

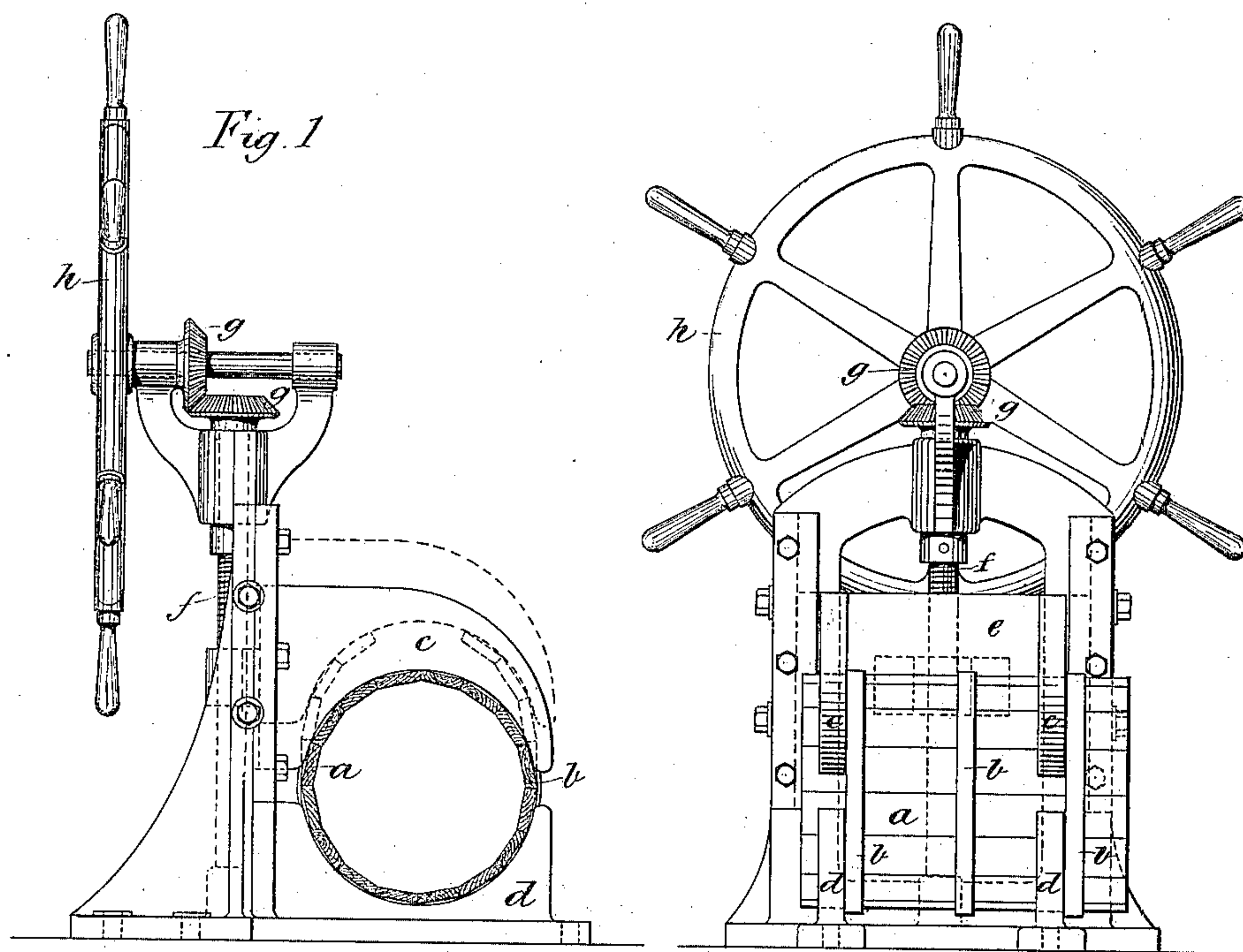
(No Model.)

F. ANDREW.  
BARREL MAKING MACHINE.

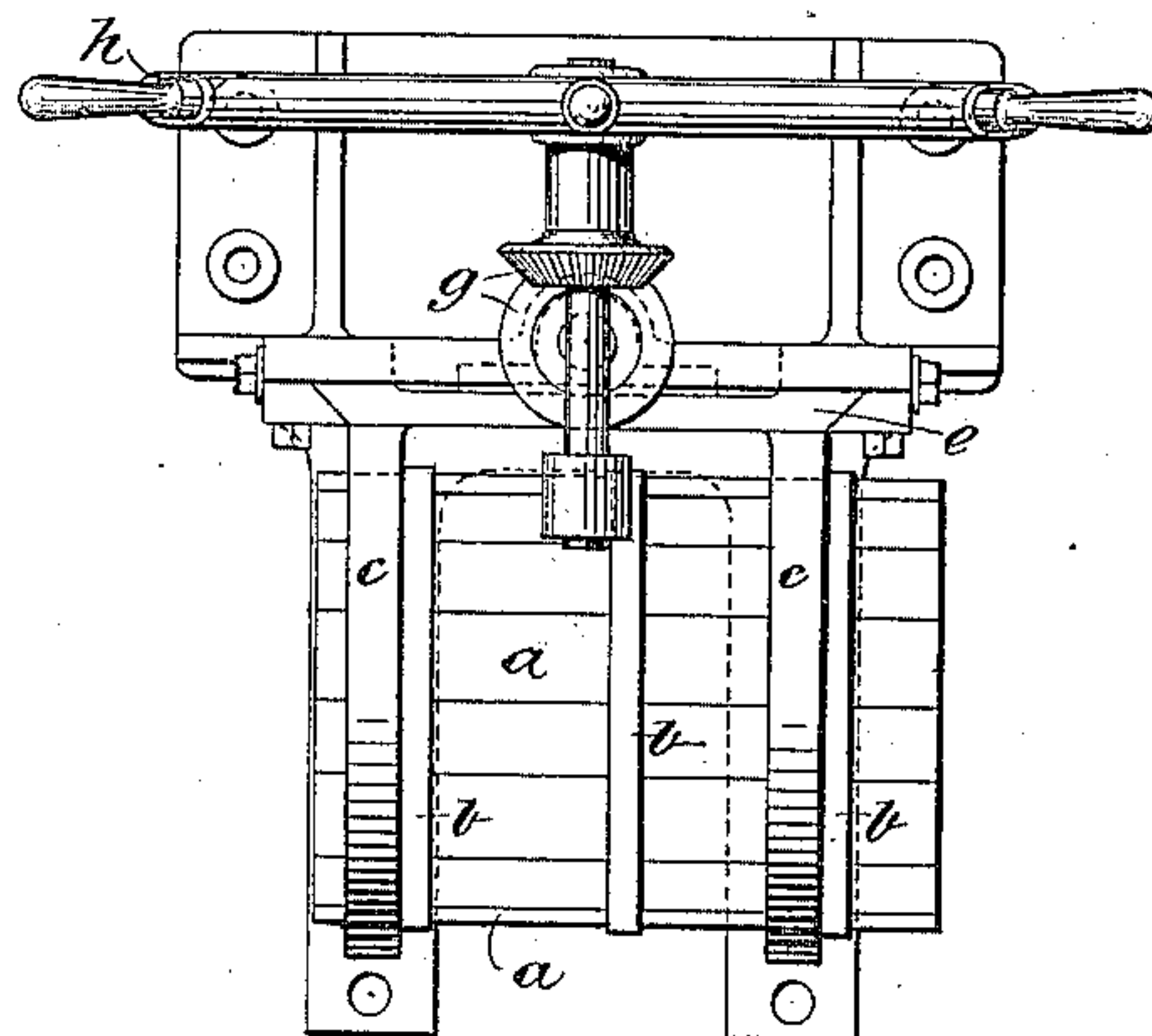
No. 371,811.

Patented Oct. 18, 1887.

*Fig. 2.*



*Fig. 3.*



Witnesses.  
*Philip M. Justice*  
*Alfred Jones*

Inventor.  
*F. Andrew*



# UNITED STATES PATENT OFFICE.

FREDERICK ANDREW, OF LEE, COUNTY OF KENT, ASSIGNOR OF ONE HALF  
TO JOHN CHRISTIE, OF LONDON, ENGLAND.

## BARREL-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 371,811, dated October 18, 1887.

Application filed June 8, 1886. Serial No. 204,513. (No model.) Patented in England September 30, 1885, No. 11,644, and in France June 1, 1886, No. 176,507.

*To all whom it may concern:*

Be it known that I, FREDERICK ANDREW, a subject of Her Majesty the Queen of Great Britain, residing at Lee, in the county of Kent, England, have invented a new and useful Improved Apparatus for the Manufacture of Barrels, Casks, Firkins, Kegs, and Similar Articles, (and for which invention British Letters Patent No. 11,644, of September 30, 1885, and French Letters Patent No. 176,507, of June 1, 1886, have been granted to me,) of which the following is a specification.

This invention relates to the apparatus for the manufacture of barrels or casks, particularly such as are of cylindrical form and adapted for the reception of liquid or semi-liquid substances, although also suitable for the manufacture of crate or fruit barrels, firkins, kegs, and similar articles.

The invention consists of the apparatus hereinafter described, by means of which two or more pairs of curved jaws are caused to close upon connected staves and form them into the desired shape, in which they are held until the ends of the hoop strips are secured.

In order that my invention may be clearly understood, reference is made to the accompanying drawings, which form part of this specification, and in which—

Figure 1 represents an end elevation of the machine. Fig. 2 represents a side elevation, and Fig. 3 represents a plan or top view.

The staves *a* are first secured to the hoop-strips *b*, so as to form a connected series of staves before the barrel is set up, and the said connected series of staves is then placed in position between the expanded jaws *c d*, heads being inserted in the crozes when a barrel for liquids is to be made. Jaws *c d* are then contracted, closing the staves around the heads, the latter becoming bedded in the crozes. The overlapping ends of the hoop-strips *b* are then secured by nails, screws, or other fastenings and the barrel is ready to be liberated from the machine.

The inside faces of the jaws *c d* should approximately correspond to the external configuration of the barrel to be made, and it will be evident that said jaws may be pivoted and

worked by a lever; but I prefer to have a fixed lower jaw or jaws, *d*, which may conveniently be attached to the bed-plate of the machine and form a horizontal support for the connected series of staves to be formed into a barrel-cylinder, while the upper jaw or jaws, *c*, are arranged opposite the fixed jaw or jaws and are carried by a slide-arm, *e*, within which works screw *f*, operated through suitable gears, *g*, by hand-wheel *h*, although the machine may be arranged for operation by other power.

In manufacturing barrels according to the process herein described it is desirable, in order to secure the best results, that the staves should be simultaneously compressed at both ends, and the machine which I have shown is arranged to secure this result, two pairs of jaws being used—one to compress the staves at one end and the other at the other end.

By the use of this apparatus barrels capable of holding liquids may be made at a comparatively cheap rate, while the machine is equally applicable for the manufacture of barrel-cylinders into which the heads are to be subsequently fixed in the manner ordinarily employed.

What I claim is—

1. In the manufacture of barrels and similar articles, the process hereinbefore described, consisting in first connecting the desired number of staves to the hoop-strips, then submitting such hoop-strips and connected staves to the action of one or more pairs of jaws arranged to form them into a substantially cylindrical shape, and then securing the ends of the hoop-strips before releasing the barrel from the jaws, substantially as described.

2. The combination, in a barrel-making machine, of stationary jaws forming a support for a series of connected barrel-staves, with reciprocating jaws opposite to said stationary jaws, a sliding support for the movable jaws, and screw-connections, substantially as described, to cause said reciprocating jaws to engage said staves between their ends to compress the staves at both ends simultaneously together to a barrel form, as and for the purpose set forth.

3. The combination of the frame of the machine, a pair of fixed jaws, and a pair of opposing reciprocating jaws mounted thereon, the opposing pairs of jaws being at a distance  
5 apart less than the length of a barrel and being arranged to receive between them the connected staves of a barrel and to engage therewith near their opposite ends to simultaneously compress them together to a barrel

form as the movable jaws approach the fixed jaws, substantially as described.

In testimony whereof I have hereunto set my name in the presence of two subscribing witnesses.

FREDERICK ANDREW.

Witnesses:

PHILIP M. JUSTICE,

ALLEN P. JONES.