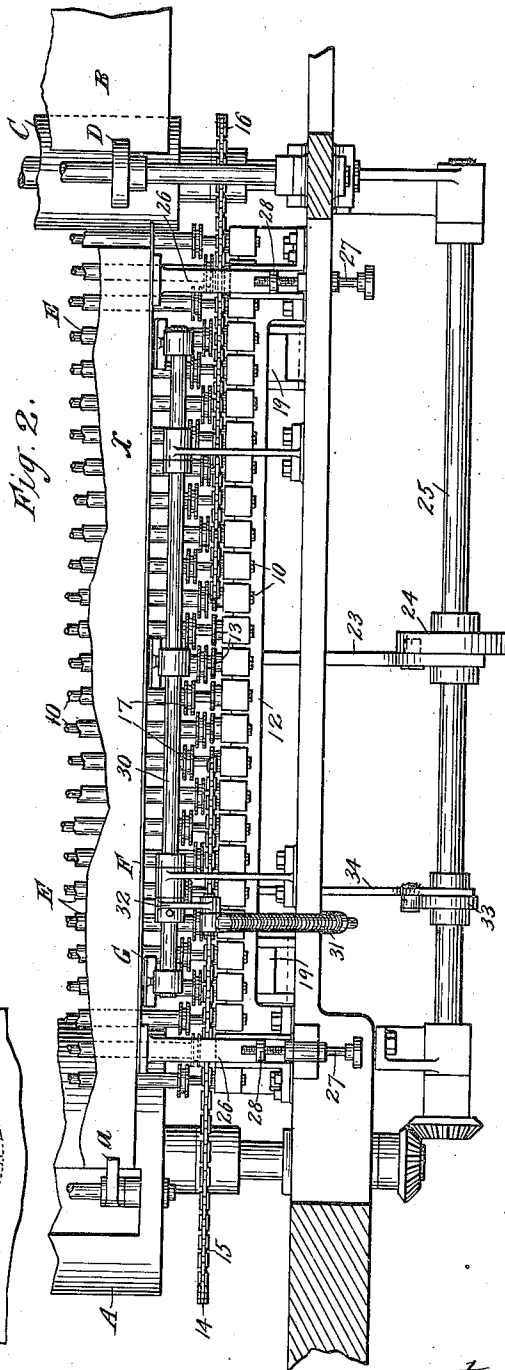
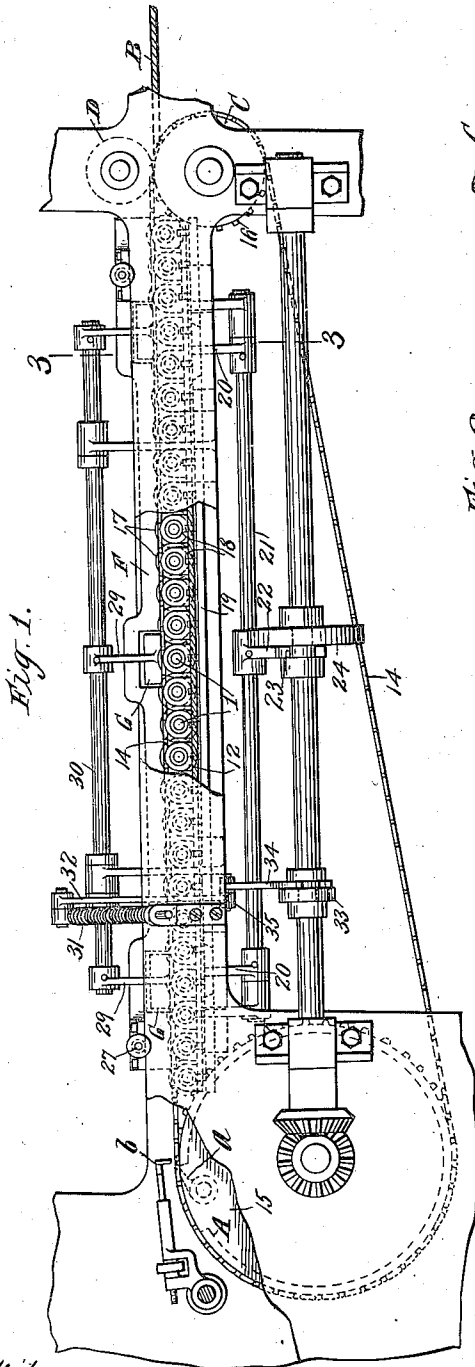


1,202,189.

Patented Oct. 24, 1916.

2 SHEETS—SHEET 1.



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SHEET FEEDING MECHANISM.
APPLICATION FILED FEB. 27, 1914.

Patented Oct. 24, 1916.

2 SHEETS—SHEET 2.

1,202,189.

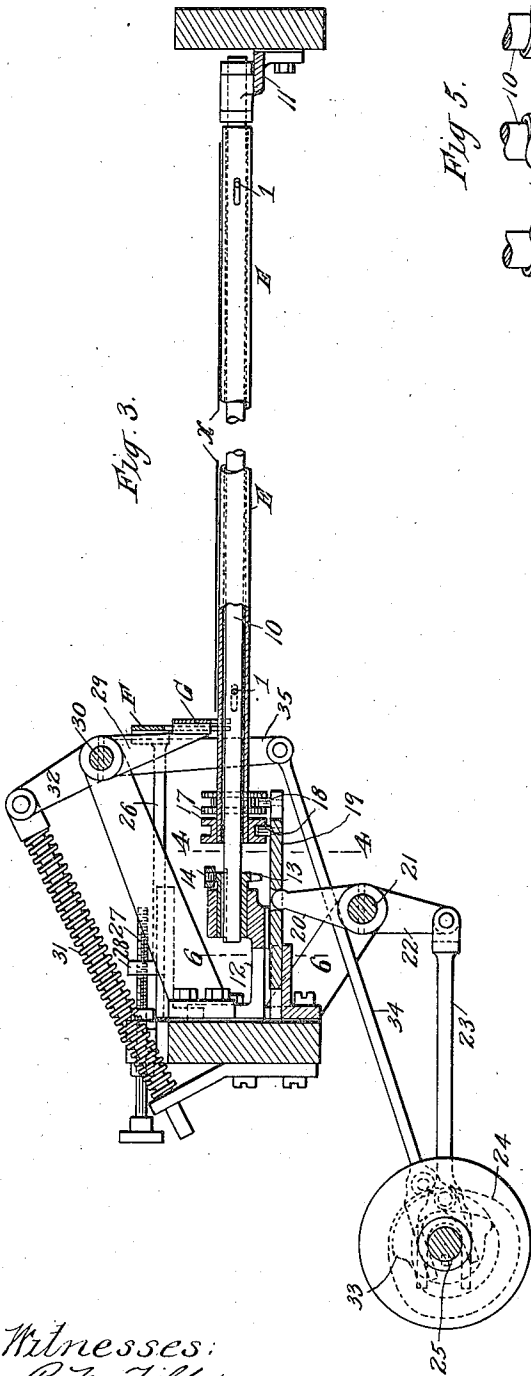


Fig. 3.

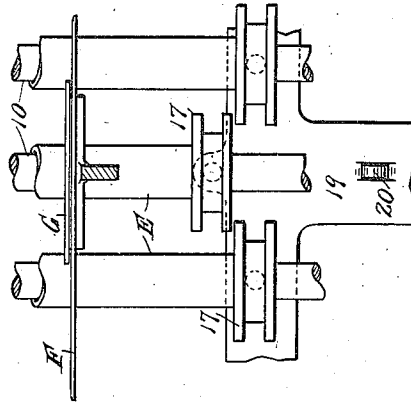


Fig. 5.

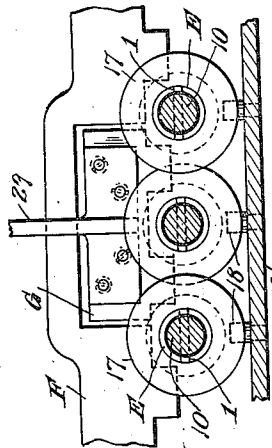


Fig. 4.

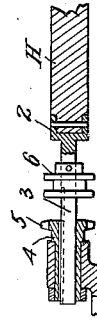


Fig. 7.

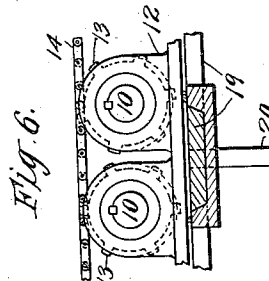


Fig. 6.

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SHEET-FEEDING MECHANISM.

1,202,189.

Specification of Letters Patent.

Patented Oct. 24, 1916.

Application filed February 27, 1914. Serial No. 821,366.

To all whom it may concern:

Be it known that I, ROBERT HOE, a citizen of the United States, residing at New York, county of New York, and State of New York, have invented certain new and useful Improvements in Sheet-Feeding Mechanisms, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to an improved sheet feeding mechanism, intended especially for printing presses employing a continuously revolving sheet carrying cylinder, although applicable to other types of presses and for feeding sheets for other purposes, the especial object of the invention being to secure accurate side registry of the sheets at high speed.

In printing presses with continuously revolving sheet carrying cylinders, great difficulty is found in securing the desired accurate registry of the sheets, and especially for multiple impressions in color printing.

The same difficulty exists to a certain extent in stop cylinder presses and, moreover, such stop cylinder presses are too slow to meet the modern requirements of high speed. This difficulty is increased in both continuously revolving and stop cylinder presses employing two feed-boards and requiring the same registry for multiple impressions on a sheet fed alternately from the feed-boards, and one object of the invention is to provide means for securing the desired side registry in such constructions.

I secure the desired accurate side registry of the sheets, in accordance with the present invention, by using a series of rotating rolls by which the sheets are supported and fed forward to the cylinder, or other sheet receiving device, and moving these rolls endwise to carry the sheets sidewise for side registry and, in combination with this series of endwise moving sheet carrying rolls, I preferably use two side stops, one the registry gage and preferably adjustable, and the other movable and normally positioned inside the registry gage and moved outward at the proper time in relation to the endwise movement of the rolls, to permit a sheet to be registered against the movable stop and then quickly and preferably just as the sheet is about to be taken by the cylinder, moved into line with or outside the registry stop, for side registry

of the sheet against the latter. The registry stop may be stationary or move longitudinally with the sheet, its position sidewise of the sheet being fixed, however, so as to determine the registry position of the sheet.

For a full understanding of the invention, a detailed description of a construction embodying all the features of the invention in their preferred form as applied with a continuously rotating cylinder, will now be given in connection with the accompanying drawings forming a part of this specification, and the features forming the invention then specifically pointed out in the claims.

In the drawings: Figure 1 is a side elevation of the mechanism with the frame partly broken away. Fig. 2 is a partial plan view of the same. Fig. 3 is a cross section on the line 3—3 of Fig. 1, on a larger scale. Fig. 4 is an enlarged detail cross section on the line 4—4 of Fig. 3. Fig. 5 is a plan view of Fig. 4. Fig. 6 is an enlarged detail cross section on the line 6—6 of Fig. 3; and Fig. 7 is a detail illustrating a modified form of sheet feeding roll.

Referring now to the drawings, A is the gripper cylinder carrying grippers *a*, and *b* are the usual oscillating sheet stops co-acting with the cylinder.

B is a feedboard, or other sheet support, over which the sheets *x* are advanced by the lower feeding roll C coacting with the top feeding disks D.

All the above parts may be of any other usual or suitable construction, and any other desired sheet receiving device and sheet feeding means may be used in connection with the parts especially embodying my invention.

Referring now to the construction shown as embodying the essential features of my invention, E is a series of rolls forming a feed table which supports the sheets and advances them to the cylinder A. These rolls in the construction shown in Figs. 1 to 6 consist of cylinders sleeved and mounted to slide on shafts 10, by which they are rotated, the rolls E, as clearly shown in Fig. 3, having a pin and slot connection 1 with the shafts, permitting the cylinders to be moved endwise on the shafts. The shafts are mounted in brackets 11, 12, on the frame and are shown as driven by chain wheels 13 on one end of the shafts, which chain wheels

are engaged and driven by chain 14, shown as driven from a chain wheel 15 on the cylinder shaft and extending around and driving a chain wheel 16 on the shaft of feeding roll

5 C. The cylinders forming rolls E carry at one end grooved disks 17 engaged by pins 18 on sliding plate 19, which plate is actuated to move the rolls E endwise on their shafts by arm 20 on rock shaft 21 having
10 arm 22 connected to cam rod 23 actuated by cam 24 on cam shaft 25. The disks 17 in Figs. 4 and 5 are shown as staggered so as to bring the rolls closer together with disks of suitable size, but this staggered feature
15 is not material, and the desired position of the rolls may be secured otherwise.

The stationary side stop F is carried by bars 26 mounted to slide on their supports and adjusted by set screws 27 mounted in
20 the frame and threaded through lugs 28 on bars 26. The movable stop G, in the form shown, consists of three short plates, carried by arms 29 on rock shaft 30, which is spring pressed to move the stop G outward
25 by spring 31 acting on arm 32 on shaft 30, and the stops are moved inward, into their normal position shown in Fig. 3, by cam 33 on cam shaft 25 acting with cam rod 34 on arm 35 on shaft 30.

30 A modified form of roll is shown in Fig. 7, by which the roll may readily be made of wood, as is frequently desirable in sheet feeding. In this construction, the shaft and roll move together instead of moving a cylinder roll on its shaft, as in Figs. 1 to 6.
35 The roll H, in this construction, is shown as a solid roll, which may be of wood or other material, carried by heads 2 on shaft 3, the shaft 3 being splined at one end in sleeve
40 4 carrying sprocket wheel 5 which corresponds to the sprocket wheel 13 of the construction previously described, and is actuated in the same manner so that the shaft rotates with the sleeve 4 and chain wheel 5,
45 but is free to slide therein with the roll H. The shaft 3 carries also a grooved disk 6 corresponding to the grooved disk 17, previously described.

50 The operation of the construction will be understood from a brief description in connection with the drawings.

The sheet *x* is supported on and fed forward by the series of rolls E or H, to advance the sheet to the cylinder A, and is stopped
55 by stops *b* and taken by the cylinder grippers *a*, as is usual in such sheet feeding constructions. When the leading end of the sheet has reached the proper point, and preferably just before it reaches the stops *b*, the
60 rolls E or H are moved endwise by cam 24 acting through the connections previously described upon plate 19, pin 18 and the grooved disks 17 or 6, to move all the rolls simultaneously toward the side gages, and
65 thus bring the sheet into side registry against

the movable side gage G, and then, as the movable gage G is withdrawn by spring 31 into line with or behind the stationary adjustable side gage F, when this is permitted
70 by cam 33, the endwise movement of the rolls moves the sheet into final side registry against the side gage F, just as the sheet is about to be seized by cylinder grippers *a*. The sheet is then drawn off the rolls by cylinder A and, at the desired time during or
75 after this movement, the rolls E or H and movable gage G are returned to normal position, all as shown in Fig. 3, for handling the next sheet.

It will be understood that the invention is not to be limited to the construction or arrangement of parts shown, but that this construction is illustrated only as the preferred embodiment of the invention now known to
80 me. Many changes and modifications may be made, however, within the invention as defined by the claims.

What I claim is:

1. In a sheet feeding apparatus, a series of rotating feeding rolls by which the sheet
90 is supported and advanced, in combination with means for moving the rolls endwise to carry the sheet into a determined sidewise position for delivery from the rolls.

2. In a sheet feeding apparatus, a series
95 of rotating feeding rolls by which the sheet is supported and advanced, in combination with means for moving the rolls endwise to carry the sheet into a determined sidewise position during the advance of the sheet for
100 delivery from the rolls.

3. In a sheet feeding apparatus, a series of rotating feeding rolls by which the sheet is supported and advanced, in combination
105 with sheet receiving devices, and means for giving the rolls an endwise movement to position the sheet sidewise as the head of the sheet approaches the sheet receiving devices, and for returning the rolls to normal
110 position after the sheet is taken by the sheet receiving devices.

4. In a sheet feeding apparatus, a series of rotating feeding rolls by which the sheet is supported and advanced, in combination
115 with a registry side gage, a movable side gage, means for moving the rolls endwise to carry the sheet sidewise against the movable gage, and means for withdrawing the movable gage to permit the endwise movement of the rolls to carry the sheet against
120 the registry gage.

5. In a sheet feeding apparatus, a series of rotating feeding rolls by which the sheet is supported and advanced, in combination
125 with a movable side gage, means for moving the rolls endwise to carry the sheet against the movable gage, and means for withdrawing the movable gage during the endwise movement of the rolls to permit the rolls to
130 carry the sheet to final position.

6. In a sheet feeding apparatus, a series of rotating feeding rolls by which the sheet is supported and advanced, in combination with sheet receiving devices, a registry side gage, a movable side gage, and means for giving the rolls an endwise movement as the head of the sheet approaches the sheet receiving devices to position the sheet side-wise, first against the movable gage and then
10 against the registry gage, means for withdrawing the movable gage to permit the sheet to be carried against the registry gage, and means for returning the rolls and movable gage to normal position after the sheet
15 is taken by the sheet receiving devices.

7. In a sheet feeding apparatus, means for feeding a sheet forward and moving it side-wise for side registry, in combination with a registry side gage, a movable side gage inside the registry gage, and means for moving the movable gage outward parallel with the sheet to permit the sheet to be moved against the registry gage.

In testimony whereof, I have hereunto set my hand, in the presence of two subscribing
25 witnesses.

ROBERT HOE.

Witnesses:

A. WHITE,

C. J. SAWYER.