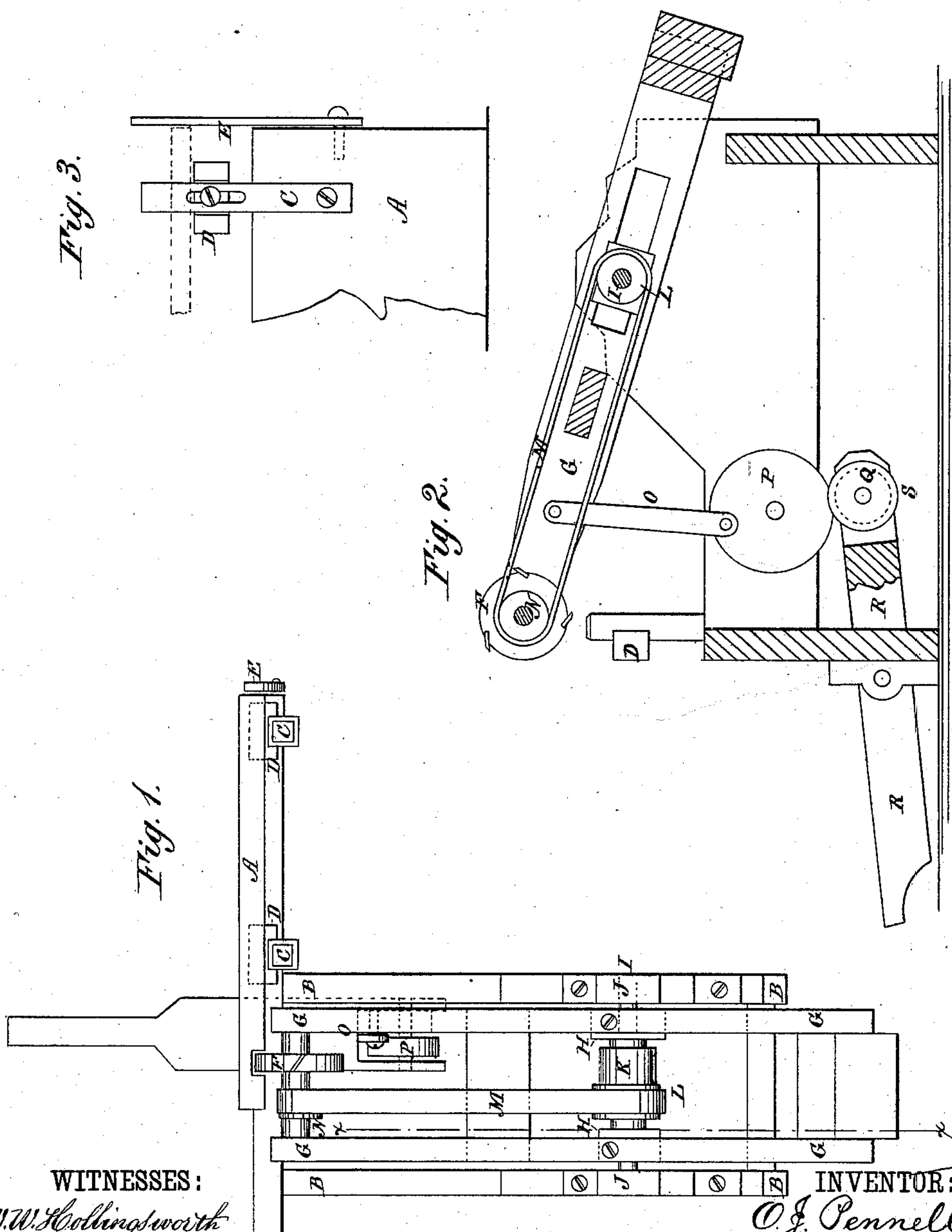


O. J. PENNELL.  
Crozing-Machine.

No. 217,021.

Patented July 1, 1879.



WITNESSES:  
*W.W. Hollingsworth*  
*Amos W. Hart*

INVENTOR:  
*O. J. Pennell*

BY *Wm. L.*  
ATTORNEYS.

# UNITED STATES PATENT OFFICE

OSCAR J. PENNELL, OF WILLIAMSPORT, PENNSYLVANIA, ASSIGNOR TO  
HIMSELF AND ALFRED PHILLIPS, OF SAME PLACE.

## IMPROVEMENT IN CROZING-MACHINES.

Specification forming part of Letters Patent No. **217,021**, dated July 1, 1879; application filed  
May 20, 1878.

*To all whom it may concern:*

Be it known that I, OSCAR J. PENNELL, of Williamsport, in the county of Lycoming and State of Pennsylvania, have invented a new and useful Improvement in Crozing-Machines, of which the following is a specification.

Figure 1 is a top view of a part of my improved machinery. Fig. 2 is a section of the same, taken through the broken line *x x*, Fig. 1. Fig. 3 is a detail side view of one end of the same.

My invention is an improvement in the class of crozing-machines in which the croze is cut by knives attached to a revolving head.

The improvement consists in mounting the cutter-head in a swinging frame, which is vibrated, to cause the cutter-head to act on the staves, by means of a treadle-lever and friction-pulley; and in making said swinging frame adjustable in its bearings to change its radius, for the purpose of enabling the cutter-head to move through the arc of a greater or less circle, and thus adapt it to cut a deeper or shallower croze, as required for staves of larger or smaller barrels or other casks; and in making the blocks or supports for the staves vertically adjustable, to enable them to be set higher or lower, according to the size of staves being crozed.

A is a long and narrow frame, to one side of which is attached the end of another frame, B. To the side of the frame A, at one side of the end of the frame B, are attached two posts or standards, C, to the inner sides of which are attached two vertically-adjustable rests, D, to support the staves while being crozed.

To the end of the frame A is attached an upwardly-projecting bar, E, to serve as a stop and gage for the end of the stave to rest against while being crozed.

The crozing is done by a cutter-head, F, the journals of which revolve in bearings in the inner end of the frame G. The side bars of the frame G are slotted longitudinally to receive the boxes H, which serve as bearings for the shaft I, the ends of which work in bearings J, attached to the side bars of the frame B.

The boxes H are secured in the slots of the frame G, so that the said frame can be adjusted upon them to cause the cutter-head F to swing

through a larger or smaller arc, according as larger or smaller staves are to be operated upon.

The object of the adjustment of the bearings of frame G is to cause the cutter-head F to cut a deeper or shallower croze, and the latter usually varies in depth according to the size of the cask.

The transverse middle of the stave requires to be in line—that is to say, in the same horizontal plane—with the axis on which the frame G oscillates, and hence, when the staves vary materially in width, the blocks D are adjusted higher or lower, to bring the middle of the staves in proper relation to said axis of frame G, and thus prevent the croze being cut of unequal depth at its ends and middle, as would otherwise happen.

To the shaft I are attached two pulleys, K L. The pulley K is designed to receive the driving-belt, and the pulley L to receive the belt M, which passes around a pulley, N, attached to the journal of the cutter-head F, to give motion to the said cutter-head.

To a side bar of the frame G, near its forward end, is pivoted the upper end of a bar, O, the lower end of which is pivoted eccentrically to a crank-pin of pulley P, which is pivoted to the lower part of the side of the frame B in such a position that the friction-pulley Q, pivoted to the end of the lever R, may come in contact with its face.

With the pulley Q is rigidly connected a pulley, S, to receive a driving-belt for giving motion to the said friction-pulley Q. The lever R is pivoted to the frame A, and its other end projects at the other side of the said frame, so that it may be operated upon by the operator with his foot to bring the pulley Q in contact with the pulley P at the same time that he places a stave upon the rests D. As the pulley Q comes in contact with the pulley P it revolves the said pulley, drawing down the inner end of the frame G and causing the cutter-head F to cut the croze in the stave.

It is only necessary to change the cutter-head driving-belt when a change in the size of tank is required, (which is seldom done,) the main driving-belt being driven from a counter-shaft unconnected with the machine.



Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of the foot-lever R, provided with the driving and friction pulleys S Q, the friction crank-pulley P, the connecting-rod O, the adjustable swinging frame G, the crozing cutter-head F, the standards C, provided with the adjustable rests D, and the stop E, with each other and with the frame-work A B, substantially as herein shown and described.

2. The combination of the vertically-adjustable rests D, for supporting the staves while

being crozed, and the swinging frame G, carrying cutter-head F, substantially as shown and described.

3. In a crozing-machine, the combination of the rotating cutter-head F and the swinging frame G, whose bearings are made adjustable horizontally, to allow the said frame to be adjusted longitudinally, as and for the purpose specified.

OSCAR J. PENNELL.

Witnesses:

JAS. M. WOOD,

G. W. HARDENBURGH.