

R. E. WAGNER.
 APPARATUS FOR EXTRACTING WATER FROM WOOD PULP AND THE LIKE.
 APPLICATION FILED JAN. 22, 1918.

1,347,724.

Patented July 27, 1920.

2 SHEETS—SHEET 1.

Fig. 1.

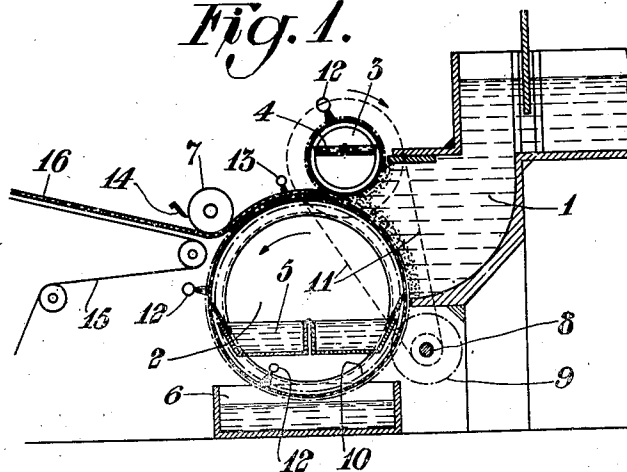
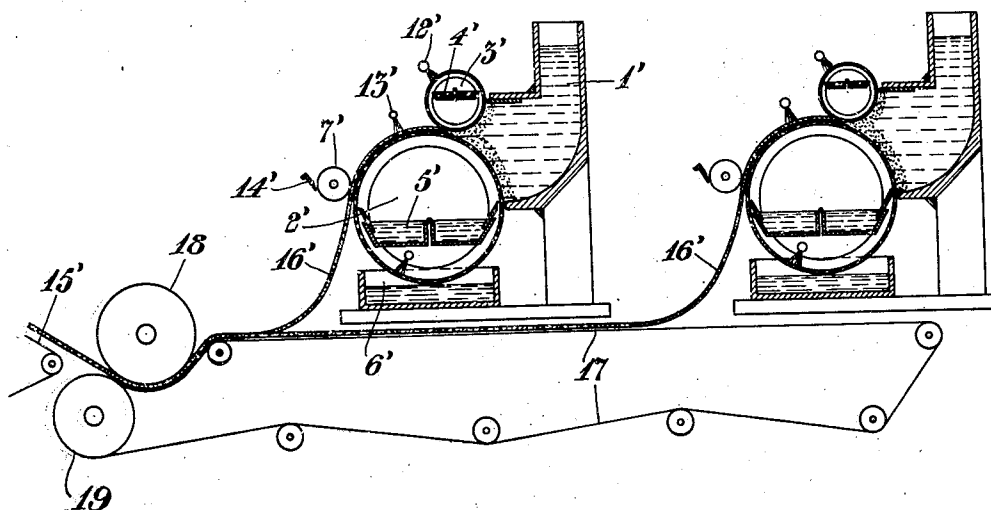


Fig. 2.



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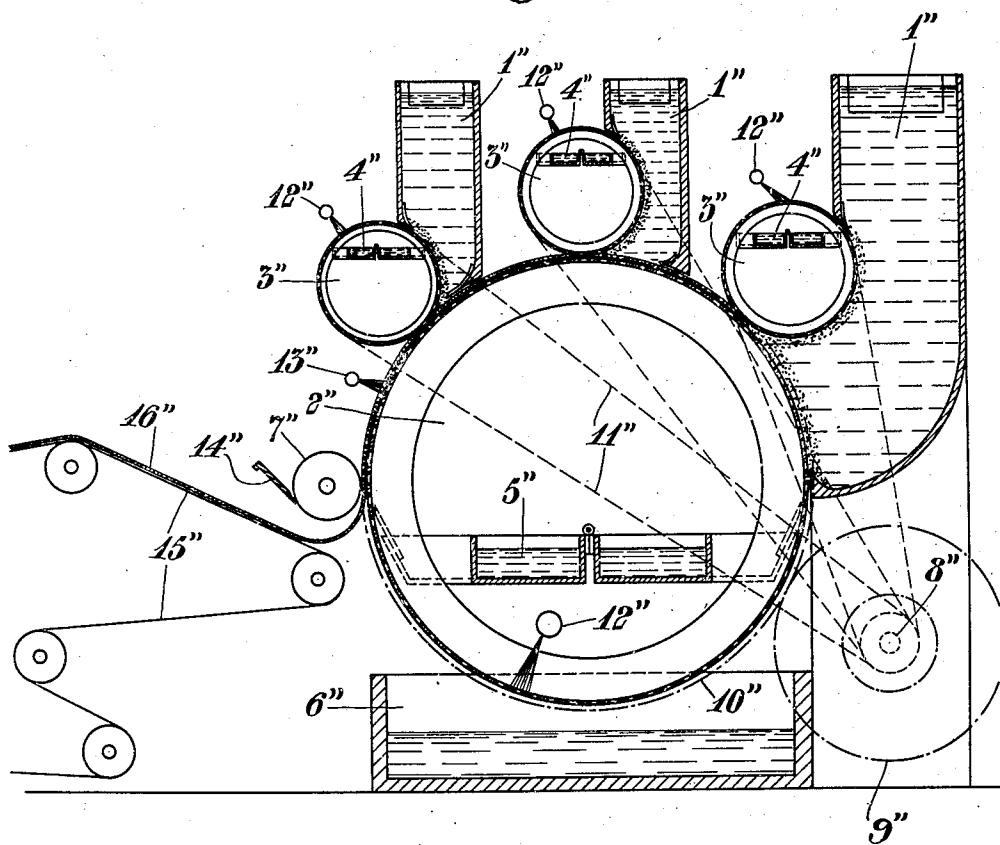
by *George Bayard Jones atty.*

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Fig. 3.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR EXTRACTING WATER FROM WOOD-PULP AND THE LIKE.

1,347,724.

Specification of Letters Patent.

Patented July 27, 1920.

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To all whom it may concern:

Be it known that I, RUDOLF ERNST WAGNER, a subject of the King of Sweden, residing at Karlstad, in the Kingdom of Sweden, have invented new and useful Improvements in Apparatus for Extracting Water from Wood-Pulp and the like, so-called Drying-Machines and the like, of which the following is a specification.

There have previously been made several attempts to increase the extracting power of the water-extractors in wet-machines, so-called drying-machines, and the like, but heretofore one has not succeeded, without the use of too complicated and expensive devices, to effect the extraction of so great quantities of cellulose as the modern drying-machines are capable of drying rapidly. This is mainly caused by the fact that for these extractors the same design and principles have been utilized as those applied to paper or carton machines which, as is well known, are intended for manufacturing the finished product, for which wood-pulp and cellulose are principally used as raw material. The manufacture of the finished product, however, necessitates a special treatment of the material according to requirements entirely different from those applying to the raw material, where it is solely required in a simple and efficient manner to remove a comparatively very considerable quantity of water from the very diluted pulp.

The present invention refers to a process and an apparatus which have proved to be particularly useful for extracting water from wood-pulp, cellulose, and the like in wet-machines, so-called drying-machines, and the like, and by means of which it is possible to extract water from the pulp-sheet in a considerably more efficient manner than it has heretofore been possible with the old strainer cylinders arranged one behind the other, or with the wire-part of the so-called drying-machines.

This result is attained according to the present process mainly by effecting the extracting of water from the pulp by straining, cooperating with suction if desired, and by simultaneous pressing in such manner that the pulp is supplied to and in between strainer rolls, or strainer and suction rolls, bearing against one another and

acting as press-rolls. A suitable apparatus for carrying out this process may, for instance, consist of rotary strainer rolls bearing against one another which rolls are located close by a pulp inlet, or several pulp inlets, in such manner that the pulp coming from the pulp inlet gathers on the surfaces of the rolls as well as between these surfaces. One or several or all strainer rolls may also be arranged as suction rolls.

In the accompanying drawing three embodiments of apparatus according to the present invention are shown diagrammatically. Figure 1 illustrates an apparatus with only one pair of rolls bearing against one another. Fig. 2 shows an apparatus with several pairs of rolls arranged behind one another, and Fig. 3 illustrates an apparatus with several rolls arranged behind one another and bearing against a common roll.

Referring to Fig. 1, 1 denotes the pulp inlet which is arranged in the usual manner with machines of the kind here referred to. Close by this pulp inlet 1 two strainer rolls 2 and 3 with or without suction are arranged, said rolls bearing against one another and being placed in such manner relatively to the pulp inlet that the pulp coming from the inlet gathers on the surfaces of the rolls 2 and 3, and so that owing to the rotation of the rolls the pulp enters in between the rolls. The pulp thus becomes actuated in the usual manner by the straining in the rolls, or by the straining and suction in the same, and at the same time also by the pressing effected between the rolls. The water pressed out is collected in and flows away through troughs 4, 5 and 6.

In order further to press out the water while the pulp sheet is still influenced by the suction and before it leaves the strainer rolls, one press-roll 7 or several such press-rolls may be provided bearing against the strainer roll 2 and located at the point on this roll at which the pulp sheet is removed from the roll.

The rolls are adjustable in suitable manner relatively to the pulp inlet 1, and they may be rotated from a shaft 8 by means of gears 9, 10 and a chain or belt transmission 11. The strainer rolls are continually cleansed by means of sprinkler tubes 12, and the pulp sheet on the roll 2 may be heated

by means of a steam spray-tube 13, before it arrives to the press-roll 7.

The water-extracting apparatus above described may suitably be connected with a wet-pressing apparatus in which the pulp sheet is pressed and heated simultaneously. For this purpose a scraper 14 may be arranged at the press-roll 7, which scraper removes the pulp sheet from the press-roll 7 and transfers the same to a felt 15 or to belts which transport the pulp sheet 16 to the said wet-pressing apparatus, not illustrated in the drawing.

The embodiment illustrated in Fig. 2 may be said to consist of a suitable number of apparatus according to Fig. 1, two such apparatus being shown in the drawing. For the parts of these apparatus reference numerals corresponding to those used in Fig. 1 have been shown in the drawing. The pulp sheet 16' delivered from these apparatus are received on a wire or felt 17 and are transported by this felt to a pair of couch-rolls 18, 19, after which they are received by the felt 15'.

The embodiment according to Fig. 3 differs from the one illustrated in Fig. 1 by there being a suitable number of strainer rolls 3'', three such rolls being shown in the drawing, cooperating with the strainer roll 2'', a pulp inlet 1'' being provided for each of these rolls 3''. The apparatus being otherwise

similar to the one illustrated in Fig. 1, and corresponding reference numerals having been used for corresponding parts, a further description of the apparatus is deemed superfluous.

I claim:

1. In an apparatus for extracting water from wood-pulp, cellulose, and the like in wet-machines, so-called drying-machines, and the like, the combination of a number of pulp inlets, a rotary strainer roll for each pulp inlet, and a common rotary strainer roll cooperating with and bearing against the first named rolls, said rolls being located close by the pulp inlets in such manner that the pulp coming from the pulp inlets gathers on the surfaces of the rolls as well as between these surfaces.

2. In an apparatus of the class described, the combination of a pulp chamber having an enlarged substantially horizontally disposed delivery passage, and an outlet for said passage in the form of a plurality of revolving perforated compression rolls mounted across the end of said passage and adapted to receive the pulp from said chamber between them and to express the liquid therefrom, the liquor expressed from said pulp and issuing from said passage passing off through the perforations in said rolls.

RUDOLF ERNST WAGNER.