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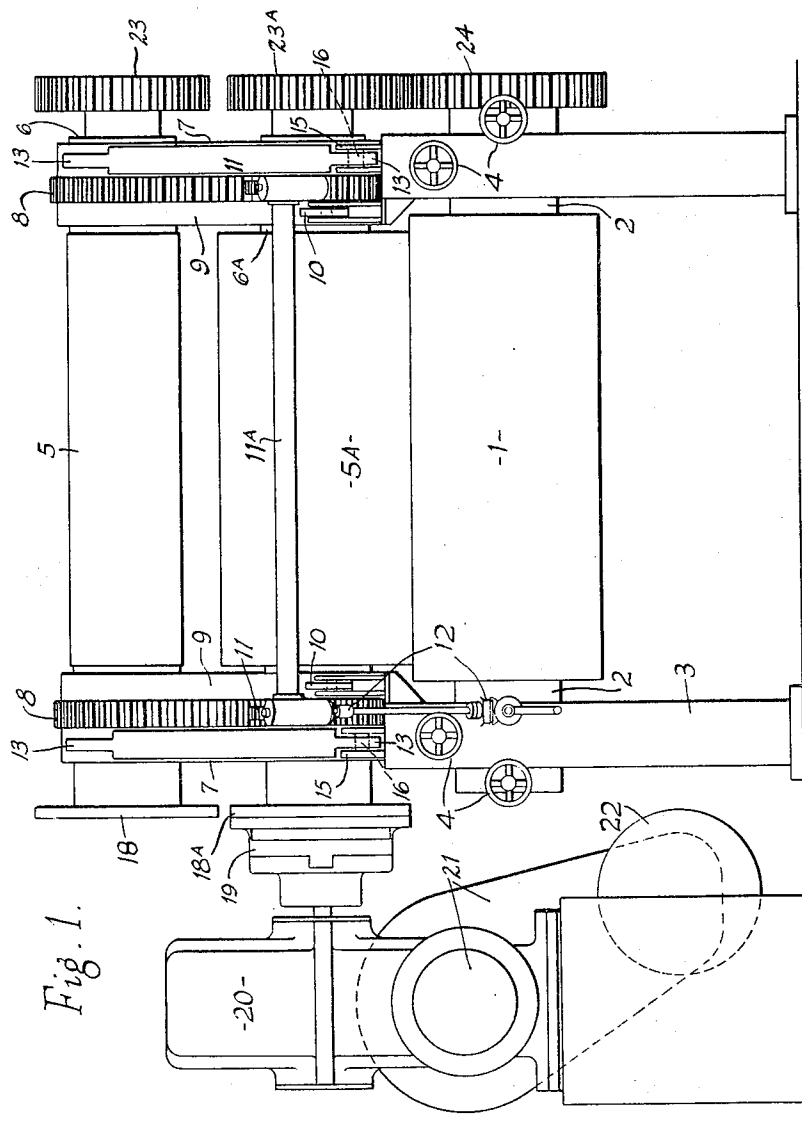
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ROLLER PRESSES AND MILLS FOR PERFORMING MANGLING,
CALENDERING, EMBOSSING AND SIMILAR AND OTHER
PRESSURE-APPLYING OPERATIONS

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2 Sheets-Sheet 1



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Fig. 2.

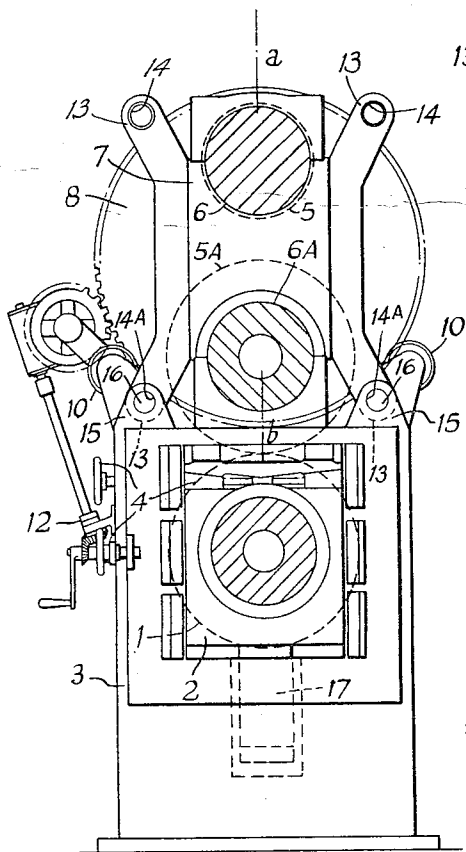


Fig. 3.

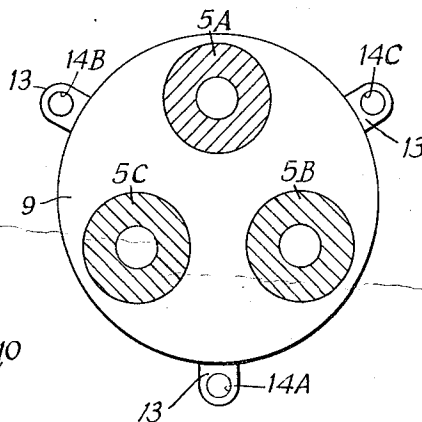
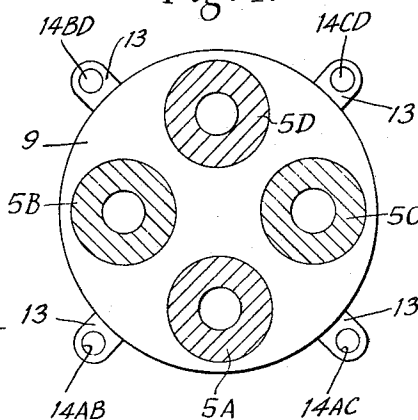


Fig. 4.



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ROLLER PRESSES AND MILLS FOR PERFORMING MANGLING, CALENDERING, EMBOSSEING AND SIMILAR AND OTHER PRESSURE-APPLYING OPERATIONS

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5 Claims. (Cl. 100—155)

This invention relates to roller presses for performing mangling, calendering, embossing and similar and other pressure-applying operations and has for its object to provide means facilitating the positioning of a selected roller at a working station, without dismantling any major part of the press. The working station for a selected roller will normally be a position wherein said roller is opposed to a bed member, such as another roller or a platen.

Broadly the present invention comprises an assembly including, two or more rollers mounted for movement on and in relation to the main frame of the press which supports the aforesaid bed member. The movement of the assembly which brings a selected roller to the working station is a rotary motion, and where the movable assembly comprises only two rollers the selection becomes, in effect, simply the choosing of one of two alternatives and in most cases the ability to do this will suffice. The two or more rollers comprising the movable assembly may be of identical form or may be adapted for performing different operations, such as embossing and calibrating.

An embodiment of the invention is shown, by way of example, in the accompanying drawings, wherein:

FIGURES 1 and 2 are an elevation and an end view respectively of a press provided with a rotatable assembly comprising two rollers positionable alternatively at a working station wherein the selected roller opposes a bed member of roller form, and

FIGURES 3 and 4 are fragmentary transverse sections illustrating rotatable assemblies comprising three and four rollers respectively.

In the arrangement illustrated in FIGURES 1 and 2 a main, in this case a lower roller 1, constituting a bed member as above referred to is journaled in bearing blocks 2 carried by a press frame 3, any suitable hand-operated gear 4 being provided at each end of main roller 1 for achieving transverse and rotational adjustment. The movable assembly is supported on said frame 3 above said main roller 1 and is constituted in this case of a pair of diametrically opposed secondary or upper rollers 5, 5A respectively, having their axes of rotation parallel one to the other and to that of said main roller 1 and their shaft ends 6, 6A journaled in mounting blocks 7 formed integral with or attached to toothed gear wheels 8. Circular discs 9 are also associated with blocks 7 and gear wheels 8, so as to move therewith, the rims of discs 9 being supported by freely revoluble rolls 10 carried by frame 3. Rotatory movement may be imparted to the assembly comprising the secondary rollers 5 and 5A, the blocks 7, the gear wheels 8 and the disc 9 by means of toothed pinions 11, which are cross connected by a shaft 11A, said pinions 11 and the shaft 11A being rotated through hand-operated turning gear 12 mounted on one end of frame 3. Alongside each of the mounting blocks 7, and formed integral therewith, if desired, are four extension arms 13 having holes arranged in two pairs, 14, 14A set on a common pitch circle concentric to the axis of rotation of the secondary, that is the upper roller assembly, the pair of holes 14 associated with upper roller 5 being the same chordal distance apart as the pair of holes 14A associated with

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upper roller 5A and also symmetrical to a diametrical line *a, b* joining the axes of rollers 5, 5A. Either pair of holes 14 or 14A may thus be aligned by rotation of the upper roller assembly with eyed lugs 15 provided at opposite ends of frame 3, pins 16 being inserted into the eyes of lugs 15 and the aligned holes 14 or 14A to lock the upper roller assembly to the frame 3. The pins 16 be and preferably are a slack fit within the eyes of lugs 15 because when the press is in use the main, that is, the lower roller 1 is adapted to be slightly elevated and this known action, effected by hydraulic cylinder and piston units 17, takes up any slackness of pins 16.

Corresponding shaft ends 6, 6A of the upper rollers, 5, 5A are provided with coupling discs 18, 18A respectively adapted to co-operate with or constitute part of a coupling mechanism 19 (of Oldham type, for example), which is connected through worm reduction gearing 20 and chain gearing 21 with a main electric drive motor 22. The opposite shaft ends are fitted with toothed gear wheels 23, 23A adapted, as the upper roller assembly is rotated, to roll into mesh with a driver wheel 24 secured to the lower roller 1 in order to drive said roller 1 through whichever upper roller 5 or 5A is in the working position and coupled via coupling 19 and gearings 20, 21 to the motor 22.

The upper rollers 5, 5A may be of the same or of different diameters and adapted to perform the same or different purposes, for example, roller 5 could be an embossing roller and roller 5A a calibrating roller.

FIGURES 3 and 4 of the drawings are almost self-explanatory; the former shows three upper rollers 5A, 5B, 5C with equidistantly spaced arms 13 with holes 14A, 14B, 14C, and the latter shows four upper rollers 5A, 5B, 5C, 5D with arms 13 and equidistantly spaced holes 14A, 14B, 14C, 14D.

Where three arms 13 are used as shown in FIGURE 3 the spacing of lugs 15 will need to be adjusted, but the four arm arrangement shown in FIGURE 4 may be used with the lug arrangement shown in FIGURE 2, using lugs 14AB, 14AC; 14AB, 14BD; 14BD, 14CD and 14AC, 14CD respectively.

I claim:

1. A roller press for performing pressure-applying operations comprising a frame, a main bed member mounted on said frame, laterally spaced discs mounted for rotation on said frame about an axis parallel to the face of said bed member, end mounting blocks carried on said discs for rotation therewith, a plurality of rollers extending between said mounting blocks and journaled for rotation about mutually parallel axes and parallel to the face of said bed member, means for imparting bodily rotation to said discs, mounting blocks and rollers, means for locking said discs and mounting blocks to said frame to dispose a selected one of said rollers adjacent said bed member and power means for imparting rotation to at least one of said rollers.

2. A roller press for performing pressure-applying operations comprising a frame, a main roller journaled for rotation on said frame, laterally spaced discs mounted for rotation on said frame about an axis parallel to the axis of rotation of said main roller, end mounting blocks carried on said discs for rotation therewith, a plurality of secondary rollers extending between said mounting blocks and journaled for rotation about mutually parallel axes and parallel to the axis of rotation of said main roller, means for imparting bodily rotation to said discs, mounting blocks and secondary rollers, means for locking said discs and mounting blocks to said frame to dispose a selected one of said secondary rollers adjacent said main roller and power means for imparting rotation to at least one of said rollers.

3. A roller press for performing pressure-applying

operations comprising a frame, a lower roller journaled for rotation on said frame, laterally spaced discs mounted for rotation on said frame above said lower roller and about an axis parallel to the axis of rotation of said lower roller, at least one of said discs having a gear wheel attached thereto, end mounting blocks carried on said discs for rotation therewith, a plurality of secondary rollers extending between said mounting blocks and journaled for rotation about mutually parallel axes and parallel to the axis of rotation of said lower roller, a turning device including at least one pinion cooperating with said at least one gear wheel for imparting rotation bodily to said discs, gear wheel, mounting blocks and secondary rollers and means for locking said discs and mounting blocks to said frame to dispose a selected one of said secondary rollers adjacent said lower roller and power means for imparting rotation to said secondary roller which is disposed adjacent said lower roller.

4. A roller press for performing pressure-applying operations comprising a frame having at each end a pair of transversely spaced apertured lugs, a lower roller journaled for rotation on said frame, laterally spaced discs mounted for rotation on said frame above said lower roller and about an axis parallel to the axis of rotation of said lower roller, each of said discs having a gear wheel attached to its outer side, end mounting blocks carried one each on the outer side of one of said gear wheels for rotation therewith, said mounting blocks having a plurality of apertured arms alignable with selected ones of said frame lugs, a plurality of secondary rollers ex-

tending between said discs and journaled for rotation about mutually parallel axes and parallel to the axis of rotation of said lower roller, said rollers having each a coupling disc at one end and a spur toothed wheel at the other end, a turning device including a pair of pinions cooperating one with each of said gear wheels for imparting bodily rotation to said discs, gear wheels, mounting blocks and secondary rollers, a shaft cross connecting said pinions for rotation together, pins inserted into aligned apertures of said mounting block arms and said frame lugs for locking said discs, gear wheels and mounting blocks to said frame to dispose a selected one of said secondary rollers adjacent said lower roller, coupling means connectable to the coupling disc of said selected secondary roller adjacent to said lower roller, power means for imparting rotation through said coupling means to said secondary roller adjacent said lower roller and a toothed drive wheel on one end of said lower roller engageable with the spur toothed wheel on the said selected secondary roller adjacent said lower roller, whereby positive rotary motion is transmitted to said lower roller.

5. A roller press as claimed in claim 4, having freely revoluble rolls on the frame for rotatably supporting said discs.

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