May 2, 1933. W. RÖSSGER 1,907,368

PLATE CYLINDER FOR OFFSET PRINTING MACHINES

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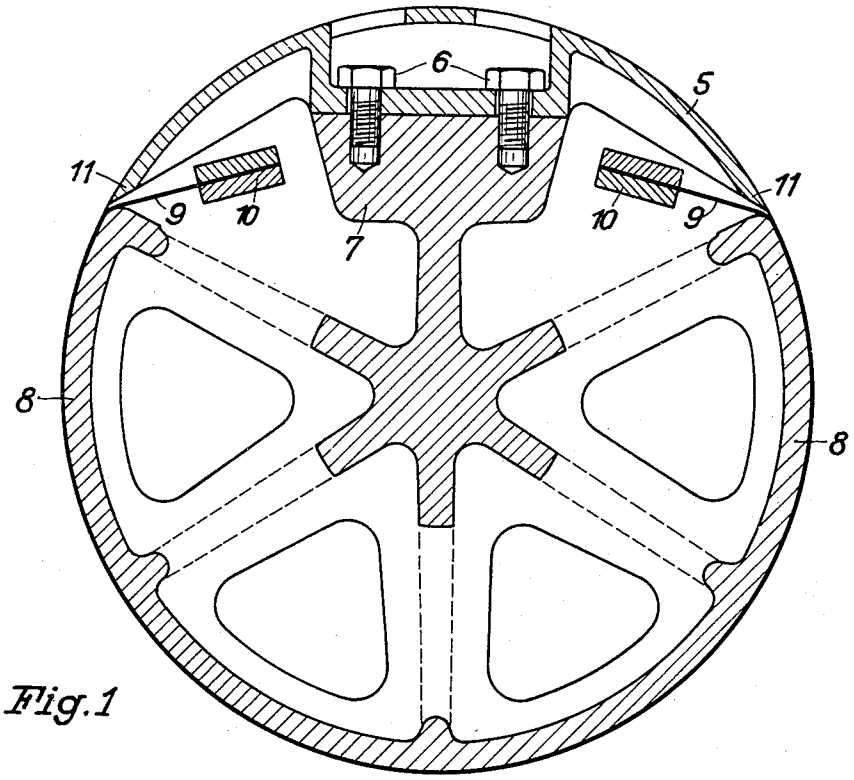


Fig. 1

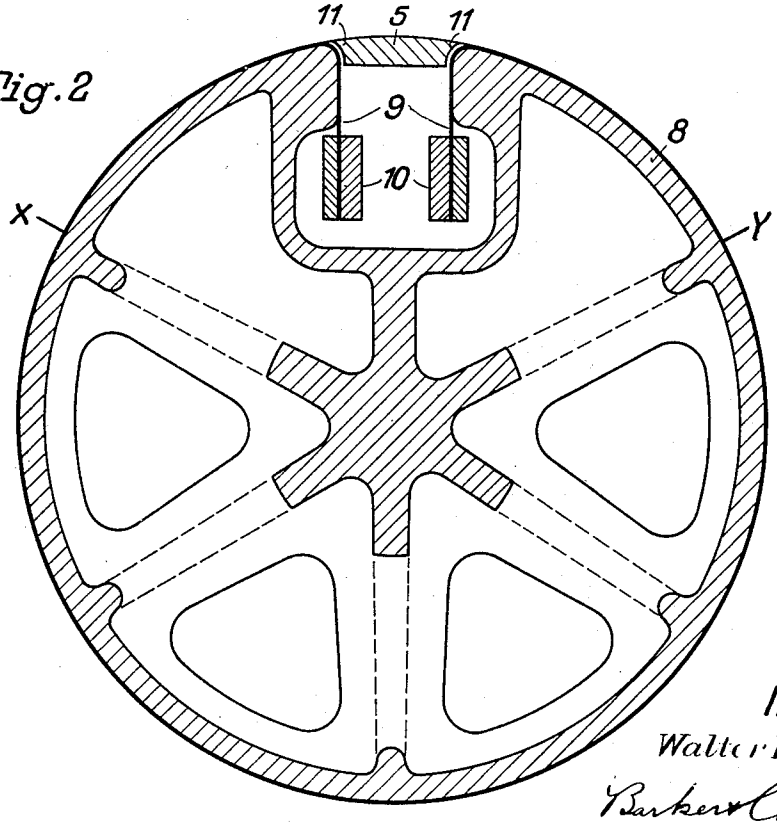


Fig. 2

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Fig. 3

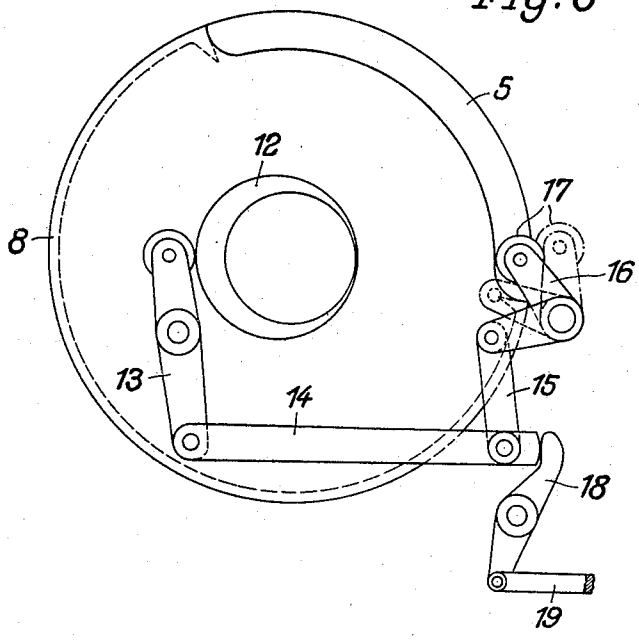
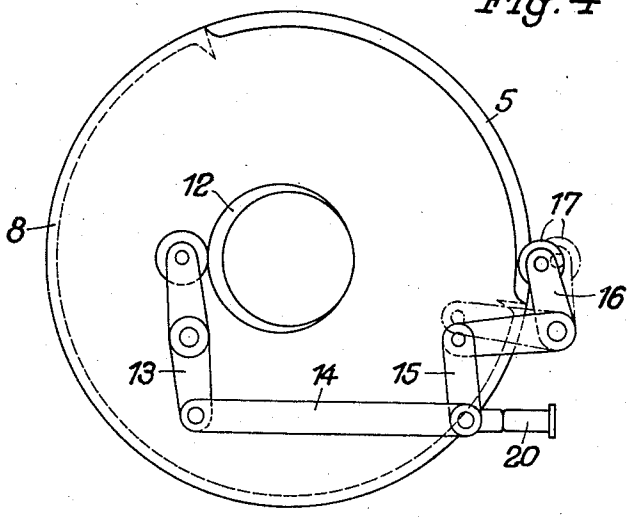


Fig. 4



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UNITED STATES PATENT OFFICE

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PLATE CYLINDER FOR OFFSET PRINTING MACHINES

Application filed October 29, 1931, Serial No. 571,921, and in Germany August 2, 1930.

Rotary offset printing machines for sheets are already known in which the impression cylinder makes two rotations while the offset and plate cylinders make only one rotation and the plate cylinder carries an inking surface besides the plate consequent upon its double size.

This construction has the advantage that by the large diameter of the plate cylinder an efficient inking system having more than four ink distributing rollers may be employed and further that by the arrangement of the inking table, an extraordinarily good ink distribution and consequent covering of the form is obtained.

The development of offset printing in recent years has been to reduce the diameter of the cylinder in order to permit greater press speeds. This is obtained generally according to the principle of the equal-sized cylinder whose impression surface covers more than half the circumference of the cylinder. In this way the actual hourly output is increased 100%; but other difficulties appear. The principal disadvantage of this machine is that an inking system having more than four inking rollers cannot be employed without encountering special difficulties and besides this the inking table on the plate cylinder must be done away with.

For this reason, with the increasing cylinder speeds a reduction in the covering capacity of the inking rollers is noticeable which according to the invention is correctly by the space between the end and the beginning of the pressing surface being covered by a bridge. By means of this bridge which is co-incident with the form circle, an ink spreading table is provided which permits an increased distribution of the ink and makes possible an improved covering of the form.

For the purpose of illustrating the invention reference is made to the accompanying drawings by way of example, in which

Fig. 1 is a cross sectional view of one form of plate cylinder,

Fig. 2 is a cross sectional view of the plate cylinder showing a modified form of the invention and

Figs. 3 and 4 show arrangements for stopping the machine when the bridge is out of place.

Fig. 1 shows in section how the unused space between the two ends of the form plate on the cylinder surface is covered by means of a bridge so that a completely round cylinder is produced. The bridge or ink distributing or spreading table 5 is screwed by means of the bolts 6 on to the boss or support 7 of the plate cylinder 8 and is arranged so that the radius of the segmental bridge is the same as the radius of the cylindrical body plus the thickness of the plate itself. The plate 9 is drawn taut by means of the tensioning clamps 10 over the circular surface of the cylinder into the free space and the bridge 5 closes this space with the edges 11 thereof lying exactly on the circle of the plate 9 and forms with this part a completely closed cylinder surface.

Fig. 2 shows another embodiment in section in which the space between the two ends x and y of the pressing area is for the most part covered by the form plate 9 itself. In this way a correspondingly small and easily handled bridge piece 5 can be employed.

Since for constructional reasons the printing free part cannot be less than one-third of the cylinder circumference there is therefore at least one-third of cylinder rotation used for ink distribution which corresponds approximately to two rotations of the ink distributing rollers.

The bridge 5 is in the known way provided with safety devices which make it impossible to set the machine into operation in the absence of the bridge.

Such safety arrangements are shown, for example, in Figs. 3 and 4.

On the shaft of the cylinder 8 there is provided an eccentric 12 which moves the rod or bar 14 backwards and forwards by means of the double arm 13. The bar 14 can be moved up and down by means of the link bar 15 and the crank arm 16. If, for example, the bridge 5 is fastened to the cylinder 8 the roller 17 secured to the crank arm 16 runs on the circumference to the cylinder 8. The bar 14 is thereby raised and moves over the double arm

18 backwards and forwards without engaging the latter.

If the bridge is removed from the cylinder 8 the roller 17 falls into the gap left by the removal of the bridge 5. The bar 14 drops and in its movement towards the right presses against the double lever 18 by means of which the machine is stopped from the bar 19.

Fig. 4 shows a second form in which the angle arm 16 works in the same way upon the bar 14. The disconnection of the machine, however, is not effected mechanically as in the previous case but by means of an electric system in the known way, for example by means of a knob 20.

I claim:—

1. A plate cylinder for a continuous offset sheet printing machine comprising a plate covering more than half the circumference of the cylinder, means for tensioning said plate over said cylinder, a segmental ink distributing table spanning the space between the two ends of the said plate, means for removably securing said ink table to a support forming part of the cylinder and means for stopping rotation of the cylinder when the table is out of place.

2. A rotary offset printing machine comprising a plate cylinder having a segmental plate carrying surface consisting of more than half the surface of the cylinder, means for tensioning the plate on the said segmental surface of said cylinder, a removable segmental bridge covering the space between the two ends of the plate on the said segmental surface, a slidable bar, means for reciprocating said bar, means for raising or lowering said bar according to whether the bridge piece is in place or not and stopping mechanism for the machine actuated by contact with said reciprocating bar when same is moved by the absence of the bridge to such a position as to engage said stopping mechanism.

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