

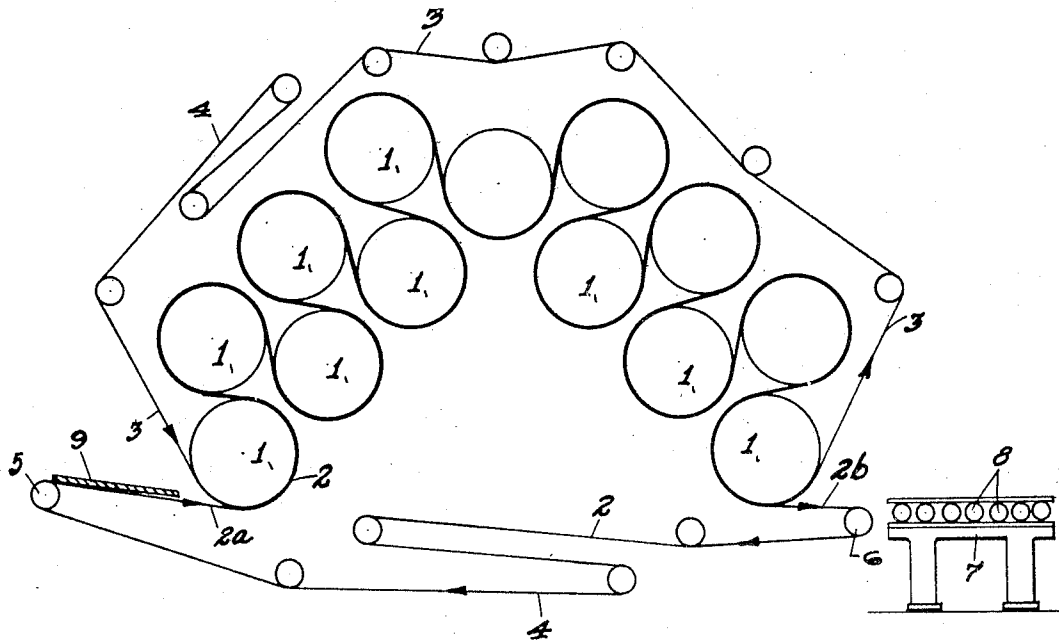
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PROCESS OF DRYING LAMINATED PAPER MATERIAL OR BOARDS

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PROCESS OF DRYING LAMINATED PAPER
MATERIAL OR BOARDS

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1 Claim. (Cl. 34—24)

The present invention relates to the manufac-
ture of laminated paper material known in the art
as "boards" of various kinds, such as have been
made by building up layers of paper on a wet
5 machine until the desired thickness of board is
secured, or by superposing separate sheets of
paper with adhesive therebetween. The object
of the present invention is to provide an im-
proved process of drying sheets of paper boards
10 in such a manner as to deliver the dried boards
in flat condition.

In the manufacture of paper boards of various
kinds, as previously carried out, it has been cus-
tomary to dry the separate sheets by merely
5 hanging the same so as to be suspended in the
air, and it has been found that this manner of
drying the sheets often causes them to warp and
twist out of shape. Since any appreciable warp-
ing or twisting of the sheets of board renders
20 them unsuitable for commercial use, it has heretofore
been necessary to flatten the sheets after
drying, thereby adding materially to the cost of
production.

According to the present invention, there is
25 provided an improved process of drying built up
paper boards of various kinds characterized by
the progressive drying of the boards while pre-
venting any warping or twisting of the same, so
that the dried boards are delivered in flat con-
30 dition. The above and other advantageous fea-
tures of the invention will hereinafter more fully
appear from the following description with refer-
ence to the accompanying drawing, the single
figure of which is a diagrammatic representa-
35 tion of one arrangement of instrumentalities for
carrying out the process.

Referring to the drawing, a number of rotatably
mounted drying cylinders 1, 1 are provided,
40 around which pass drying aprons 2 and 3, pre-
ferably composed of felt. The aprons 2 and 3
pass back and forth between the cylinders 1, 1
in contact throughout, suitable tension devices 4
being provided above and below the cylinders for
45 keeping the aprons taut. The lower apron 2 ex-
tends beyond the front cylinders 1, where it
passes around a guide roll 5, thereby providing a
board receiving portion 2a that is entirely free
from the downwardly moving upper apron 3.
50 The other end of the apron 2 is extended beyond
the rear cylinders 1 around a guide roll 6 to pro-
vide a horizontal delivery portion 2b in substan-
tially the same plane with a suitable delivery
table 7 shown as comprising a number of spaced
55 rolls 8. The several drying cylinders 1, 1 are

adapted to be heated in any suitable manner, as
by the admission of steam thereto.

In carrying out the process of the present in-
vention by means of the arrangement of appa-
ratus described above, sheets of board 9 such as
60 have been formed on a wet machine by building
up layers of paper, or such as have been formed
by superposing separate sheets of paper with ad-
hesive therebetween, are delivered one by one in
a moist condition to the receiving portion 2a of
65 the lower drying apron 2. Movement of the re-
ceiving portion 2a of the apron in the direction
of the arrow will carry each board 9 into the
bight between the two aprons 2 and 3 as the
aprons pass around the lowermost drying cylin-
70 der 1. As the sheets of board 9 enter between
the aprons 2 and 3, the sheets are held tightly in
place, without any possibility of warping or twist-
ing, and are maintained in this condition as the
aprons pass around the drying cylinders 1. It is
75 evident from a consideration of the drawing that
the cylinders 1 are arranged in such a manner
that first one side and then the other of each
sheet of board is curved around a drying cylin-
der, so that the drying takes place evenly due to
80 the reversal of the sheet with respect to the heat-
ed surfaces of the cylinders. Throughout the
travel of each sheet of board, it is never sub-
jected directly to the heated surface of a cylin-
der, due to one or the other of the interposed
85 aprons which extract the moisture of the boards
and evaporate the same.

Obviously, the evaporation of the moisture
taken up by each apron is carried out evenly,
since portions of first one apron and then the
90 other are alternately exposed to a heated cylin-
der and then to the air as they pass around the
cylinders. It has been found that the pyramidal
arrangement of the drying cylinders, as shown
on the drawing, insures a maximum degree of
95 contact between the aprons and the cylinders,
with opportunity for the surfaces of both aprons
to be subjected to the drying action of the air,
both above and below the cylinders.

After passing completely through the rolls
100 while confined between the drying aprons 2 and
3, each sheet of board 9 emerges from between
the bight of the aprons at the lowermost cylin-
der 1 and runs out in an absolutely flat condition
to the horizontal delivery portion 2a of the lower
105 apron. By this time the sheet of board is thor-
oughly dry, and the movement of the apron por-
tion 2a in the direction of the arrow delivers
each board to the table 7 in an absolutely flat
condition.

From the foregoing, it is apparent then that by the present invention there is provided an improved process of drying built up paper boards of various kinds, so that each sheet of board is delivered thoroughly dried and in a flat condition. Furthermore, each sheet of board resulting from the practice of the process is of uniform character throughout, owing to the travel of the board between the aprons with first one side and then the other subjected to the drying effect of a heated cylinder. While I have shown a preferred arrangement of apparatus for carrying out the invention, obviously such apparatus is susceptible of modification without departing from the principle underlying the process, as set forth in the appended claim.

I claim,

A process of drying sheets of built up paper board, which consists in delivering each sheet in a moist condition between a pair of drying aprons moving in unison and engaging the sheet on opposite sides to prevent any warping or twisting thereof, movement of said aprons being accompanied by extraction of moisture from said sheet and uniform flexure of the sheet, first in one direction and then in the other and the travel of each sheet between said aprons being followed by its delivery in a dry, flat condition.

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