March 4, 1952 J. DUNGLER 2,587,606

CYLINDER ADJUSTING MEANS FOR MACHINES FOR PRINTING FABRICS, PAPER, AND OTHER MATERIALS

Filed Sept. 26, 1946 4 Sheets-Sheet 1

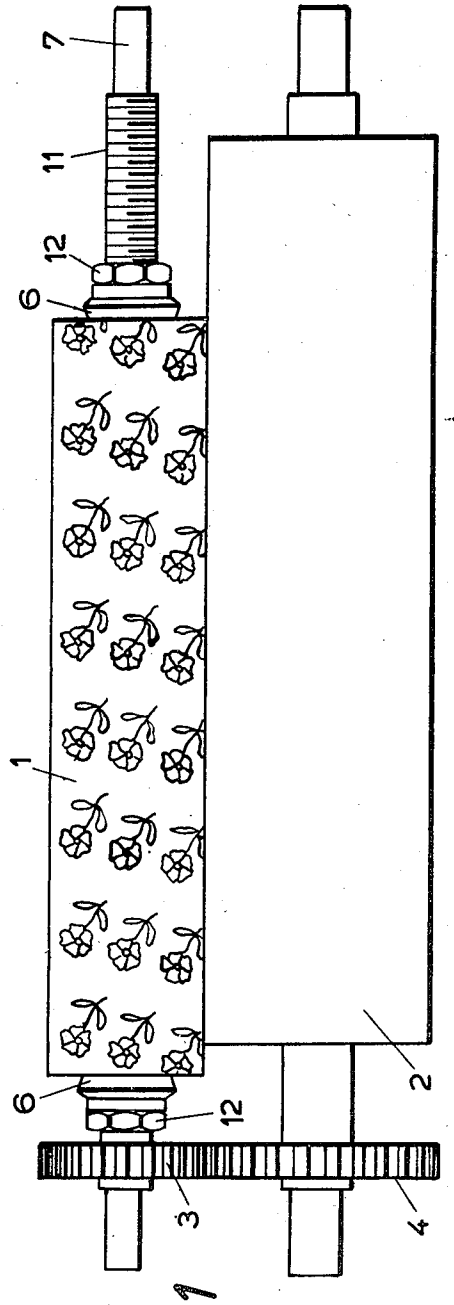


Fig. 1

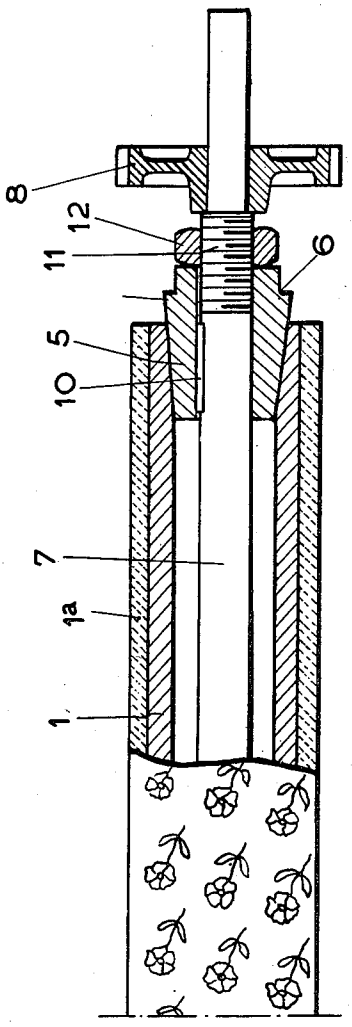


Fig. 2

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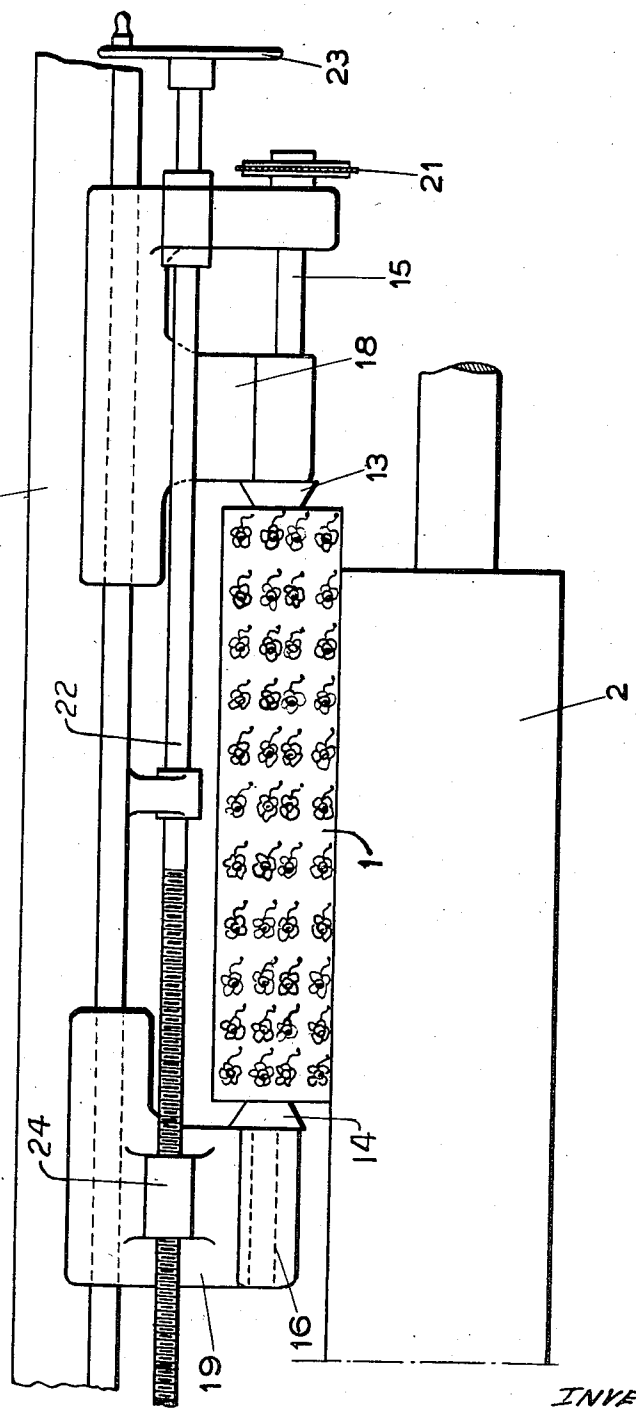


Fig.3

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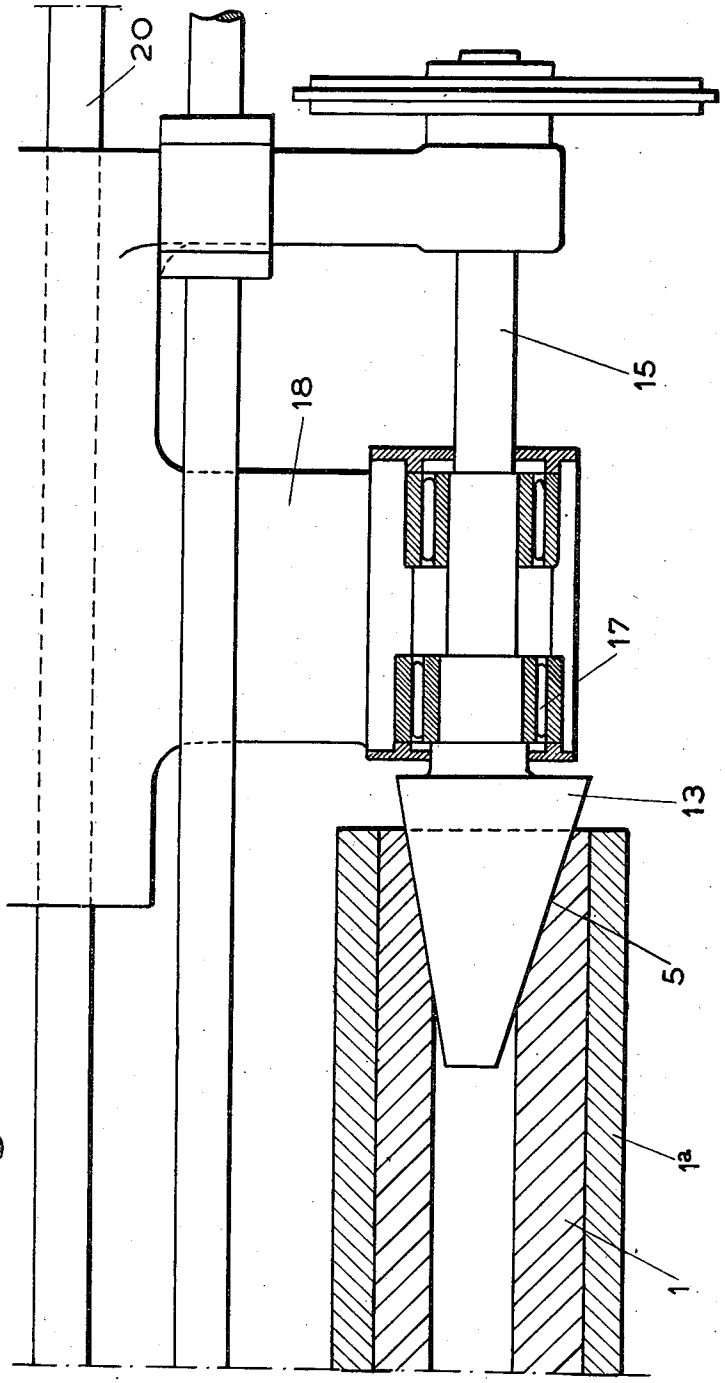


Fig. 4

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Fig. 5

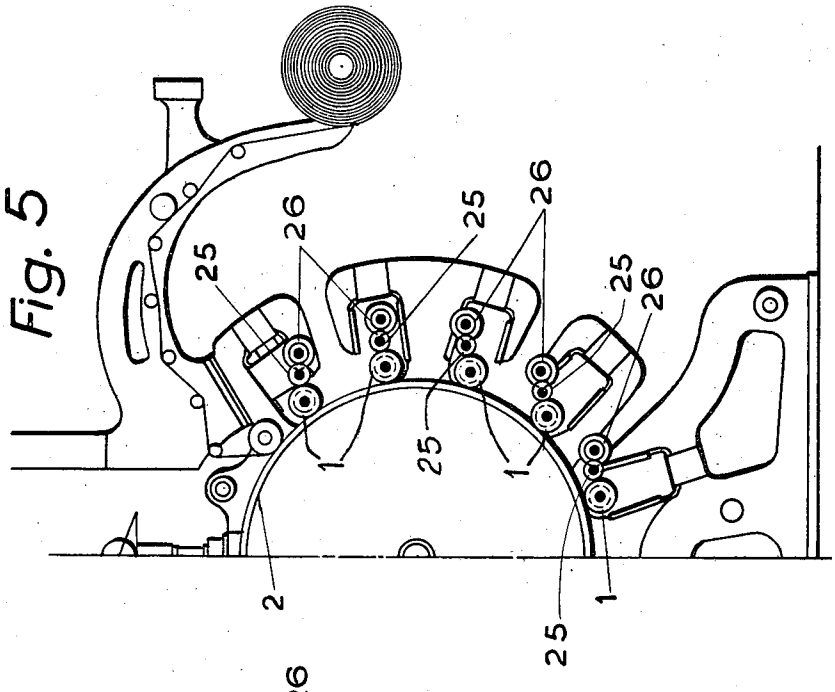
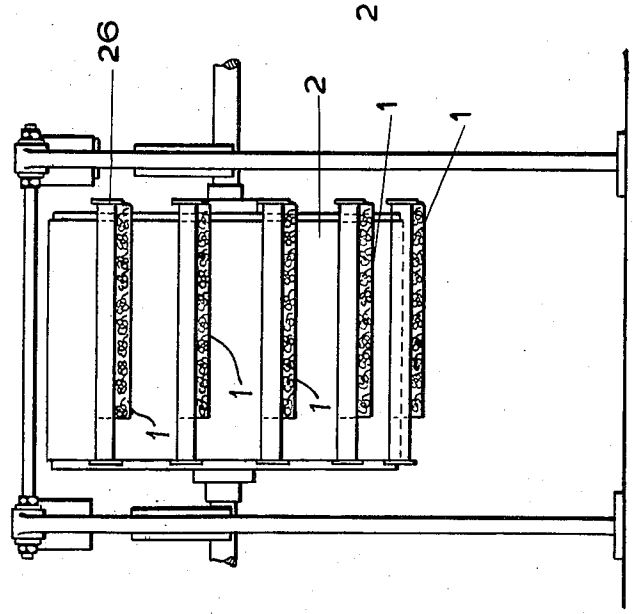


Fig. 6



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2,587,606

UNITED STATES PATENT OFFICE

2,587,606

CYLINDER ADJUSTING MEANS FOR MACHINES FOR PRINTING FABRICS, PAPER, AND OTHER MATERIALS

Julien Dungler, Basel, Switzerland

Application September 26, 1946, Serial No. 699,513
In France June 11, 1946

4 Claims. (Cl. 101—248)

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The invention relates to machines for printing in one or more colors, fabrics, paper or other materials supplied in the shape of strips or webs.

It is an object of the invention to provide means simplifying, on the one hand, the construction and mounting of the printing cylinder, and, on the other hand, permitting of an easy, quick and accurate adjustment of the width of the tread or table, i. e. of the area of contact between the printing cylinder and the corresponding adjacent pressure cylinder, or the central pressure cylinder in the case of a multi-colour rotary printing machine.

For this purpose, the invention has for its further object improvements which are mainly characterized by the fact that:

1. The printing cylinder comprises an engraved hollow cylinder, the central bore of which terminates, at each of its ends, in a conical bore inside which is locked a conical member or sleeve acting as a support, at least one of said sleeves receiving a rotary movement which it imparts to the engraved cylinder.

2. The supporting cones are mounted on a central shaft passing loosely through the engraved cylinder, the said cones being combined with means for locking them in adjusted positions.

3. The central shaft, if eliminated, may be replaced by two supporting cones on which the engraved cylinder is simply mounted, the large base of each cone being connected to a stub-shaft, to which a rotary movement may be imparted, means being further provided for locking the engraved cylinder between said two cones.

4. The conical bores of the engraved cylinder receive said cones.

5. The adjustment of the width of the area of contact of the printing and pressure cylinders is effected by a lateral displacement of the printing cylinder relatively to the pressure cylinder, causing adjustment of the effective length of the printing cylinder relatively to the pressure cylinder.

These improvements will moreover be more clearly understood from the ensuing description of embodiments which are given merely by way of example and are diagrammatically illustrated in the accompanying drawings in which:

Fig. 1 is an elevational view of a first manner of mounting the engraved cylinder;

Fig. 2 is a vertical section of the arrangement at one of the ends of the said cylinder;

Fig. 3 shows, in elevation, a second manner of mounting the aforesaid cylinder;

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Fig. 4 is a vertical section of this arrangement through one of the ends of the engraved cylinder;

Figs. 5 and 6 show a front elevation and a half side view of the embodiment of the invention applied to a multi-colour printing machine having a central pressure cylinder.

In these drawings, numeral 1 designates the engraved cylinder comprising a thick walled tube, for example a steel tube covered with an electrolytic deposit of copper 1a for receiving the engraving; 2 is the pressure cylinder which is pressed against the cylinder 1 by hydraulic, mechanical or electromagnetic pressure means (not shown); 3 and 4 are gears for transmitting the rotary movement from one of the cylinders to the other.

As regards the manner of mounting as seen in Figs. 1 and 2, the hollow cylinder 1 is provided at each end with a conical bore 5 in which is forced a conical member or sleeve 6 mounted on a central shaft 7 which receives a rotary movement, for example by means of a gear 8. The conical sleeve 6 has in its central bore a key-way 9 for mounting it on a key 10 of the shaft 7. Said shaft is provided with screw threads 11 for clamping nuts 12.

In the modification of mounting arrangement seen in Figs. 3 and 4, the central shaft is eliminated, the engraved cylinder 1 being locked between two cones 13 and 14, the large bases of which are extended by stub-shafts 15 and 16 respectively, which are mounted, by means of bearings 17, in lateral extensions or supports 18 and 19 respectively, which can be moved parallel to the axis of the pressure cylinder 2 by sliding along a cross-member 20 whereby the effective length of cylinder 1 relative to cylinder 2 may be regulated and adjusted.

The stub-shaft 15 receives a rotary movement by means, for example, of a chain wheel 21, or again by means of a gear, or else by a drive from an individual electric motor (not shown).

In order to lock the engraving cylinder 1 tightly between the cones 13 and 14, the support 19 is moved in the direction of the support 18 by means of a screw-threaded spindle or rod 22 which is operated by a handwheel 23 and which passes through a nut 24 of the said support.

Owing to the characteristics hereinbefore explained, it is possible readily and accurately to adjust the position of the engraved cylinder 1 and to cause the latter to extend beyond the pressure cylinder 2, more or less, according to the width of the fabric to be printed. It is possible in this manner to print on narrow fabric material while using a much wider or longer printing cylinder.

It is obviously possible to use as printing cylinders old cylinders entirely made of copper. In this case, they may be provided at each end with a hard steel sleeve for example, having a conical bore.

Figs. 5 and 6 show the application of this principle of adjusting the width of tread, by lateral displacement, to multi-colour rotary printing machines; in these figures, 2 designates the central pressure cylinder, and 1 the various printing cylinders. The supply of color to each of the printing cylinders is assumed to be effected by a device comprising rollers 25—26 forming a trough reservoir of the type described by the applicant in his U. S. Patent No. 2,511,625; dated June 13, 1950.

It is of course understood that it is possible without exceeding the scope of the invention to make changes and modifications of the devices and machines hereinabove described and shown.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent, is:

1. In a machine having one or more printing cylinders for printing fabric, paper and like material in one or more colors; said printing cylinder being provided at each end with a central conical bore, a conical member fitted in each of said conical bores, a stub shaft connected to and extending from each conical member, bearings for said stub shafts, a screw-threaded spindle interconnecting said bearings, driving means at one end of one of said stub shafts, a hand wheel at one end of said spindle for imparting movement to said bearings in axial direction of said cylinder, a pressure cylinder for contact with said printing cylinder, and means common to both said bearings and slidably supporting the latter, whereby the effective length of said printing cylinder relative to said pressure cylinder may be adjusted, said supporting means being arranged laterally of and extending substantially parallel to said printing cylinder, said driving means being adapted to impart rotative movement to said stub shafts and said printing cylinder.

2. In a machine having one or more printing cylinders for printing fabric, paper and like material in one or more colors; a pressure cylinder for contact with said printing cylinder, said printing cylinder being provided at each end with a central, conical bore, a conical member fitted in each of said conical bores, a stub shaft connected to and extending from each conical member, bearings for said stub shafts and provided with lateral extensions, a screw-threaded spindle arranged to extend parallel to and adjacent said printing cylinder and interconnecting said lateral extensions of said bearings, driving means at one end of one of said stub shafts, a hand wheel at one end of said spindle for imparting movement to said bearings in axial direction of said printing cylinder, and slide means extending parallel to said printing cylinder and supporting said bearings laterally of the latter, whereby the effective length of said printing cylinder relative to said pressure cylinder may be adjusted, said driving means being adapted to impart rotative movement to said stub shafts and said printing cylinder.

3. A printing machine for printing fabrics, paper and like sheet material; comprising, in combination, a pressure cylinder, a printing cylinder for contact with said pressure cylinder, bearings arranged at opposite ends of said printing cylinder, said printing cylinder being provided at each end with a central conical bore, each bearing including a conical member engageable with the respective conical bore of said printing cylinder, a stub shaft extending from each conical member, respective sleeve elements for said stub shafts, lateral extensions connected to said sleeve elements, respectively, a threaded spindle interconnecting said lateral extensions and including means adapted to displace at least one of said lateral extensions relatively to the other lateral extension whereby said conical members may be moved into and out of said conical bores, and supporting means common to both said lateral extensions, said lateral extensions slidably engaging said supporting means, whereby the effective length of said printing cylinder may be adjusted relatively to said pressure cylinder by sliding said lateral extensions along said supporting means.

4. A machine according to claim 3, wherein said threaded spindle is arranged in spaced relation and intermediate said supporting means and said printing cylinder and is connected to said supporting means.

JULIEN DUNGLER.

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