

March 20, 1934.

C. B. COTTRELL, 3D

1,951,901

SHEET REGISTERING DEVICE

Filed Dec. 17, 1932

2 Sheets-Sheet 1

Fig. 1.

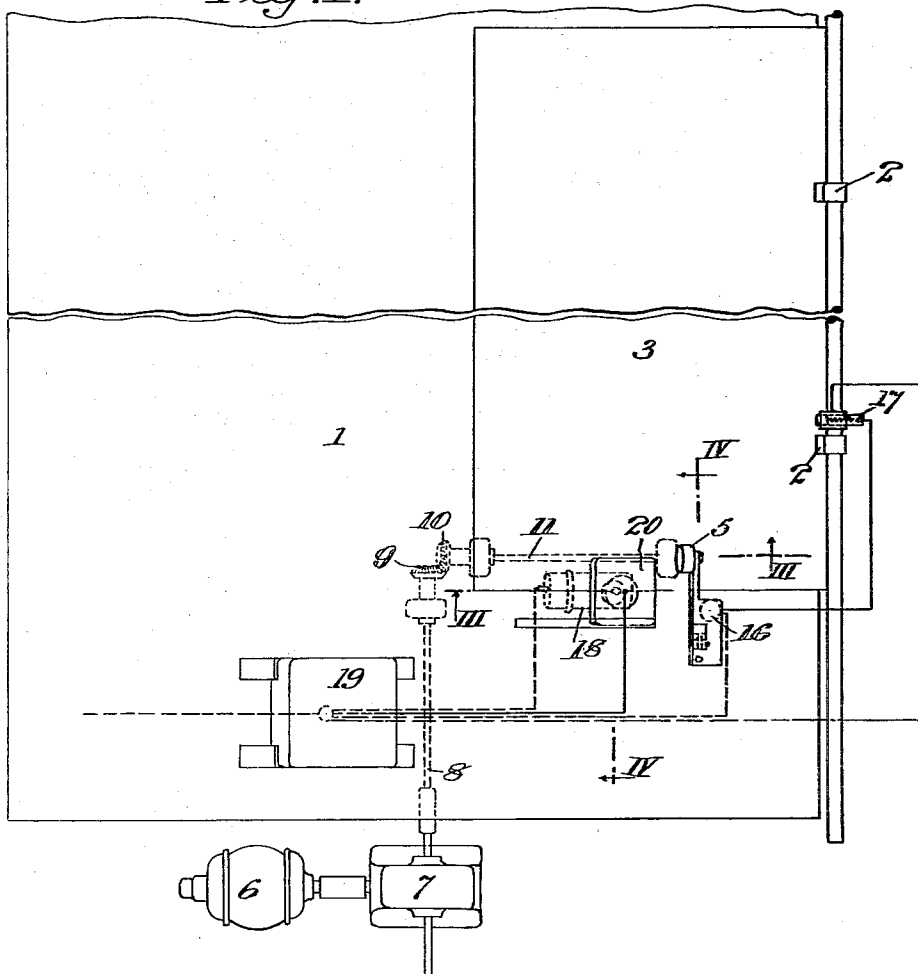
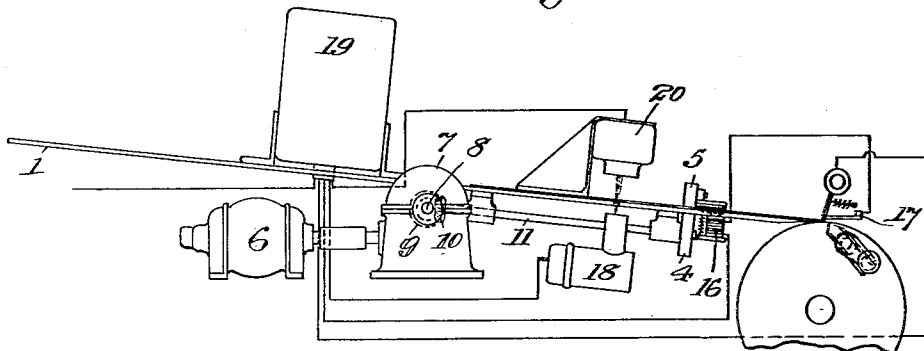


Fig. 2.



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2 Sheets-Sheet 2

Fig. 3.

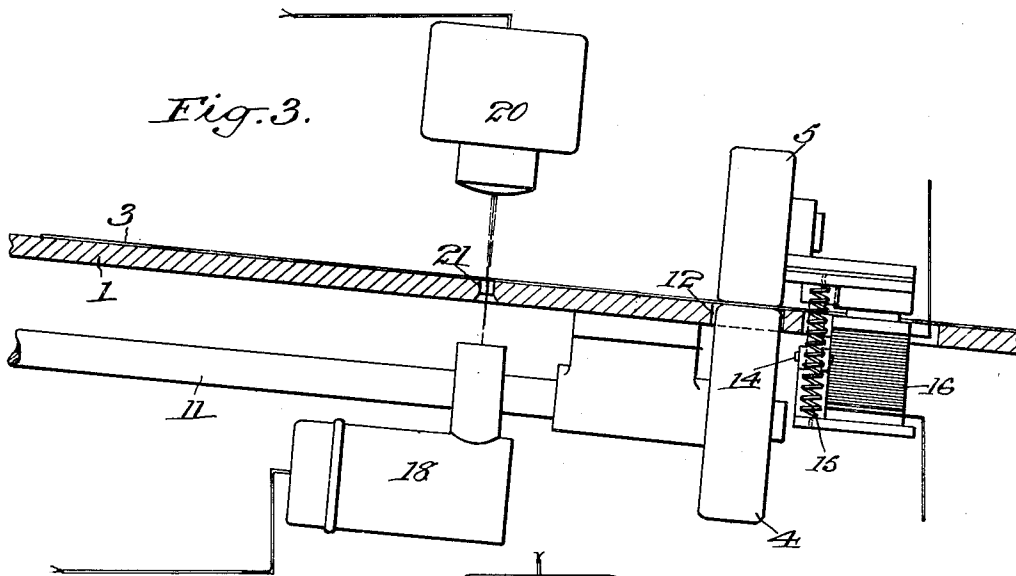


Fig. 4.

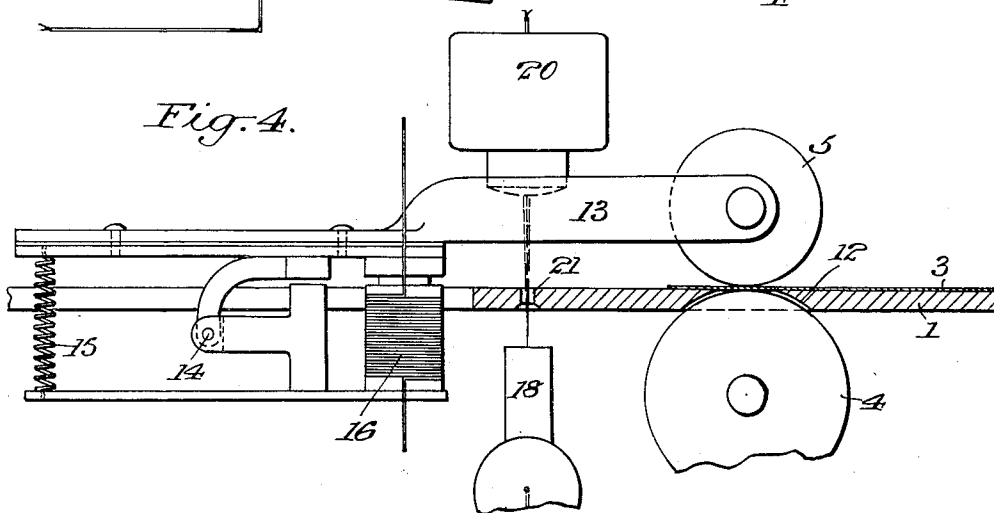
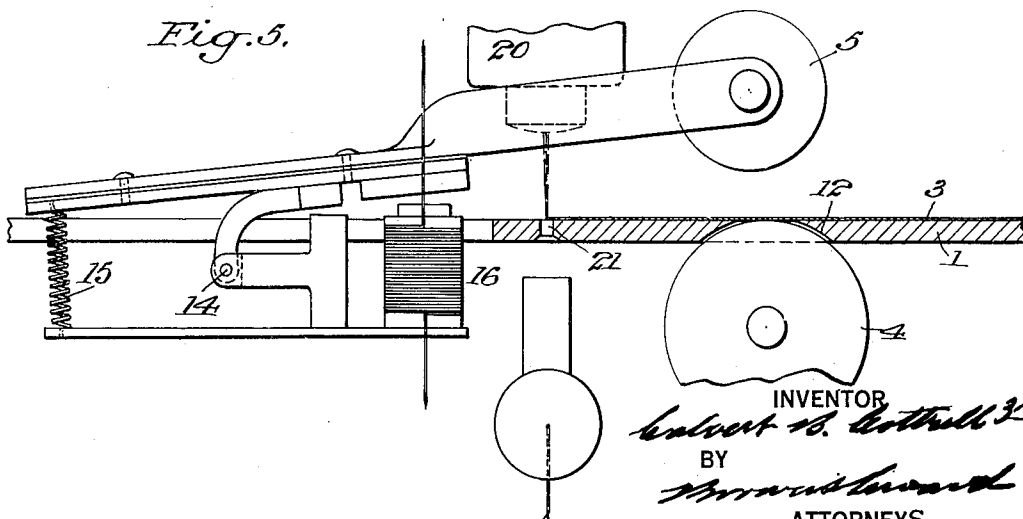


Fig. 5.



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1,951,901

SHEET REGISTERING DEVICE

Calvert B. Cottrell, 3d., Westerly, R. I., assignor
to C. B. Cottrell & Sons Company, Westerly,
R. I., a corporation of Delaware

Application December 17, 1932, Serial No. 647,714

6 Claims. (Cl. 271—58)

My invention consists generally in a novel means for ensuring accurate side registering of sheets fed to a printing press, said means including a device for moving a sheet laterally to its side register, a circuit maker and breaker which is controlled by the sheet in its advance movement to put the sheet moving device into operation and a photoelectric unit controlled by the sheet in its lateral movement to put the sheet moving device out of operation as the sheet reaches its side registry point.

My invention consists more particularly in an electromagnet controlled by both the circuit maker and breaker and the light responsive device to put the sheet moving device into and out of operation respectively.

A practical embodiment of my invention is represented in the accompanying drawings, in which:

Fig. 1 represents a top plan view of a sheet feeder including my improved side register;

Fig. 2 represents a side view of the same;

Fig. 3 represents an enlarged detail cross section taken in the planes of the line III—III of Fig. 1, the parts being in the positions they assume as the sheet is being moved toward its side registry point.

Fig. 4 represents an enlarged detail longitudinal section taken in the planes of the line IV—IV of Fig. 1, the parts being in the positions shown in Fig. 3, and

Fig. 5 represents a section similar to Fig. 4, the parts being in the positions they assume as the sheet reaches its side registry point.

The sheet feed table is denoted by 1 and its usual end stops by 2. The sheet being fed is denoted by 3. The normally inoperative device for moving the sheet 3 laterally to its side registry point, after the advance edge of the sheet has reached its end stop 2, comprises in the present instance a continuously rotating under roller 4 and its coacting drop roller 5. The under roller 4 may be driven from a suitable electric motor 6 through the gear box 7, cross shaft 8, bevel gears 9, 10 and longitudinal shaft 11. The top of this under roller 4 is located in a slot 12 through the feed board 1 in position to contact with the under side of the sheet 3. The drop roller 5 is mounted on a rock lever 13 pivoted at 14 and said drop roller is held normally raised out of its coactive position with the under roller 4 by a coil spring 15. An electromagnet 16 serves, when energized, to move the drop roller down onto the sheet 3 and coact with the under roller 4 to move the sheet laterally to its side registry point.

A circuit maker and breaker, in the present instance a normally open switch 17, is located in the electromagnet circuit in position to be closed by the advance edge of the sheet 3 as it reaches its end stops 2. The closing of this switch causes the energization of the electromagnet and thus enables it to bring the rollers 4 and 5 into coaction for moving the sheet laterally to its side registry point.

A light responsive device, as a photoelectric unit, acts as the side guide for the sheet, which unit is also in the electromagnet circuit and is under the control of the sheet as it is moved laterally, to deenergize the electromagnet and release the drop roller 5 from its engagement with the sheet as the sheet reaches its side registry point. This photoelectric unit generally comprises the following elements: The photoelectric tube 18 is electrically connected to the photoelectric relay 19 of any well known or approved form, which relay is in turn electrically connected to the electromagnet 16 which controls the operation of the drop roller 5 of the sheet moving device. The photoelectric tube 18 is positioned beneath the sheet feed table 1 in the path of a beam of light projected from the lamp 20, which beam of light is shown as passing through a hole 21 in the sheet feed table 1. This beam of light is the sheet registry point.

As the sheet is moved laterally by the rollers 4 and 5 it will, as its side edge reaches its side registry point, cut off the beam of light from the lamp 20 to the photoelectric tube 18, thereby causing the relay 19 to deenergize the electromagnet 16, thus permitting the spring 15 to raise the drop roller 5 of the sheet moving device and stop the lateral movement of the sheet at its side registry point.

From the above description it will be seen that I have provided a circuit maker and breaker operated by the sheet in its advance movement and a light responsive device operated by the sheet in its lateral movement, both the circuit maker and breaker and the light responsive device being in circuit with the electromagnet which controls the operation of the device for moving the sheet laterally to its sheet registry point.

It is evident that various changes may be resorted to in the construction, form and arrangement of the several parts without departing from the spirit and scope of my invention, and hence I do not intend to be limited to the particular embodiment herein shown and described, but what I claim is:

1. A side register for sheets including a nor-

- 5 mally inoperative device for moving the sheet laterally into side register, a circuit maker and breaker controlled by the sheet in its advance movement, to put the sheet moving device into operation and a photo-electric unit controlled by the sheet in its lateral movement to put the sheet moving device out of operation as the sheet reaches its side registry point. 80
- 10 2. A side register for sheets including a normally inoperative device for moving the sheet laterally into side register, said device comprising coacting driving rolls, a circuit maker and breaker controlled by the sheet in its advance movement, to put the sheet moving device into operation and a photoelectric unit controlled by the sheet in its lateral movement to put the sheet moving device out of operation as the sheet reaches its side registry point. 85
- 15 3. A side register for sheets including a normally inoperative device for moving the sheet laterally into side register, an electromagnet for controlling the operation of the sheet moving device, a circuit maker and breaker controlled by the sheet in its advance movement to cause the energization of the electromagnet for putting the sheet moving device into operation and a photoelectric unit controlled by the sheet in its lateral movement to cause the deenergization of the electromagnet for putting the sheet moving device out of operation as the sheet reaches its side registry point. 90
- 20 4. A side register for sheets including a normally inoperative device for moving the sheet laterally into side register, an electromagnet for controlling the operation of the sheet moving device, a circuit maker and breaker controlled by the sheet in its advance movement to cause the energization of the electromagnet for putting the sheet moving device into operation and a photoelectric unit controlled by the sheet in its lateral movement to cause the deenergization of the electromagnet for putting the sheet moving device out of operation as the sheet reaches its side registry point. 95
- 25 5. A side register for sheets including a normally inoperative device for moving the sheet laterally into side register, a normally deenergized electromagnet for controlling the operation of the sheet moving device, a circuit maker and breaker and a photoelectric unit for respectively causing the energization and deenergization of the electromagnet, to put the sheet moving device into and out of operation. 100
- 30 6. A side register for sheets including a normally inoperative device for moving the sheet laterally into side register, a normally deenergized electromagnet for controlling the operation of the sheet moving device, a circuit maker and breaker and a photoelectric unit both in the electromagnet circuit for respectively causing the energization and deenergization of the electromagnet, to put the sheet moving device into and out of operation. 105
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