

W. E. HILL.

MACHINE FOR ROLLING AND TURNING LOGS.

No. 245,496.

Patented Aug. 9, 1881.

Fig. 1

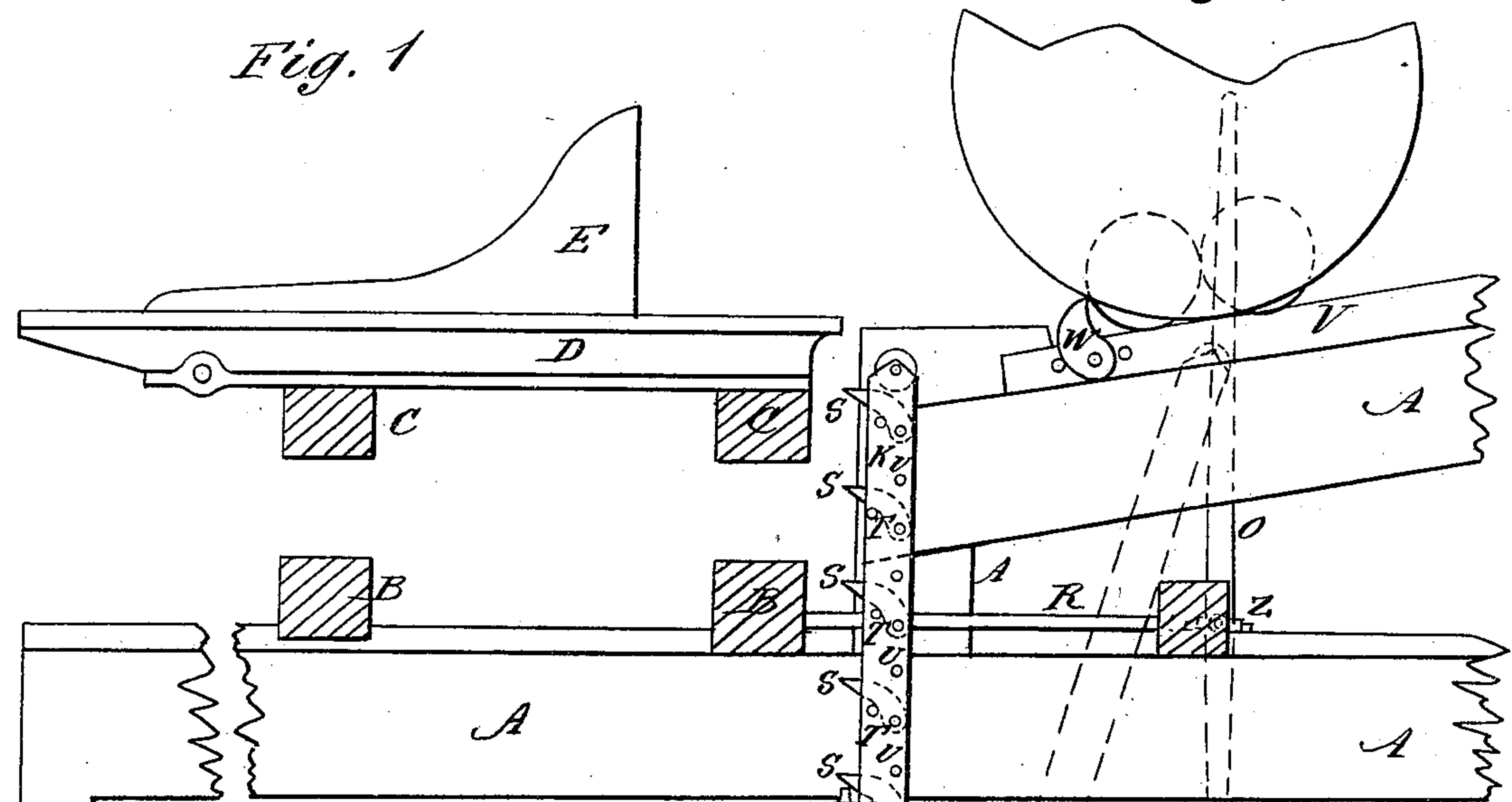
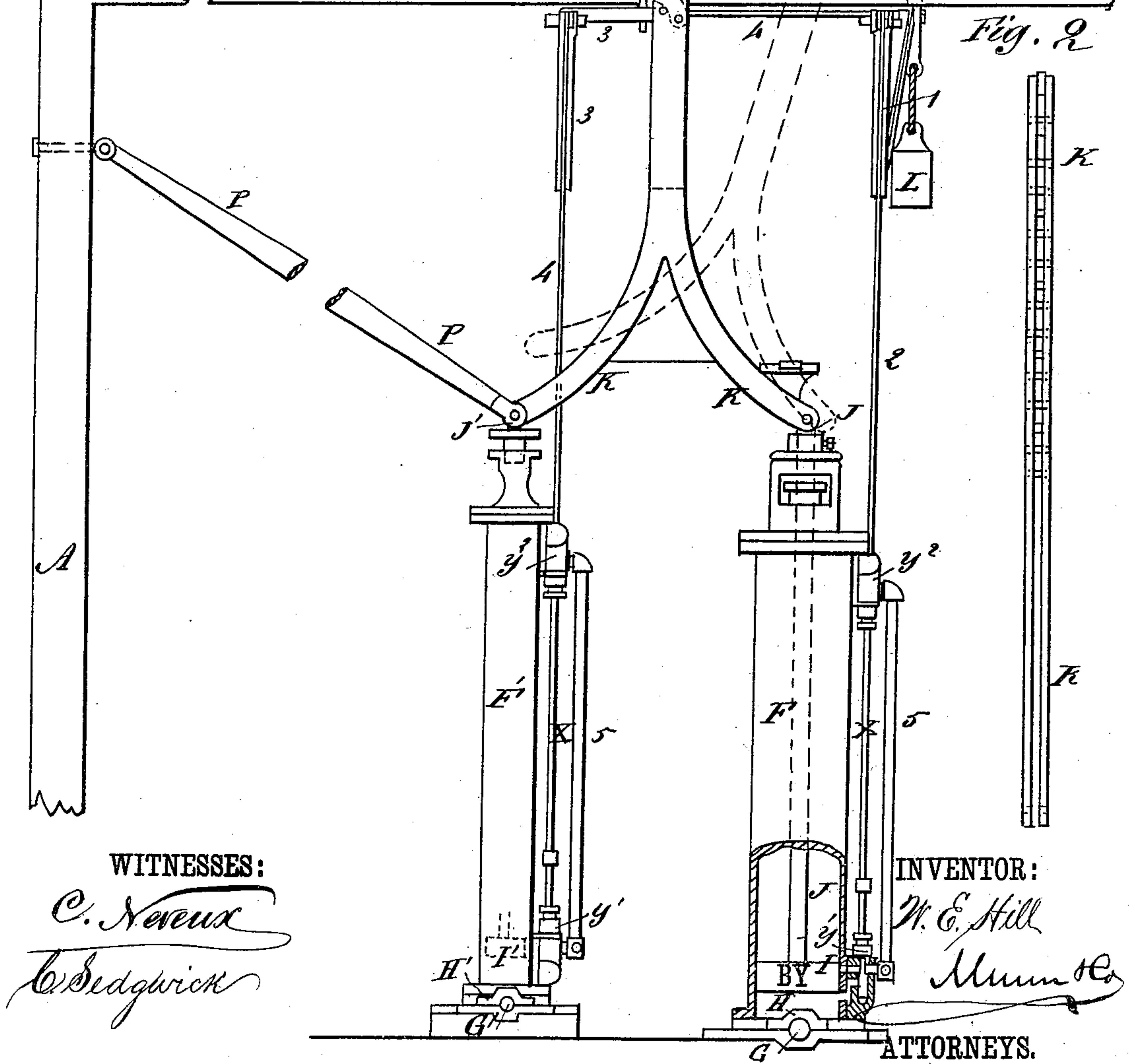


Fig. 2



WITNESSES:

*C. Xereux*  
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# UNITED STATES PATENT OFFICE.

WILLIAM E. HILL, OF BIG RAPIDS, MICHIGAN.

## MACHINE FOR ROLLING AND TURNING LOGS.

SPECIFICATION forming part of Letters Patent No. 245,496, dated August 9, 1881.

Application filed May 16, 1881. (No model.)

*To all whom it may concern :*

Be it known that I, WILLIAM E. HILL, of Big Rapids, county of Mecosta and State of Michigan, have invented certain useful Improvements in Machines for Rolling and Turning Logs, of which the following is a specification.

Figure 1, Sheet 1, is a side elevation of my improvement, the mill-frame, carriage, and log-way being shown in section. Fig. 2, Sheet 1, is a front elevation of the toothed stock. Fig. 3, Sheet 2, is a plan view of the machine.

The object of this invention is to improve the construction of the machines for rolling and turning logs for which Letters Patent No. 233,755 were issued October 26, 1880, William E. Hill, inventor, in such a manner as to make the said machines more prompt, reliable, and effective in operation.

A represents the frame of a saw-mill; B are ways; C is the carriage; D is a head-block, and E is a knee, all of which parts are constructed in the ordinary manner.

F F' are two cylinders, to the lower heads or ends of which are attached or upon them are formed gudgeons G G'. The gudgeons G G' work in bearings H H' attached to the frame A or other suitable support. One gudgeon of each pair can be made hollow, to serve as a pipe for introducing steam, compressed air, or water into the cylinders F F'. Within the cylinders F F' are placed the pistons I I', the piston-rods J J' of which pass out through stuffing-boxes in the upper heads of the cylinders F F'.

To the outer ends of the piston-rods J J' are hinged the ends of the branches of the forked lower end of the stock K.

To either branch of the stock K is hinged one end of the bar P, the other end of which is hinged to the frame A. The bar P is designed to hold the cylinders F F' and the toothed stock K in proper position. The stock K passes up through a slot in the bar or plate R, attached to the frame A or way B, to hold the stock K from lateral movement.

In the forward end of the plate R are secured stops to limit the forward movement of the stock K and prevent its teeth from engaging with the saw-mill carriage C. The stock

K is slotted longitudinally to receive the series of teeth S, which teeth are pivoted at their inner ends or bases to and between the side parts of the said stock K in such positions that when turned downward their points will project at the inner side of the stock K to engage with the log. When the teeth S are turned upward they will be wholly within the stock K. The teeth S are supported against the downward pressure when turning a log by lugs or pins T, attached to the stock K, and their upward movement limited by stops or pins U, also attached to the said stock K. The pins or lugs T are so placed as to hold the teeth S in an upwardly-inclined position, so that when the stock K is swung forward against the flat surface of the log the teeth S that come in contact with the said flat surface will be forced back into the slot of the stock K, and will thus be prevented from tearing or marring the lumber.

V are inclined skids of the logway, upon which the logs are placed and from which they are rolled to the head-blocks D of the carriage C. The logs upon the skids V are kept from rolling down against the carriage C by hooks or blocks W, placed upon or attached to the skids V.

In using the machine, when the log is upon the head-blocks D and is to be turned, steam, compressed air, or water is admitted to the cylinder F, which raises the piston I, piston-rod J, and stock K, causing the teeth S to engage with the log and turn it. As the log comes into position steam, compressed air, or water is admitted into the top of cylinder F', which stops the upward movement of the stock K and causes the said stock to press the log firmly against the knees E. When a flat surface of a log is outward the teeth S that come in contact with the said flat surface are pushed back into the slot of the stock K and the log is turned by the teeth S that come in contact with the round surface of the log below the said flat surface. When a log is to be rolled from the logway to the carriage, steam, compressed air, or water is admitted to the bottom of the cylinder F', which raises the piston I', piston-rod J', and front branch of the stock K, causing the upper end of the stock K to be thrown



back beneath the log. Steam, compressed air, or water is then admitted into the lower end of the cylinder F and into the upper end of the cylinder F', which causes the log to be  
 5 rolled upon the carriage C. When the flat side of the log is next the knees E the said log can be pressed closely against the knees and drawn down tightly upon the head-blocks D by admitting steam, compressed air, or water to the  
 10 upper end of the cylinder F', using just pressure enough under piston I to hold it stationary.

Both cylinders F F' are worked by the same hand-lever O, singly or together, or one in an upward and the other in a downward direction,  
 15 or both in the same direction. The lever O passes through the plate Z, and is hinged or fulcrumed to the said plate by a pin. The plate Z has gudgeons attached to or formed upon its ends at right angles with the hinging-pin of the  
 20 lever O. The gudgeons of the plate Z rock in supports attached to the frame A. The lever O can thus be worked forward and back, or laterally, as may be required. From the lower end of the lever O is suspended a weight, L,  
 25 to bring the said lever into an upright position as soon as it is released, and thus shut off both cylinders.

The combination of two cylinders, F and F', with the forked stock K enables the sawyer to  
 30 give a direct side motion and a variable side pressure to the stock K, so that the logs can be quickly and easily placed and adjusted upon the saw-mill carriage.

The lever O is connected with the valves of

the cylinder F by a set of bent levers and connecting-rods, 1 2, and is connected with the  
 35 valves of the cylinder F' by a second set of bent levers and connecting-rods, 3 4, which levers and connecting-rods are so arranged that the forward and backward movements of  
 40 the lever O will operate the valves of the one cylinder and the lateral movements of the said lever will operate the valves of the other cylinder.

The valves  $y^2 y'$  at the upper and lower ends  
 45 of the cylinders F F' are connected by a valve-stem,  $x$ , which is made hollow or tubular, so as to serve as a conductor for the steam, compressed air, or water that operates the pistons  
 50 of the said cylinders. The exhaust-openings of the said upper and lower valves of each cylinder are connected by a pipe, 5, as shown in Fig. 1.

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

In a sawing-machine, the two cylinders F F', receiving steam, as specified, and having pistons with rods J J', in combination with the  
 60 slotted bifurcated stock K, carrying pivoted teeth S and pins T U, the bar P, hinged to said stock at one end and to frame A at the other, and the slotted plate R, having stops, as shown and described.

WILLIAM E. HILL.

Witnesses:

E. H. EVANS,  
 JNO. R. SNYDER.