

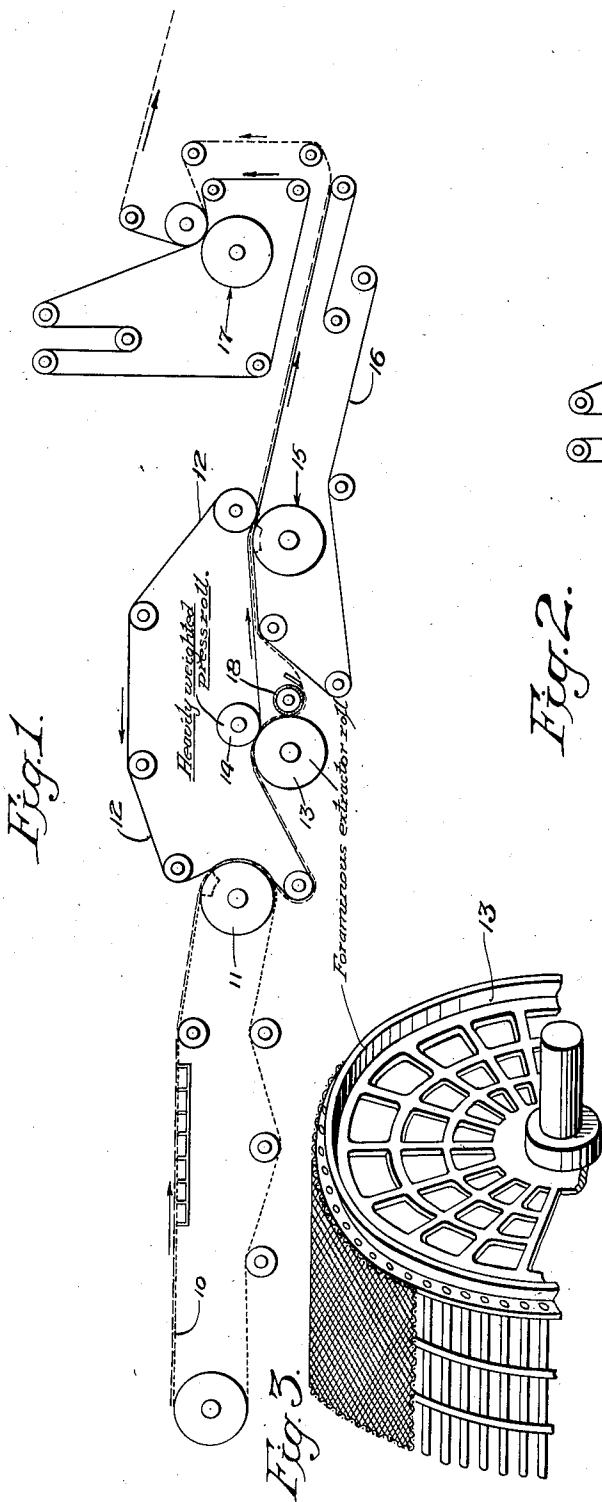
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C. L. ELLIS

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PRESS SECTION FOR FOURDRINIER PAPER MACHINES

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PRESS SECTION FOR FOURDRINIER PAPER MACHINES

Charles L. Ellis, Bradford Hills, Pa., assignor to
Downingtown Manufacturing Company, Down-
ingtown, Pa., a corporation of Pennsylvania

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12 Claims. (Cl. 92—49)

This invention relates to a press section for Fourdrinier paper machines, and more particularly to an arrangement permitting use in the press section of such machines of the extractor press.

The extractor press, a development now coming into extensive use in board machines, comprises a foraminous roll adapted to directly contact against the paper web, such roll being constructed after the manner of the usual cylinder mold of cylinder paper machines, but being made much heavier so that it may withstand press pressures, that is to say, pressures ranging between 75 and 250 pounds to the linear inch. Such a press may be more efficiently employed than the ordinary press, wherever the water content of the sheet and associated carrier is relatively high, for the ordinary press having a plain roll offers no means for the escape of water from the contacted sheet, and a sheet when too wet will tend to cling thereto. Furthermore, the water extracted by pressure, if the speed of the press be sufficiently high, will tend to crush the sheet, causing imperfections rendering it in many cases unfit for use.

At the present time extractor presses have not come into use in Fourdrinier paper machines, due primarily to the fact that the sheets produced on Fourdrinier machines are of light weight and have a tendency to cling to the foraminous roll.

An important object of this invention is the provision of an arrangement permitting the use of an extractor roll in which difficulties resulting from clinging of the sheet to the roll are eliminated.

A further object of the invention is the simplification and promotion of the efficiency of the press section of the Fourdrinier machines.

These and other objects I attain by the construction shown in the accompanying drawing, wherein for the purpose of illustration I have shown preferred embodiments of my invention and wherein:

Fig. 1 is a diagrammatic view of a Fourdrinier machine having a press section constructed in accordance with my invention;

Fig. 2 is a similar view showing a modified arrangement of the press section; and

Fig. 3 is a fragmentary perspective of the extractor roll of the press.

Referring now more particularly to the drawing, the numeral 10 generally designates the traveling forming wire of a Fourdrinier machine, and 11 a suction couch about which this wire passes.

At the suction couch, the paper web is removed from the wire by a felt 12, this felt passing through an extractor press comprising a lower foraminous roll 13 and an upper solid roll 14 which is heavily weighted, the paper web at this time being in contact with the foraminous roll. Beyond the extractor press from the couch a suction press 15 is disposed through which felt 12 likewise passes. A second felt 16 accompanies the felt 12 in its passage through suction press 15, and this felt serves to deliver the web to any subsequent presses which may be employed, such as that indicated at 17.

As hereinbefore stated, the web of Fourdrinier machines is relatively light and has a tendency to cling to the foraminous surface of the lower roll 13 of the extractor press. In order that this web may be removed from the extractor roll, a felt-covered roll 18 of small diameter is employed, this roll contacting the roll 13 at a point conveniently spaced from the nip of the rolls 13 and 14, and serving to doctor the paper web from the extractor roll 13 so that it may be delivered to felt 16.

While in Fig. 1 the felt covering of roll 18 is shown as being directly applied to this roll, such direct application is not essential, as a traveling felt surface of any type for the roll will accomplish the same end, provided that leaving the nip between the small roll and roll 13 the felt surface follows the small roll. In Fig. 2 the felt covering of the roll is provided by the felt 12—a which corresponds to the felt 12 of Fig. 1, this felt being passed about the roll 13 and about the surface of a small roll 18—a spaced from the nip between the rolls 13 and 14. This figure further illustrates a modification of the suction press arrangement illustrated in Fig. 1, in that the felt 12—a does not pass through the suction press and the web is withdrawn from the felt 12—a to the bottom felt 16—a by means of a suction felt roll 19. The web thus contacts the bare upper press roll of the suction press 15—a, providing a more suitable arrangement for use in mills making high grade light-weight papers.

Since the construction is capable of considerable modification without in any manner departing from the spirit of my invention, I do not wish to be understood as limiting myself thereto except as hereinafter claimed.

I claim:

1. In a Fourdrinier paper machine, the combination with a forming wire and a couch about which the wire passes, of a felt receiving the paper web from the wire at the couch, an extractor press through which the felt passes, said

extractor press comprising a lower foraminous roll, a heavily weighted top roll coacting therewith, the paper web being in direct contact with the foraminous roll, a second press, and means to remove the web from said foraminous roll for delivery to said second press comprising a roll of small diameter having a felt face.

2. A device as claimed in claim 1 wherein the felt face of the small roll is directly attached to the roll.

3. A device as claimed in claim 1 wherein the felt face of the small roll is in the form of a traveling felt passed about the roll.

4. A device as claimed in claim 1 wherein the felt face of the small roll is provided by passing the extractor press felt about the face of the roll.

5. A device as claimed in claim 1 wherein the second press is a suction press having a traveling felt operating between the rolls thereof.

6. A device as claimed in claim 1 wherein the second press is a suction press about the upper roll of which the extractor press felt passes and a second felt passing through said suction press, the paper web being between said felts at the suction press.

7. In a paper machine, the combination with web-forming means of a felt receiving the paper web from the forming means; an extractor press

through which the felt passes, said extractor press comprising a lower foraminous roll, a heavily weighted top roll coacting therewith, the paper web being in direct contact with the foraminous roll, a second press, and means to remove the web from said foraminous roll for delivery to said second press comprising a roll of small diameter having a felt face.

8. A device as claimed in claim 7 wherein the felt face of the small roll is directly attached to the roll.

9. A device as claimed in claim 7 wherein the felt face of the small roll is in the form of a traveling felt passed about the roll.

10. A device as claimed in claim 7 wherein the felt face of the small roll is provided by passing the extractor press felt about the face of the roll.

11. A device as claimed in claim 7 wherein the second press is a suction press having a traveling felt operating between the rolls thereof.

12. A device as claimed in claim 7 wherein the second press is a suction press about the upper roll of which the extractor press felt passes and a second felt passing through said suction press, the paper web being between said felts at the suction press.

CHARLES L. ELLIS.