April 14, 1953 P. A. FASOLI 2,634,658

APPARATUS FOR MANIPULATING BREAST ROLLS

Filed April 13, 1949 2 SHEETS—SHEET 1

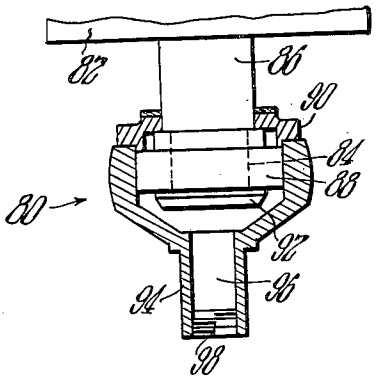


Fig. 3.

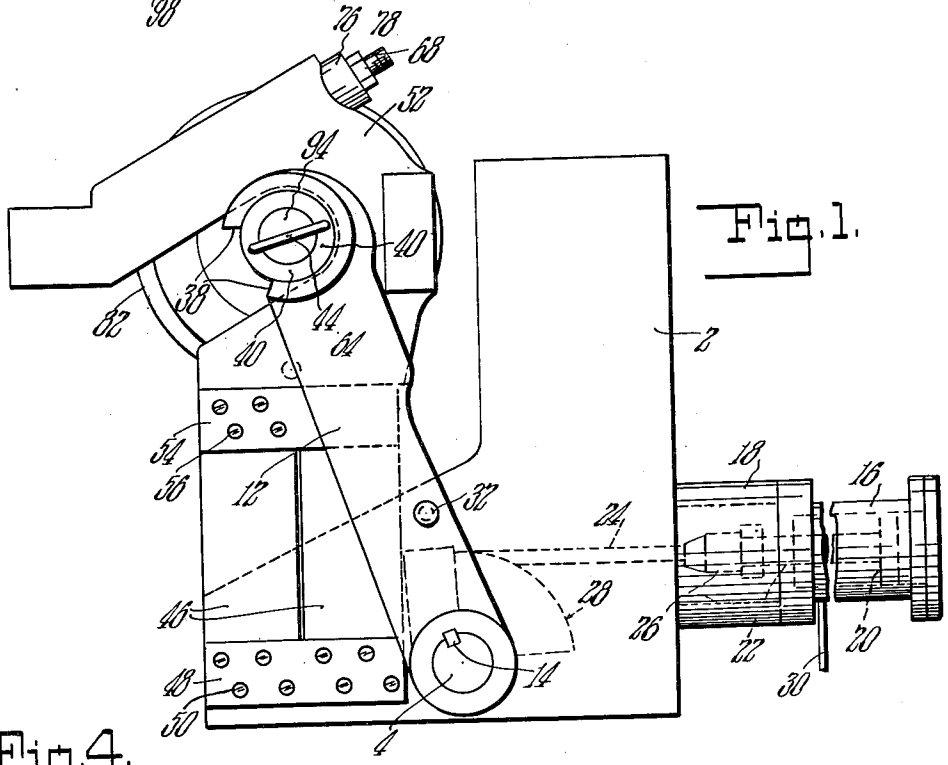
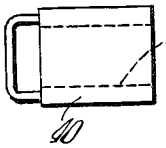


Fig. 1.

Fig. 4.



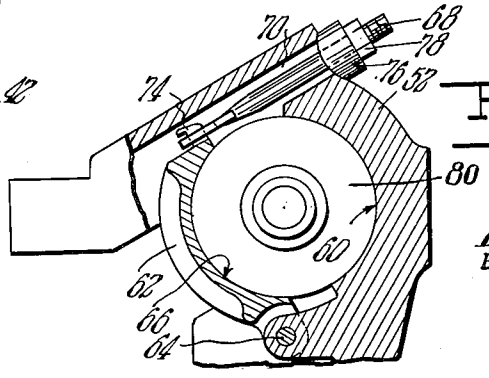


Fig. 2.

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APPARATUS FOR MANIPULATING BREAST ROLLS

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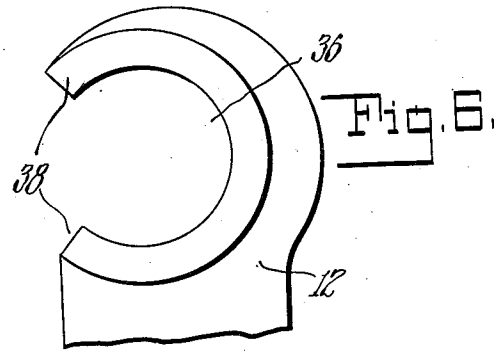
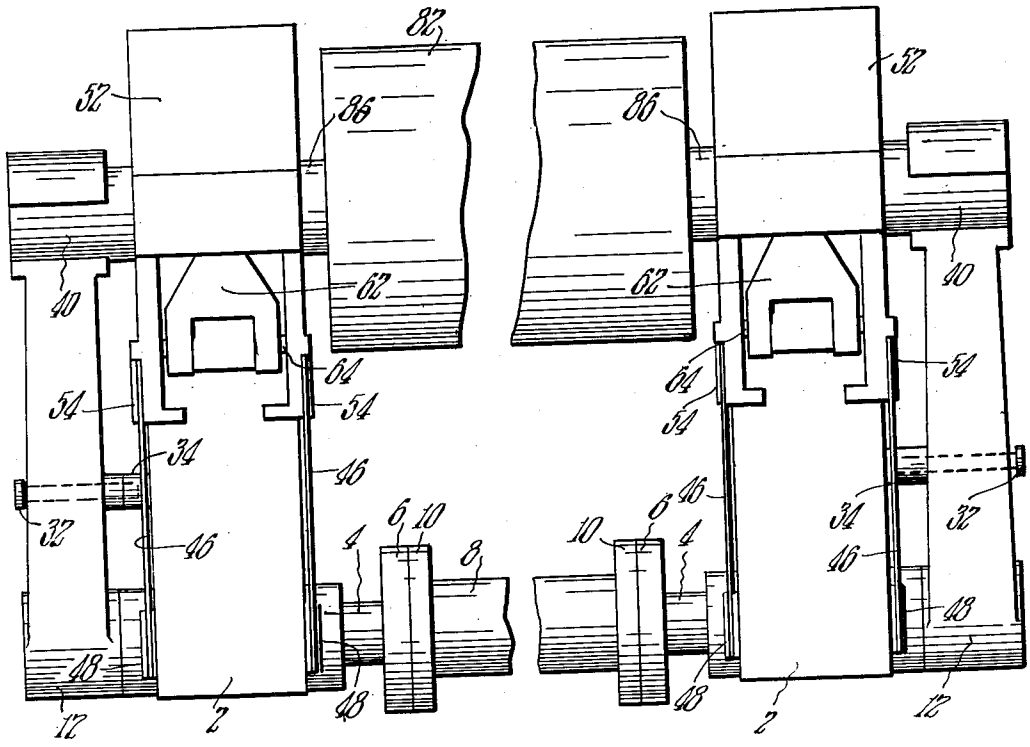


Fig. 6.

Fig. 5.



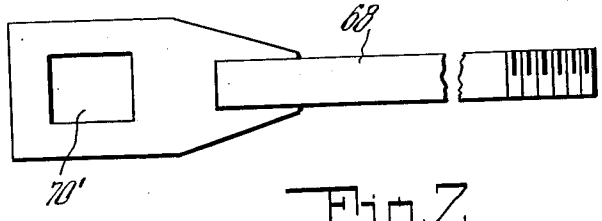


Fig. 7.

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UNITED STATES PATENT OFFICE

2,634,658

APPARATUS FOR MANIPULATING BREAST ROLLS

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5 Claims. (Cl. 92—44)

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This invention relates to improvements in paper making machinery and is directed more particularly to apparatus for rotatably supporting and manipulating the breast roll of a paper making machine.

The principal objects of the invention are directed to the provision of apparatus for rotatably supporting a breast roll and for moving the same from operating position.

In a Fourdrinier paper making machine it is necessary to frequently replace the Fourdrinier wire and to facilitate this, it is desirable to remove the breast roll over which the wire runs.

The apparatus of this invention is constructed and arranged to rotatably support the breast roll in operative position and to move the same away therefrom for removal of the Fourdrinier wire.

With the foregoing and various other novel features and advantages and other objects of my invention as will become more apparent as the description proceeds, the invention consists in certain novel features of construction and in the combination and arrangement of parts as will be hereinafter more particularly pointed out in the claims hereunto annexed and more fully described and referred to in connection with the accompanying drawings wherein:

Fig. 1 is a side elevational view of the apparatus embodying the novel features of the invention;

Fig. 2 is a transverse sectional elevational view through one of the breast roll stands of the apparatus;

Fig. 3 is a combined plan and sectional view at an end of the breast roll showing the construction of the breast roll bearing;

Fig. 4 is a plan view of one of the bushings for the breast roll bearing;

Fig. 5 is a front elevational view of the apparatus shown in Fig. 1;

Fig. 6 is an elevational view of the upper end of one of the lift levers; and

Fig. 7 is a plan view of the bolt for holding the bearing stand cap in operative position.

Referring now to the drawings more in detail, the invention will be fully described.

A pair of support members 2 are provided which may be supported by the floor, structural work or the like at either side of a paper making machine and to which parts of a paper making machine may be secured if desired.

Shafts 4 are journalled in lower portions of the support members and have flanges 6 secured thereto, as shown in Fig. 5. An intermediate

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shaft 8 between said shafts 4 has flanges 10 which are secured to flanges 6 by any suitable means such as bolts, not shown.

Lift levers 12 have lower ends fixed as by keys 14 to the shafts 4 and are movable between the upper operating position of the breast roll as shown and a lower position accordingly as the shafts 4 are oscillated in one direction or the other.

The shaft may be oscillated by any suitable means but for purposes of disclosure a cylinder 16 is provided which is secured to a spacer 18 that is secured to one of the members 2. A piston 20 is reciprocable in the cylinder, see Fig. 1.

A piston rod 22 extends forwardly from the piston and it has a cable 24 connected by 26 to the forward end thereof. A forward end of said cable 24 is fixed to a segment 28 which is fixed to shaft 4.

Fluid may be supplied cylinder 16 by means of a pipe 30 and as fluid is delivered to said cylinder the piston is moved to the right whereby through the piston rod and cable the members 12 are moved clockwise from a lower to operating position shown in Fig. 1. Pressure may be retained in the cylinder by means of a valve in line 30 and when pressure is released by said valve the piston may move forwardly and the members 12 may swing downwardly from the position of Fig. 1.

Locking members 32 rod-like in form are provided which are insertable through members 12 into suitable openings of hubs 34 of the supports, see Fig. 5. These hold the members 12 in the operative position shown.

The upper end of members 12 are provided with bores such as 36 having throat openings 38 leading thereinto transversely to the longitudinal axis, see Fig. 6.

A bushing such as 40 is provided, one for each member 12 which has a central bore 42, see Fig. 4. These are insertable longitudinally in the bores 36 of members 12 and fit therein as will appear. Manually engageable members 44 are provided on the bushings 40 to facilitate insertion in and withdrawal from the bores 36.

Plate members 46 have lower ends secured to opposite sides of the support members 2 by means of plates 48 and screws or bolts 50.

Roll stands 52 are provided which have lower ends secured to upper ends of plates 46 by means of plates 54 and bolts 56.

The members 46 are arranged and constructed to permit slight movements or vibrations of the stands back and forth whereby the breast roll may be vibrated.

The members 52 are provided with semi-circular seats 60 as shown in Fig. 2. Caps 62 are provided which are pivoted at 64 in the members 52 and have semi-circular seats 66.

Bolts 68, see Fig. 7, are provided which have openings 70 in inner ends thereof and extend through openings 70' in members 52, see Fig. 2. The caps 62 are provided with lugs 74 which are receivable in the openings 70 of the bolts 68. Washers 76 bear on members 52 and nuts 78 on the bolts may be manipulated to draw the caps 62 inwardly.

Bearing housings, such as 80, are provided on the opposite ends of a breast roll 82, see Fig. 3.

Each housing 80 is mounted for rotation on a reduced portion 84 of shaft 86 at the end of the breast roll by means of an anti-friction bearing 88. A cap 90 is secured by any suitable means to the housing 80 and a plate 92 is secured to the end of shaft portion 84 to prevent endwise movement of the housing on the shaft.

A hollow pilot portion 94 extends outwardly from the housing 80 and has a bore 96 for lubricating the bearing 88 which said bore is closed by a plug 98.

The bearing housings on the breast roll shafts are disposed in the roll stands 52 by being clamped in the seats 60 thereof by the caps 62 which are swingable in the roll stands.

The breast roll is freely rotatable and the stands may be vibrated back and forth so that the breast roll moves axially back and forth.

When it is desired to lower the breast roll the bushings 40 are slipped over the pilot portions 94 of the breast roll shaft housings and into the bores 36 of members 12.

Normally the pilot portions 94 are free of the bores 36 so that the breast roll may be vibrated.

With the bushings inserted as described the breast roll may then be supported by members 12 and the caps 62 of the roll stands may be swung downwardly to release the breast roll from the stands 52.

With the breast roll supported by members 12 and with locking members 32 withdrawn to release members 12, pressure in the cylinder 16 is released slowly so that the breast roll and member 12 may swing downwardly counterclockwise.

There may be a truck or other device to receive the breast roll and move it axially from the paper machine. The breast roll is released from the members 12 by withdrawing the bushings 40.

When the breast roll is to be lifted into place and the pilot portions 94 are in the bores 36 of the members 12, the bushings 40 are slipped into place on the pilot portions and said members 12 are swung upwardly clockwise by movement of the piston 20. When the bearing housings 80 are in the roll stands the caps 62 are secured in place for holding the said housings in the stands 52.

The invention may be embodied in other specific forms without departing from the essential characteristics thereof. Hence, the present embodiments are therefore to be considered in all respects merely as being illustrative and not as being restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all modifications and variations as fall within the meaning and purview and range of equivalency of the appended claims are therefore intended to be embraced therein.

What it is desired to claim and secure by Letters Patent of the United States is:

1. In paper making apparatus, a breast roll having shaft ends at opposite ends thereof, transversely spaced supports, a pair of bearing stands and connecting means connecting said stands to said supports in transversely spaced relation, a transverse shaft journalled in lower portions of said supports, lift levers outside said stands having lower ends fixed to said shaft and provided with outer free ends, operating means for oscillating said shaft in opposite directions between upper vertical roll supporting and lower horizontal roll releasing positions of the free ends of said lift levers, locking means for releasably locking said lift levers in upper roll supporting position, said bearing stands provided with open-ended semi-circular seats having openings extending radially therefrom, the free ends of said lift levers having open-ended bores of a certain diameter provided with throat openings extending radially outwardly therefrom, said seats and bores disposed for axial alignment in upper roll supporting position of the levers, housings rotatable on said shaft ends receivable in the seats of the bearing stands having axially and outwardly extending pilots of less diameter than said certain diameter of the bores of the lift levers and being arranged for disposition therein when the lift levers are in upper position, locking means for releasably locking the housings in the seats of the bearing stands whereby said roll is rotatably supported by said housings and stands, and tubular bushings insertable axially in the bores of the lift levers adapted to axially receive the housing pilots for releasably holding the pilots in said bores so that said roll may be supported by said levers on release of the housings from the seats of the bearing stands whereby said levers carrying said roll may move to lower roll releasing position, said throat openings being relatively wider than the diameter of the housing pilots whereby as said bushings are withdrawn axially from the bores of the lift levers said pilots may pass outwardly from the bores through said throats on relative movement of said housings and levers.

2. In paper making apparatus, a breast roll having shaft ends at opposite ends thereof, transversely spaced supports, a pair of bearing stands and connecting means connecting said stands to said supports in transversely spaced relation, a transverse shaft journalled in lower portions of said supports, lift levers outside said stands having lower ends fixed to said shaft and provided with outer free ends, operating means for oscillating said shaft in opposite directions between upper vertical roll supporting and lower horizontal roll releasing positions of the free ends of said lift levers, locking means for releasably locking said lift levers in upper roll supporting position, said bearing stands provided with open-ended semi-circular seats having openings extending radially therefrom, the free ends of said lift levers having open-ended bores of a certain diameter provided with throat openings extending radially outwardly therefrom, said seats and bores disposed for axial alignment in upper roll supporting position of the levers, housings rotatable on said shaft ends receivable in the seats of the bearing stands having axially and outwardly extending pilots of less diameter than said certain diameter of the bores of the lift levers and being arranged for disposition therein when the lift

levers are in upper position, locking means for releasably locking the housings in the seats of the bearing stands whereby said roll is rotatably supported by said housings and stands, and tubular bushings insertable axially in the bores of the lift levers adapted to axially receive the housing pilots for releasably holding the pilots in said bores so that said roll may be supported by said levers on release of the housings from the seats of the bearing stands whereby said levers carrying said roll may move to lower roll releasing position, said throat openings being relatively wider than the diameter of the housing pilots whereby as said bushings are withdrawn axially from the bores of the lift levers said pilots may pass outwardly from the bores through said throats on relative movement of said housings and levers, said connecting means including vertically extending flexible plate members secured at lower and upper ends to said supports and bearing stands.

3. In paper making apparatus, a breast roll having shaft ends at opposite ends thereof, transversely spaced supports, a pair of bearing stands and connecting means connecting said stands to said supports in transversely spaced relation, a transverse shaft journalled in lower portions of said supports, lift levers outside said stands having lower ends fixed to said shaft and provided with outer free ends, operating means for oscillating said shaft in opposite directions between upper vertical roll supporting and lower horizontal roll releasing positions of the free ends of said lift levers, locking means for releasably locking said lift levers in upper roll supporting position, said bearing stands provided with open-ended semi-circular seats having openings extending radially therefrom, the free ends of said lift levers having open-ended bores of a certain diameter provided with throat openings extending radially outwardly therefrom, said seats and bores disposed for axial alignment in upper roll supporting position of the levers, housings rotatable on said shaft ends receivable in the seats of the bearing stands having axially and outwardly extending pilots of less diameter than said certain diameter of the bores of the lift levers and being arranged for disposition therein when the lift levers are in upper position, locking means for releasably locking the housings in the seats of the bearing stands whereby said roll is rotatably supported by said housings and stands, and tubular bushings insertable axially in the bores of the lift levers adapted to axially receive the housing pilots for releasably holding the pilots in said bores so that said roll may be supported by said levers on release of the housings from the seats of the bearing stands whereby said levers carrying said roll may move to lower roll releasing position, said throat openings being relatively wider than the diameter of the housing pilots whereby as said bushings are withdrawn axially from the bores of the lift levers said pilots may pass outwardly from the bores through said throats on relative movement of said housings and levers, said operating means including a piston reciprocable in a cylinder and connections between said piston and shaft.

4. In paper making apparatus, a breast roll having shaft ends at opposite ends thereof, transversely spaced supports, a pair of bearing stands and connecting means connecting said stands to said supports in transversely spaced relation, a transverse shaft journalled in lower portions of said supports, lift levers outside said stands having lower ends fixed to said shaft and provided with outer free ends, operating means for oscillating said shaft in opposite directions between upper vertical roll supporting and lower horizontal roll releasing positions of the free ends of said lift levers, locking means for releasably locking said lift levers in upper roll supporting position, said bearing stands provided with open-ended semi-circular seats having openings extending radially therefrom, the free ends of said lift levers having open-ended bores of a certain diameter provided with throat openings extending radially outwardly therefrom, said seats and bores disposed for axial alignment in upper roll supporting position of the levers, housings rotatable on said shaft ends receivable in the seats of the bearing stands having axially and outwardly extending pilots of less diameter than said certain diameter of the bores of the lift levers and being arranged for disposition therein when the lift levers are in upper position, locking means for releasably locking the housings in the seats of the bearing stands whereby said roll is rotatably supported by said housings and stands, and tubular bushings insertable axially in the bores of the lift levers adapted to axially receive the housing pilots for releasably holding the pilots in said bores so that said roll may be supported by said levers on release of the housings from the seats of the bearing stands whereby said levers carrying said roll may move to lower roll releasing position, said throat openings being relatively wider than the diameter of the housing pilots whereby as said bushings are withdrawn axially from the bores of the lift levers said pilots may pass outwardly from the bores through said throats on relative movement of said housings and levers, said locking means for the housings including caps for overlying housings in said seats and pivoted to said bearing stands and bolt means holding said caps in overlying position.

5. In paper making apparatus, a breast roll having shaft ends at opposite ends thereof, transversely spaced supports, a pair of bearing stands and connecting means connecting said stands to said supports in transversely spaced relation, a transverse shaft journalled in lower portions of said supports, lift levers outside said stands having lower ends fixed to said shaft and provided with outer free ends, operating means for oscillating said shaft in opposite directions between upper vertical roll supporting and lower horizontal roll releasing positions of the free ends of said lift levers, locking means for releasably locking said lift levers in upper roll supporting position, said bearing stands provided with open-ended semi-circular seats having openings extending radially therefrom, the free ends of said lift levers having open-ended bores of a certain diameter provided with throat openings extending radially outwardly therefrom, said seats and bores disposed for axial alignment in upper roll supporting position of the levers, housings rotatable on said shaft ends receivable in the seats of the bearing stands having axially and outwardly extending pilots of less diameter than said certain diameter of the bores of the lift levers and being arranged for disposition therein when the lift levers are in upper position, locking means for releasably locking the housings in the seats of the bearing stands whereby said roll is rotatably supported by said housings and stands, and tubular bushings insertable axially in the bore of the lift levers adapted to axially receive the housing pilots for releasably holding the pilots in said bores so that said roll may be supported by said levers

on release of the housings from the seats of the bearing stands whereby said levers carrying said roll may move to lower roll releasing position, said throat openings being relatively wider than the diameter of the housing pilots whereby as said bushings are withdrawn axially from the bores of the lift levers said pilots may pass outwardly from the bores through said throats on relative movement of said housings and levers, said means for releasably locking the lift levers including registrable openings provided in said supports and levers and a member receivable therein.

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