesses therein, devices operated on by the shaft for actuating the punches, and a pivot-pin supported by the standards and arranged eccentrically of the shaft.

9. In a perforator, the combination with a supporting-base having spaced bearing-standards thereon, and punches mounted to reciprocate on the base, of a shaft having a journal portion thereon adjacent to the standards, devices journaled on the journal portions of the shaft and detachably connected to the punches, said devices coöperating with the standards to retain them on the shaft and serving to retain said devices and the punches operatively connected, and a pivot-pin for journaling the shaft on the standards.

10. In a perforator, the combination with a supporting-base having oppositely-arranged bearing-standards thereon, and punches mounted to reciprocate relatively to the base each having a laterally-projecting pin arranged opposite to the corresponding standard, of a shaft arranged between the standards having journals thereon adjacent to the standards, punch-operating devices journaled on the shaft and having portions arranged between the standards and punches provided with an aperture to receive the pin of the latter, and a pivot-pin for journaling the shaft on the standards.

11. The combination with a supporting-base having bearing-standards thereon, and punches mounted to operate on the base, of a shaft arranged between the standards having devices for operating the punches, an operating-handle having a portion extending transversely of the shaft and provided with a recess, and a pin arranged longitudinally of the shaft and coöperating with the shoulders at either side of the recess of the handle for locking the latter to the shaft.

12. The combination with a supporting-base having bearing-standards thereon, and punches mounted to operate relatively to the base, of a shaft arranged between the standards and devices thereon for operating the punches, an operating-handle having arms extending transversely of the shaft, said arms being provided with recesses, and a pivot-pin mounted in the standards and extending longitudinally of the shaft, serving as a pivot for the shaft and coöperating with the recesses of the handle to lock the latter in position.

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