Bruner & Thompson,

Crozing Staves.

No. 2,852. Patented Nov. 12, 1842.

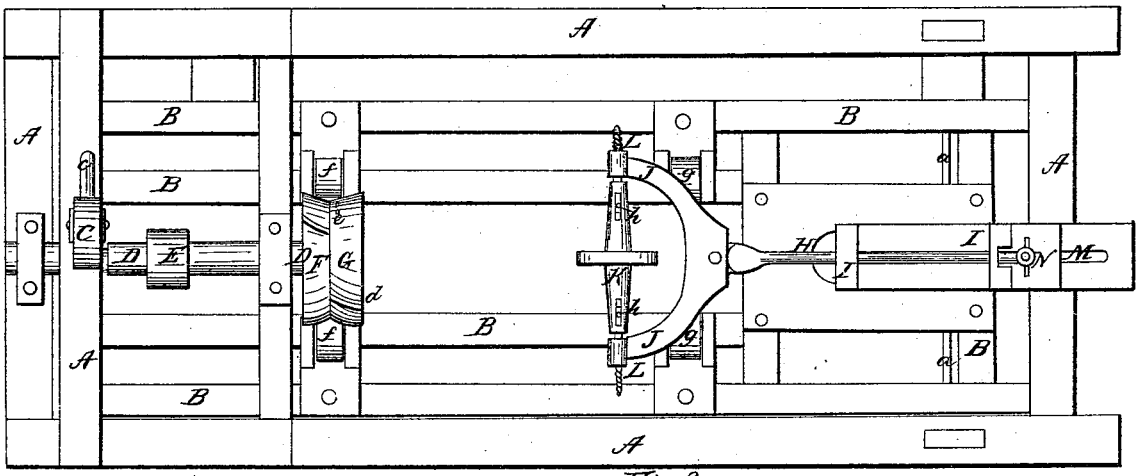

Fig. 2

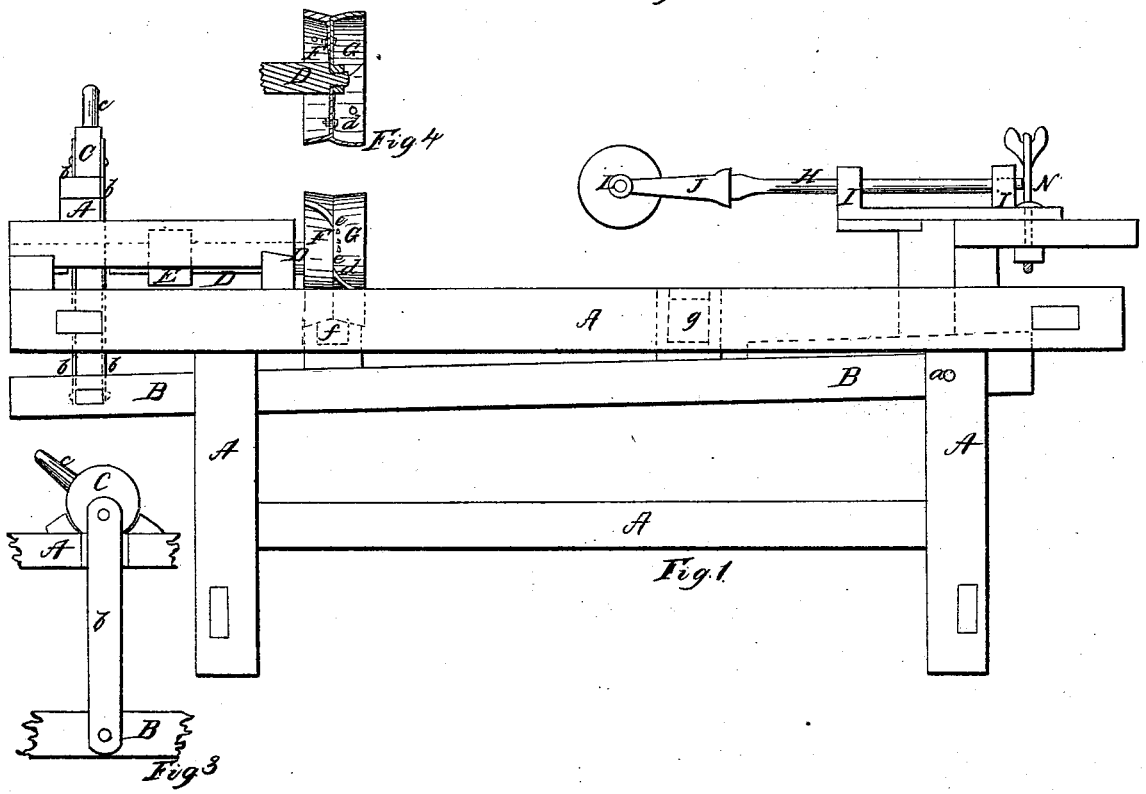

Fig. 1

Fig. 4

Fig. 3

UNITED STATES PATENT OFFICE.

J. H. BRUNER, OF MILFORD, AND R. M. THOMPSON, OF GRANVILLE, OHIO.

MACHINE TO BE USED IN COMBINATION WITH IMPROVED IRON TRUSS-HOOPS IN THE MANUFACTURE OF BARRELS AND OTHER COOPERS' WARE.

Specification of Letters Patent No. 2,852, dated November 12, 1842.

To all whom it may concern:

Be it known that we, JONATHAN H. BRUNER, of Milford, in the county of Knox, and ROBERT M. THOMPSON, of Granville, in the county of Licking and State of Ohio, have invented a new and useful machine to be used in combination with improved iron truss-hoops in the manufacturing of barrels and other coopers' ware, which machine we denominate the barrel-worker; and we do hereby declare that the following is a full and exact description thereof.

In the accompanying drawing, Figure 1, is a side elevation, and Fig. 2, is a top view, of our machine.

A, A, is the main frame, which, for barrels of the ordinary size, such as are used for the packing of pork, and for other purposes, may be about six feet and a half long, and two feet high. Within this frame, there is a second frame upon which the barrels are to be supported; this second frame may be about six feet in length, and of such width as will enable it to be received within the sides of the main frame; this second frame is shown at B, B. It is suspended within the main frame by means of a bolt, or joint pin, *a*, near one of its ends; and at its opposite end it is attached by means of a stirrup or iron straps, to an eccentric C, which may be six inches in diameter, and by the revolving of which that end of the interior frame may be raised, or lowered.

In Fig. 3, the eccentric is represented as resting in a hollow, formed on the top of the main frame A, and as connected to the movable frame B, by the stirrup, or straps, *b;* a handle *c*, is shown as attached to the eccentric C, for the purpose of turning it round.

D, D, is a mandrel which is supported by, and runs in, suitable collars on the main frame.

E, is a whirl by which the mandrel D, may be made to revolve. This mandrel carries the cutting apparatus by which the barrels are to be chamfered, howeled, and crozed. This apparatus is shown at F, G, and consists of revolving cutters affixed to stocks, which are best made of cast iron. These stocks are circular, and are formed in two parts which may be secured together by means of screws that pass through plates, or heads, at their line of junction with each other; or in any other convenient manner; when so joined together, they are open at each end, for the escape of chips; they are shown in section in Fig. 4. The part F, is that by which the chamfering is effected, and this we have made eight inches in diameter at its larger, and seven inches and a half at its smaller end, where it joins the howeling and crozing portion, G. The parts F, and G, may be each two inches wide; the rims we have made three eighths of an inch thick, and the heads, where they are joined together, three fourths of an inch. In the howeling part, we place two cutters *d*, opposite to each other; they should stand somewhat askew, and are to be confined in place by means of set screws, or in any other of the known ways of fixing and regulating such cutters. The howeling stock G, is made somewhat convex on its face, being about a sixteenth of an inch higher in the middle than at its edges, and its cutters are adapted to this form; its diameter at its edges is seven inches and a half; into this stock the croze bits *e*, are inserted, at the distance of about three eighths of an inch from the edge of the chamfering bits.

The barrel which is to be operated on by the cutters, rests upon four iron friction rollers on the top of the inner frame; these are shown at *f*, *f*, *g*, *g;* these rollers may be about two inches in diameter, and they may be made adjustable, to suit the size of the barrel to be worked.

At the fore end of the machine, we place a holder which is to sustain the end of the barrel opposite to that which is being acted upon by the cutters; which holder rests upon the inner frame, and is constructed in the following manner.

H, is a spindle of iron, which may be three fourths of an inch in diameter, and two feet long, and this is supported by a sliding head I, I′, of such height as to be in the same line with the axis of the mandrel D, which height is about equal to that of the semi-diameter of the barrel. The spindle H, works loosely in the head I′, the opening through it being a fourth of an inch, more or less, larger than said spindle, which is to be allowed to vibrate, or have lateral play, to a small extent.

J, J, is a bow of iron, which is attached to the spindle H, by a joint; this bow is of such length as to pass readily into the end of the barrel.

K, is a shaft which is hollow at each of

its ends, to receive two screw bolts L, L, that are tapped, one with a right, and the other with a left handed screw; this part working in nuts, or female screws, formed in the ends of the bow. The screw bolts are checked from turning in the sockets of the shaft, by pins *h*, *h*, passing through mortises; and then by turning the shaft K, the bolts will be protruded, or retracted. They are pointed at their outer ends, and when the bow has been passed into the barrel, they are forced against it so as to hold it as nearly centrically as may be. The head I, I′, is made to slide back and forth in a groove on its bed, M; and is held in place by a set screw N.

When a barrel is to be prepared for being chamfered, howeled, and crozed, it is be set up in the usual way, with truss hoops of wood; the head hoops are then to be removed and replaced by strong truss hoops of iron, made perfectly true, both on their outer and on their inner sides, and of sufficient strength to cause the ends of the staves to be bent to the proper curvature of the barrel; without which precaution the cutters would remove too much stuff from the staves, to the injury of the barrel. When the barrel has been thus prepared, it is laid upon the inner frame, B, B, with the iron hoops resting upon the friction rollers, the end to be worked being immediately under the cutters; the holder is then to be passed into the opposite end, the points of the screws forced into the staves, and the sliding head I, fastened by the set screw. The mandrel D, being put into motion by a band on the whirl E, or otherwise, the eccentric C, is to be turned by hand, so as to raise the barrel, and bring it into contact with the cutters, and to cause them to operate to the proper depth; the barrel is then to be turned once round, and the chamfering, howeling, and crozing will be completed; the same operation is then to be performed on the opposite end.

Having thus, fully described the nature of our improvements in the manufacturing of barrels, and shown the operation thereof, it is to be understood that we do not claim the use of revolving cutters, these being well known, and in use for many purposes; but

We do claim—

1. The combining the inner frame, having rollers to receive and support the barrel, with the outer frame, by hinging one end of it to said outer frame, and suspending the other to the eccentric, for the purpose and in the manner described.

2. We likewise claim the manner of combining and arranging the respective parts of the holder, consisting of its spindle, bow, revolving shaft, screw points, and sliding head; the whole being formed, and operating, substantially as set forth.

3. And, lastly, we claim the employment, in combination with said machine, of iron truss hoops, made perfectly true within and without, and of such strength as to enable them to give their own curvature to the ends of the staves.

J. H. BRUNER.
R. M. THOMPSON.

Witnesses:
ELIAS GILMAN,
MARIA SPELMAN.