

(No Model.)

2 Sheets—Sheet 1.

H. LEE.
PLATE PRINTING MACHINE.

No. 458,694.

Patented Sept. 1, 1891.

Fig. 2.

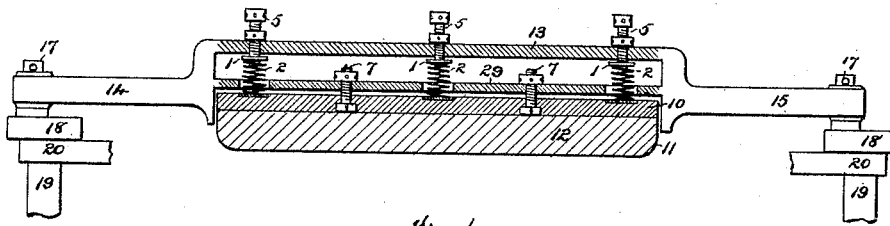


Fig. 1.

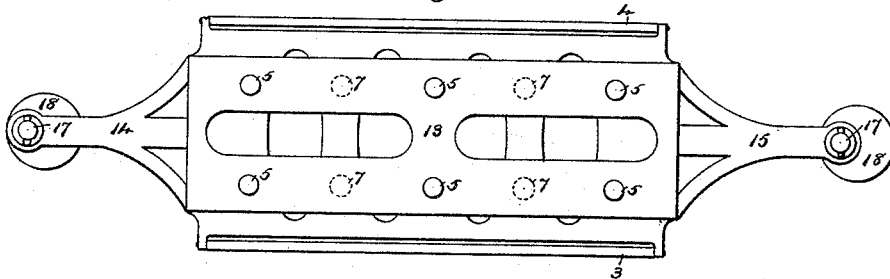


Fig. 5.

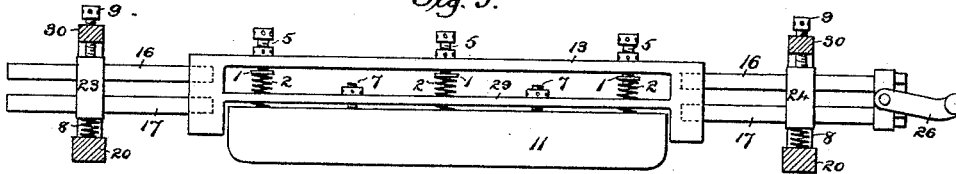


Fig. 4.

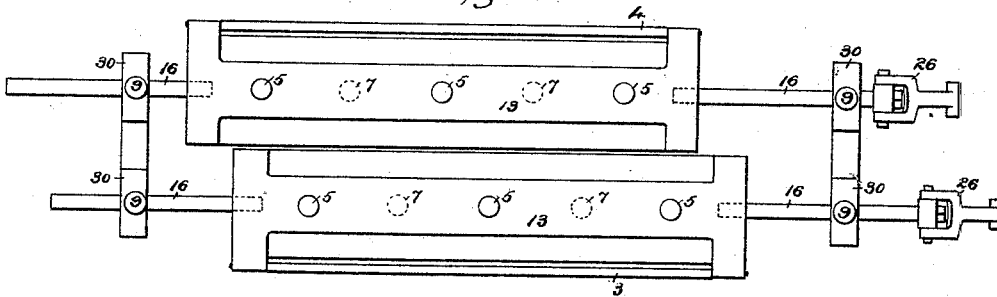
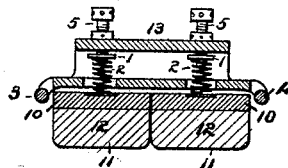


Fig. 3.



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Fig. 7. Patented Sept. 1, 1893.

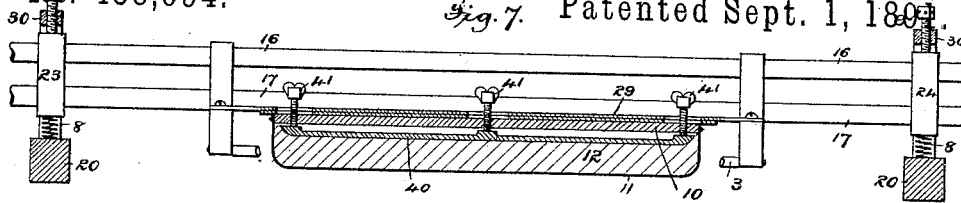


Fig. 6.

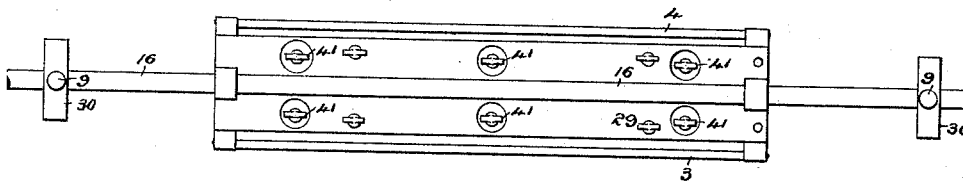


Fig. 8.

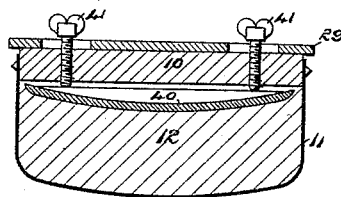
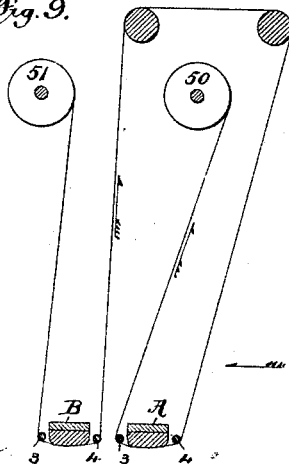
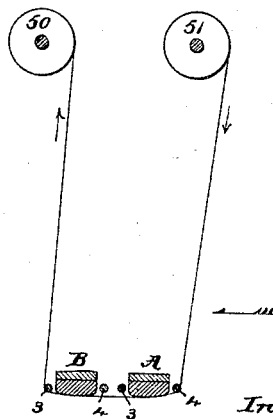


Fig. 9.



Attest;
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Fig. 10.



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UNITED STATES PATENT OFFICE.

HOMER LEE, OF NEW YORK, N. Y.

PLATE-PRINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 458,694, dated September 1, 1891.

Application filed January 19, 1881. Serial No. 24,291. (No model.)

To all whom it may concern:

Be it known that I, HOMER LEE, a citizen of the United States, residing in the city of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Plate-Printing Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to that class of plate-printing machines which are provided with automatic or mechanical wiping devices, and more particularly to that species of such machines as embody wiper-pads and wiper-cloths that are reciprocated over the printing-surface.

The object of the present invention is to provide an improved construction of wiper-pads, and especially to provide means for adjusting the bearing-surface of a wiper-pad, so as to control the relation of its acting surface with respect to the printing-surface.

To this end my invention consists in various constructions and combinations of parts, all of which will be fully described in the following specification, and pointed out in the claims.

In the accompanying drawings I have illustrated wiper-pads disconnected from the machine in which they are intended to be used, for the reason that the structure of such machine is now a common mechanism, and may be readily understood by reference to particular patents hereinafter pointed out and referred to.

In said drawings, Figure 1 illustrates by a plan view, Fig. 2 by a longitudinal sectional elevation, and Fig. 3 by a cross-sectional elevation, a structure of wiper-pad adapted to the embodiment of my invention. Fig. 4 represents by a plan view, and Fig. 5 by a side elevation, another form of wiper-pad. Fig. 6 is a plan view, Fig. 7 a longitudinal elevation, and Fig. 8 a cross-sectional elevation, enlarged, embodying my improvements. Figs. 9 and 10 are views illustrating one mode of applying the wiper-cloths to wiper-pads.

The wiper-pads of mechanical appliances for automatically wiping an inked printing plate or surface are commonly constituted of a frame or carrier, to which is secured an

inclosing case or cover of pliable material, as cloth, leather, and the like, within which is contained a soft or yielding substance, as a stuffing, a flexible buffer or pad being thus constituted.

It is well known to those skilled in the use of plate-printing machines provided with two or more independent wiper-pads and as many wiper-cloths that the surface of the wiper-cloth that last engages with the surface of the inked plate is kept comparatively clean for the reason that said inked surface has been pretty thoroughly cleaned by the removal of the greater portion of the body of ink it carries through the wiper cloth or cloths first acting upon it, and these cloths will, of course, be charged with the lesser quantity of ink according to the order in which they engage with the inked plate. One or more of these wiper-cloths will, therefore, remain in a condition to be reused with any pad preceding in time of action, that across which the cloth has been passed.

In order to a better understanding of this invention, it may be premised that the improvements may be carried out by the use of pads constructed as are those shown and described in Patent No. 210,116, dated November 19, 1878, reissued July 20, 1880, No. 9,317, as in my patent, No. 282,995, or in any other manner—for instance, as shown in the accompanying drawings, the structure of which will now be detailed.

The pad proper consists of a stock 10, which may be a plate of metal, wood, or other proper material, to the sides of which the sack or covering 11 for the pad may be attached or secured, and which will afford the means for attaching the pad to its carrier. This sack or covering, which will be of some flexible material as cloth, leather, felt, &c., and should be of such shape and dimensions as to contain within it a stuffing or filling material 12 of hair, wool, lint, or other appropriate soft material, whereby a soft, flexible and elastic pad, preferably with a rounded bearing-surface, is formed.

The carriers for the pads may be a frame, as 13, having extended ends forming arms, as 14 15, as in Figs. 1, 2, and 3, or be formed of turn-rods 16 17, (shown in Figs. 6 and 7,) or constituted by a combination of such rods 16 17

with the plate 13, as is shown in Figs. 4 and 5. In fact, the carrier may be of any structure, form, and material suited to the purpose and composed so as to admit of securely attaching the wiper-pad to it and withstand the strains incident to the reciprocations of said carriers and pads over the inked printing-surface.

Each wiper-pad carrier is mounted in the frame-work of the machine so as to be moved to and fro or reciprocated horizontally, two forms of which mounting are shown. That shown in Figs. 1 and 2 consists in crank-pivots 17, carried by crank-disks 18, fast upon shafts 19, that are journaled in the frames 20 and driven by gears, whereby a curved rectilinear path of movement is given to the wiper-pad and the cloth passed over its surface in substantially the manner shown in the Patent No. 17,036. If this movement of the pad requires variation, any suitable means may be provided to enable the extent of the stroke to be adjusted, or to vary such movement so that one end may accomplish a greater lateral movement than the other.

In Figs. 4, 5, 6, and 7 the carrier is mounted in bearings 23 24, mounted upon the frame 20, which carrier may be reciprocated by a direct cam movement, or by vibrating levers actuated by cams or eccentrics, as in the said Patent No. 210,116, or as in my said patent, No. 282,995, links 26 forming the intermediate connection, or the same being made in any other common manner.

The pads are constructed so that they may have vertical movement with respect to the bed of the machine or printing-surface thereof. Of this two forms are shown, that in Fig. 2 being a connection with the carrier that permits a direct vertical movement with respect thereto, the means being screw-bolts 7, that are secured to the stock 10 and arranged to play loosely in holes cut in the cross-plate 29, with which the carrier is provided. In the form shown in Figs. 6 and 7 this vertical adjustment is principally effected by means of springs 8, upon which the bearings 24 are seated, the bodily movements of the carrier and pad being effected by screws 9, that turn in threaded holes cut through the guides 30, in which the bearings 23 24 play. In Fig. 5 a combination of these two means is shown.

Practically the elastic pressure of the wiper-pad requires variation, according to the class of work to be printed, and the pressure of various parts of the pad must also be capable of independent adjustment in order to secure perfect wiping and polishing action, especially when well-worn plates are printed from. This elastic pressure has heretofore been accomplished by springs interposed between the pad and its carrier, as in the aforesaid Guy patent, and shown here by the springs 2; also, by springs, as 8, interposed between the carrier-bearings and the supporting frame-work. In practice the former mode is objectionable to a degree by reason of the

inconvenience of adjustment while the machine is running, and the latter, while affording great facility of adjustment, does not afford that nice variation often required for different parts of the pad; but with the combination of the two adjustments the most perfect operation of the pad may be effected and the nice relative pressure of different parts of the pad or pads with respect to the printing-surface by means of the springs 2 be secured, while the general bearing-pressure of the whole pad may be readily varied by adjusting the springs 8. These springs 2 may be of any number, and each bears upon the stock 10, and projecting through holes in the plate 29 are seated upon washers 1, carried by screw-bolts 5, that turn in tapped holes of the plate 13. In practice the bearing-faces of these flexible pads for the wiper-cloths become flattened by long use, and thus lying perfectly flat upon the engraved surface lose a great part of their elasticity and consequent perfect adaptability for wiping. To restore or maintain their bearing-face in a rounded form, I provide them internally with a plate, as 40, which may be flat, but preferably curved, against which the stuffing of the pad rests, which plates are provided with a number of set-screws 41, that turn in tapped holes in the stock 10 and operate to press the plate so as to bulge out any portion of the pad, and when curved to give it a rounded bearing-face. This pad may be provided with the springs 2, the plate 29 being shown in Fig. 8 to so indicate, and the pads of Figs. 1 to 5 may be provided with the plate 40 and screws 41. The plate 40 may thus be adjusted in almost any angular position, so that more pressure will be exerted at one point of the pad than at another, and the wiper-pads be thus adapted to perform not only the "inking in" but a perfect wiping action. When the plate is adjusted at an angle which depresses that side of the pad last acting on the plate, the inked portion of the plate will readily pass under the pad and gradually be pressed and rubbed with increasing power.

To accomplish the advantages arising from the use of a single cloth when passed across two or more wiper-pads, said pads may be independent of each other, as in Figs. 4, 9, and 10, or be arranged together in one carrier, as in Figs. 1 and 3, in each case, however, being provided with independent means of adjusting the pressure, either by means of springs, as 2, or plates, as 40, and with or without the springs 2.

The wiper-cloths may be led from one spindle or roller, as 50, to a second spindle or roller, as 51, and the same being provided with means for feeding the cloth, as in the Guy patent or my said patent, or may be so moved in any common manner, rollers, as 3 4, being desirable to guide them to the pads. Thus the surface of the wiper-cloth stretched across the wiper-pad A will, it is obvious, when the

inked plate travels in the direction of the arrows, Figs. 9 and 10, take up a pretty large quantity of ink from the surface of the plate, while the cloth then passing across the pad B will be charged with but very little ink in consequence of the clean condition of the plate as it is carried into contact therewith, so that in the arrangement, Fig. 10, as the wiper-cloth is fed around that portion of it which has been operated upon while stretched under the wiper-pad B will be carried under the wiper-pad A and be in the best possible condition to operate in wiping the great body of ink from the plate, while in the arrangement Fig. 9 that surface of the cloth pressed upon the printing-surface in passing over the pad A will be reversed, so that the opposite or clean surface will be outermost in passing over the pad B. I am thus enabled to make a double use of the same wiper-cloth, and, moreover, as the wiper-pads A B may be reciprocated simultaneously in the same direction, in opposite directions, or otherwise moved with relation to each other and be independently adjusted with respect to the printing-surface the action of the wiper-cloth will perfectly accomplish its functions.

The wiper-cloth may be endless or a long length, and the pads and cloths may be adapt-

ed to operate in connection with a flat printing-surface or a curved one—that is, with a flat-bed press or a rotary one.

What is claimed is—

1. The combination, with the wiper-pad having an elastic cushion, of a movable presser-plate adjustable to vary the angular relation of the bearing-surface of the pad with respect to the printing-surface, substantially as described.

2. The combination, with the wiper-pad, of springs acting between the pad and its carrier, and springs acting between the carrier and its supports in the frame-work of the machine, substantially as described.

3. The combination, with a wiper-pad the bearing-surface of which is adjustable angularly with respect to its carrier, of a carrier provided with a spring adjustment relatively to the supporting-frame of the machine, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HOMER LEE.

Witnesses:

H. T. MUNSON,
T. H. PALMER.