R. J. GREENWAY, JR.
ROTARY PRINTING PRESS.
APPLICATION FILED OCT. 9, 1912.

1,100,429.

Patented June 16, 1914.

2 SHEETS—SHEET 1.

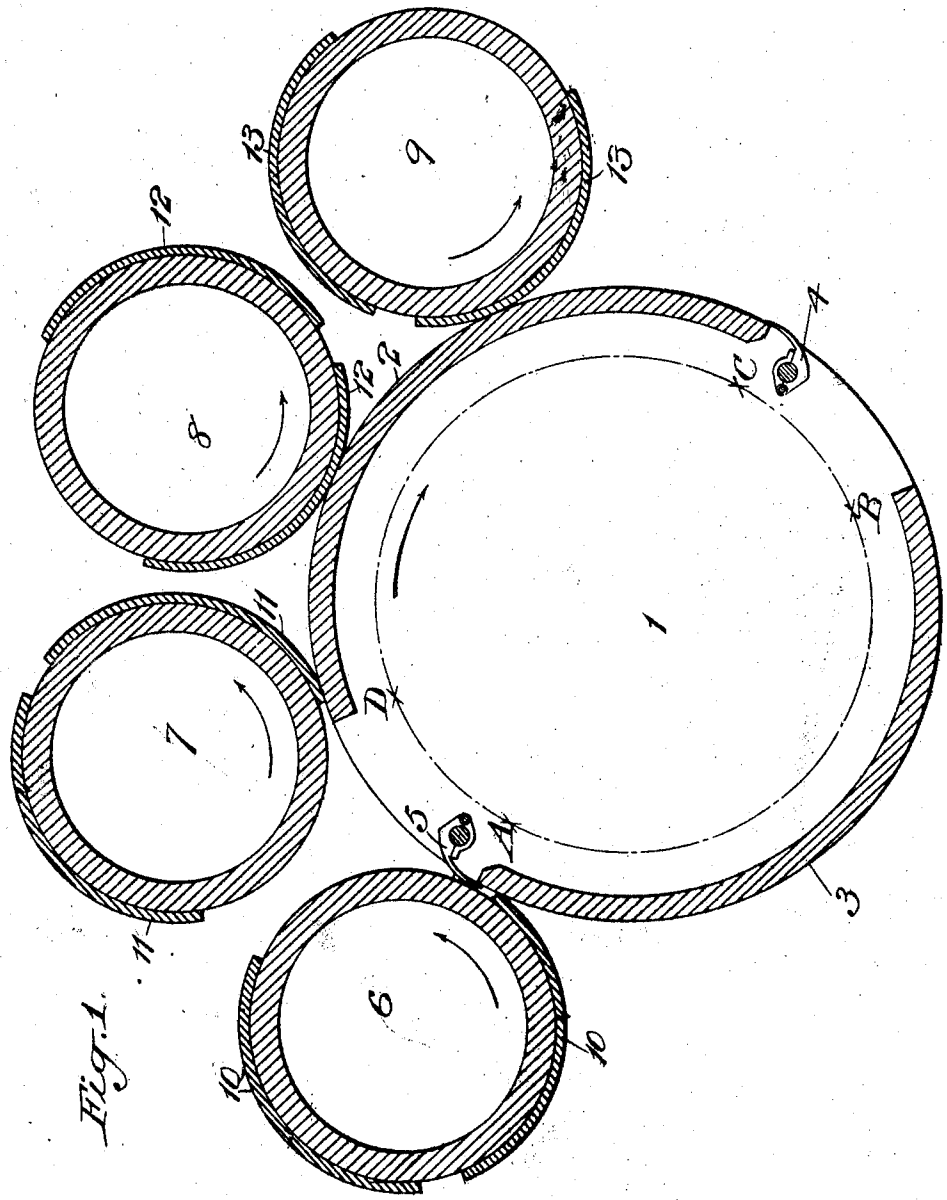


Fig. 1.

Witnesses:
F. George Barry.
Henry A. Thieme.

Inventor:
Richard J. Greenway Jr.
by his attorneys
Brown & Wood

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2 SHEETS—SHEET 2.

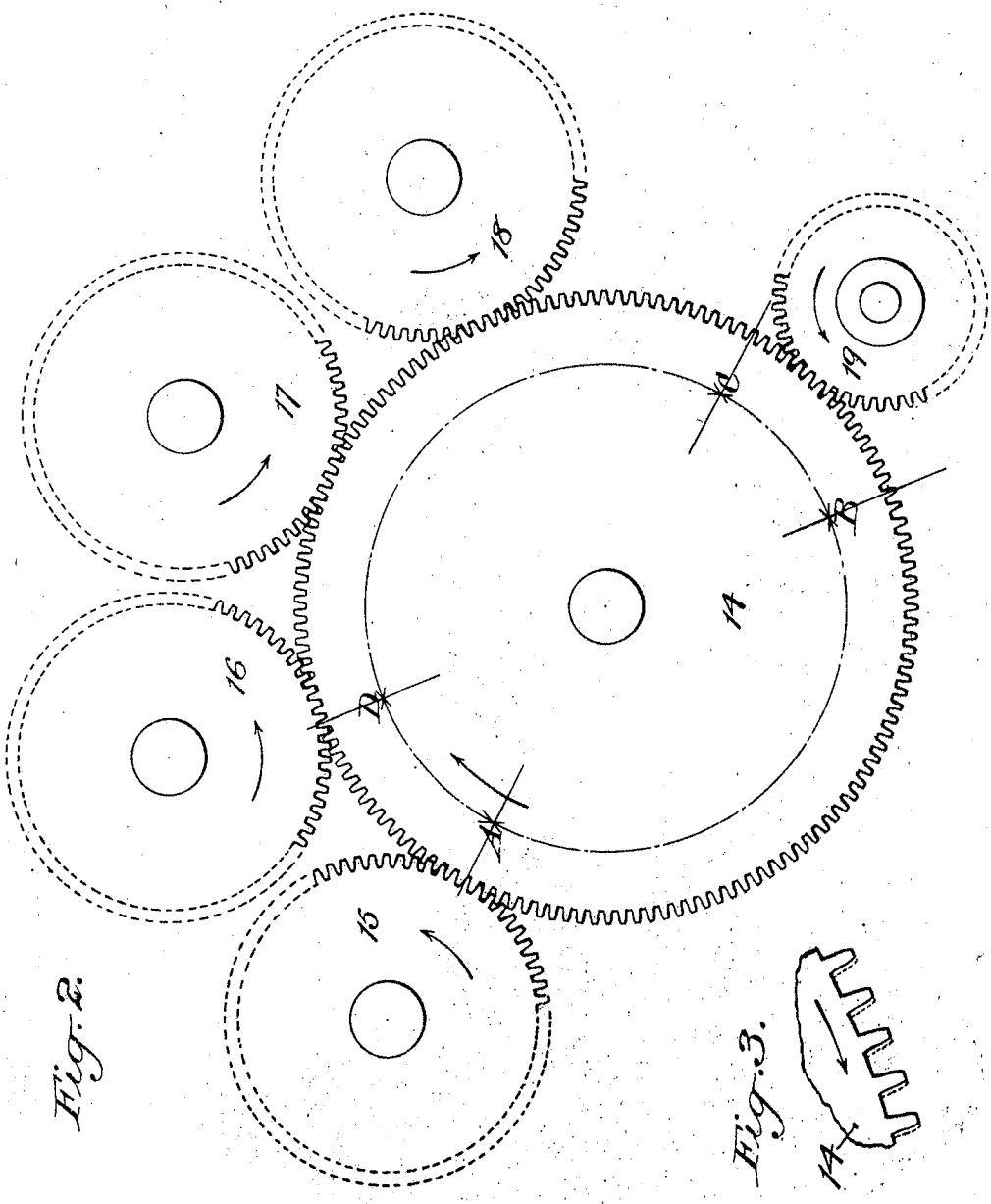


Fig. 2.

Fig. 3.

Witnesses:-
F. George Barry.
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Richard J. Greenway Jr.
by his attorneys
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UNITED STATES PATENT OFFICE.

RICHARD J. GREENWAY, JR., OF WESTERLY, RHODE ISLAND, ASSIGNOR TO C. B. COTTRELL & SONS COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

ROTARY PRINTING-PRESS.

1,100,429. Specification of Letters Patent. Patented June 16, 1914.

Application filed October 9, 1912. Serial No. 724,774.

To all whom it may concern:

Be it known that I, RICHARD J. GREENWAY, Jr., a citizen of the United States, and resident of Westerly, in the county of Washington and State of Rhode Island, have invented a new and useful Improvement in Rotary Printing-Presses, of which the following is a specification.

In rotary printing presses it is very difficult for the pressman to so accurately locate the plate on its cylinder and the impression surface on its cylinder that there will be no drag of the plate on its impression surface during the printing operation. Many different devices have been provided in the attempt to overcome this objection and the object of this present invention is to provide a novel device for transferring the control of the plate cylinder from the impression cylinder gear to the impression surface of the impression cylinder during the printing operation so as to prevent any drag of the plate on its impression surface, the said device being arranged to transfer the control from the impression surface back to the impression cylinder gear after the printing operation has been completed, for bringing the plate cylinder back into its proper register for starting the next succeeding printing operation.

My invention more particularly consists in so forming the teeth of the impression cylinder gear that the above object is obtained in a very simple manner and at the same time not interfering with the positive drive of the impression cylinder gear.

In the accompanying drawings, I have shown my invention as applied to a rotary multicolor printing press.

Figure 1 is a detail section through so much of a multicolor printing press as will give a clear understanding of my invention, Fig. 2 is a detail view showing the geared connection between the impression and plate cylinders and between the impression cylinder and its driving means, and Fig. 3 is a fragmentary view on an enlarged scale for more clearly illustrating the cutting away of the back of the teeth for gradually reducing their thickness.

The impression cylinder is denoted by 1, which cylinder is herein shown as having two impression surfaces 2 and 3, with two sets of sheet carrying grippers 4 and 5.

The plate cylinders are denoted by 6, 7, 8 and 9, and their plates by 10, 11, 12, and 13 respectively.

The impression cylinder gear is denoted by 14 and the plate cylinder gears driven thereby, by 15, 16, 17 and 18 respectively.

The gear for positively driving the impression cylinder gear 14, is denoted by 19, which gear is at all times in positive driving connection with the said gear 14.

The teeth on the impression cylinder gear 14, are so formed that the control of each plate cylinder will be transferred from the impression cylinder gear to each impression surface thereon, during the printing operation and back to the impression cylinder gear after the printing operation has been completed. This is accomplished in the present instance where two impression surfaces are formed on the impression cylinder, by gradually decreasing the thickness of successive teeth from the point A to the point B and from the point C to the point D, and rapidly increasing the thickness of successive teeth from the point B to the point C and from the point D to the point A. This varying of the thickness of the teeth is accomplished by cutting away the backs of the teeth to a greater or lesser extent as clearly shown in Fig. 3, whereby the positive driving engagement of the fronts of the teeth on the gear 19 with the fronts of the teeth on the gear 14, is maintained. This gradual reduction in thickness of the teeth is arranged along the impression surfaces of the impression cylinder and the rapid increase in thickness of the teeth for bringing the plate cylinders back to proper register is arranged along the portions of the impression cylinder between its impression surfaces.

By the gradual reduction of the thickness of the teeth on the impression cylinder gear along the impression surface thereof, I am enabled to transfer the control of the plate cylinder from the impression cylinder gear to the impression surface on the impression cylinder without any exterior operating devices and the transfer of the control of the plate cylinder back to the impression cylinder gear at a point beyond the impression surface on the impression cylinder gear is accomplished without any exterior operating devices. A very simple means is thus pro-

vided for accomplishing the result above set forth.

While I have illustrated this invention in connection with a rotary multicolor press and in connection with an impression cylinder having two impression surfaces, it is to be understood that I do not wish to limit myself to multicolor rotary presses nor to any particular number of impression surfaces on the impression cylinder, but contemplate the use of the invention in connection with rotary printing presses of any character in which the impression cylinder has any desired number of impression surfaces.

What I claim is:

1. In a rotary printing press, an impression cylinder having a plurality of impression surfaces, its gear, a plate cylinder and its gear driven from the impression cylinder gear, the teeth on the impression cylinder gear being so formed that the control of the plate cylinder will be transferred from the impression cylinder gear to the impression surfaces during the printing operations and back to the impression cylinder gear between the printing operations.

2. In a rotary multicolor printing press, an impression cylinder, its gear, a plurality of plate cylinders and their gears driven from the impression cylinder gear, the teeth on the impression cylinder gear being so formed that the control of the plate cylinders will be transferred from the impression cylinder gear to the impression surface during the printing operations and back to the impression cylinder gear between the printing operations.

3. In a rotary multicolor printing press, an impression cylinder having a plurality of impression surfaces, its gear, a plurality of plate cylinders and their gears driven from the impression cylinder gear, the teeth on the impression cylinder gear being so formed that the control of the plate cylinders will be transferred from the impression cylinder gear to the impression surfaces during the printing operations and back to the impression cylinder gears between the printing operations.

4. In a rotary printing press, an impression cylinder, its gear, a plate cylinder and its gear, the teeth on the impression cylinder gear decreasing in thickness along the impression surface of the cylinder and increasing in thickness beyond said impression surface for transferring the control of the plate cylinder from the impression cylinder gear to the impression surface during the printing operation and back to the impression cylinder gear after the printing operation.

5. In a rotary printing press, an impression cylinder, its gear, a plate cylinder and its gear, the teeth on the impression cylinder gear gradually decreasing in thickness along the impression surface of the cylinder and rapidly increasing in thickness beyond said impression surface for transferring the control of the plate cylinder from the impression cylinder gear to the said impression surface during the printing operation and back to the impression cylinder gear after the printing operation.

6. In a rotary printing press, an impression cylinder having a plurality of impression surfaces, its gear, a plate cylinder and its gear, the teeth on the impression cylinder gear decreasing in thickness along the impression surfaces and increasing in thickness between said impression surfaces for transferring the control of the plate cylinder from the impression cylinder gear to the said impression surfaces during the printing operation and back to the impression cylinder gear between the printing operations.

7. In a rotary printing press, an impression cylinder having a plurality of impression surfaces, its gear, a plate cylinder and its gear, the teeth of the impression cylinder gear gradually decreasing in thickness along the impression surfaces and rapidly increasing in thickness between said impression surfaces for transferring the control of the plate cylinder from the impression cylinder gear to the said impression surfaces during the printing operation and back to the impression cylinder gear between the printing operations.

8. In a rotary multicolor printing press, an impression cylinder, its gear, a plurality of plate cylinders and their gears, the teeth of the impression cylinder gear decreasing in thickness along the impression surface of the cylinder and increasing in thickness beyond said impression surface for transferring the control of each plate cylinder from the impression cylinder gear to the said impression surface during the printing operation and back to the impression cylinder gear after the printing operation.

9. In a rotary multicolor printing press, an impression cylinder, its gear, a plurality of plate cylinders and their gears, the teeth of the impression cylinder gear gradually decreasing in thickness along the impression surface of the cylinder and rapidly increasing in thickness beyond said impression surface for transferring the control of each plate cylinder from the impression cylinder gear to the said impression surface during the printing operation and back to the impression cylinder gear after the printing operation.

10. In a rotary multicolor printing press, an impression cylinder having a plurality of impression surfaces, its gear, a plurality of plate cylinders and their gears, the teeth of the impression cylinder gear decreasing in thickness along the impression surfaces

and increasing in thickness between said impression surfaces for transferring the control of each plate cylinder from the impression cylinder gear to the said impression surfaces during the printing operations and back to the impression cylinder gear between the printing operations.

11. In a rotary multicolor printing press, an impression cylinder having a plurality of impression surfaces, its gear, a plurality of plate cylinders and their gears, the teeth of the impression cylinder gear gradually decreasing in thickness along the impression surfaces and rapidly increasing in thickness between said impression surfaces for transferring the control of each plate cylinder from the impression cylinder gear to the said impression surfaces during the printing operations and back to the impression cylinder gear between the printing operations.

12. In a rotary printing press, an impression cylinder, its gear, a plate cylinder, its gear, a gear for positively driving the impression cylinder gear, the backs of the impression cylinder gear teeth being successively cut away to an increasing extent along the impression surface of the cylinder and to a decreasing extent beyond the impression surface for transferring the control of the plate cylinder from the impression cylinder gear to the said impression surface during the printing operation and back to the impression cylinder gear after the printing operation without interfering with the driving connection between the impression cylinder gear and its driving gear.

13. In a rotary printing press, an impression cylinder, its gear, a plate cylinder, its gear, a gear for positively driving the impression cylinder gear, the backs of the impression cylinder gear teeth being successively cut away gradually to an increasing extent along the impression surface of the cylinder and rapidly to a decreasing extent beyond the impression surface for transferring the control of the plate cylinder from the impression cylinder gear to the said impression surface during the printing operation and back to the impression cylinder gear after the printing operation without interfering with the driving connection between the impression cylinder gear and its driving gear.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two witnesses, this seventh day of October, A. D. 1912.

RICHARD J. GREENWAY, JR.

Witnesses:
A. R. STILLMAN,
A. C. WHITFORD.