

H. PARKER.
Wood-Drying Apparatus.

No. 202,957.

Patented April 30, 1878.

Fig. 1.

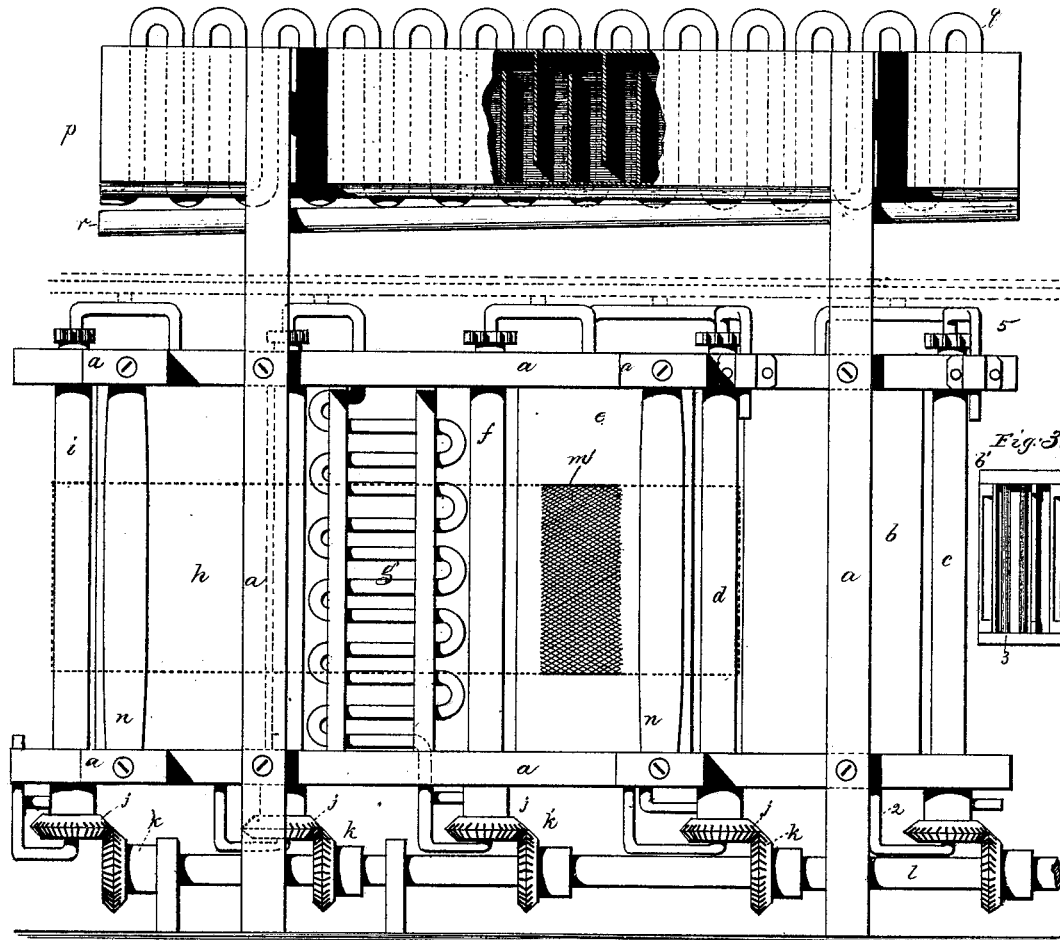
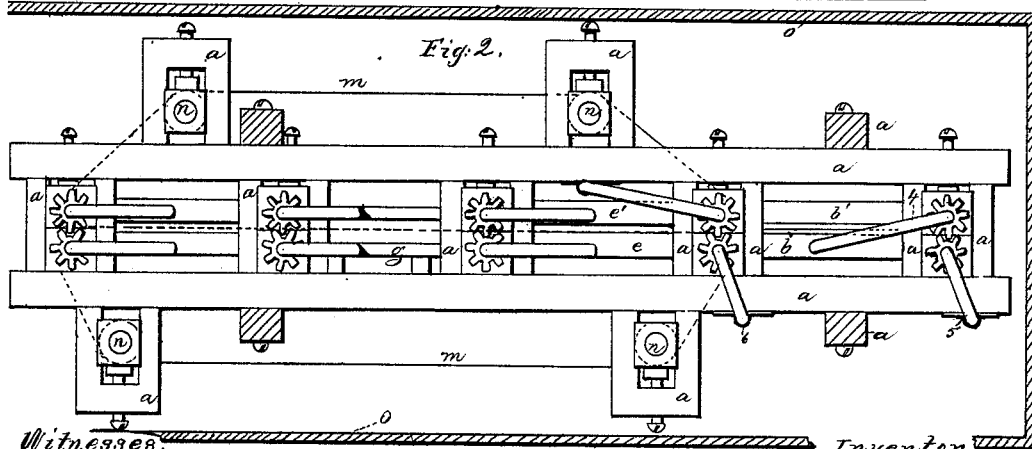


Fig. 3.



Fig. 2.



Witnesses:

L. H. Leatimer,
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Harrison Parker
per Crosby & Gregory attys.

UNITED STATES PATENT OFFICE.

HARRISON PARKER, OF WINCHESTER, MASSACHUSETTS.

IMPROVEMENT IN WOOD-DRYING APPARATUS.

Specification forming part of Letters Patent No. 202,957, dated April 30, 1878; application filed August 21, 1877.

To all whom it may concern:

Be it known that I, HARRISON PARKER, of Winchester, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Wood-Drying Apparatus, of which the following is a specification:

This invention relates to apparatus for drying wood, such as veneers and "thin stuff," and consists in the combination of a series of steam-heated press-plates of small area with a series of feed-rollers, preferably, but not necessarily, made hollow and heated by steam, and with a series of steam-pipes, the space between which affords egress for the steam generated by the action of the hot pipes upon the wood. These devices will, preferably, be used in an inclosed chamber, within which is arranged a series of pipes, or a case containing cold water, so as to condense the vapor arising from the wood being dried. At the receiving end of the apparatus is arranged a steam-chest, adapted, when it is desired so to do, to discharge free steam against the sides of the wood, to assist in starting or flowing the sap or natural moisture contained therein.

In some instances, and for some classes of wood, I employ an endless perforated or open belt or band, preferably of wire cloth or metal, interposed between the wood to be dried and the heated plates or rollers or pipes, the band traveling with the wood. It is often desirable to arrange a hot press-plate upon one face of the wood, and a series of heated pipes upon the other side.

Figure 1 represents, in side elevation, one form of my improved apparatus for drying wood, some parts being shown in section and others only partially shown, to avoid confusion; Fig. 2, a plan view, with the condensing apparatus at the top of Fig. 1 removed; Fig. 3, a view of the end of the machine, looking at the right of Fig. 1, the size being reduced.

The frame *a* of the machine is made of proper shape to sustain the working parts. The material to be treated is moved from end to end of the apparatus between the pairs of hot plates, rollers, &c. It is assumed that this apparatus, at one side of this central passage, is a duplicate of that at the other.

At the receiving end of the apparatus are arranged two steam-chests, *b b'*, their interior

faces being open, as shown at Fig. 3. Steam is admitted therein through pipe 2, it being connected with the hollow roller *c*, supplied with steam from a suitable source through a pipe, 5. The steam, circulating in the space within the chests *b b'*, meets the faces of the wood, and moistens and softens the sap and otherwise cures it, as is well known. The steam is prevented from escaping by means of packing placed about the edges of the chest, the packing meeting the wood in its passage. Small rollers 3 may bear against the wood. A pipe, 4, leads the steam from the chest *b b'* into the back one of the pair of rollers, *c*.

The wood, after passing the steam-chests, passes between a pair of preferably hollow steam-heated feeding-rollers, *d*, the front roller of the pair (it being shown in Fig. 1) receiving steam from a pipe, 6. In front of these feeding-rollers is a pair of adjustable hollow steam-heated plates, *e e'*; then follows another pair of preferably heated rollers, *f*; then a system of steam-pipes, *g*; then another pair of steam-heated hollow plates, *h*; and, finally, another pair of rollers, *i*. The rollers and hollow plates and pipes may be connected one with the other, so that the steam may flow continuously from one to the other. The axes of the rollers are mounted in adjustable plumber-boxes. Bevel-wheels *j* on the rollers are engaged by bevel-wheels *k* on a rotating shaft, *l*. I may place a hollow steam-heated plate, like *e'*, opposite a system of heated steam-pipes, *g*, the wood passing between them.

In some cases I shall cover the outer sides or backs of the heated plates with asbestos, to prevent undue waste of heat. The pipes leading steam into the rollers are fitted loosely into the axis of such rollers, but packed to remain steam-tight.

To afford the steam generated in the wood an opportunity to escape at each side thereof, I add at each side the frame a belt, *m*, (shown in Fig. 2, and partially in Fig. 1,) each belt extending about rollers *n*, and between the pairs of plates, rollers, &c. These belts are made of a perforated material, preferably wire-gauze or metal. The steam issuing from the cells of the wood readily passes through such belts.

Above the drying apparatus, which will preferably be contained within an inclosing-

case, *o*, is arranged a condensing apparatus, which may be made as a hollow metal plate, *p*, provided with cold-water passages, or of bent pipe *q*, containing cold water. The steam rising from the wood, meeting the colder surface of the condenser, is condensed and runs therefrom into the trough *r*, from which it is discharged outside the case *o*.

I am aware that driers having a series of heated rollers and a series of heated plates, and an endless apron passing between them, are old.

I claim—

1. In an apparatus for drying wood, the combination of a series of pairs of heated plates, a series of pairs of rollers, and a series of steam-pipes, arranged with intervening spaces, substantially as and for the purpose described.

2. The combination, with heated plates, of a steam-chest and feeding-rollers, to operate substantially as described.

3. The combination, in a wood-drying machine, of heated press-plates and a series of heated pipes, arranged at such distance apart as to admit of the escape of vapors from the wood, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

[HARRISON PARKER.

Witnesses:

G. W. GREGORY,
S. B. KIDDER.