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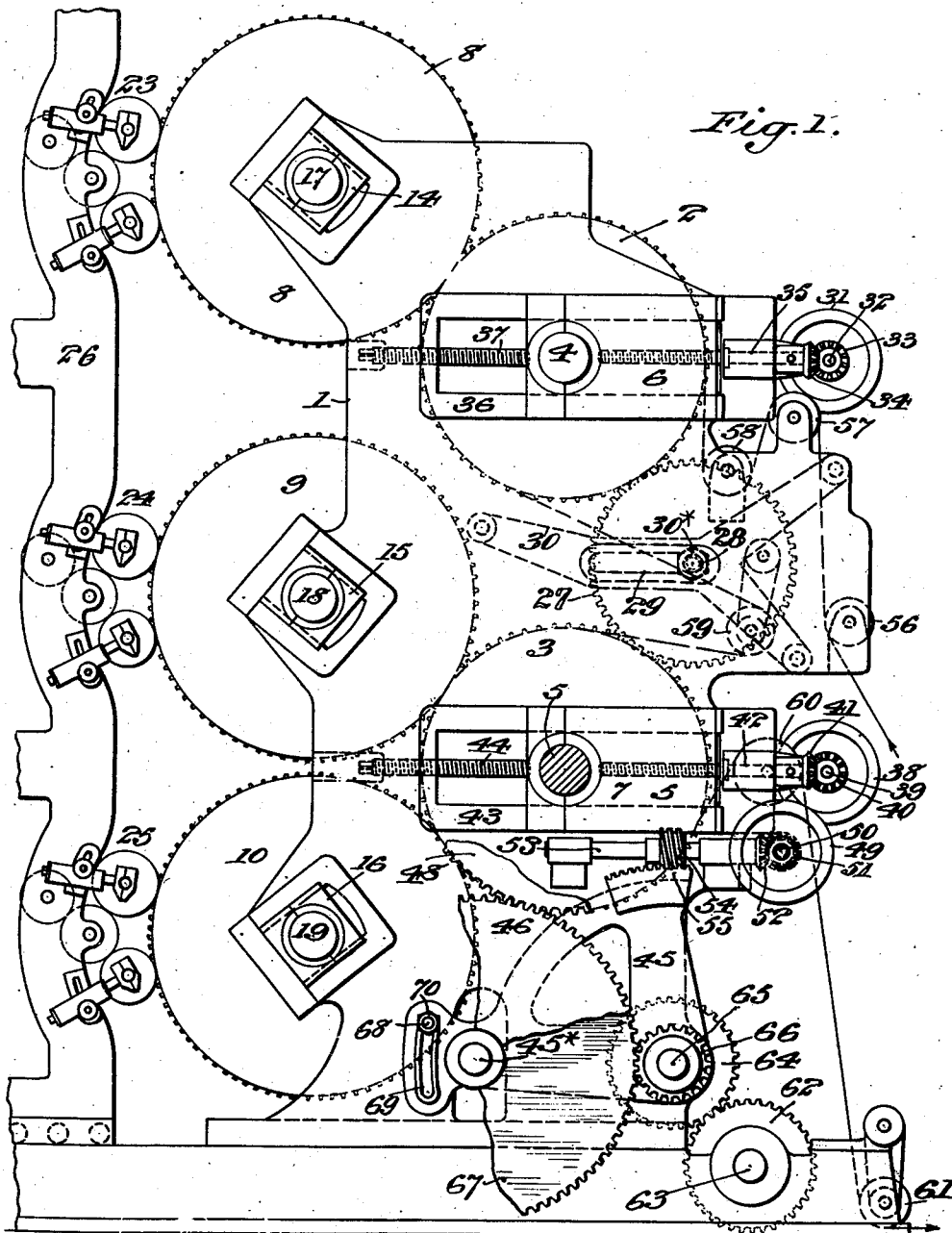
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1,783,766

ROTARY WEB PRINTING PRESS

Filed Nov. 10, 1928

2 Sheets-Sheet 1

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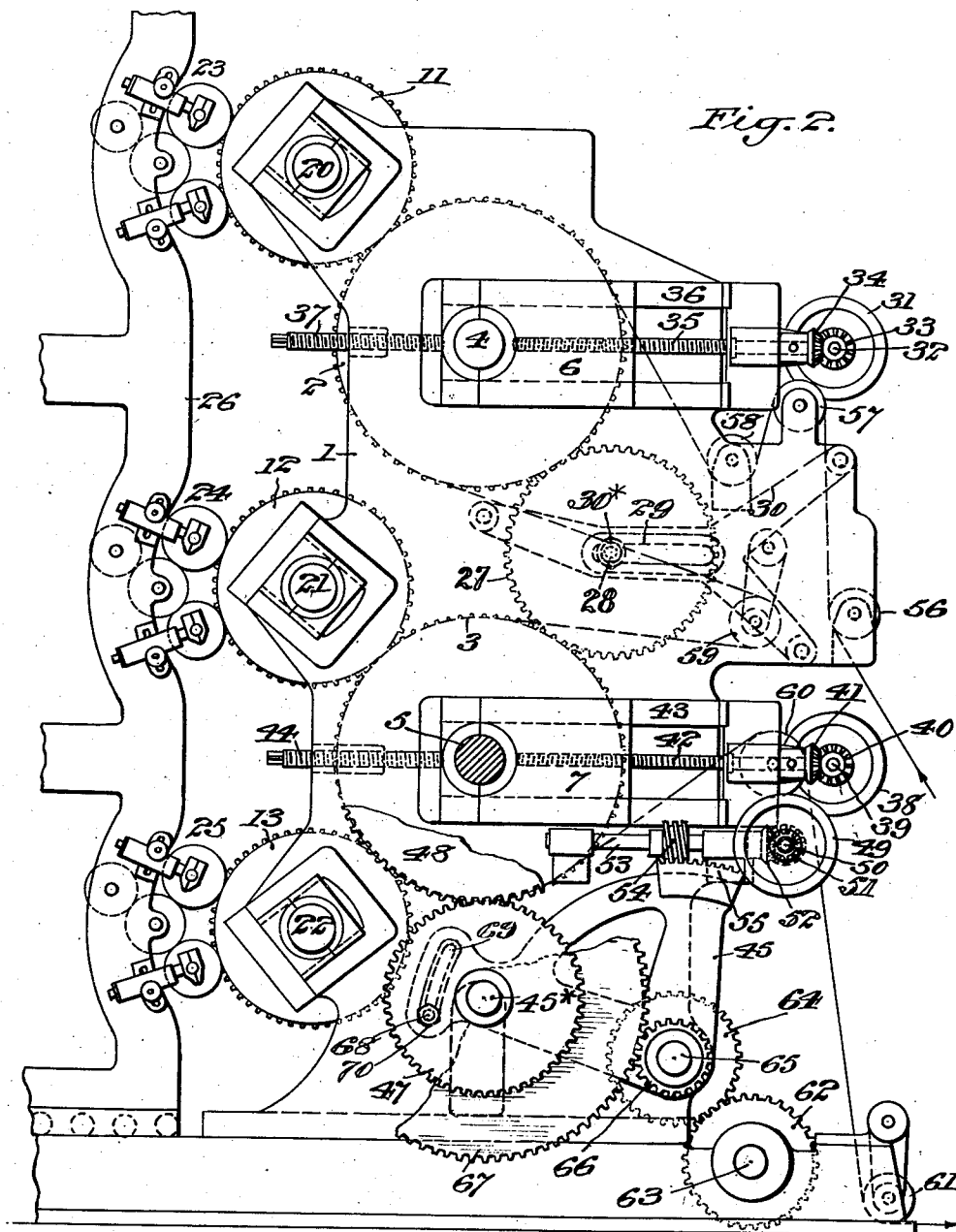
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UNITED STATES PATENT OFFICE

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ROTARY WEB-PRINTING PRESS

Application filed November 10, 1928. Serial No. 318,506.

The object of my present invention is to provide a rotary web printing press which is especially designed for so called bag printing whereby the printed web which may be of thin or loosely woven material, such as bur-

lap, will have the successive printings thereon in one or more colors, spaced at different distances apart according to the length of the sheets which are to be cut from the web.

My invention comprises one or more impression cylinders of a predetermined diameter, one or more form cylinders of a predetermined diameter and means for moving the impression cylinder or cylinders into position to coact with the form cylinder or cylinders for printing in one or more colors.

My invention further comprises an impression cylinder of a predetermined diameter and coacting form cylinders of larger or smaller corresponding diameters, which form cylinders I will hereinafter designate as change form cylinders as they may be of any desired corresponding diameters within a reasonable range and not necessarily sub-multiples of the diameter of the impression cylinder, to suit bag blanks or sheets of different lengths; the change form cylinders of one diameter for one predetermined length of sheet being readily substituted for change form cylinders of another diameter for another predetermined length of sheet, without rebuilding the press.

My invention further comprises means for moving the impression cylinder into position to coact with one or more change form cylinders of a predetermined diameter and, more particularly comprises means for moving two impression cylinders into position to coact with their respective change form cylinders.

My invention still further comprises, in a three color rotary web printing press, three change form cylinders of the same diameter, and two impression cylinders adjustable for coaction therewith, means being provided for moving one impression cylinder into position to coact with one change form cylinder, and the other impression cylinder into position to coact with the remaining two change form cylinders, and for locking the impression cylinders in their adjusted positions; an adjustable registering gear which

coacts with both impression cylinder gears being also provided, for ensuring the synchronous action of the two impression cylinders.

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

Fig. 1 represents a detail side elevation illustrating the impression cylinders adjusted for coaction with relatively large change form cylinders of the same diameter.

Fig. 2 represents a similar view illustrating the impression cylinders adjusted for coaction with relatively small change form cylinders of the same diameter.

The main frame of the press is denoted by 1, in each side of which frame the upper and lower impression cylinders 2 and 3 of the same desired diameter, have their shafts 4 and 5 mounted in horizontally adjustable bearings 6 and 7, located in the same vertical plane. These impression cylinders 2 and 3 present an unbroken impression surface.

In Figure 1 the three change form cylinders 8, 9 and 10 of the same relatively large diameter are driven from their respective impression cylinders 2 and 3, the change form cylinder 8 being shown as coacting with the impression cylinder 2 and the change form cylinders 9 and 10 as coacting with the impression cylinder 3. In Figure 2 the three change form cylinders 11, 12 and 13 of the same relatively small diameter are driven from their respective impression cylinders 2 and 3, the change form cylinder 11 being shown as coacting with the impression cylinder 2 and the change form cylinders 12 and 13 as coacting with the impression cylinder 3. The circumference of each change form cylinder is herein shown as twice the length of the sheet designed to be cut from the printed web.

The three selected change form cylinders of one set are located in the same vertical plane, the two which coact with the lower impression cylinder 3 being located at equal distances above and below the plane of movement of the impression cylinder to permit its simultaneous coaction therewith.

Fixed bearings 14, 15 and 16 are provided at each side of the main frame for mounting

either the shafts 17, 18, 19 of the relatively large change form cylinders 8, 9, 10, shown in Fig. 1, or the shafts 20, 21, 22 of the relatively small change form cylinders 11, 12, 13, shown in Fig. 2.

While I have shown change form cylinders of two diameters, it is to be understood that these change form cylinders may be of any desired diameter, not necessarily a sub-multiple of the impression cylinder, so that successive printings on the web may be spaced any desired distance apart, within reasonable limits, to suit sheets of different lengths to be cut from the printed web.

The inking mechanisms for the change form cylinders are denoted as a whole by 23, 24 and 25, which inking mechanisms are mounted and positioned in a stand 26 adjustable along the base of the main frame 1, to bring the inking mechanisms into and out of simultaneous coaction with their respective change form cylinders of different corresponding diameters.

The impression cylinders 2 and 3 are connected for synchronous action through the registering gear 27 which is adjustable along a plane parallel to the planes of movement of the impression cylinders 2 and 3. The shaft 28 of this registering gear is movable along aligned horizontally elongated slots 29 in brackets 30 carried by the main frame, a nut 30* serving to lock the registering gear in its adjusted position.

The impression cylinder 2 is shown as moved into position to coact with its change form cylinder by the following means:

A hand wheel 31 has its cross shaft 32 provided with a bevel gear connection 33, 34, at each side of the machine frame with a screw shaft 35 engaging the bearing 6 which is slidable along a guideway 36. A set screw 37 is arranged in position to engage the bearing 6 and lock it in its adjusted position.

The impression cylinder 3 is shown as moved into position for simultaneous coaction with its two change form cylinders by the following means:

A handle 38 has its cross shaft 39 provided with a bevel gear connection 40, 41, at both sides of the main frame with a screw shaft 42 which engages the bearing 7, slidable along the guideway 43. An adjusting screw 44 is arranged in position to engage the bearing 7 and lock it in its adjusted position.

A change gear drive is provided for the impression and change form cylinders, which change gear drive is shown as including in each form, a change gear of the same diameter as the selected change form cylinders.

The rocking support for the change gear is denoted by 45 and it carries a stud shaft 45*. This stud shaft serves in Fig. 1 as a mounting for the change gear 46, and in Fig. 2 as a mounting for the change gear 47. The means which I have shown for rocking the

supports 45 to bring the selected change gear into driving connection with its impression cylinder gear 48 is shown as a hand wheel 49, the cross shaft 50 of which has a bevel gear connection 51, 52 with a worm shaft 53, the worm 54 meshing with a gear segment 55, carried by the rocking support 45.

The web is shown as passing around suitable rollers 56, 57, 58 to the impression cylinder 2; from thence around the roller 59 to the impression cylinder 3 and from thence around the rollers 60, 61, to the delivery point.

The drive for either the change gear 46 or the change gear 47 is shown as a gear 62 on the shaft 63 which meshes with a gear 64 on the shaft 65. A gear 66 on this shaft 65 meshes with a gear 67 on the stud shaft 45*.

The rocking support at each side of the machine may be locked in its adjusted position by means of a bolt 68 projecting through an elongated slot 69; a locking nut 70 being provided for said bolt.

In the accompanying drawings, the web is printed in three colors and it is shown as passing around both of the impression cylinders to be printed upon by the three form cylinders. However, it will be seen that the web may be printed in one color by passing it around the impression cylinder 2 to be printed upon by its form cylinder only; or in two colors by passing it around the impression cylinder 3 to be printed upon by its two change form cylinders only.

It is to be understood that when the set of form cylinders of one diameter is changed for a set of form cylinders of another diameter, the change gear which drives the impression cylinders and through them the form cylinders, is also correspondingly changed.

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, hence I do not intend to be limited to the particular embodiment herein shown and described, but

What I claim is:—

1. In a multi-color rotary web printing press, two impression cylinders adjustable for coaction with change form cylinders of the same diameter selected from change form cylinders of different corresponding diameters, means for moving the impression cylinders into position to coact with said selected change form cylinders and adjustable means connecting the impression cylinders for synchronous action.

2. In a multi-color rotary web printing press, two impression cylinders adjustable for coaction with change form cylinders of the same diameter selected from change form cylinders of different corresponding diameters, means for moving the impression cyl-

inders into position to coact with said selected change form cylinders, impression cylinder gears, and an adjustable registering gear engaging both impression cylinder gears.

3. In a three color rotary web printing press, two impression cylinders adjustable for coaction with three change form cylinders of the same diameter selected from change form cylinders of different corresponding diameters, one for coaction with one change form cylinder and the other for coaction with the other two change form cylinders, and means for moving the impression cylinders into position to coact with their respective selected change form cylinders.

4. In a three color rotary web printing press, two impression cylinders adjustable for coaction with three change form cylinders of the same diameter selected from change form cylinders of different corresponding diameters, said selected three change form cylinders being located in the same plane, two at equal distances upon opposite sides of a plane passing through the axis of rotation of one impression cylinder for coaction therewith and the other for coaction with the other impression cylinder, and means for moving the impression cylinders along right lines into position to coact with their respective selected change form cylinders.

5. In a three color rotary web printing press, two impression cylinders adjustable for coaction with three change form cylinders of the same diameter selected from change form cylinders of different corresponding diameters, said selected change form cylinders being located in the same plane, two at equal distances upon opposite sides of a plane passing through the axis of rotation of one impression cylinder for coaction therewith and the other for coaction with the other impression cylinder, means for moving the impression cylinders along right lines into position to coact with their respective selected change form cylinders, impression cylinder gears, and a registering gear engaging both impression cylinder gears and adjustable along a plane parallel to the movement of said impression cylinders.

6. In a three color rotary web printing press, two impression cylinders adjustable for coaction with three change form cylinders of the same diameter selected from change form cylinders of different corresponding diameters, said selected change form cylinders being located in the same vertical plane, two at equal distances above and below a horizontal plane passing through the axis of rotation of one impression cylinder for coaction therewith and the other for coaction with the other impression cylinder, and means for moving the impression cylinders along horizontal planes into position to coact with their respective selected change form cylinders.

7. In a three color rotary web printing press, two impression cylinders adjustable for coaction with three change form cylinders of the same diameter selected from change form cylinders of different corresponding diameters, said selected change form cylinders being located in the same vertical plane, two at equal distances above and below a horizontal plane passing through the axis of rotation of one impression cylinder for coaction therewith and the other for coaction with the other impression cylinder, means for moving the impression cylinders along horizontal planes into position to coact with their respective selected change form cylinders, impression cylinder gears, and a horizontally adjustable registering gear engaging said impression cylinder gears.

8. In a rotary web printing press, an impression cylinder adjustable for coaction with a change form cylinder of a predetermined diameter selected from change form cylinders of different diameters, the impression cylinder gear, means for moving the impression cylinder into printing coaction with the selected change form cylinder, a rocking support, a change gear rotatably mounted in said support, and manual means for rocking the support to bring the change gear into mesh with the impression cylinder gear.

9. In a rotary web printing press, an impression cylinder adjustable for coaction with a change form cylinder of a predetermined diameter selected from change form cylinders of different diameters, the impression cylinder gear, means for moving the impression cylinder into printing coaction with the selected change form cylinder, a rocking support mounted to rock on said shaft, a change gear rotatably mounted in said support, manual means for rocking the support to bring the change gear into mesh with the impression cylinder gear, and means for locking the support in its adjusted position.

In testimony that I claim the foregoing as my invention, I have signed my name this 8th day of November, 1928.

HOWARD M. BARBER.