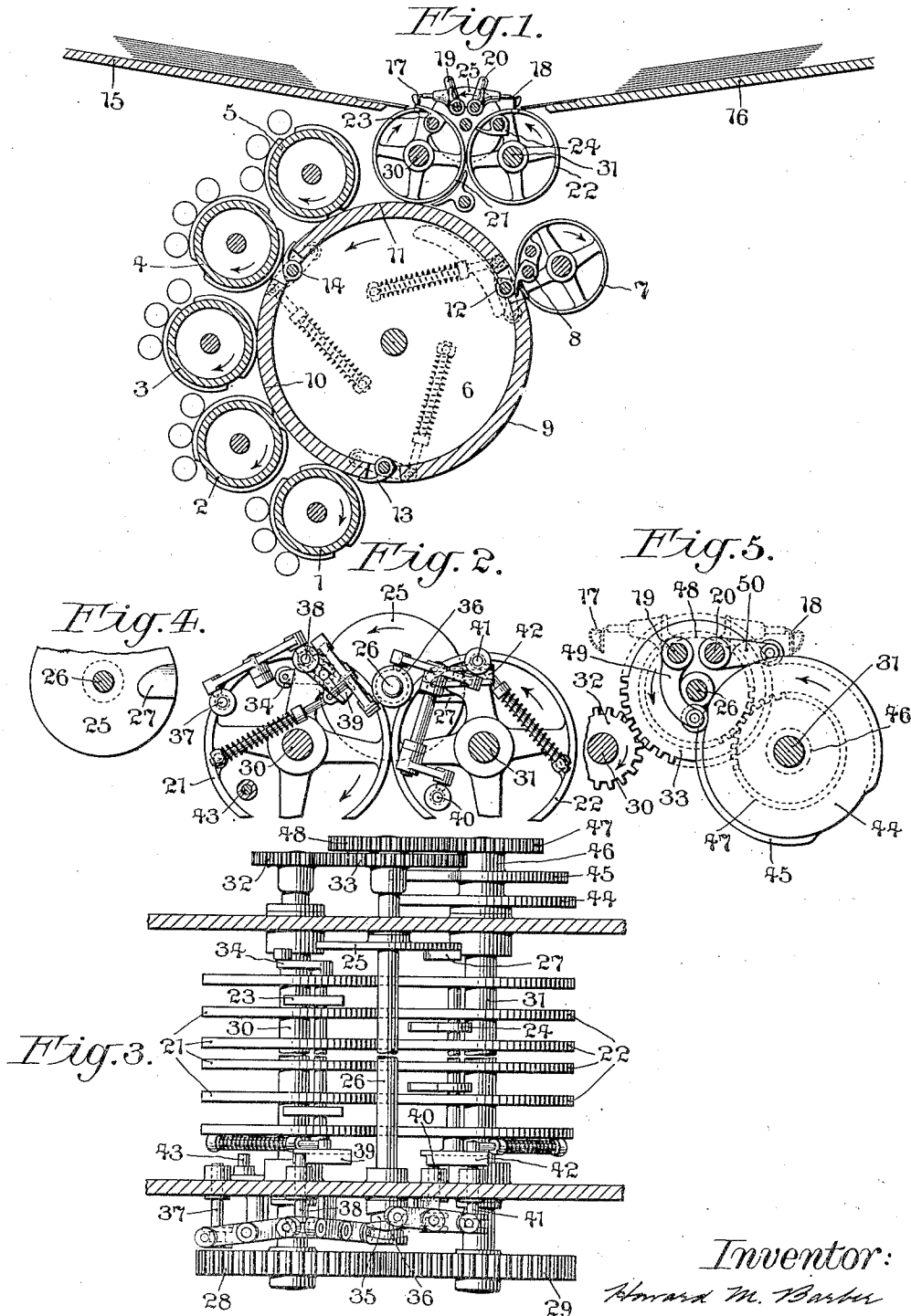


H. M. BARBER.
 ROTARY PRINTING PRESS.
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1,326,562.

Patented Dec. 30, 1919.



Inventor:

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by attorneys
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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 DELAWARE.

ROTARY PRINTING-PRESS.

1,326,562.

Specification of Letters Patent.

Patented Dec. 30, 1919.

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To all whom it may concern:

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

The object of this invention is to provide novel sheet feeding mechanism whereby a sheet may be printed each revolution of the form cylinder and the sheets may have a length nearly equal to the circumference of the said form cylinder.

The invention more particularly comprises one or more form cylinders; an impression cylinder having a plurality of impression surfaces and sheet taking devices, the distance between the sheet taking devices equaling the circumference of the form cylinder or cylinders; two sources of sheet supply, such as sheet feed tables; and a pair of coating rotary sheet carriers, such as reels, having sheet taking devices, each of the reels being operated to take sheets from its respective source of sheet supply and one of the reels being operated to take the sheets from the other reel and to transfer the sheets from both sources to successive impression surfaces on the impression cylinder.

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

Figure 1 represents in longitudinal central section so much of a rotary printing press with my invention applied thereto, as is necessary to illustrate the application of the invention.

Fig. 2 is an enlarged detail section at the two co-acting rotary sheet carriers.

Fig. 3 is a detail section showing the parts illustrated in Fig. 2 in top plan.

Fig. 4 is a detail view of the rotary cam which controls the operation of the grippers on the two co-acting rotary sheet carriers at the transfer point, and

Fig. 5 is a detail section showing the means for operating the sheet stops at the proper times.

I have illustrated five form cylinders 1, 2, 3, 4, 5, arranged around one side of the im-

pression cylinder 6. I have shown a delivery reel 7 located at the other side of the impression cylinder 6, said delivery reel being provided with a suitable set of grippers 8 for taking the sheets from the impression cylinder. The impression cylinder 6 is shown as having three impression surfaces 9, 10, 11, and three sets of grippers 12, 13, 14, the distance between the grippers equaling the circumference of the form cylinders.

The two sources of sheet supply are shown as tables 15, 16, having the usual sheet stops 17, 18, mounted on the rock shafts 19, 20. Two coating rotary sheet carriers, in the present instance reels 21, 22, are located at the top of the impression cylinder 6, the carrier 21 being shown as provided with grippers 23 arranged to take the sheets from table 15 every second revolution of the carrier 21 and transfer the same to one of the grippers on the impression cylinder 6. The rotary carrier 22 is shown as provided with a set of grippers 24 arranged to take a sheet from the feed table 16 every second revolution of the carrier and to transfer the sheet to the grippers 23 of the rotary carrier 21 every second revolution of the carrier 21, alternating with the sheets fed from the table 15. It will thus be seen that the grippers 23 on the rotary carrier 21 transfer a sheet to succeeding impression surfaces of the impression cylinder every revolution of the carrier 21, the sheets being fed alternately from the tables 15 and 16. The sheets may thus be nearly the length of the circumference of the form cylinder or cylinders, thus permitting a sheet to be printed every revolution of the said form cylinder or cylinders.

The means for operating the grippers 23 and 24 of the rotary carriers 21 and 22 are as follows. A rotary cam disk 25 is fixed to a shaft 26 and is provided with a cam 27. The rotary carriers 21, 22, are driven at the same speed through the gears 28, 29, on their respective shafts 30, 31, and the cam disk 25 is rotated at one-half the speed of the carriers 21, 22, through the gears 32, 33. The parts are so timed that the cam 27 will operate the arm 34 of the set of grippers 23 every second revolution of the carrier 21 to

take the sheet transferred from the grippers 24 of the carrier 22. The cam shaft 26 is provided with two irregular cams 35, 36, the cam 35 controlling the movement of the
 5 tumbler pins 37, 38, for the tumbler cam 39 of the set of grippers 23 and the cam 36 controlling the movement of the pins 40, 41, for the tumbler cam 42 of the set of grippers 24. A fixed tumbler pin 43 is arranged
 10 in position to engage the tumbler cam 39 of the grippers 23 every revolution of the carrier 21 to transfer the sheets to their respective impression cylinder grippers. The other tumbler pins are actuated to control the
 15 movements of their tumbler cams 39 and 42 to close the grippers 23 and 24 on the advance edge of their respective sheets at the proper times and for opening the grippers 24 at the transfer point between the two
 20 rotary carriers 21, 22. The tumbler cam pin 37 serves to coast with the tumbler 39 also to close the grippers 23 as they pass their sheet taking point from the table 15, every alternate revolution when they are not sup-
 25 posed to take a sheet therefrom so as to avoid any possible chance of the grippers 23 taking an unadjusted sheet the revolution which they are intended to take a sheet from the grippers 24 of the rotary carrier 22.

30 The means for operating the sheet stops 17 and 18 at the proper times for permitting the feeding of the sheets from their respective tables 15 and 16, are as follows: Two cams 44, 45, have their hub 46 loosely mount-
 35 ed on the shaft of the rotary carrier 22 and they are provided with a gear 47 which meshes with a gear 48 of equal size fixed to the cam shaft 26. The cam 44 controls the movement of the sheet stop 17 through the
 40 arm 49 and the cam 45 controls the movement of the sheet stop 18 through the arm 50.

It is evident that various changes may be resorted to in the construction, form and arrangement of the several parts without de-
 45 parting from the spirit and scope of my invention and hence I do not intend to limit myself strictly to the construction herein shown and described, but

What I claim is:

50 1. In a machine of the character described, one or more form cylinders, an impression cylinder having a plurality of impression surfaces, two sources of sheet supply, and a rotary sheet carrier arranged to
 55 feed sheets to successive impression surfaces of the impression cylinder from said two sources.

2. In a machine of the character described, one or more form cylinders, an im-
 60 pression cylinder having a plurality of impression surfaces, two sources of sheet supply and two coacting rotary carriers arranged to feed sheets to successive impres-
 65 sion surfaces of the impression cylinder from said two sources.

3. In a machine of the character described, one or more form cylinders, an impression cylinder, two sources of sheet supply and two coacting rotary sheet carriers arranged to take sheets from their respective
 70 sources, one of the carriers being arranged to take the sheets from the other carrier and to transfer the sheets from both sources to said impression cylinder.

4. In a machine of the character de- 75 scribed, one or more form cylinders, an impression cylinder having a plurality of impression surfaces, two sources of sheet supply and two coacting rotary sheet carriers arranged to take sheets from their respective
 80 sources, one of the carriers being arranged to take the sheets from the other carrier and to transfer the sheets from both sources to successive surfaces of the impression cylinder.

5. In a machine of the character de- 85 scribed, an impression cylinder having a plurality of impression surfaces, one or more form cylinders located at one side of the impression cylinder, a rotary delivery carrier
 90 located at the other side of the impression cylinder, two sources of sheet supply, and two coacting rotary sheet carriers located at the top of the impression cylinder and arranged to feed sheets to successive impres-
 95 sion surfaces of the impression cylinder from said two sources.

6. In a machine of the character de- 100 scribed, one or more form cylinders, an impression cylinder, two sources of sheet supply and two coacting rotary sheet carriers each arranged to take a sheet from its respective source every second revolution and one arranged to take a sheet from the other
 105 carrier every second revolution and to transfer sheets every revolution to the impression cylinder.

7. In a machine of the character de- 110 scribed, one or more form cylinders, an impression cylinder having a plurality of impression surfaces, two sources of sheet supply and two coacting rotary sheet carriers each arranged to take a sheet from its respective source every second revolution and one arranged to take a sheet from the other
 115 carrier every second revolution and transfer the sheets every revolution to successive surfaces of the impression cylinder.

8. In a machine of the character de- 120 scribed, one or more form cylinders, an impression cylinder having a plurality of grippers the distance between them equaling the circumference of the form cylinder or cylinders, two sources of sheet supply and a rotary sheet carrier for feeding the sheets
 125 alternately from said two sources to successive grippers of the impression cylinder, whereby a sheet is printed every revolution of the form cylinder or cylinders.

9. In a machine of the character de- 130

scribed, one or more form cylinders, an impression cylinder having a plurality of grippers the distance between them equaling the circumference of the form cylinder or cylinders, two sources of sheet supply and two rotary sheet carriers coacting to feed the sheets alternately from said two sources to

successive grippers of the impression cylinder, whereby a sheet is printed every revolution of the form cylinder or cylinders. 10

In testimony, that I claim the foregoing as my invention, I have signed my name, this eighteenth day of June, 1918.

HOWARD M. BARBER