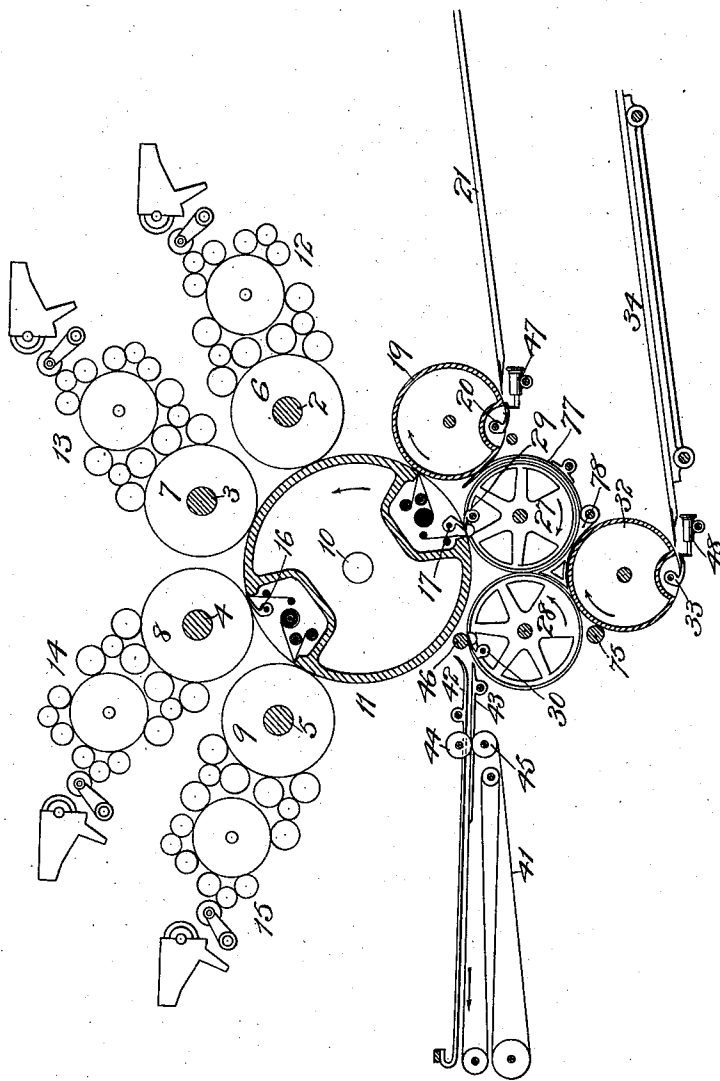


H. M. BARBER.  
SLIP SHEET FEEDING DEVICE FOR PRINTING PRESSES.  
APPLICATION FILED OCT. 31, 1910.

1,027,582.

Patented May 28, 1912.  
3 SHEETS—SHEET 1.

Fig. 1.



Witnesses:-  
J. George Barry.  
Henry C. Thome.

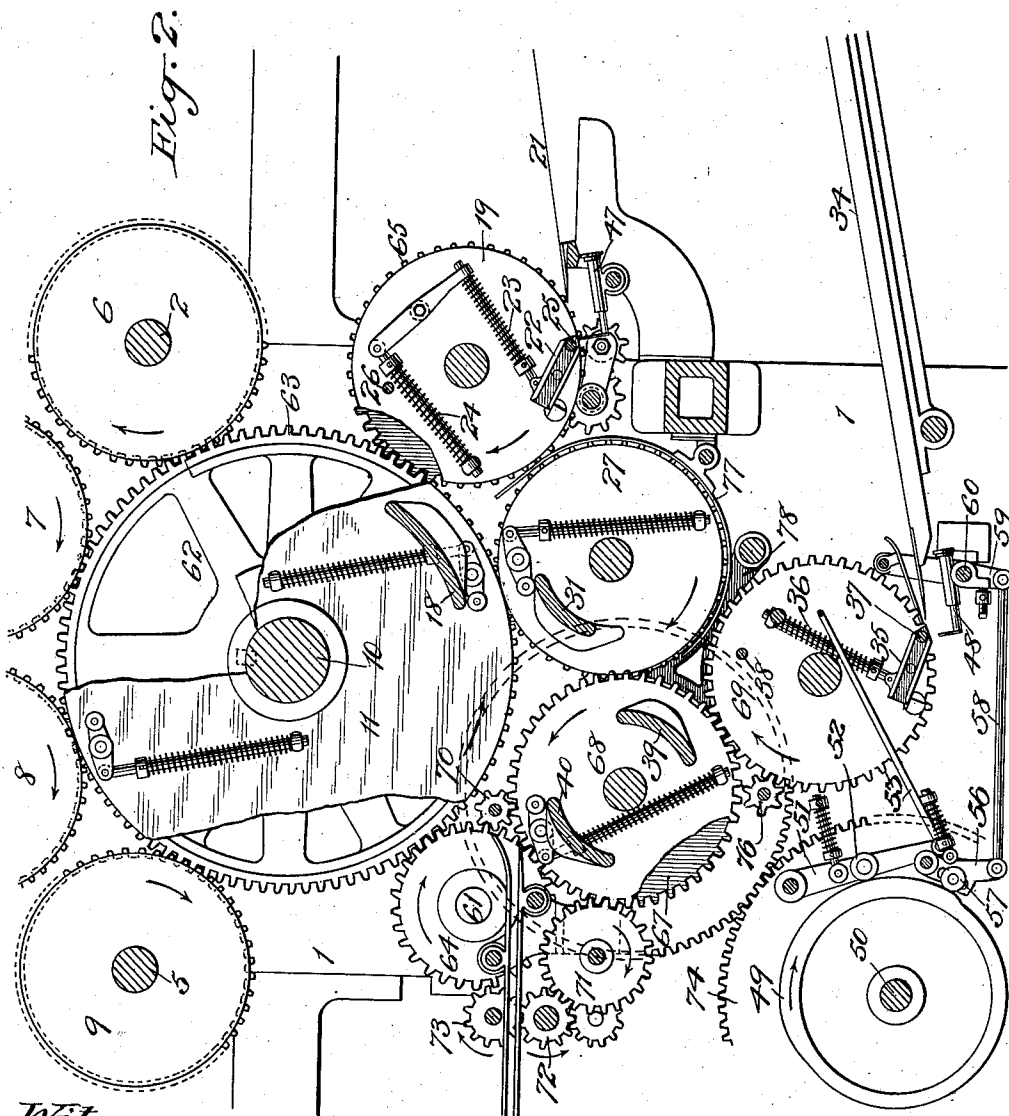
Inventor:-  
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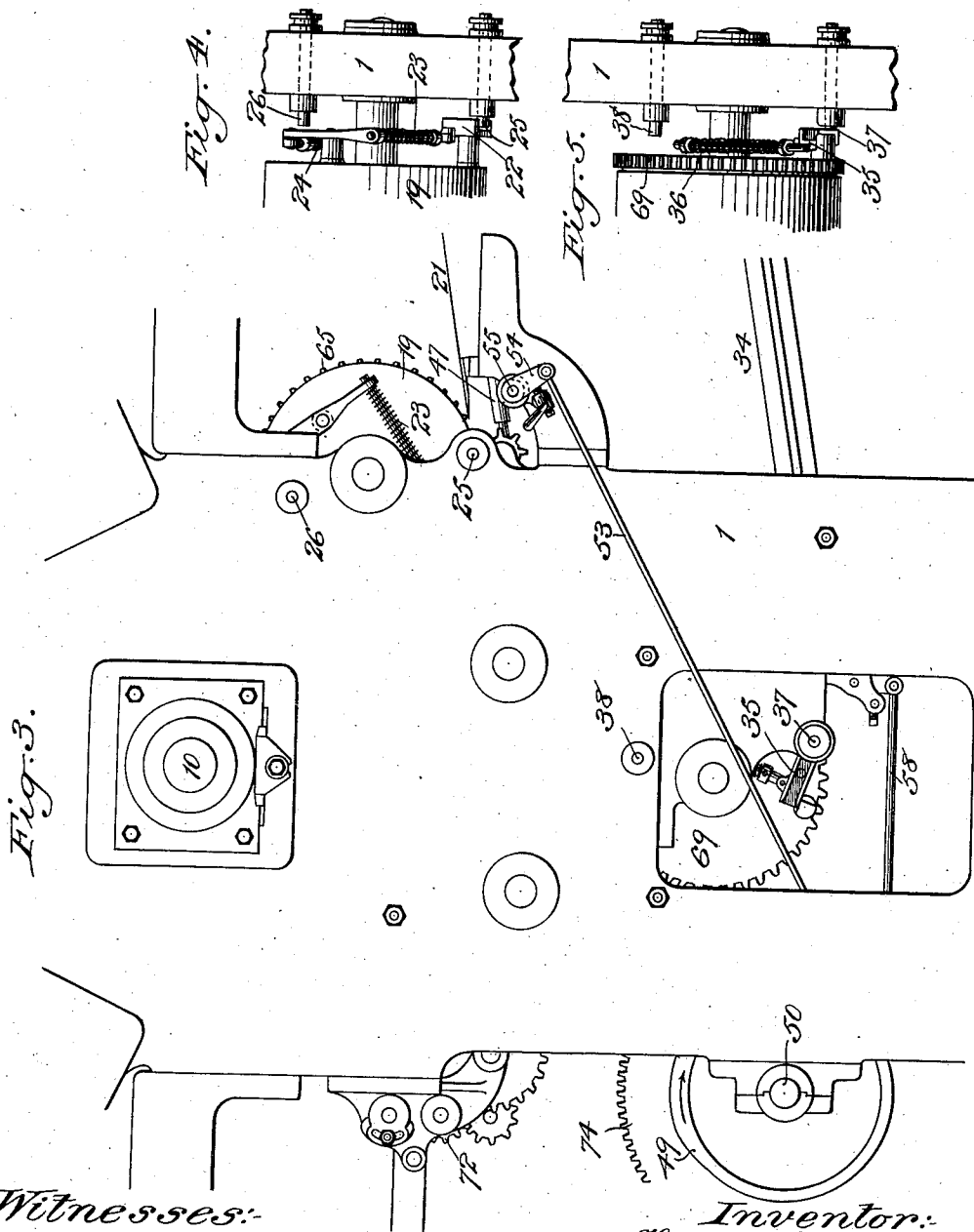
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3 SHEETS—SHEET 3.



Witnesses:  
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Inventor:  
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By *Howard M. Barber*  
My *Witness*

# UNITED STATES PATENT OFFICE.

HOWARD M. BARBER, OF STONINGTON, CONNECTICUT, ASSIGNOR TO C. B. COTTRELL & SONS COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

## SLIP-SHEET-FEEDING DEVICE FOR PRINTING-PRESSES.

1,027,582.

Specification of Letters Patent.

Patented May 28, 1912.

Original application filed July 29, 1910, Serial No. 574,486. Divided and this application filed October 31, 1910. Serial No. 589,996.

*To all whom it may concern:*

Be it known that I, HOWARD M. BARBER, a citizen of the United States, and a resident of Stonington, in the county of New London and State of Connecticut, have invented a new and useful Improvement in Slip-Sheet-Feeding Devices for Printing-Presses, of which the following is a specification.

This invention consists in certain improvements in the construction, form and operation of the several parts of a mechanism for feeding sheets to and delivering them from an impression cylinder and in the mechanism for feeding slip sheets into position to be combined with the printed sheets as they are delivered from the said impression cylinder.

My invention more particularly consists in a mechanism in which improved means are provided for feeding two sheets to the impression cylinder for each revolution thereof and improved means for feeding two slip sheets for each revolution of the impression cylinder so that each sheet as it is delivered from the impression cylinder may have a slip sheet associated therewith before it is transferred to a sheet delivery device.

This invention is shown in connection with a multicolor printing press provided with a reciprocating sheet delivery device but it is obvious that the invention could be applied in connection with printing presses of other types and in connection with sheet delivery devices of various types.

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

Figure 1 is a part diagrammatic and part longitudinal central section through so much of a multicolor printing press as will give a clear understanding of the location, construction and operation of the several parts of the invention, Fig. 2 is an enlarged detail section showing the operative connections between the several parts at one side of the machine, Fig. 3 is an enlarged detail view showing the operative connections between the several parts at the other side of the machine, Fig. 4 is a detail side view of the mechanism for opening the grippers on the main sheet feed cylinder at the proper times for receiving the sheet and

transferring it to the impression cylinder grippers, and Fig. 5 is a similar view of the mechanism for opening the grippers on the slip sheet feed cylinder at the proper intervals to receive the slip sheets and deliver them to the printed sheet transfer device.

The main frame is denoted by 1, in which frame are mounted the shafts 2, 3, 4, 5, of the plate cylinders 6, 7, 8, 9, and the shaft 10 of the impression cylinder 11. Suitable inking mechanisms 12, 13, 14, 15, are provided for supplying ink to the plate cylinders 6, 7, 8, 9. The impression cylinder 11 is provided with a plurality of sets of grippers. In the present instance, two sets of grippers 16, 17, are shown arranged diametrically opposite each other. A stationary cam 18 is provided, which cam is arranged to open both sets of grippers 16, 17, at the proper times for receiving the sheets to be printed and for delivering the printed sheets to the sheet transfer device to be hereinafter described.

The main sheet feed cylinder is denoted by 19 and its set of grippers by 20. The sheets to be printed may be fed to the grippers 20 from the table 21, or from any other suitable source of sheet supply. The mechanism for controlling the opening and closing of the grippers 20 on the sheet feed cylinder 19 at the proper times to receive the sheet and transfer it to the impression cylinder 11, is constructed, arranged and operated as follows: The shaft of the grippers 20 is provided with a tumbler 22 to which is applied springs 23, 24. This tumbler 22 is operated upon at the proper times by being carried by the revolution of the feed cylinder 19, over pins 25, 26, fixed in the main frame 1. The pin 25 is arranged to cause the closing of the grippers 20, to engage the sheets fed from the table 21 and the pin 26 is arranged to open the grippers for transferring the sheets to the grippers 16, 17, on the impression cylinder 11. The printed sheet transfer device in the present instance comprises two reels, 27, 28, provided respectively with sets of grippers 29, 30. A fixed cam 31 is arranged to open the grippers 29 on the first transfer reel 27 for receiving the printed sheets from the sets of grippers 16, 17, on the impression cylinder 11, said cam

being also arranged to open the grippers 29 for transferring the printed sheets from the first transfer reel 27 to the grippers 30 on the second transfer reel 28.

5 A slip sheet is fed to the printed sheet transfer device in position to be combined with each printed sheet, as follows. The slip sheet feed cylinder is denoted by 32, which cylinder is provided with a set of  
10 grippers 33 arranged to receive the slip sheets from the table 34, or other slip sheet feeding device. The mechanism for controlling the opening and closing of the grippers 33 on the slip sheet feed cylinder 32, is constructed, arranged and operated as  
15 follows:—The shaft of the grippers 33 is provided with a tumbler 35, to which is applied a spring 36. This tumbler 35 is operated at the proper times by being carried  
20 by the revolution of the cylinder 32 over fixed pins 37, 38, carried by the main frame 1. The pin 37 is arranged to close the grippers 33 to engage the slip sheets fed from the table 34, and the pin 38 is arranged to  
25 open the grippers 33 for transferring the slip sheet to the grippers 30 on the second transfer reel 28, of the printed sheet transfer device.

A fixed cam 39 is arranged in position to first open the grippers 30 to receive the slip  
30 sheet and then open the grippers 30 to receive the printed sheet from the grippers 29 on the first transfer reel 27. A second fixed cam 40 is arranged in position to open  
35 the grippers 30 at the proper time for delivering the combined printed and slip sheets to a sheet delivery device of well known or approved form. In the present instance, I have shown a reciprocating flat  
40 sheet delivery device 41 having the usual guides 42, 43, and forwarding reels 44, 45, 46. A sheet stop 47 is provided for the main sheet feed table 21, and a sheet stop is provided for the slip sheet feed table 34.  
45 These stops are operated from a cam 49 on the cam shaft 50, as follows: A spring-pressed rocking lever 51 is provided with a stud roller 52 engaging the cam 49. A rod 53 connects this lever 51 with an arm 54  
50 fixed to the shaft 55 of the stop 47. Another spring-pressed lever 56 is provided with a stud roller 57 engaging the cam 49, which lever is provided with a rod 58 connected to a rocking arm 59 fixed to the shaft  
55 60 of the stop 48. These parts are so timed that the stops 47, 48, will be swung up into position and hold the main sheet and slip sheet until their advance edges are to be engaged by the grippers on the main sheet feed cylinder and slip sheet feed cylinder  
60 respectively.

The geared connection of the several parts is as follows: A stud shaft 61 is mounted in the frame 1, which shaft may be driven at  
65 the desired speed from any suitable source

of power, not shown herein. The impression cylinder 11 is provided with a spur gear 62 fixed thereon, and a loose spur gear 63, which loose gear is driven by a spur gear 64 fixed to the shaft 61. The main sheet  
70 feed cylinder 19 is driven from the impression cylinder 11, through the gears 63, 65. The first transfer reel 27 is driven from the impression cylinder 11, through the gears 62, 63. The second transfer reel 28 is driven  
75 from the shaft 61, through the gears 64, 67. The slip sheet feed cylinder 32 is driven from the second transfer reel 28, through the spur gears 68, 69. The sheet forwarding roll 46 is driven from the shaft 61,  
80 through the gears 64, 70. The tape carrier of the sheet delivery device 41 is driven from the second transfer reel 28, through the gears 68, 71, 72, and the sheet forwarding roll 44 is driven from the gears 72 by a  
85 gear 73. The cam shaft 50 is driven from the second transfer reel 28 through the gears 67\*, 74. The slip sheet feed roll 75, which coacts with the cylinder 32, is driven from the said cylinder through the spur gears 69, 76.  
90 A sheet guide 77 is located in position to guide the printed sheets around the first transfer reel 27, and another sheet guide 78 is arranged in position to direct the slip sheets from the cylinder 32 to the second  
95 transfer reel 28.

While the present drawings disclose means for feeding two sheets successively to the impression cylinder for each revolution thereof, one sheet being delivered for each  
100 revolution of the sheet feed cylinder 19, and while the mechanism is shown for delivering a slip sheet for each revolution of the slip sheet feed cylinder 32 for combining a slip sheet with each printed sheet delivered  
105 from the impression cylinder 11, it is to be understood that the impression cylinder may be provided with any number of sets of grippers and means employed for feeding sheets to each set of grippers and for  
110 feeding slip sheets in position to be combined with printed sheets as they are delivered from the impression cylinder; hence I do not wish to limit myself to simply the provision of two sets of grippers on the im-  
115 pression cylinder.

It is to be understood that where the terms "cylinder" or "reel" are used, that I intend to cover any operative device for carrying the sheets through the prescribed  
120 paths.

The parts shown and described but not claimed herein, form the subject matter of my co-pending application filed July 29,  
125 1910, Serial No. 574486, of which this is a division.

It is evident that various changes might be resorted to in the construction, form and arrangement of the several parts without departing from the spirit and scope of my  
130

invention; hence I do not wish to limit myself strictly to the construction herein shown, but

What I claim is:—

- 5 1. A sheet delivery device, a sheet printing mechanism including an impression cylinder arranged to receive and deliver a plurality of sheets for each revolution of the cylinder, a printed sheet transfer device  
10 comprising a pair of reels interposed between the impression cylinder and the sheet delivery device and arranged to feed the sheets printed side up to the sheet delivery device and a main sheet feed cylinder ar-  
15 ranged to feed a sheet every revolution, to said impression cylinder.
2. A sheet delivery device, a sheet printing mechanism including an impression cyl-

inder arranged to receive and deliver two sheets for each revolution of the cylinder, a printed sheet transfer device comprising a pair of reels interposed between the impression cylinder and the sheet delivery device and arranged to feed the sheets printed side up to the sheet delivery device and a main sheet feed cylinder arranged to feed a sheet every revolution, to said impression cylinder.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two witnesses, this 26th day of October 1910.

HOWARD M. BARBER.

Witnesses:

F. GEORGE BARRY,  
C. S. SUNDGREN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."