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AUTOMATIC DAMPER OPERATING DEVICE FOR DRYING MACHINES

Filed Aug. 18, 1926

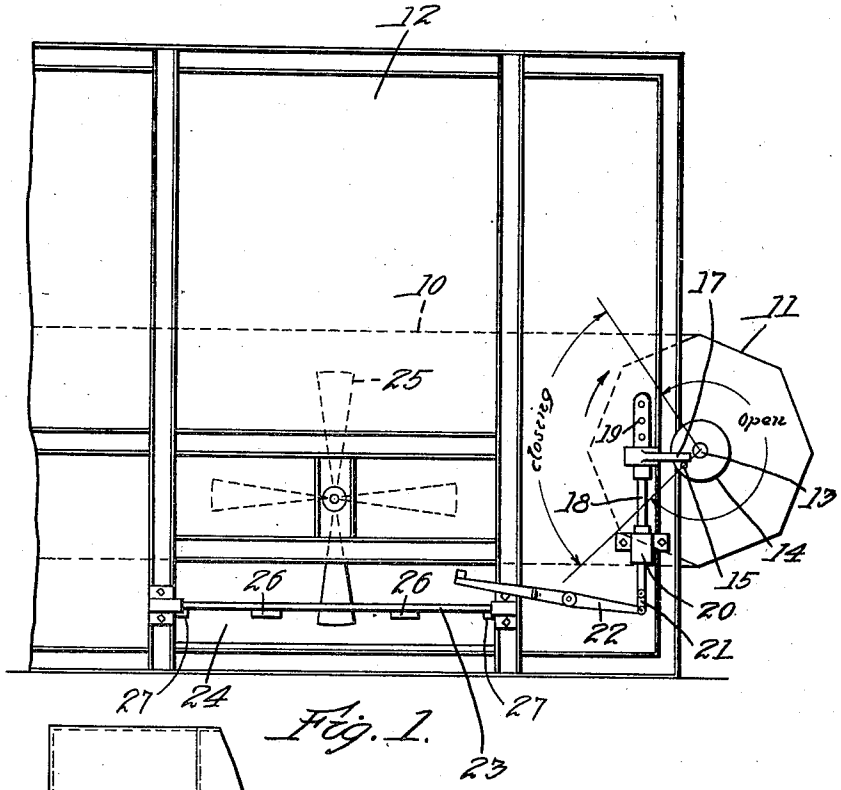

Fig. 1.

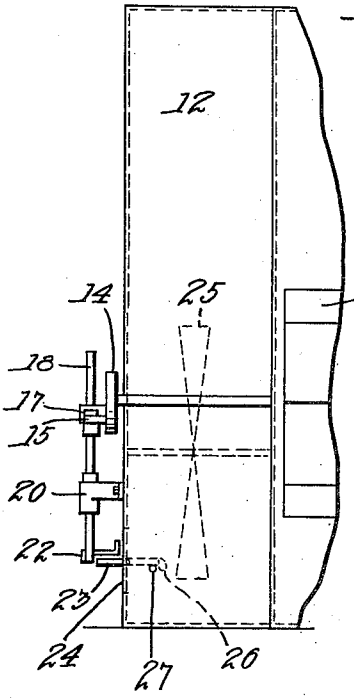

Fig. 2.

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AUTOMATIC DAMPER-OPERATING DEVICE FOR DRYING MACHINES.

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This invention relates to a machine for drying wool or other textile fibres or other materials.

The principal objects of the invention are to provide means whereby the operation of the exhaust fan, although continuous, will be prevented from exhausting the air when it is comparatively dry and thus avoiding the loss of heat and fuel in that manner.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings in which

Fig. 1 is a side view of the end of a drying machine showing a preferred form of my invention applied thereto; and

Fig. 2 is a fragmentary end elevation of the same.

This invention is shown as applied to a type of drying machines in which an endless apron 10 runs over a drum 11 at one end and is carried by a similar drum at the other end. The apron is located in the drying chamber 12. These drums are driven at constant speed. On the shaft 13 of the drum 11 is located a disc 14 having an eccentric pin 15. This pin obviously rotates once for every revolution of the drum and for the travel of the apron a distance equal to the circumference of the drum.

Every time the pin 15 rotates through the angle marked "closing" in Fig. 1, it raises an arm 17 which is adjustably fixed to a rod 18 through bolt holes 19 on the rod. This rod is mounted to slide in a bearing 20 or bracket fixed on the outside of the drying machine. It is connected at the bottom by a link 21 with a lever 22. This lever is offset so as to engage a damper 23 which is pivoted on a longitudinal axis and constitutes means for closing or partially closing an opening 24 through which the air is discharged by an exhaust fan 25.

It will be obvious that the raising of the arm 17 by the pin 15 lowers the free end of the lever 22 and depresses the damper 23 so as to bring it to the closed position. This closes the damper and prevents the air from being forced out by the fan but, on the contrary, necessitates the circulation of the air inside the drier instead. When the drum has rotated through the angle indicated as closing, the pin 15 pulls away from the arm 17 and has no further influence upon it. At that time weights 26 open the damper until it rests on the stop pin 27 and the moist air is allowed to be discharged without hindrance.

It will be seen therefore that the objection that the exhaust fans have been heretofore continuously pumping the air out of the machine and wasting the heated dry air, which it is desirable to retain, is overcome. The length of time the damper has to remain open to exhaust the damp air can be determined by experiment and the parts are designed, or adjusted through the holes 19, to provide for this amount.

It will be seen that it is timed so that the damper remains open a period of time long enough to allow the moisture that has been accumulated to be discharged. Then the damper closes and no air escapes until such time as the air is again saturated with moisture. At this time the damper opens and discharges the moisture laden air for a predetermined period. It will be understood that in the larger size machines, it is necessary to have more than one moist air outlet but only one is shown herein.

Although I have illustrated and described only a single form 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 details of construction herein shown and described, but what I do claim is:—

1. In a drying machine, the combination with the drying chamber, of an exhaust fan, an air outlet adjacent to the fan, and a damper for the air outlet, of an apron for supporting the material, a drum for carrying the apron, and means on the drum for closing said damper during a part of each revolution of the drum to prevent the exhaust of the air before it is sufficiently laden with moisture.

2. In a drier, the combination with an exhaust fan for taking out the moisture laden air and an outlet therefore, of a damper for controlling the opening of said outlet, said damper being arranged normally to remain open, a lever adapted to engage the damper and close it when the lever is depressed, a rod connected with said lever, an arm adjustably mounted on the rod, and means con-

trolled by the operation of the drier for periodically raising the rod and opening the damper.

3. In a drier, the combination with an exhaust fan for taking out the moisture laden air and an outlet therefor, of a damper for controlling the opening of said outlet, said damper being arranged normally to remain open, means adapted to engage the damper and close it, and means controlled by the operation of the drier for periodically actuating said means and opening the damper.

In testimony whereof I have hereunto affixed my signature.

FREDERICK G. SARGENT.