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PRE-STRESSED CANTILEVERED FOURDRINIER FOR PAPER MACHINES

Filed Aug. 16, 1962

2 Sheets-Sheet 1

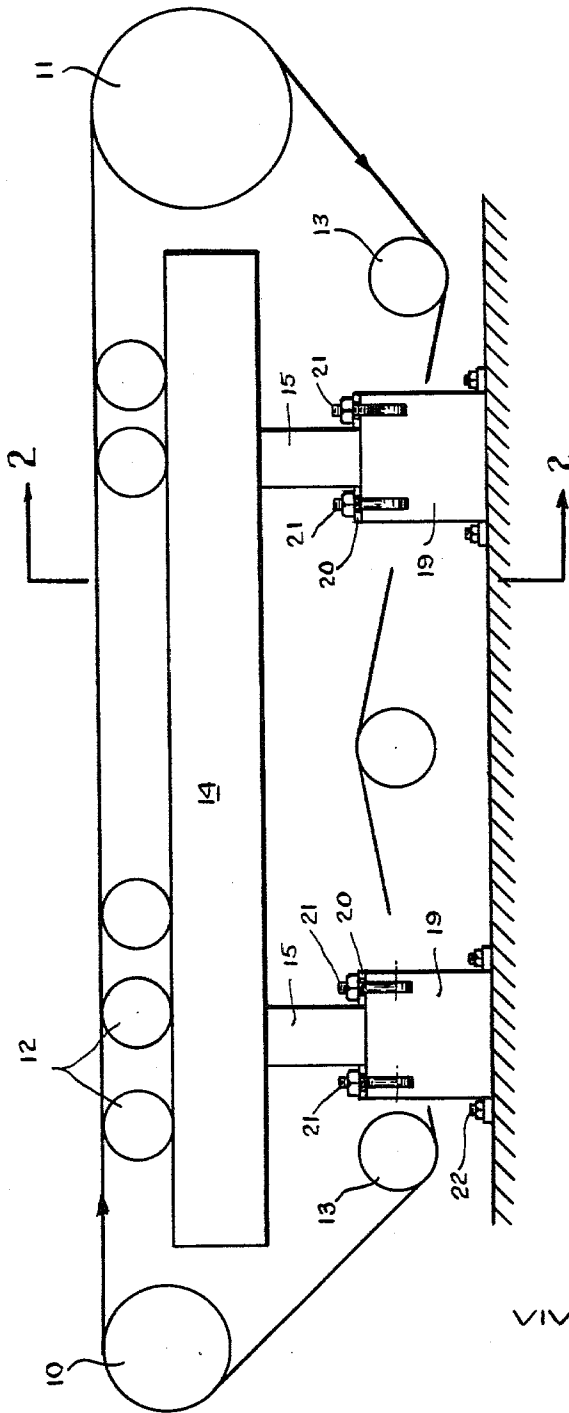


Fig. 1.

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Fig. 2.

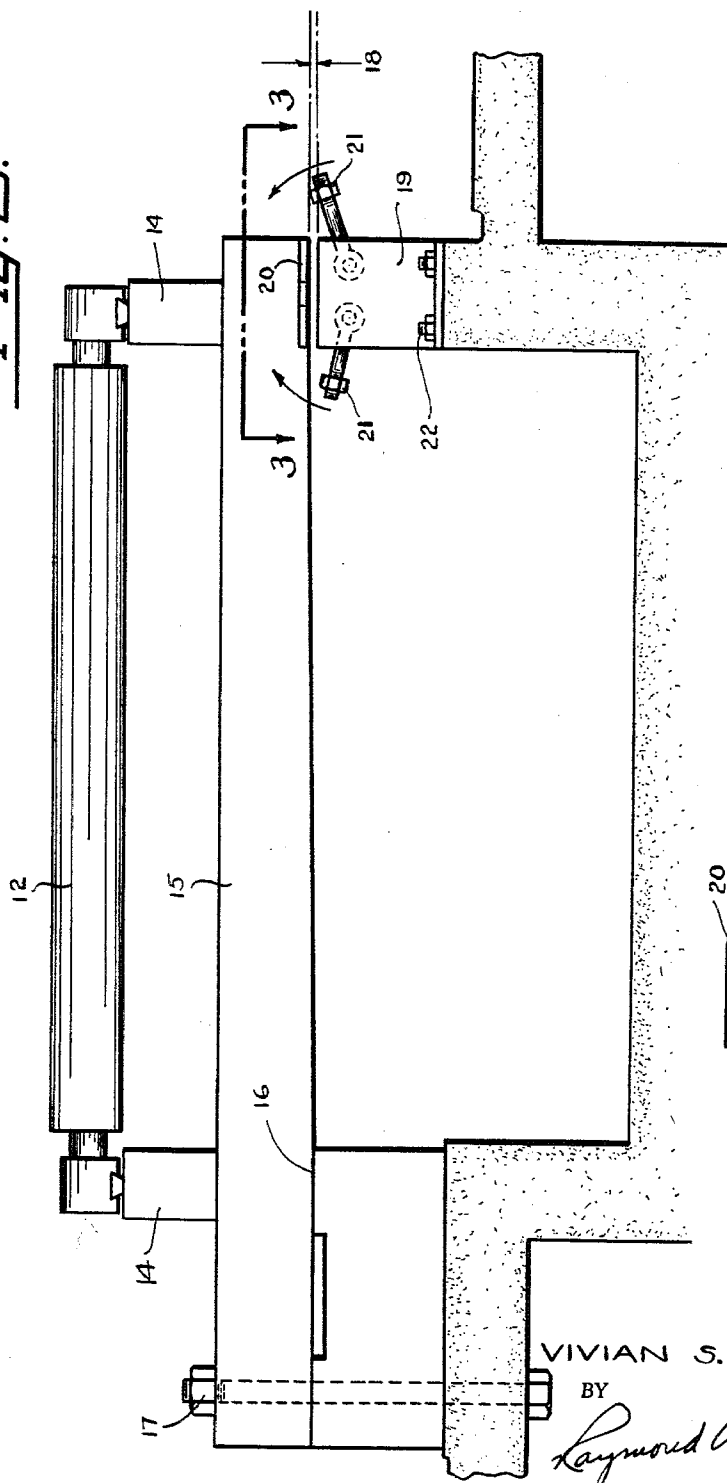
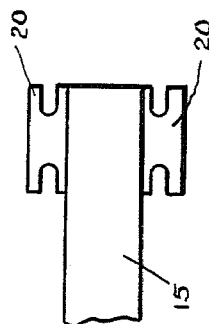


Fig. 3.



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1

2

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PRE-STRESSED CANTILEVERED FOURDRINIER FOR PAPER MACHINES

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This invention relates to paper machine Fourdriniers and more particularly to an improved arrangement for preparing the Fourdrinier to facilitate changing the forming wire.

In paper machine Fourdriniers the forming wire travels over and around numerous rolls, over forming boards and suction flat boxes. The constant tension in the wire, plus the abrasive effect of the wire dragging over grit embedded suction flat box tops, produces rapid deterioration of the wire and necessitates frequent replacement.

There are numerous arrangements of Fourdriniers to facilitate changing the forming wire. In one of these arrangements the Fourdrinier remains stationary during the wire change and various methods have to be employed to provide a clear path for the passage of the new continuous band of wire as it is presented to the Fourdrinier and draped over the stationary components.

In contemporary arrangements of Fourdriniers of the aforementioned type, the Fourdrinier cantilevered transverse support beams rest on removable stools at the front side of the machine, from which side the new wire will be presented, and these stools have to be removed to maintain a clear path for the passage of the new wire. In order to remove the stools, it is necessary to jack-up the side of the Fourdrinier to relieve the load on the stools, after which the jacks themselves have to be removed before the wire change can take place. The removal of the stools and jacks causes the cantilevered transverse support beams to sag during the wire change.

After completion of the wire change, it is necessary to reverse the aforementioned procedure that is, the front side of the Fourdrinier is jacked up, the stools repositioned and the jacks lowered and again removed.

This operation is very time consuming and results in reduced paper production due to excess machine downtime. At the same time, the initial cost of the jacks is considerable and added to the additional manpower required to operate the jacks, represents a substantial financial outlay.

The present invention overcomes the disadvantages mentioned in connection with the contemporary arrangements by providing cantilevered Fourdrinier transverse support beams that are designed to provide a clearance between tops of the removable stools and the undersides of the ends of the support beams at the front of the machine, when the structure is in repose.

For operation of the paper machine, the free ends of the support beams are bolted down to the tops of the removable stools, which have previously been bolted down to the machine sole plates. In operation, therefore, the support beams are in a slightly more highly stressed condition than when in repose.

When a wire change is required, it is only necessary to release the bolts clamping the support beams to the stools, whereupon the beams, in relieving themselves of the extra stress imposed by the bolting, will resume their positions of repose providing a clearance between the stools and the undersides of the beams. The stools may then be removed without the need for jacking equipment.

It is the main object of this invention to provide a paper machine Fourdrinier in which the transverse support beams are pre-stressed when in an operative position and bolted down to removable stools, and lift clear of the re-

movable stools when the pre-stress is relieved by releasing the stool bolts.

Another object of this invention is to simplify the operation of wire-changing by removing the necessity for the use of additional jacking equipment and the manpower necessary to operate said jacking equipment.

These and other objects of the invention will be apparent from the following detailed specification and the accompanying drawings, in which:

FIG. 1 is a side elevation of a paper machine Fourdrinier embodying the features of the present invention and;

FIG. 2 is an enlarged sectional view through 2-2 of FIG. 1, showing more specific details of the invention and;

FIG. 3 is a sectional view on 3-3 of FIG. 2.

With reference now to FIGS. 1, 2 and 3 the basic Fourdrinier includes breast roll 10, suction couch roll 11, table rolls 12, wire rolls 13, side beams 14 and transverse support beams 15.

Transverse support beams 15 are cantilevered from fulcrum pads 16 at the rear side of the Fourdrinier and secured by hold-down bolts 17. When support beams 15 are in repose, a clearance 18 exists between the tops of the removable stools 19 and the underside surfaces of the ends of support beams 15.

Slotted flanges 20 project horizontally from the ends of support beams 15 and are positioned to cooperate with swing bolts 21 attached to the upper portions of removable stools 19.

Removable stools 19 are bolted down to the machine sole plates with bolts 22 such that, when swing bolts 21 are positioned in slotted flanges 20 and tightened, support beams 15 are pulled downwards and securely clamped to the upper surfaces of removable stools 19. As this represents the operating position of the Fourdrinier, support beams 15 are therefore pre-stressed in their operative positions.

When swing bolts 21 are released, support beams 15 will relax and resume their natural positions providing the necessary clearance to permit removal of stools 19 without the need for jacking equipment.

The main advantage of the present invention over the contemporary arrangements previously mentioned is that the need for expensive jacking equipment is completely eliminated, thus providing considerable savings in money and manpower and increasing paper production by reducing the down-time for wire changes.

From the foregoing, it will be seen that I have provided new and improved means for accomplishing all of the objects and advantages of this invention.

I claim:

1. In a paper machine Fourdrinier of the type including, transverse support beam means, fulcrum pad means supporting one end of said transverse beam means, and supporting means for supporting the opposite end of said transverse beam means, the improvement comprising securing means for securing said opposite end of said transverse beam means to said supporting means, with said transverse beam means being pre-stressed to provide a clearance between said opposite end of said transverse beam means and said supporting means when said securing means is released.

2. In a paper machine Fourdrinier of the type including sole plates, transverse support beam means, fulcrum pad means supporting one end of said transverse beam means, and supporting means for supporting the opposite end of said transverse beam means, the improvement comprising securing means for securing said opposite end of said transverse beam means to said supporting means, with said transverse beam means being pre-stressed to provide a clearance between said opposite end of said trans-

3

verse beam means and said supporting means when said securing means is released, said supporting means including removable stool means, with means for detachably securing said removable stool means to said opposite end of said transverse beam means and means for detachably securing said removable stool means to said sole plates.

3. In a paper machine Fourdrinier, of the type including sole plates, transverse support beam means, fulcrum pad means supporting one end of said transverse beam means, and supporting means for supporting the opposite end of said transverse beam means, the improvement comprising securing means for securing said opposite end of said transverse beam means to said supporting means with, said transverse beam means being pre-stressed to provide a clearance between said opposite end of said transverse beam means and said supporting means when said securing means is released, said supporting means

4

including removable stool means, slotted flanges projecting horizontally from said opposite end of said transverse beam means, swing bolts attached to said removable stool means and positioned for detachably engaging said slotted flanges, said removable stool means being detachably bolted to said sole plates.

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