

L. A. WHEAT.
PRINTING PRESS.

APPLICATION FILED APR. 3, 1909

970,671.

Patented Sept. 20, 1910.

3 SHEETS—SHEET 1.

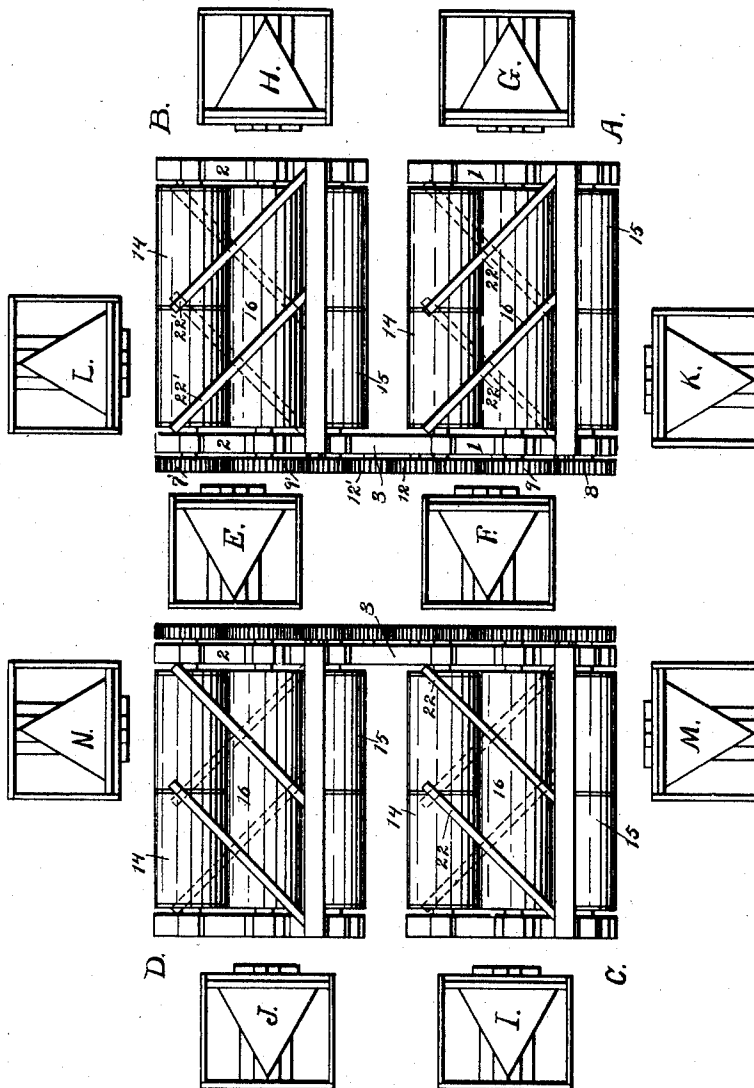


Fig. 1.

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Clara E. Braden

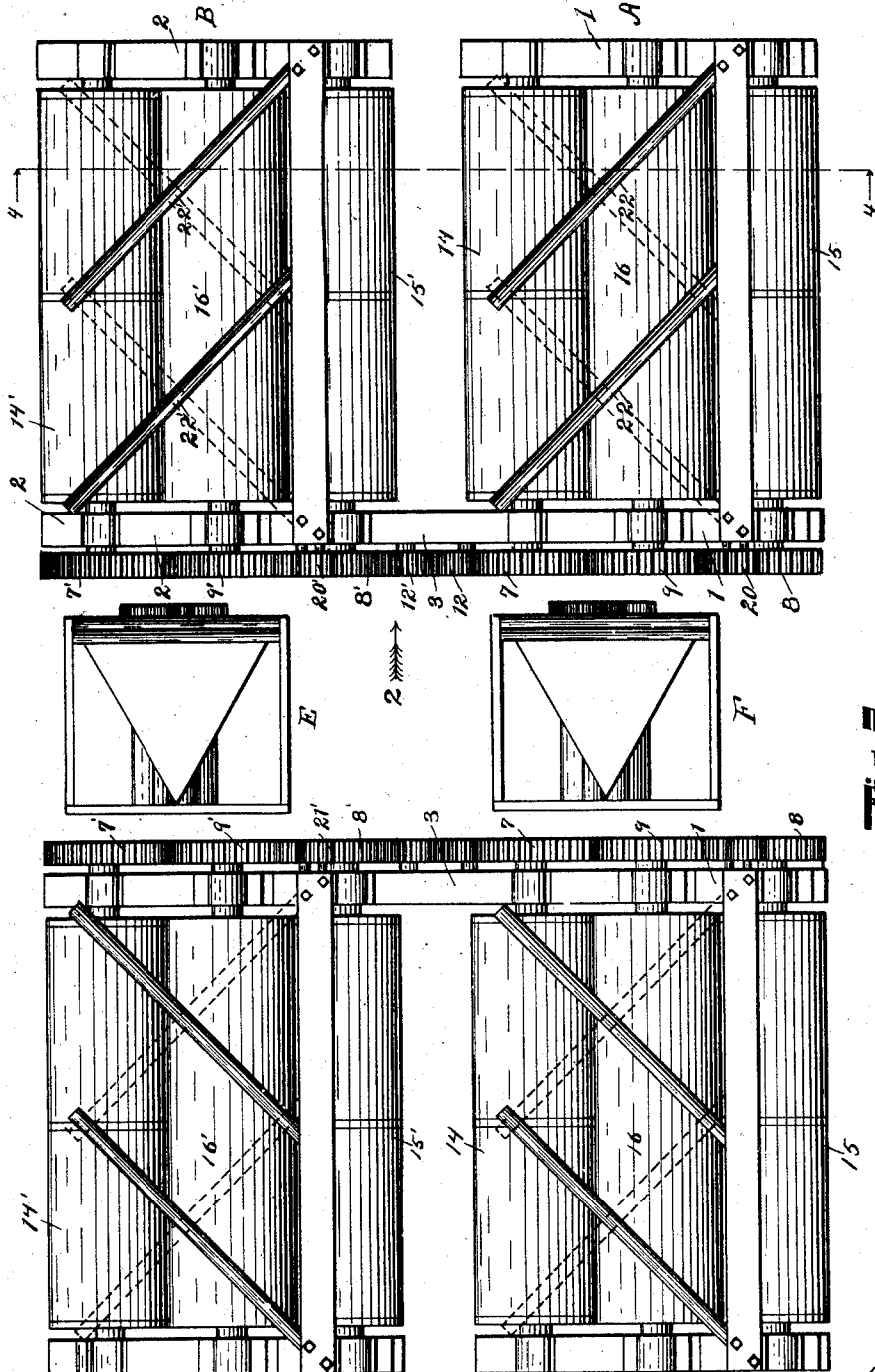
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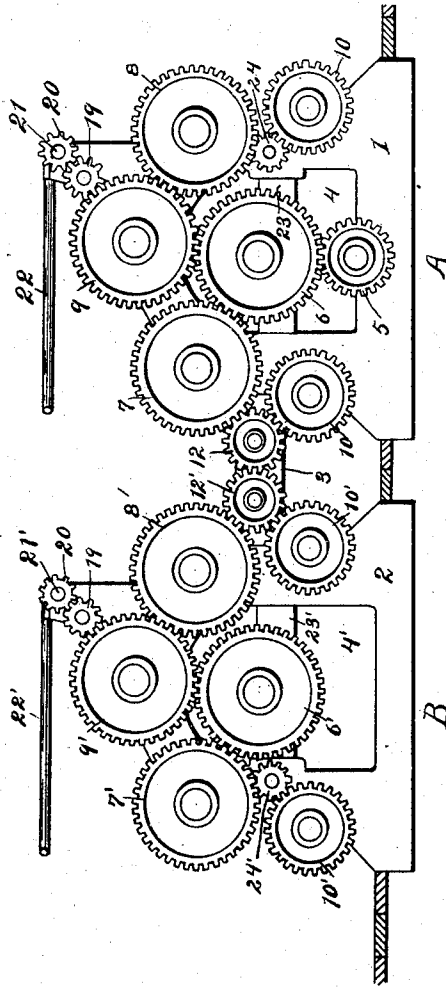
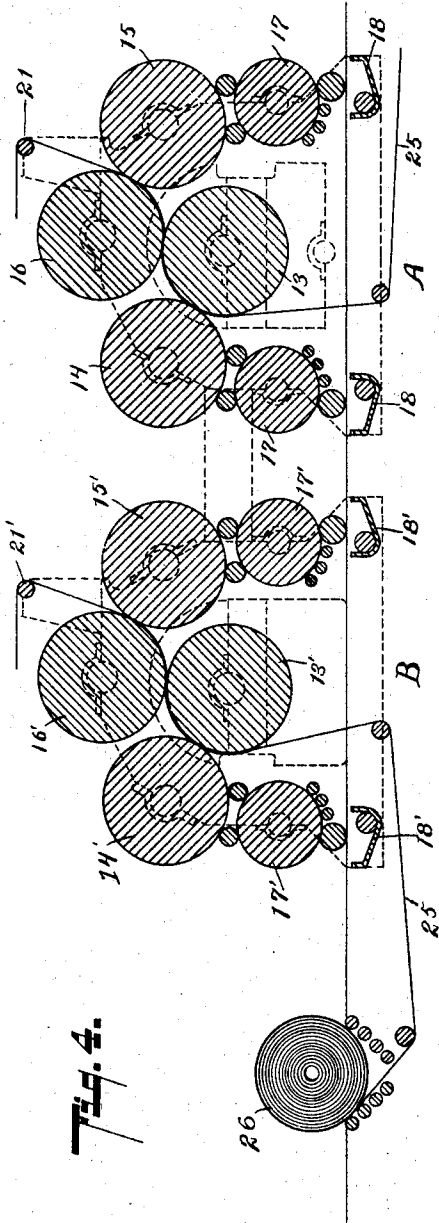
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3 SHEETS-SHEET 3.



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UNITED STATES PATENT OFFICE.

LYMAN A. WHEAT, OF BATTLE CREEK, MICHIGAN.

PRINTING-PRESS.

970,671.

Specification of Letters Patent. Patented Sept. 20, 1910.

Application filed April 3, 1909. Serial No. 487,673.

To all whom it may concern:

Be it known that I, LYMAN A. WHEAT, a citizen of the United States, residing at the city of Battle Creek, Calhoun county, State of Michigan, have invented certain new and useful Improvements in Printing-Presses, of which the following is a specification.

This invention relates to improvements in printing presses, and is particularly an improvement on my press for which I made application for Letters Patent under date of January 2, 1908, Ser. No. 408,997. This application has now eventuated in United States Letters Patent No. 926,795, issued July 6, 1909.

The objects of this invention are to secure greater compactness, so that where four perfecting mechanisms are brought together they are in a most compact form.

A further object is to so arrange the multiple perfecting mechanisms that they will deliver universally to the folders in any position, so that a whole or any part of the press may be used on any job or on as many jobs as there are perfecting mechanisms, the job of work on each perfecting mechanism being capable of division also, and capable of being delivered to its appropriate folder. This makes the machine entirely complete and effective for job work of the smallest kind where there is a sufficient volume of it to keep the press running.

Further objects relating to details will clearly appear from the description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which:

Figure 1 is a plan view of my improved printing mechanism showing the general arrangement of the perfecting mechanisms and the location of the complete series of folders around the said perfecting mechanism and between the same, whereby the work done can be taken care of and folded in the most satisfactory manner. Fig. 2 is an enlarged plan view showing the perfecting mechanisms more in detail with only the folders between the two sets of perfecting

mechanism shown, which is ordinarily a sufficient number. Fig. 3 is an end elevation of the structure appearing in Fig. 2 looking in the direction of the arrow 2. Fig. 4 is a detail sectional elevation view taken on a line corresponding to line 4-4' of Fig. 2 looking in the direction of the little arrows at the end of the section line.

In the drawings, similar characters of reference refer to similar parts throughout the several views.

The structure as I have completely illustrated it here consists of four perfecting mechanisms A, B, C, D. These are in pairs separated from each other and form a passage-way between the geared ends where are located the principal folder mechanisms, E, F. Other folding mechanisms are located at the ends of the machine, as at G, H, and I, J, and when it is desired to divide the work up into still smaller jobs as it is being printed, I provide folders K, L, M, and N at the sides of the perfecting mechanisms so that the folded paper may be delivered the same exactly as in a straight line press. This arrangement of folders and machines enables the most effective arrangement and occupation of the space used by the presses. Of course, the same can be multiplied indefinitely and in either direction in the multiples of two or four, and folders can be distributed around the outside and in alleys between the presses as may be desired. For most requirements, a pair of folders, E, F, between the pairs of perfecting mechanisms will be found sufficient. The perfecting mechanisms may be superposed also. In order to make the different folders available, the angle-bars 22, 22' are made detachable so that they can be reversed and arranged to deliver the paper wherever it may be desired. These bars are secured in place by bolts so that they can be readily detached, as clearly appears in Fig. 2 of the drawing.

Considering the various perfecting mechanisms, 1 and 2 are the frame-work of the perfecting mechanisms A, B. Each frame 1 and 2 is provided with spaces 4, 4' there-through, in which is supported the central impression roll or cylinder, the same being supported on suitable cross-arms 23, 23' whereby it can be readily removed. The object of removing and inserting the impression roll through the end of the frame is to secure accessibility of the parts

and compactness of construction. If the roll is not made accessible in this way, the machine will be spread out over a broad surface, calling for a large amount of extra material for the manufacture of the frame and occupying an unnecessary amount of floor space. It would be very near impossible to assemble the structure in the compact form here shown without removing the impression roll through the arch at the end of the frame. The advantage of this arrangement is also of great importance in considering the question of repair, because each part of the machine is, by this means, made entirely accessible so that it can be repaired without disturbing any of the other parts.

Gears 10—10 and 10'—10' are provided for actuating the inking mechanism and ink drums 17—17 and 17'—17'. There are no intermediate gears supplied in this machine, the gears meshing direct at 7 to 6 to 9 to 8 and 7' to 6' to 9' to 8', respectively, for actuating the perfecting mechanisms consisting of the printing couples 14—13 and 15—16 and 14'—13' and 16'—15', respectively. Of the cylinders 16—13, 16' and 13' are impression cylinders and 14—15, and 14' and 15' are plate cylinders. The perfecting mechanisms are coupled together by gears 12—12' supported on the connecting bar 3 between the frame-works 1 and 2. The inking mechanisms are also driven by the gears 12—12' on the inner sides of the machine and by the intermediate gears 24 and 24' toward the outside of the machine.

The webs of paper 25 are delivered from the rolls 26 supported on suitable stands at each side of the machine, (one only of which is illustrated) and are threaded up through the machine as indicated, and delivers out over the suitable guide rollers 21—21 which are actuated by intermediate gears 19 and from the said guide rollers over the angle-bars 22—22', respectively, and passed to any folder required. The paper rolls may also be arranged beneath the floor on suitable supports as is often done.

By this arrangement, a very compact press over my first construction is produced, where it is designed to make the press quadruple or larger, and by bringing the rolls into the position I have indicated, the intermediate gears are dispensed with and the printing couples are directly coupled together so that they all have the same surface rate of feed. By making the intermediate gears 12—12' of proper dimensions and arranging them to mesh together between the machines, the machines are separated to the proper extent so that a suitable alley-way is provided between the machines, making the plate cylinders 14 and 15' as accessible as the plate cylinders 14' and 15 are on the outer sides of the machine.

By detaching the angle-bars 22 and 22' and changing their direction the direction of the paper can be changed and paper may be delivered to any of the folders as in the illustration in Fig. 1, so that the work can be divided up and delivered to as many folders as may be desired or required, and be folded as separate jobs, or the whole can be collected and delivered to a single folder.

Proper slitting devices are provided where a web is divided which may be of any effective form. Such slitting devices are not illustrated as my invention does not have to do with slitting devices.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a printing press, the combination with the perfecting mechanisms A, B, C, and D arranged with a space between the same and driven by suitable gears, of folders E, F between the said perfecting mechanisms; and folders G, H, I, and J at each end thereof, and folders K, L, M, and N at each side thereof, detachable and reversible angle-bars; all coacting substantially as described and for the purpose specified.

2. In a rotary printing press, the combination of a pair of perfecting mechanisms, the impression cylinders of which are arranged toward the center of each perfecting press, the lower one being detachable by being removable out at the end of the press, and the plate cylinders being toward the outside and contacting with the corresponding impression cylinders; gears on the shafts of said cylinders meshing directly; and gears that drive the inking mechanism and mesh together on the adjacent sides of said presses and couple the perfecting mechanism together, coacting as specified.

3. In a rotary printing press, the combination with a pair of perfecting mechanisms, the impression cylinders of which are arranged toward the center of each perfecting press, and the plate cylinders being toward the outside and contacting with the corresponding impression cylinders; gears on the shaft of said rolls meshing directly; and gears that drive the inking mechanism and mesh together on the adjacent sides of said presses and couple the perfecting mechanism together, coacting as specified.

4. In a rotary printing press, the combination of a pair of perfecting mechanisms, the impression cylinders of which are arranged toward the center of each perfecting press; and the plate cylinders being toward the outside and contacting with the corresponding impression cylinders; and gears that drive the inking mechanism and mesh together on the adjacent sides of said presses and couple the perfecting mechanism together, coacting as specified.

5. In a perfecting mechanism, the combi-

5 nation of a suitable frame open at the end
in arch form so that a central impression
cylinder arranged within the frame of such
dimension that it can be withdrawn through
said arch; printing cylinders toward each
side and above the said central impression
cylinder, and an impression cylinder above
the said central impression cylinder, the
same being coupled together successively to
avoid the use of intermediate gears; and an
inking mechanism arranged below each
printing cylinder, all coacting substantially
as described and for the purpose specified.

10 6. In a perfecting mechanism, the combi-
15 nation of a suitable frame open at the end
in arch form, a central impression cylinder
arranged within the frame of such dimen-

sion that it can be withdrawn through said
arch; printing cylinders toward each side
and above the said central impression cyl- 20
inder, and an impression cylinder above the
said central impression cylinder, the same be-
ing coupled together successively to avoid
the use of intermediate gears; and an inking
mechanism arranged to coöperate with each 25
printing cylinder, all coacting substantially
as described and for the purpose specified.

In witness whereof, I have hereunto set
my hand and seal in the presence of two
witnesses.

LYMAN A. WHEAT. [L. S.]

Witnesses:

EDWIN C. LEWIS,

ERWIN A. SALISBURY.