No. 823,849. PATENTED JUNE 19, 1906.

F. B. DAVIDSON.

PAPER GUIDE FOR PRESSES.

APPLICATION FILED JULY 20, 1905.

2 SHEETS—SHEET 1.

Fig. 1

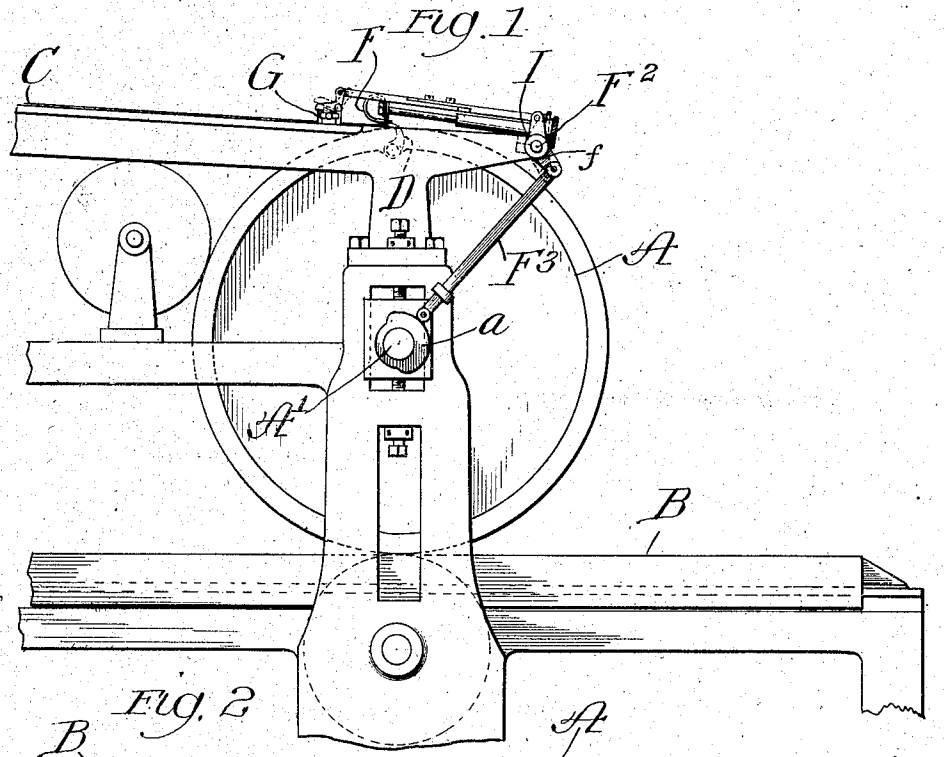
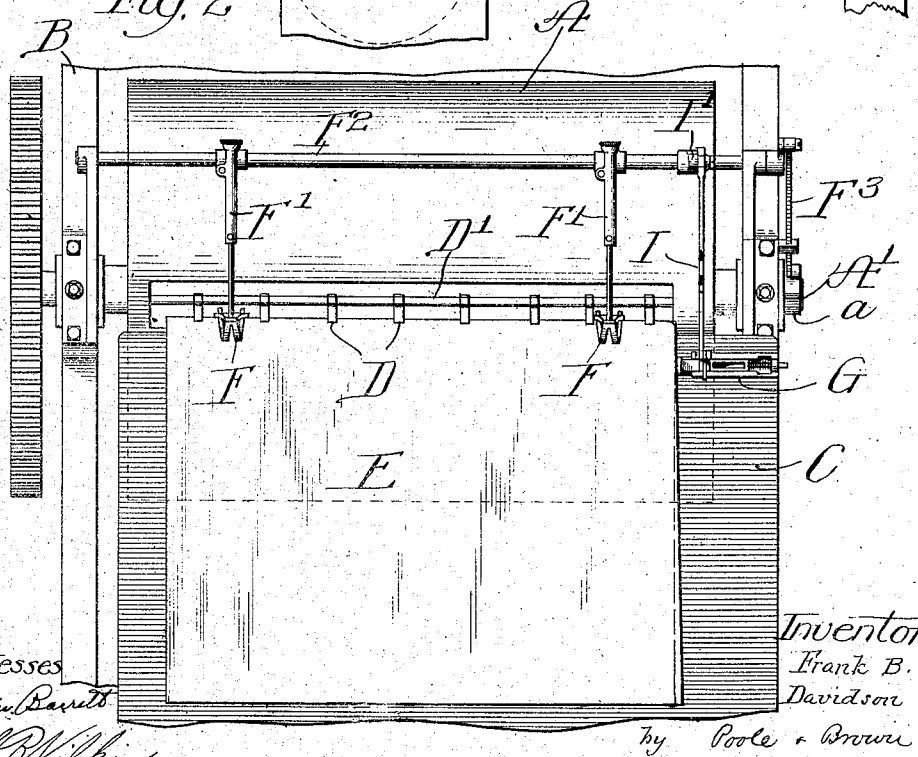


Fig. 2



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Fig. 3

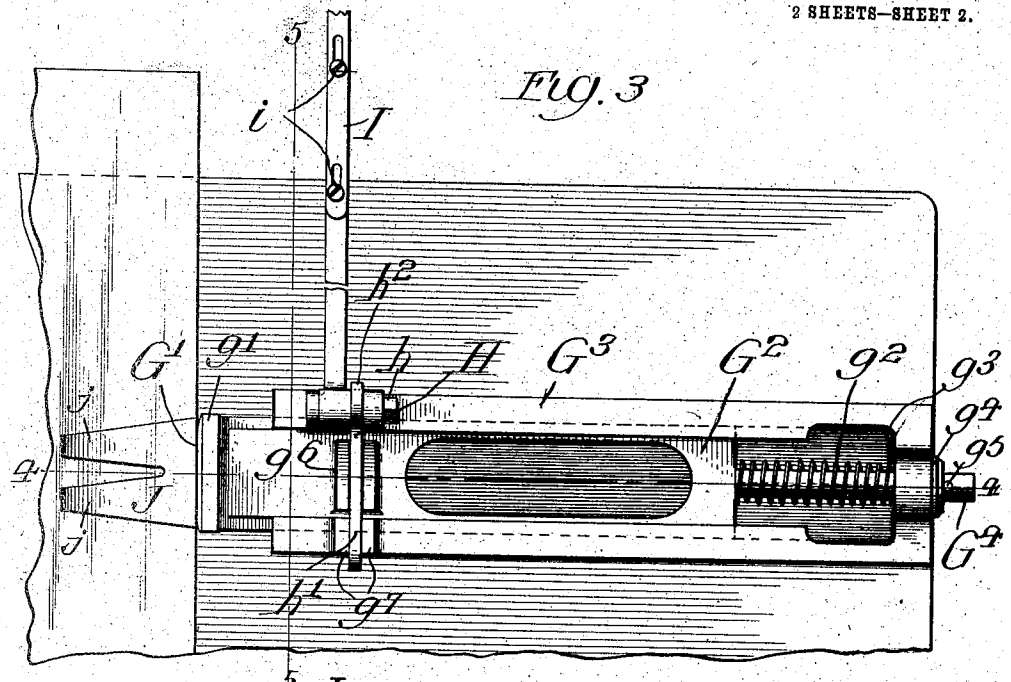


Fig. 4

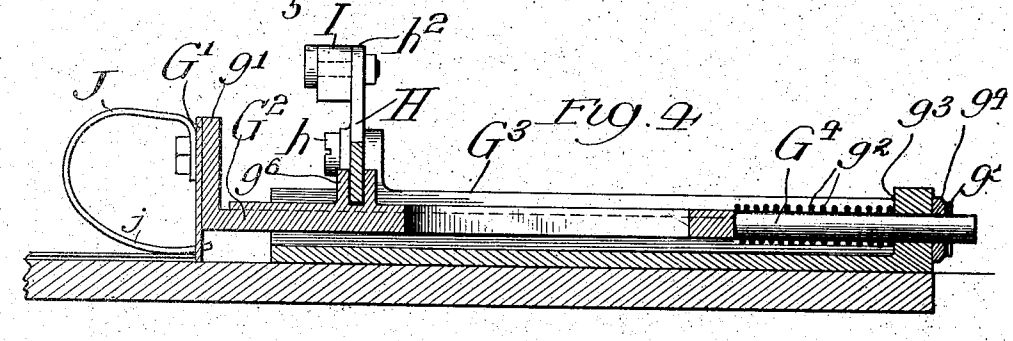
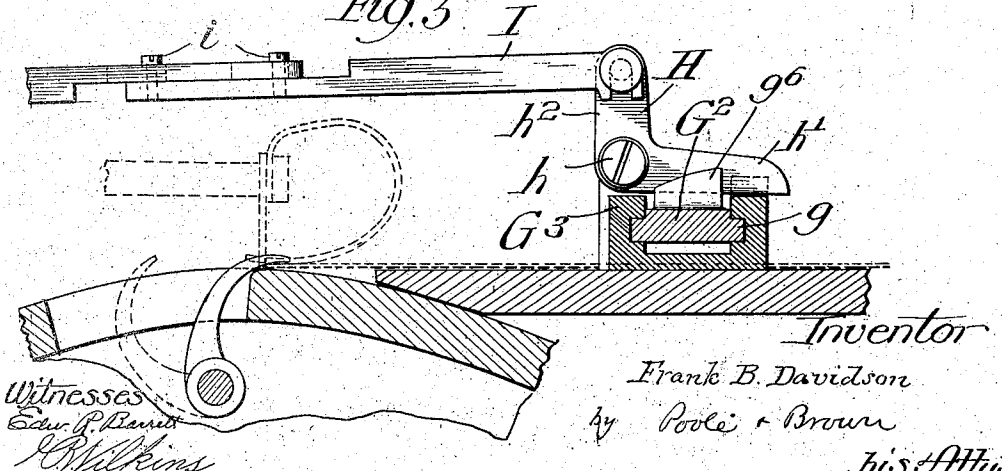


Fig. 5



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UNITED STATES PATENT OFFICE.

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PAPER-GUIDE FOR PRESSES.

No. 823,849. Specification of Letters Patent. Patented June 19, 1906.

Application filed July 20, 1905. Serial No. 270,569.

To all whom it may concern:

Be it known that I, FRANK B. DAVIDSON, a citizen of the United States, residing at Marseilles, in the county of Lasalle and State of Illinois, have invented certain new and useful Improvements in Paper-Guides for Presses; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in side-register guides or gages for use in connection with the sheet-feeding devices of printing-presses, perforating-machines, ruling-machines, and the like.

The invention refers more specifically to such a gage adapted to be located over one side of the feed-board of the feeding device in position to engage the side margin of the sheet at the time the front margin thereof is brought into position for engagement therewith of the devices by which the sheets are advanced, the same usually consisting of sheet-stops which are removed from the path of the sheets to permit the advance movement of the same after they have been properly located on the feed-board.

The side gage herein shown comprises in general terms a gage-plate adapted for contact with the side margin of the sheets at the time the front margins of the sheets are brought into contact with the sheet-stops, said gage being so constructed as to be moved out of its operative position before the sheet is drawn over the feed-board. In this manner is avoided the objectionable dragging of the side margin of an irregularly-cut sheet against the register-gage, which when the gage is stationary acts to distort or pull the sheet out of its registering position.

The gage is held by a light spring or yielding pressure in its operative position (against the gaging margin of the sheet) as the sheet is drawn over the feed-board in its advance movement, whereby the gage moves freely inwardly and outwardly when in contact with the irregular gaging margin of a sheet, thereby avoiding any restraint to the advance of the sheet. In this manner the sheet is left free to be advanced freely by the feeding mechanism and without liability of being laterally shifted as it moves past the gage. The side gage is adapted to be positively locked in its operative position at the time the gaging operation takes place, and thereafter the locking means is released to permit the gage to freely follow the gage-margin of the sheet during subsequent movement of the sheet over and from the feed-board substantially without frictional restaint of its side margin against the gage.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a fragmentary side view of a cylinder-press, showing the cylinder, its reciprocating type-bed, and feed-table and illustrating my improvements applied thereto. Fig. 2 is a top plan view of the parts shown in Fig. 1. Fig. 3 is an enlarged plan view of the side-gage mechanism. Fig. 4 is a longitudinal section taken on line 4 4 of Fig. 3. Fig. 5 is a transverse section taken on line 5 5 of Fig. 3.

As shown in the drawings, A designates the rotary impression-cylinder, and B the reciprocating type-bed of a cylinder printing-press.

C designates the usual feed board or table located partially over the cylinder over which the sheets are directed to the cylinder.

D D designate a plurality of gripper-fingers located in a suitable groove in the cylinder and affixed to a rock-shaft D′, by which the front margin of the sheet E is grasped to wrap the sheet about the cylinder during rotation of the latter.

F F designate sheet-stops against which the front margin of the sheet is brought in position to be engaged by the gripper-fingers. The stops are mounted on the free ends of arms F′ F′, that are affixed to a rock-shaft F^2, whereby when said shaft is rocked said arms are swung vertically and the stops moved into and out of the path of the sheet. Said rock-shaft F^2 is rocked through the medium of a cam *a*, Fig. 1, affixed to the main shaft A′ of the cylinder outside of the cylinder-supporting frame, and a cam-bar F^3, engaging at one end said cam and attached at its other end to an arm *f*, affixed to the end of said rock-shaft F^2.

The parts of the press referred to are common and constitute in themselves no part of my invention. My improved side-register

gage G, Figs. 1 and 2, is located over and supported on one side of the feed-board. The construction of said gage is shown more clearly in Figs. 3 and 5, inclusive. The gage embraces a vertical plate G′, which is affixed in any suitable manner to a slide-bar G^2 and has endwise-sliding engagement with a guide and supporting-frame G^3, which latter is mounted on the feed-board. As shown in Fig. 5, the slide-bar G^2 is provided at its side margins with longitudinal ribs g, which engage complemental grooves in the guide-frame, whereby the slide is held fixedly in vertical position, while permitted to move freely endwise in the frame. The plate G′ is shown as affixed to a vertical flange g' at the inner end of the slide, and said plate extends at its lower margin close to the upper face of the feed-board. The gage slide-bar is projected normally toward the margin of the sheet by means of a light spiral expansively-acting spring g^2, interposed between the outer end of said slide-bar and a flange or shoulder g^3, constituting the outer end wall of the guide-frame. Said spring surrounds a guide-rod G^4, which is formed on or affixed to the outer end of the slide-bar and extends through and has sliding engagement with a guide-opening in the flange or shoulder g^3. A stop is provided for limiting the inward throw of the slide-bar or its movement approaching its operative position under the action of said spring g^2, comprising in this instance a washer g^4, surrounding the guide-stem outside of the wall or shoulder g^3, and a cotter-pin g^5, extending transversely through the stem and holding the washer in place.

Means are provided for positively locking the gage-bar in place during the gaging operation and constructed to be thereafter released, so as to permit the gage to freely follow the irregularities of the gaging margin of the sheet as the latter is fed upon the cylinder, thereby relieving the sheet of a restraining side pressure. The means herein shown for locking the gage-bar in place consists of an L-shaped latch H, hinged at its angle by means of a pin h to one side of the supporting-frame G^3. One arm h' of said latch is adapted to extend transversely across the guide-frame in position to engage the rear face of a locking-lug g^6, rising from the gage-bar G^2, and thereby positively hold the bar in its operative position during the gaging operation. Preferably the outer end of said latch engages a groove or notch formed between two lugs g^7 g^7 on the margin of the guide-frame remote from the hinge of the latch. When said latch is swung downwardly, therefore, into the position shown in Fig. 5, the gage is locked in its innermost or operative position, it being held from endwise movement between the latch and the stop-washer g^4. When the latch is released or thrown upwardly, as indicated in dotted lines in Fig. 1, the gage-bar is not retracted, but is held with a light pressure against the side margin of the sheet, the spring permitting the sheet to be drawn along and in contact with said gage without restraint notwithstanding irregularities in said side margin. As herein shown, said locking-latch is released by means operated from the rock-shaft F^2, that actuate the sheet-stops F. The operative connections between the rock-shaft and latches are made as follows: The vertical arm h^2 of said locking-latch is connected, by means of a bar or rod I, with a lug on a sleeve I′, fixed rigidly to the rock-shaft. Backward rocking movement of the shaft, therefore, which throws upwardly the sheet-stops, has the effect to move the connecting-rod I rearwardly, and thereby swing the latch upwardly into its unlocking position. Said rod I is made longitudinally extensible to adjust the same to different presses. Such adjustment is effected by means of set-screws i, extending through registering slots in overlapping parts of the members of the bars.

A spring-guard J is attached to the gage-plate to hold the gage margin of a sheet in contact with the feed-board, and thereby insure accurate registration of the sheet. Said guard is attached at one end to the upper end of the gage-plate and curves inwardly and downwardly and is formed at its other end to constitute two arms j, which are turned toward the gage-plate at a level above the feed-board. Preferably the gage-plate is provided in its lower margin with two downwardly-opening notches which receive said arms j and permit said arms, which tend to spring downwardly, to be forced upwardly, and thereby provide for sheets of varying thicknesses.

In the operation of the device the sheet to be printed is brought with its advance margin into contact with the sheet-stops when in their lowermost or operative positions and with the side margin of the sheet in engagement with the gage G. When the press is started, the gripper-fingers are first brought down upon said advance margin of the sheet to properly grip and hold the same, and thereafter the stops F are raised out of the path of the sheet, and the locking-latch of the gage-bar is swung out of its locking position to permit the gage to move freely outwardly against the action of its spring g^2, and thereby afford no frictional restraint to the advance movement of the sheet.

I claim as my invention—

1. In a sheet-feeding device, a laterally-shifting side-register gage, means for locking said gage in its operative position, and means for moving said gage into its operative position when shifted outwardly therefrom.

2. In a sheet-feeding device, a laterally-shifting side-register gage, means for locking said gage in its operative position, means for

automatically actuating the locking means to release the gage and means for moving said gage into its operative position when shifted outwardly therefrom.

3. In a sheet-feeding device, a yielding side-register gage which is movable laterally toward and from its operative position and means for locking said gage in its operative position.

4. In a sheet-feeding device, a yielding side-register gage movable laterally into and out of its operative position, means for locking the gage in its operative position, and means for automatically actuating the locking means for releasing the locking mechanism to permit the gage to be moved laterally from its operative position.

5. In a sheet-feeding device, a laterally-movable side-register gage, a spring acting to normally maintain the gage in its operative position, means for locking said gage in the latter position, and means for releasing said locking means, whereby the gage is movable out of its operative position against the action of said spring.

6. In a sheet-feeding device, a side-register gage movable laterally toward and from its operative position, a spring acting to hold said gage in its operative position, a stop for limiting the movement of the gage toward its operative position, means for locking the gage in its operative position, and means for releasing said locking means to permit the retraction of said gage against the action of said spring.

7. In a sheet-feeding device, the combination with sheet-stops movable into and out of the path of the sheet, of a side-register gage movable laterally into and out of its operative position, means for locking the register-gage in the latter position, and means operated by the sheet-stop-actuating device for actuating said gage-locking means to release the gage.

8. A side-register gage for sheet-feeding devices, comprising an endwise-movable slide-bar provided at one end with a gage-plate adapted for engagement with the side margin of a sheet, a stop for limiting the movement of the gage-plate toward the sheet, a spring acting to normally hold said gage-plate in its operative position, means for locking said slide-bar from retraction, and means for releasing said locking means.

9. A side-register gage for sheet-feeding devices, comprising an endwise-movable slide-bar provided at one end with a gage-plate adapted for engagement with the side margin of the sheet, a stop for limiting the movement of the gage-plate toward the sheet, a spring acting to normally hold said gage-plate in its operative position, means for locking said slide-bar from retraction, comprising a swinging locking-latch, a lug on the slide into the path of which the latch is swung, and means for swinging said latch out of the path of said lug.

10. A side-register gage for sheet-feeding devices, comprising an endwise-movable slide-bar, a gage-plate carried by the bar, a guide for said slide-bar, a spring interposed between said slide-bar and a shoulder in the guide for holding the gage in its operative position, means for locking said slide-bar to hold the gage in its operative position, and means for releasing said guide-bar and gage to permit the latter to be retired laterally from its operative position.

11. In a sheet-feeding device, the combination with a feed-board, sheet-stops movable into and out of the path of the sheets, and a rock-shaft operating to actuate said stops, of a side-register gage comprising a slide-bar supported on the feed-board and movable laterally toward and from the margin of a sheet on said board and provided at its inner end with a gage-plate, a spring acting on said slide-bar for normally holding the gage in its operative position, means for locking the gage in operative position, and means operated from said rock-shaft for actuating said gage-locking means to release the gage.

In testimony that I claim the foregoing as my invention I affix my signature, in presence of two witnesses, this 15th day of July, A. D. 1905.

FRANK B. DAVIDSON.

Witnesses:
C. CLARENCE POOLE,
G. B. WILKINS.