C. HOUSEMAN.

PRINTING MACHINE.

APPLICATION FILED FEB. 8, 1918.

1,288,896.

Patented Dec. 24, 1918.

2 SHEETS—SHEET 1.

FIG. 1.

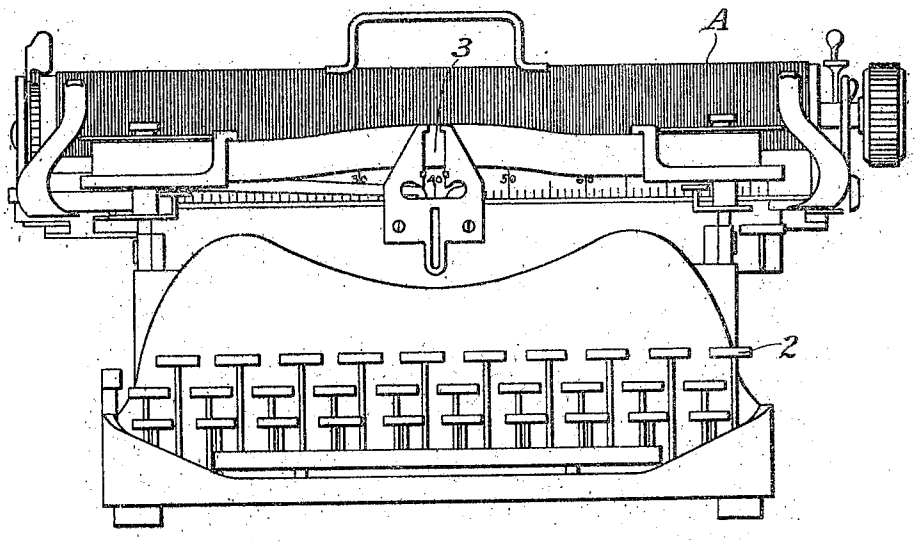


FIG. 2.

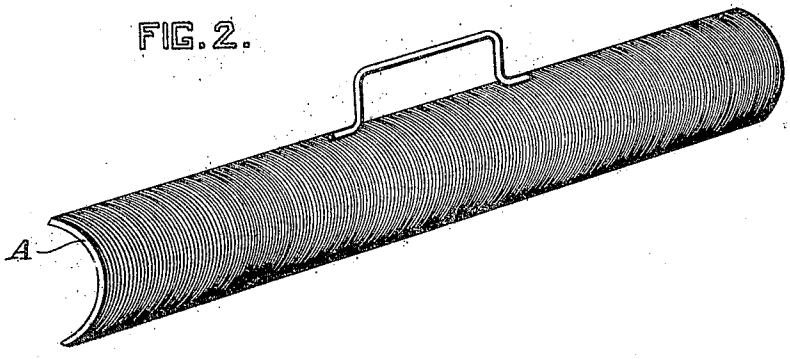
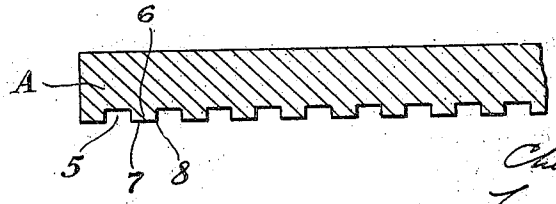


FIG. 3.



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2 SHEETS—SHEET 2.

FIG. 4.

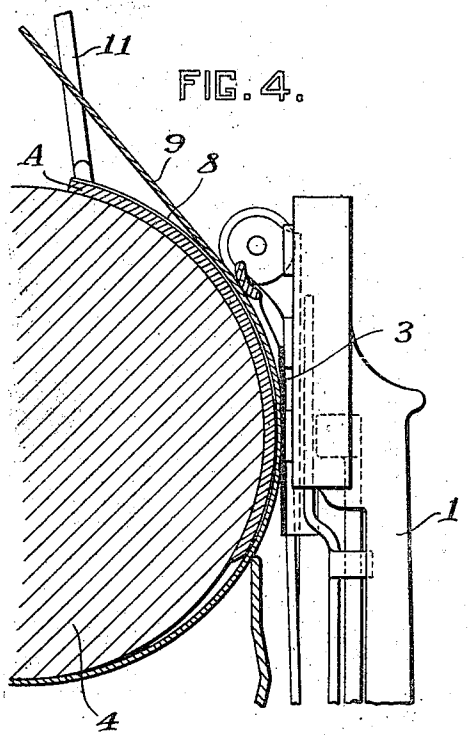


FIG. 6.

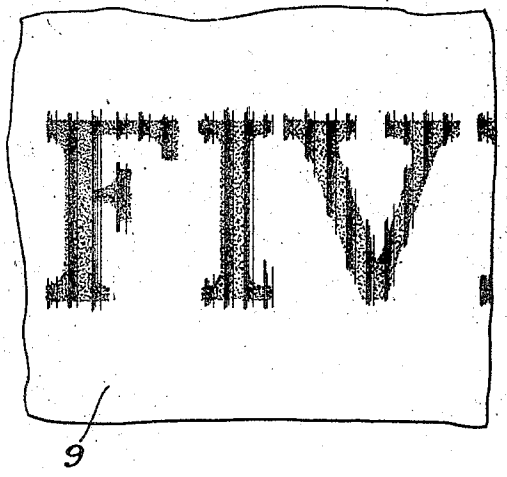


FIG. 7.

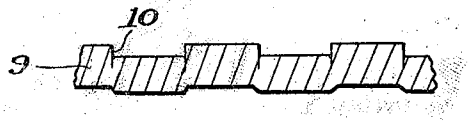
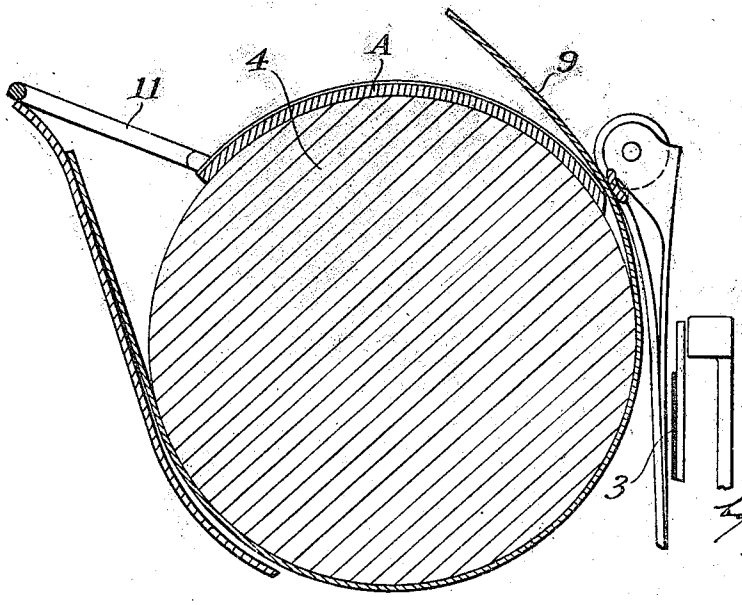


FIG. 5.



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UNITED STATES PATENT OFFICE.

CHARLES HOUSEMAN, OF ROCHESTER, NEW YORK.

PRINTING-MACHINE.

1,288,896. Specification of Letters Patent. **Patented Dec. 24, 1918.**

Application filed February 8, 1918. Serial No. 216,126.

To all whom it may concern:

Be it known that I, CHARLES HOUSEMAN, a citizen of the Republic of France, and resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Printing-Machines, of which the following is a specification.

The present invention relates to printing machines, and more particularly to the type which ruptures or breaks the paper in order that the ink may penetrate the fibers of the paper and thus render the surreptitious changing of the printed matter difficult or impossible without detection. An object of the invention is to provide an improved paper rupturing surface which may be used with flat-faced type without unduly defacing the type faces. Another object of the invention is to provide a paper rupturing device with an unyielding surface adapted to be interposed between the printing mechanism and the platen of a printing machine, such, for instance, as a typewriting machine. Still another object of the invention is to provide a paper rupturing device in the form of an attachment which may be applied to any typewriting machine having a given cylinder diameter without the employment of a skilled mechanic. A still further object of the invention is to provide a paper rupturing device for coöperating with the type faces of a typewriting machine, such device being movable into and out of operative position at will, so that the typist may employ the usual platen for ordinary work, or the paper rupturing device for work which requires protection, and this without removing the ordinary platen.

To these and other ends, the invention consists of certain parts and combinations of parts, all of which will be hereinafter described, the novel features being pointed out in the appended claims.

In the drawings:—

Figure 1 is a front view of a typewriting machine with the present invention applied thereto and in operative position;

Fig. 2 is a perspective view of the attachment;

Fig. 3 shows an enlarged section of the attachment;

Fig. 4 is a view of the typewriting machine when the attachment is thrown to operative position;

Fig. 5 shows the attachment thrown to inoperative position so that the ordinary platen may be employed;

Fig. 6 is an enlarged detail view of work produced by this machine; and

Fig. 7 is an enlarged section through the work showing the manner in which the latter is ruptured.

The invention is illustrated herein as an attachment for a typewriting machine of the type known commercially as the "Corona." It is apparent, however, that the invention is not limited to use on machines of this type, and is not, in fact, limited to typewriting machines, but is capable of being embodied in any printing machine in which there is employed a printing mechanism. The machine illustrated embodies a printing mechanism of the type-bar type having a plurality of type bars 1 operable from keys 2 of a keyboard, the type bars being movable upwardly to impinge an inking ribbon 3 of an inking means disposed in front of a platen 4. The faces of the type are plane, and the surface of the platen is, as usual, slightly yielding, so that the impression of the type will be made upon a sheet of paper interposed between the inking ribbon 3 and the platen, all of these parts being the same as like parts of the "Corona" machine.

In order that the work produced by the machine may be ruptured or broken at the time that the printing takes place, there is provided a paper rupturing device which, in this instance, comprises a rigid member A in the form of a segment of a thin hollow cylinder, the length of the member being substantially equal to the length of the roller platen 4, and the curvature being such that the inner or under face will conform to the face of the roller platen. The outer face of this paper rupturing device is roughened or serrated so that type striking against the paper rupturing device will cause the paper to be broken at the same time that the printing takes place. The form of the serrations of the paper rupturing device is novel, and this feature is capable of use in any printing machine having smooth faced type for cooperation therewith. This surface in this instance comprises alternate grooves 5 and ridges 6, the tops of the ridges being flat, as at 7, and the sides of the tops being sharp, as at 8. With this arrangement, when the type presses the paper 9 against the paper

rupturing device, the paper will be compressed between the flat top 7 of the ridges and the flat faces of the type, while those portions of the paper between the ridges will enter the grooves and be cut or ruptured at 10 by the edges 8. Owing to the fact that the flat faces of the type strike against the flat tops 7 of the ridges, less injury to the type occurs than it would if the tops of the ridges were sharp edges. It is preferable that the type faces shall be hardened steel, so that the defacement of the type is substantially prevented.

Owing to the fact that the paper rupturing device is, in this instance, in the form of a segment of a thin hollow cylinder, it may be easily interposed between the usual line guides and paper holding devices of a typewriting machine, and when so interposed, as illustrated in Fig. 4, it may be readily shifted about the cylinder as an axis to a position such as shown in Fig. 5, where the type bar 1 will cause the paper to strike against the yielding surface of the type roller 4. A handle 11 may be provided at the rear edge of the paper rupturing member A in order that said member may be readily shifted into and out of a position between the platen and the printing mechanism.

From the foregoing it will be seen that there has been provided a paper rupturing device which has a surface alternately grooved and ridged with the tops of the ridges flat in order to coöperate with the flat faces of the type of a printing mechanism, this paper rupturing surface being capable of use with any suitable printing mechanism. There has also been provided a paper rupturing device which may have a rupturing surface such as described, or any other rupturing surface, such device being adapted to be interposed at will between a platen and a printing mechanism so that the latter may coöperate with the platen or with the paper rupturing device, the surface of this paper rupturing device being unyielding. It will also be seen that there has been provided a paper rupturing device in the form of a segment of a hollow cylinder, so that the device may be associated with a platen of a given diameter to be interposed at will between the platen and printing mechanism.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In combination with a printing mechanism and a platen for coöperation with the printing mechanism; a rigid device having an unyielding and substantially permanent paper-rupturing surface for coöperation with the faces of the type of the printing mechanism, said device being movable on the machine to either one of two positions, one position between the platen and the printing mechanism so that its paper-rupturing surface may be engaged by the printing mechanism while the device rests against the platen, and the other position in which the device is out of the path of the printing mechanism and the latter may coöperate with the platen without engagement with the paper-rupturing surface.

2. In combination with a type bar printing mechanism and a roller platen for cooperating therewith; a rigid member having its rear face curved to conform to the surface of the platen and having an unyielding and substantially permanent paper-rupturing surface for engagement by the faces of the type of the printing mechanism; said rigid member partially covering said roller platen and being movable about the longitudinal axis of the platen to expose the platen for coöperation with the printing mechanism or to bring the paper-rupturing surface in position for engagement with the faces of the type of the printing mechanism.

3. A paper rupturing device for attachment to roller platens of printing machines, comprising a rigid member having the form of a segment of a hollow cylinder to conform to the surface of the platen and an unyielding and substantially permanent paper rupturing surface for coöperation with the type faces of the printing mechanism.

4. In combination with a printing mechanism having smooth faced type, a paper rupturing surface for coöperation with the type formed with ridges and grooves, the tops of the ridges being flat and the sides of the flat tops forming sharp edges.

5. In combination with a printing mechanism having smooth faced type, a paper rupturing surface for coöperation with the type formed with ridges and grooves, the tops of the ridges being flat.

CHARLES HOUSEMAN.