Aug. 3, 1937. K. T. LANG 2,088,862

PRINTING MACHINE

Filed May 20, 1936 2 Sheets-Sheet 1

Fig. 1

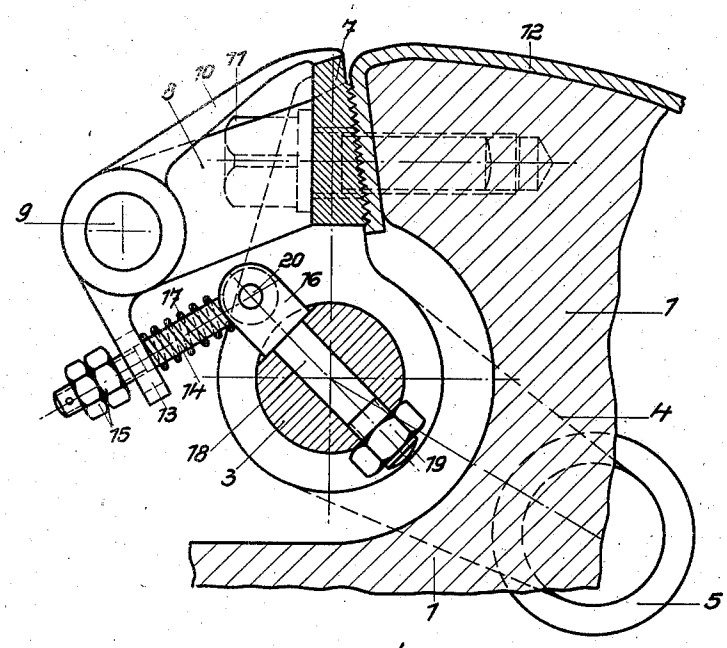
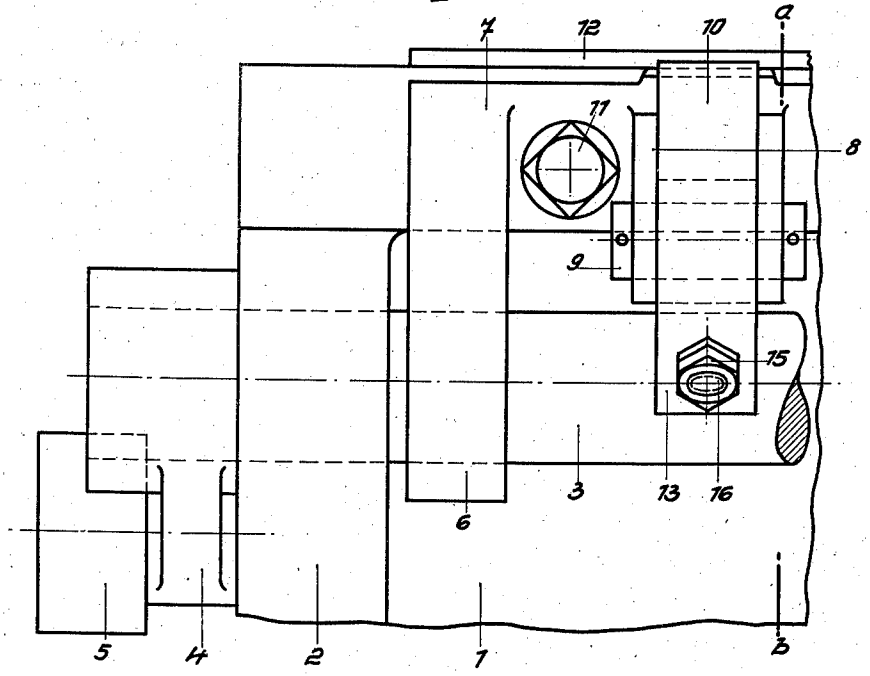


Fig. 2



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Fig. 3

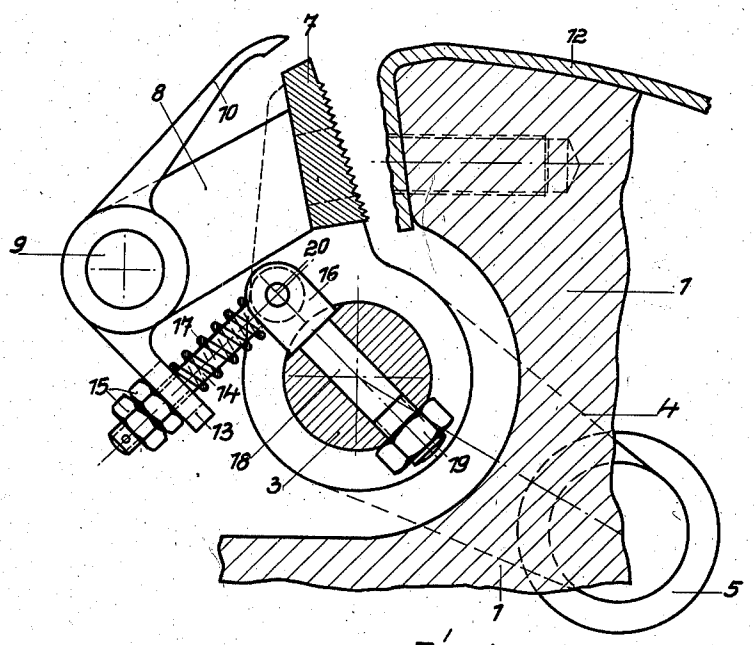
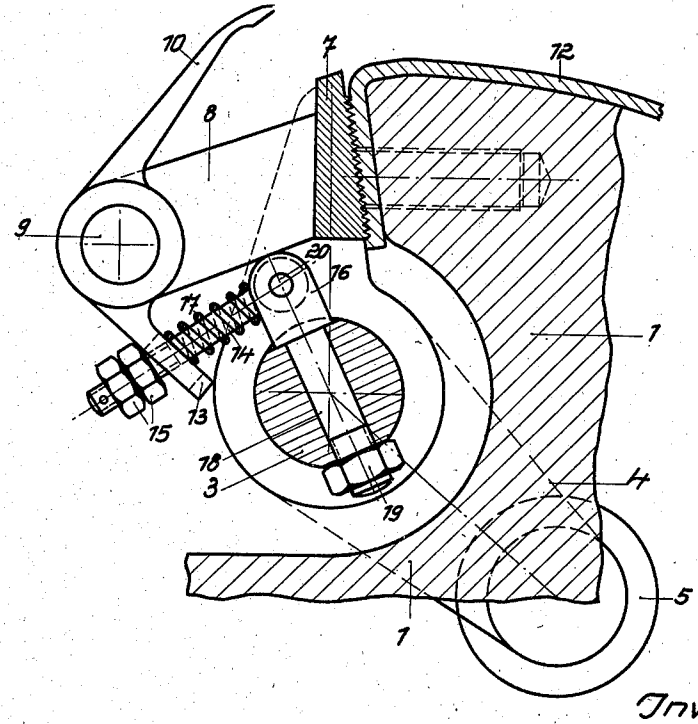


Fig. 4



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2,088,862

PRINTING MACHINE

Karl Theodor Lang, Coswig-Dresden, Germany

Application May 20, 1936, Serial No. 80,774
In Germany June 15, 1935

4 Claims. (Cl. 101—408)

This invention relates to a gripper arrangement on the impression cylinder of printing machines.

In the known devices the grippers on the impression cylinder are arranged on a special shaft, and, independently thereof, the holding means for the packing of the impression cylinder have also been arranged on the latter. This construction renders access to the packing difficult, so that an exchange of the packing requires removal of the grippers, which is possible only by disengaging the driving members for the grippers. The entire process is extremely slow and bothersome.

The invention completely eliminates these drawbacks by arranging the grippers for the sheet and the holding means for the packing on a common carrier in such manner that both members can be moved about a joint axis and out of operative position.

When work has to be done on the packing, the grippers and the holding means are simultaneously swung out of working position so as to render the packing easily accessible. As according to the invention only a single spindle is provided about which both members move, only one bore in the cylinder end walls is needed. The spindle is preferably serving also as control member for the grippers and influenced by cam paths or other means disposed outside the cylinder.

Further details of the invention are described in the specification below with reference to the accompanying drawings, in which Figure 1 is a section of the grippers and of the portion of the impression cylinder taking up the packing; Fig. 2, a top view of the gripper arrangement according to Fig. 1; Fig. 3, a similar view as Fig. 1, with the parts in the position during exchange of the packing; and Fig. 4 a view similar to the one shown in Fig. 1, with the grippers in raised position.

Referring to the drawings, in the end walls 2 of the impression cylinder 1 a spindle 3 extending over the entire length of the cylinder is mounted, which carries both the grippers and the holding means for the cylinder packing 12.

On the outside of the cylinder wall 2 a single-armed lever 4 carrying at its free end a roll 5 is firmly keyed onto the spindle 3. The roll 5 cooperates with a cam path, not shown, which is stationarily arranged on the machine frame, also not shown. Near the end walls 2 of the impression cylinder 1 two carriers 6 ride freely movably on the spindle 3 and support with their free ends the clamping plate 7 for the packing 12. The holding plate 7 is provided on the side facing the packing with teeth and possesses bores through which the screws 11 pass which can be screwed into the impression cylinder 1. By means of the screws 11 the plate 7 is firmly pressed upon the packing and the appurtenant portion of the impression cylinder 1 to hold the packing 12 in position.

Over the length of the impression cylinder 1 bearings 8 are distributed and arranged on the holding plate 7, in which grippers 10 for the sheet are movably disposed on carrying pins 9. With their front end the grippers engage the upper part of the holding plate 7, whereas at their rear end they form a driving lever 13. The grippers 10 are actuated from the spindle 3 which within range of the levers 13 is fitted with the control pins 18 which pass through it and are held by means of the nut 19. On their portion 16 projecting beyond the spindle 3 the pins 18 carry a link pin 20 on which a connecting rod 14 is rotatably arranged. On this connecting rod 14 the levers 13 are loosely disposed by means of correspondingly large bores. Check nuts 15 prevent the levers 13 from slipping off from the rod 14. A compression spring 17 tends to press the driving lever 13 always in the direction of the check nuts 15.

When the packing 12 is to be removed or exchanged, the clamping plate 7, after loosening of the holding screws 11, is swung back about the spindle 3. Simultaneously, the entire gripper arrangement moves also. Since the spindle 3 stands still and the driving lever 13 is cushioned on the rod 14 by the spring 17, the lever 13 can slide back without influencing the control means for the grippers 10. During this operation the parts are in the position shown in Fig. 3 which indicates that work on the packing is not interfered with by the grippers.

The grippers 10 are moved into the position according to Fig. 4 by means of a cam path arranged outside the impression cylinder and not shown. The cam path, by means of the lever 4, turns the spindle 3 clockwise to a certain extent, whereby the control pin 18 for the grippers 10 is moved into the position according to Fig. 4. This motion is transmitted by the connecting rod 14 and the members 15 to the driving lever 13, so that the grippers 10 are compelled to swing upwardly about the shaft 9, i. e., into their receiving or releasing position. When the cam path provided outside the impression cylinder slopes again, the control members are moved back again into their initial position and the grippers, by

means of the compression spring 17, are pressed upon their support or upon the inserted sheet.

I claim:—

1. Impression cylinder for rotary printing machines, comprising a cylinder, a packing for the cylinder, holding means for the packing, means for fastening the holding means to the cylinder, bearings on said holding means, an axle in said bearings, sheet grippers on said axle, control means for the grippers and a spindle disposed in the cylinder and acting as pivot about which said holding means for the packing are adapted to move without influencing said control means.

2. Impression cylinder for rotary printing machines, comprising a cylinder, a packing for the cylinder, holding means for the packing, means for fastening the holding means to the cylinder, bearings on said holding means, an axle in said bearings, sheet grippers on said axle, control means for the grippers, a spindle disposed in the cylinder and acting as pivot about which said holding means for the packing are adapted to move and additional means operated by the machine and arranged on said spindle for controlling the grippers.

3. Impression cylinder for rotary printing machines, comprising a recessed cylinder, a packing for the cylinder, holding means for the packing, a spindle arranged in the recess of the cylinder, carriers for the holding means freely movably disposed on the spindle, means for fastening the holding means and the packing to the cylinder, bearings on the holding means, a carrying axle in said bearings, sheet grippers firmly arranged on said carrying axle and means for controlling the sheet grippers, said means comprising a control lever arranged on the spindle, a driving lever on the carrying axle, a connecting rod flexibly uniting said two levers and means for turning said spindle corresponding to the working rhythm of the machine.

4. Impression cylinder for rotary printing machines, comprising a recessed cylinder, a packing for the cylinder, holding means for the packing, a spindle arranged in the recess of the cylinder, carriers for the holding means freely movably disposed on the spindle, means for fastening the holding means and the packing to the cylinder, bearings on the holding means, a carrying axle in said bearings, sheet grippers firmly arranged on said carrying axle and means for controlling the sheet grippers, said means comprising a lever passing through the spindle, a connecting rod articulated to the free end of said lever, a driving lever firmly arranged on the carrying axle of the grippers and loosely embracing said connecting rod with its free end, holders disposed at the end of said connecting rod for preventing said driving lever from slipping off from said connecting rod, a compression spring on said connecting rod tending to press said driving lever constantly in the direction of said holders, cam paths outside the cylinder and a control lever arranged on the outside of the cylinder on the spindle and cooperating with said cam paths to turn the spindle for opening or closing the grippers.

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