MOLDING SHEETS OF WOOD

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Original application October 8, 1937, Serial No.
160,635. Divided and this application November
9, 1937, Serial No. 173,574. In Germany
November 14, 1936

2 Claims. (Cl. 144—239)

This invention relates to the bending of wood and
more especially to novel means for dry-
bending wood panels and the like.

In my patent of the U. S. No. 2,189,078, of
which this application is a division, I have dis-
closed a dry-bending process which comprises
preheating uniformly the inner side of substantially
the entire part to be bent of an inwardly
dry panel so as to build up therein a tempera-
ture gradient with the highest temperature on
the inner side of said part whereby to render the
wood on this inner side compressible, and imme-
diately thereafter and while the wood still retains
substantially that temperature, bending the part
thus preheated.

The purpose for thus preheating the wood dis-
closed in the specification of that patent are
heating plates dimensioned to heat not only a point
or a narrow zone of the panel, but to uni-
formly and evenly apply heat to the entire sur-
face of the flat panel part to be bent; for even
and uniform preheating of the flat panel, before
it is bent, is a condition for the perfect perfor-
mane of the dry-bending process there disclosed.

According to the present invention now the
heating plates disclosed in the patent are re-
placed by a layer of hot gas in direct contact with
and extending over the entire inner surface of
the panel part about to be bent so as to evenly
and uniformly heat the entire surface and the
wood layers adjoining it to the temperature at
which they become compressible.

The preheating of the wood by means of an
extended hot, dry gas layer, (which of course
should not be a burning gas) instead of by
means of heating plates, offers great advantages,
both in technical and economical respects. The
transmission of heat from a metal plate to a
wood panel contacting it is always unsatisfactory
owing to the insulating effect of the layer of air
inevitably preventing perfect contact between the
two surfaces which are never altogether plane.
In contradistinction thereto heat transmission
from a hot gas layer is excellent in view of the
perfect contact established between the gas and
the wood. Besides this, while wood panels of
different length also require heating plates of
different size, a gas layer can easily be length-
ened by causing a gas current to travel in a con-
nuous current along a wood surface of varying
length. Owing to the more perfect heat trans-
mission the bending temperature which is well
above the boiling point of water is reached in a
fraction of the preheating period required with
heating plates. Thus the use of dry, hot gas lay-
ers greatly improves the economy of the dry-
bending process.

In the drawing affixed to this specification and
forming part thereof a device embodying my in-
vention is illustrated diagrammatically by way of
example in elevation, partly in cross section.

In the drawings:
Fig. 1 is an elevation, partly in cross-section,
of a heating and bending device according to this
invention, and
Fig. 2 is a perspective view of this device.

Referring to the drawing, 1 is a rotary mold
and 2 is the axle on which the mold is arranged
to rotate. The axle is surrounded with a clear-
ance by a pipe 3 for hot gas with a branch pipe 4
for feeding such gas or steam into the interior of
the mold, and a plurality of branch pipes 5, 6
opening into the cylindrical mold surface and
forming nozzles directing the hot gas against the
bottom surface of the panel 14 to be bent, which
is mounted between the side walls of a heating
box 7, open on top and equipped with a pipe 8
and exhaustor 9 for the gas. 10 is a pipe in
the mold wall serving for the exhaust of the
mold heating gas, the mold constituting a side
of the heating box. When the panel, gripped by
a gripper 11 on the mold, has been heated up
and has become pliable, the mold is rotated, when
it will carry the panel along and wind it up.

The mold is here shown as being rotated by
means of coil springs 13 acting on lever arms 12
fixed to the mold axle, but any other means,
including weighted levers, cranks, motors, etc.
may be provided for this purpose. Instead of a
cylindrical mold a mold of non-cylindrical and
more particularly polygonal section may be used.

In the foregoing specification and the ap-
ended claims, the term “dry-bending” is in-
tended to refer to the bending of inwardly dry
panels, as distinguished from the bending of
panels which have been rendered pliable by
thorough impregnation with moisture, e. g. by
boiling and/or steaming; and the term “wood
panels” is intended to include all kinds of blanks,
such as boards, strips and the like, composed of
wood fibers, including composite materials of
wood and a binder, such as plywood.

Various changes may be made in the details
disclosed in the foregoing specification without
departing from the invention or sacrificing the
advantages thereof.

I claim:
1. A device for dry-bending wood panels or the
like comprising in combination, a heating cham-
ber open on one side and adapted to be closed on
that side by the panel to be bent, means for filling said chamber with hot gas adapted to heat the entire inner side of the panel part to be bent, and means arranged at one end of said heating chamber for bending the panel in the heated state.

2. A device for dry-bending wood panels or the like comprising in combination, a heating trough open on top, means for holding a panel down on said trough, bending means near one end of said trough and constituting a side of said trough, and means for filling said trough with hot gas adapted to heat the entire inner side of the panel part to be bent to the temperature at which said part becomes sufficiently pliable to allow being bent by said bending means.

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