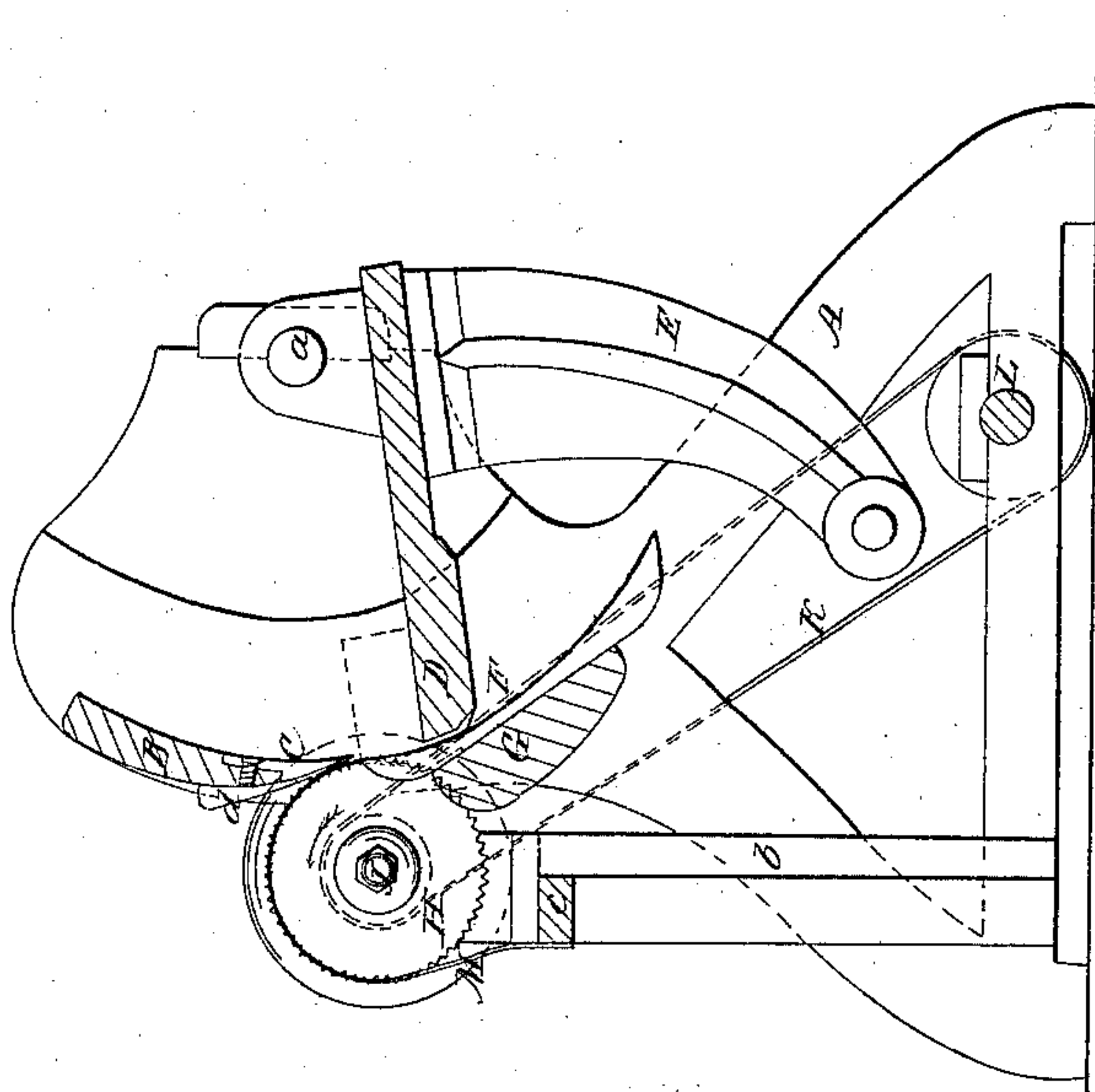


*I. W. Bowers,*  
*Making Staves.*

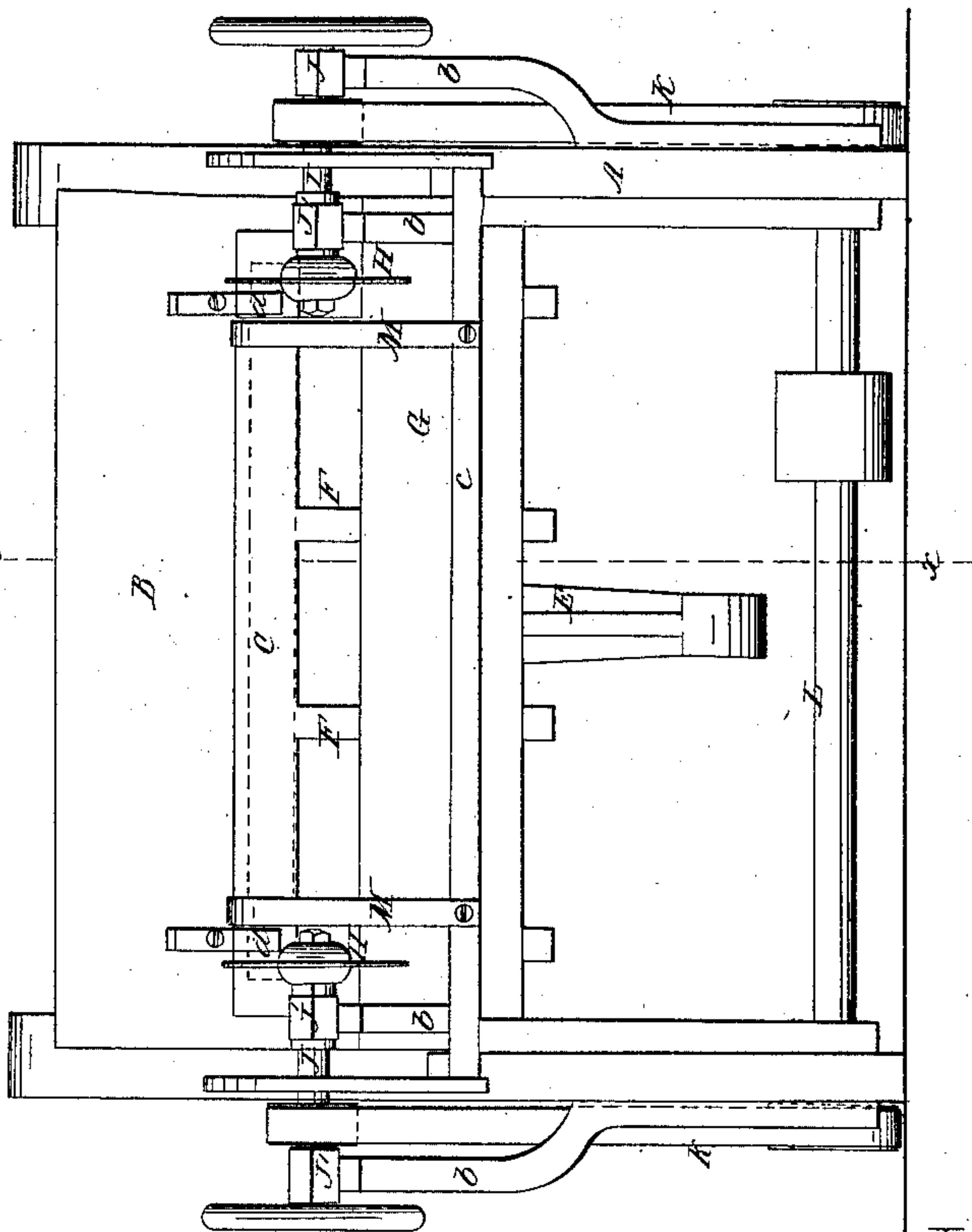
*N<sup>o</sup> 46,068.*

*Patented Jan. 31, 1865.*

*Fig 2.*



*Fig 1.*



*Witnesses:*  
*James P. Hall*  
*Henry Morris*

*Inventor:*  
*Isaac W. Bowers*  
*per [Signature] Attorneys*

# UNITED STATES PATENT OFFICE.

ISAAC W. BOWERS, OF OVID CENTRE, MICHIGAN.

## IMPROVEMENT IN STAVE-MACHINES.

Specification forming part of Letters Patent No. 46,068, dated January 31, 1865.

*To all whom it may concern:*

Be it known that I, ISAAC W. BOWERS, of Ovid Centre, in the county of Clinton and State of Michigan, have invented a new and Improved Stave-Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view of my invention; Fig. 2, a transverse vertical section of the same, taken in the line *x x*, Fig. 1.

Similar letters of reference indicate like parts.

This invention consists in combining two circular saws and two springs with a stave-cutting machine.

The object of the invention is to saw the ends of the staves simultaneously with the cutting operation, so that they all will be of the same length, thereby avoiding the necessity of sawing the staves after they are cut in order to render them of equal length.

A represents a framing in which a curved or segment plate, B, is fitted, and having a knife, C, attached to its lower end.

D represents an oscillating bed, which is suspended in the framing A on journals *a a*, and has an arm, E, attached to it which is connected with the motor that drives the machine.

F represents a series of ribs, which are attached to a curved or segment plate, G, in the framing A, below the knife or cutter C, the upper ends of said ribs projecting a little outward beyond the knife or cutter C, as shown clearly in Fig. 2.

These parts are constructed and arranged similarly to many stave-cutting machines of that class which are provided with an oscillating bed. The bolt is placed on the bed D, and the bed when forced upward past the knife or cutter has a stave cut from it by the latter.

H H represent two circular saws, the arbors J J of which are placed in bearings J', secured to upright bars *b*, the latter being attached to the framing at the rear of the knife or cutter C. The saws are driven by belts K K from a shaft L at the lower part of the framing.

M M are two springs of curved or bow form which are attached one end of them to the upper edge of the plate G and the other end to a cross-bar *c* of the framing, said springs extending upward about to a level with the upper edges of the saws H H.

The saws H H rotate in the direction indicated by the arrows, and are placed a distance apart equal to the desired length of the staves to be cut, and as the staves are cut from the bolt the saws H cut the ends of the same, the staves being forced up between the springs and saws and two ribs or bearings, *d d*, at the outer side of the plate B.

The springs M M hold a stave after it is cut from the bolt until the succeeding one is being cut, the latter shoving the former upward and outward from between the springs and the bearings *d d*. A cut stave is thereby prevented from falling back or down between the saws, being properly held out of the way of the cutter or knife and ascending bolt until the succeeding stave while being cut forces it up and discharges it from the machine.

The bearings of the saw-arbors are designed to be adjustable horizontally and vertically to compensate for the diminishing diameter of the saws due to filing.

I claim as new and desire to secure by Letters Patent—

The combination of the saws H H and springs M M, applied to a stave-cutting machine, to operate in the manner substantially as and for the purpose herein set forth.

ISAAC W. BOWERS.

Witnesses:

J. S. BENNETT,  
JOSEPH SINGEL.