

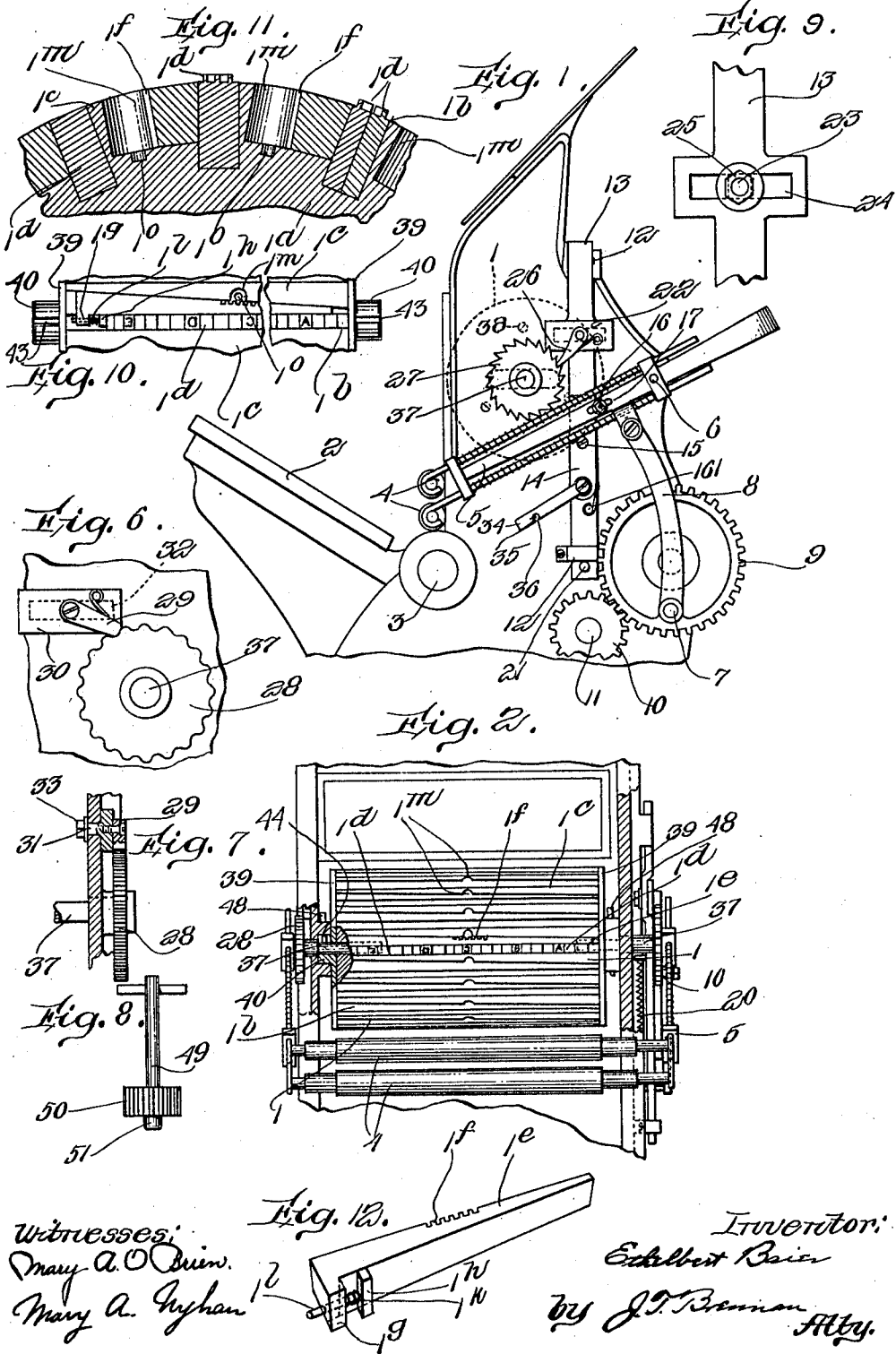
E. BAIER.
PRINTING PRESS.

APPLICATION FILED NOV. 14, 1910.

Patented Sept. 26, 1911.

2 SHEETS—SHEET 1.

1,004,229.



Witnesses:
Mary A. Quinn.
Mary A. Pyham

Inventor:
Eduard Baier
by J. P. Brennan Atty.

APPLICATION FILED NOV. 14, 1910.

2 SHEETS—SHEET 2.

Fig. 17. 80 85 80 87 89 85 89 90

Fig. 13.

Fig. 18.

Fig. 3.

Fig. 14.

Witnesses:
Mary A. O'Brien.
Mary A. Kyhan

Inverdon!
 Ethelbert Baird
 by J. S. Brunner Atty.

UNITED STATES PATENT OFFICE.

ETHELBERT BAIER, OF BOSTON, MASSACHUSETTS.

PRINTING-PRESS.

1,004,229.

Specification of Letters Patent.

Patented Sept. 26, 1911.

Application filed November 14, 1910. Serial No. 592,161.

To all whom it may concern:

Be it known that I, ETHELBERT BAIER, of Boston, in the county of Suffolk and State of Massachusetts, a citizen of the United States, have invented certain new and useful Improvements in Printing-Presses, of which the following is a specification.

In printing sets of cards for card indices, files and the like, a multiplicity of forms holding the various characters that are to be printed thereon are necessary to make up a complete set, and it has heretofore been a matter of considerable inconvenience, labor and loss of time to remove each form from the printing press and substitute another.

The object of my invention is to provide a printing press for use in printing sets of cards or sheets for indices, files and the like which will obviate the objections above noted. Also to provide a printing press which will automatically and successively print from a plurality of forms.

To these ends my invention consists of a printing press embodying the novel and peculiar features of construction and combinations of parts hereinafter described.

In the accompanying drawings:—Figure 1 is a side elevation of the upper portion of a printing press embodying my invention; Fig. 2 is a front view, partly in section, of a portion of the press shown in Fig. 1; Fig. 3 is a view on an enlarged scale of part of the press shown in Fig. 1, but with parts thereof in different positions; Figs. 4 and 5 are views illustrating the manner in which the rotary form carrier is supported; Figs. 6 and 7 are details showing the means for holding the form carrier against displacement during its periods of rest; Fig. 8 is an elevation of the wrench used to operate the wedges of the forms hereinafter described; Fig. 9 is a detail hereinafter described; Figs. 10 and 11 are details illustrating the construction of the form carrier; Fig. 12 is a perspective view of one of the wedges; Fig. 13 is a view of a type follower, hereinafter described; Fig. 14 is a view of a grooved type; Figs. 15 to 17, inclusive, illustrate a modification of the form carrier; and Fig. 18 shows an index card which may be produced by my machine.

My improved printing press comprises a form 1 mounted upon the frame of the ma-

chine, a platen 2 pivotally supported at 3 and vibrated by the usual means (not shown), and inking rolls 4 mounted on a carrier 5 that is pivoted at 6 to the frame of the machine. The carrier 5 is vibrated by a crank pin 7 acting through a link 8, the pin 7 projecting from a gear 9 driven by pinion 10 fast to a driving shaft 11.

Mounted in ways 12 on the frame of the machine is a vertically movable pawl carrier 13 to which an abutment block 14 is pivoted at 15, a spring 161 on carrier 13 bearing against the lower end of abutment 14 so as to normally hold the upper end thereof yieldingly in position to cooperate with a stud 16 adjustably secured in a slot 17 in the roll carrier 5. A pin 18, Fig. 3, projects from the abutment 14 into a slot 19 formed in carrier 13 and by engagement with the inner end of said slot 19 serves to limit the movement of the upper end of the abutment 14 toward the right, Figs. 1 and 3. As the roll carrier 5 descends from its uppermost position, Fig. 3, the stud 16 strikes the upper end of abutment 14 and pushes said abutment, and carrier 13 with which it is connected, downward until the stud, in swinging around the pivot 6, slides off from the abutment whereupon a spring 20 lifts carrier 13 and the abutment back to their normal position again. The limit of the upward movement of carrier 13 is determined by a stop pin 21 on said carrier which engages with a part of the frame of the machine. Upon the carrier 13 is mounted a plate 22 from which a stud 23, Fig. 9, projects inwardly through a slot 24 formed in carrier 13, and the inner end of stud 23 is threaded to receive upon it a nut 25 by means of which the plate 22 is adjustably clamped to the slide 13. On its outer face the plate 22 carries a spring pressed pawl 26 which engages a ratchet wheel 27 and partially rotates the latter each time the carrier 13 is forced downwardly by stud 16 on the carrier 5. The ratchet wheel 27 is connected with the form carrier 1 and it will therefore be clear that each time the carrier 5 is swung downward the form carrier 1 is partially rotated. The form carrier 1 is provided with a plurality of forms and each step movement shifts one form away from printing position and another form into

printing position so that the forms on carrier 1 are successively brought into position to coöperate with platen 2. At its opposite end the form carrier 1 has a notched wheel 28 connected with it against which a spring pressed detent 29 bears, said detent engaging the notches of wheel 28 so as to hold form carrier 1 against displacement during its periods of rest, and being adapted to yield and permit movement of the form carrier 1 when pawl 26 rotates ratchet 27. The detent 29 is mounted upon a plate 30 from which a stud 31 projects through a slot 32 in the frame of the machine, the inner end of said stud being threaded to receive upon it a nut 33 by means of which the plate is secured in adjusted position.

In order to enable the operator to quickly and conveniently throw the step-by-step actuating means for the form carrier 1 into and out of action, the abutment 14 has a latch 34 pivoted to its lower end which is made with a notch 35, Fig. 3, adapted to be engaged with a stud 36 projecting from the frame of the machine. When so engaged the latch 34 holds the upper end of abutment 14 out of the path of stud 16, as shown in Fig. 1, so that the roll carrier 5 vibrates independently of carrier 13. When latch 34 is disengaged from stud 36, the spring pressed abutment 14 is immediately returned to its normal position and form carrier 1 is actuated step-by-step as described.

Ratchet 27 and wheel 28 are fast on separate spindles 37 and the form carrier 1 is made with a central bore of the same size as the spindles so that they fit snugly, but removably, into the ends of said bore.

The carrier 1 comprises a body 1^a to the ends of which are fastened by screws 38, two plates 39 formed with hollow trunnions 40 which are each supported by a pair of bearing blocks 41 and 42, Fig. 4, on the frame of the machine. Each trunnion 40 is made with a slot 43 to receive a pin 44 projecting from its respective spindle 37 so that the two spindles are keyed to the plates 39 of form carrier 1. The two blocks 41 and 42 of each pair are mounted in a horizontal slot or way 45 on the frame of the machine with the block 41 confined between its trunnion 40 and an abutment 46, while the block 42 is made with a series of sockets 47 to receive a pin 48 by means of which it is adjustably secured in place. The reason for constructing the bearings for the trunnions 40 as just described is so that when the carrier 1 is removed and another carrier of a different size substituted the new carrier may be fixed in proper position with relation to the printing plane by substituting another block 41 of the proper size and adjusting the block 42 accordingly. Carriers 1 of different sizes will hold different numbers of forms and

therefore each will require a different number of step movements to each revolution. Consequently, when a different carrier 1 is substituted, a ratchet 27 and wheel 28 appropriate to such a change of carrier will be substituted for the ratchet and wheel already in position. Since the ratchets 27 and wheels 28 of carriers 1 of different sizes also vary in size, being larger in diameter for the larger carriers and smaller in diameter for the smaller carriers, the pawl 26 is adjustably connected with carrier 13 and detent 29 is adjustably mounted on the frame of the machine, as above described, so that they may be properly positioned when these changes are made.

The body 1^a of the carrier 1, shown in Figs. 2, 10 and 11, is made with a plurality of longitudinal pockets 1^b, separated by longitudinal walls 1^c and within these pockets the type 1^d are set up and preferably clamped against the walls 1^c by wedges 1^e, Figs. 10, 11 and 12. Each wedge 1^e is made on its rear face and near its middle with a rack of teeth 1^f and on its front face near one end with a lug 1^g in which is slidably mounted a pin 1^h forming part of a clamping jaw 1^h, said pin supporting a spring 1^k located between jaw 1^h and lug 1^g. The wedges 1^e are operated by a wrench 49 comprising a pinion 50 adapted to be inserted in one of the sockets 1^m, provided in the walls 1^c, with its teeth in mesh with rack 1^f. As the wedge is set up by rotating the wrench 49 the spring pressed jaw 1^h first forces the row of type 1^d against one end of the pocket and thereafter the row is tightly and rigidly clamped between the wedge and the opposite wall 1^c. At the bottom of each socket 1^m there is a recess 1^o to receive a trunnion 51 that is provided at the lower end of wrench 49, and the engagement of said trunnion and recess holds the wrench in position while it is being rotated, thus causing the wedge to be moved endwise in one direction or the other.

In the form of carrier shown in Figs. 13 to 17, inclusive, I dispense with the wedges and employ key rods 80 to hold the type in the pockets 81 of the body of the form carrier. The pockets 81 of the form carrier are closed at their ends by trunnion plates 82 which are fastened to the ends of the carrier body 1^a by screws 83 which extend through slots 84 formed in the plates 82. The type 85 are made with grooves 86 which register with a groove 87 when the type are assembled in one of the pockets, and together with the groove 87 provide a space to receive the key rod 80 which is shoved into position from one end of the body 1^a. In order to provide for the insertion and removal of the key rods 80 the trunnion plates 82 are provided with openings or passages 88 and by loosening the screws 83 and partly rotating the

plates 82, the passages 88 may be brought opposite the ends of the grooves 87 and the rods 80 removed or inserted. Normally, however, the passages 88 do not register with the grooves 87 and the plates 82 lock the key rods 80 in place.

If desired, each pocket 81 may be provided with a second groove 89 in the wall of the pocket opposite the groove 87, to engage a follower 90, which may be inserted to fill the space when narrow slugs or type are used, as shown in Fig. 17, centre, said follower 90 being made with a tongue 91 adapted to fit into the groove 89 while the row of type 85 is held in place by the key rod 80.

The reason for having the stud 16 adjustably mounted on the carrier 5 is so that it may be positioned properly with relation to abutment 14, and also so that when another ratchet 27 is substituted the stud may be adjusted relatively to the abutment to regulate the movement of pawl carrier 13 as required by the ratchet wheel that is substituted.

The printing press above described is particularly adapted to print cards for card indices and the like and for any other work where a plurality of different forms are required.

In printing cards for indices such as is shown in Fig. 18, I find it more economical and convenient to set up several letters of the alphabet or other desired inscriptions in each pocket of the form carrier so that each card that is printed has several inscriptions 92 thereon. The reason for this is that the inscriptions on a card will often be printed differently and by printing several inscriptions, I may take any card and by cutting it as indicated by the dotted lines, remove the other parts leaving the card with a tab bearing the inscription desired for use.

What I claim is:—

1. In a printing press, the combination with the platen of a rotatable carrier for a plurality of forms; an actuator for said carrier operating in synchrony with the movements of the platen; a connection through which the actuator operates the carrier step-by-step comprising a member adapted to occupy an operative or inoperative position without removal from the machine and to be shifted from one position to the other at the will of the operator to stop the carrier or cause it to resume its movements, and a second movably supported member on which the first mentioned member is adjustably mounted.

2. In a printing press, in combination, a rotatable carrier for a plurality of forms; a ratchet connected with the form carrier; a pawl for operating the ratchet; a carrier on which the pawl is mounted; an abutment adjustably mounted on said pawl carrier;

means operating in synchrony with the movements of the platen and acting through said abutment to operate the pawl carrier, and means to fix the abutment in an inoperative position when it is desired to render the form carrier actuating means inoperative.

3. In a printing press, in combination, a rotatable carrier for a plurality of forms; inking mechanism; a ratchet connected with the form carrier; a pawl for operating the ratchet; a carrier on which the pawl is mounted; an abutment on said pawl carrier through which the inking mechanism operates the pawl carrier and means to fix the abutment in an inoperative position when it is desired to render the form carrier actuating means inoperative.

4. In a printing press, in combination, a removable rotatable carrier for a plurality of forms; inking mechanism; a removable ratchet connected with the form carrier; a pawl for operating the ratchet; a carrier on which the pawl is mounted with provision for adjustment thereon toward and from the ratchet; means for operating the inking mechanism and pawl carrier and a platen cooperating with the form carrier.

5. In a printing press, in combination, a removable rotatable carrier for a plurality of forms; inking mechanism; a removable ratchet connected with the form carrier; a pawl for operating the ratchet; a carrier on which the pawl is mounted with provision for adjustment thereon toward and from the ratchet; means for operating the inking mechanism and pawl carrier; a removable detent wheel connected with the form carrier; a detent engaging said wheel and supported with provision for adjustment toward and from said wheel, and a platen cooperating with the form carrier.

6. In a printing press, in combination, a removable rotatable carrier for a plurality of forms; means for supporting said carrier with provision for adjustment toward and from the platen according to the size of the carrier; inking mechanism; a removable ratchet connected with the form carrier; a pawl for operating the ratchet; means for operating the pawl with provision for regulating the stroke of the pawl; when a different form carrier and ratchet are substituted so as to adapt the movements of the pawl to the latter; and a platen cooperating with the form carrier.

7. In a printing press, in combination, a removable rotatable carrier for a plurality of forms; inking rolls; a carrier for the inking rolls; means for operating the carrier for the inking rolls; a removable ratchet connected with the form carrier; a pawl for operating the ratchet; a carrier on which the pawl is mounted; an abutment on the pawl

carrier; a stud on the roll carrier for engaging the abutment and actuating the pawl carrier, said stud being adjustably connected with the roll carrier to provide for regulating the movement of the pawl carrier, and a platen coöperating with the form carrier.

In testimony whereof I have hereunto subscribed my name this twenty-fifth day of March, 1910.

ETHELBERT BAIER.

Witnesses:

HAROLD S. LYON,
MARY A. O'BRIEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."