

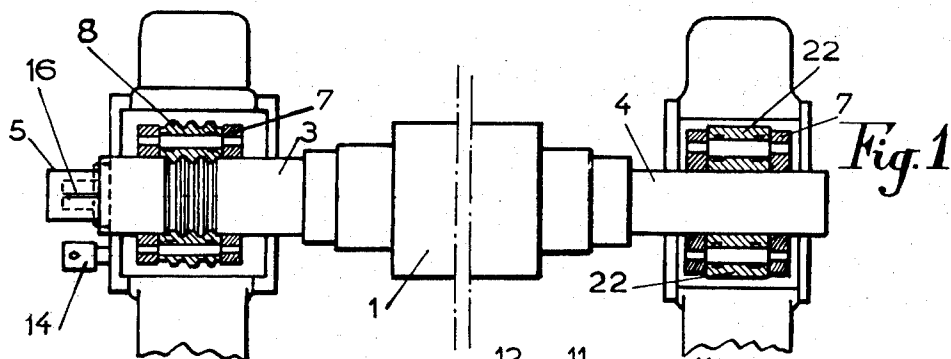
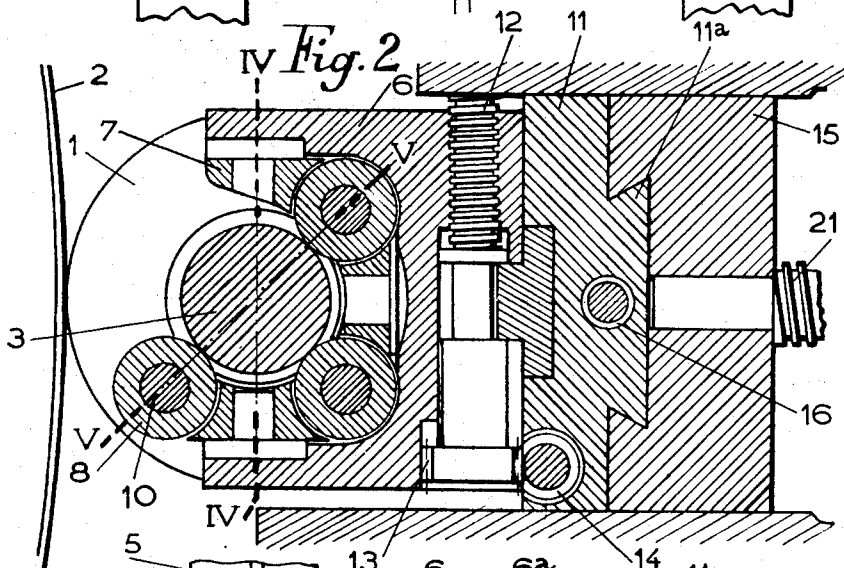
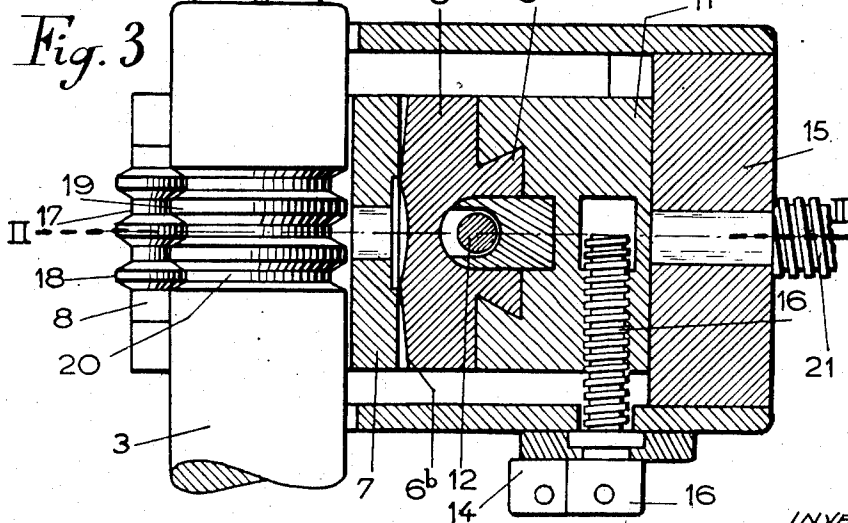
Jan. 8, 1952 C. LUTTENAUER 2,581,593  
 DEVICE FOR MOUNTING ENGRAVED CYLINDERS IN MACHINES  
 FOR PRINTING CLOTH AND THE LIKE  
 Filed Oct. 24, 1946 4 Sheets-Sheet 1

2 C. LUTTENAUER 2  
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*Fig. 4*

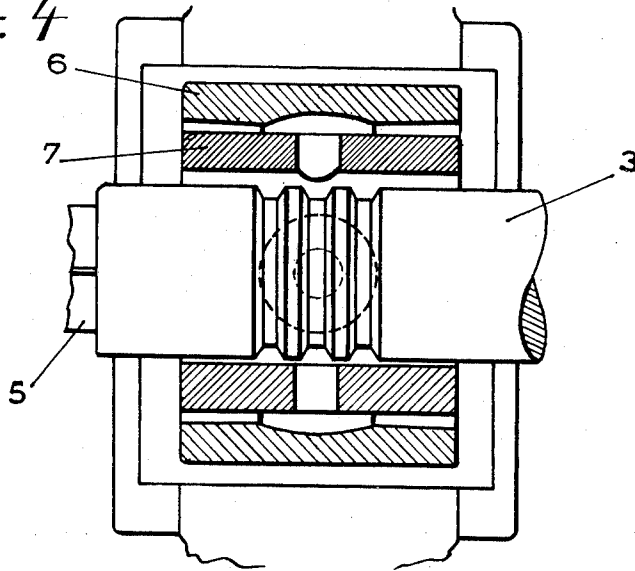
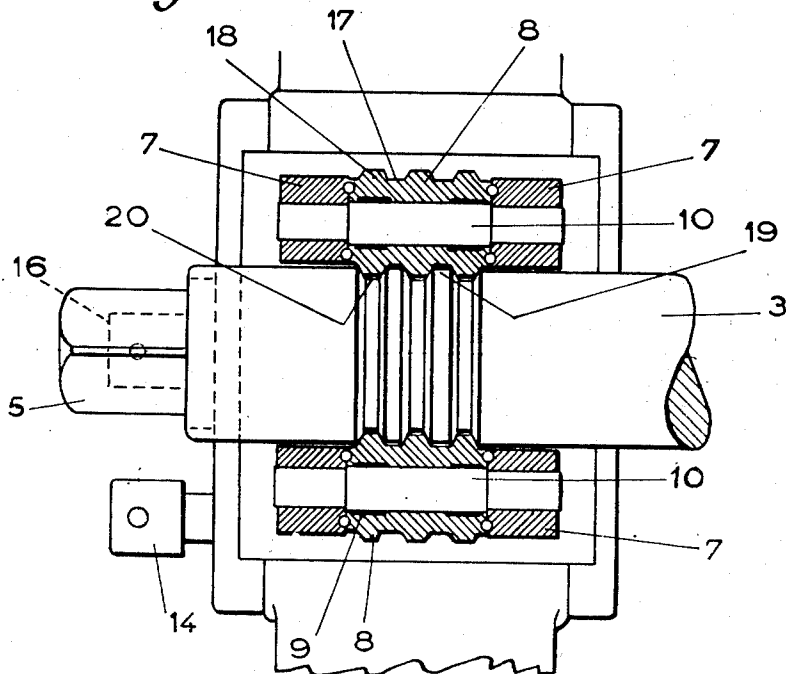


*Fig. 5*



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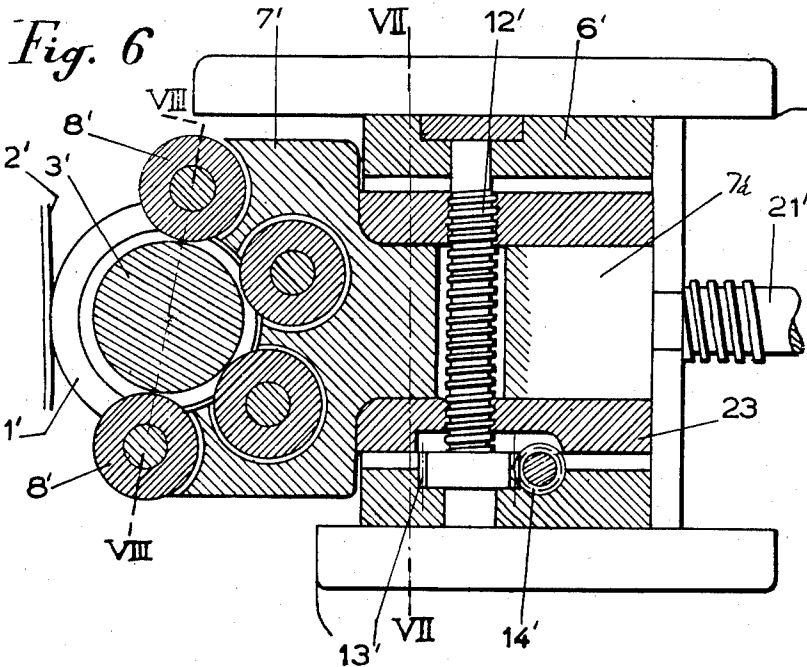
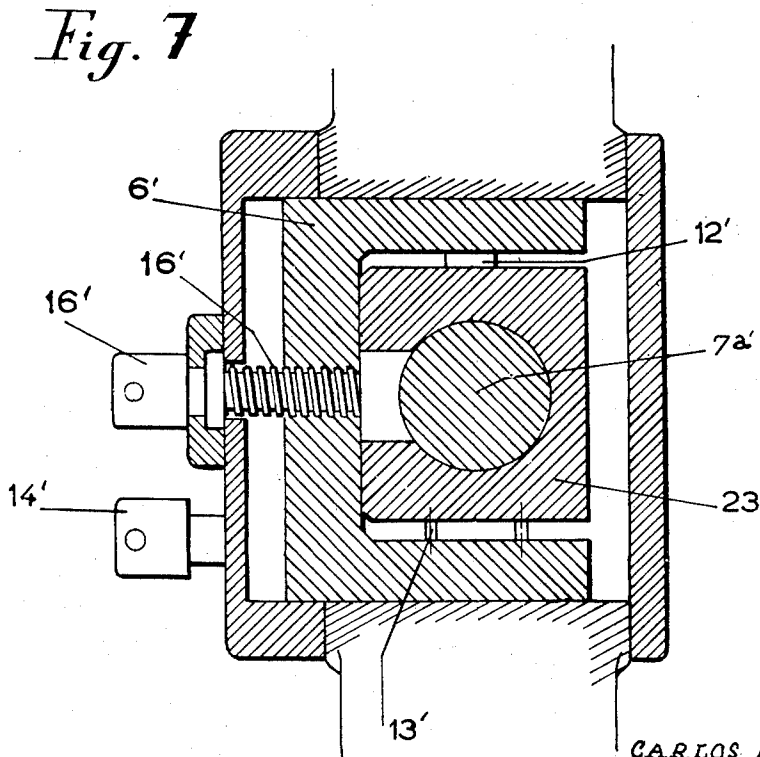
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4 Sheets-Sheet 3



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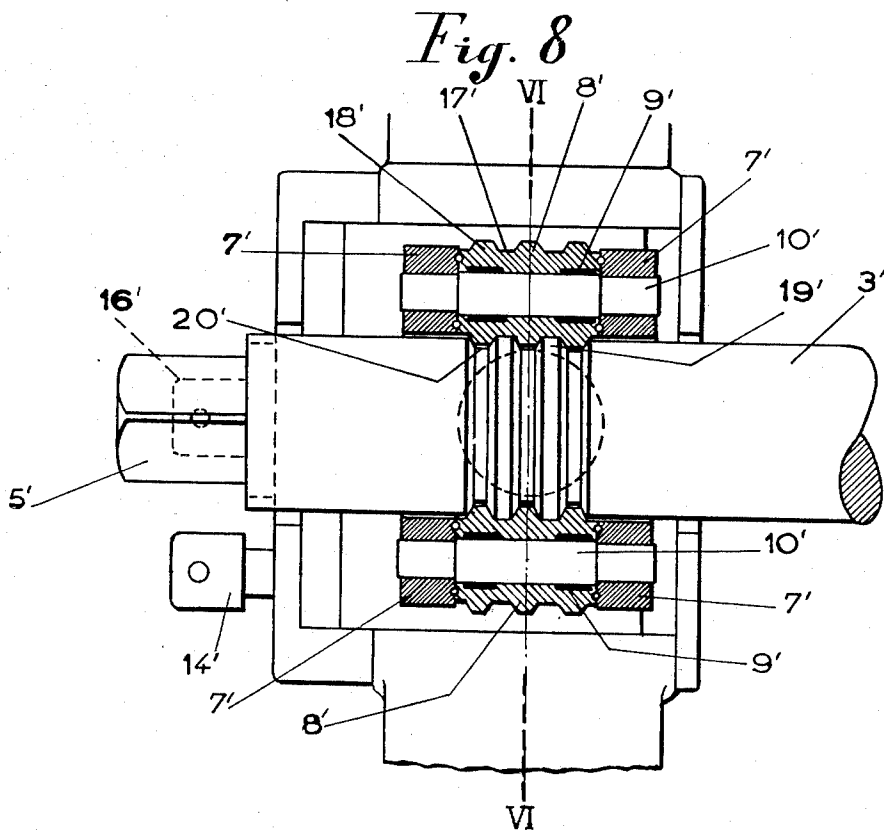
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# UNITED STATES PATENT OFFICE

2,581,593

## DEVICE FOR MOUNTING ENGRAVED CYLINDERS IN MACHINES FOR PRINTING CLOTH AND THE LIKE

Carlos Luttenauer, Mulhouse, France

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8 Claims. (Cl. 101—216)

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The invention relates to the mounting of the journals of the pattern cylinders in machines for printing cloth and the like.

The subject of the invention is a mounting device which is remarkable by numerous advantages consisting, inter alia, and in particular, in the fact that: In the first place, it enables a universal adjustment to be effected of the printing cylinder in the vertical direction, in the radial direction and in the axial direction; it permits, furthermore, the spindle of the printing cylinder to shift slightly so that it can take up oblique positions relative to the spindle of the presser cylinder, while allowing, on the other hand, the said printing cylinder the possibility of free expansion. In the second place, it provides for the replacement of sliding friction in the bearings by rolling friction, which results in a saving of power while ensuring the independence of the journals relatively to the roller bearings with which they cooperate, thereby enabling the printing cylinder to be easily fitted in and removed from its bearings without requiring any assembling or disassembling of cages, or abutments, for the journals, and without any complication of the construction of the bearings. By means of this device, all risks of heating and jamming in the bearings are eliminated, and also abnormal bending of the journals is prevented.

In order to enable these results to be obtained, which results are finally expressed by an improved efficiency of the printing machines, the mounting device which is the subject of the invention is mainly characterized in that:

1. Each of the journals of the printing cylinder is engaged between bearing rollers which are arranged in a semi-circle concentrically to the axis of said cylinder, in a fork-shaped support housed in an open bearing body.

2. The bearing has universal adjustment and, for this purpose, is so arranged and is combined with means such that it allows the journal for which it serves as a housing to be subjected to adjustments in three directions which are perpendicular two by two.

3. The fork carrying the bearing rollers is so mounted in the bearing body that it can effect small pivoting movements which allow of slight inclinations of the spindle of the printing cylinder obliquely with respect to that of the presser cylinder.

4. On the driven side, the bearing rollers and also the journal of the printing cylinder are provided with circular grooves and shoulders of the same shape, the shoulders of the rollers engaging in the corresponding grooves of the journal, and reciprocally, in order to produce the displacement of the journal by the rollers of the bearing during the adjustments in the axial direction.

5. On the side opposite to the drive, the bearing rollers and also the journal have a smooth

surface, in order to permit of the free axial expansion of the cylinder.

In order to give a better comprehension of the invention, and by way of examples which are in no way limitative, an embodiment and also a variant are described and diagrammatically illustrated in the accompanying drawings in which:

Fig. 1 is an overall front elevation, partly in section, of a mounting device according to the invention;

Fig. 2 is a vertical longitudinal section along line II—II (Fig. 3) of the bearing on the driven side;

Fig. 3 is a horizontal section of the said bearing;

Fig. 4 is a vertical transverse section thereof along line IV—IV (Fig. 2), and

Fig. 5 is a sectional view along V—V (Fig. 2);

Fig. 6 is a vertical longitudinal sectional view along line VI—VI (Fig. 8) of a variant of the bearing on the driven side;

Fig. 7 is a vertical sectional view along line VII—VII (Fig. 6) and

Fig. 8 is a sectional view along line VIII—VIII (Fig. 6).

As regards the first embodiment (Figs. 1 to 5), 1 is the printing cylinder and 2 the presser cylinder, between which the cloth passes; 3 and 4 are the journals of the spindle of the cylinder 1, the journal 3, on the driven side, terminating in a square end 5 which receives the driving member; 6 is the bearing body formed by an open box within which is housed a fork 7 serving as a support for a number of rollers 8 (three in this first embodiment) loosely rotatable, for example with the interposition of thin cylinders 9, on spindles 10 carried by the fork 7. This construction permits the ready detachment of the journals 3, 4 from their bearings, by simply withdrawing the shaft in a diagonal direction as viewed in Fig. 2.

The bearing body 6 is provided, at its rear part, with a dovetail guide 6a which enables it to slide vertically in a block 11 by the action of a screw threaded rod 12, the base of which is cut to form a worm wheel 13 driven by an actuating worm 14 for the vertical adjustment.

The block 11 is itself mounted so that it can slide horizontally, by means of a dovetail guide 11a, in another block 15, and its operation is effected by a screw 16 for the axial adjustment. The rollers 8 are each provided with grooves 17 and shoulders 18, of trapezoidal cross-section, co-operating with shoulders 19 and grooves 20, of like cross-section provided on the journal 3, thus effecting the movement of said journal in the axial direction through entrainment by the rollers 8, when adjusting the position of the latter by means of the screw 16.

The radial adjustment, for increasing or decreasing the pressure of the cylinder 1 against

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the cylinder 2, is effected by means of a screw 21 which shifts radially the assembly formed by the blocks 15 and 11, the bearing body 6, the fork 7 housed in said bearing body, and the rollers 8 which it carries and, consequently, the journal 3.

The fork 7 can, furthermore, effect pivoting movements of small amplitude, owing to the chamfered bearing surface 6b of the bearing body 6, thereby allowing the spindle of the printing cylinder 1 to take up slight inclinations obliquely with respect to that of the presser cylinder 2.

The mounting of the journal 4, on the side opposite to the drive, is effected in a similar manner; however, the bearing body is not provided with any member for axial adjustment. As regards the rollers 22, their surface is cylindrical and smooth, and likewise that of the journal 4, thereby permitting of the free expansion of the journal and of the cylinder 1.

The variant of construction shown in Figs. 6 to 8 is similar to the embodiment which has just been described in detail; the members having like functions are designated by the same reference numerals primed. The fork 7' is provided with a cylindrical rear shank 7a' lodged in a block 23 which is mounted so that it can slide vertically in the bearing 6'. The vertical adjustment is effected by rotating the actuating worm 14' which meshes with the worm wheel 13' forming the base of the screw 12', rotation of which causes the raising or the lowering of the block 23. The screw 16' for the axial adjustment acts on the bearing 6'. As regards the screw 21' for the radial adjustment, it acts on the shank 7a' of the fork 7'.

It is of course understood that the invention is in no way limited to particular embodiments and that it is possible, without exceeding its scope, to imagine modifications and improvements of details, and also to consider the use of means forming equivalents of those given by way of example.

What I claim is:

1. In a printing machine having a printing cylinder rotatably mounted on a shaft, in combination, a pair of bearings for said shaft, each of said bearings comprising a plurality of rollers arranged in a semi-circle around a respective extremity of said shaft, a fork-shaped support for the rollers of each bearing, arranged to permit radial disengagement of the shaft from said rollers by withdrawal therefrom in an upwardly slanting direction, and an open housing for each of said supports, said housing surrounding said support on three sides so as not to interfere with the radial withdrawal of said shaft from said bearing, said rollers including a pair of extreme rollers making contact with said shaft at opposite ends of a diameter inclined with respect to the vertical.

2. The combination according to claim 1 wherein said housing is chamfered to permit a limited axial disalignment of said support and rollers relative to said shaft.

3. In a printing machine having a printing cylinder rotatably mounted on a shaft, in combination, a pair of bearings for said shaft, each of said bearings comprising a plurality of rollers arranged in a semi-circle around a respective extremity of said shaft, one of said extremities having a corrugated surface, the rollers engaging said one extremity having complementary sur-

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faces cooperating with said corrugated surface for simultaneous axial displacement of the last-mentioned rollers and said shaft, a support for the rollers of each bearing, said support being open on one side so as not to interfere with the radial withdrawal of said shaft from said bearing, and adjusting means for axially displacing the support carrying said last-mentioned rollers.

4. The combination according to claim 3, comprising additional adjusting means for independently displacing each of said supports in two radial directions of the shaft perpendicular to each other.

5. The combination according to claim 3, further comprising an open housing for each support positioned so as not to interfere with said radial withdrawal of the shaft, said housing being chamfered to permit a limited axial disalignment of said support and associated rollers relative to said shaft.

6. A bearing for rotatably supporting a shaft carrying a printing cylinder, comprising a plurality of rollers arranged in a semi-circle around a portion of said shaft, and supporting means for said rollers, said supporting means being open on one side so as not to interfere with the radial withdrawal of said portion from said bearing in an upwardly slanting direction, said rollers including a pair of extreme rollers making contact with said shaft at opposite ends of a diameter inclined with respect to the vertical.

7. In a printing machine having a printing cylinder rotatably mounted on a shaft, in combination, a pair of bearings for said shaft, each of said bearings comprising a plurality of rollers arranged in a semi-circle around a respective extremity of said shaft, a fork-shaped support for the rollers of each bearing, arranged to permit radial disengagement of the shaft from said rollers, an open housing for each of said supports, said housing surrounding said support on three sides so as not to interfere with the radial withdrawal of said shaft from said bearing, independent adjusting means for displacing each of said supports in two radial directions of the shaft perpendicular to each other, and additional adjusting means for displacing one of said supports in axial direction of the shaft.

8. The combination according to claim 7 wherein the rollers held in said one of said supports are provided with shoulders and grooves and wherein the extremity of the shaft associated with the last-mentioned rollers has shoulders and grooves cooperating with those of said rollers for axial entrainment of the shaft under the control of said additional adjusting means.

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