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US - A - 2 024 813
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(58) References cited:
**DER POLYGRAPH, vol. 18, no. 20th February
1963, pages 197, 198 Frankfurt/Main, DE.
KURT BERG: "Der indirekte Hochdruck für den
Zeitungs- und Zeitschriftendruck"**

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Courier Press, Leamington Spa, England.

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Offset printing press unit and method for converting a letterpress unit into same

Technical field

The present invention relates to an offset printing press unit and to a method for converting a web fed letterpress unit into a web fed offset printing press unit.

The news publishing industry has billions of dollars worth of letterpress equipment in the United States. The newspaper industry has, however, been switching from letterpress to offset printing for numerous reasons including improved quality of the print and lowered operating cost. At present, publishers have had little option other than to purchase new offset equipment to replace their letterpress equipment.

The frames for the letterpress units are massive and reboring the frames in place for insertion of offset cylinders is impractical. Often reboring is impossible because the new bores would overlap the old bores. Moreover, completely replacing the equipment or completely reworking it is very time consuming.

Background art

Press units, convertible from one printing mode to another are known, from such prior disclosures, for example, as U.S. Patents 2,024,813 and 3,986,454. However, such units are, in each instance, originally configured to embody this capability. The only known attempt to convert a press unit not originally structured for offset perfecting, direct lithographic or "di-litho" simply replaces the letterpress plate and impression cylinders with offset plate and blanket cylinders. In the di-litho process, the web is fed between the di-litho plate and blanket cylinders so that the process is not a true off-set printing process.

Disclosure of invention

In accordance with the present invention, a method for converting a web fed letterpress unit having a main frame, a pair of plate cylinders laterally spaced in the frame for mounting printing plates thereon, means for applying films of ink to the plates, and a pair of impression cylinders in respective rolling contact with the plates on the plate cylinder, into a web-fed offset printing press unit includes removing the pair of letterpress plate cylinders and the pair of letterpress impression cylinders. An auxiliary frame for receiving offset cylinders in an offset printing press configuration is put inside the main frame. A pair of offset plate cylinders is then installed. The offset plate cylinders might fit into the bores and bearings for the letterpress plate cylinders in which case they can be installed directly, otherwise one or both of the offset plate cylinders is installed in the auxiliary frame. The auxiliary frame is then installed, using pilots to guide the installation of the

auxiliary frame. The pilots, in one embodiment, are affixed to the auxiliary frame and are designed to be inserted into the unused cylinder bores of the main frame. After the auxiliary frame is installed, a pair of blanket cylinders is installed in close proximity to a position for respective rolling contact with the plates on the plate cylinder and the other blanket cylinder with at least one of the blanket cylinders supported on the auxiliary frame.

It is common for letterpress units to also have a pair of laterally spaced form rollers in respective rolling contact with the plates on the plate cylinder. A preferred conversion according to the present method includes removing the at least one pair of form rollers, and mounting micrometric adjusting sockets for receiving the form rollers for respective rolling contact between the at least one pair of form rollers with the plates of the plate cylinder after the pair of offset plate cylinders is installed. It is also preferred to substitute ink drums which are copper plated, and add dampener motions which can be added on one of the form rollers.

The gear train used to drive the letterpress unit cylinders is not suitable for driving the offset cylinders. A new offset gear train must, therefore, be installed for imparting motion from one of the offset press unit cylinders to other offset press unit cylinders. Some of the gears for the letterpress unit can be removed, but many will still be used for driving at least one of the cylinders and for driving the inking drums. In converting some letterpress units, it will be possible to extend the shaft of the offset cylinders through the bores for the letterpress unit cylinders in the main frame by removing the bearings for the letterpress cylinders. In such a case, the offset gear train can normally be installed on the outside of the main frame to allow more room inside the frames for wider web widths. Otherwise, the offset gear train can be installed inside of the main frame.

Considering the cylinders to include both the drum body and the shaft, it is frequently necessary to make the drum bodies for the offset press shorter than the drum bodies were for the letterpress in order to allow additional room for the auxiliary frame and the offset gear train when it is inside the main frame. This shortening of the drum bodies narrows the allowable web width, but this normally does not present a problem since the industry has fairly well settled on a 58 inch (1,473 m) web width which is sufficiently narrower than the typical 68 inch (1,73 m) web width for which most letterpress units were designed. The total length of the cylinders is also shorter when the shafts cannot extend through the main frame bores for the letterpress cylinders.

A preferred conversion according to the present method and apparatus includes the

installation of means for bodily swinging various cylinders into different positions for different printing arrangements and for throw-off in case of web wrap, for changing plates, or other cylinder maintenance.

A special method according to the present invention for converting a letterpress unit that has at least a half deck with a deck plate cylinder and a deck impression cylinder is to remove the deck impression cylinder, install a deck blanket cylinder in a position for rolling contact with the plates of the deck plate cylinder, if necessary, replacing the deck plate cylinder with a deck offset plate cylinder, and installing an impression cylinder in the vicinity of the cusp formed by the pair of blanket cylinders for placing in rolling contact with the deck blanket cylinder and for placing in rolling contact with all three cylinders, the deck blanket cylinder and the pair of offset blanket cylinders. This method also includes the situation where there is a full deck, the full deck being simply two half decks.

In a conversion involving at least one half deck, a means is installed for bodily swinging each of the blanket cylinders and the impression cylinder between a first position in which the blanket cylinders make contact with the plates of their respective plate cylinders and with the impression cylinder, a second position in which the pair of blanket cylinders make contact with each other and are isolated from the impression cylinder, and the deck blanket cylinder makes contact with the impression cylinder, and a third position in which the blanket cylinders and the impression cylinder are displaced into a throw-off position in which the blanket cylinders are isolated from their associated cylinders. Such a method can also include installing a means for bodily swinging the remaining offset cylinders wherein all offset cylinders are displaced in the third position.

The features of this invention will be apparent from the following description taken with reference to the accompanying drawings, wherein is shown the preferred embodiments of the invention.

Brief description of drawings

Figure 1 is a diagrammatic cross-sectional view taken from one end of a web fed letterpress unit;

Figure 2 is a diagrammatic end view of the letterpress unit of Figure 1;

Figure 3 is a diagrammatic sectional view similar to that of Figure 1 of the press of Figure 1 after it has been converted to a web fed offset printing press unit;

Figure 4 is a top view of the offset printing press unit of Figure 3 partly in section to show the bores in the press main frame;

Figure 5 is a top view similar to that of Figure 4 for an offset press unit converted from a different letterpress unit;

Figure 6 is a diagrammatic view similar to that of Figure 1 for a three-color letterpress unit;

Figure 7 is a diagrammatic view similar to that of Figure 3 for a three-color offset press converted from the three-color letterpress of Figure 6;

Figure 8 is a diagrammatic view similar to that of Figure 3 for the offset press unit of Figure 7 shown in a "spot color" configuration;

Figure 9 is a diagrammatic view similar to that of Figure 1 for a double hump four-color unit;

Figure 10 is a diagrammatic view similar to that of Figure 3 for a four-color offset printing press unit converted from the double hump four-color letterpress unit of Figure 9; and

Figure 11 is a top view similar to that of Figures 4 and 5 for a different offset press unit.

Best mode for carrying out the invention

Referring now to the drawing, and in particular to Figure 1, a typical web fed letterpress unit, referred to generally by reference numeral 10 prints on both sides of a web 11. Letterpress unit 10 includes a main frame 12, a pair of plate cylinders 14 and 14a laterally spaced in frame 12 for mounting printing plates thereon, means including ink transfer rollers and cylinders or drums 16 and 16a and form rollers 18, 18a, 20 and 20a for applying films of ink to the plates. Letterpress unit 10 also includes a pair of impression cylinders 22 and 22a in respective rolling contact with the plates on the plate cylinder 14 and 14a, respectively.

Referring also to Figure 2, the letterpress unit is driven by a horizontal shaft 24 which drives a vertical drive shaft 26 through bevel gears 28 and 30. Vertical drive shaft 26 in turn drives the letterpress cylinders through gear train 32 which includes a spur drive gear 34 for cylinder 14, a spur drive gear 36 for compression cylinder 22a and a spur gear-bevel gear combination 38 driven by vertical shaft 26 through bevel gear 40. On the far end of frame 12 are mounted spur gears corresponding to each of the plate cylinders 14 and 14a and each of the impression cylinders 22 and 22a so that the gear for plate cylinder 14 drives the gear for impression cylinder 22, and the gear for impression cylinder 22a drives the gear for plate cylinder 14a.

Referring now to Figures 3 and 4, a web fed offset printing press unit converted from web fed letterpress unit 10 of Figures 1 and 2 is referred to generally by reference numeral 42. It includes main frame 12, ink transfer rollers and drums 16 and 16a, and form rollers 18, 18a, 20 and 20a. It also includes the same driving mechanism through vertical shaft 26, bevel gear 40, combination spur gear-bevel gear 38 and spur gear 34. Offset press unit 42, however, also has an auxiliary frame 44 inside main frame 12 for receiving cylinders. A pair of offset plate cylinders 46 and 46a are laterally spaced inside the frames for mounting printing plates thereon, and a pair of blanket cylinders 48 and 48a are inside the frames in close proximity to a posi-

tion for respective rolling contact with the plates on the plate cylinder, cylinder 46 or 46a, and the other blanket cylinder. Considering cylinder 46 to include a drum 50 and a shaft 52, it can be seen that the shaft for some cylinders extends beyond auxiliary frame 44 and even beyond main frame 12. The cylinders are thus "inside the frames" in the sense that they are primarily inside the frames.

Web fed offset printing press unit 42 also includes a gear train 54 inside main frame 12 for imparting motion from one of the cylinders, cylinder 46 in this case, to other cylinders, in this case cylinders 48, 48a and 46a. It was necessary to shorten drums 50 of the cylinders in order to allow more room within main frame 12 for both auxiliary frame 44 and gear train 54. Gear train 54 could not be moved outside of main frame 12 since the shafts 52 of cylinders 48 and 48a do not align with bores 56, 56a, 58 and 58a for the letterpress unit cylinders even with the bearings removed from those bores.

A method for converting web fed letterpress unit 10 of Figures 1 and 2 into web fed offset printing press unit 42 of Figures 3 and 4 comprises in combination the steps of removing the pair of letterpress plate cylinders 14 and 14a and the pair of letterpressure impression cylinders 22 and 22a, putting inside main frame 12 a lower portion of an auxiliary frame 44 for receiving offset cylinders in an offset printing press configuration, installing a pair of offset plate cylinders 46 and 46a, installing the lower portion of auxiliary frame 44, and installing a pair of blanket cylinders 48 and 48a in close proximity to a position for respective rolling contact with the plates on plate cylinder 46 and 46a respectively and the other blanket cylinder.

A method according to the present invention where auxiliary frame 44 also includes a pilot, in this case four pilots 60, 60a, 62, and 62a, for insertion into a bore, bores 56, 56a, 58 and 58a respectively, for one of the letterpress cylinders can also include positioning auxiliary frame 44 on the inside of main frame 12 after the pair of letterpress plate cylinders 14 and 14a and pair of letterpress impression cylinders 22 and 22a have been removed to make the pilot align with the associated bore, and then moving auxiliary frame 44 to insert the pilot into the bore.

A preferred method includes removing at least one pair of form rollers, either 18 and 18a or 20 and 20a or both pairs, mounting micrometric adjusting sockets for receiving the form rollers for respective rolling contact by the form rollers with the plates of plate cylinders 46 and 46a after the pair of offset plate cylinders is installed, and then installing the at least one pair of form rollers. It is also preferred that the ink drums of 16 and 16a be plated with copper, and that dampener motions 64 and 64a be added to one of the form rollers. Gear train 54 is also added. Gears 66 and 66a are added to plate cylinders 46 and 46a respectively for driving the inking rollers and drums. Means 68 for bodily

swinging each of blanket cylinders 48 and 48a is installed. Means 68 is for bodily swinging the cylinders between a first position in which the blanket cylinders make contact with their respective plate cylinders and with each other for applying an inked image on opposite sides of a web fed between them, and a second position in which the blanket cylinders are displaced into a throw-off position in which the blanket cylinders are isolated from their associated cylinders. Means 68 can be manually or hydraulically turned eccentric bearings. Such mechanisms are common in printing presses and are described in detail in US—A—3,329,086. Means 68 are also installed for bodily swinging each of the plate cylinders, and the positions mentioned can be accomplished by bodily swinging both plate cylinders and blanket cylinders.

Referring now to Figure 5, an offset press unit converted from a different letterpress unit is referred to generally by reference numeral 70, but elements similar to those in offset press unit 42 are numbered the same as in Figures 3 and 4. An extension 71 of shaft 52 is added for cylinder 46 by means of coupler 72. An additional means 68 for bodily swinging plate cylinder 46 is added along with an additional bearing 74 in order to support both ends of shaft 52 and extension 71, thus structurally relieving coupler 72. Since the shaft of plate cylinder 46a no longer aligns with the letterpress plate cylinder bore 76, a gear train 78 is used to impart motion from blanket cylinder 48a to shaft 80 which extends through bore 76 and is supported by bearings 82 and 84. Extra means 68 for bodily swinging plate cylinder 46a are installed in auxiliary frame 44 since the journal for the shaft of plate cylinder 46a must now be in the auxiliary frame rather than in main frame 12.

Referring now to Figure 6, a three-color letterpress unit for printing three colors on one side of web 11 is referred to generally by reference numeral 86. Three-color letterpress unit 86 includes a half deck 88 which includes deck plate cylinder 90 and deck impression cylinder 92. Referring also to Figures 7 and 8, a method according to the present invention for converting to an offset press unit 94 includes removing the letterpress cylinders and adding offset press cylinders as before, including replacing impression cylinder 92 with deck blanket cylinder 96 and replacing deck letterpress plate cylinder 90 with deck offset plate cylinder 98. The method further includes installing an offset impression cylinder 100 along with the necessary auxiliary frame to support it, impression cylinder 100 being chosen of the proper size to be in rolling contact with blanket cylinders 48, 48a, and 96. If it is desired to dedicate three-color offset press unit 94 as a three-color unit, then no further changes are necessary, but a preferred method according to the present invention includes conversion of letterpress unit

86 into an offset press 94 which can be used for three color or spot color, where "spot color" refers to adding a single color to one side of a web that is printed on both sides. Referring in particular to Figure 8, blanket cylinders 48 and 48a print on both sides of web 11 in what is known as "blanket-to-blanket" printing while blanket cylinder 96 is used to add an additional color to one side of web 11 in "blanket-to-impression" printing. By installing the cylinders in the auxiliary frame as already described and installing a means for bodily swinging each of the blanket cylinders and the impression cylinder, which can include a means for bodily swinging the remaining offset cylinders, between a first position in which blanket cylinders 48, 48a and 96 make contact with the plates of their respective plate cylinders 46, 46a and 98, and with impression cylinder 100, a second position in which the pair of blanket cylinders 48 and 48a make contact with each other and are isolated from impression cylinder 100, and deck blanket cylinder 96 makes contact with impression cylinder 100, and a third position in which blanket cylinders 48, 48a and 96, and impression cylinder 100 are displaced into a throw-off position in which the blanket cylinders are isolated from their associated cylinders. All offset cylinders could be displaced into the third position. One simple means for carrying out such an arrangement between the first two positions is to include means for bodily swinging blanket cylinders 48 and 48a and lifting the entire half deck 88 along with impression cylinder 100.

Referring now to Figure 9 a four-color letterpress unit is referred to generally by reference numeral 102. Four-color letterpress unit 102 prints four colors on one side of web 11, one color being added by each plate cylinder 14, 14a, 104 and 104a. Plate cylinders 104 and 104a are referred to as "humps". Hump plate cylinders 104 and 104a are on half decks. A method according to the present invention includes removing plate cylinders 104 and 104a from their respective half decks and replacing them by offset plate cylinders 106 and 106a respectively in conjunction with blanket cylinders 108 and 108a respectively. In addition, offset impression cylinder 110 is added between the four blanket cylinders for placing in rolling contact with the blanket cylinders.

Referring now to Figure 11, an alternative embodiment of an offset press converted from a letterpress is referred to generally by reference numeral 110. Shaft 52 of plate cylinder 46 aligns with bore 112, but means 68 for bodily swinging plate cylinder 46 is moved into auxiliary frame 44 although it could have remained in bore 112. To allow for a longer drum 50, and hence a wider web width, a gear train 114 is placed outside main frame 12 for imparting motion from one of the cylinders, plate cylinder 46, to other cylinders, in this case blanket cylinders 48 and 48a and plate cylinder 46a. The shafts of the cylinders extend through

bores 56, 56a, 76 and 112 for the letterpress unit cylinders in main frame 12 and through the associated bearings, in this case means 68, to the outside of main frame 12. The gears of gear train 114 are fixed to shafts 52 of the cylinders. This arrangement was possible because for this particular conversion, the shafts of the offset press cylinders aligned with the bores of the letterpress cylinder. The bearings from the main frame bores were removed for the offset press configuration cylinder shafts which do not align with the bearings. In this case, the bearings for cylinder 46 were removed from the main frame even though they aligned. This method includes the situation in which some gears can be put outside main frame 12 but others must be put inside main frame 12 in order to get different print configurations.

Only a lower portion of auxiliary frame 44 has been discussed, and in some situations this may be the entire auxiliary frame. Referring again to Figure 3, another embodiment of a lower portion of auxiliary frame 44 will leave the bores for the cylinders exposed so that the offset cylinders can simply be dropped into place. The location of the top of such a lower portion is illustrated by line 116. A cap is then attached to hold the cylinders and their respective bearings in place. This is similar to the common practice of capping main frames.

As many possible embodiments may be made of the invention without departing from the scope thereof, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Claims

1. A method for converting a web fed letterpress unit having a main frame (12), a pair of plate cylinders (14, 14a) laterally spaced in the frame for mounting printing plates thereon, means (16, 16a) for applying films of ink to the plates and a pair of impression cylinders (22, 22a) in respective rolling contact with the plates on the plate cylinder, into a web fed offset printing press unit, comprising in combination the steps of:

- removing the pair of letterpress plate cylinders (14, 14a) and the pair of letterpress impression cylinders (22, 22a);
- putting inside the main frame (12) an auxiliary frame (44) for receiving offset cylinders in an offset printing press configuration;
- installing a pair of offset plate cylinders (46, 46a);
- installing the auxiliary frame (44); and
- installing a pair of blanket cylinders (48, 48a) in close proximity to a position for respective rolling contact with the plates on the plate cylinder and the other blanket cylinder

with at least one of said blanket cylinders supported on said auxiliary frame (44).

2. A method according to Claim 1 wherein the auxiliary frame (44) includes a pilot (60, 60a, 62, 62a) for insertion into a bore (56, 56a, 58, 58a) for one of the letterpress cylinders, further comprising:

- positioning the auxiliary frame (44) on the inside of the main frame (12) after the pair of letterpress plate cylinders (14, 14a) and a pair of letterpress impression cylinders (22, 22a) have been removed wherein the pilot (60, 60a, 62, 62a) aligns with the associated bore (56, 56a, 58, 58a); and
- moving the auxiliary frame (44) wherein the pilot is inserted into the bore.

3. A method according to Claim 2 wherein the letterpress unit (10) also has at least one pair of laterally spaced form rollers (18, 18a, 20, 20a) in respective rolling contact with the plates on the plate cylinder, further comprising:

- removing the at least one pair of form rollers;
- mounting micrometric adjusting sockets for receiving the at least one pair of form rollers for respective rolling contact by the at least one pair of form rollers with the plates of the plate cylinder after the pair of offset plate cylinders is installed; and
- installing the at least one pair of form rollers.

4. A method according to Claim 2, wherein the letterpress unit (10) also has at least one pair of laterally spaced form rollers (18, 18a, 20, 20a) in respective rolling contact with the plates of the plate cylinder and at least one pair of ink drums (16, 16a) in respective rolling contact with the form roller, further comprising:

- removing said ink drums and substituting ink drums which are copper plated, and
- adding dampener motions (64, 64a) on one of the form rollers.

5. A method according to Claim 4, wherein the cylinders of the letterpress unit are driven through a gear train (32), further comprising installing an offset gear train (54) for imparting motion from one of the offset press unit cylinders to other offset press unit cylinders.

6. A method according to one of Claims 1 to 5 further comprising installing a means (68) for bodily swinging each of the blanket cylinders (48, 48a) between a first position in which the blanket cylinders (46, 46a) make contact with their respective plate cylinders and with each other for applying an inked image on opposite sides of a web fed between them and a second position in which the blanket cylinders are displaced into a throw-off position in which the blanket cylinders are isolated from their associated cylinders.

7. A method according to Claim 6, further comprising installing a means (68) for bodily swinging each of the offset plate cylinders (46, 46a) between said first position and said second position.

8. A method according to Claim 1 wherein the letterpress unit (10) also has at least a half deck (88) with a deck plate cylinder (90) and a deck impression cylinder (92), further comprising:

- removing the deck impression cylinder (92);
- installing a deck blanket cylinder (96) in a position for rolling contact with the plates of the deck plate cylinder (90); and
- installing an impression cylinder (100) in the vicinity of the cusp formed by the pair of blanket cylinders (48, 48a) for placing in rolling contact with the deck blanket cylinder (96) and for placing in rolling contact with all three blanket cylinders (48, 48a, 96).

9. A method according to Claim 8 further comprising and installing a means (68) for bodily swinging each of the blanket cylinders (48, 48a, 96) and the impression cylinder (100) between a first position in which the blanket cylinders make contact with the plates of their respective plate cylinders (46, 46a, 98) and with the impression cylinder, a second position in which the pair of blanket cylinders make contact with each other and are isolated from the impression cylinder, and the deck blanket cylinder makes contact with impression cylinder, and a third position in which the blanket cylinders and the impression cylinder are displaced into a throw-off position in which the blanket cylinders are isolated from their associated cylinders.

10. A method according to Claim 8 further comprising a means (68) for bodily swinging each of the blanket cylinders (48, 48a, 96) each of the plate cylinders (46, 46a, 98) and the impression cylinder (100) between a first position in which the blanket cylinders make contact with the plates of their respective plate cylinders and with the impression cylinder, a second position in which the pair of blanket cylinders make contact with each other and are isolated from the impression cylinder and the deck blanket cylinder makes contact with impression cylinder, and a third position in which the blanket cylinders and the impression cylinder are displaced into a throw-off position in which the blanket cylinders are isolated from their associated cylinders.

11. A method according to Claim 1, further comprising installing an impression cylinder (100) in the vicinity of the cusp formed by the pair of blanket cylinders (48, 48a) for placing in rolling contact with the pair of blanket cylinders.

12. A method according to Claim 11 further comprising installing a means (68) for bodily swinging each of the blanket cylinders (48, 48a) and the impression cylinder (100) between a first position in which the blanket cylinders

make contact with the plates of their respective plate cylinders (46, 46a) and with the impression cylinder, a second position in which the pair of blanket cylinders make contact with each other and are isolated from the impression cylinder, and a third position in which the blanket cylinders and the impression cylinder are displaced into a throw-off position in which the blanket cylinders are isolated from their associated cylinders.

13. A method according to Claim 11, further comprising a means (68) for bodily swinging each of the blanket cylinders (48, 48a), each of the plate cylinders (46, 46a) and the impression cylinder (100) between a first position in which the blanket cylinders make contact with the plates of their respective plate cylinders and with the impression cylinder, a second position in which the pair of blanket cylinders make contact with each other and are isolated from the impression cylinder, and a third position in which the blanket cylinders and the impression cylinder are displaced into a throw-off position in which the blanket cylinders are isolated from their associated cylinders.

14. A method according to Claim 1 further comprising installing a gear train (54) inside the main frame (12) between the main frame and the offset press unit cylinders (46, 46a, 48, 48a) for driving at least two offset press unit cylinders.

15. A method according to Claim 1 wherein the bores (56, 56a, 58, 58a, 76, 112) in the main frame (12) for the pair of plate cylinders (14, 14a) and the pair of impression cylinders (22, 22a) of the letterpress configuration can receive the shafts (52) of the pair of plate cylinders (46, 46a) and the pair of blanket cylinders (48, 48a) of the offset printing press configuration, further comprising:

- removing the bearings from the main frame bores for the offset press configuration cylinder shafts which do not align with the bearings; and
- installing a gear train (114) outside the main frame (12) for driving at least two offset press unit cylinders wherein the at least two offset press unit cylinders are installed with their shafts extending through the main frame bores to the outside of the main frame whereby gears of the gear train can be affixed to the shafts (52) of the cylinders (46, 46a, 48, 48a).

16. In a web fed offset printing press unit converted from a web fed letterpress unit having a main frame (12) for supporting a pair of laterally spaced letterpress plate cylinders (14, 14a) for mounting printing plates thereon and a pair of letterpress impression cylinders (22, 22a) in respective rolling contact with the plates on the plate cylinder, the letterpress cylinders having been removed, the combination of:

- the main frame (12);
- an auxiliary frame (44) inside the main frame for receiving cylinders;
- a pair of plate cylinders (46, 46a) laterally spaced inside the frames for mounting printing plates thereon;
- means (16, 16a) for applying films of ink to the plates; and
- a pair of blanket cylinders (48, 48a) inside the frames (12, 44) in close proximity to a position for respective rolling contact with the plates on the plate cylinder and each other with at least one of said blanket cylinders supported on said auxiliary frame.

17. The combination according to Claim 16, further comprising a gear train (54) inside the main frame (12) for imparting motion from one of the cylinders to other cylinders.

18. The combination according to Claim 16 further comprising a gear train (114) outside the main frame (12) for imparting motion from one of the cylinders to other cylinders, wherein the shafts (52) of the cylinders extend through the bores (56, 56a, 58, 58a, 76, 112) for the letterpress unit cylinders in the main frame and through the associated bearings to the outside of the main frame, and gears of the gear train are affixed to the shafts of the cylinders.

19. The combination according to Claim 16 further comprising at least one pilot (60, 60a, 62, 62a) for insertion into a main frame bore (56, 56a, 58, 58a) for a letterpress cylinder, for aligning the auxiliary frame with the main frame.

Revendications

1. Un procédé pour transformer une unité typographique alimentée par bande ayant un bâti pour y monter des clichés d'impression, des clichés (14, 14a) espacés latéralement dans le bâti pour y monter des clichés d'impression, des moyens (16, 16a) servant à déposer des films d'encre sur les clichés et une paire de cylindres d'impression (22, 22a) respectivement en contact roulant avec les clichés portés par le cylindre porte-clichés, en une unité de presse à imprimer offset alimentée par bande, comprenant en combinaison les phases consistant à:

- enlever la paire de cylindres porte-clichés typographiques (14, 14a) et la paire de cylindres d'impression typographiques (22, 22a);
- placer à l'intérieur du bâti principal (12) un bâti auxiliaire (44) destiné à recevoir les cylindres offset dans une configuration de presse à imprimer offset;
- monter une paire de cylindres porte-clichés offset (46, 46a);
- monter le bâti auxiliaire (44); et
- monter une paire de cylindres porte-blanchet (48, 48a) chacun à proximité immédiate d'une position appropriée pour entrer en contact roulant avec les clichés du cylindre porte-clichés et avec l'autre cylindre porte-blanchet, au moins l'un des cylindres porte-blanchet étant supporté par ledit bâti auxiliaire (44).

2. Un procédé selon la revendication 1, dans lequel le bâti auxiliaire (44) comprend un pilote (60, 60a, 62, 62a) destiné à être engagé dans un perçage (50, 56a, 58, 58a) prévu pour l'un des cylindres typographiques, consistant en outre à: —positionner le bâti auxiliaire (44) à l'intérieur du bâti principal (12) après que la paire de cylindres porte-clichés typographiques (14, 14a) et une paire de cylindres d'impression typographiques (22, 22a) ont été enlevés, dans lequel le pilote (60, 60a, 62, 62a) est aligné sur le perçage correspondant (56, 56a, 58, 58a); et —déplacer le bâti auxiliaire (44) de manière que le pilote s'engage dans le perçage.

3. Un procédé selon la revendication 2, dans lequel l'unité typographique (10) a également au moins une paire de rouleaux toucheurs (18, 18a, 20, 20a) espacés latéralement, respectivement en contact roulant avec les clichés du cylindre porte-clichés, consistant en outre à: —enlever la ou les paires de rouleaux toucheurs; monter des boîtiers à réglage micrométrique pour recevoir la ou les paires de rouleaux toucheurs pour les mettre en contact roulant avec les clichés du cylindre porte-clichés après que la paire de cylindres porte-clichés offset a été montée; et —monter la ou les paires de rouleaux toucheurs.

4. Un procédé selon la revendication 2, dans lequel l'unité typographique (10) a également au moins une paire de rouleaux toucheurs espacés latéralement (18, 18a, 20, 20a) respectivement en contact roulant avec les clichés du cylindre porte-clichés et au moins une paire de tambours d'encrage (16, 16a) respectivement en contact roulant avec les rouleaux toucheurs, consistant en outre à: —enlever lesdits tambours d'encrage et y substituer des tambours d'encrage qui sont revêtus de cuivre; et —ajouter des mécanismes de mouillage (64, 64a) sur l'une des rouleaux toucheurs.

5. Un procédé selon la revendication 4, dans lequel les cylindres de l'unité typographique sont entraînés par l'intermédiaire d'un train d'engrenages (32) consistant en outre à monter un train d'engrenages offset (54) pour transmettre le mouvement de l'un des cylindres de l'unité presse offset aux autres cylindres de l'unité presse offset.

6. Un procédé selon l'une des revendications 1 à 5, consistant en outre à monter des moyens (68) pour faire basculer en bloc chacun des cylindres porte-blanchet (48, 48a) entre une première position dans laquelle les cylindres porte-blanchet (46, 46a) sont respectivement en contact avec leurs cylindres porte-clichés respectifs et entre eux, pour appliquer une image encrée sur les faces opposées d'une bande qu'on fait passer entre ces cylindres et une deuxième position dans laquelle les cylindres porte-blanchet sont amenés à une position d'arrêt dans laquelle les cylindres porte-blanchet sont isolés de leurs cylindres associés.

7. Un procédé selon la revendication 6,

consistant en outre à monter des moyens (68) pour faire basculer en bloc chacun des cylindres porte-clichés offset (46, 46a) entre ladite première position et ladite deuxième position.

8. Procédé selon la revendication 1, dans lequel l'unité typographique (10) a également au moins un demigroupe (88) comportant un cylindre porte-clichés de groupe (90) et un cylindre d'impression de groupe (92), consistant en outre à: —enlever le cylindre d'impression de groupe (92); —installer un cylindre porte-blanchet de groupe (96) dans une position pour entrer en contact roulant avec les plaques du cylindre porte-clichés (90) du groupe; et —installer un cylindre d'impression (100) dans le voisinage du creux formé par la paire de cylindres porte-blanchet (48, 48a) pour le placer en contact roulant avec le cylindre porte-blanchet (96) du groupe et le placer en contact roulant avec les trois autres cylindres porte-blanchet (48, 48a, 96).

9. Un procédé selon la revendication 8, consistant en outre à monter des moyens (68) permettant de faire basculer en bloc chacun des cylindres porte-blanchet (48, 48a, 96) et le cylindre d'impression (100) entre une première position dans laquelle des cylindres porte-blanchet sont en contact avec les clichés de leurs cylindres porte-clichés respectifs (46, 46a, 98) et avec le cylindre d'impression, une deuxième position dans laquelle les deux cylindres porte-blanchet sont en contact entre eux et sont isolés du cylindre d'impression et le cylindre porte-blanchet du groupe est en contact avec le cylindre d'impression et une troisième position dans laquelle les cylindres porte-blanchet et le cylindre d'impression sont amenés à une position d'arrêt dans laquelle les cylindres porte-blanchet sont isolés de leurs cylindres associés.

10. Un procédé selon la revendication 8, comprenant en outre des moyens (68) pour faire basculer en bloc chacun des cylindres porte-blanchet (48, 48a, 96), chacun des cylindres porte-clichés (46, 46a, 98) et le cylindre d'impression (100) entre une première position dans laquelle les cylindres porte-blanchet sont en contact avec les clichés de leurs cylindres porte-clichés respectifs et avec le cylindre d'impression, une deuxième position dans laquelle les deux cylindres porte-blanchet sont en contact entre eux et sont isolés du cylindre d'impression et le cylindre porte-blanchet du groupe est en contact avec le cylindre d'impression et une troisième position dans laquelle le cylindre porte-blanchet et le cylindre d'impression sont amenés à une position d'arrêt dans laquelle les cylindres porte-blanchet sont isolés de leurs cylindres associés.

11. Un procédé selon la revendication 1, consistant en outre à monter un cylindre d'impression (100) dans le voisinage du creux formé par la paire de cylindres porte-blanchet (48, 48a) pour se mettre en contact roulant avec la paire de cylindres porte-blanchet.

12. Un procédé selon la revendication 11,

consistant en outre à monter des moyens (68) pour faire basculer en bloc chacun des cylindres porte-blanchet (48, 48a) et le cylindre d'impression (100) entre une première position dans laquelle les cylindres porte-blanchet sont en contact avec les clichés de leurs cylindres porte-clichés respectifs (46, 46a) et avec le cylindre d'impression, une deuxième position dans laquelle les deux cylindres porte-blanchet sont en contact entre eux et sont isolés du cylindre d'impression et une troisième position dans laquelle les cylindres porte-blanchet et le cylindre d'impression sont amenés à une position d'arrêt dans laquelle les cylindres porte-blanchet sont isolés de leurs cylindres associés.

13. Procédé selon la revendication 11, comprenant en outre des moyens (68) pour faire basculer en bloc chacun des cylindres porte-blanchet (48, 48a), chacun des cylindres porte-clichés (46, 46a) et le cylindre d'impression (100) entre une première position dans laquelle les cylindres porte-blanchet sont en contact avec les clichés de leurs cylindres porte-clichés respectifs et avec le cylindre d'impression, une deuxième position dans laquelle la paire de cylindres porte-blanchet sont en contact entre eux et sont isolés du cylindre d'impression, et une troisième position dans laquelle les cylindres porte-blanchet et le cylindre d'impression sont amenés à une position d'arrêt dans laquelle les cylindres porte-blanchet sont isolés de leurs cylindres associés.

14. Un procédé selon la revendication 1, consistant en outre à monter un train d'engrenage (54) à l'intérieur du bâti principal (12) entre le bâti principal et les cylindres de l'unité de presse offset (46, 46a, 48a) pour entraîner au moins deux cylindres de l'unité de presse offset.

15. Un procédé selon la revendication 1, dans laquelle les alésages (56, 56a, 58a, 76, 112) prévus dans le bâti principal (12) pour la paire de cylindre porte-clichés (14, 14a) et la paire de cylindres d'impression (22, 22a) de la configuration typographique peuvent recevoir les arbres (52) de la paire de cylindres porte-clichés (46, 46a) et la paire de cylindres porte-blanchet (48, 48a) de la configuration de presse à imprimer offset; consistant en outre à: —enlever les paliers des perçages du bâti principal pour les arbres des cylindres de la configuration presse offset qui ne sont pas alignés sur les paliers; et —monter un train d'engrenages (116) à l'extérieur du bâti principal (12) pour entraîner au moins deux cylindres de l'unité presse offset, ces deux cylindres de l'unité presse sont montés avec leurs arbres qui passent à travers les perçages du bâti principal, jusqu'à l'extérieur du bâti principal, de sorte que les roues dentées du train d'engrenage peuvent être fixées aux arbres (52) du cylindre (46, 46a, 48, 48a).

16. Dans une unité presse à imprimer offset alimentée par bande transformée à partir d'une unité typographique alimentée par bande, ayant un bâti principal (12) pour supporter une paire

de cylindres porte-clichés typographiques (14, 14a) espacés latéralement pour recevoir des clichés d'impression et une paire de cylindres d'impression typographiques (22, 22a) respectivement en contact roulant avec les clichés du cylindre porte-clichés, les cylindres typographiques ayant été enlevés, la combinaison comprenant: —le bâti principal (12); —un bâti auxiliaire (44) placé à l'intérieur du bâti principal pour recevoir des cylindres; —une paire de cylindres porte-clichés (46, 46a) espacés latéralement à l'intérieur des bâtis pour recevoir des clichés d'impression; —des moyens (16, 16a) servant à déposer des films d'encre sur les clichés; et —une paire de cylindres porte-blanchet (48, 48a), placés à l'intérieur des bâtis (12, 44) à proximité immédiate d'une position dans laquelle ils sont respectivement en contact roulant avec les clichés du cylindre porte-clichés et entre eux, au moins l'un desdits cylindres porte-blanchet étant supporté par le bâti auxiliaire.

17. Combinaison selon la revendication 16, comprenant en outre un train d'engrenages (54) placé à l'intérieur du bâti principal (12) pour transmettre le mouvement de l'un des cylindres aux autres cylindres.

18. La combinaison selon la revendication 16, comprenant en outre un train d'engrenages (114) placé à l'extérieur du bâti principal (12) pour transmettre le mouvement de l'un des cylindres aux autres cylindres, dans laquelle les arbres (52) des cylindres sont passés à travers les perçages (56, 56a, 58, 58a, 76, 72) prévus dans le bâti principal pour les cylindres de l'unité typographique, et à travers les paliers associés, pour atteindre l'extérieur du bâti principal, et des roues dentées du train d'engrenages sont fixées aux arbres des cylindres.

19. La combinaison selon la revendication 16, comprenant en outre au moins un pilote (60, 60a, 62, 62a) destiné à être engagé dans un perçage (56, 56a, 58, 58a) prévu dans le bâti principal pour un cylindre typographique pour aligner le bâti auxiliaire sur le bâti principal.

Patentansprüche

1. Verfahren zur Umwandlung einer Hochdruckrotationspresse mit einem Hauptrahmen (12), einem in seitlichem Abstand im Rahmen zur Befestigung von Druckplatten auf ihnen angeordneten Plattenzylindern (14, 14a), Mitteln (16, 16a) zum Aufbringen von Farbschichten für die Platten und einem Paar in jeweils rollender Berührung mit den Platten auf den Plattenzylindern stehender Gegendruckzylinder (22, 22a), in eine Offsetdruckrotationspresse, mit der Kombination folgender Schritte:

— Entfernen des Paares von Hochdruck-Plattenzylindern (14, 14a) und des Paares von Hochdruck-Gegendruckzylindern (22, 22a);

- Einsetzen eines Hilfsrahmens (44) zur Aufnahme von Offsetzylindern in einem Offsetdruckpressenzustand in den Hauptrahmen (12);
- Einbau eines Paares von Offset-Plattenzylindern (46, 46a);
- Einbau des Hilfsrahmens (44); und
- Einbau eines Paares von Gummituchzylindern (48, 48a) in einer nahen Stellung zur jeweiligen rollenden Berührung mit den Platten des Plattenzylinders und des anderen Gummituchzylinders, wobei zumindest einer der Gummituchzylinder am Hilfsrahmen (44) gehalten ist.

2. Verfahren nach Anspruch 1, bei dem der Hilfsrahmen (44) einen in eine Bohrung (56, 56a, 58, 58a) einsetzbaren Führungzapfen (60, 60a, 62, 62a) für einen der Hochdruckzylinder aufweist, bei welchem folgende Schritte vorgesehen sind:

- Einsetzen des Hilfsrahmens (44) in das Innere des Hauptrahmens (12), nachdem ein Paar Hochdruck-Plattenzylinder (14, 14a) und ein Paar Hochdruck-Gegendruckzylinder (22, 22a) entfernt wurden, wobei der Führungzapfen (60, 60a, 62, 62a) mit der zugehörigen Bohrung (56, 56a, 58, 58a) fluchtet; und
- Bewegen des Hilfsrahmens (44), wobei der Führungzapfen in die Bohrung eingeführt wird.

3. Verfahren nach Anspruch 2, bei dem die Hochdruckpresse (10) auch mindestens ein Paar seitlich entfernter Farbauftragswalzen (18, 18a, 20, 20a) in jeweils rollender Berührung mit den Platten des Plattenzylinders aufweist, mit folgenden Schritten:

- Entfernen mindestens eines Paares von Farbauftragswalzen;
- Befestigen von Mikrometer-Einstellansätzen zur Aufnahme des mindestens einen Paares von Farbauftragswalzen zur jeweiligen rollenden Berührung des mindestens ein Paares von Farbauftragswalzen mit den Platten des Plattenzylinders, nachdem das Paar Offset-Plattenzylinder montiert wurde; und
- Einsetzen mindestens eines Paares von Farbauftragswalzen.

4. Verfahren nach Anspruch 2, bei dem die Hochdruckpresse (10) auch mindestens ein Paar seitlich entfernter Farbauftragswalzen (18, 18a, 20, 20a) in jeweils rollender Berührung mit den Platten des Plattenzylinders und mindestens ein Paar Reibzylinder (16, 16a) in jeweils rollender Berührung mit der Farbauftragswalze aufweist, mit folgenden Schritten:

- Entfernen der Reibzylinder und deren Ersetzen durch mit Kupfer bezogene Reibzylinder, und

- Aufbringen von Feuchtwalzenbezügen (64, 64a) auf eine der Farbauftragswalzen.

5. Verfahren nach Anspruch 4, bei dem die Zylinder der Hochdruckpresse über ein Getriebe (32) angetrieben werden, wobei ein Offset-Getriebe (54) zur Übertragung einer Bewegung von einem der Offsetdruckpressenzylinder auf andere Offsetdruckpressenzylinder erfolgt.

6. Verfahren nach einem der Ansprüche 1 bis 5, bei dem Mittel (68) eingebaut werden, um jeden der Gummituchzylinder (48, 48a) zwischen einer ersten Stellung, in der die Gummituchzylinder (46, 46a) in Berührung mit ihren jeweiligen Plattenzylindern und miteinander zum Aufbringen eines Farbbildes auf gegenüberliegende Seiten einer Bahn stehen, und einer zweiten Stellung verschwenken zu können, in der die Gummituchzylinder in eine Auswerfstellung verlagert sind, in der sie von ihren zugehörigen Zylindern getrennt sind.

7. Verfahren nach Anspruch 6, bei dem Mittel (68) eingebaut werden, um jeden der Offset-Plattenzylinder (46, 46a) zwischen der ersten Stellung und der zweiten Stellung zu verschwenken.

8. Verfahren nach Anspruch 1, bei dem die Hochdruckpresse (10) mindestens in zusätzliches Druckwerk (88) mit einem Druckwerk-Plattenzylinder (90) und einem Druckwerk-Gegendruckzylinder (92) hat, mit den folgenden Schritten:

- Entfernen des Druckwerk-Gegendruckzylinders (92);
- Einsetzen eines Druckwerk-Gummituchzylinders (96) in eine Stellung zur rollenden Berührung mit den Platten des Druckwerk-Plattenzylinders (90); und
- Einsetzen eines Gegendruckzylinders (10) in der Nähe der von dem Paar Gummituchzylinder (48, 48a) gebildeten Kuppe, um eine rollende Berührung mit dem Druckwerk-Gummituchzylinder (96) und eine rollende Berührung mit allen drei Gummituchzylindern (48, 48a, 96) zu erhalten.

9. Verfahren nach Anspruch 8, bei dem Mittel (68) eingesetzt werden, um jeden der Gummituchzylinder (48, 48a, 96) und den Gegendruckzylinder (100) zwischen einer ersten Stellung, in der die Gummituchzylinder in Berührung mit den Platten der jeweiligen Plattenzylinder (46, 46a, 98) und mit dem Gegendruckzylinder stehen, einer zweiten Stellung, in der das Paar Gummituchzylinder in Berührung miteinander und getrennt vom Gegendruckzylinder und der Druckwerk-Gummituchzylinder in Berührung mit dem Gegendruckzylinder steht, und einer dritten Stellung verschwenken zu können, in der die Gummituchzylinder und der Gegendruckzylinder in eine Auswerfstellung verlagert sind, in der die Gummituchzylinder von ihren zugehörigen Zylindern getrennt sind.

10. Verfahren nach Anspruch 8 mit Mitteln

(68) zum Verschwenken jedes Gummituchzylinders (48, 48a, 96), jedes Plattenzylinders (46, 46a, 98) und des Gegendruckzylinders (100) zwischen einer ersten Stellung, in der die Gummituchzylinder in Berührung mit den Platten ihrer jeweiligen Plattenzylinder und mit dem Gegendruckzylinder stehen, einer zweiten Stellung, in der das Paar Gummituchzylinder in Berührung miteinander und getrennt vom Gegendruckzylinder ist und der Druckwerk-Gummituchzylinder den Gegendruckzylinder berührt, und einer dritten Stellung, in der die Gummituchzylinder und der Gegendruckzylinder in eine Auswerfstellung versetzt sind, in der die Gummituchzylinder von ihren zugehörigen Zylindern getrennt sind.

11. Verfahren nach Anspruch 1, mit dem Schritt des Einsetzens eines Gegendruckzylinders (100) in der Nähe der von dem Paar von Gummituchzylindern (48, 48a) gebildeten Kuppe, um eine rollende Berührung mit dem Paar von Gummituchzylindern zu erreichen.

12. Verfahren nach Anspruch 11 mit dem Schritt des Einsetzens eines Mittels (68) zum Verschwenken jedes der Gummituchzylinder (48, 48a) und des Gegendruckzylinders (100) zwischen einer ersten Stellung, in der die Gummituchzylinder in Berührung mit den Platten ihrer jeweiligen Plattenzylinder (46, 46a) und mit dem Gegendruckzylinder stehen, einer zweiten Stellung, in der das Paar von Gummituchzylindern in Berührung miteinander und vom Gegendruckzylinder getrennt ist, und einer dritten Stellung, in der die Gummituchzylinder und der Gegendruckzylinder in eine Auswerfstellung verlagert sind, in der die Gummituchzylinder von ihren zugehörigen Zylindern getrennt sind.

13. Verfahren nach Anspruch 11 mit einer Einrichtung (68) zum Verschwenken jedes der Gummituchzylinder (48, 48a) jedes der Plattenzylinder (46, 46a) und des Gegendruckzylinders (100) zwischen einer ersten Stellung, in der die Gummituchzylinder in Berührung mit den Platten ihrer zugehörigen Plattenzylinder und mit dem Gegendruckzylinder stehen, einer zweiten Stellung, in der das Paar von Gummituchzylindern in Berührung miteinander und getrennt vom Gegendruckzylinder ist, und einer dritten Stellung, in der die Gummituchzylinder und der Gegendruckzylinder in eine Auswerfstellung verlagert sind, in der die Gummituchzylinder von ihren zugehörigen Zylindern getrennt sind.

14. Verfahren nach Anspruch 1 mit dem Schritt des Einsetzens eines Getriebes (54) in den Hauptrahmen (12) zwischen Hauptrahmen und die Zylinder (46, 46a, 48, 48a) der Offsetdruckpresse zum Antrieb mindestens zweier Zylinder der Offsetdruckpresse.

15. Verfahren nach Anspruch 1, bei dem die Bohrungen (56, 56a, 58, 58a, 76, 112) im Hauptrahmen (12) für das Paar von Plattenzylindern (14, 14a) und das Paar von Gegendruckzylindern (22, 22a) des Hochdruckauf-

baus die Wellen (52) des Paares von Plattenzylindern (46, 46a) und des Paares von Gummituchzylindern (48, 48a) des Offsetdruckpressenaufbaues aufnehmen kann, mit den Schritten:

- Entfernen der Lager aus den Hauptrahmenbohrungen für die Zylinderwellen des Offsetdruckaufbaues, die nicht mit den Lagern fluchten; und
- Einbau eines Getriebes (114) außerhalb des Hauptrahmens (12) zum Antreiben mindestens zweier Zylinder der Offsetdruckpresse wobei die mindestens zwei Zylinder der Offsetdruckpresse sich mit ihren Wellen durch die Hauptrahmenbohrungen an die Außenseite des Hauptrahmens erstreckend montiert sind, so daß die Zahnräder des Getriebes auf den Wellen (52) der Zylinder (46, 46a, 48, 48a) befestigt werden können.

16. Eine aus einer Hochdruckrotationspresse umgewandelte Offsetdruckrotationspresse mit einem Hauptrahmen (12) zur Halterung eines Paares von seitlich entfernten Hochdruck-Plattenzylindern (14, 14a) für die Befestigung von Druckplatten auf ihnen und mit einem Paar Hochdruck-Gegendruckzylindern (22, 22a) in jeweils rollender Berührung mit den Platten auf dem Plattenzylinder, wobei die Hochdruckzylinder entfernt wurden, mit der folgenden Merkmalskombination:

- der Hauptrahmen (12);
- ein im Inneren des Hauptrahmens vorgesehener Hilfsrahmen (44) zur Aufnahme von Zylindern;
- ein Paar seitlich im Rahmen voneinander entfernter Plattenzylinder (46, 46a) zur Befestigung von Druckplatten auf ihnen;
- Mittel (16, 16a) zum Aufbringen von Farbschichten auf die Platten; und
- ein Paar Gummituchzylinder (48, 48a) in den Rahmen (12, 44) in der Nähe einer Stellung zur jeweils rollenden Berührung mit den Platten des Plattenzylinders und miteinander, wobei mindestens einer der Gummituchzylinder am Hilfsrahmen gehalten ist.

17. Kombination nach Anspruch 16 mit einem Getriebe (54) innerhalb des Hauptrahmens (12) zur Übertragung einer Bewegung von einem der Zylinder auf andere Zylinder.

18. Kombination nach Anspruch 16 mit einem Getriebe (114) außerhalb des Hauptrahmens (12) zur Übertragung einer Bewegung von einem der Zylinder auf andere Zylinder, wobei die Wellen (52) der Zylinder sich durch im Hauptrahmen vorgesehene Bohrungen (56, 56a, 58, 58a, 76, 112) für Hochdruck-Zylinder und durch zugehörige Lager aus dem Hauptrahmen erstrecken und Zahnräder des Getriebes auf den Wellen der Zylinder befestigt sind.

19. Kombination nach Anspruch 16 mit mindestens einem Führzapfen (60, 60a, 62, 62a) zum Einsetzen in eine im Rahmen vorge-

sehene Bohrung (56, 56a, 58, 58a) für einen Hochdruck-Zylinder, um den Hilfsrahmen mit dem Hauptrahmen auszurichten.

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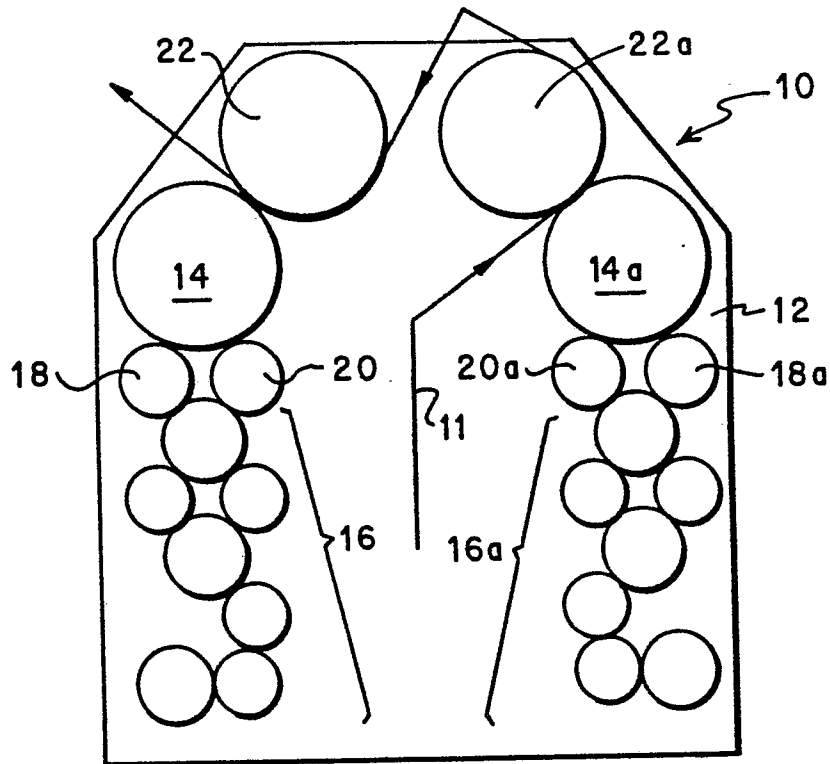


FIG. 1

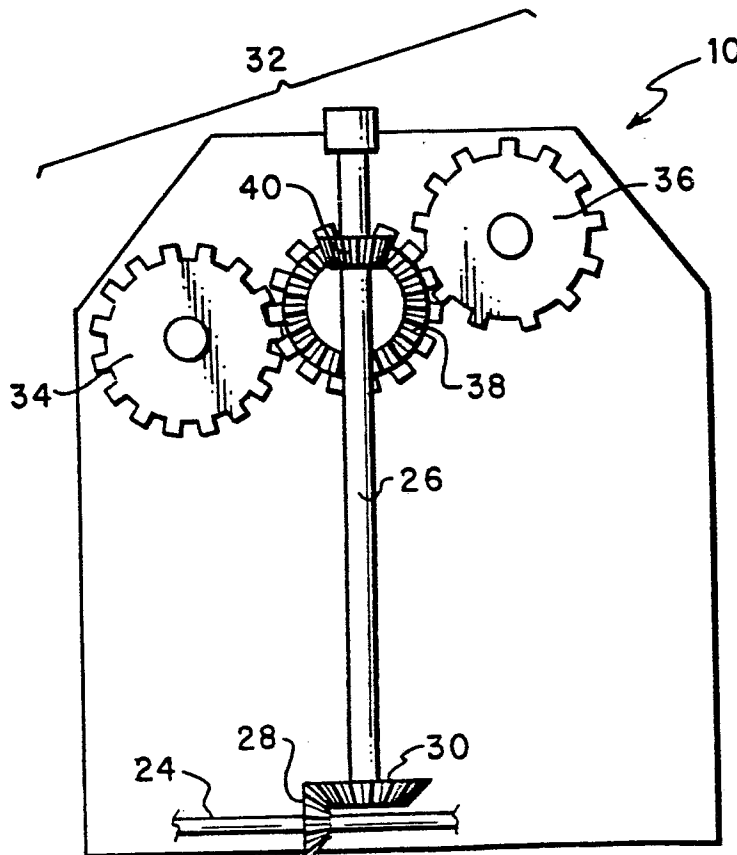


FIG. 2

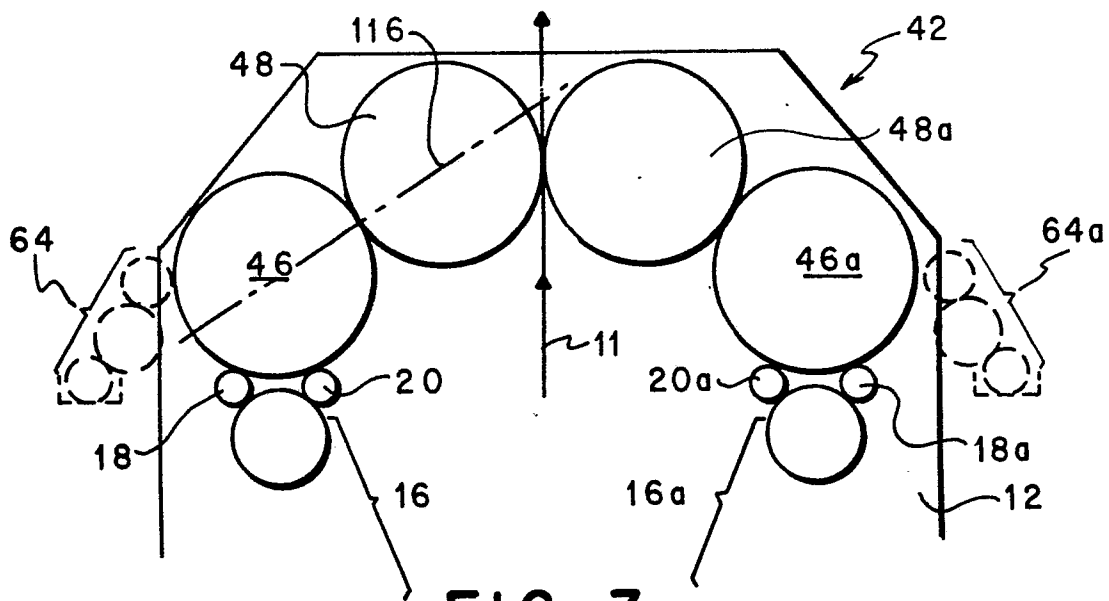


FIG. 3

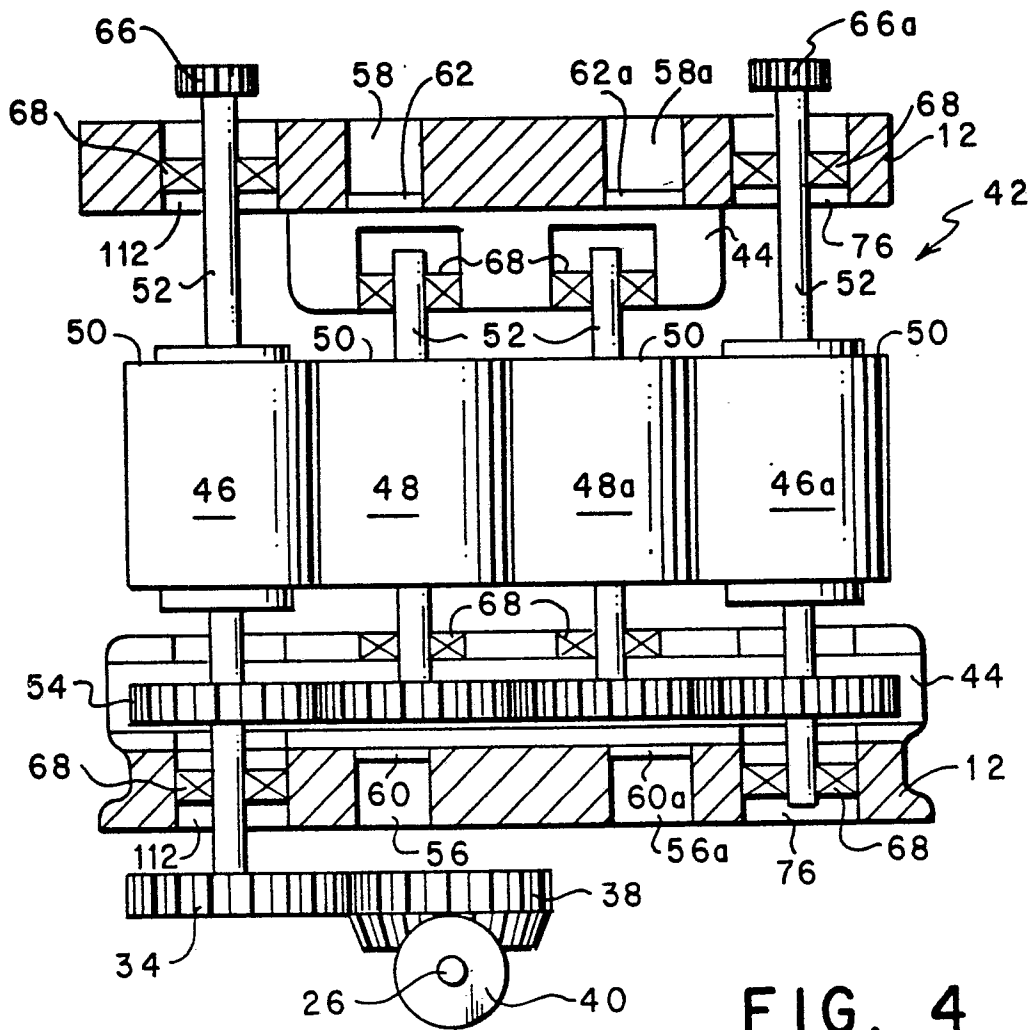


FIG. 4

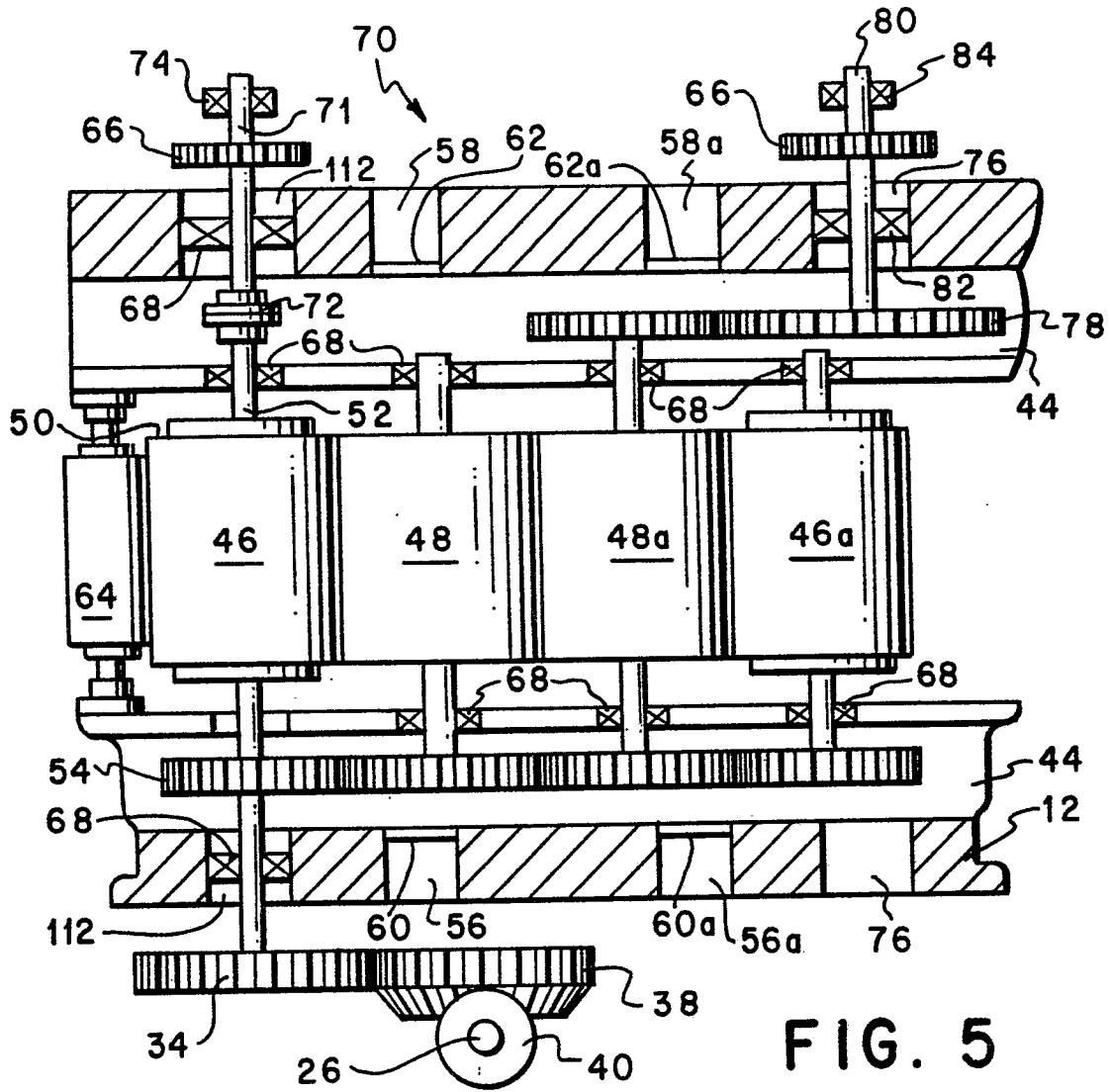


FIG. 5

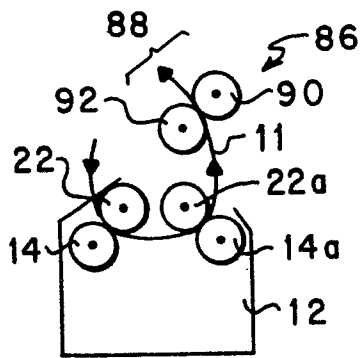


FIG. 6

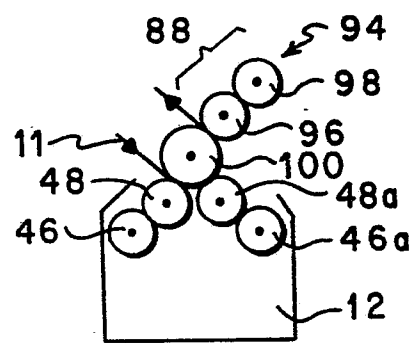


FIG. 7

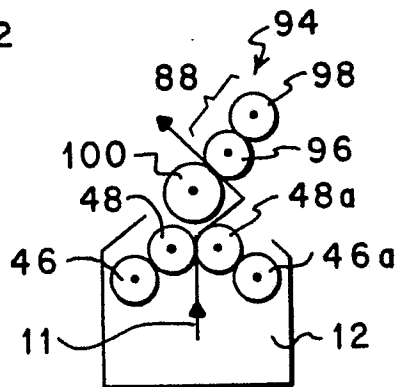


FIG. 8

