

(No Model.)

2 Sheets—Sheet 1.

J. T. HAWKINS.
FEED GUIDE FOR PRINTING PRESSES.

No. 343,454.

Patented June 8, 1886.

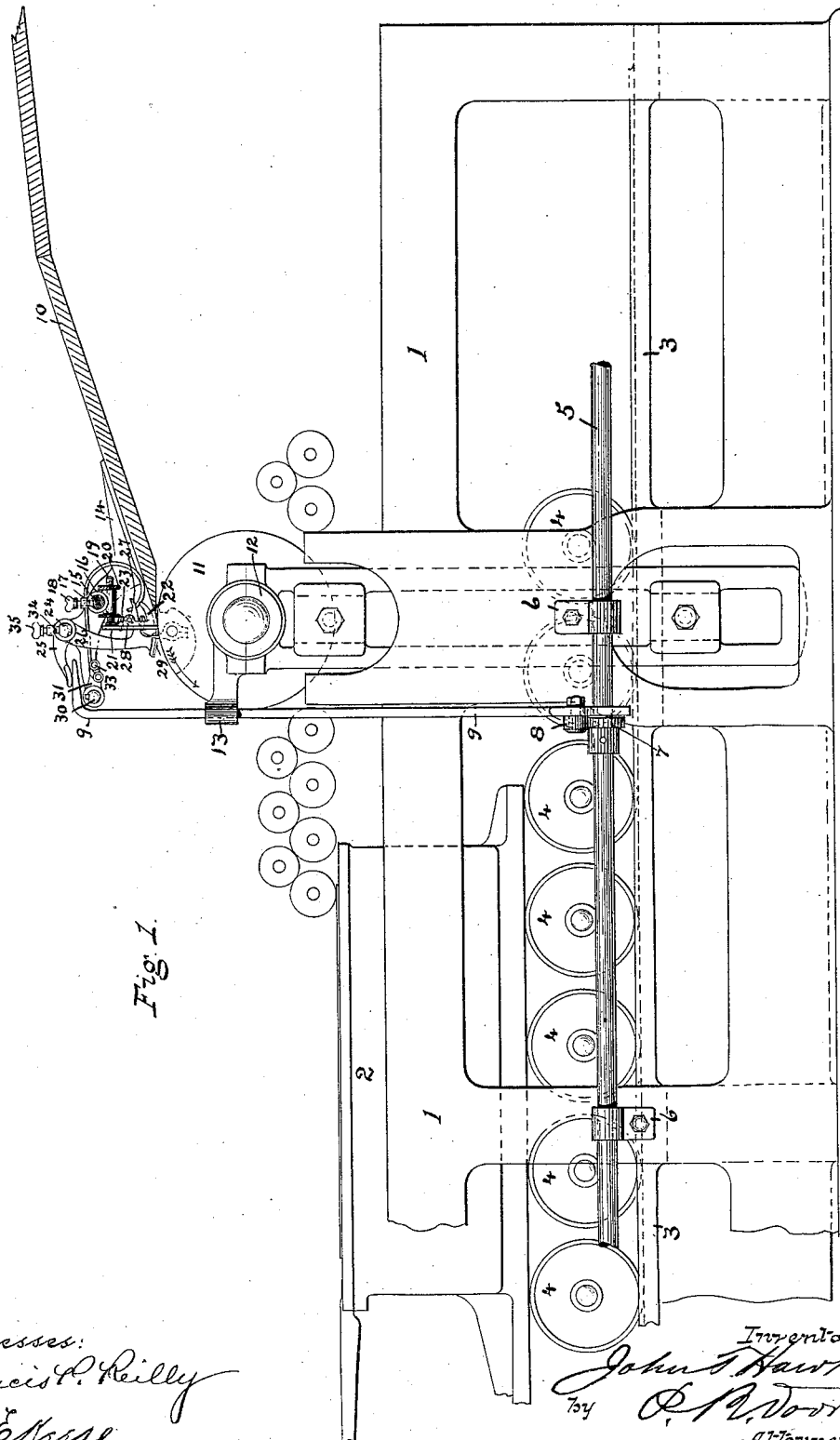


Fig. 1.

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(No Model.)

2 Sheets—Sheet 2

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FEED GUIDE FOR PRINTING PRESSES.

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Fig. 2.

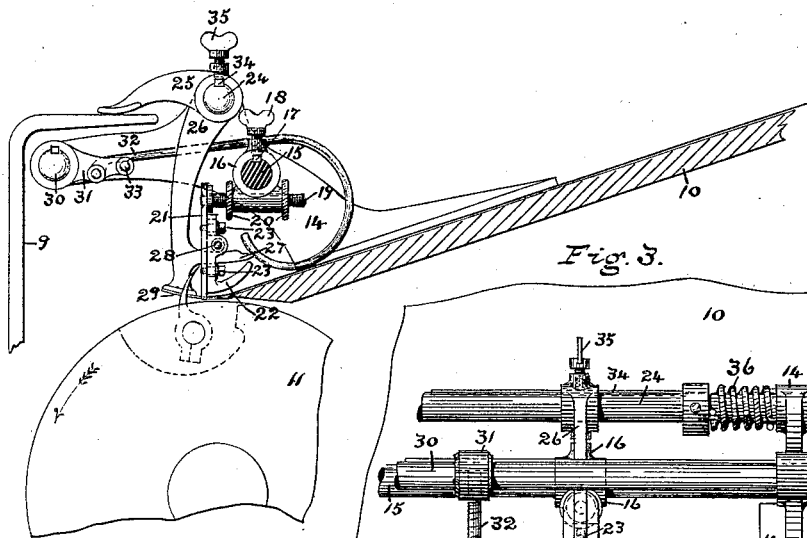


Fig. 3.

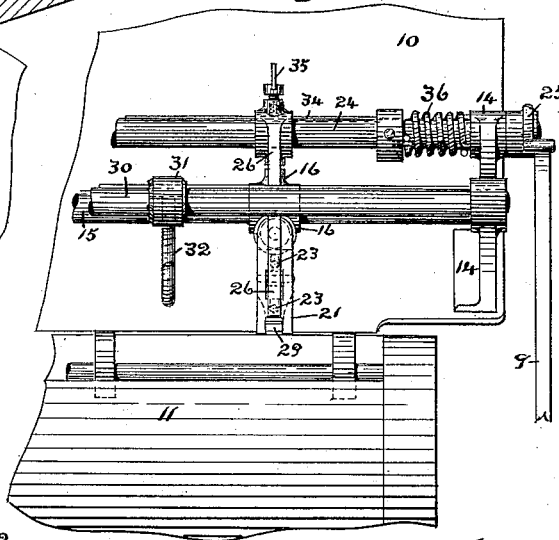
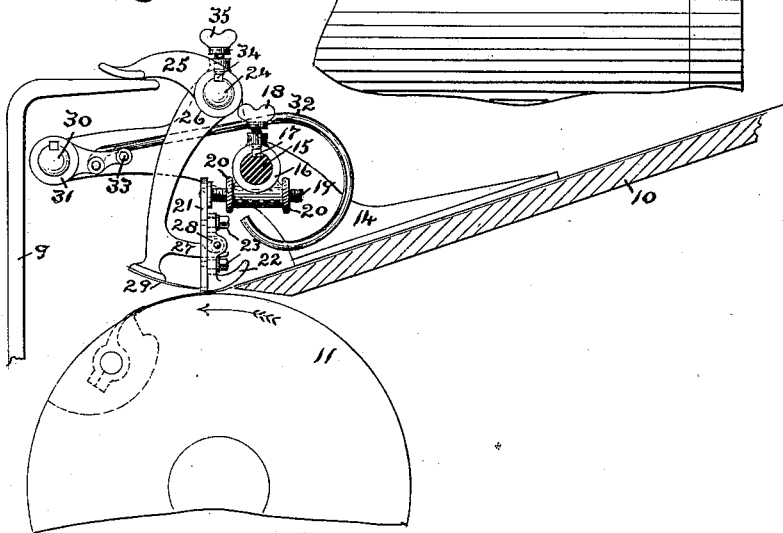


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN T. HAWKINS, OF TAUNTON, MASSACHUSETTS.

FEED-GUIDE FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 343,454, dated June 8, 1886.

Application filed March 16, 1886. Serial No. 195,398. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. HAWKINS, of Taunton, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Feed-Guides for Printing-Presses, which invention or improvements are fully set forth and illustrated in the following specification and accompanying drawings.

The object of the invention is to obviate the corrugations of the sheets which takes place in the ordinary feed-guide and gripper mechanism, and to permit the sheets to be clamped straight and undisturbed upon the cylinder.

The invention consists of the parts and combination of parts, as hereinafter described, and particularly set forth in the claims.

In overfed cylinder printing-machines, in which the impression-cylinder is in motion when the grippers close upon the sheet it is necessary to have some form of support for the edge of the sheet, which will extend as far beyond or toward the guides as the sheet itself, to prevent the sheet from being fed under the guides, and to prevent the sheet from coming in contact with the moving cylinder beneath it, and thereby, perhaps, disturbing the accuracy of feeding. These supports are variously known as "sheet-supports," "under-guides," &c., and are generally in the form of thin strips or tongues of metal. They must extend beyond the front edge of the feed-board, in order that the grippers may close upon the paper between them without coming in contact with the board. In this specification these strips or tongues are given their most common name, "under-guides." Where the under-guides project from the front edge of the feed-board, they must lie between the sheet and the cylinder at the moment the grippers close upon the sheet. As they must be of some thickness, and also not touch the surface of the cylinder, particularly in those varieties of machine in which the impression-cylinder makes more than one revolution to an impression, and in which the sheet is delivered from the top and front of the cylinder, and consequently must pass between the un-

der-guides and cylinder in delivery, said under-guides must make more or less of a corrugation in the gripper-edge of the sheet, and as there must be at least two of these under-guides there will always be at least two corrugations in the paper. These corrugations interfere with and render uncertain the lateral register of the sheet.

In the accompanying drawings, Figure 1 is a side elevation of such parts of a cylinder printing-press as are essential to the illustration of this invention. Fig. 2 is an enlarged side elevation of guides and adjoining parts. Fig. 3 is a corresponding front elevation of the same; and Fig. 4 a side elevation upon an enlarged scale, showing the under-guides moved out and the grippers closed upon the sheet.

In said figures the several parts are indicated by numerals, as follows: The number 1 indicates the main frame of the machine; 2, the bed; 3, the bed-roller ways; 4, the bed-rollers; 5, a shaft carried in brackets 6, secured to the main frame. Shaft 5 has imparted to it, by suitable connection with the moving mechanism of the machine, one revolution to each complete revolution of the machine. Secured to shaft 5 is a cam, 7, of suitable form, to raise and lower at the proper time, by means of the roller 8, the vertical rod 9. The rod 9 is bent at right angles at its upper end to serve as a lifter, as hereinafter described.

10 is the feed-board.

11 is the impression-cylinder.

12 is one of the side pieces in which the cylinder-axis is journaled, carrying a bracket, 13, through which the upper part of rod 9 slides.

14 are a pair of brackets secured to the feed-board 10. Secured in brackets 14 is a stationary shaft, 15, upon which are adjustably secured two or more sockets, 16, by means of the sliding feather 17 and set-screws 18. Passing through the sockets 16 are screws 19, adjustably held in place by check-nuts 20. Attached to adjusting-screws 19 are dependent plates 21, which serve as front guides or gages, against which the gripper-edge of the paper is fed. Sliding freely and vertically upon the front

guides, 21, are over-guides 22, their parts projecting toward the feed-board being curved upward, to permit of the easy feeding of the sheet under them. The over-guides 22 are held in place by studs or bolts 23, and are slotted so as to rise and fall freely. 24 is a rock-shaft journaled in the brackets 14. On one outer end of said shaft 24 is secured an arm, 25. Adjustably secured to shaft 24, by means of feathers 34 and set screws 35, are two or more arms, 26, extending downward. Extending inward from arms 26 are cam-shaped projections 27, which pass through slots both in the front guides, 21, and the over-guides 22. The over-guides 22 carry rollers 28, which engage the upper surface of the projections 27 on arms 26. Secured to the lower ends of arms 26 are secured thin curved under-guides 29, which pass through notches in the lower ends of front guides, 21, and extend far enough inward to pass under the edge of the feed-board 10 when in position to receive the sheet, as shown in Figs. 1, 2, and 3.

The arm 25 engages the upper horizontal end of the rod 9, so that the operation of the cam 7 is to raise the arm 25 into the position shown in Fig. 4, and so withdraw the under-guides 29 from the notches in the lower ends of the front guides, and to allow the roller 28 to pass down the depressed position of the projection 27, thus allowing the over-guides 22 to drop down even with the lower ends of the front guides, 21, and by its further rotation to restore all these parts into the position shown in Figs. 1, 2, and 3.

Journaled in the outer extremities of the brackets 14 is a rock-shaft, 30, upon which are adjustably secured arms 31, to which are pivoted at one end curved wires 32, which rest upon stops 33. The free curved ends of the wires 32 are dropped to rest upon the sheet for a moment of time just before the closing of the grippers upon the sheet, as shown in Figs. 1 and 2, but to remain elevated at all other times, so that the sheet may be fed under them, and may not drag under them while being carried forward by the grippers. These are a well-known device known as "front drops," and may be given the proper motion by a cam on the shaft 5, with proper connections, or by many other well-known ways. It is thought unnecessary to show any mechanism for operating these front drops, as it is done in practice in various ways as most suitable to the particular type of machine to which they are attached, being different for the different kinds of machines known as one, two, or three revolution, or oscillating-cylinder presses. The rock-shaft 24 is operated in one direction by the spring 36, (seen only in Fig. 3,) and is limited in the inward direction by a stop-pin. (Not shown.)

The mechanism for operating the cylinder-grippers is omitted as unnecessary to the illustration of the invention.

The complete operation of the parts is as follows: The parts being in position, as shown in Figs. 1, 2, and 3, except that the front drops, 32, are raised, as in Fig. 4, the sheet is fed to the front guides, 21, the under-guides 29 being in position to support that part of the sheet overhanging the feed-board 10 from contact with the moving cylinder 11. The parts being properly timed, the under-guides are withdrawn simultaneously with the closing of the grippers upon the sheet, and are so withdrawn in such direction that their friction upon the under side of the sheet resting upon them will tend to keep the sheet in contact with the front guides, 21. The withdrawal of the under-guides 29 allows the over-guides 22 to drop even with the under side of the front guides, 21, simultaneously with the passage of the extreme points of the under-guides 29 beyond the notch in the lower ends of the front guides, 21. The grippers are also timed to close at this exact moment of time, the front drops being raised from the paper a moment later. The dropping of the over-guides 22 down even with the lower ends of the front guides, 21, insures a smooth-surfaced guide for the remainder of the sheet to pass under, and prevents its being marred by the sharper ends of the front guides, 21.

Fig. 4 shows the sheet held by the grippers passing out under the lowered over-guides 22.

I am aware that it is not new to use movable under-guides, and that such have been used where they have been withdrawn under the feed-board, the front guides being moved away from the sheet in the usual way; but such arrangement is objectionable as tending to disturb the accurately-fed sheet by drawing it away from the front guides. I therefore do not claim, broadly, a movable under-guide; but

As of my invention I claim—

1. For the feed-gage apparatus of a printing-press or other machine requiring sheets of paper fed to it, one or more adjustably stationary front guides, as 21, carrying a movable over guide or guides, as 22, in combination with mechanism, substantially as described, for dropping said over-guides level with the bottom of said front guides and raising them again at suitable times, substantially as and for the purposes set forth.

2. In the feed-gage apparatus of a printing-press or other machine requiring sheets of paper fed to it, in combination with adjustably stationary front guides, as 21, movable under-guides, as 29, arranged to be withdrawn at the proper times by mechanism, substantially as described, in the direction the sheet is to move, substantially as and for the purposes set forth.

3. In the feed-gage apparatus of a printing-press or other machine requiring sheets

of paper to be fed to it, the combination of
adjustably stationary front guides, as 21, mov-
able over-guides, as 22, and movable under-
guides, as 29, substantially as and for the pur-
5 poses set forth.

4. In the feed-gage apparatus of a print-
ing-press or other machine requiring sheets
of paper fed to it, the combination of adjust-
ably stationary front guides, as 21, movable

under-guides, as 29, movable over-guides, as 10
22, and front drops, as 32, the whole arranged
and operated substantially as described, for
the purposes set forth.

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