

Oct. 29, 1940.

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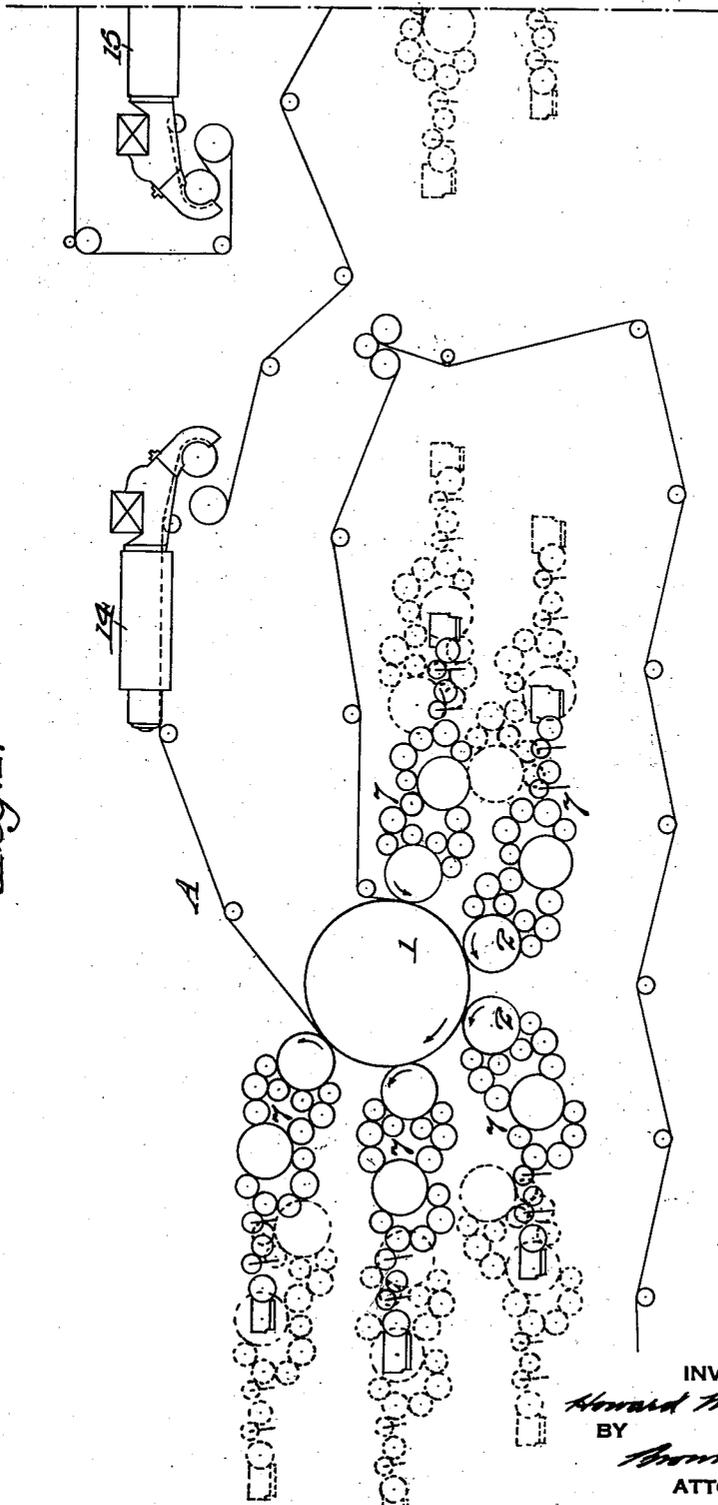
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DRIVING MECHANISM FOR ROTARY PRINTING PRESSES

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4 Sheets-Sheet 1

Fig. 1.



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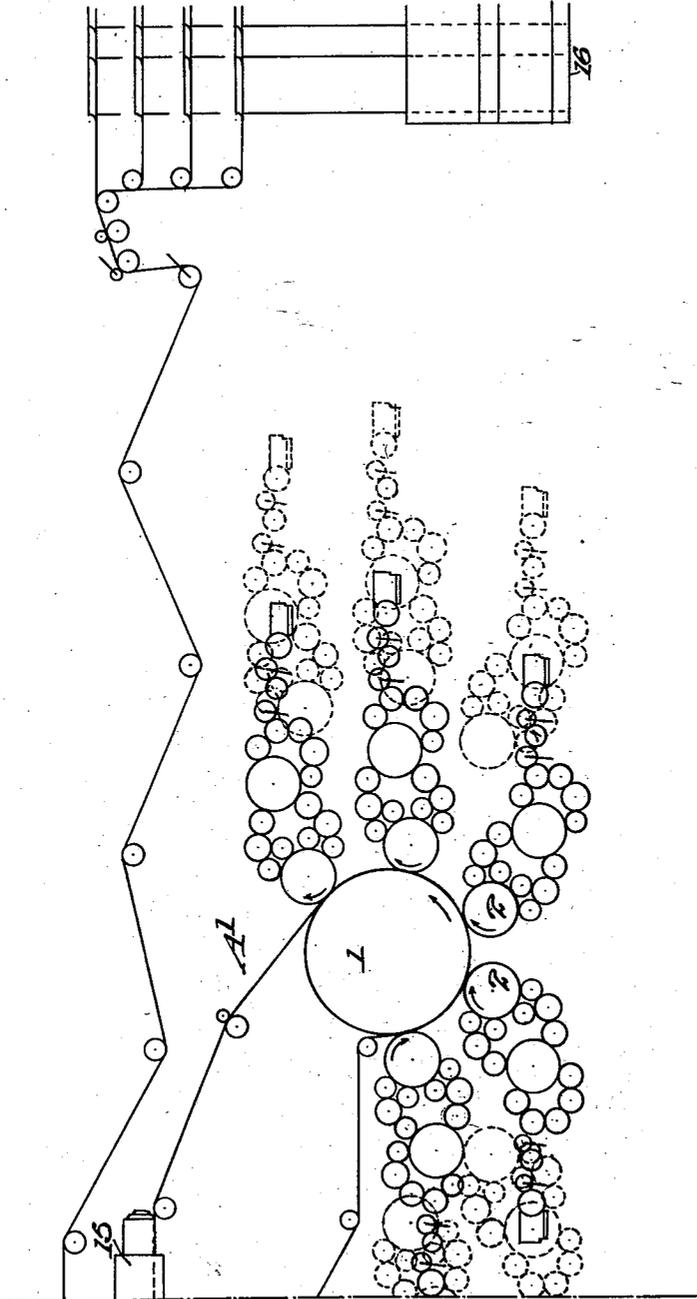
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Fig. 1



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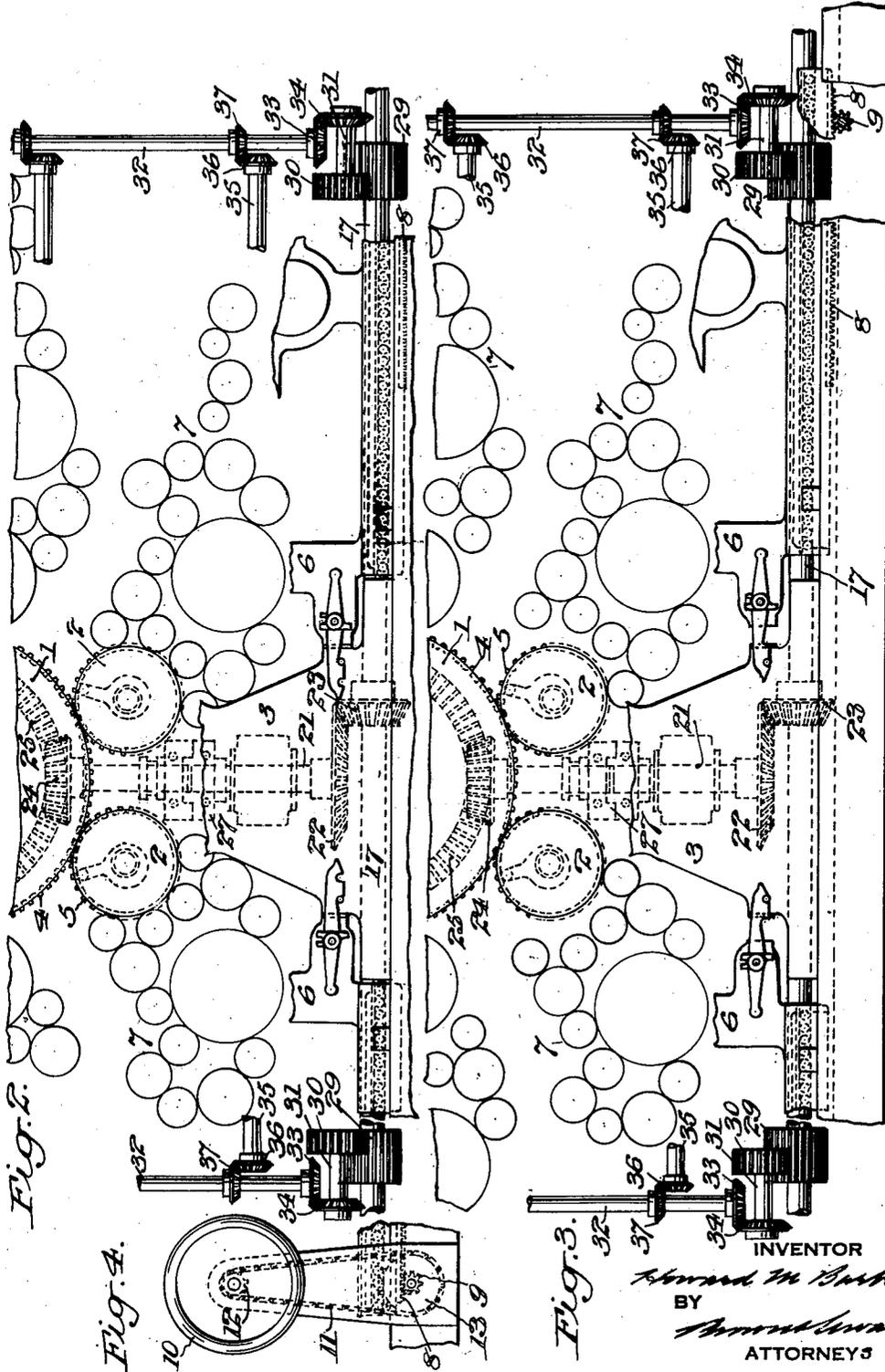
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4 Sheets-Sheet 3



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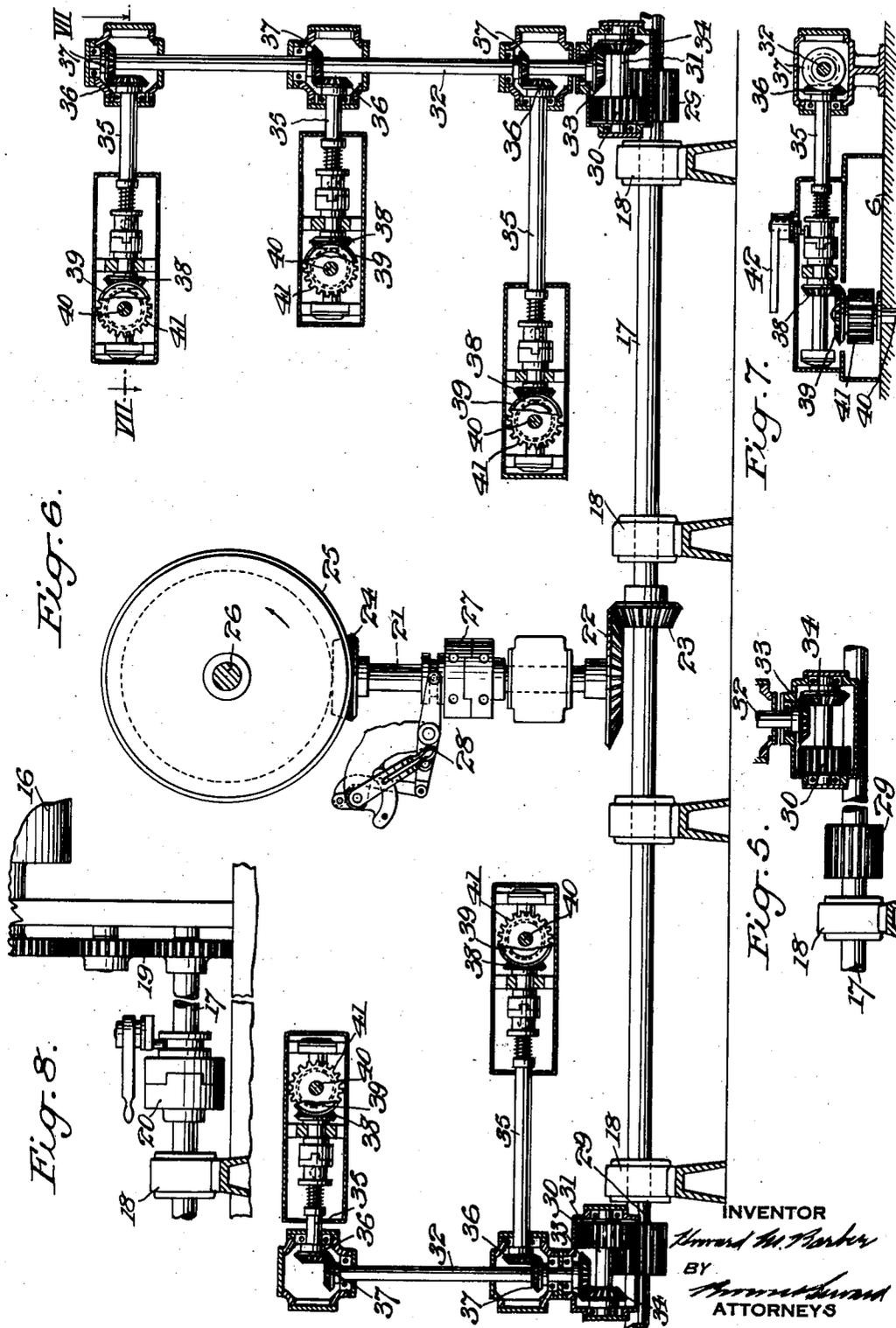


Fig. 6.

Fig. 8.

Fig. 7.

Fig. 5.

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DRIVING MECHANISM FOR ROTARY PRINTING PRESSES

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15 Claims. (Cl. 101—179)

The object of my invention is to provide means whereby ready access may be obtained to the several parts of the press for various purposes, such as replacement, cleaning, working up of the inking mechanisms, etc., any one or more of the results being obtained by either silencing the printing unit, silencing the inking mechanisms as a unit or individually, or silencing the folder or any combination of the above steps.

My invention comprises a common drive for the printing units, the inking mechanisms and the folder, means being provided for operatively connecting the printing units to and disconnecting them from the drive. Means are also provided for moving the inking mechanisms as a unit a short distance away from their printing units without operatively disconnecting the inking mechanisms from the drive and a further distance to operatively disconnect said inking mechanisms from the drive. Means are also provided for individually and selectively operatively disconnecting the inking mechanisms from the drive. Means are also provided for operatively connecting the folder to and disconnecting it from the drive.

My invention comprises, more specifically, a combination of power driven shafts, manually operated devices and clutches for accomplishing any one or more of the results above enumerated.

My invention also comprises means for locking the inking mechanisms in contact with their printing units or when moved a short distance away therefrom.

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

Figs. 1 and 1^a represent in diagram a side elevation of a double five color web perfecting printing press and its folder, said press being adapted for use with quick drying inks and with ink drying units through which ink drying units the web may be passed after both the first side and the second side printings. The groups of inking mechanisms are shown in full lines in position to coact with the form cylinders of their printing units and in dotted lines moved away from their printing units a sufficient distance to operatively disconnect the inking mechanisms as units from the main drive;

Fig. 2 represents a detail side view partly in diagram, the inker stands being shown locked with the inking mechanisms in position to ink the form cylinders of their printing unit;

Fig. 3 represents a similar view, the inker stands being locked with the inking mechanisms moved a short distance away from their form cylinders but still operatively connected to the main drive;

Fig. 4 represents a detail side view of one of the

devices for manually moving the inker stands to bring the inking mechanisms into and out of co-action with their printing unit;

Fig. 5 represents a detail side view showing the narrow faced driving gear of the inking mechanism moved out of mesh with the wide faced gear on the drive shaft to operatively disconnect the group of inking mechanisms as a unit from the main drive shaft;

Fig. 6 represents a detail side view partly in section showing the gears and clutches whereby a printing unit and its inking mechanisms may be connected to and disconnected from the main drive and whereby the inking mechanisms may also be individually disconnected from the main drive, the operating handle for the printing unit clutch being removed for sake of clarity;

Fig. 7 represents a detail horizontal section taken in the plane of the line VII—VII of Fig. 6 showing the clutch for manually connecting one of the inking mechanisms to and disconnecting it from the drive; and

Fig. 8 represents a detail side view of the manually operated clutch for connecting the folder to and disconnecting it from the main drive shaft.

The first side web printing unit is denoted by A and the second side printing unit by A'. Each of these printing units is herein shown as comprising an impression cylinder 1 and five form cylinders 2. These form cylinders 2 may be individually silenced in the usual manner by mounting them in eccentric bearings in the main frame 3.

The impression cylinder gear 4 of each printing unit drives the five form cylinder gears 5. A pair of inker stands 6 are movably supported in the usual manner upon opposite sides of each printing unit, one inker stand in the present instance carrying two inking mechanisms 7 and the opposite inker stand carrying three inking mechanisms 7 for their respective form cylinders 2.

Each inker stand may be provided with the usual rack 8 meshing with a pinion 9 which is rotated in either direction by a hand wheel 10 through the belt 11 and sprocket wheels 12, 13.

The first side printed web is shown as led through a dryer 14 and the perfected web is shown as led through a second dryer 15, which dryers may be of any well known or approved type.

A folder 16 is shown for receiving the perfected web from the dryer of the second printing unit. The means for driving and manually controlling the operation of the printing units, inking mechanisms and folder are as follows:

A horizontally disposed main drive shaft 17

extends longitudinally of the press and it is rotatably mounted in suitable bearings 18 at spaced intervals along the press. This main drive shaft may be rotated at the desired speed from any suitable source of power not shown herein.

The folder 16 is shown as driven from a gear 19 fast on the main drive shaft 17 and means such as a manually operated clutch 20 of the usual type located in the main drive shaft is employed for operatively connecting the folder to and disconnecting it from the said main drive shaft.

Each of the printing units is shown as driven from the main drive shaft through a vertically disposed auxiliary shaft 21 having a bevel gear connection 22, 23 at its lower end with the main drive shaft and a bevel gear connection 24, 25 at its upper end with the shaft 26 of the impression cylinder 1.

Means such as a manually operated clutch 27 of well known or approved type in the auxiliary drive shaft 21 is employed for operatively connecting the printing unit to and disconnecting it from the main drive shaft 17. The handle 28 for operating the clutch 27 may be locked in both positions.

The group of inking mechanism on each inker stand may be driven from the main drive shaft 17 as follows: a wide faced gear 29 on the main drive shaft 17 meshes with a narrow faced gear 30 on a longitudinally disposed stud shaft 31 when the inking mechanisms are either in coaction with the form cylinders of their printing unit or in their position moved a short distance away therefrom. This stud shaft 31 is mounted in suitable bearings on the inker stand 6 and a vertically disposed auxiliary shaft 32 which is also mounted in suitable bearings on the inker stand is operatively connected to the stud shaft 31 through the bevel gears 33, 34.

Each of the inking mechanisms is driven from the auxiliary shaft 32 by means of a longitudinally disposed branch shaft 35 mounted in suitable bearings on the inker stand 6. Bevel gears 36, 37 operatively connect the outer end of the branch shaft 35 to the auxiliary shaft 32 and bevel gears 38, 39 operatively connect the inner end of the branch shaft 35 to the shaft 40 of one of the rolls of the inking mechanism, it being understood that a gear 41 on said roll shaft 40 drives the balance of the inking mechanism rolls in the usual manner.

Means as a manually operated clutch 42 of well known or approved type in the branch shaft 35 is employed to operatively connect the inking mechanism 7 to and disconnect it from the auxiliary shaft 32 and thereby from the main drive shaft 17 when the wide and narrow faced gears 29 and 30 are in mesh.

From the above description it will be seen that any one or more of the following steps may be carried out by very simple and effective mechanisms: each inker stand may be moved a short distance to bring the inking mechanisms carried thereby, away from their respective form cylinders without operatively disconnecting the inking mechanisms from the main drive shaft and also the inker stand may be moved a further distance to operatively disconnect the inking mechanisms from the main drive shaft. Each inking mechanism may be operatively disconnected from the drive shaft. Each impression cylinder and its coacting form cylinders may be operatively disconnected from the main drive shaft. Means are provided for locking each inker

stand either with the inking mechanisms coacting with their respective form cylinders or when moved a short distance away therefrom.

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 rotary printing press, a printing unit, inking mechanisms therefor, a drive, means for operatively connecting the printing unit to and disconnecting it from the drive and means independent of the printing unit for operatively connecting the inking mechanisms to and disconnecting them from said drive.

2. In a rotary printing press, a printing unit, inking mechanisms therefor, a drive, means for operatively connecting the printing unit to and disconnecting it from the drive and means independent of the printing unit for individually operatively connecting the inking mechanisms to and disconnecting them from said drive.

3. In a rotary printing press, a printing unit, inking mechanisms therefor, a drive, means for operatively connecting the printing unit to and disconnecting it from the drive, means independent of the printing unit for operatively connecting the inking mechanisms to and disconnecting them from said drive, and means operable to move the inking mechanisms as a unit a short distance away from the printing unit without operatively disconnecting the inking mechanisms from the drive.

4. In a rotary printing press, a printing unit, inking mechanisms therefor, a drive, means for operatively connecting the printing unit to and disconnecting it from the drive, means independent of the printing unit for individually operatively connecting the inking mechanisms to and disconnecting them from said drive, and means operable to move the inking mechanisms as a unit a short distance away from the printing unit without operatively disconnecting the inking mechanisms from the drive.

5. In a rotary printing press, a printing unit, inking mechanisms therefor, a drive, means for operatively connecting the printing unit to and disconnecting it from the drive, means independent of the printing unit for individually operatively connecting the inking mechanisms to and disconnecting them from said drive, and means operable to move the inking mechanisms as a unit a short distance away from the printing unit without operatively disconnecting the inking mechanisms from the drive and for moving the inking mechanisms as a unit an additional distance to operatively disconnect them from said drive.

6. In a rotary printing press, a printing unit, inking mechanisms therefor, a main drive shaft having a driving connection with the printing unit and a separate driving connection with the inking mechanisms, means in said driving connections to operatively connect the printing unit to and disconnect it from the main drive shaft and to individually operatively connect the inking mechanisms to and disconnect them from the main drive shaft.

7. In a rotary printing press, a printing unit, inking mechanisms therefor, a drive, means operable to move the inking mechanisms as a unit a short distance away from the printing unit without disconnecting the inking mechanisms

from the drive and for moving the inking mechanisms as a unit a further distance away from the printing unit to disconnect the inking mechanisms from the drive, and additional means for individually disconnecting the inking mechanisms from the drive.

8. In a rotary printing press, a printing unit, inking mechanisms therefor, a drive, means operable to move the inking mechanisms as a unit a short distance away from the printing unit without disconnecting the inking mechanisms from the drive, and additional means for individually disconnecting the inking mechanisms from the drive.

9. In a rotary printing press, a printing unit, inking mechanisms therefor, a drive, means operable to move the inking mechanisms as a unit a short distance away from the printing unit without disconnecting the inking mechanisms from the drive and for moving the inking mechanisms as a unit a further distance away from the printing unit to disconnect the inking mechanisms from the drive, means for disconnecting the printing unit from the drive, and additional means for individually disconnecting the inking mechanisms from the drive.

10. In a rotary printing press, a folder, a printing unit, inking mechanisms therefor, a drive shaft, means for operatively connecting the folder to and disconnecting it from the drive shaft, means for operatively connecting the printing unit to and disconnecting it from the drive shaft, and means independent of the printing unit for operatively connecting the inking mechanisms to and disconnecting them from the drive shaft.

11. In a rotary printing press, a printing unit, inking mechanisms therefor, a longitudinally disposed main drive shaft, a longitudinally disposed stud shaft, intermeshing narrow and wide faced gears operatively connecting the said shafts, a vertically disposed auxiliary drive shaft geared to said stud shaft, a plurality of longitudinally disposed branch drive shafts operatively connecting the inking mechanisms with the vertically disposed auxiliary drive shaft, and means for individually disconnecting the inking mechanisms from the vertically disposed auxiliary drive shaft.

12. In a rotary printing press, a printing unit, inking mechanisms therefor, a longitudinally disposed main drive shaft, a longitudinally disposed stud shaft, intermeshing narrow and wide faced gears operatively connecting the said shafts, a vertically disposed auxiliary drive shaft geared to said stud shaft, a plurality of longitudinally disposed branch drive shafts operatively connect-

ing the inking mechanisms with the vertically disposed auxiliary drive shaft, means for individually disconnecting the inking mechanisms from the vertically disposed auxiliary drive shaft, and means operable to move the inking mechanisms as a unit a short distance away from the printing unit without disconnecting the narrow and wide faced gears.

13. In a rotary printing press, a printing unit, inking mechanisms therefor, a longitudinally disposed main drive shaft, a longitudinally disposed stud shaft, intermeshing narrow and wide faced gears operatively connecting the said shafts, a vertically disposed auxiliary drive shaft geared to said stud shaft, a plurality of longitudinally disposed branch drive shafts operatively connecting the inking mechanisms with the vertically disposed auxiliary drive shaft, means for individually disconnecting the inking mechanisms from the vertically disposed auxiliary drive shaft, means operable to move the inking mechanisms as a unit a short distance away from the printing unit without disconnecting the narrow and wide faced gears, and for moving the inking mechanisms as a unit an additional distance to disconnect said narrow and wide faced gears.

14. In a rotary printing press, a printing unit, inking mechanisms therefor, a drive, means for connecting the printing unit to and disconnecting it from the drive, means for individually connecting the inking mechanisms to and disconnecting them from the drive, means operable to move the inking mechanisms as a unit a short distance away from the printing unit without disconnecting the inking mechanisms from the drive, and means for locking the inking mechanisms in coaction with the printing unit and also when moved said short distance away therefrom.

15. In a rotary printing press, a printing unit, inking mechanisms therefor, a drive, means for connecting the printing unit to and disconnecting it from the drive, means for individually connecting the inking mechanisms to and disconnecting them from the drive, means operable to move the inking mechanisms as a unit a short distance away from the printing unit without disconnecting the inking mechanisms from the drive and for moving the inking mechanisms as a unit an additional distance to disconnect them from said drive, and means for locking the inking mechanisms in coaction with the printing unit and also when moved said short distance away therefrom and for unlocking the inking mechanisms to permit their said additional movement.

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