J. HAZARD & J. GREENWOOD.

MACHINE FOR JOINTING STAVES.

No. 187,757. Patented Feb. 27, 1877.

Fig. 1.

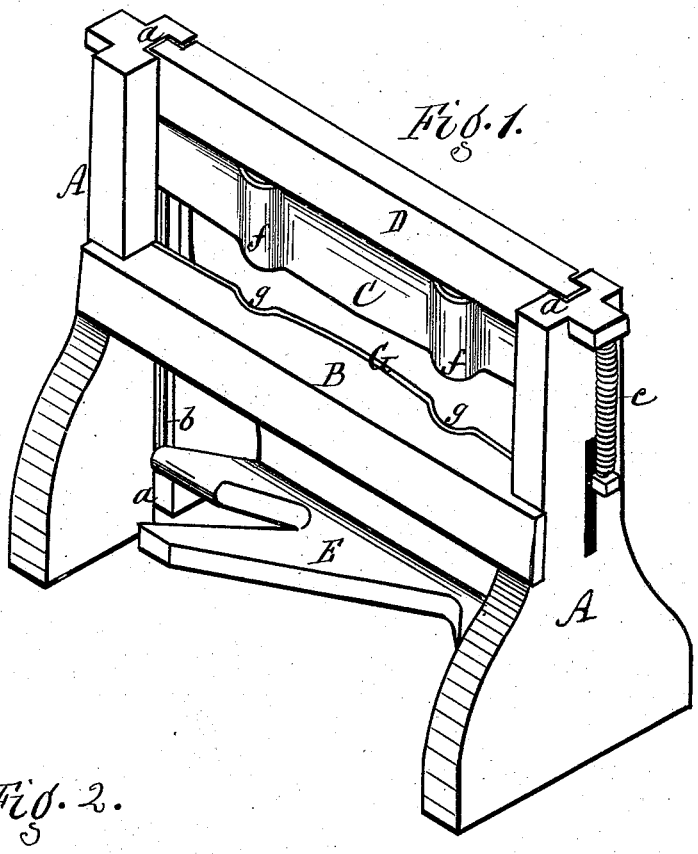


Fig. 2.

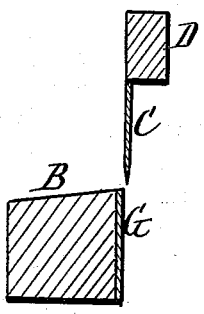


Fig. 3.

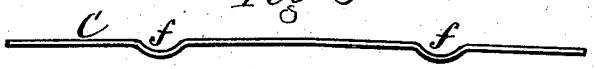
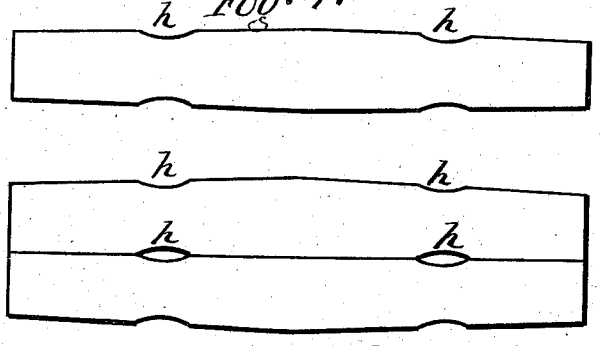


Fig. 4.



Witnesses.
Edwin Scott
Jacob Spahn

Inventors.
James Hazard.
John Greenwood
per R. T. Osgood
Atty.

UNITED STATES PATENT OFFICE.

JAMES HAZARD AND JOHN GREENWOOD, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN MACHINES FOR JOINTING STAVES.

Specification forming part of Letters Patent No. **187,757**, dated February 27, 1877; application filed December 11, 1876.

To all whom it may concern:

Be it known that we, JAMES HAZARD and JOHN GREENWOOD, both of the city of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Machines for Jointing Staves; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of the machine for jointing the staves. Fig. 2 is a cross-section of the knife and bed. Fig. 3 is an edge view of the knife. Fig. 4 is a view of several staves jointed in our improved manner.

Our improvement relates to means for jointing the staves of ventilated barrels for holding fruits, vegetables, and other perishable articles.

To this end the edges of the staves on the quarters are cut with notches or indentations, which, when the staves are set up, coincide and form holes at the top and bottom, which allow a free passage of air through the barrel.

Such barrels are already well known; hence we do not claim, broadly, notching the staves, as this has been done by cutting or sawing into the edges after the ordinary process of jointing has been accomplished.

Our invention has for its object to notch the edges of the staves in the act of jointing, thereby saving an extra operation, also producing smoother and better work.

A A represent the standards of the machine. B is the cutting-bed. C is the knife, and D is its gate, which moves up and down in ways *a a* in the opposite standards. E is a treadle, connected with the gate by rods *b b* at opposite sides.

By pressing upon the treadle with the foot the knife will be depressed, and joint the edge of the stave, which is placed upon the bed B.

c c are reacting-springs, at opposite sides, attached at one end to the frame, and at the other to the gate, which serve to raise the knife when the pressure is removed from the treadle. G is a metallic lining or shear on the inner edge of the bed, against or over which the knife passes in making its cut.

Thus far the machine is of ordinary construction.

Our invention consists in forming in the knife C and shear G offsets or swells *f g*, of curved form in cross-section, standing back from the plane of the cut, and so arranged, as shown, that when the knife is brought down to produce the cut they strike together, and thus cut a notch from the edge of the stave, as shown at *h* in Fig. 4. This is done in one and the same act of jointing the whole edge of the stave.

These offsets are so located on each side of the center as to cut the notches in the quarters of the barrel, and they are preferably made of ogee or curved form, so as to present no sharp or rough edges in the notches of the staves.

Heretofore, so far as we are aware, the notches have been formed by cutting or sawing after the ordinary jointing has been done, requiring a separate apparatus and another operation. The work is imperfectly done, as the edges around the notches are roughened, and are liable to be splintered.

By cutting the notches in the act of jointing we employ but one machine, produce but one operation, save labor and time, and leave the staves in good condition, with smooth edges and notches.

If desired, the ventilating-notches may be made in the bilge as well as the quarters.

Having thus described our invention, we do not claim, broadly, notched staves; but

What we claim is—

1. In a stave-jointer, the knife C and shear G, having the coincident offsets *f g*, for producing notches in the edges of the staves in the act of jointing, as herein shown and described.

2. The process herein described of notching staves in the act of jointing, by the employment of a knife and shear having offsets *f g*, operating as and for the purpose specified.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

JAMES HAZARD.
JOHN GREENWOOD.

Witnesses:
R. F. OSGOOD,
EDWIN SCOTT.