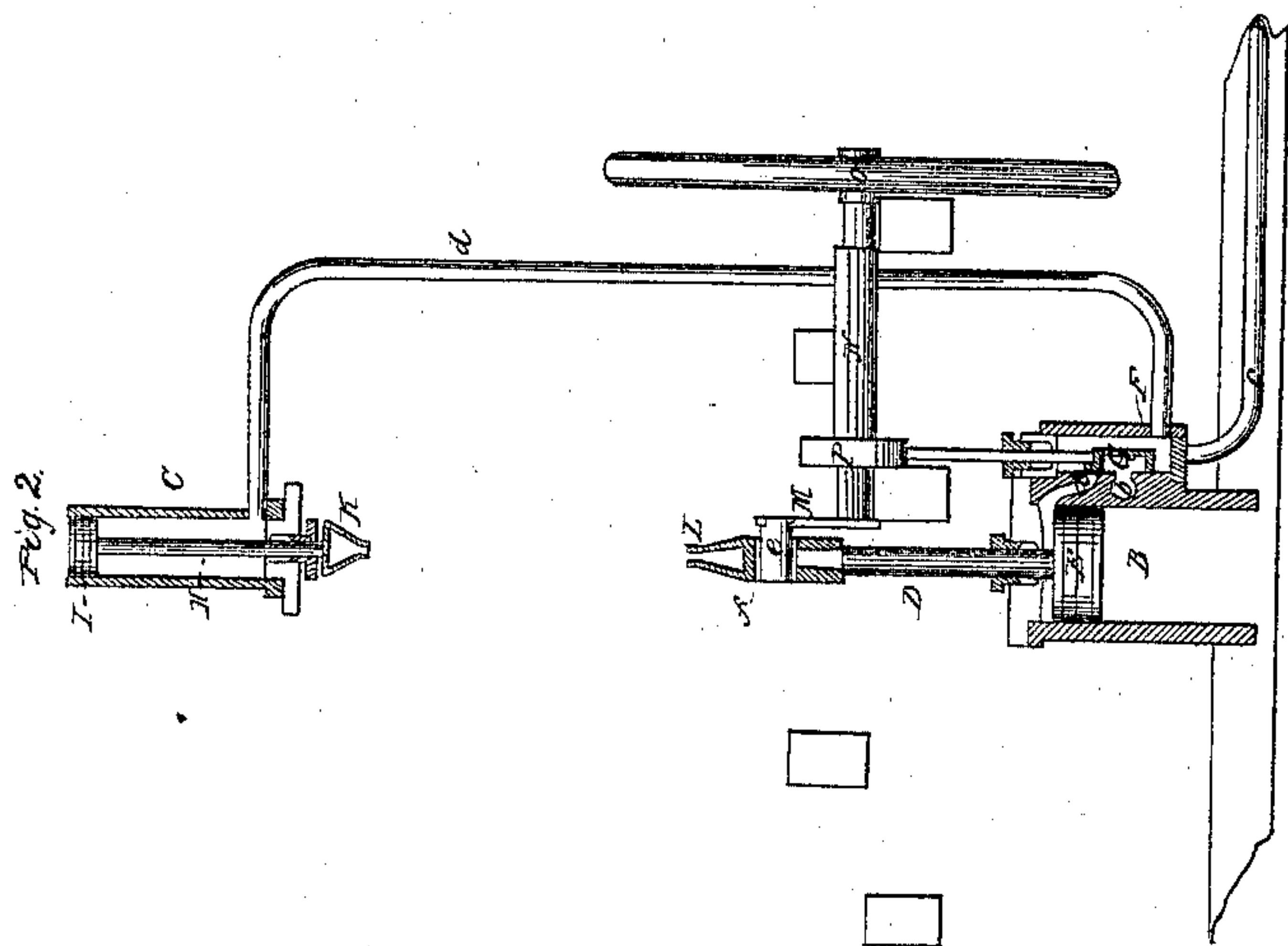
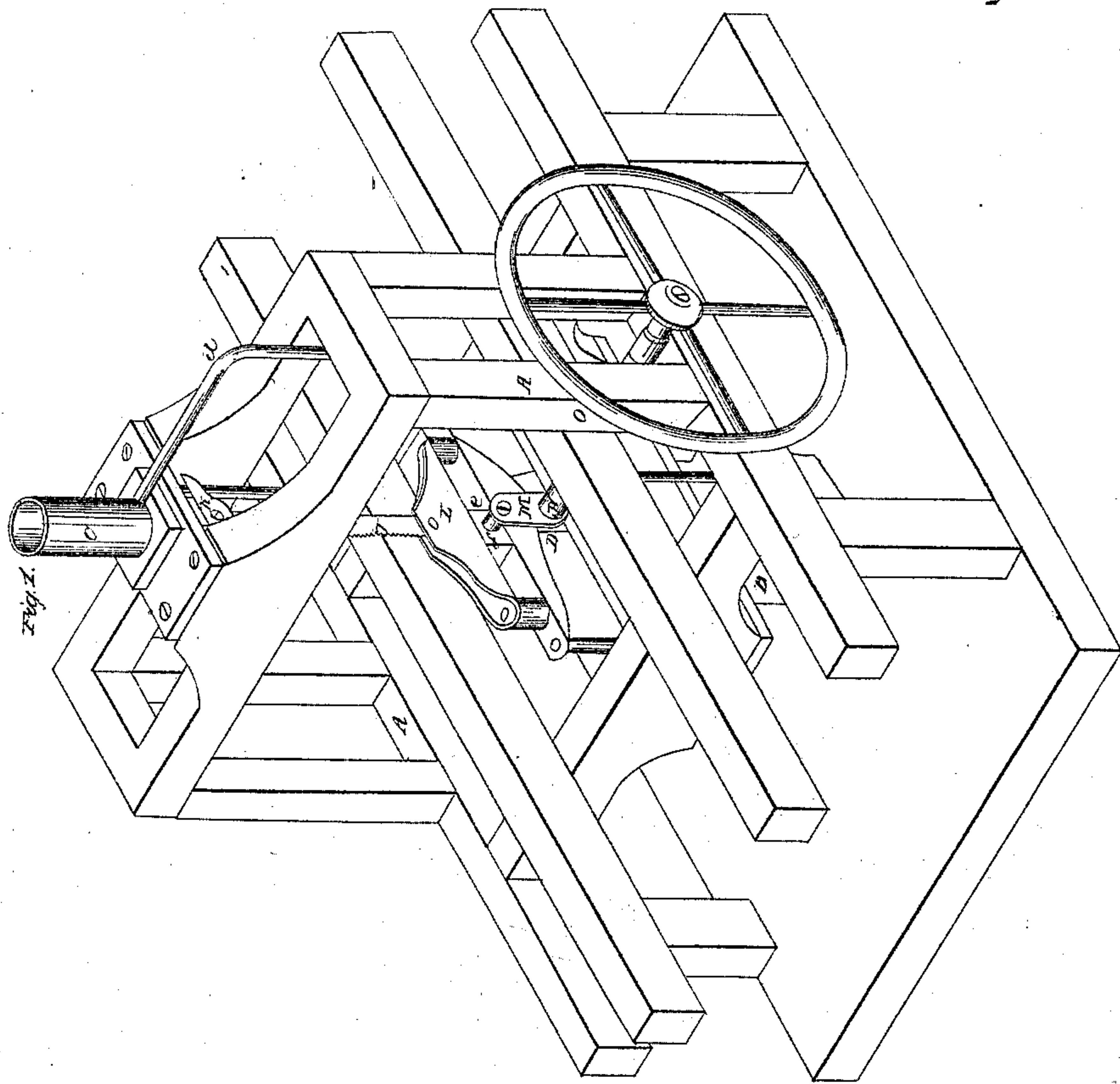


*J. & J. Fishrick,*  
*Reciprocating Sarr Mill.*  
*N<sup>o</sup> 11,365.* *Patented July 25, 1854.*





# UNITED STATES PATENT OFFICE.

JAMES FISHWICK AND JOHN FISHWICK, OF LEXINGTON, KENTUCKY.

## MODE OF DRIVING AND STRAINING SAWS.

Specification of Letters Patent No. 11,365, dated July 25, 1854.

*To all whom it may concern:*

Be it known that we, JAMES FISHWICK and JOHN FISHWICK, of the city of Lexington, county of Fayette, and State of Kentucky, have invented a new and useful Improvement in the Application of Steam for the Purpose of Driving Saws and Keeping Them Strained; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, is a perspective view of a saw mill, having our invention applied. Fig. 2, is a vertical section of the steam cylinders.

Similar letters of reference indicate corresponding parts in both figures.

Our invention relates to the direct driving of the saw by its attachment directly to a piston working in a steam cylinder, and to the straining of the same without a gate, by the action of steam upon two pistons, one above and the other below.

It consists in the employment of two cylinders and pistons of unequal size, the lower cylinder and piston being of suitable area to drive the saw, and only receiving the steam during the down stroke or cut, and the upper cylinder and piston being always full of steam, but being only just of sufficient area to keep the saw properly strained, and to raise it.

To enable those skilled in the art to make and use our invention, we will proceed to describe its construction and operation.

A, is the framing of the machine supporting the large lower cylinder, B, and the small upper cylinder, C, whose axes are both in line. The cylinder, B, is open at the bottom, but closed at the top where the rod, D, of its piston, E, passes through a stuffing box, and is furnished with a valve chest, F, like any other single acting steam cylinder, fitted with a slide valve, G, which opens the port, *a*, leading to the top of the cylinder, and brings it in communication with the exhaust port, *b*. The valve chest is supplied with steam by a pipe, *c*. The upper cylinder, C, is open at the top, but closed at the bottom, where the rod, H, of its piston, I, passes through a stuffing box, and it receives steam under the piston by means of a pipe, *d*, from the valve chest.

The saw, J, is connected to the upper piston rod by a cross head, K, working on guides, and to the lower piston rod by a cross head, L, which also works on guides, and which has a long straight slat at right angles to the piston rod, to receive a sliding box, *f*, in which works the crank pin, *e*, of a crank, M, on a shaft, N, which carries a fly wheel, O, and an eccentric, P, to work the slide valve.

The piston, I, of the smaller cylinder, H, being always exposed to the steam, serves the purpose of straining the saw while the steam acts upon the larger piston, and drives down the saw, but as soon as the steam is exhausted from the large cylinder, the small piston raises the saw and the large piston.

The advantages of driving the saw, by connecting it directly to the piston, and of straining it without a gate by steam acting on pistons, are well known; but these two features have never been combined so advantageously as in our invention, the principal advantages of which are, that a large cylinder, full of steam, is only used to drive down the saw, and make the cut, and a small one to raise it, thereby saving steam, that the same steam which drives the saw, strains it.

We do not claim the straining of saws by steam or other elastic fluid, neither do we claim the direct attachment of the saw or its gate to the piston rod; but

What we claim as our invention, and desire to secure by Letters Patent, is:—

Driving and straining the saw by two steam cylinders and pistons of unequal size, the larger being of sufficient size to drive the saw during its downward, or cutting movement, and only receiving steam during such movement; and the smaller, which always contains steam, being of sufficient size to keep the saw strained while cutting, and to raise it and the larger piston, substantially as herein described.

JAMES FISHWICK.  
JOHN FISHWICK.

Witnesses:

JNO. S. HANSBRO,  
D. M. BARKLEY.