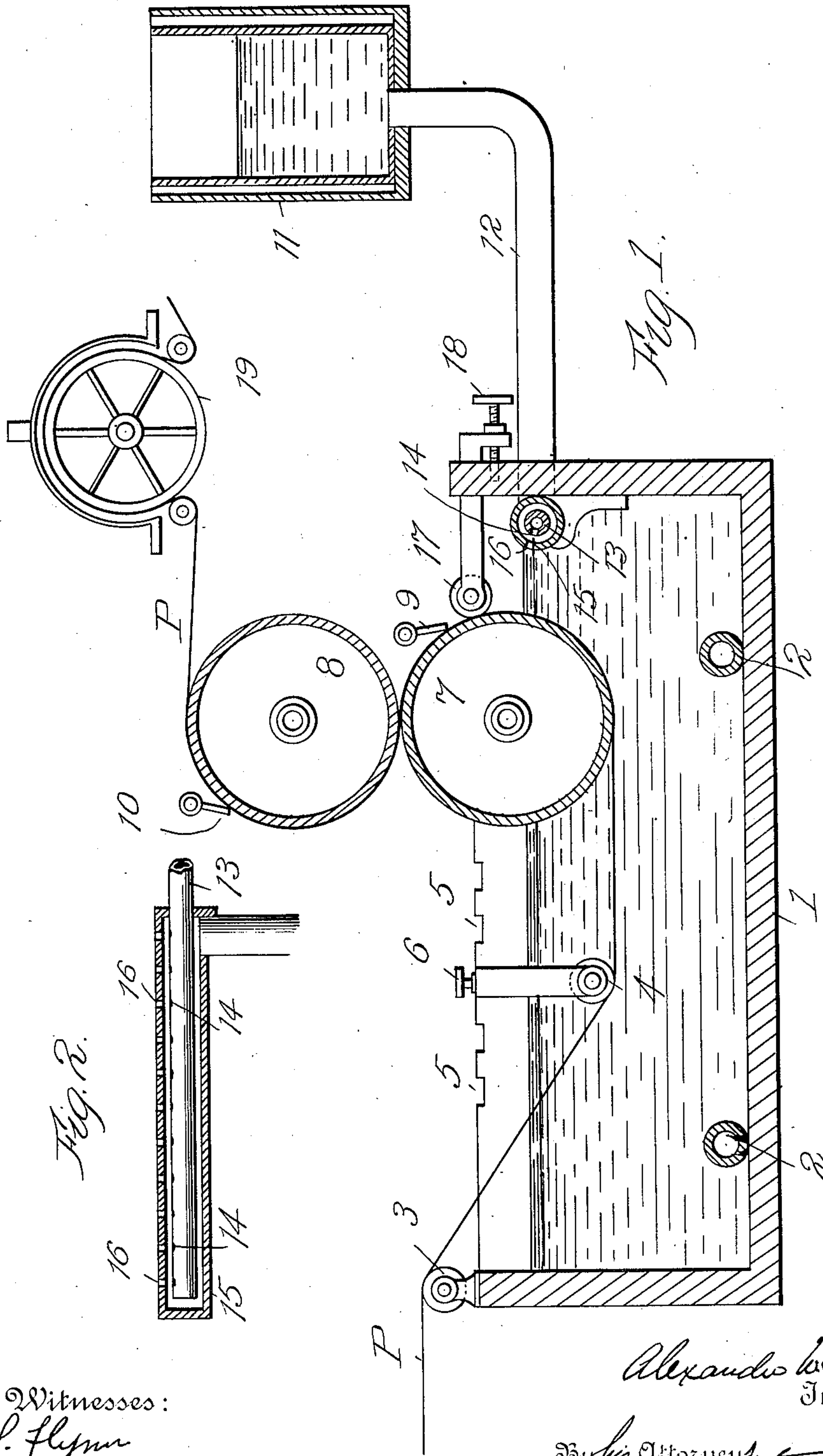


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MACHINE FOR TREATING PAPER.  
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Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## MACHINE FOR TREATING PAPER.

No. 915,672.

Specification of Letters Patent.

Patented March 16, 1909.

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*To all whom it may concern:*

Be it known that I, ALEXANDER W. HARRINGTON, a resident of New York, borough of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Machines for Treating Paper.

In order that others skilled in the art may understand, make and use the invention, I give the following specification thereof, of which the accompanying drawing forms a part.

My invention relates to apparatus for making paper resembling what is usually known as parchment paper.

The paper which it is the object of the invention to make and produce is first impregnated or saturated with a glutinous composition of a character to improve the strength, durability and texture and to give weight and finish to the paper, and immediately thereafter is coated with a film of a waxy composition. This latter treatment not only renders the paper waterproof but in connection with the saturating composition gives the same characteristics and appearance of parchment paper.

The object of the invention is to provide an apparatus for manufacturing the above described paper in a continuous, speedy and economical manner.

I have illustrated a form of the invention in the accompanying drawing, Figure 1 of which is a vertical sectional view. Fig. 2 is a sectional view of a detail of the apparatus.

The apparatus comprises a tank 1, constructed of any suitable material and provided with means, such, for instance, as steam pipes 2, 2, for heating and keeping hot the fluid contained in the tank. Journaled on the tank, near one end thereof, is a guide roll 3, over which the paper to be treated is led into the tank. An adjustable guide roll 4 is supported on the walls of the tank in such manner that it may be adjusted to regulate the time of immersion of the paper in the fluid in the tank. A convenient means of obtaining this adjustment is illustrated in the drawing and comprises notches or depressions 5, into which the frame of the guide roll 4 fits and into which it may be secured by means of a screw 6. If desired, the guide roll 4 may be made to be adjustable vertically. Toward the opposite end of the tank from guide roll 3 are journaled a pair of heated rolls 7 and 8, over which the paper passes as it issues from the tank. These

rolls 7 and 8 are shown arranged one above the other.

The paper is indicated at P, and its course through the tank and over the several rolls 60 is illustrated in the drawing.

At a convenient place is arranged a reservoir 11, for containing a supply of waxy composition. This reservoir or vessel is preferably heated by means of a steam jacket 65 to keep the composition fluid. From this reservoir is led a conduit 12, which passes into the tank 1, and there terminates in a transverse end 13. The conduit 12 may be jacketed or coated to keep the composition 70 flowing therethrough hot. The end 13 of the conduit is provided along its length with a series of perforations 14, which are directed toward the paper passing over roll 7, and at a point substantially coincident with the 75 level of the saturating fluid in the tank. Surrounding the end 13, of the conduit 12, is a steam jacket 15, which is suitably mounted in the tank and is provided with openings 16, registering with the openings 14 of the end 13. 80 These openings 16 are of course directed in the same direction and are situated at the same point relative to the level of the fluid in the tank as the openings 14.

A spreading roll 17 is adjustably mounted 85 in the tank and bears upon the paper passing over the roll 7 with a pressure which may be adjusted by means of the screw 18. A doctor 9, suitably mounted with respect to roll 7 and a similar doctor 10, is mounted to en- 90 gage the paper passing over roll 8. From the upper heated roll 8 the paper may pass over a reel or rotary frame 19, through which may be blown heated air to assist in the drying and hardening of the waxy film of the paper. 95

The operation of the apparatus and the function of the several parts thereof will be apparent from the drawing. The apparatus may form part of a paper making apparatus, and the paper from the dryer rolls thereof 100 may pass directly through the herein described apparatus. The apparatus may thus occupy the place in the manufacture of paper of the tub sizing apparatus. The paper passes over the guide roll 3 and under the 105 guide roll 4 below the level indicated at X in the drawing of the saturating fluid in the tank. The position and adjustment of the guide roll 4 may be varied to regulate the length of time of immersion, so that accord- 110 ing to the speed of the paper or to the character and temperature of the saturating



fluid, the roll 4 may be adjusted so that the paper will be immersed in the fluid a sufficient length of time to insure thorough impregnation and saturation of the paper with said fluid. The paper then passes around heated roll 7 and at the moment it is about to issue from the fluid it encounters the waxy fluid discharging from the transverse pipe 13. The waxy composition being of less specific gravity than the saturating composition, remains at the surface of the fluid in the tank, if there is any excess over what is taken up by the paper. Being discharged upon the paper while the latter is upon the heated roll, the waxy composition is maintained fluid and is spread over the surface of the paper. The paper, after receiving the waxy composition, passes under the spread roll 17, which spreads and distributes evenly the waxy coat. The excess of waxy coating is removed by the doctors 9 and 10 from either side of the paper. From the heated roll 8 the paper passes over the reel 19, where the coating is quickly hardened and dried. The reel 19 may be dispensed with, if desired, as owing to the extreme thinness of waxy film on the paper it will by ordinary exposure to the air, quickly harden and dry.

By means of the above apparatus, paper having the characteristics of parchment paper is readily produced in a speedy and efficient manner, and if desired, as a part of the process of making the paper itself.

It will be obvious that various modifications of the features of the apparatus may be made without departing from the invention.

I claim:

1. In apparatus of the character described, the combination of a tank for containing a fluid saturating composition, means for leading a web or sheet of paper into and through the fluid composition in said tank, means for applying a fluid waxy composition upon said paper so treated at the point where it issues from the saturating composition in the tank.

2. In apparatus of the character described, the combination of a tank for containing a fluid saturating composition, means for heat-

ing the composition in the tank, means for guiding the web or sheet of paper into and through the said composition, means for regulating the length of time the paper is immersed in said composition, means for applying to the paper so treated a fluid waxy composition immediately at the point where the paper issues from the saturating composition, and means for spreading said waxy composition upon the surface of the paper.

3. In apparatus of the character described, the combination of a tank for holding a fluid saturating composition, means for heating the composition in the tank, a guide roll mounted in said tank, means to adjust said roll to regulate the time of immersion of said paper in said composition, means to conduct a fluid waxy composition to said tank, means for discharging said waxy composition at the surface of the saturating composition in the tank and in the immediate vicinity of the place where the paper issues from said saturating composition, means for spreading and distributing said waxy composition upon the surfaces of the paper.

4. In apparatus of the character described, the combination of a tank for holding the fluid saturating composition, means for heating the composition in the tank, means for guiding a web or sheet of paper through said composition in the tank, means for regulating the time of immersion of the paper in said composition, means for conducting a fluid waxy composition to said tank, means to discharge said waxy composition at the surface of the saturating composition, said discharge means comprising a perforated pipe arranged transversely of the web or sheet of paper, the perforations opening at the surface of the saturating composition, heated rolls over which said paper passes after receiving the waxy composition, and means cooperating with said rolls to distribute the waxy composition upon the paper.

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