2 Sheets—Sheet 1.

G. W. & G. C. GRODHAUS.

Machine for Crozing and Chamfering Staves.

No. 205,544. Patented July 2, 1878.

Fig: 1.

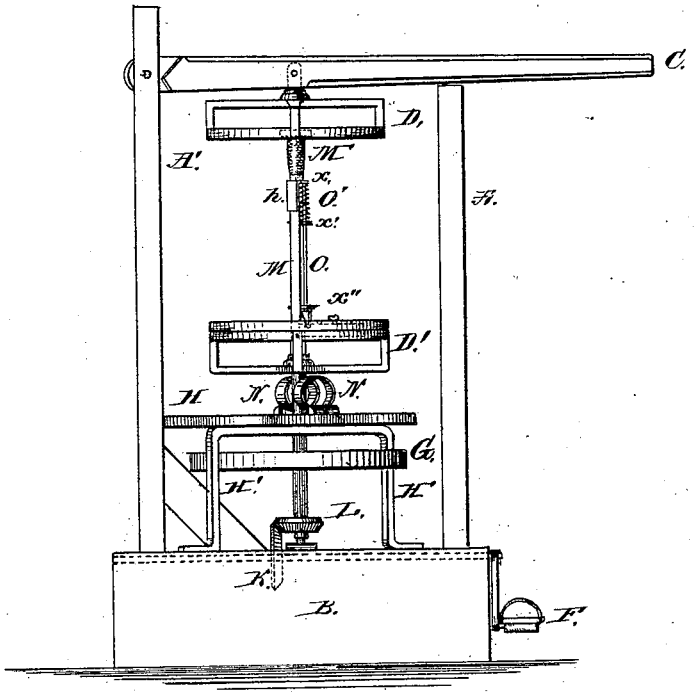

Fig: 2.

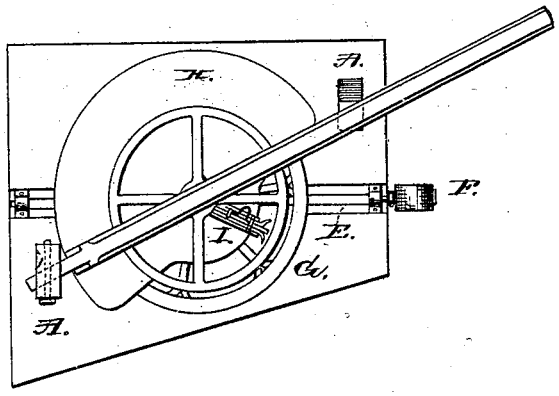

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Fig. 3.

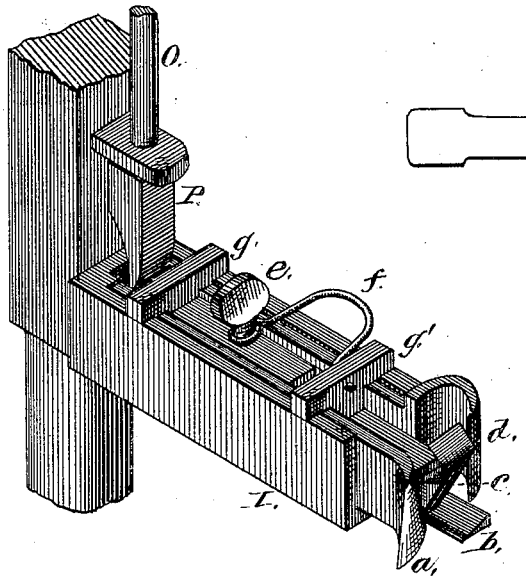


Fig. 4.

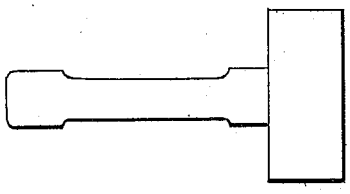
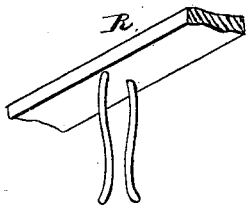


Fig. 5.



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GEORGE W. GRODHAUS AND GEORGE C. GRODHAUS, OF BELLAIRE, OHIO.

IMPROVEMENT IN MACHINES FOR CROZING AND CHAMFERING STAVES.

Specification forming part of Letters Patent No. **205,544**, dated July 2, 1878; application filed December 5, 1877.

To all whom it may concern:

Be it known that we, GEO. W. GRODHAUS and GEO. C. GRODHAUS, of Bellaire, in the county of Belmont and State of Ohio, have invented certain new and useful Improvements in Machines for Making Barrels, Kegs, and other Coopered Ware; and we do hereby declare that the following is a full, clear, and exact description thereof, that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

The same letters and figures of reference are used to indicate the corresponding parts.

After describing the invention, its nature and extent will be shown in the claims.

The object of our invention is to provide an improved machine for beveling, chamfering, and crozing barrels or kegs of any description, saving both time and labor, and producing a superior article of manufacture.

Our invention consists of an elevated platform, provided with two upright posts. To the top of one of said posts there is pivoted a lever. One end of said lever rests on the top of the other post, which is slightly shorter than the one first named. From this lever is suspended a disk, whose hollow frame-work receives the top of the barrel or keg. To the platform on which these uprights rest is attached a shaft, having bearings in the sides of the platform. This shaft is operated by a crank at one end of it, with a shoe attached to said crank. A bevel-wheel attached to this shaft engages with another bevel-wheel attached to a shaft placed at right angles, or in a vertical position, to the first-named shaft. To the vertical shaft is attached the tool-box, which contains the instruments for evening, beveling, and crozing the lower end of the barrel. To this shaft also is attached the frame-work of a second disk, the counterpart of the first-named disk, for receiving the lower end of the barrel.

But a more detailed description will appear farther on.

Figure 1 is a side view of my invention. Fig. 2 is a top view. Fig. 3 is a perspective view of the tool-box. Fig. 4 is a view of the hammer which I use for driving the hoops on the barrel. Fig. 5 is an enlarged view of the clamp to which one end of the top lever is attached before the barrel is placed within the disks.

A A′ are two upright posts which rise from the platform B. C is a lever, one end of which is pivoted to the post A′, the other end of which rests on the post A when the machine is in operation. A similar lever, with its suspended disk of hollow frame-work, is also hinged against the wall, back of the work-bench, and at the proper height from it, so that it may be used to force down the head truss-hoop of the barrel or keg without the aid of a hammer.

The disk D is suspended from the lever C, and receives and holds the barrel in position while it is being finished, and presses it against the tools in the tool-box.

In suitable bearings on the sides of the platform B is journaled the shaft E, to one end of which is attached the shoe F. The shoe F is weighted by its lower part being made of cast-iron and its upper part of wood. This is done that it may be more easily controlled by the foot.

The beveled cog-wheel K is rigidly attached to the shaft E. With the wheel K the beveled cog-wheel L engages. The wheel L is rigidly attached to the upright shaft M, which has a bearing in the platform B. The upright shaft M is kept in position by the supporting-braces H′ H′, upon which is the platform H, which it pierces at the top. The driving-wheel G is rigidly attached to the shaft M. The elevated platform H rests on the supporting-braces H′ H′.

N N are steel springs, which rest on the elevated platform H and on either side of the shaft M. The disk D′ and its depending frame-work is journaled to the shaft M, and rests on the springs N N. To the shaft M is fastened the tool-box I. The top of the tool-box I is open, except the bridges *g g′*, which are needed to hold the tools in position. In the tool-box I are the movable tools *a*, *b*, *c*, and *d*, used for evening, beveling, chamfering, and crozing the end of the barrel. These tools are kept rigid by two set-screws in the side of the tool-box. The croze-holder, containing the

croze-cutter *c*, is provided with the spring *f* on its upper part, as shown in Fig. 3.

When the croze-cutter *c* is needed for use it is driven out by the beveled key P. The key P is attached to the end of the rod O at one end, while the other end of the said rod O is firmly fastened to the handle M′. M′ is provided with the guide-plates *h*, which play over the handle M′. The helical spring O′ is held in place on the sliding rod O by the ears *x* x^1, through the latter of which it is journaled. By a similar ear, x^2, it is kept in place.

The upper end of the rod O is rigidly attached to the ear *x*, which is fastened to the lower end of the handle M′. The springs N N on the elevated platform are for the purpose of holding the disks or open frame-work, which receives one end of the barrel or keg, above the tools in the tool-box. By pressing on the lever C when the machine is in operation, the barrel or keg is gradually operated on by the tools in the tool-box.

Having now described the main features of our invention, we will proceed to explain its mode of operation.

The lever C is elevated and fastened to the clamp R, which is fixed in the ceiling overhead. The headless barrel or keg, which has been hooped at either end, is then placed over the shaft M. The lower end is placed within the disk D′, where it is finished. Having removed the lever C from the clamp R, the upper end is received within the disk D′ by allowing the disk D to drop down over the head of the barrel. Then the foot is placed in the shoe F and moves the shaft E, which, by means of the beveled cog-wheels K and L, causes the shaft M to revolve. This carries the tool-box I, with its accompanying tools, around the edge of the barrel, thus evening, beveling, and chamfering its edge. The hand is placed on the handle M′, pressing it downward and holding it firmly in that position. This causes the key P to press outwardly the crozing-tool *c*, which makes the proper channel in the end of the barrel for receiving its head. When the hand is removed from the handle the spring O′ raises the key P, and causes the crozing-tool *c* to recede to its former position. The barrel is then reversed, and the same operation is performed on the other end.

Having now fully described our invention and its mode of operation, what we claim, and desire to secure by Letters Patent, is—

1. The platform B, the springs N N, and the shaft M, in combination with the movable lever C, with its depending disk D, substantially as described, and for the purposes set forth.

2. The handle M′, provided with the guides *h* and the ear *x*, in combination with the sliding rod O, the helical spring O′, the key P, the shaft M, and the tool-box I, substantially as described, and for the purposes set forth.

3. The tool-box I, provided with the tools *a b c d*, the bridges *g g′*, the set-screw *e*, and the spring *f*, in combination with the shaft M, the handle M′, the sliding rod O, provided with the key P and the helical spring O′, the disk D′, and the springs N N, substantially as described, and for the purposes set forth.

4. The platform B, the shaft E, provided with the shoe F, and the beveled cog-wheel K, in combination with the shaft M, provided with the beveled cog-wheel L, the disk D, the lever C, the uprights A A′, the disk D′, and the springs N N, substantially as described, and for the purposes set forth.

In testimony that we claim the foregoing we have hereunto set our hands.

GEORGE W. GRODHAUS.
GEORGE C. GRODHAUS.

Witnesses:
C. C. CRATTY,
JOEL STRAHL.