

T. R. G. PARKER.
SIDE LAY APPARATUS FOR PRINTING MACHINES.
APPLICATION FILED JULY 22, 1907.

936,027.

Patented Oct. 5, 1909.
2 SHEETS—SHEET 1.

Fig. 1.

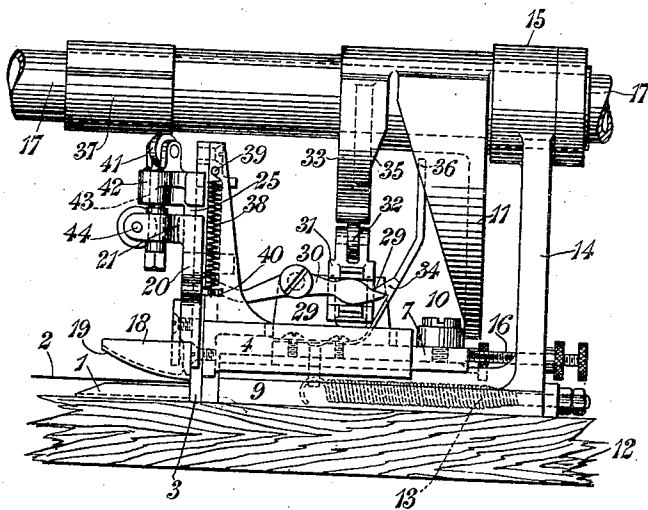
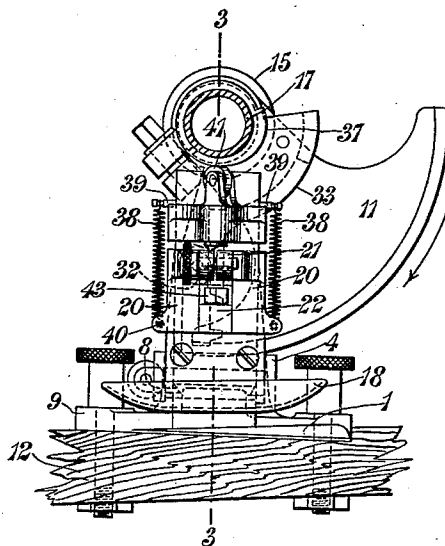


Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 3.

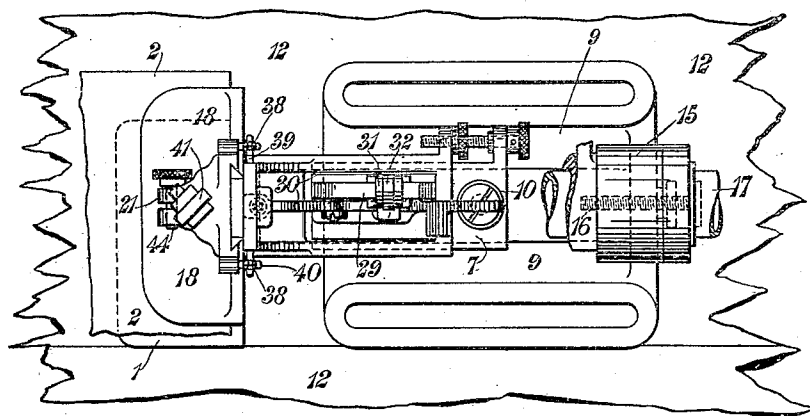
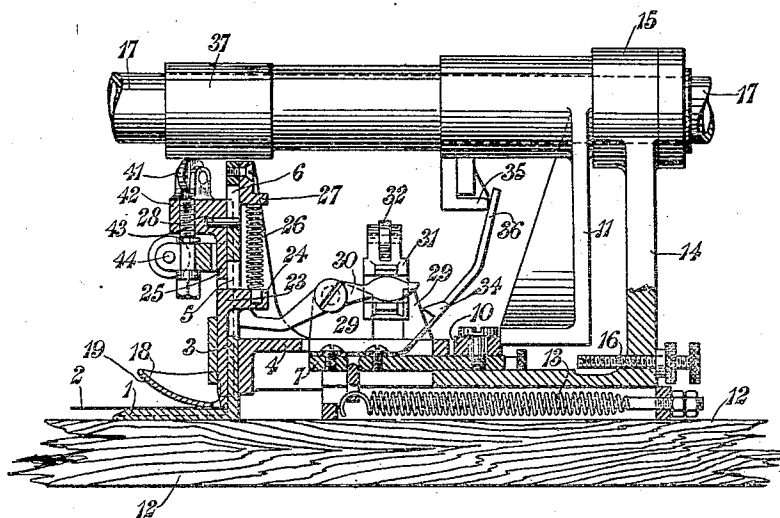


Fig. 4.

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UNITED STATES PATENT OFFICE.

THOMAS ROBERT GILLETT PARKER, OF BROADHEATH, ENGLAND, ASSIGNOR TO LINO-TYPE AND MACHINERY LIMITED, OF LONDON, ENGLAND.

SIDE-LAY APPARATUS FOR PRINTING-MACHINES.

936,027.

Specification of Letters Patent.

Patented Oct. 5, 1909.

Application filed July 22, 1907. Serial No. 384,959.

To all whom it may concern:

Be it known that I, THOMAS ROBERT GILLETT PARKER, a subject of the King of the United Kingdom of Great Britain and Ireland, residing at the Linotype Works, Broadheath, in the county of Chester, England, have invented new and useful Improvements in Side-Lay Apparatus for Printing-Machines, of which the following is a specification.

This invention relates to improvements in side lay apparatus of the type which effects lateral registration of the sheet by first pushing the side edges of it across the feed board up to a certain line, and then seizing the sheet and retracting it to another certain line, and it relates more particularly to the construction of side lay apparatus described in the specification of Letters Patent No. 789870.

In the accompanying drawings which are to be taken as part of this specification and read therewith:—Figure 1 is a side elevation, and Fig. 2 a front elevation showing the present improvements applied to a side lay apparatus of the construction set forth in the above-named specification; Fig. 3 is a view partly in front elevation and partly in vertical section on the line 3—3 of Fig. 1, showing the apparatus in a position differing from that in which it is represented in Figs. 1 and 2, and Fig. 4 is a plan of the apparatus partly broken away.

In the arrangement illustrated there is provided the usual foot 1 to pass under and push the sheet 2, as shown in Figs. 2, 3 and 4. The foot 1 is formed integral with a vertical member 3 by which it is secured to a bracket 4, and is provided with two apertures 5, 6, Fig. 3, hereinafter more particularly referred to. The bracket 4 is adjustable in a horizontal direction transverse to the machine, on a plate 7, which is slidable on a dovetail guide 8 (shown in dotted lines in Fig. 1) formed in part with the base 9 of the side lay. The plate 7 is provided with an anti-friction roller 10 with which a segmental edge cam 11 coöperates to move the said plate 7 and its attachments inward toward the center of the feed board 12, the re-

turn or outward movement of the plate 7 being effected by a coiled spring 13.

The base 9 is integral with a standard 14 having at its upper end a bearing 15 in which the hollow boss of the above-named segmental cam 11 is capable of receiving only an oscillating motion. At the lower part of the standard 14 is provided an adjustable set screw 16 having a lock nut on it, and situated in the outward path of the plate 7, for limiting its outward movement to any desired extent. The base 9 is secured to the feed board 12 in such a manner as to allow the complete side lay device to be adjusted laterally of the feed board to suit varying widths or positions of the sheets fed into the machine, the cam 11 being feathered to its operating shaft 17 so as to admit of this lateral adjustment being effected without disturbing the operative connection between the said cam and shaft.

On the before-described vertical member 3 a sheet guide or guard 18 is vertically slidable. The sheet guard comprises a foot, which itself is designated by the number 18, and which has a convex sole 19, and is inclined in the same direction as the upper surface of the foot 1, this upper surface and the central portion of the under surface of the guard 18 preferably being parallel practically so as shown in Fig. 1. The sheet guide also comprises two parallel vertical members 20, Fig. 1, integral with the guard 18 and whose upper ends are united through a forwardly-projecting bridge piece or lug 21. The space 22 between the two members 20 constitutes a vertical guide for a plunger 23 provided with a rearwardly-projecting lug 24, it also serving to accommodate the lower part of a vertically movable slide forming virtually an adjustable part of the sheet guide 18.

The rearwardly-projecting lug 24 passes through the before-mentioned aperture 5 in the member 3 and it is capable of moving freely in a vertical direction in such aperture. The lug 24 is acted upon by a spring 26 whose upper end bears against a lug 27 formed upon the before-described bracket 4. The slide 25 is provided with a stop pin 28

free to move up and down in the before-described aperture 6, said stop pin, by abutting against the lower end of the aperture as indicated in Fig. 3, serving to limit the downward movement of the slide 25 and sheet guide 18.

On the plate 7 are provided two vertical guides 29 to one of which is pivoted a lever 30 and between which is vertically movable a slide 31 in constant working engagement with one end of the said lever, the opposite end of this lever being in constant working engagement with the under side of the lug 24. At its upper end the slide 31 is provided with an anti-friction roller 32 adapted to be operated upon by, and moved into and out of the operative path of, a cam 33 mounted upon the boss of the cam 11. The cam 33 has two portions having different lengths of radius and when the portion having the longer radius acts on the roller 32 as shown in Figs. 1 and 2, the lever 30 is operated so as to raise the plunger 23. When the parts are in their last-named respective positions, a spring detent 34 engages with the lever 30 so as to retain it, and the devices in operative connection therewith, in the said positions, the release from these positions being effected by an edge cam 35 acting on a tail 36 of the detent 34 to disengage the latter from the lever 30.

So far as it has been hereinbefore described the apparatus shown in the accompanying drawings, both as regards its construction and operation, is identical with that described in the before-mentioned specification, and no claim is herein made to such apparatus apart from the improvements hereinafter particularized. In the said earlier construction of the apparatus the sheet guide 18 by its rapid descent, under the influence of its spring and consequent upon the release of the detent 34, was caused to reach the sheet 2 somewhat in advance of the plunger 23, with the object of depressing any upturned part, crease or bulge preparatory to the plunger engaging it. It has however been found that with certain papers, for example, those coated only on one side, the rapid descent of the sheet guide on to an up-turned edge has been causative of the sheet being moved in a direction transverse to its forward travel through the machine, and thereby causative of non-registration of successive impressions.

The object of the present invention is to overcome the above mentioned difficulty and to that end it consists in means for causing the sheet guide to descend slowly and thereby to gradually depress any up-turned or otherwise similarly deflected edge brought beneath it. For this purpose the sheet guide 18, instead of being depressed by a spring as heretofore, is, as shown in Figs. 1, 2 and 3, depressed by a cam 37 on the oscillating

shaft 17 the upward movement of the sheet guide being effected by one or more springs 38 which hold the said sheet guide in constant operative connection with the cam 37; in Figs. 1, 2 and 4 there are shown two tension springs 38 for effecting this raising of the sheet guide 18, these springs being attached at their upper ends to two pins 39 projecting from the bracket 4 and at their lower ends to two pins 40 projecting rearwardly from the before-mentioned vertical members 20. The cam 37 acts on the sheet guide preferably through an anti-friction roller 41 rotatable in the slide 25. The slide 25 is provided with a forwardly-projecting lug 42 in which is threaded the upper end of a screw 43 which is journaled in a split bearing formed in the before-mentioned bridge piece 21. By turning the screw 43 the distance between the roller 41 and the sheet guide 18 may be increased and decreased according to the thickness of the sheets to be passed beneath the said guide. After such an adjustment has been made the parts 20 and 25 may be secured in their respective adjusted positions by tightening a clamping screw 44.

The vertical members 20 of the sheet guide 18, and the slide 25 are, by the cam 37 and springs 38, reciprocated as one piece upon the vertical member of the horizontally reciprocating bracket 4. The cam 37 may be formed integral, or be otherwise in rigid operative connection with the before described cams 11 and 33 so that when the side lay apparatus is adjusted laterally of the feed board, all the cams will be adjusted simultaneously; or the cam 37 may be adjustable independently of the other ones. The cam 37 is of sufficient width to enable the roller 41 to remain in contact therewith throughout the horizontal forward and backward motions of the sheet guide 18.

I claim:—

1. A side lay apparatus comprising in combination, a horizontally reciprocating foot adapted to underlie a sheet on the feed board, a vertically reciprocating plunger adapted to grip the sheet between itself and the foot, a spring continuously operative to lower said plunger, a cam adapted to raise said plunger, a vertically reciprocating guard adapted to bear upon the sheet, means constantly operative upon said guard to raise it, and a second cam having circular movement simultaneously with the firstly named cam and timed with regard thereto, operative upon said guard to depress it against the action of said means.

2. A side lay apparatus comprising in combination a horizontally reciprocating foot adapted to underlie a sheet on the feed board, a vertically reciprocating plunger adapted to grip the sheet between itself and the foot, a spring continuously operative to

lower said plunger, a cam adapted to raise
said plunger, a vertically reciprocating
guard adapted to bear upon the sheet, means
constantly operative upon said guard to
5 raise it, an antifrictional abutment on said
guard, a second cam operative upon said
abutment and movable with the first named
cam in timed relation thereto, and an ad-

justment between said guard and said abut-
ment.

In witness whereof I have hereunto set 10
my hand in the presence of two witnesses.

THOMAS ROBERT GILLET PARKER.

Witnesses:

WARWICK HY. WILLIAMS,
F. A. CLEMO.