

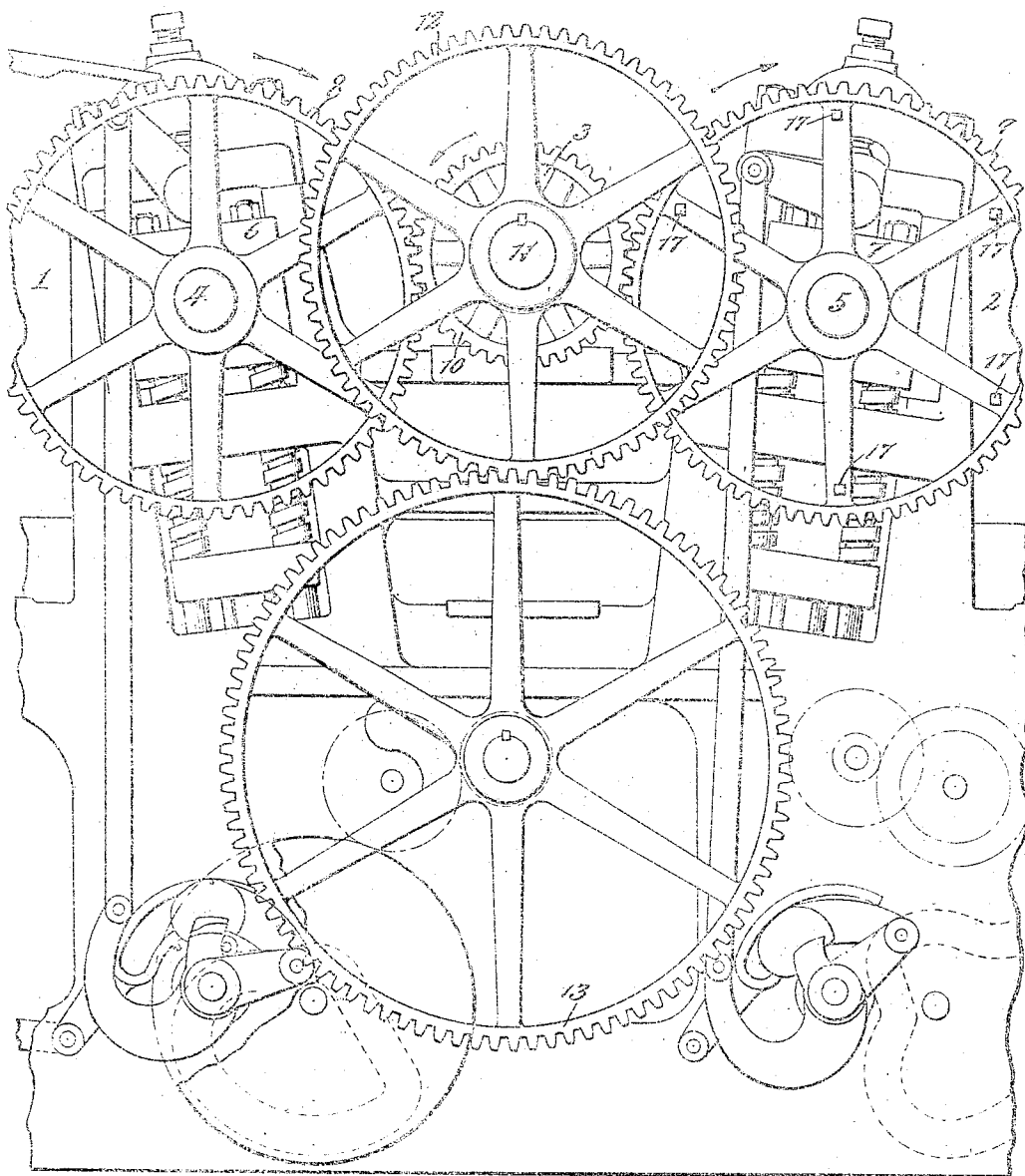
R. MIEHLE.
MULTICOLOR PRINTING PRESS.
APPLICATION FILED JAN. 30, 1911.

1,089,777.

Patented Oct. 1, 1912.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

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Inventor:

Robt Miehle
By Carson & Co. Attys

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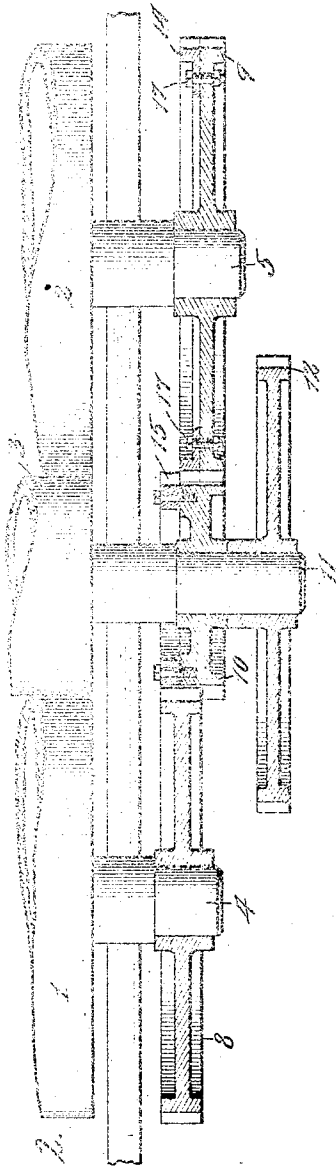


Fig. 2.

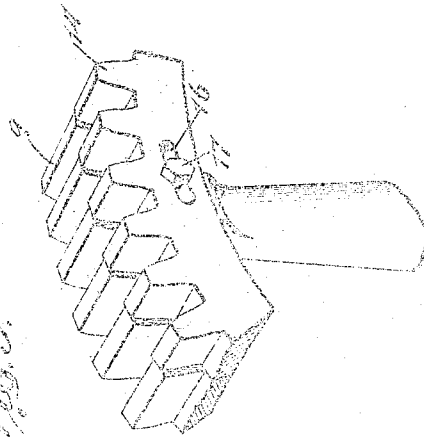


Fig. 3.

Witnesses:
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UNITED STATES PATENT OFFICE.

ROBERT MIEHLE, OF CHICAGO, ILLINOIS, ASSIGNOR TO MIEHLE PRINTING PRESS AND MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

MULTICOLOR-PRINTING PRESS.

1,039,777.

Specification of Letters Patent.

Patented Oct. 1, 1912.

Application filed January 30, 1911. Serial No. 605,478.

To all whom it may concern:

Be it known that I, ROBERT MIEHLE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Multicolor-Printing Presses, of which the following is a full, clear, and exact specification.

This invention relates to improvements in printing presses for printing two or more colors upon the same side of the same sheet, and has especial reference to presses of this class employing one or more transfer cylinders located between adjacent impression cylinders for causing the sheet after it has received the impression of one cylinder, to be properly transferred to the next cylinder, and the improvements have especial reference to securing proper registration of the cylinders with relation to one another.

The invention has for its object to provide improved, simple and efficient means for taking up the wear or lost motion between the teeth of the driving gears of the several cylinders and thereby securing accurate registration of the same.

The invention consists in the features of novelty which will now be described with reference to the accompanying drawings, and then more particularly pointed out in the claims.

In the said drawings, Figure 1 is a side elevation of the gear side of a multicolor printing press embodying this invention. Fig. 2 is a plan section of the gearing thereof, taken on an enlarged section. Fig. 3 is a detail perspective view of one of the gears.

The invention is shown as applied to a two-color two revolution printing press, but it will nevertheless be understood that the number of printing couples or printing cylinders employed above two will be immaterial, so far as the invention is concerned. In this exemplification of the invention, 1 is the first cylinder, 2 the second cylinder, and 3 the transfer cylinder situated between cylinders 1 and 2 in the usual or any suitable manner. The cylinders 1 and 2 are provided with shafts 4, 5 respectively, mounted in suitable boxes 6, 7, in any appropriate way, and secured to these shafts 4, 5 are gear wheels 8, 9 respectively, by means of

which the cylinders 1 and 2 are driven in their proper direction of rotation from a driving gear 10 fixed to shaft 11 of the transfer cylinder 3, and which shaft 11 receives its motion from any suitable source of power through the intermediary of the usual train of gears, of which a gear 12 secured to the shaft 11 and an intermeshing gear 13 are constituent members.

The gear 9 is provided on one face with a concentrically adjustable gear ring 14 provided with teeth of the same pitch and diameter as the teeth of the gear 9, and the gear 10 is similarly provided on one face with a gear ring 15 whose diameter and pitch are the same respectively as the diameter and pitch of the gear 10, thus making each of these gears 9, 10 what is known as split gears. These gear rings 14, 15 may be held securely in place against the faces of their respective companions by any suitable means permitting of their rotarial or concentric adjustment. For this purpose, the expedient better illustrated in detail in Fig. 3 is resorted to. This consists in slotting one of the members, preferably the gear ring as shown at 16, with a slot concentric with the center of the gear, and providing the main portion of the gear, the gear 9, for example, with a set screw or set bolt 17 passing through the slot. This bolt may pass entirely through the web of the gear, as illustrated with respect to the gear 9, or it may be screw-threaded into the main gear as illustrated with respect to the gear 10, but in both cases it serves as a means of firmly clamping the ring gear in place with capability of having its teeth adjusted with relation to the teeth of the main gear 9, or 10, and thereby taking up lost motion due to wear or other causes occurring between the teeth of the gears 8, 9 and 10.

By referring to Fig. 2 of the drawings, it will be seen that the gear 9 and its ring 14, taken together, are of a width less than the combined width of the gear 10 and its ring 15, and preferably equal to the width of the gear 10, so that they do not mesh with the gear ring 15, while gear 8 is of a width sufficient to overlap both the gear 10 and its ring 15. Consequently it will be seen that the ring 14 may be utilized as a means for taking up back-lash between the

gears 9 and 10, while the ring 15 may be utilized for a similar purpose with respect to the gears 8 and 10.

What I claim is:

- 5 1. In a multi-cylinder multi-color printing press the combination with the impression cylinders, of a transfer cylinder introduced between the same, a gear rotatable with the transfer cylinder and two gears
10 connected with the impression cylinders respectively and intermeshing with the said transfer cylinder gear, of a gear ring concentrically adjustable with respect to one of said cylinder gears and meshing with
15 said transfer cylinder gear, and a second gear ring concentrically adjustable with relation to said transfer cylinder gear and engaging only with the other one of said cylinder gears.
- 20 2. In a multi-cylinder multi-color printing machine the combination, with the im-

pression cylinders, of a transfer cylinder arranged intermediate thereof, and intermeshing gear wheels for said cylinders respectively, of a concentrically adjustable gear ring for one of said impression cylinders intermeshing with the gear of the transfer cylinder, and a concentrically adjustable gear ring for the transfer cylinder gear arranged entirely out of the plane of rotation of the first said gear ring but in the plane of rotation of and meshing only with the other one of said impression cylinder gears.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 27th day of January A. D. 1911.

ROBERT MIEHLE.

Witnesses:

FRANCIS A. HOPKINS,
CHARLES H. SEEM.