

H. W. JENKINS.

Improvement in Apparatus for Drying Wadding Paper, &c.

No. 130,133.

Patented Aug. 6, 1872.

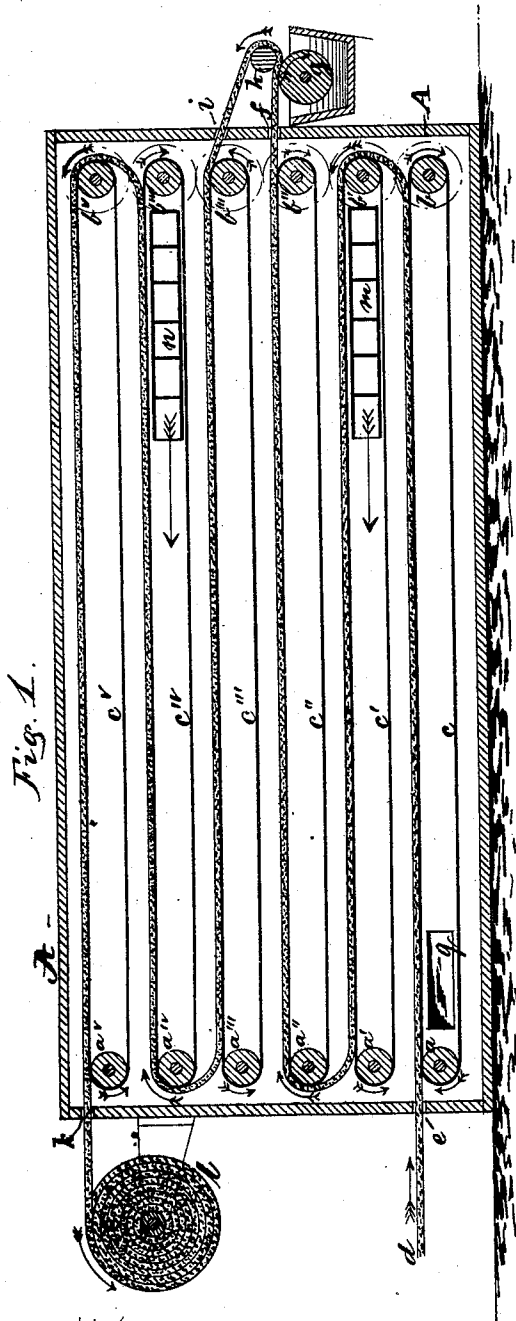


Fig. 1.

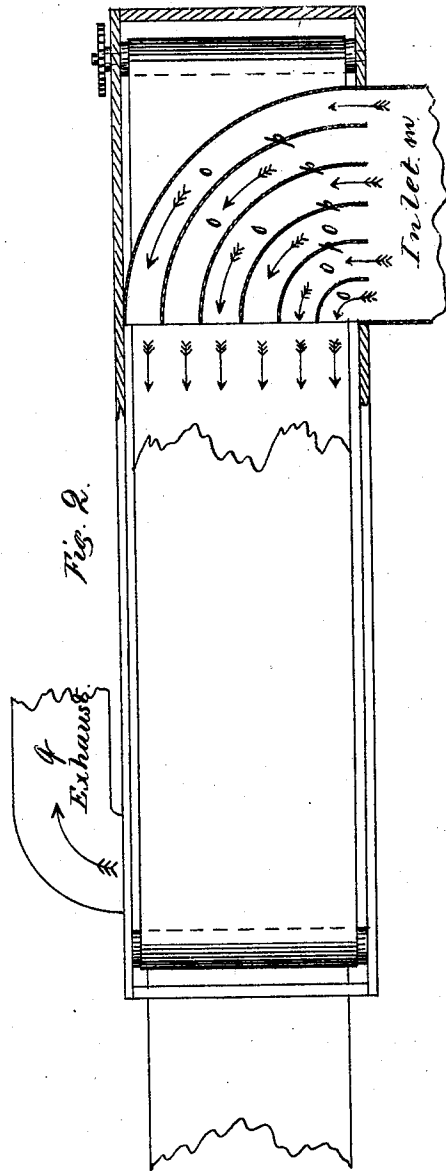


Fig. 2.

Witnesses:
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Inventor:
Henry W. Jenkins
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UNITED STATES PATENT OFFICE.

HENRY W. JENKINS, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN APPARATUS FOR DRYING WADDING, PAPER, &c.

Specification forming part of Letters Patent No. 130,133, dated August 6, 1872.

I, HENRY W. JENKINS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Machines for Drying Wadding, Paper, &c., of which the following is a specification:

Nature and Objects of the Invention.

The nature of my invention relates to certain new and useful improvements in machines for drying wadding, paper, or other goods of a kindred nature; and consists in the employment of a number of traveling endless belts, inclosed in a suitable room or box, on which the wadding, &c., is carried. Hot or cold air is forced in the room or box through a suitable aperture or apertures, so as to be conducted horizontally, or nearly so, between two successive folds of the wadding, &c. The said apertures may be made between the upper and lower part of the same belt, or between the upper part of one belt and the lower part of the belt next above it; but in both cases I introduce the air between two successive folds of the wadding, &c., by which arrangement the air will come in immediate contact with the same surface of the wadding twice instead of only one time, as formerly done. After one side of the bat is sized and dried I size the other side of it and return it to the drying-room to be acted upon by a second blast of air, and to be carried, by means of another series of endless belts, in the same manner as the first side was operated. I may introduce the hot or cold air at any part of the room or box; but in all cases I intend to give to the air thus introduced a horizontal direction, or nearly so, or, in other words, very near parallel to the plane in which the wadding, &c., is moved. The air, after having done service in the drying-chamber, is returned to the blower again, so that the heat it may retain may not get lost, but may be used over and over again till such a time as it may be fully saturated with moisture, when I must necessarily introduce fresh air to the blower and heater if such a heater or blower is used.

On the drawing, Figure 1 is a longitudinal section of my invention, and Fig. 2 is partly a ground plan and partly a horizontal section over the inlet-pipe.

Similar letters refer to similar parts wherever they occur on the drawing.

A is a closed box or chamber, in which a

series of rollers, $a a'$, $b b'$, is movable in bearings in the sides of the said box or chamber A. Endless belts $c c'$, made either solid or perforated in a suitable way, are carried over the pair of rollers $a b$, $a' b'$, for the purpose of carrying the wadding, &c., during the drying of the same. The respective motions of the belts and rollers are indicated by means of arrows on the drawing. The bat d is made to enter the chamber A through an aperture, e , after first having been glazed on its upper side by means of suitable apparatus therefor, and is conducted over the roller a and endless carrier c to the opposite end of the chamber A, where it is conducted upward over the roller b' and carried back again in a horizontal direction as far on the belt c' as to the roller a' , where it is again conducted upward over the roller a'' , and in a horizontal direction on the belt c'' to the roller b'' , where the bat is conducted out through an aperture, f , to a suitable pair of glazing-rollers, $g h$, where the under side of the bat is glazed. From the roller h the bat is returned to the chamber A through another aperture, i , and is now conducted over the roller b''' and carried on the endless belt c''' , with the glazed side on the top, to the roller a''' , where it is conducted upward over the roller a^{iv} , and from there in a horizontal direction on the belt c^{iv} as far as the roller b^{iv} , where it is conducted upward over the roller b^v and carried back in a horizontal direction on the last belt c^v as far as the roller a^v , where the now ready wadding is carried out through an aperture, k , in the box A, to be rolled upon a suitable roller, l , in the usual way. The hot or cold air is forced into the chamber A at a suitable place, m , between the first and second folds of the bat, and conducted in a horizontal direction between the said first and second folds, as shown, by which arrangement I gain the advantage of getting the air in immediate contact with the wet and glazed side of the bat twice in succession, with only half the length of the chamber A compared with other machines now in use for this purpose. It will be observed that the bat enters the drying-room A with the wet and glazed surface upward, and as it is conducted over the roller b' onto the belt c' the original upper side becomes the under side, and as the air-inlet m is between the first and second folds the same wet surface is twice brought in con-

tact with the heated air. When the bat is carried on the belt *c''* it is still more dried, as the hot air pervades the whole chamber, and the original upper side of the bat is now again the upper side; and I now proceed to glaze the under side of the bat by means of the aforesaid rollers *g h*, and conduct it in the chamber *A* with the wet side uppermost, and proceed to dry this second side by means of hot air forced from the inlet-pipe *n* placed between the belts *c'''* and *c''v*, where the same wet surface is twice brought in contact with the hot air, as heretofore described.

I do not confine myself to any particular part of the chamber *A* to introduce the hot air from, excepting that I introduce the air between two successive folds of the bat in one or more places. For convenience' sake I have made the inlets *m n* on the side of the chamber *A*; and, for the purpose of conducting the air thus introduced evenly in a horizontal direction between the successive folds of the bat without creating any unnecessary currents, I have divided the inlet-pipes *m n* in a number of curved divisions, *o o o o o*, by means of gently-curved walls *p p*, by which arrangement the air is forced evenly over the whole width of the bat at the same time in a direction as indicated by the arrows on the drawing. The air is forced in the inlet-pipes *m n* from a suitable blower and heater, and after the air has done its work in the chamber *A* it is exhausted through one or more exhaust-pipes, from which the air is again returned to the blower and heater that is used, by the arrangement of which I am able to feed the blower and heater with partially-heated air

and thus save both time and fuel. When the exhaust air from the pipe or pipes *g* is so saturated with moisture that it cannot take up any more I feed the blower and heater with fresh air, as usual.

From the above it will be seen that I am able to dry a great deal quicker, and with only about half as long a drying-chamber, *A*, as formerly required, where the hot air was only brought in contact with one side of the wadding or other suitable material; and by using the exhaust air over again and reheating it again I am able to gain some saving in fuel over the ordinary way.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent, and claim—

1. A drying apparatus provided with a series of rollers and endless belts, in which hot or cold air is forced between two successive folds of the wadding, &c., in a horizontal direction, or nearly so, as and for the purpose described.

2. The construction and arrangement of the inlet-pipes *m n*, divided in a number of curved channels, *o o o*, by means of the curved walls *p p p*, or their equivalents, as and for the purpose set forth.

3. The process, as herein described, of using the exhaust air, to be returned to the heater and blower and to force it again through the inlet-pipes in the drying-chamber, in a manner and for the purpose set forth.

HENRY W. JENKINS.

Witnesses:

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