To all whom it may concern:

Be it known that I, Jackson Stivers, a citizen of the United States, and a resident of San Francisco, in the county of San Francisco and State of California, have invented a new and improved Gage for Printing-Presses, of which the following is a full, clear, and exact description.

Among the principal objects which the present invention has in view are: to facilitate increasing speed of operation of job-printing presses; to facilitate hand feeding incident to the employment of such presses; and to reduce the manual labor commonly incident to feeding a press of the character mentioned.

Description.—As indicated above, the invention is particularly adapted for installation on the type of printing machines known as "job-printing" machines, or those having a rocking or reciprocating platen to which is fed the article to be printed upon when the platen is in open position. At present, the platen is provided with a tympan 25. This is usually provided with gage pins, such as indicated in Figs. 1 and 2 of the drawings by the numeral 26. These pins are usually disposed coincident with the lower and left-hand register lines for the placement of the article to be printed upon. With a fast-moving press it is difficult to remove the article being printed, place a clean article and properly adjust the same to the gage pins, and particularly to the gage pins regulating the vertical margin of the article, in time with the movement of the press. This necessitates either that the speed of the press shall be reduced to permit the necessary time for feeding, or that the press be arrested with the platen open to allow for the manipulation stated.

When employing a gage constructed and arranged in accordance with the present disclosure, a reciprocating gage plate 27 is provided as a substitute for the gage pins above mentioned, which are usually located on the vertical register lines 28 with which the tympan 25 is furnished. The plate 27 is rigidly mounted on a rectangular, hollow frame 29, and is primarily set when mounting the gage upon the tympan to coincide with the line 28 when fully extended in the direction thereof. To reciprocate the frame 29 in the manner indicated, the upper wall of said frame has formed therein an oblique slot 30, wherein rests a raised, obliquely-disposed fin 31.

The frame 29 is operatively mounted upon a clip plate 32 and between the upturned sides 33 thereof. The clip plate 32 is provided on each edge with a series of indents for locating the frame 29 to the presser-foot retaining clip therefor; Fig. 15 is a detail view in perspective showing the hinge plate, thrust bar and guide plate for the actuating arm of the gage; Fig. 16 is a detail view in perspective showing said guide plate disassociated from the hinge plate and actuating arm; Fig. 17 is a detail view in perspective showing a modified form of the presser-foot; Fig. 18 is a detail view in perspective showing a modified form of the guide plate; Fig. 19 is a detail view in perspective of a modified form of the presser-foot with which the gage is provided.

Drawings.—Figure 1 is a perspective view showing portions of a printing press platen, gripper and gage constructed and arranged in accordance with the present invention; Fig. 2 is a face view of a portion of the platen, showing in conjunction therewith a fragment of a gripperinger and a gage constructed and arranged in accordance with the present invention, said gage being shown in its relaxed disposition; Fig. 3 is a section taken as on the line 3—3 in Fig. 2; Fig. 4 shows a fragment of a platen for printing presses, a gripper finger therefor, and a gage constructed and arranged in accordance with the present invention, the view showing the active disposition of said gripper finger and gage when actively disposed; Fig. 5 is a section on an enlarged scale taken as on the line 5—5 in Fig. 4; Fig. 6 is a section on the same scale, taken as on the line 6—6 in Fig. 4; Fig. 7 is a section on the same scale, taken as on the line 7—7 in Fig. 4; Fig. 8 is a cross section on the same scale, taken as on the line 8—8 in Fig. 1; Fig. 9 is a detail view in perspective, on an enlarged scale, showing a detail of the hinge plate with which the gage is provided; Fig. 10 is a detail view, showing in perspective an actuating arm for the gage mechanism; Fig. 11 is a detail view, on an enlarged scale, showing a section taken as on the line 11—11 in Fig. 10; Figs. 12, 13 and 14 are detail views in perspective of the adjustable leg, presser-foot and retaining clip therefor; Fig. 15 is a detail view in perspective showing the hinge plate, thrust bar and guide plate for the actuating arm of the gage; Fig. 16 is a detail view in perspective showing said guide plate disassociated from the hinge plate and actuating arm; Fig. 17 is a detail view in perspective showing a modified form of the presser-foot; Fig. 18 is a detail view in perspective showing a modified form of the guide plate; Fig. 19 is a detail view in perspective of a modified form of the presser-foot with which the gage is provided.


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where incisions 35, 36 and 37 are made in the tympan 25. These incisions being provided, the ends of the clip plate 32 and a spur 38 are extended therethrough and below the tympan 25. Said clip plate is removably mounted on a slide plate 39, to which it is rigidly clamped by manipulating screw nuts 40.

The clip plate 32 is provided with stud screws 41, which extend through the slide plate 39. When the nuts 40 are tightened, the tympan 25 is clamped rigidly between the clip plate 32 and the ends of the slide plate 39, where the screws 41 are located. Intermediate said screws, the plate 39 is disposed in spaced relation to the clip plate 32 to receive the under or inner wall of the frame 29, which slides therebetween. At the far end of the slide plate 39 is pivotally mounted a hinge plate 42. The hinge plate 42 is constructed to a desired width, and is pivotally connected to a thrust arm 43, on which arm and at the forward end thereof is the fin 31. As best shown in Fig. 3 of the drawings, the forward end of the arm 43 rests on the slide plate 39 and on the raised portion thereof which is encompassed by the frame 29. This end of the arm 43 is widened to form a palette-like structure, the edges whereof engage the sides 33 of the clip plate, to be guided thereby. As shown best in Fig. 2 of the drawings, the oblique position of the fin 31 causes said fin to operate within the slot 39 as a cam, moving the frame 29 in the direction shown by the arrows a in Figs. 1 and 4 of the drawings, when the arm 49 is moved in the direction indicated by the arrow b shown in Fig. 4 of the drawings. As above indicated, the extreme forward position of the arm 48 and fin 31 carried thereby advances the plate 27 to the register line 28 marked on the tympan 25. The normal position of the plate 42 is perpendicular to the slide plate 39, being held in this position by the arm 43 and fin 31 thereof, the withdrawal of which from the slot 30 is limited, as shown best in Fig. 2 of the drawings. The plate 42 is moved to the position described by a coil spring 45, one end whereof is anchored in a perforation 46 in the slide plate, while the other end similarly engages the face-plate 47, as best shown in Fig. 9 of the drawings. In this position the hinge plate 42 and face plate 47 serve to support the actuating arm 48 and leg 49, the former of which is provided to engage the gripper finger 50, and the latter of which rests upon the paper or material being printed upon.

The arm 48 has a perforation 51, through which the bent end of a spring latch 52 extends. The anchored end of the latch 52 is clamped by the overturned edge 53 of the arm 48, shown best in Fig. 11 of the drawings. The function of the latch 52 is to support the bracket plate 54 which is normally extended in the path of the gripper finger 50. The plate 54 has a plurality of perforations 55, whereby it may be held in different degrees of extension from the arm 48, to increase or diminish the operating leverage of the gage. The arm 48 is supported by a bracket 56, the end 57 of which extends between the sides of the plate 48 to form a runner for said bracket 56. The bracket 56 has a perforation 58, which is adapted to register with the end of the spring 45 where it passes through the face plate 47.

The face plate 47 is held pressed toward the hinge plate 42 by the spring 45. When the bracket 56 is forced between the face and hinge-plates, it is held firmly in position and prevented from rattling. The arm 48 and bracket-plate 54 are held yieldingly in operative position. As a result of this construction, if by any reason the fin 31 or the frame 29 becomes jammed or hesitates to move when the plate 54 is forced against the finger 50, the spring 45 yields, permitting the plate 47 to rock backward without injuring the plate 42 or parts connected therewith.

The leg 49 is provided to hold separable auxiliary grippers, such as 60, 61 and 62, the presser-foot device. In all the forms a bayonet slot 63 is furnished to fit over the supporting sections 64 with which the leg 49 is provided. The hooked extension of each of the grippers extends within the channel 65 formed in said leg, as seen best in Fig. 12 of the drawings. The hook-end plate 66 is used to reinforce the construction, and has a perforation 67 to receive the end of the spring 45 when extended through the plate 47, as seen best in Fig. 8 of the drawings.

Operation.—The operation of the gage is as follows:—After having been set on the tympan 25 in the manner above described, it will be found that when the plate is 110 opened, as shown in Fig. 1 of the drawings, the spring 45 lifts the plate 42 and arm 48 and the leg 49 to a position perpendicular to the platen, tympan and slide plate 39.

The plate 54, as shown, is in the path of the 115 gripper finger 50. In this position, the gage plate 27 is retracted from the register line 28. The pins 26, however, are permanently in register with the lower register line provided on the tympan 25. It is obvious from 120 the foregoing that the operator, in feeding the paper or article to be imprinted, is not required to exercise any care or accuracy. The paper or article is delivered quickly to the press, the single requirement on the part of the operator being that the paper shall be delivered to the tympan preferably at the outer side of the register line 28. To insure this, the operator, as a rule, moves the paper or article toward the plate 27 and prefers...
ably against said plate. When now, the platen closes to the type-bed, the finger 50 moves to meet the platen and, pressing upon the plate 54, moves the arm 48 to overlie said tympan, the spring 45 yielding to permit the plate 42 to swing on its pivotal connection with the slide plate 39. The leg 49 is correspondingly moved so that when said arm 48 and the finger 50 engage the tympan 25, the gripper 60 rests upon, to steady the paper or article being printed. As in the ordinary action of the gripper fingers, the engagement of the same with the tympan is completed prior to the imprint being made on the article being printed. Also, the gripper finger engages the tympan at the moment when the platen is parted from the type-bed, thereby insuring the proper stripping of the paper or article being printed.

In the present case, the gripper 60 or the modified forms thereof indicated by the numerals 61 and 62, perform this office, being held in engagement with the article by the gripper fingers.

It will be noted that as the hinge plate 49 swings on its pivot, the thrust arm 43 and pin 31 carried thereby are moved forward, the latter acting as a cam to move the same in the direction indicated by the arrow a in Figs. 1 and 4 of the drawings, to move the plate 27 to the register line 28. The paper or article to be imprinted is engaged by said plate 27 and thereby moved to perfect register prior to the engagement thereof by the gripper 60.

It is obvious that with a gage constructed and arranged as above described and as shown in the accompanying drawings, an automatic register is thus effected, facilitating a more rapid hand feed than is possible in presses as at present constructed.

To facilitate the adjustment of the gage to the work to be performed, the brackets 56 are sometimes elongated, as shown in Fig. 18 of the drawings. With such brackets in service, it is evident that the arm 48 may be proportionately removed from the plate 42 and the body of the gage. It is also desirable at times to vary the form of the grippers as illustrated in the forms thereof shown in Figs. 17 and 19 of the drawings. It will be understood that a variety of such forms may be employed. The set pins 68 and 69 shown in the drawings are employed in the present invention to prevent the work from toppling or falling from the face of the tympan after the gripper 60 has been lifted therefrom.

Claims:

1. A gage as characterized, comprising a laterally-movable thrust plate having an inclined slot therein; a longitudinally-movable thrust arm having a member constantly engaging said slot for shifting said thrust plate; an auxiliary gripper for resting upon the material being printed to hold the same on the tympan of a press; a leg pivotally mounted and operatively connected with said arm; and means disposed in the path of a gripper finger of the press on which the gage is installed for operating said arm and auxiliary gripper.

2. A gage as characterized, comprising a laterally-movable, hollow frame having a slot formed obliquely therein; a thrust-plate mounted on said frame; guides for said frame embodying a clip plate and a slide plate; and clamping means operatively connecting said clip plate and slide plate.

3. A gage as characterized, comprising a slide plate; a clip plate, the ends of said clip plate being adapted for extension below the tympan of a printing press; means for clamping said slide plate and clip plate upon said tympan; a hinge plate pivotally mounted on said slide plate; an auxiliary gripper mounted on said hinge plate and adapted to rest upon said tympan or member resting thereon to be imprinted; an actuating arm mounted on said hinge plate; and a spring operatively connecting said hinge plate and arm and said slide plate.

4. A gage as characterized, comprising a slide plate; a clip plate, the ends of said clip plate being adapted for extension below the tympan of a printing press; means for clamping said slide plate and clip plate upon said tympan; a hinge plate pivotally mounted on said slide plate; an auxiliary gripper mounted on said hinge plate and adapted to rest upon said tympan or member resting thereon to be imprinted; an actuating arm mounted on said hinge plate; and a spring operatively connecting said hinge plate and arm and said slide plate.

5. A gage as characterized, comprising a slide plate; a clip plate, the ends of said clip plate being adapted for extension below the tympan of a printing press; means for clamping said slide plate and clip plate upon said tympan; a hinge plate pivotally mounted on said slide plate; an auxiliary gripper mounted on said hinge plate and adapted to rest upon said tympan or member resting thereon to be imprinted; an actuating arm mounted on said hinge plate; means for yieldingly connecting said arm and hinge plate; and a bracket plate mounted on said arm to laterally extend therefrom in the path of a gripper finger of the press on which said gage is installed.

6. A gage as characterized, comprising a plate for mounting upon the tympan of a printing press; an auxiliary gripper leg pivotally connected with said plate; means operatively connected with said auxiliary leg, extensible into the path of the gripper.
finger of said press; a removable gripper member mounted on said leg to press upon the tympan of said press; and means for adjustably mounting said gripper member on said leg, said means embodying a plurality of supporting sections formed on said leg, and a bayonet slot formed in the connecting end of said gripper member.

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

JACKSON STIVERS.

Witnesses:  
F. L. Woodburn,  
S. Nelson.

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