July 19, 1932. J. GRÜNBERG 1,868,387

PRINTING AND IMPRESSING PRESS

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Fig. 1.

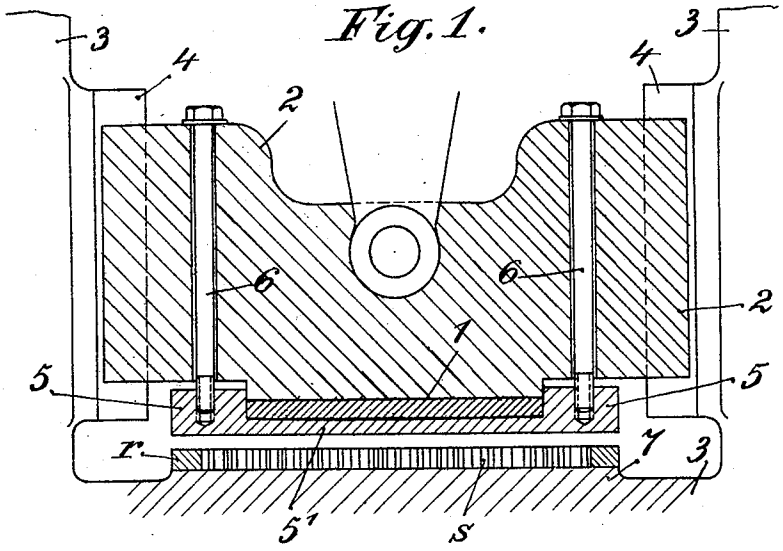
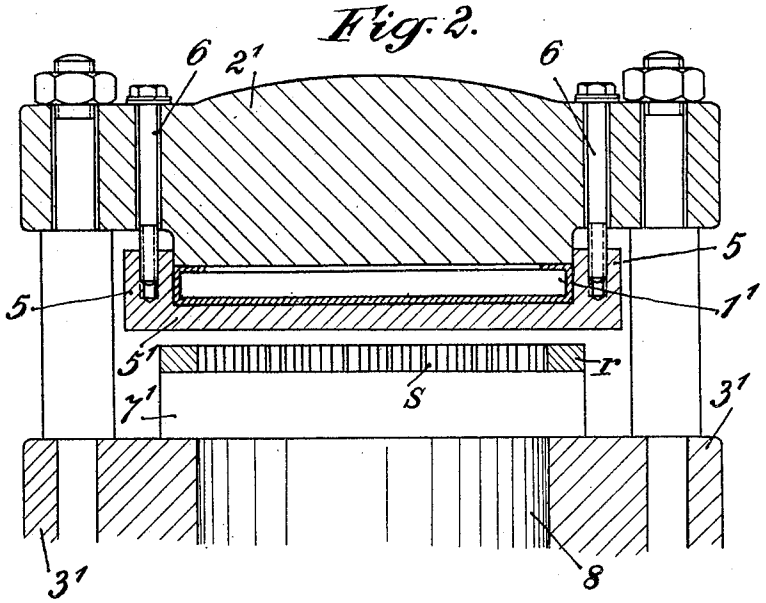


Fig. 2.



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UNITED STATES PATENT OFFICE

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PRINTING AND IMPRESSING PRESS

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This invention relates to a printing and impressing press having a movable working table or die or stamp. With presses of this kind it has hitherto not been possible to prevent the arising of a one-sided load upon the work-piece, if, owing to inaccurate guiding of the working piston or from other reasons, the working face of the work-piece did not lie perfectly parallel to the counter-pressing face. This proved to be of detrimental influence especially in the manufacture of stereotype matrices, in that in such a case the matrix material was not pressed on its entire surface with equal pressure onto the composition or the like.

The object of the present invention is to overcome the above-mentioned drawback, and I attain the object in view by the provision of a movable printing plate which is adjustable corresponding to the plane of working. Owing to this provision, the arising of unequal loads upon the work-piece is effectively prevented.

The printing plate is so arranged that it can return into its normal position when the working procedure has taken place, i. e. when it (the printing plate) is no more in contact with the work-piece. This can be brought about by the dead weight of said plate, as well as by the provision of elastic pressing means.

Preferably an elastic abutment upon which the pressing plate is acting is provided. This elastic abutment forms at the same time a pressure accumulator which becomes active when the working procedure is going on. Said abutment can be arranged directly in the pressing plate, and this latter is in this case so designed that lateral giving way of the abutment is securely prevented.

The invention is illustrated diagrammatically and by way of example on the accompany drawing on which Figure 1 is a vertical section through a printing and impressing press designed according to this invention, and Figure 2 is a similar section through a modification.

In the constructional form shown in Fig. 1, 1 denotes an abutment which is attached to the bottom surface of the traverse 2 of the press and consists, for instance, of rubber. The traverse 2 is reciprocated vertically in the frame 3 of the press, for instance hydraulically by means of a hydraulic piston (not shown), and while thus being moved it is guided by the vertical ledges 4 or by equivalent members. The abutment plate 1 which may be quadrangular is embedded in a plate 5 5′ consisting of a bottom 5′ and a frame or rim 5 by which members the plate 1 is securely held at its proper place and, especially, from giving way laterally. The bottom 5′ constitutes at the same time the printing plate. The plate 5 5′ and the traverse 2 are connected with one another by vertical bolts 6 passing loosely through the traverse and being screwed at their lower ends into the frame or rim 5. By turning the bolts in the proper direction, the abutment 1 can be subjected to a certain preliminary tension, as may in certain cases be useful for the purpose in view.

When the traverse is moved downwardly, the bottom or printing plate 5′ contacts finally with the composition s or any substitute therefor, or with the frame r enclosing the composition or the like lying on the working table or bed 7, and as the abutment 1 is elastic the printing plate 5′ adjusts itself automatically in such a way as to lie parallel to the plane of working while the printing or impressing operation is going on.

In the constructional form shown in Fig. 2 the elastic abutment is formed by a hollow cushion 1′ which is filled with a liquid and located between the bottom face of the traverse 2′ and the printing plate 5′, and it is securely retained in its place by the frame or rim 5 of the plate 5′, the members 5 and 5′ themselves being held also in this case by bolts 6, as in Fig. 1.

While in Fig. 1 the traverse 2 is vertically movable, it is stationary in Fig. 2, and there is provided below the working table or bed 7′ that supports the composition s, etc., a hydraulic piston 8 which is vertically movable in the cylindrical support or base 3′ of the press. When the table 7′ with the frame r and the composition s is lifted by the hydraulic piston 8 the printing plate 5′ can

also with this constructional form adjust itself automatically in such a way as to lie accurately parallel to the composition.

In both constructional forms the abutments 1 and 1′ constitute a pressure accumulator which becomes active when the press remains under load for some time, as is customary in the manufacture of stereotype matrices and similar impressing work. In the presses hitherto used for this kind of work the working pressure falls considerably during the time in which the pressing or impressing work is going on, that fall being due to the yielding of the matrix material and of the felt plate lying on it. With my present improved press, however, the power accumulated in the elastic abutment becomes active during the time or period stated, and the working pressure remains practically unchanged during the time or period.

As the printing plate is loosely suspended at the bolts 6, it assumes automatically its proper normal position as soon as the printing or impressing work has been finished, the plate and the composition come out of contact, and the plate is now left to itself.

I wish it to be understood that I do not limit myself to attaching the printing plate with the abutment member to the traverse, but it may as well be attached to the table of the press, and while I have assumed in the two examples shown and described that the press is actuated by hydraulic power, I wish it further to be understood that also any other suitable driving power may be used.

I claim:

1. In a press of the class described, a bed and a traverse element, the one movable toward and from the other, a plate on the face of the traverse element opposed to the bed, means detachably securing said plate to the traverse element, said means permitting movement of the plate toward and from the face of the traverse element and an abutment element of elastic material arranged between the plate and the traverse element and adapting the plate to adjust itself to exact parallel relationship to the bed when a working stroke is imparted.

2. In a press of the class described, a bed and a traverse element, the one movable toward and from the other, a plate on the face of the traverse element opposed to the bed, means for securing said plate to the traverse element, said means permitting movement of the plate toward and from the face of the traverse element and elastic means acting on said plate and adapting the plate to adjust itself to exact parallel relationship to the bed when a working stroke is imparted.

In testimony whereof I have affixed my signature.

JOSEF GRÜNBERG.