

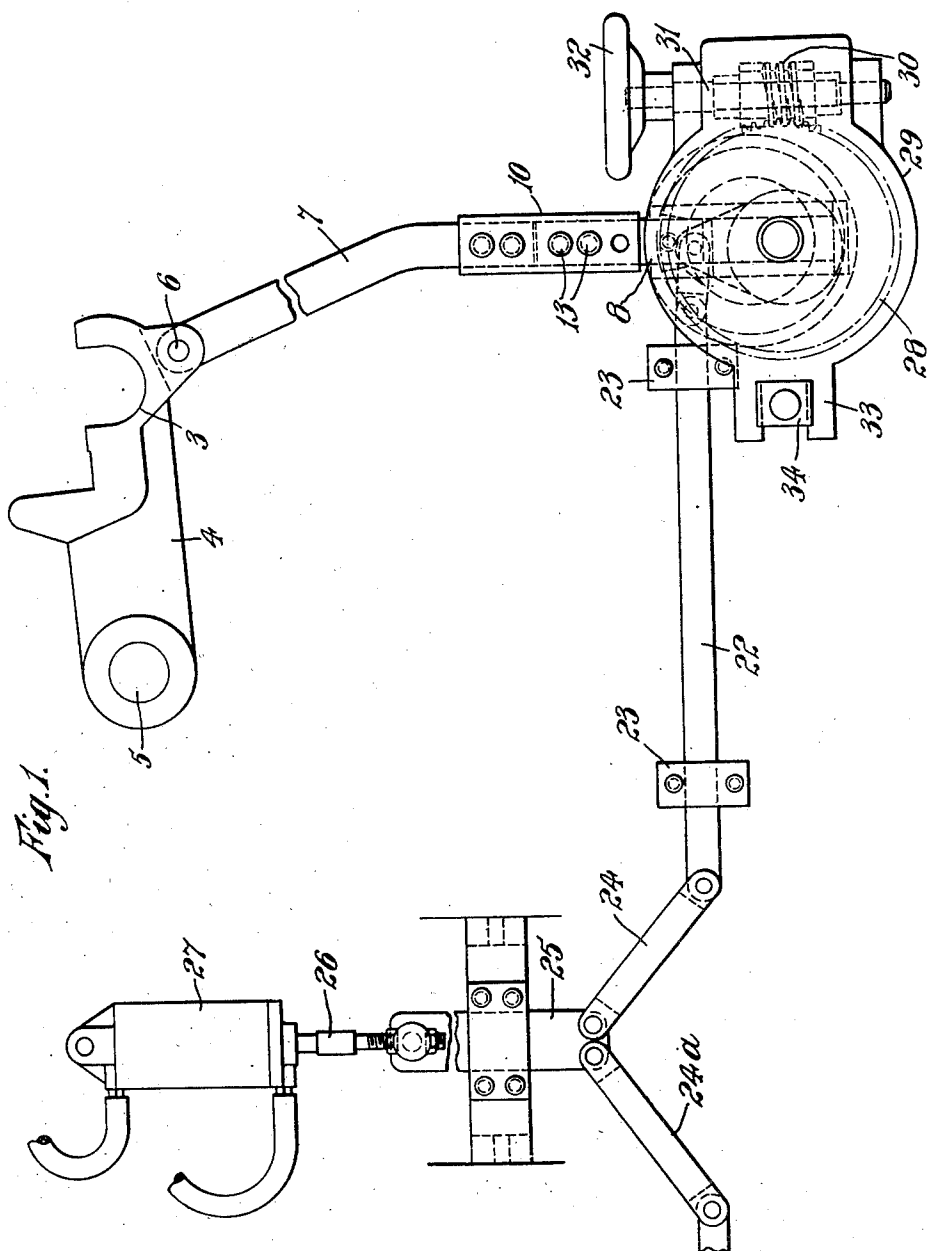
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ROTARY PRINTING MACHINE

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2 Sheets-Sheet 1



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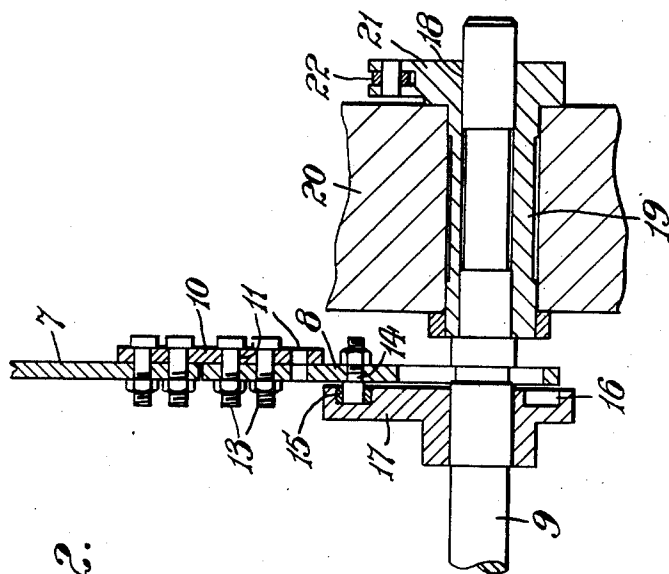
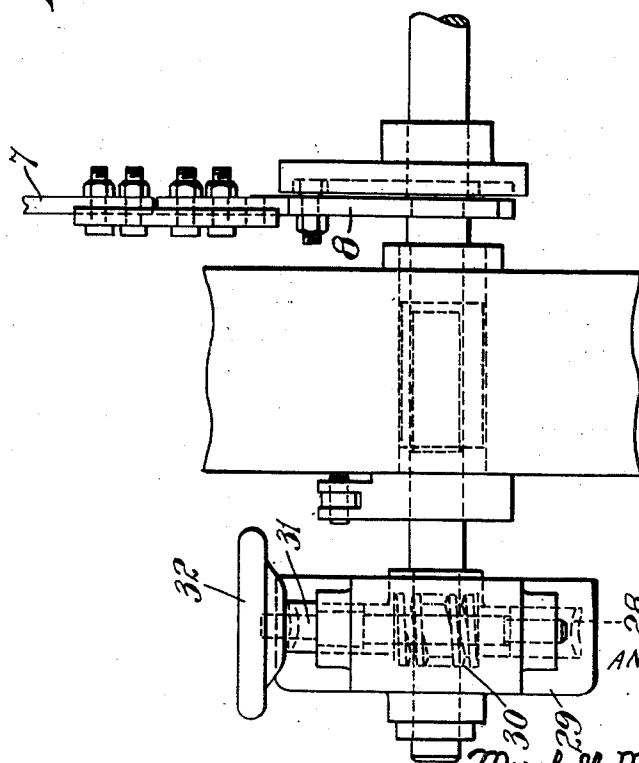


Fig. 2.



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ROTARY PRINTING MACHINE

Angus Murray Halley, Moseley, Birmingham,
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4 Claims. (Cl. 101—247)

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This invention has reference to improvements connected with rotary printing machines and relates particularly to printing machines in which a printing cylinder, which receives ink from a forme roller, is adjustably supported so as to be capable of being moved towards or away from an impression roller around which the printing medium is adapted to be fed.

The object of the present invention is to provide means whereby the adjustment of the clearance or contacting pressure between the printing cylinder and the printing medium can be accurately set whilst admitting of the relatively quick removal of contact between the printing cylinder and printing medium when desired and the subsequent relatively quick resetting to the initial position. This relatively quick removal of contact is necessary for short breaks in the operation of the machine since when using a volatile ink the printing cylinder quickly adheres to the printing medium as the ink dries if the contact is maintained.

The invention consists of a rotary printing machine characterised in that the printing cylinder is carried at each end by a lever adapted to be adjusted by cam mechanism mounted on a rotatable shaft, said shaft being carried within eccentrically disposed bores in a pair of rotatable bushes whereby the shaft may be moved laterally to provide for a relatively quick removal or resetting of printing contact.

The invention will now be described with particular reference to the accompanying drawings in which for the sake of clarity all portions forming no part of the present invention have been omitted. In the drawings

Fig. 1 is a side elevation of the mechanism for effecting the adjustment of the printing cylinder relative to an impression cylinder and

Fig. 2 is a part sectional end elevation as seen from the right hand side of Fig. 1.

Each printing cylinder is rotatably mounted at each side of the machine in a bearing 3 in a lever 4 pivoted to the side frame of the machine at 5, it being appreciated that the rocking of these levers 4 about the pivots 5 effects the adjustment of the printing cylinder relative to the printing medium disposed above the printing cylinder. Pivoted at 6 to each lever 4 is a link 7 to the lower end of which is connected a slotted extension 8 surrounding a reduced portion of a transverse shaft 9. The connection between the link 7 and the extension 8 is effected by a plate 10 in which are formed a plurality of holes 11 which can be selectively placed in register with a plurality of

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holes 12 in the extension 8 before being bolted together by bolts 13 so as to provide for an adjustment of the effective length of the combined link and extension. The extension 8 of each link 7 carries a transverse pin 14 in which is mounted a roller 15 engaging a facial cam track 16 formed in a disc 17 fixed eccentrically in the shaft 9. The transverse shaft 9 is mounted at each end within eccentric bores 18 in bushes 19 rotatably mounted in the side frames 20 of the machine. These bushes 19 have radial extensions 21 to which are pivoted links 22 slidable in guides 23 on the side frames of the machine, the opposite ends of the links 22 being pivotally connected to links 24 pivoted to a slide 25 adapted to be moved vertically by a pneumatically operated piston rod 26 of an air cylinder 27. The one extremity of the shaft 9 carries a worm wheel 28 in a housing 29 and in mesh with a worm 30. The worm 30 is also mounted within the housing 29 on a vertical spindle 31 which projects from the housing and is provided with a hand wheel 32. The housing 29 has a bifurcated extension 33 engaging a stud 34 on the fixed side frame of the machine so as to prevent rotation of the housing whilst admitting of it sliding laterally. The initial or accurate setting of the printing cylinder relative to the impression cylinder is effected by the rotation of the hand wheel 32 which through worm 30 and worm wheel 28 rotates shaft 9 together with discs 17 to raise or lower the links 7 and thereby rock the levers 4. When the operation of the machine is stopped an air valve is automatically operated to lower the piston rods 26 and thereby depress slides 25 to rock the links 24 to a position in prolongation of the links 22 and thereby effect a partial rotation of the bushes 19 to move the shaft 9 together with housing 29 laterally. The lateral movement of shaft 9 is imparted through discs 17 and pins 14 to links 7 so as to rock the levers 4 through a pre-determined angle to part the printing cylinder and printing medium. Where the machine incorporates a pair of printing cylinders each co-operating with an associated impression cylinder then an exactly similar mechanism is provided for each cylinder and each slide 25 is connected to a second link 24^a similar to the link 24. If more than one pair of printing cylinders is provided the slide 25 may be extended and connected to a further pair of links equivalent to the links 24 and 24^a so that the stopping of the machine effects the simultaneous removal of each printing cylinder from contact with its associated impression cylinder.

I claim:

1. In a rotary printing machine means for setting a printing cylinder relative to the printing medium comprising, in combination, a pair of levers, bearings in the levers for supporting the printing cylinder, said levers being pivoted to the frame of the machine, a shaft rotatable in eccentric bores in a pair of bushes in the frame of the machine, a pair of discs eccentrically mounted on said shaft and having facial cam tracks eccentric to the shaft, a pair of links each pivoted at one end to the corresponding one of said levers and having a pin engaging the cam track in one of said discs, means for rotating said shaft in the bushes and means for rotating the bushes in the frame.

2. In a rotary printing machine means for setting a printing cylinder relative to the printing medium comprising, in combination, a pair of levers pivoted at one end on the frame of the machine, bearings in said levers for supporting the printing cylinder, a shaft, a pair of discs eccentrically mounted on said shaft, facial cam tracks eccentric to the shaft in each of said discs, a pair of links each pivoted at one end to the free end of one of said levers and each carrying a roller engaging the eccentric cam track of the corresponding one of said discs for rocking the pivoted levers, bushes rotatably mounted in the frame of the machine and having eccentric bores in which the shaft is rotatably journaled, a worm wheel on said shaft, a housing for the worm wheel, the housing being supported on the shaft and having a bifurcated extension engaging a fixed stud, a worm on a spindle in said housing engaging said worm wheel, a hand wheel on said spindle and means for rotating the bushes in the frame.

3. In a rotary printing machine means for setting a printing cylinder relative to the printing medium according to claim 2, wherein said means for rotating the bushes in the frame comprises a radial extension on each bush pivotally engaged by a link.

4. In a rotary printing machine means for setting a printing cylinder relative to the printing medium comprising, in combination, a pair of levers pivoted at one end on the frame of the machine, bearings in said levers for supporting the printing cylinders, a pair of bushes rotatable in the frame of the machine and having eccentric bores, a shaft rotatable in the bores of said bushes, a pair of discs eccentrically mounted on said shaft, a facial cam track in each of said discs, said cam tracks being eccentric to the shaft, a pair of links each pivoted at one end to the free end of one of said levers, a roller on each of said links engaging the corresponding one of said cam tracks, a worm wheel on said shaft, a worm in mesh with said worm wheel mounted on a spindle in a housing encasing the worm and worm wheel, said housing being mounted on the shaft, a bifurcated extension of said housing engaging a fixed stud, a hand wheel on the spindle, a lateral extension on each of the bushes, and a link connection from each of said extensions to pneumatic means for effecting a partial rotation of said bushes.

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