

V. W. Houck,

Crozing Stares.

No 35,519.

Patented June 10, 1862.

Fig. 1

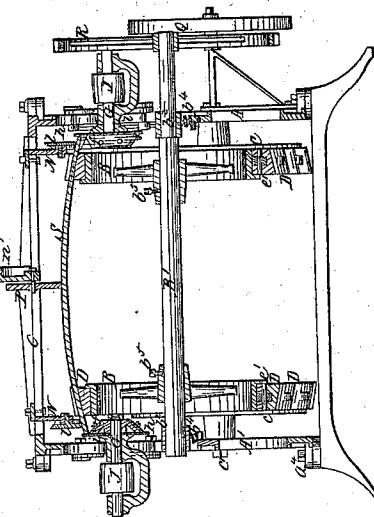


Fig. 1

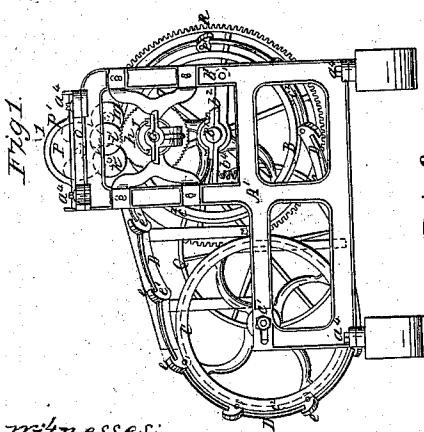
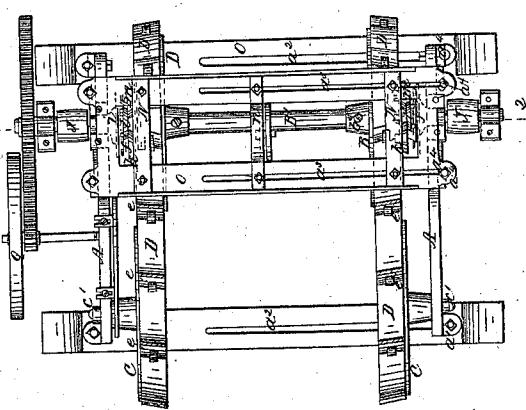


Fig. 2



Witnesses:

W. H. Torbush  
E. B. Torbush

Inventor:

Valentine W. Houck

# UNITED STATES PATENT OFFICE.

VALENTINE W. HOUCK, OF BUFFALO, NEW YORK.

## IMPROVEMENT IN CROZING-MACHINES.

Specification forming part of Letters Patent No. 35,519, dated June 10, 1862.

*To all whom it may concern:*

Be it known that I, VALENTINE W. HOUCK, of the city of Buffalo, county of Erie, and State of New York, have invented new and useful Improvements in Stave Chamfering and Crozing Machines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure I is a side elevation of my improved machine. Fig. II is a plan. Fig. III is a vertical transverse section on line 1 2.

Letters of like name and kind refer to like parts in each of the figures.

A represents the stationary side of the main supporting frame-work of the machine, and A' the movable or adjustable side of the main frame.

B represents two drums supported upon a drum-shaft, B'.

C represents two drums, each supported upon the bolts  $e'$ , upon which they revolve as upon an axle. These bolts (or axles) have a firm support in the main frame. Lugs or cogs  $c^2$  are cast on the surface of each of these drums, which mesh in corresponding sockets in the links of the endless-chain bed and cause the bed and drums to revolve with equal motion.

The shaft B' is supported in yielding journal-boxes  $b^2$ , which journal-boxes are made yielding by being hinged at one end to the main frame, as shown at  $b^3$ , and resting upon a coil-spring,  $b^4$ , at the other end. The object of this is to adapt the machine to chamfering and crozing staves of different thicknesses, as hereinafter more fully set forth.

Two endless chains, composed of jointed links D, are each made and placed upon the drums B C and revolve with the drums. These chains are constructed precisely alike and have an equal motion and in operation form one endless revolving bed, upon which the staves are laid to be carried to the chamfering and crozing tools. The upper surface of these links, upon which the stave is laid, is in the barrel form—that is to say, a transverse surface-line is an arc of the inside longitudinal curve of the barrel. The under side of these links is made with a recess or socket conforming to the lugs or cogs on the surface

of the drums, so that the drums will revolve the bed in a steady manner and without slip. A lug,  $e$ , projects from the upper side of the link, forming a hook to hold the stave in place as it is carried to the chamfering and crozing tools. These links are jointed together, as shown at  $e'$ .

The chamfering and crozing tools are of ordinary construction, and are supported in the head  $f$  in a common manner, and the head is supported on the shaft G in a common manner. The saw for sawing off the end of the stave is shown at  $h$ . It is supported upon the shaft G, and is held between the head  $f$  and the shoulder  $i$ . J is a driving-pulley upon the same shaft.

The former for each end of the stave is composed of three small wheels,  $k l m$ , supported in an appropriate hanger, N, which hanger is made adjustable horizontally and vertically on the slotted cross-piece O. The former for the center of the stave consists of one wheel, P, which is supported in a hanger,  $p'$ , which is also made adjustable horizontally on the slotted cross-piece O. These formers are set on a line corresponding to the longitudinal curve of the barrel.

The main frame of the machine is made adjustable—that is to say, the part A' is movable toward the stationary part A by means of the parallel slots  $a^2$  in the bed-piece and parallel slots  $a^3$  in the cross-piece and bolts  $a^4$ . The drums B on the shaft B' are also movable and may be fixed at any point desired by means of the set-screws  $b^5$ , so that by these means the machine is readily adapted to chamfering and crozing staves of any required length.

Q represents the driving-pulley; R, driving gear-wheels.

**Operation:** The machine being adjusted for staves of a given length, the staves to be crozed are laid one by one upon the revolving bed, the edge of the stave near its ends resting against the lugs or hooks  $e$ . As the bed revolves, each stave S in successive order is carried to the crozing and chamfering tools, as shown in Fig. III. The chamfering and crozing is done, while the stave is held by the formers and bed, in the exact curve it will occupy in the barrel. The relative distance between the formers and the chamfering and

crozing tools when set being invariable, it is evident that the chamfer and croze must be cut to the same depth in all of the staves, measuring from the outside of the stave; but if the same relative distance were maintained between the bed upon which the stave lies and the formers, it is evident that but one thickness of stave could be run through, and hence the bed or the formers must be made to yield in order to make room for a thick stave to pass; but if the formers were made to yield the depth of the croze would be gaged from the inside of the stave, and hence when such staves of different thicknesses were set up into a barrel the outside of the barrel would be uneven and rough. I have therefore placed the shaft B' (which supports the drums B and hence the bed) upon yielding journals, so that the drums and bed will yield and allow staves varying in thickness to pass under the formers, and hence the chamfering and crozing will all be done upon the inside of the stave to an equal depth, measuring from the outside. No matter how much the staves may vary in thick-

ness such staves will make the outside surface of the barrel entirely smooth.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The endless revolving bed composed of the jointed links D, the said links being so constructed that a transverse surface-line will correspond to an arc of the longitudinal curve of the barrel, (or nearly so,) for the purposes and substantially as described.

2. Supporting the shafts B', and hence the drums B, in yielding journal-boxes b<sup>2</sup>, in combination with the described endless revolving bed, for the purposes and substantially as set forth.

3. Wheel-formers made adjustable horizontally on the cross-piece O and placed on a line corresponding to the longitudinal curve of the barrel, for the purposes and substantially as herein set forth.

VALENTINE W. HOUCK.

Witnesses:

G. H. GOODRICH,  
E. C. SPRAGUE.