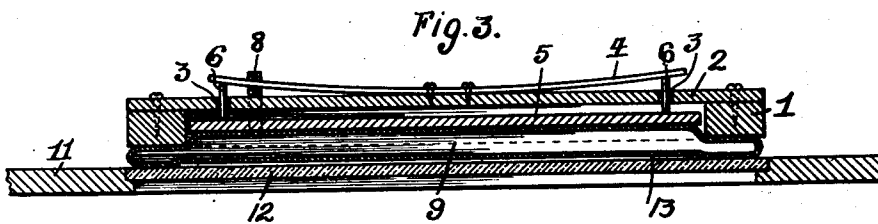
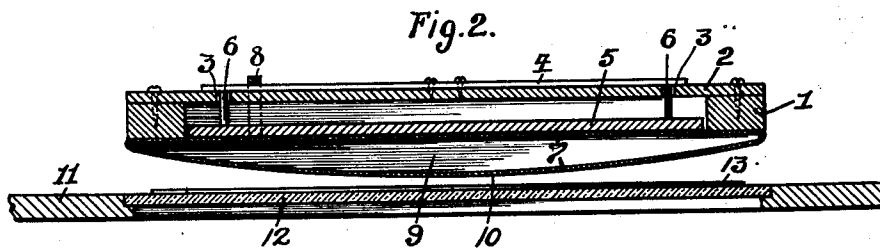
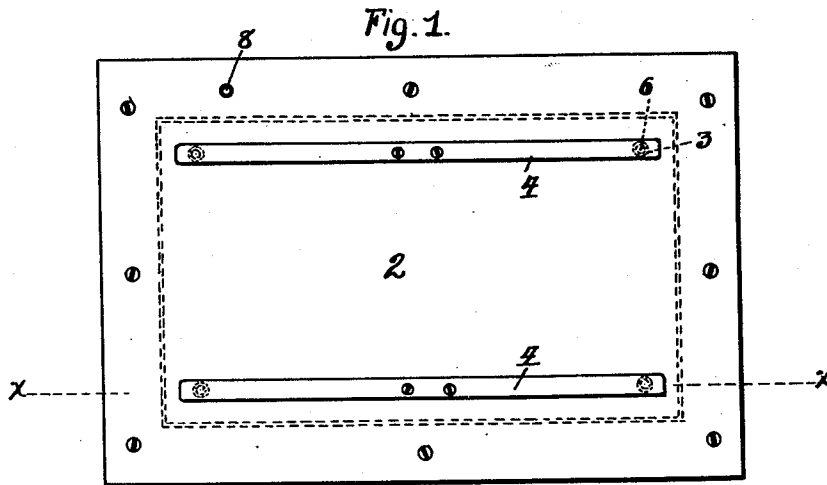


No. 895,577.

PATENTED AUG. 11, 1908.

H. H. McINTIRE.
PLATEN.

APPLICATION FILED MAY 9, 1904.



Witnesses:

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UNITED STATES PATENT OFFICE.

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PLATEN.

No. 895,577.

Specification of Letters Patent.

Patented Aug. 11, 1908.

Application filed May 9, 1904. Serial No. 207,115.

To all whom it may concern:

Be it known that I, HERVEY H. McINTIRE, citizen of the United States, residing at South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Platens; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in platens, and while more especially adapted for a photographic printing machine, it is applicable to other machines employing a platen, or it may be hand operated and used independently of the machine.

The object of the present invention is to provide a platen which insures a yielding pressure on the negative, and consequently a perfect contact of the photographic paper therewith.

With the above object in view, the invention consists in providing a platen with a pneumatic elastic cushion, which, when inflated and the contact made, is caused to assume a different contour by virtue of the elastic nature of the cushion and the pressure thereon; and which is provided with means for compensating for this change in contact, whereby the actual resistance, occasioned by the shifting of air in the cushion, is maintained and a perfect or evenly distributed pressure on the photographic paper accomplished.

For a full understanding of the merits and advantages of my invention, reference is to be had to the following description and the accompanying drawings wherein:

Figure 1 is a plan view of a platen embodying my invention; Fig. 2 is a longitudinal vertical section of the same on the line $x x$ of Fig. 1, with the table or face board in which the negative is mounted shown in section beneath the platen; and, Fig. 3 is a similar view showing the position of the parts when the platen has been pressed into engagement with the paper and the negative.

Making renewed reference to the drawings, wherein similar characters of notation indicate corresponding parts appearing in the several illustrations and reference being had thereto, 1 designates a rectangular frame to the top of which is secured a plate or cover 2, provided with transverse apertures 3, and having secured near the sides thereof upon

its upper face a pair of plate springs 4, the free ends of which overlap the apertures which are located near the opposite ends of the plate 2.

Mounted in the frame and preferably of a size to close the lower side thereof is a follower 5, which is inclosed by the frame 1, and from its upper face extend pins 6 which are of such length as to project through the apertures 3 in the plate 2, with their upper ends in engagement with the free ends of the plate springs, the plate springs being flat against the plate or cover and closing the apertures therein when the follower is in its normal position which is flush with the lower faces of the frame.

Secured to the frame in any suitable manner as by cement or the like is an elastic air-proof sack 7 from which extends a tube 8 that pierces the plate 2 with its upper end projecting above the same. This tube 8 may contain the usual valve for inflation, such as is commonly used in pneumatic tires, and when the elastic sack 7 is inflated with air, it forms a pneumatic cushion, which may be hereinafter designated as 9.

The pneumatic cushion normally has the shape shown in Fig. 2 with the contact face 10 thereof convex and the upper wall thereof lightly bearing against the follower 5, which is loose or free with respect to said cushion, but which is operated upon by the cushion to move up and down within the frame, as will be fully explained hereinafter.

The table or face board of a photographic printing apparatus is indicated at 11, and the negative which is mounted in an opening therein, is shown at 12, while 13 may indicate the photographic paper or sensitized element on which the picture is to be printed. It being premised that a source of light is contained within a case and emitted on the negative from the side opposite to that upon which the photographic paper is placed, and pressure is brought to bear by bringing the contact face of the cushion into engagement with the print paper on the negative, as shown in Fig. 3; the compression of the air in the cushion is equal to the resistance offered by the springs 4, which are engaged by the pins 6 of the follower 5 and the normal tendency of which is to spring down flat upon the cover-plate and hold the follower toward the cushion 9. However, when excess pressure is brought to bear upon the cushion, the shifting of the air therein changes the con-

tour thereof and causes its upper wall to stretch and force the follower upwardly against the action of the springs 4. The compression of the fluid in the cushion creates a tension on the walls thereof and particularly the upper rear wall, which would ordinarily burst if it were not for the spring pressed follower which yields to the excess pressure. Furthermore, if some portion of the wall of the cushion were not permitted to yield to the excess pressure, there would be such a pressure upon the sensitized element and the negative as to injure the same and defeat the result accomplished by the present invention, which is to maintain a uniform pressure and a perfect contact for the sensitized element. It is apparent that in the case of an automatic machine where the platen is raised and lowered alternately, the action and downward pressure of the platen would at all times be the same; and it being impossible to prevent the escape of air in a cushion of this character, owing to the leakage through the valve or otherwise, the constant pressure furnished by the springs 4 will compensate for such leakage and for the change in contour of the cushion, and thereby establish a perfect contact of the print paper. In view of this difficulty of maintaining an equal pressure of air in the cushion, the advantages of providing the spring pressed follower to compensate for the leakage and for the changing in contour of the cushion in making a contact, is apparent. Thus in this invention, the quantity of air in the cushion may vary considerably, yet the pressure would always be sufficient as the actual resistance is furnished by the springs, while the air simply forms a cushion.

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

1. A platen provided with a pneumatic cushion, and means operating to permit the shifting of the excess air to a point to the rear of the normal backing of the cushion when under pressure.

2. A platen having a pneumatic cushion, and means operating to relieve the cushion of excess pressure when under compression and to automatically return the cushion to its normal contour.

3. A platen provided with a pneumatic cushion, and means operating to automatic-

ally permit the shifting of the excess air of the cushion to a point to the rear of its normal position when under compression and without reducing the normal air pressure.

4. A platen provided with a pneumatic cushion, and compensating means for shifting the excess air pressure and returning the same under approximately normal pressure without diminishing the supply.

5. A platen provided with a backing element, a pneumatic cushion, and means operating to permit the excess air to be automatically shifted to a position to the rear of the backing element.

6. A platen provided with a pneumatic cushion, and yielding means operating to permit the excess air to be automatically shifted to a position beyond the backing element.

7. A platen provided with a backing element, a pneumatic cushion, yieldable means between said cushion and backing element and operating to permit the excess pressure to be shifted beyond the normal position of the cushion.

8. A platen embodying a rectangular frame, a pneumatic cushion secured thereto, a cover plate for the frame having openings, springs secured to the cover plate and normally covering the openings, and a follower mounted in the frame between the cushion and the cover plate and having pins piercing said openings and arranged to engage with the springs.

9. A platen provided with a hollow backing element, a pneumatic cushion carried by said backing element, and yieldable means within said backing element and bearing against the cushion and operating to permit the excess pressure to be shifted to a position within the backing element.

10. A platen provided with a hollow backing element, a pneumatic cushion carried by said backing element, and a spring pressed device within said backing element and bearing upon said cushion.

In testimony whereof I affix my signature, in presence of two witnesses.

HERVEY H. McINTIRE.

Witnesses:

GEORGE OLTSCHE,
ORALE HESS.