May 13, 1941. J. F. BOYER 2,242,104

HAND PRINTING PRESS

Filed May 11, 1940 2 Sheets-Sheet 1

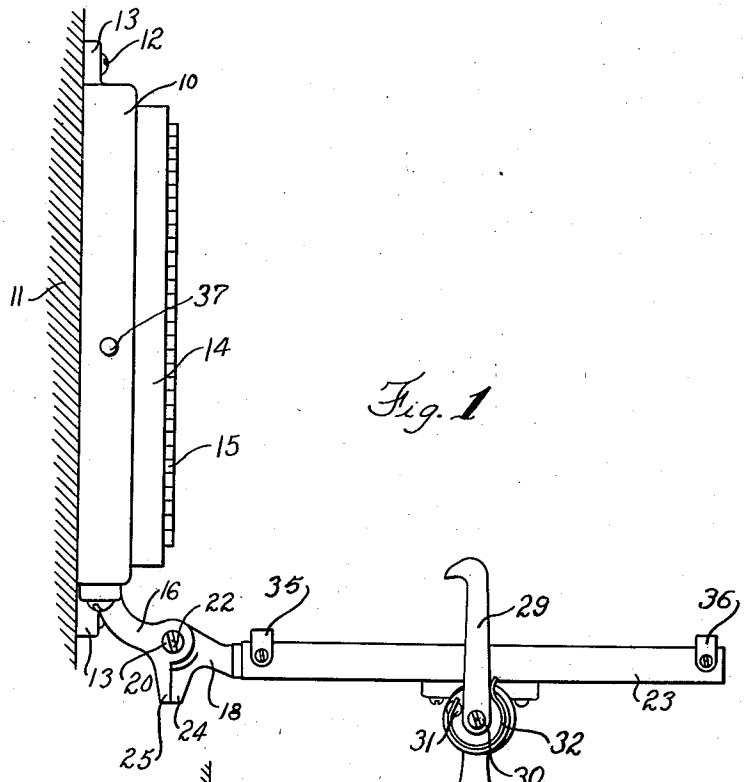


Fig. 1

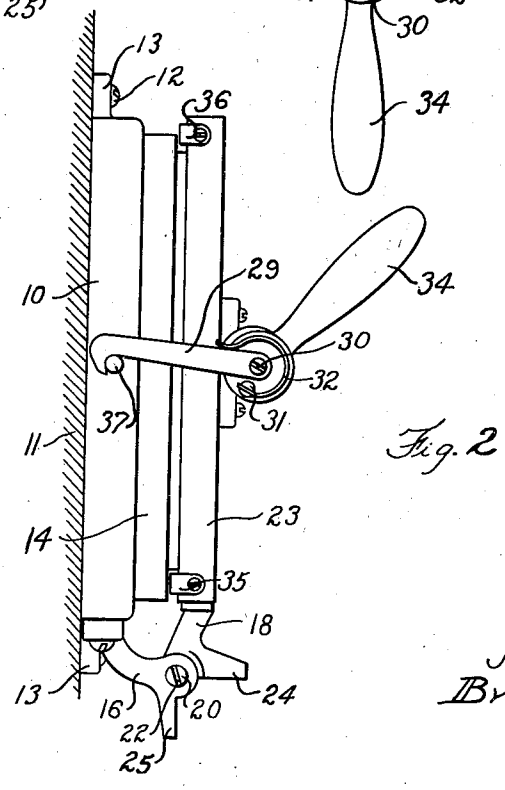


Fig. 2

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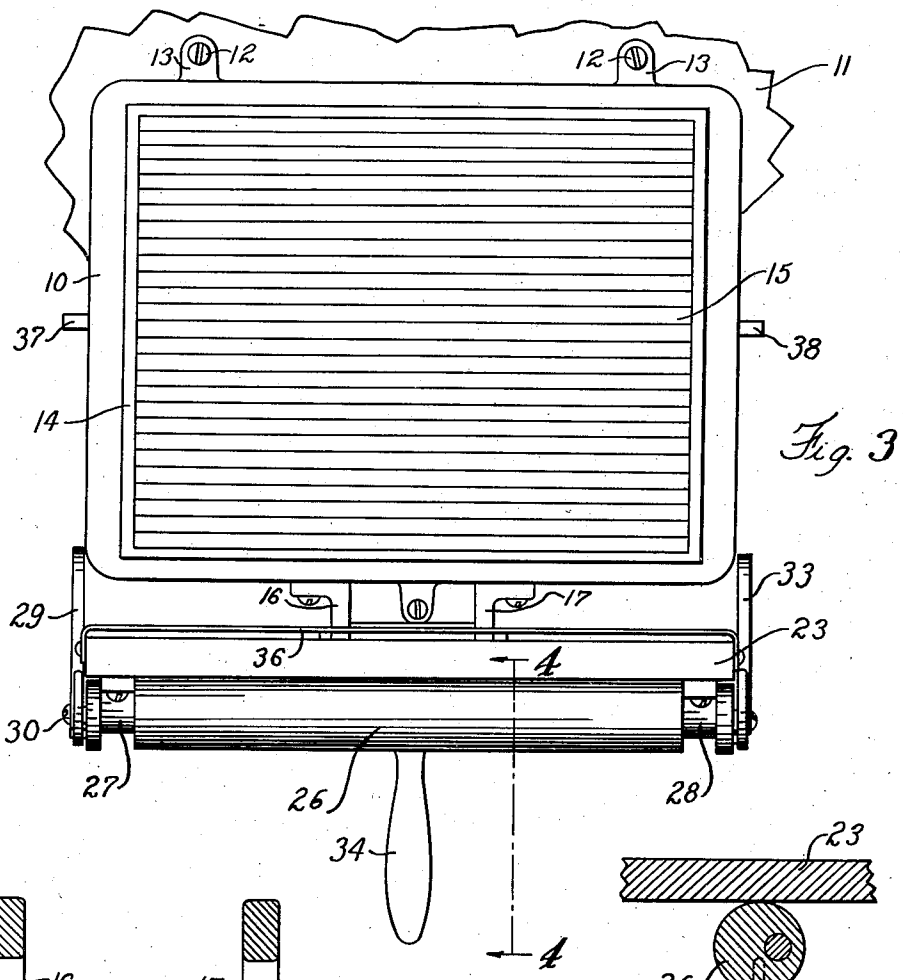


Fig. 3

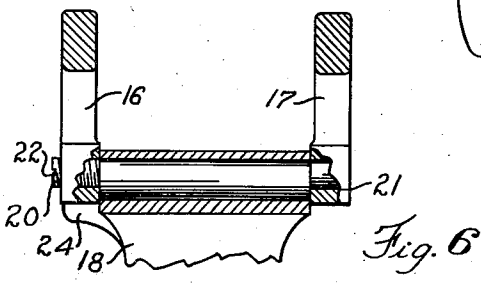


Fig. 6

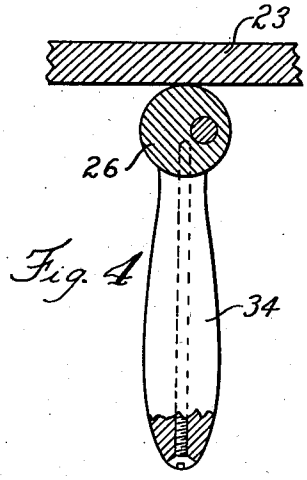


Fig. 4

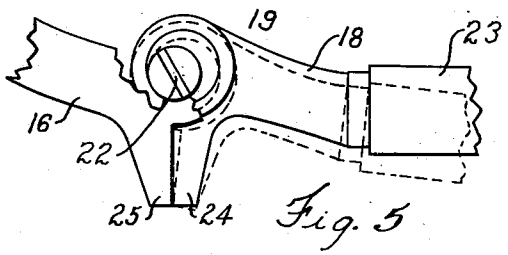


Fig. 5

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UNITED STATES PATENT OFFICE

2,242,104

HAND PRINTING PRESS

James Frank Boyer, Kokomo, Ind.

Application May 11, 1940, Serial No. 334,487

4 Claims. (Cl. 101—297)

This invention relates to a hand operated printing press and has for a primary object the provision of a structure that may be operated at a relatively low cost and yet be extremely effective and simple in operation so that the structure may be supplied to the trade, particularly the juvenile trade where some experience is to be obtained in the art of printing.

A further primary object of the invention is to provide a structure which will receive and retain printing type, either hand set or in slugs set by the usual "Linotype" machines and the like. A further important object of the invention is to provide a structure in which the impression from the type may be made through operation of a single lever for locking up the impression and then increasing the pressure for the desired degree of impression.

A still further important object of the invention is to provide means for quickly and easily adjusting the pressure plate in order to bring it into parallelism with the faces of the printing surfaces.

These and other objects and advantages of the invention will become apparent to those versed in the art in the following description of one particular form of the invention as illustrated in the accompanying drawings, in which

Fig. 1 is a side elevation of a structure embodying the invention with the pressure plate in the open position;

Fig. 2, a side elevation of the structure with the pressure plate closed;

Fig. 3, a front elevation of the structure with the pressure plate opened;

Fig. 4, a detail in section on the line 4—4 in Fig. 3, on an enlarged scale;

Fig. 5, a detail in side elevation of the pressure plate hinge; and

Fig. 6, a detail in partial section of the pressure plate hinge in top plan view.

Like characters of reference indicate like parts throughout the several views in the drawings.

I form a bed plate 10 preferably arranged to be mounted in a vertical position, such as on a wall 11, by means of screws 12 passing through ears 13 extending from the plate 10. The bed plate 10 is arranged to have a box-like marginal boundary wall 14 within which the type may be placed and wedged to be retained therewithin. In the present form of the invention, the containing box 14 is shown as having blank slugs 15 placed therein.

On one side of the bed plate 10, in the present form being the underside, extend a pair of arms 16 and 17 in spaced apart relation. Between the outer ends of these two arms is positioned a foot 18 by means of a hinge pin 19, Fig. 6. This pin 19 has a major cylindrical body portion extending with a sliding fit through a bore in the foot 18 and has reduced end portions 20 and 21 carried in bores through the respective arms 16 and 17, these end portions 20 and 21 being axially aligned one with the other to one side of the axis of the major central portion of the pin so that an eccentric action is provided by revolving the pin 19 about its trunnion-like ends 20 and 21. Turning of the pin 19 in this manner is accomplished by any suitable means such as by providing the end 20 with a slot 22 thereacross to receive a screw driver screw-threadedly engaging the end 20 with the arm 16. Longitudinal travel of the pin 19 by reason of these threads is slight since at most the adjustment of the pin 19 to shift the foot 18 in relation to the arms 16 and 17 is of a micrometer nature.

This foot 18 is secured by its outer end to the pressure plate 23. The shape of the arms 16 and 17 and the foot 18 is such that the plate 23 will come into uniform contact over the entire area of the printing faces of the slugs 15 when the pressure plate 23 is swung around upwardly thereagainst. If there should be any misalignment, it may be corrected to an exact amount by turning the pin 19 as above indicated so that the upper end as well as the lower end of the plate 23 will make the required contact for uniform impression. This shifting of the plate 23 is indicated by the dash lines in Fig. 5.

The impression plate 23 is normally held in a horizontal position as indicated in Figs. 1 and 3. This position is maintained by a lug 24 downturned from the foot 18 bearing against a lug 25 on the arm 16. Mounted on the under or outer side of the plate 23 is a cam 26, herein shown as extending substantially entirely transversely across the plate 23, although this length may be shortened or the cam may be divided into separate shorter lengths as may be desired. In any event, the cam 26 is attached to the plate 23 by a pair of bearing plates 27 and 28 surrounding reduced, trunnion-like portions of the cam 26 which are free to revolve under the plates 27 and 28. On an end of the cam member 26 is mounted a latch finger 29, this finger being free to rock about a pivot, herein shown as a screw 30 passing through the latch member and engaging in the end of the cam member 26. In the form here shown, this latch member 29 is normally urged against a stop post 31 by means of a spring 32. In like manner a latch member 33 is mounted on the opposite end of the cam member 26.

Both of these latch members 29 and 33 are mounted to extend normally above the pressure plate 23, as indicated in Figs. 1 and 3, when that plate 23 is in its horizontal position. A lever 34 is secured to the cam member 26 in any suitable manner so that by rocking the lever 34, the cam member 26 may likewise be rocked.

In operating the device, the desired print-

ing type, plates, slugs, or the like as may be selected are positioned and locked up on the bed plate 10. Then the paper or member on which the impression from that printing surface is to be impressed is placed on the top side of the impression plate 23 and there secured in any suitable manner, such as by the transverse straps or bands 35 and 36. Then the lever 34 is grasped to rock the plate 23 around upwardly and toward the members 15. Rocking the lever 34 as indicated in Fig. 2 will initially cause the latch members 29 and 33 to engage over the respective pins 37 and 38 and then by continued rocking of the lever 34 upwardly and around toward the plate 23, the cam member 26 will force the impression plate 23 with a great degree of pressure toward the printing members 15 to make the desired impression. It is to be noted that this pressure is created not between the bearing members 27 and 28 but through the latch members 29 and 33 and the engaged pins 37 and 38. The plate 23 is released by pulling the lever 34 downwardly to bring the post 31 against its latch member so as to free that latch member from its respective pins 37 and 38 and permit the impression plate 23 to drop down again to its initial normal horizontal position.

While I have herein shown and described my invention in the one particular form, it is obvious that structural changes may be made, particularly in the mounting of the latch members 29 and 33, and the like, without departing from the spirit of the invention and I, therefore, do not desire to be limited to that precise form beyond the limitations as may be imposed by the following claims.

I claim:

1. In a hand operated printing press having a type receiving bed plate and a pressure plate rockably attached by one end to the bed plate, a shaft transversely positioned across substantially centrally of and rockably mounted on said pressure plate, a pressure plate lifting handle carried by said shaft, cam means carried by the shaft, a latch bar carried at each end of and rockable about the axis of the shaft, a stop for each latch bar carried by the shaft at a radial distance from the shaft axis, a spring normally yieldingly urging said bar against said stop, and latch bar engaging means on said bed plate, said cam means being arranged to push the pressure plate toward the bed plate upon rocking of said handle from a position substantially normal to the pressure plate around toward the plate and said latch bar and its stop being located in reference to said cam to have the bar rocked with travel of the cam into engagement with its said engaging means, said stop being carried away from the bar upon further cam travel to have said spring continue its pressure on the bar tending to maintain said latch bar engagement.

2. In a hand operated printing press having a type receiving bed plate and a pressure plate rockably attached by one end to the bed plate, a shaft transversely positioned across substantially centrally of and rockably mounted on said pressure plate, a pressure plate lifting handle carried by said shaft, cam means carried by the shaft, a latch bar carried at each end of and rockable about the axis of the shaft, a stop for each latch bar carried by the shaft at a radial distance from the shaft axis, a spring normally yieldingly urging said bar against said stop, and latch bar engaging means on said bed plate, said cam means being arranged to push the pressure plate toward the bed plate upon rocking of said handle from a position substantially normal to the pressure plate around toward the plate and said latch bar and its stop being located in reference to said cam to have the bar rocked with travel of the cam into engagement with its said engaging means, said stop being carried away from the bar upon further cam travel to have said spring continue its pressure on the bar tending to maintain said latch bar engagement, said cam means consisting of a roller eccentrically mounted on said shaft to extend substantially along its entire length.

3. In a hand operated printing press having a type receiving bed plate and a pressure plate rockably attached by one end to the bed plate, a shaft transversely positioned across substantially centrally of and rockably mounted on said pressure plate, a pressure plate lifting handle carried by said shaft, cam means carried by the shaft, a latch bar carried at each end of and rockably about the axis of the shaft, a stop for each latch bar carried by the shaft at a radial distance from the shaft axis, a spring normally yieldingly urging said bar against said stop, and latch bar engaging means on said bed plate, said cam means being arranged to push the pressure plate toward the bed plate upon rocking of said handle from a position substantially normal to the pressure plate around toward the plate and said latch bar and its stop being located in reference to said cam to have the bar rocked with travel of the cam into engagement with its said engaging means, said stop being carried away from the bar upon further cam travel to have said spring continue its pressure on the bar tending to maintain said latch bar engagement, said cam means consisting of a roller eccentrically mounted on said shaft to extend substantially along its entire length, said roller being connected with said handle to be rocked therewith.

4. In a hand operated printing press having a type receiving bed plate and a pressure plate rockably attached by one end to the bed plate, a shaft transversely positioned across substantially centrally of and rockably mounted on said pressure plate, a pressure plate lifting handle carried by said shaft, cam means carried by the shaft, a latch bar carried at each end of and rockably about the axis of the shaft, a stop for each latch bar carried by the shaft at a radial distance from the shaft axis, a spring normally yieldingly urging said bar against said stop, and latch bar engaging means on said bed plate, said cam means being arranged to push the pressure plate toward the bed plate upon rocking of said handle from a position substantially normal to the pressure plate around toward the plate and said latch bar and its stop being located in reference to said cam to have the bar rocked with travel of the cam into engagement with its said engaging means, said stop being carried away from the bar upon further cam travel to have said spring continue its pressure on the bar tending to maintain said latch bar engagement, said cam means consisting of a roller eccentrically mounted on said shaft to extend substantially along its entire length, said latch bar stops being mounted on the outer ends of said roller.

JAMES FRANK BOYER.