

May 15, 1928.

1,670,113

A. D. HARRISON
PAPER DRYING MACHINE
Filed April 14, 1927

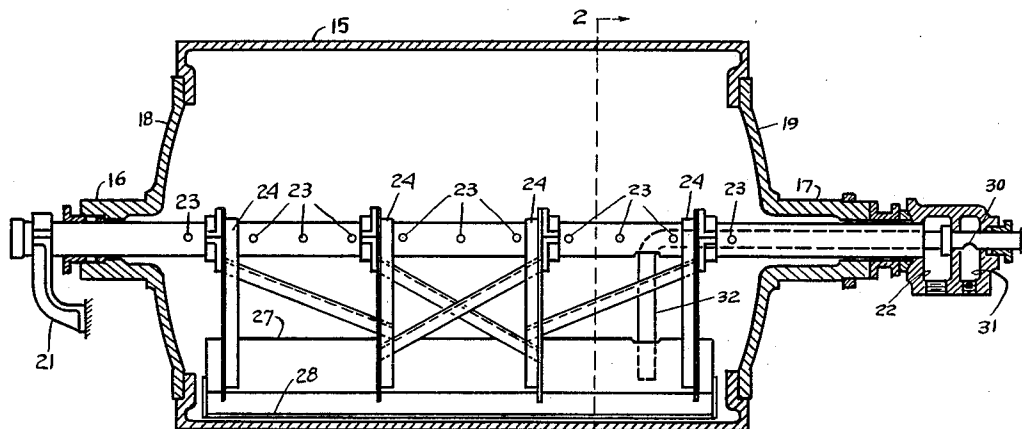


Fig. 1.

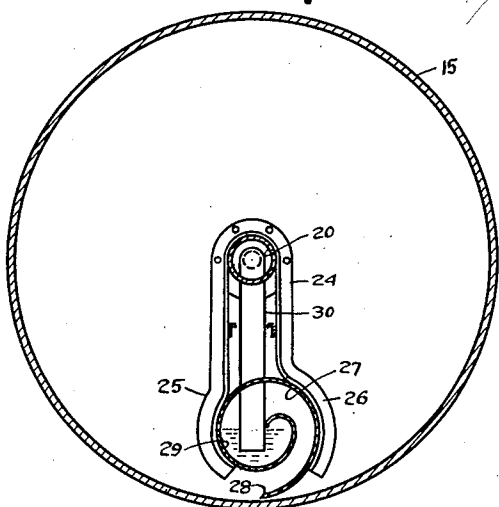


Fig. 2.

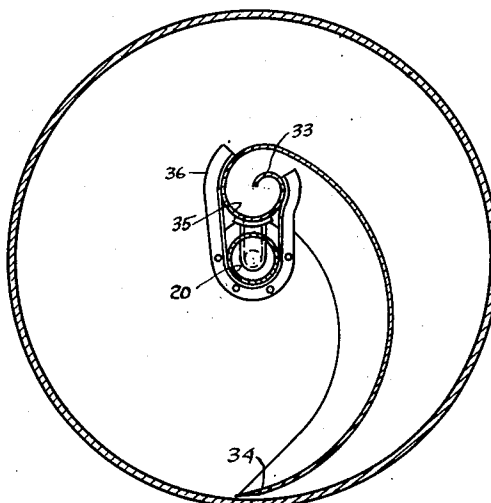


Fig. 3.

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PAPER-DRYING MACHINE.

Application filed April 14, 1927. Serial No. 183,788.

The invention relates to a paper drying machine, as described in the present specification and illustrated in the accompanying drawings that form part of the same.

5 The invention consists essentially of the novel features of construction pointed out broadly and specifically in the claims for novelty following a description containing an explanation in detail of an acceptable
10 form of the invention.

The objects of the invention are to remove the water of condensation from steam heated rotary drying cylinders in a manner that will reduce the film of water clinging to the inner wall surface during rotation to the minimum and thereby insure an even heating surface throughout and at the same time distribute the steam to secure the best drying effects; to increase the output of
15 paper by speeding up the dryer and avoid breakages of the paper sheet usually attributable to uneven drying; to maintain a free and quite opening at the siphon mouth and thus bring the resistance in the outflow of
20 water to a negligible quantity; to eliminate the expense due to siphon repairs resulting from damages to the siphon and owing to the inefficient support of the latter in ordinary practice consequently saving both
25 time and money; to furnish in paper machinery a substantial and practical device for the aforesaid purposes at a moderate cost and adapted to overcome the well recognized faults and short comings inherent in the existing methods of removing water from
30 driers; and to provide for the paper industry and for other industries where like driers or machines are used an efficient, durable and serviceable device for water re-
35 move.

In the drawings, Figure 1 is a longitudinal sectional view of the cylinder forming the drier and illustrating the invention there-
40 within.

45 Figure 2 is a cross sectional view on the line 2—2 in Figure 1.

Figure 3 is a sectional detail showing a slight modification of the water collector.

50 Like numerals of reference indicate corresponding parts in the various figures.

Referring to the drawings, the numeral 15 indicates the drying cylinder or drum supported by the journal members 16 and 17 extending into the heads 18 and 19 re-
55 spectively.

The hollow shaft 20 is rigidly secured in the bracket 21 at one end and in the wall of the steam inlet chamber 22 at the other end and is perforated throughout its length within the cylinder 15 forming the steam
60 jet orifices 23 through which the steam spurts in maintaining a comparatively high temperature within the cylinder to heat the wall thereof around which the paper turns in drying operations.

The brackets 24 are rigidly secured to the shaft 20 and form hangers having at the lower ends the curved offsets 25 and 26 adapted to engage and support the scroll 27. The scroll 27 is an elongated affair and
70 preferably extends for the greater part of the length of the cylinder 15 and is formed with the scoop 28 or water catcher, which from the proximity of the cylinder wall extends upwardly into the inturned portion
75 forming the trough 29, thereby providing the water receptacle or collector for the discharge from the scoop, that gathers the water from the rotating cylinder and deflects it into the trough 29, where it is sub-
80 jected to removal by means of the siphon 30 extending into and through said hollow shaft from the discharge water chamber 31 adjacent to the said steam inlet chamber. The siphon 30 within the hollow shaft 20
85 extends into the cylinder 15 and is there downwardly turned by means of the section 32 into the trough 29 from which the water is siphoned.

It will be seen that the water in the trough
90 is quiet therefore there is no disturbance at the mouth of the inlet section 32 of siphon consequently there is no resistance to interfere with a constant and quiet discharge.

In Figure 3 the scroll 33 is slightly mod-
95 ified and the scoop section 34 extended to bring the inturned trough section 35 above the shaft 20, where the whole scroll is supported by the upturned bracket 36 rigidly secured to the shaft 20, otherwise the in-
100

vention is precisely the same in regard to its operation and its collection of the condensation water.

What I claim is:—

- 5 In paper drying machines, a rigid hollow shaft having perforations adapted to emit steam, a cylinder rotating about said shaft, brackets forming hangers and rigidly secured to said shaft, at intervals within
10 said cylinder and suitably braced, an

elongated scroll forming a water catcher and trough and fixedly secured to said shaft and a siphon extending through said shaft and into said trough and adapted to remove the water of condensation from 15 said cylinder.

Signed at Montreal, Canada, this 11th day of April, 1927.

ALBERT D. HARRISON.