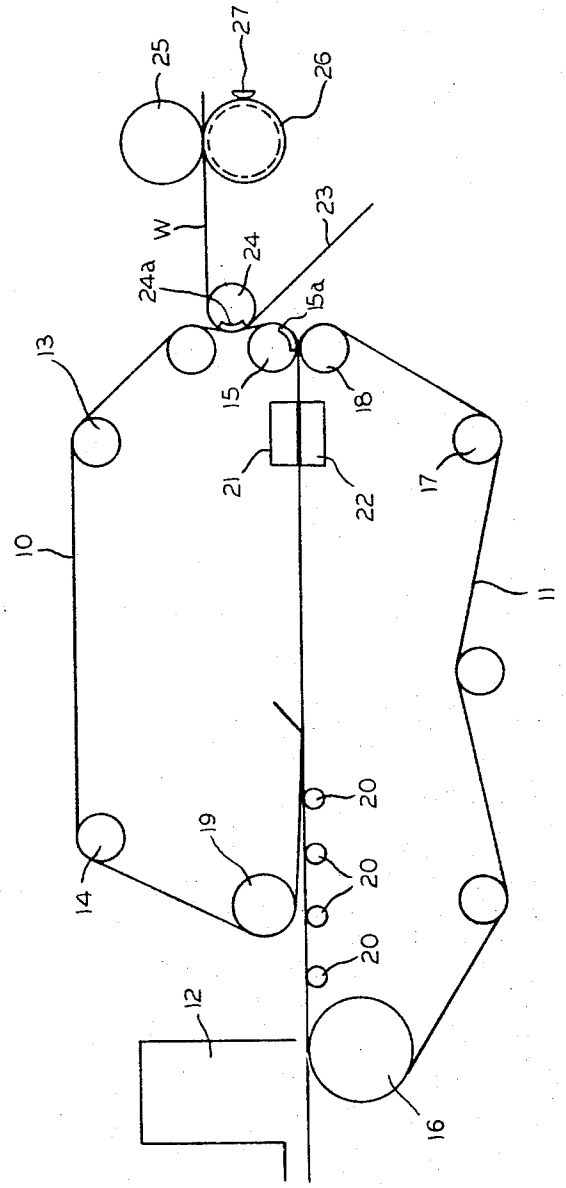
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WEB PICK-UP FOR TWO WIRE FORMING PAPER MACHINE

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WEB PICK-UP FOR TWO WIRE FORMING PAPER MACHINE

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U.S. Cl. 162—303 1 Claim

The present invention relates to improvements in paper making machines and more particularly to an improved two wire machine and mechanism for handling and dewatering the paper web.

In a two wire forming paper machine, stock is deposited into the forming zone between two traveling porous wires. An example of this type of machine is shown in U.S. Patent No. 2,821,120 issued to R. J. Thomas et al.

The upper and lower wires of the two wire machine are each provided with dewatering means within their loops so that water is removed from the web being formed through each of the wires eliminating the two sides effect on the web which is experienced when a web is formed on a single wire. At the end of the dewatering run between the wires and past couch rolls, the web is removed and transferred to the press section of the paper making machine.

In accordance with the teachings of the art, the web was removed from the lower forming wire after it had made the turn past the couch roll. This was conventionally done by a pick off felt into a first press nip. The press nip is formed between the press roll couple usually having a plain press roll and a water receiving roll. It is necessary that the felt engage the water receiving roll to prevent marking and otherwise damaging the paper web and in the press nip the water is forced from the web through the felt into the water receiving roll. It has also been necessary that the web be on the upper surface of the felt in the first press nip so that the water is removed in a downward direction and so that the web follows the felt and is not wrapped around the plain roll and not be carried by the felt.

In order to accomplish the necessary support of the web on a felt with a felt between the web and a water receiving roll, it has been necessary to use a second felt, bringing it up below the web to sandwich the web or to turn the web and felt so that the web is on top of the felt. Each of these methods incur disadvantages, requiring extra equipment and extra space in the press section of a paper machine.

It is accordingly an objective of the present invention to provide an improved two wire forming machine which avoids the disadvantages heretofore encountered in the web transfer to the press section.

It is a further object of the invention to provide an improved two wire forming with a web transferring mechanism which avoids the necessity of providing a second felt to support the undersurface of a web and pass between the web and the water receiving roll of the first press couple.

It is a further object of the invention to provide an improved two wire forming mechanism and mechanism for transferring the web to the press section which avoids the necessity of turning the web and felt to bring the web on the upper side of the felt and the additional space required by such structure with the attendant disadvantages of having to hold the web on the felt against centrifugal force.

A feature of the invention is the provision of a two wire forming mechanism having an upper and lower forming wire wherein the formed web is picked off the upper wire past the couch roll by pick off felt and carried on the upper surface of the felt into a press couple with a water receiving roll below the felt.

Other objects, advantages and features will become more apparent with the teaching of the principles of the present invention in connection with the disclosure of the preferred embodiment thereof in the specification, claims and drawings, in which:

The drawing is a front elevational view shown in schematic form of a portion of a paper making machine embodying the principles of the present invention.

As shown on the drawing, a two wire forming mechanism includes an upper looped forming wire **10** and a lower looped forming wire **11**. The forming wires are supported so that they come together to provide a forming zone F for the stock, followed by a dewatering run D.

The paper stock is delivered to the forming zone F from a slice nozzle **12** connected to a suitable headbox structure and preferably the stock is delivered under pressure through the nozzle **12** into the forming zone F.

Suitable supporting rolls such as **13** and **14** are provided for the upper wire and similar supporting rolls, guide rolls and tensioning rolls such as **16** and **17** are provided for the lower wire **11**. At the end of the dewatering run D are couch rolls **15** and **18** within the upper and lower wires **10** and **11**.

Also within the upper and lower wires **10** and **11** at the forming zone F are upper and lower dewatering devices **19** and **20**. These may be suction rolls or suction boxes or other suitable mechanism and is shaped to guide the wires into the forming zone F and arranged to accommodate and aid the flow of water from the pulp to begin the formation of the web as the wires converge and taper together into their dewatering run. Further along the run are additional dewatering means **21** and **22**, such as in the form of foils or slices, table rolls and suction boxes.

The upper couch roll **15** is provided with a suction gland **15***a* which causes the web to follow the upper wire at the end of the dewatering run and be carried up on the upper forming wire.

The web is removed from the upper forming wire following the couch roll **15** by pick off felt **23**. This felt is guided into a pick off relationship with the upper wire **10** by a suction roll **24** having a suction roll gland **24***a* therein. The web then follows along on the upper surface of the felt **23**. The felt is provided with additional guide rolls and a felt dewatering mechanism such as will be fully appreciated by those versed in the art.

The web W being carried on the upper surface of the felt **23** passes into a nip formed between a press roll couple having rolls **25** and **26**. The upper roll **25** is preferably a plain press roll and the lower roll **26** is a water receiving roll. In a preferred form, the lower roll **26** is a grooved roll such as the type disclosed and claimed in U.S. Patent No. 3,198,693 issued to E. J. Justus.

Thus, the web W carried on top of the felt **23** engages the upper plain roll **25** while it has the felt between it and the grooves of the water receiving roll **26**. The water is pressed through the felt into the water receiving roll **26** which is provided with a suitable water removing means as shown schematically at **27**.

Thus, it will be seen that I have provided an improved two wire forming mechanism with a web transfer arrangement that meets the objectives and provides the advantages above set forth. The disadvantages of the prior art structures which require taking the web off the lower wire and the necessity of handling it by special means so that the web will be on top of the felt are avoided. The structure offers a saving in space and direct handling of the web on the upper surface of the felt and obtains advantages above set forth.

It will be understood that modifications and variations may be effected without departing from the scope of the novel concepts of the present invention.

I claim as my invention:

1. A two wire forming paper machine comprising in combination,

upper and lower forming wires defining a horizontal web forming run between them,

a pulp delivering means at the forming end of the wires for placing a layer of stock between the wires to form a web, dewatering means within each of said wires for removing water from the web through each of the wires,

means supporting the wires including couch rolls at the end of the dewatering run of the wires,

said couch roll for said upper wire having a suction gland which causes the web to follow the upper wire upwardly in a generally vertical plane,

a pick off felt in an angular web pick off relation with the generally vertical plane of the upper wire beyond and above the upper wire couch roll,

a suction pick off roll within the felt above the couch roll having a suction gland facing the upper wire and forming a pick off nip with the upper wire, and

a press roll couple in nip defining relation with the felt passing horizontally therebetween having a lower water receiving roll engaging the felt so that the web is carried on the upper surface of the felt and engages the upper roll of the press couple.

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