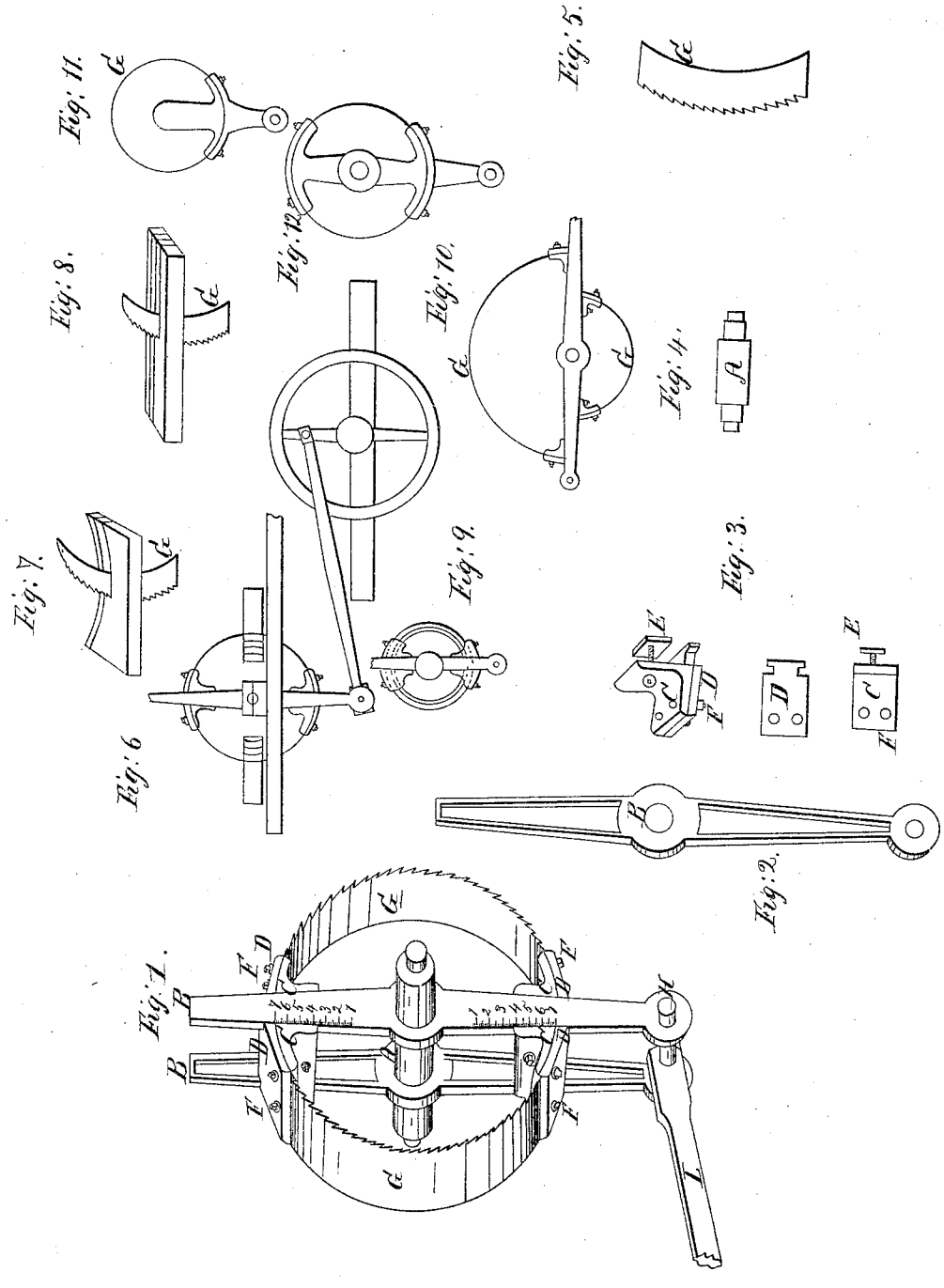
R. E. House,

Making Staves.

No. 1,284. Patented Aug. 12, 1839.



UNITED STATES PATENT OFFICE.

ROYAL E. HOUSE, OF CHOCONUT, PENNSYLVANIA.

MACHINE FOR SAWING STAVES.

Specification of Letters Patent No. 1,284, dated August 12, 1839.

To all whom it may concern:

Be it known that I, ROYAL E. HOUSE, of Choconut, Susquehanna county, State of Pennsylvania, have invented a new and useful machine for sawing staves longitudinally, giving them their proper curvature transversely, for making hogsheads, barrels, tubs, pails, &c., which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

The main feature of this invention consists in arranging and securing two parallel vibrating or walking beams on a horizontal shaft moving in metallic boxes fixed on a suitable frame, which beams being graduated in inches and tenths of inches on the outside from the center toward the extremities, a separate scale being on each side of the shaft, and to which beams are attached by suitable sliding clamps and screws two segment saws, one on each side of the same, of different curvatures determined by the kind of staves to be sawed and which may be changed for other of greater or less curvatures, moving the clamps toward or from the center, said clamps moving in grooves made on the inside of the beams to suit them and held at any required place (determined by the scales) by screws, the stave bolts being brought or fed up to the saws by means of suitable carriages in the manner of saw mills in use, the ends of the beams being moved to and fro by means of a pitman rod extending from the propelling engine of whatever kind it may be attached loosely to a bolt passed through the lower ends of the walking beams, in a manner of a steam engine, except that the beams stand vertically when at rest instead of horizontally. The shaft is a cylindrical piece of metal of suitable size having journals turned on its ends to fit the boxes in which it is intended to move, and is passed through apertures in the walking beams near the center thereof. The walking beams are both made alike, except one only is graduated. Each is made tapering from the center toward the extremities and is of suitable thickness. The lower end is enlarged when the pin passes through to which the pitman rod is attached. It is grooved on the inside for the clamps to move in when moving them toward or from the center of the shaft. One of the beams is graduated on the outside in inches and tenths of inches from the center toward the extremity and side of the axle for determining the curvatures of the staves to be sawed, as before stated. There are four clamps all made alike. Each one consists of a casting in the shape of a knee, with a plate on the outside, between which and the outer face of the knee casting the end of the saw is placed, and through the plate, saw and knee casting are passed screws for clamping the saw. One side of the knee is placed against the edges of the walking beams, having a plate placed parallel to said side of the knee, moving in the grooves of the beams, with screws passing through this side of the casting, and said plate for screwing the clamp to the beams and suffering them to be moved toward or from the center as required by unclamping them. The first mentioned plate at the back of the casting has tenons which move in the grooves of the beams.

The frame upon which the shaft with the beams and saws is suspended and vibrates is made of sufficient size and strength. The carriages upon which the stave bolts are secured are made in the usual or most approved manner and move upon the above mentioned frame by means of suitable gearing connected to the driving power. The pitman rod for moving the walking beams is made in the usual manner.

Figure 1 represents a perspective view of the beams, clamps, saws, and pitman rod; Fig. 2, the inside or grooved side of one of the walking beams; Fig. 3, one of the clamps, plates, and screws; Fig. 4, the shaft; Fig. 5, one of the segment saws.

The letters of reference refer to the same parts in the several figures.

A, the axle; B, B, the walking beams; C, the knee castings of the clamps; D, the plate between which and the knee casting the end of the saw is clamped; E, the plate of the clamp moving in the grooves of the beams; F, the screws; G, the segment saws; H, the bolt to which the pitman rod is attached; L, the pitman rod.

Operation: The engine being put in motion vibrates the beams and causes the saws to move in a circle equal to that of which they are segments. A bolt is brought or fed up to each saw and advances regularly until the saw cuts through from one end to the other. The carriages with the bolts are then run back, the bolts shifted and again advanced and other cuts made in like manner.

The pieces cut off will be concave on the inside and convex on the out side and suitable for hogsheads, barrels, buckets, etc., according to the curvature of the saws. The drawing represents the ends of the saws set at No. 7, which answers for cutting hogshead staves. For cutting bucket staves the ends of the saws used must be placed at No. 1. In this manner the operation is continued until the bolts are cut up, when others are secured on the carriages and the same operation is continued. Saws of the curvature required must be inserted in the clamps according to the kind of staves to be sawed, a number of which are kept on hand for that purpose.

Fig. 6 represents the beams and saws suspended at the axis and connected to a balance wheel by a pitman rod, the revolution of the balance wheel giving the saws their motion; or it may be done by an eccentric motion. Fig. 7 represents the saws cutting staves curved longitudinally and transversely. Fig. 8 represents a segment saw cutting in straight lines longitudinally and curved transversely. Fig. 9 represents several saws placed concentric with each other. Fig. 10 represents the vibrating beam, with a large saw on one side and a small one on the other. Fig. 11 represents a hoop saw operated by a vibrating beam; Fig. 12, another hoop operated in like manner.

In giving to the stave a curvature longitudinally, the carriage with the bolt must have a movement corresponding to the curve required.

These saws can be applied to other purposes besides sawing out staves, such as sawing eaves-troughs, curved boards, etc.

I do not claim to be the inventor of cutting staves by means of segments of cylindrical saws vibrating as herein described, as such have been long known and used; but

What I do claim and desire to secure by Letters Patent consists in—

The sliding saw clamps for changing the diameter of the saws to suit the work required and the scales on the beams to graduate the position of the saw clamps all as herein described.

In testimony whereof I have hereunto subscribed my name before two witnesses.

ROYAL E. HOUSE.

Witnesses:
EDWARD KIMBALL,
WM. HOUSE.