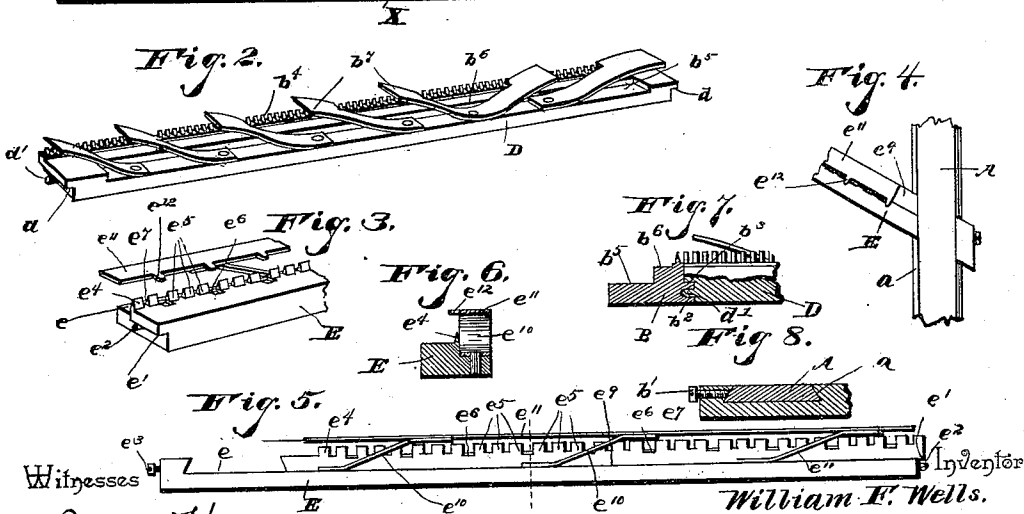
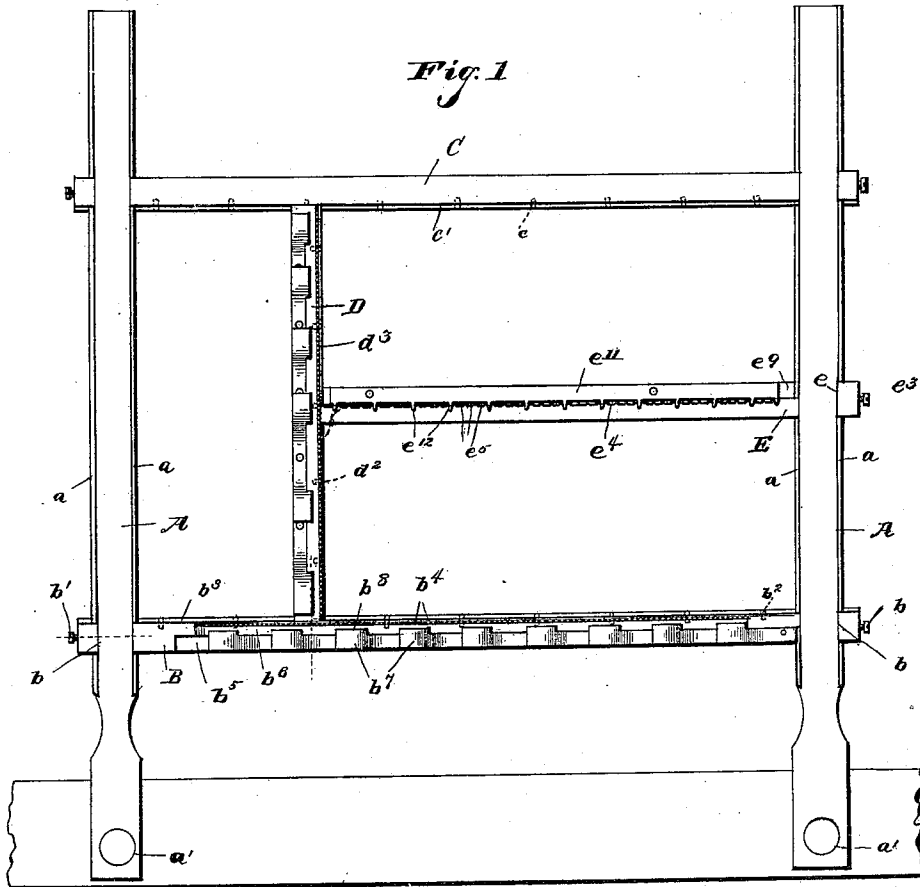


(No Model.)

W. F. WELLS.
PAPER PERFORATING DEVICE.

No. 471,923.

Patented Mar. 29, 1892.



Witnesses
Samuel Ker.
J. Edgar Smith

By his Attorneys,

Chas. Snow & Co.

UNITED STATES PATENT OFFICE.

WILLIAM F. WELLS, OF CLEBURNE, ASSIGNOR OF ONE-FIFTH TO LEWIS R. MARSTON, OF JOHNSON COUNTY, TEXAS.

PAPER-PERFORATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 471,923, dated March 29, 1892.

Application filed September 15, 1890. Serial No. 365,045. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. WELLS, a citizen of the United States, residing at Cleburne, in the county of Johnson and State of Texas, have invented a new and useful Paper-Perforator, of which the following is a specification.

This invention is a combined gripper-bar and perforator for use on printing-presses.

In the drawings in which I have illustrated my invention, and in which like letters of reference indicate corresponding parts in all the views, Figure 1 is a plan view of my device. Fig. 2 is a perspective view in detail of one of the perforator-bars. Fig. 3 is a similar view of a part of another form of perforator-bar. Fig. 4 is a view showing in part a variation in the structure of my device. Fig. 5 is a side elevation of one of my perforator-bars. Fig. 6 is a transverse sectional view of the perforator-bar E. Fig. 7 is a sectional view taken at the point of junction of the bars D and E; and Fig. 8 is a transverse sectional view of the bar A, showing the bar B fastened thereto.

In the drawings, A designates the side bars, which have their edges *a* beveled, and are provided with bolt-holes *a'* for attachment to the rod X, to which the ordinary grippers are usually attached.

B is a perforator-bar, having near each end the dovetailed grooves *b* for the purpose of engaging the side bars A.

b' indicates small screws passing through the ends of the perforator-bar B and binding against the beveled edges of the bars A for the purpose of fastening the perforator-bar at any desired position along the length of the bars A.

The bar B has along its inner side a series of holes *b²* and a shoulder *b³*, both for a purpose to be hereinafter described. Along the length of this bar at its top are perforating-needles *b⁴*. Below the perforating-needles is a recess *b⁵*, extending along the bar, leaving between it and the needles a shelf *b⁶*, slightly below the level of the upper surface of the bar, where the needles are placed.

b⁷ are leaf-springs, each attached to the bar B at one end and having its body extending in a curved line upward above the surface of the bar, where its free end is broadened, as

shown at *b⁸*, so as to adapt it to rest upon the shelf *b⁶* when depressed.

The above perforator-bar B may be used in connection with the side bars A alone when it is desired merely to make one line of perforations in a sheet of paper, and in doing so the leaf-springs *b⁷* will, when the needles are pressed against the paper, be pressed backward upon the shelf *b⁶*, allowing the needles *b⁴* to puncture the paper, when upon the receding of the type from the paper the springs will be released and press the paper away from and off the needles; but when more than one line of perforations is desired the same may be obtained by using duplicates of the bar B for lines parallel thereto and of the same length, or by using the following parts when the lines desired are at right angles to the line made by the perforator-bar B or parallel thereto and shorter, or when they form an acute angle with any of the other lines.

C is a bar designed for the purpose of connecting the ends of the side bars A to render them more rigid and also to afford, in conjunction with the bar B, a support for the additional perforating-bars. The bar C has along its inner side a series of holes *c*, corresponding in position and number with the holes *b²* in the bar B, and it is also provided with a shoulder *c'*.

D is a perforating-bar, similar in general structure to the perforating-bar B, differing only from it in a few minor parts which adapt it to connect and be held by the bars B and C. For instance, its ends are cut away on the under side, as shown clearly at *d*, to form shoulders which may rest in the shoulders *b³* and *c'*.

d' are lugs or pins projecting from the ends of the bar D, and adapted to enter the holes *b²* and *c* in the bars B and C and be retained therein.

The perforating-bar D is provided with a hole or with a series of holes *d²* upon its inner side, and also has a shoulder *d³* for the purpose of receiving and fastening the end of an auxiliary perforating-bar E.

The perforating-bar E may be of the same construction as the other perforating-bars B and D; but I have preferred to show a construction somewhat different from the latter,

and for some reasons a construction much more desirable.

The perforating-bar E is designed, primarily, for perforating a line shorter than that
5 perforated by the bar B and parallel thereto, and with this object in view it is formed with a dovetailed groove *e*, adapted to receive one of the side bars A, which groove is near one end, and also provided with a shoulder *e'* and
10 a lug or pin *e²* on the other extremity, which is adapted to engage the side of the perforating-bar D. A small screw *e³* passes through the outer end of the bar to the dovetailed groove *e*, and is designed to press against one
15 of the beveled edges *a* of the side bar A.

The perforator-bar E is provided with perforating teeth or cutters *e⁴*, arranged in the present instance in sets *e⁵* of three teeth separated by a space. The depth of the spaces *e⁶*,
20 between the sets of teeth *e⁵*, is greater than that of the spaces *e⁷* between the teeth themselves, and extends below the upper surface of the bar E.

e⁸ is a depression extending the length of
25 the bar, in which depression are springs *e¹⁰*, which support a flexible strip *e¹¹*, which is provided with tongues *e¹²*, adapted to pass through the spaces *e⁶* between the sets of teeth. The object of this construction is the
30 more effectually to relieve the teeth, cutters, or needles of the perforating-bar from the paper as the same recedes from the gripper by the tongues *e¹²* rising between the sets of teeth at short intervals instead of by the sides
35 of the teeth.

It will be evident that the arrangement of teeth in sets of three is merely shown for convenience, as I may without departing from the spirit of my invention have the tongues
40 project through all the spaces between the teeth, instead of between every third space, or I may put the tongues farther apart.

In using my invention I first attach the side bars A to the rod X in the manner indicated
45 and then adjust the perforating-bar B at the proper place upon the said side bar in relation to the paper which is to be perforated. If it is desired to perforate more than one line in the paper, the bars C, D, and E are added
50 as may be needful, or in their places or the places of some of them may be substituted blank bars of their general form and construction, such as C. It is to be remembered that

these bars are all rigid and serve as grippers.

While I have described the device as adapted to perforate paper in lines parallel to each other and at right angles to one another, it is evident that by a slight change in any one of the dovetailed grooves or of the attaching devices lines may be perforated at any angle desired. I have shown such a change in Fig. 5, there being no departure from my invention in the change there shown and no addition thereto, but merely an expedient to attain a
65 well-known object—namely, to perforate paper in lines at an acute angle with each other.

I have described with some particularity the means of attaching the perforating-bars to the side bars and to each other; but I do not desire to limit myself to any such specific construction, as I may employ any convenient mode of connecting the parts.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a device for perforating paper, the combination, with the side arms of the gripper, of the perforating-bars longitudinally adjustable thereon, substantially as and for the
80 purpose described.

2. The combination, with a rigid perforating-bar, of a releaser arranged longitudinally along one side of the bar and a series of springs located at different points beneath the releaser-bar and connected to the perforating-bar and holding said releaser normally above the plane of the perforating-teeth, the said releaser being provided with a series of tongues that are adapted to project between the teeth of the perforating-bar, substantially as specified.
90

3. The combination, in a device for perforating paper, of the rigid side arms with the perforating-bars, the said arms and bars being provided with means for attachment one to the other and being adjustable in relation to each other, substantially as and for the purpose specified.
95

In testimony that I claim the foregoing as my own I have hereto affixed my signature in
100 presence of two witnesses.

WILLIAM F. WELLS.

Witnesses:

D. R. WOLHAUPTER,
J. EDGAR SMITH.