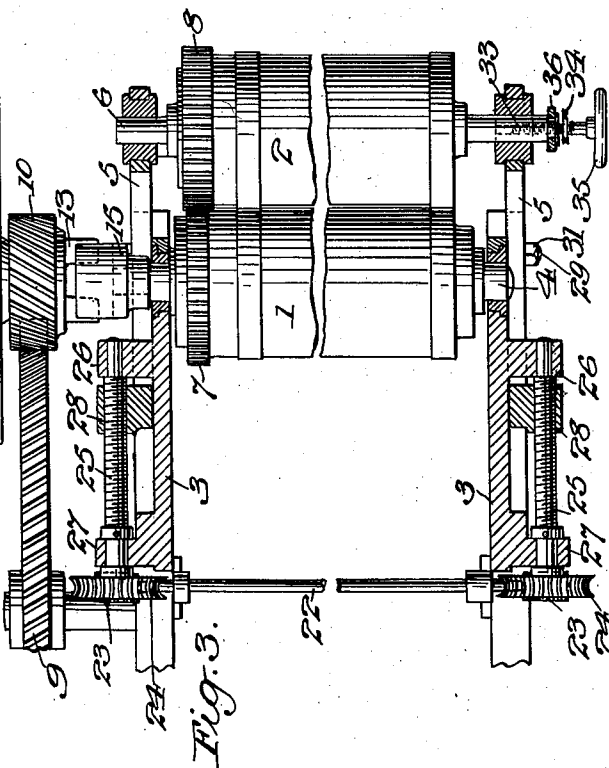
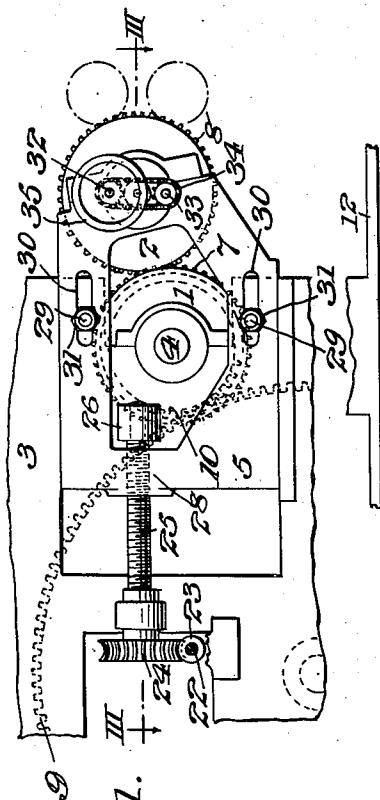
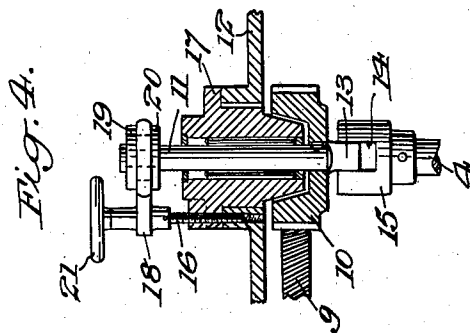
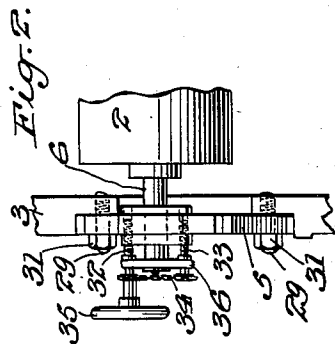


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H. M. BARBER
ROTARY PRINTING PRESS

2,256,801

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2,256,801

ROTARY PRINTING PRESS

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6 Claims. (Cl. 101—248)

The object of my invention is to provide novel means whereby the form cylinder of a printing couple may be adjusted both rotatively and endwise either while the press is at rest or while the press is running, as may be desired, so that the form on the form cylinder may be brought into both longitudinal and lateral register with respect to the web, easily and quickly.

My invention is particularly applicable to the rotative and endwise adjustment of a change form cylinder where a fixed mounting is provided for the change impression cylinder and a movable mounting is provided for the change form cylinder of the printing couple.

My invention includes two manually operated means, one of these means acting directly on the form cylinder for endwise adjusting it and the other acting on the form cylinder through the impression cylinder for rotatively adjusting the form cylinder.

My invention also includes a main driving spiral gear and an auxiliary driven spiral gear slidably interlocked with the impression cylinder which is operatively connected to the form cylinder; and where change impression and form cylinders are employed, change gears operatively connecting the change impression and form cylinders.

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

Fig. 1 represents a detail side view of that part of a web printing rotary press which includes my invention;

Fig. 2 represents a detail end view of the same;

Fig. 3 represents a detail horizontal section taken in the plane of the line III—III of Fig. 1; and

Fig. 4 represents a detail horizontal section of the means for rotatively adjusting the form cylinder through the impression cylinder which is operatively connected to the form cylinder.

The printing couple is shown herein as comprising a change impression cylinder 1 and a change form cylinder 2 operatively connected to the change impression cylinder. The main side frames 3 of the press provide a stationary support for rotatively and removably mounting the shaft 4 of the change impression cylinder 1. Auxiliary side frames 5 which are carried by the main side frames 3 provide a movable support for rotatively mounting the shaft 6 of the change form cylinder 2 to permit endwise movement of the change form cylinder laterally of the press.

Change gears 7 and 8 are carried by the change impression and form cylinders 1 and 2 respectively

and these change gears provide an operative driving connection between the said cylinders whereby the cylinders are driven in unison; it being understood that the corresponding size of these change gears vary with the corresponding size of the change impression and form cylinders. One of these gears, in the present instance the gear 8, is wide faced to permit the endwise movement of its form cylinder 2 without disconnecting the gears.

The drive for the printing couple includes a main driving spiral gear 9 and an auxiliary driven spiral gear 10 having its shaft 11 mounted for endwise movement in an auxiliary side frame 12 carried by one of the main side frames 3. The shaft 11 of the auxiliary spiral gear 10 is mounted in alignment with the shaft 4 of the change impression cylinder 1. This auxiliary spiral gear 10 is slidably and removably interlocked with the said shaft 4 as follows: the auxiliary spiral gear 10 is provided with tongues 13 which slide within a recess 14 in a coupling 15 secured to the adjacent end of the impression cylinder shaft 4. The shaft 11 with its auxiliary gear 10 is moved endwise by a suitable device, such, for instance, as a hand screw 16 threaded into the auxiliary frame 12 through the bearing cap 17. This hand screw 16 may be provided with a yoke 18 located between two spaced collars 19, 20 fixed on the auxiliary spiral gear shaft 11. This hand screw 16 may also be provided with a suitable hand wheel 21 for manipulating it.

It will be seen that the turning of the hand screw 16 will move the shaft 11 and thereby the auxiliary spiral gear 10 endwise and because of the spiral gear connection between the gears 9 and 10 and the sliding interlocked connection of the gear 10 with the impression cylinder this endwise movement of the auxiliary spiral gear 10 will adjust the impression cylinder rotatively. As the impression cylinder 1 is geared to the form cylinder 2 the form cylinder will also be adjusted rotatively to bring its form into the desired longitudinal register with respect to the web. It will also be seen that this rotative adjustment may be accomplished, if desired, while the press is running.

The means which I have shown for simultaneously moving the pair of auxiliary side frames 5 in which the shaft 6 of the change form cylinder 2 is mounted for endwise movement, is as follows: a cross shaft 22 has worm and gear connections 23 and 24 with their respective longitudinally disposed screw shafts 25 mounted in suitable fixed bearings 26, 27 in the main side

frames 3 and having threaded engagements with lugs 28 on their respective auxiliary side frames 5. This cross shaft 22 may be manipulated by a hand wheel or crank, not shown herein.

Bolts 29 project outwardly from the main side frames 3 through elongated slots 30 in the auxiliary side frames 5, and nuts 31 on said bolts serve to clamp the auxiliary side frames 5 to the main side frames 3 in their adjusted position. It will be understood that these auxiliary side frames are adjusted to suit change impression and form cylinders of various corresponding sizes.

The device for endwise adjusting the form cylinder 2 is carried by one of the auxiliary side frames 5 and may be constructed, arranged and operated as follows: two hand screws 32, 33 are spaced from the form cylinder shaft 6 upon opposite sides thereof, said hand screws being threaded into the auxiliary side frame 5. These hand screws are connected to turn together by an endless chain 34 and one of the hand screws, in the present instance the hand screw 32 may be provided with a suitable hand wheel 35 for manipulating the screws.

The shaft 6 of the change form cylinder 2 carries a double yoke 36 which is operatively connected to the hand screws 32, 33 whereby the endwise movements of the hand screws will impart an endwise movement to the yoke 36 and thereby the shaft 6 and its form cylinder 2. This endwise movement of the form cylinder will move the form to bring it into its proper register laterally of the traveling web. It will be seen that this endwise adjustment of the form cylinder may be accomplished while the press is at rest or while it is running and that also this adjustment may be accomplished regardless of the size of the change form and impression cylinders.

This application is a continuation in part of my copending application filed December 23, 1939, Serial No. 310,788.

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. In a web printing rotary press a change impression cylinder, a change form cylinder, change gears operatively connecting the cylinders, a drive for the impression cylinder, and means for rotatively adjusting the impression cylinder to cause it to rotatively adjust the form cylinder through said change gears, said impression and form cylinders being removable with their gears without disturbing the drive.

2. In a web printing rotary press, a change impression cylinder, a change form cylinder, change gears operatively connecting the cylinders, a drive for the impression cylinder, means for rotatively adjusting the impression cylinder to cause it to rotatively adjust the form cylinder through said change gears, said impression and form cylinders being removable with their gears without disturbing the drive, and means acting directly on the change form cylinder for adjusting it endwise.

3. In a web printing rotary press, a change impression cylinder, a change form cylinder, gears operatively connecting the cylinders, fixed and movable supports for mounting the change impression and form cylinders respectively, and means on the fixed support for rotatively adjusting the impression cylinder to cause it to rotatively adjust the form cylinder through said gears.

4. In a web printing rotary press, a change impression cylinder, a change form cylinder, gears operatively connecting the cylinders, fixed and movable supports for mounting the change impression and form cylinders respectively, means on the fixed support for rotatively adjusting the impression cylinder to cause it to rotatively adjust the form cylinder through said gears, and means on the movable support acting directly on the change form cylinder for adjusting it endwise.

5. In a web printing rotary press, a change impression cylinder, a change form cylinder, change gears operatively connecting the cylinders, fixed and movable supports for mounting the change impression and form cylinders respectively, means on the fixed support for rotatively adjusting the impression cylinder to cause it to rotatively adjust the form cylinder through said change gears, and means on the movable support acting directly on the change form cylinder for adjusting it endwise.

6. In a web printing rotary press, a change impression cylinder, a change form cylinder, change gears operatively connecting the cylinders, fixed and movable supports for mounting the change impression and form cylinders respectively, means on the fixed support for rotatively adjusting the impression cylinder to cause it to rotatively adjust the form cylinder through said change gears, and means on the movable support acting directly on the change form cylinder for adjusting it endwise, said first named means including intermeshing main and auxiliary spiral gears, the auxiliary spiral gear being slidably and removably interlocked with the said change impression cylinder.

HOWARD M. BARBER.