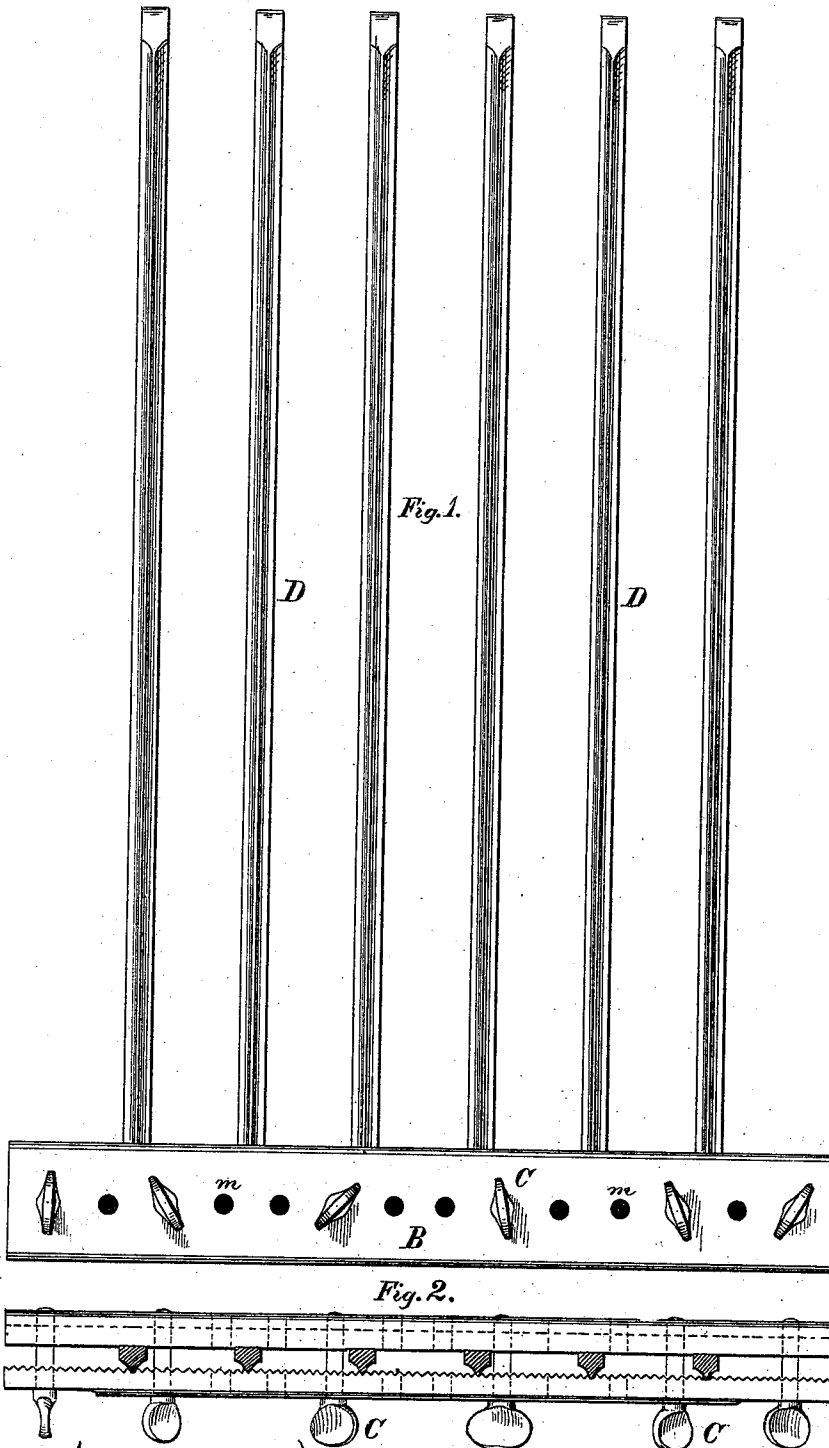


D. WECKERLIN.

FLY FRAMES FOR PRINTING PRESSES.

No. 173,147.

Patented Feb. 8, 1876.



Frederick Humpen
C. W. Hale

Witnesses.

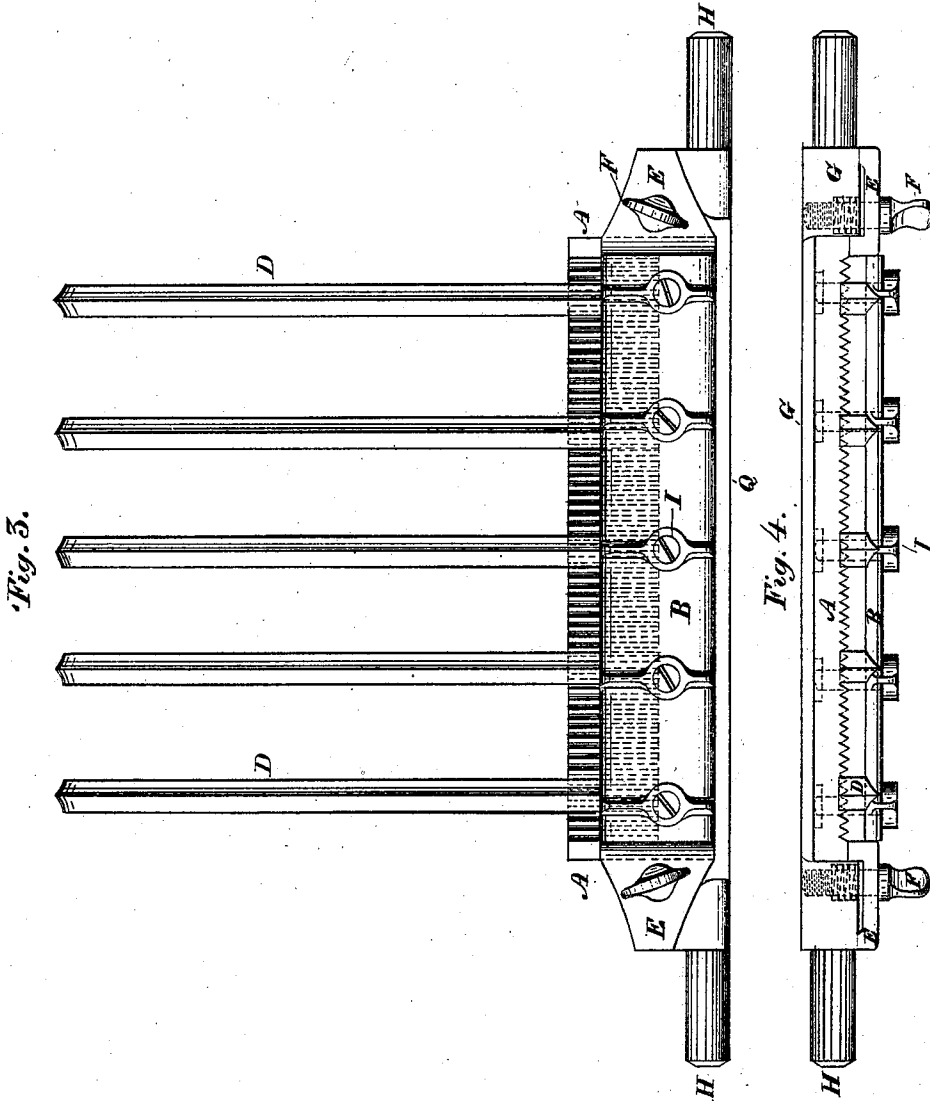
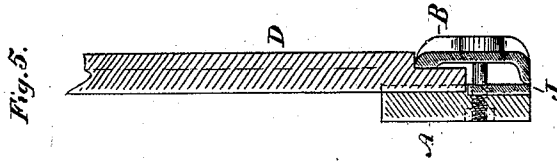
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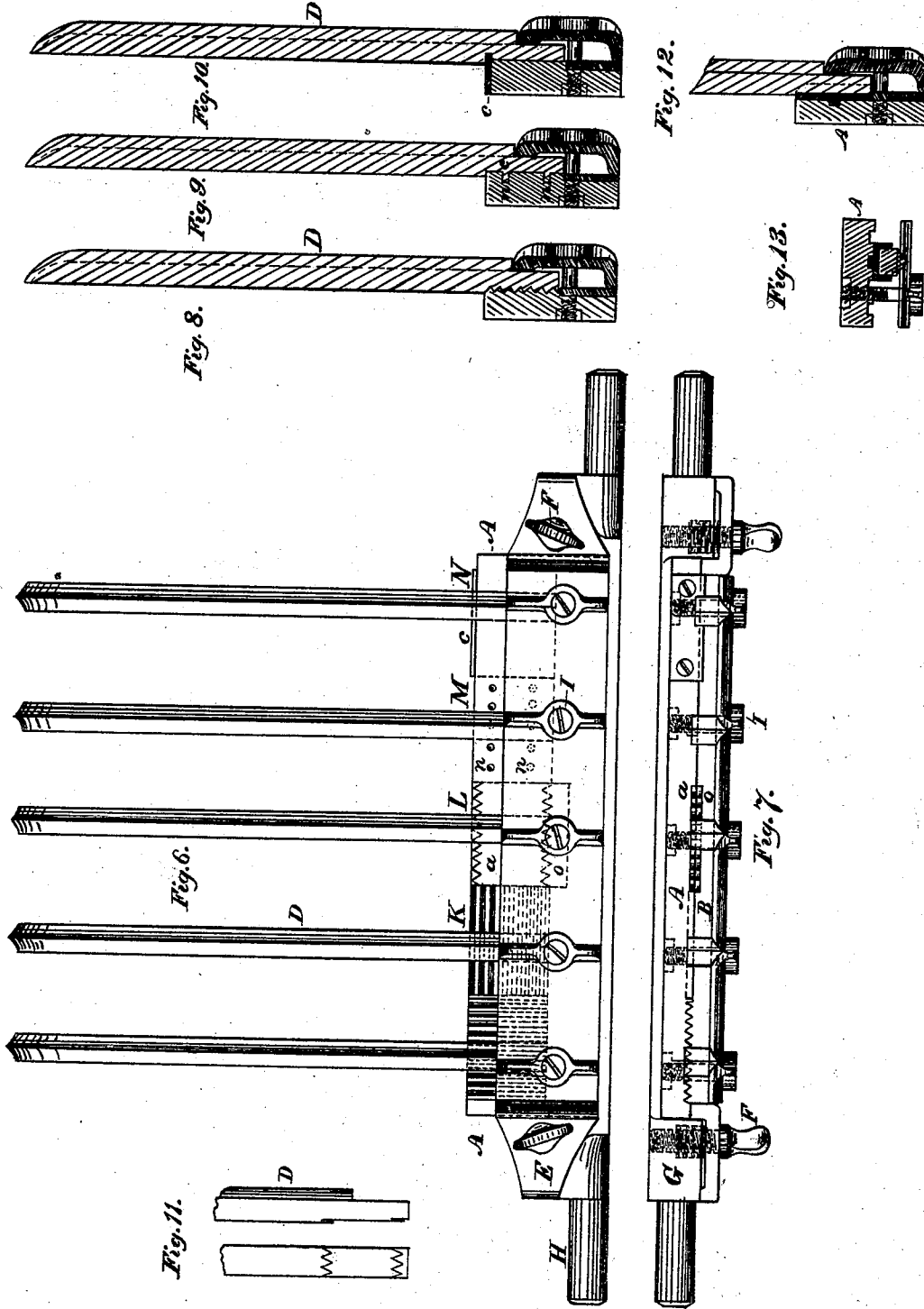
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UNITED STATES PATENT OFFICE.

DOMINICK WECKERLIN, OF BROOKLYN, ASSIGNOR TO R. HOE & CO., OF
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IMPROVEMENT IN FLY-FRAMES FOR PRINTING-PRESSES.

Specification forming part of Letters Patent No. **173,147**, dated February 8, 1876; application filed
September 23, 1875.

To all whom it may concern:

Be it known that I, DOMINICK WECKERLIN, of Brooklyn, New York, have invented an Improvement in Fly-Frames for Printing-Presses, of which the following is a specification:

In the accompanying drawings, which illustrate my invention, and wherein like letters of reference refer to like parts, Figure 1 is a perspective view of my improved fly-frame. Fig. 2 is an edge view thereof, with the fingers in section; Figs. 3, 4, and 5, views of one modification; Figs. 6 and 7, views showing various modifications; Figs. 8, 9, 10, and 11, sections thereof; and Figs. 12 and 13, sectional views of further modifications.

The invention consists in a fly-frame whose fingers present the minimum area of contact-surface with the printed sheets, which are independently adjustable laterally in, or independently removable from, their supporting-base, the entire group of fingers being removable bodily from the stock or holder, all of which will be set forth at large in the following detailed description.

In the process of delivering printed sheets by a fly-frame their freshly-printed faces become more or less smeared by contact with the broad surface of the fingers as they carry them to the piling-table. In cut work and all fine printing this result is destructive in a large degree, and many remedies have been sought, and none found which effectually overcome this difficulty. As it is necessary that the group of fingers constituting the fly-frame shall be many in number, and placed closely enough together to prevent the sheet from sagging between them, it follows that a construction is desirable which presents the smallest amount of surface-contact with the sheet, and one which permits the point of contact of the several fingers therewith to be determined according to the position of the printed matter and marginal spaces upon the sheet to be delivered.

To this end I have constructed the said fingers with their faces or upper sides chamfered or cut away to form a central rib, tapered to a thin edge, which provides bearing-surfaces having an area little greater than that of a

knife-edge, and which consequently bear upon the printed sheet to the least attainable degree. This construction reduces the weight and expense attending the use of thin plates inserted in, or small wires attached upon, the fingers, which has been the common practice. Fly-frames of the common construction, wherein the fingers are rigidly secured to their supporting-base, are thus improved and rendered comparatively harmless to the printed sheets they deliver, but it frequently happens in practice that this is ineffective, since one or more fingers may be in a direct line with and bear upon a section of the printed sheet where a picture or other impression is formed by a heavy body of ink, which will thus be streaked as the sheet is laid down by the fly-frame. In order to prevent this blemishing of the printed matter, I have adapted the fingers to be adjustable in their supporting-base, so that any one or more of them may be moved laterally to escape alignment with any particular part of the sheet, or be entirely removed, if necessity require. Thus the fingers may be adjusted to adapt them to positions which least interfere with and prevent blemishing of the impressions.

I have illustrated various ways of accomplishing this adjustment of the fingers, which I will now minutely describe.

In Fig. 1 the tapered form of the face or top surface of the fingers is made use of as a means for fastening them in place. The flat bottoms of the fingers rest upon the base bar or plate A, and the angular ribs or their upper faces bear in grooves or serrations cut parallel to each other, and laterally across the under side of the clamp bar or plate B of the supporting-base. These bars or plates A and B are held in adjustable relations to each other by thumb-screws C, so that the bar B may be loosened when it is desired to shift a finger from one groove to another, or entirely remove it, and be tightened to clamp the fingers in their adjusted positions with relation to each other.

The bars or plates A and B, constituting the supporting-base, may be permanently secured to the stock or holder G, carrying the

journals H, or be attached thereto, so as to be removable therefrom, as in Figs. 3 and 6, as will be hereinafter explained.

If, in its new adjustment, a finger obstructs one of the screw-holes *m*, the screw may be moved to the next adjacent screw-hole, as is apparent.

In Fig. 3 the inner face of the base bar or plate A is provided with parallel angular grooves or recesses, in like manner as shown in Fig. 1, in which rest the butts of the fingers D, which are also provided with angular grooves, recesses, or serrations for a short distance from their inner ends on their under sides, which, corresponding with, fit into said grooves, recesses, or serrations in the base-bar A. The fingers are also cut away a short distance on their upper faces to form flat seats for the clamp bar or plate B, which bar B is forced down, by screws I, to clamp the said fingers in place. The length of the serrations or recesses in both fingers and base-plate is such as to provide a bearing sufficient to impart longitudinal stiffness to the fingers.

Upon starting one or more of the screws I nearest to the finger desired to be adjusted, it will be so released from the bite of the clamp-bar B as to be easily removed by a slight movement lengthwise, and may then be readily inserted at the point desired. It is thus apparent that one or more of the fingers may be moved laterally a distance equal to the width of one or more of the serrations or recesses, which will cause it to bear at the desired point upon the printed sheet.

The clamp-bar B is shown in Fig. 5 as seated at its rear end on a metal plate, J. Such a bearing is desirable when the base-bar A is made of wood.

In Fig. 6, at K, and in Fig. 8 the serrations or recesses are shown as disposed lengthwise of the base-bar A, and in a corresponding relation across the under side of the heel of the fingers.

Upon being released from the pressure of the clamp-bar B, fingers thus constructed may be slid sideways until the desired point is reached, when they are again clamped in position. To entirely remove them, the clamp-bar is raised a sufficient distance from them to clear the serrations one from the other.

At L, Fig. 6, the base-bar A is shown to be provided with plates *a* and *o*, whose front edges are serrated or saw-toothed, which plates are so placed as to form front and rear bearings for similarly serrated seats or ledges on the under side of the fingers D, as in Fig. 11, which shows bottom and side views of the butt of a finger so constructed. These means for holding the fingers require but a slight withdrawal of them, after they are unclamped, to accomplish their lateral movement, and affords in its double bearings a mode of obtaining the required longitudinal stiffness of the fingers.

As shown at M, the base-bar A is provided

with sets of holes *n*, arranged in parallel lines, a distance apart, with which engage short dowel-pins *e* on the under sides of the fingers D, as in Fig. 9. When released from the pressure of the clamp-bar, these fingers may be disengaged from one pair of holes, and be re-engaged in another pair, thus being adjusted at the desired point.

As shown at N in Fig. 6 and in Fig. 10, the base-bar A is provided with a front plate, *c*, which projects upward to form a lip or rib, which fits into a lateral recess in the under side of the fingers D. When loosened by the raising of the clamp-bar, these fingers may be slid to the required position, when they may be reclamped. This rib may project from shoes upon the butts of the fingers, which may then slide laterally in the longitudinal slot or way in the base bar or plate A, as in Fig. 12.

What has been described as serrations may be slots or recesses of any other shape than with angular sides—thus, as in Fig. 13, they may be square sockets, and they may, of course, have any other configuration which will provide suitable holding-surfaces; and, whenever it is required, or great durability is desired, the holding points or devices on the fingers may be provided upon metallic shoes, as in Figs. 12 and 13, and the corresponding devices upon the base-plate A, or the plate itself, may also be of metal. In practice, however, it is expedient to construct the fly-frame and most of its parts of wood, in order to secure lightness.

It has been customary to remove the frame bodily from the press by securing the outer of the main group of fingers to short arms extending from the stock or holder G. This construction, however, does not afford the stiffness required for the somewhat violent movements the frame has to endure; and I have, therefore, provided the stock or holder G, which carries the usual journals H, with lugs, rising from its ends, and a plate, Q, rising from its rear side, between which the base bars or plates A and B are inserted, so as to be seated upon the bottom plate, and rest against the lugs and back plate. In this position it is firmly secured by ears or clamps E, which bear upon its ends, and are firmly secured in place by thumb-screws F. This provides a ready means for its detachment whenever its removal is required to permit access to the working parts of the press, and a secure and firm attachment for it when in operative position.

What I claim is—

1. Fly-frame fingers shaped so as to form a projecting rib or angular sheet-supporting edge, substantially as shown and described.

2. A fly-frame for printing-presses, the fingers whereof are independently removable from their supporting-base, substantially as shown and described.

3. A fly-frame for printing-presses, the fin-

gers whereof are independently detachable and adjustable laterally, substantially as described.

4. The combination of fingers, each having a face-rib, with a transversely scored or grooved clamp-bar, and a base or supporting bar, substantially as shown and described.

5. The combination of bars or plates A and B, adjustable fingers D, and means for retaining the fingers rigidly between the bars, substantially as described and shown.

6. The combination of base-bar A, ribbed fingers, and scored or grooved clamping-bar, substantially as described and shown.

7. In combination with the independently detachable fingers, I claim metallic shoes provided with devices, substantially as described, whereby they are adjustably attached to their supporting-base.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DOMINICK WECKERLIN.

Witnesses:

ISAAC KRAUS,
STEPHEN D. TUCKER.