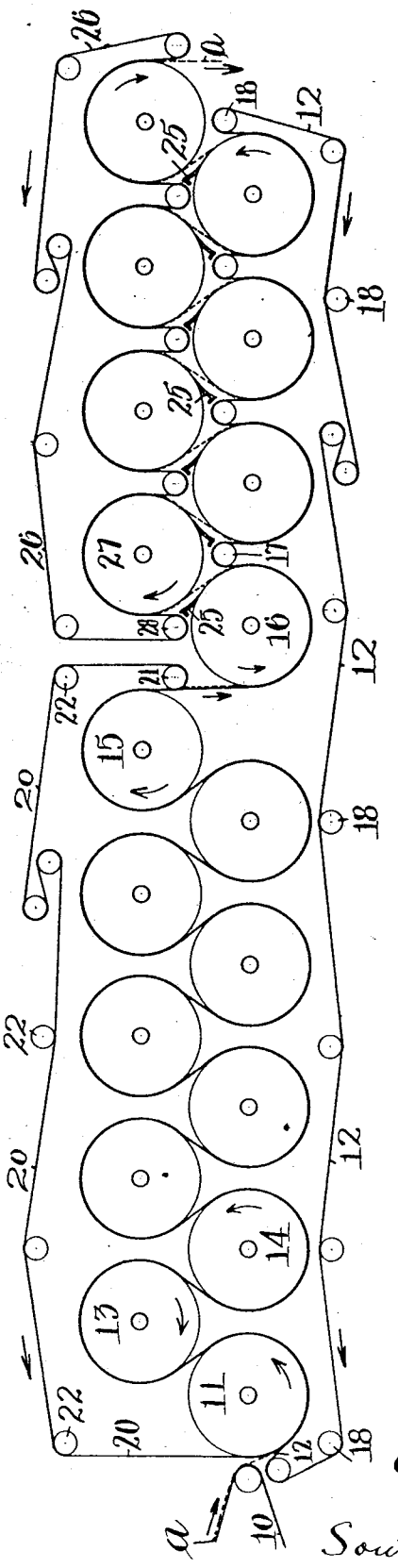
G. D. KILBERRY.

PAPER DRYING MACHINE.

APPLICATION FILED DEC. 31, 1913.

1,122,282.

Patented Dec. 29, 1914.



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE D. KILBERRY, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO RICE, BARTON & FALES MACHINE & IRON COMPANY, A CORPORATION OF MASSACHUSETTS.

PAPER-DRYING MACHINE.

1,122,282. Specification of Letters Patent. Patented Dec. 29, 1914.

Application filed December 31, 1913. Serial No. 809,692.

To all whom it may concern:

Be it known that I, GEORGE D. KILBERRY, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Paper-Drying Machine, of which the following is a specification.

As heretofore constructed paper drying machines of the type represented by the present invention have been run at a maximum speed of five or six hundred feet of paper per minute.

One of the principal objects of this invention is to provide a practical improvement of this machine of such a nature as to permit of the running of these drums or cylinders at a considerably higher rate, approximately one thousand feet per minute.

Reference is to be had to the accompanying drawing which is a diagrammatic view of a portion of a paper drying machine constructed in accordance with this invention.

The principal difficulty which has been encountered heretofore in the speeding up of these machine is due to the fact that the first few pairs of drums receive the paper web in such a wet condition that the web tends to stick to them and a man has to be placed in position to take the web from each of these first drums and direct it to the next one and he has to work with considerable skill and rapidity in order to be sure of accomplishing the result. If he does not accomplish it the web goes around the drum and is wrapped over by the next convolution of the web which creates a bad situation. This blocking up of the machine necessitates the stopping of it for a considerable period of time and the removal of the web from the drum is a difficult job in many cases. Obviously any increase in the speed, particularly a material one like the one indicated above, adds greatly to this difficulty and it has been found in practice that it would render the machine inoperative practically because a man cannot work fast enough to insure the proper running of the web at such high speeds. I have discovered, however, that this difficulty can be overcome by an exceedingly simple improvement, namely the provision of two felt aprons running over the first few drums one on each side of the paper web. These felt aprons can be so arranged as to insure the travel of the web properly from one drum to the other and prevent any possibility of the web sticking to any of the drums. The arrangement which I have devised also provides for the drying or partial drying of each felt apron during substantially half of its travel over the drums so that they do not accumulate the moisture that would be expected.

Referring now to the drawing it will be seen that the web *a* of wet paper stock is fed from a felt apron 10 to the first drum 11. The several drums are arranged in two series above and below, as is well understood in this art and the web in this case goes from one to another in the same course as has been common heretofore. But in this case as the web passes to the first drum 11 it is received on the top of a lower felt apron 12 which is guided under the first drum 11, over the second drum 13, under the third drum 14 and so forth in succession throughout a material proportion of all the drums employed. The last upper drum 15 over which it passes is at the end of what may be called this section of the machine. Then this apron passes under the first drum 16 of the next section, up over a roll 17, under the next drum and so on to the end of the machine not passing again around any of the upper drums. The rolls 17 direct it around the lower drums 16 and hold it in direct contact therewith. It is then passed over guide rolls 18 in the usual way, back to the drum 11. It will be understood that the course of the web under the drum 16 and those beyond it is common in this industry. In addition to this felt apron another felt apron 20 is employed. This apron comes down into contact with the first drum 11 before the paper web *a* engages it, and therefore, comes between the paper web *a* and this drum. It then passes through the same course as the felt apron 12 until it reaches the drum 15. During this course obviously the paper web *a* is kept always between the two felt aprons 12 and 20. When the apron 20 passes from the drum 15 it passes under a roll 21 and then up around a series of guide rolls 22 and back to the drum 11. In this way it will be seen that the web of paper is always kept, until it leaves the drum 15, between the two felt aprons and yet it has a maximum wrap around each drum. In other words while drying on these drums the paper web has between it and the drum on which it is drying one or the other of these two felt aprons.

At all times also one of the two felt aprons is on the outside where it is free to evaporate moisture. In this way the felt aprons are alternately dried as they pass over and under the drums and the accumulation of moisture in them is not great.

The necessity for the two felt aprons exists only in connection with a few drums at the receiving end of the machine. After the web is dried a certain amount it is sufficiently consistent to permit of being shifted from one drum to another by means of the usual doctor blades 25 and in this case a third felt apron 26 is employed passing over the upper drum 27 and under rolls 28. This is employed in connection with the portion of the felt apron 20 which is conducted around the lower drum in the same way and is well understood in this art.

Although I have illustrated and described a specific embodiment of the invention, I am aware of the fact that modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore, I do not wish to be limited to all the specific arrangements shown but

What I do claim is:—

1. In a paper drying machine, the combination with a set of drums, of a pair of aprons arranged to receive the paper web between them, means for directing said aprons together around part of the drums, and one of them then back to the first drum, and means for directing the other apron around additional drums of said set and holding the web in direct contact therewith.

2. In a paper drying machine, the combination with a set of drums for receiving the web arranged alternately below and above, of a pair of felt aprons, and means for directing both aprons below and around one drum and above and around the next throughout a part of said machine, said aprons being arranged to receive the paper web between them, whereby one apron will always be outside the web and one between it and a drum, the rest of the drums of said drying machine having each a single felt apron outside the paper web.

3. In a paper drying machine, the combination with a set of drums, of a pair of felt aprons, both aprons passing below one drum and above the next, said aprons being arranged to receive the paper web between them, means for deflecting one of said felt aprons after passing around a portion of the drums back to the first drum, means for directing the other of said felt aprons part way around one half of the drums which are located beyond the point of deflection, and a third felt apron for holding the web in contact with the rest of the drums of the machine beyond said point of deflection.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

GEORGE D. KILBERRY.

Witnesses:

ALBERT E. FAY,

C. FORREST WESSON.