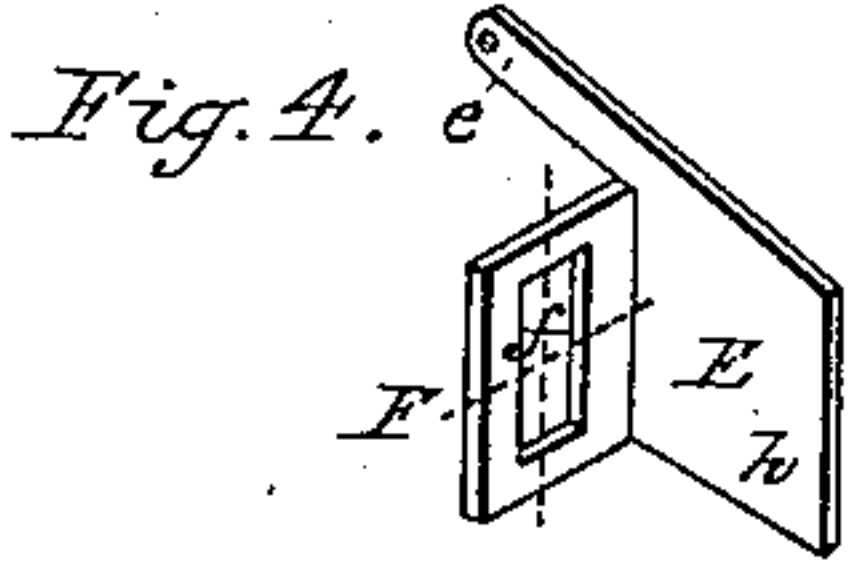
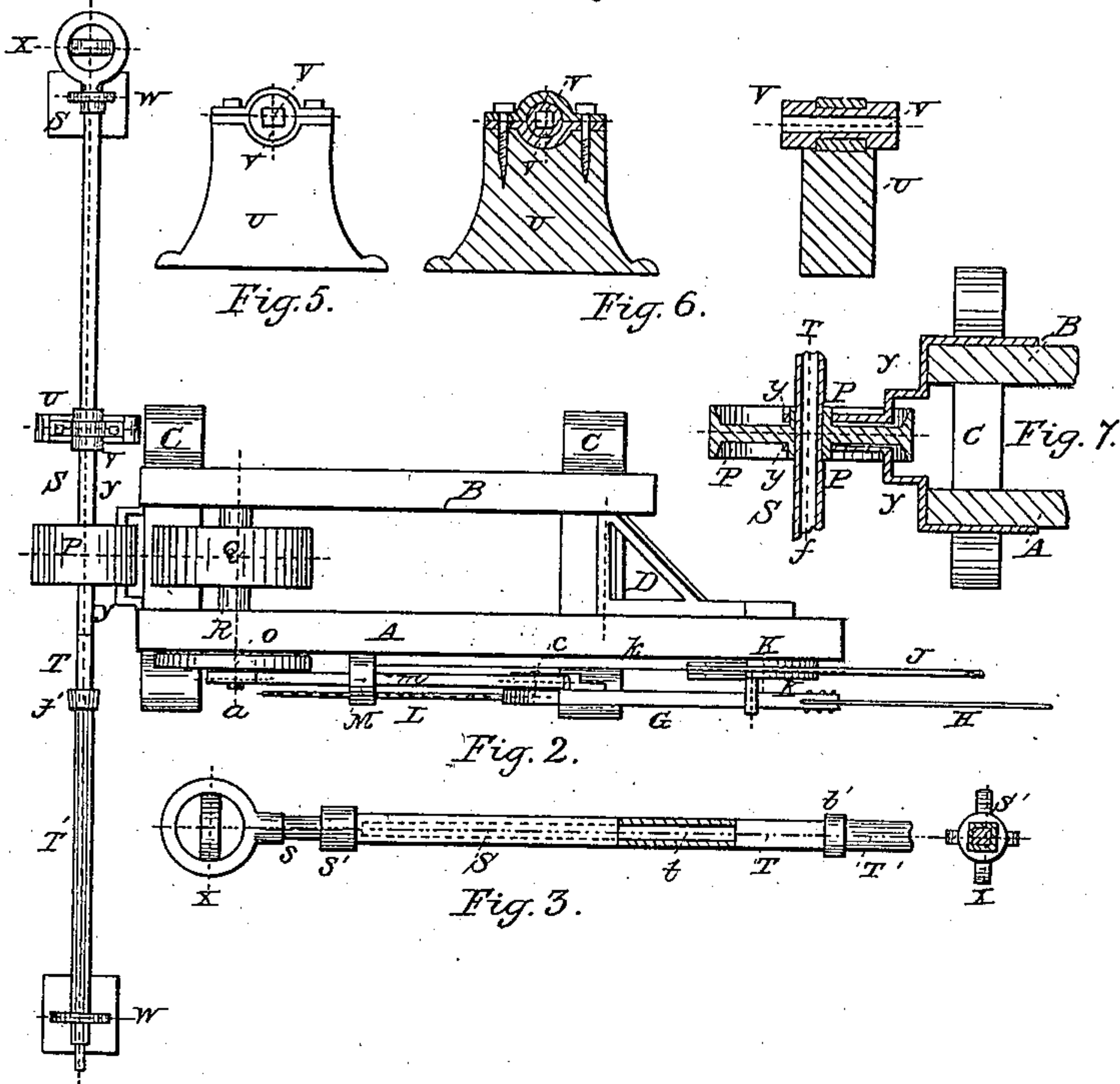
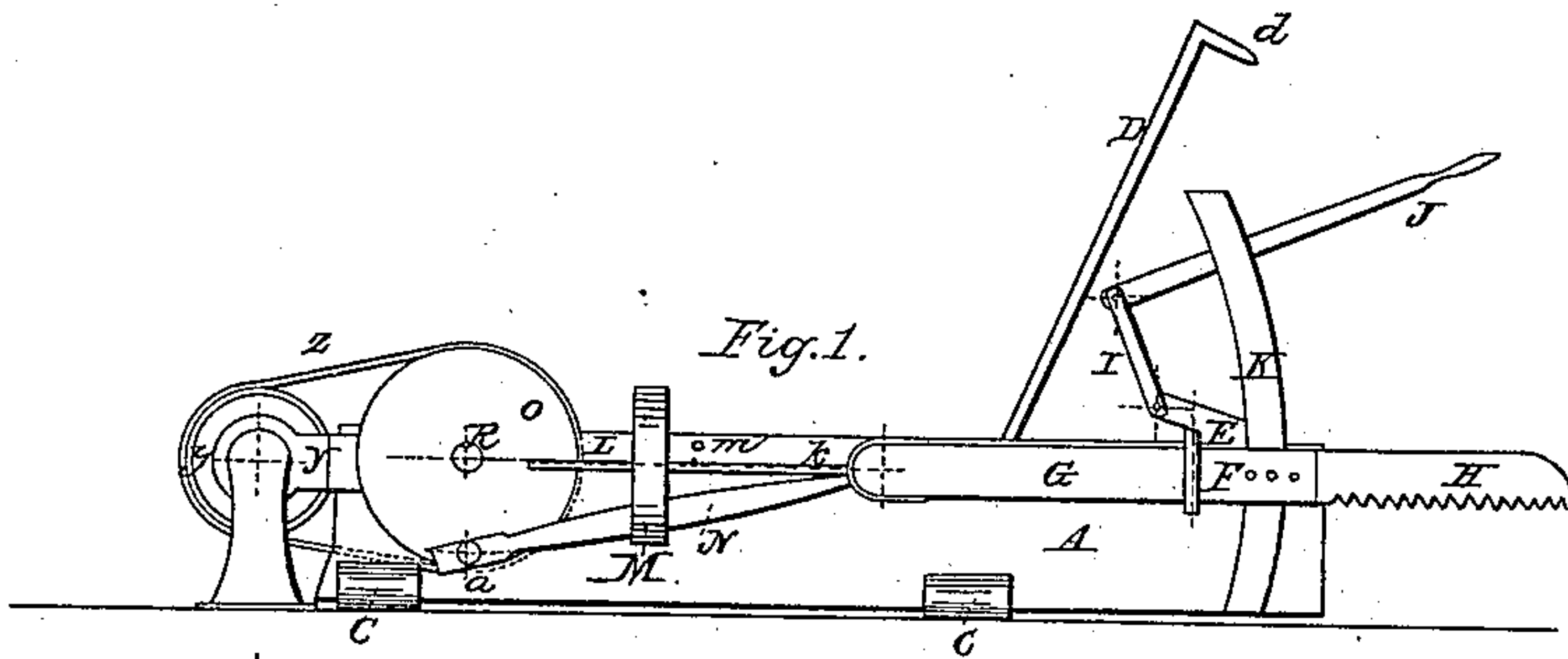


Frey & Eichholtz,

Drag Saw.

N^o 81,356.

Patented Aug 25, 1868.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN FREY, OF OSNABURG, AND JOHN M. EICHHOLTZ, OF CANTON, OHIO.

IMPROVEMENT IN SAWING-MACHINES.

Specification forming part of Letters Patent No. **81,356**, dated August 25, 1868.

To all whom it may concern:

Be it known that we, JOHN FREY, of Osnaburg, in the county of Stark and State of Ohio, and JOHN M. EICHHOLTZ, of Canton, in the county of Stark and State of Ohio, have invented new and useful Improvements in Sawing-Machines; and we do hereby declare that the following is a full, clear, and exact description of our invention, reference being had to the accompanying drawings, forming a part of this specification, and the letters of reference marked thereon, of which drawings—

Figure 1 is an elevation of our improved sawing-machine. Fig. 2 is a plan of the same with driving-belt removed. Fig. 3 is a detail view of the driving-shaft. Fig. 4 is a perspective view of the saw-guide supporter. Fig. 5 is an elevation of the movable supporter for driving-shaft. Fig. 6 are central vertical longitudinal and transverse sections of the same. Fig. 7 is a horizontal section taken through the driving-shaft and pulley and the rear of the saw-frame, showing the mode of combining the same.

Our invention relates to certain improvements in the construction and arrangements of certain parts of a sawing-machine, whereby we are enabled to move the main frame of the machine, with the saw and its immediate connections, along the side of the log to be sawed without changing the position of the motive power, which is a great advantage in sawing whole tree-logs in the forest, where the moving of the motive power is very inconvenient, and the log too heavy to be handled without great power; said improvements consisting, first, in the novel mode of constructing the driving-shaft, which is made in two parts, the one sliding into the other, whereby the shaft may be made of a moderate length, where the ground is too uneven to allow of the use of a long shaft, by sliding the one part into the other, or may be extended into a long shaft by sliding out said part, where the ground will allow the use of a long shaft or the length of the log to be sawed requires it, without the loss of time that would result from the bolting on of an extra shaft, or the danger of having a crooked shaft of great rigidity, which would be liable to occur in forming an ordinary bolted face-coupling, and which would prevent the proper working of the machine; also, in the novel mode of combining the

driving-shaft and pulley with the main frame of the machine, whereby any derangement in the relation of the driving-pulley and the pulley on the crank-shaft of the machine is avoided, notwithstanding any motion of the main frame of the machine.

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

A and B represent the main side pieces of the saw-frame, which are united by sills C C, as shown. In these side pieces is hung the crank-shaft R, which is provided with the pulley Q and crank-wheel O, with crank-pin *a*. The radial arm *k* is pivoted to the side piece A by bolt *m*, and has the saw-guide supporter E F attached to its front end. The guides K K are curved to a circle with its center at *m*, and have a space between them, in which the front end *h* of the saw-guide E F works, by which said guide is caused to move up and down in a vertical plane. The lever J is hung between the top ends of the guides K K, and is connected by a link, I, to the arm *e* of the saw-guide E F, so that by working the lever J the saw may be raised or lowered, as desired. The saw-bar G has the saw H inserted in its front end, and works through the hole *f* in the side plate F of the saw-guide supporter E F. At the rear end of the saw-bar G is attached the guide-rod L, as shown, which works in a box which is pivoted on the inner face of the outer part of the O-shaped iron M. The pitman N is pivoted to the saw-bar G by means of the plate *b* and bolt *c*, as shown, and is attached to the crank-pin *a*, as shown.

An iron, D, of the form shown, is pivoted between the side pieces A B, and is provided at the front end with a point, *d*, which is driven into the log to be sawed, thus serving to steady the main frame of the machine. The arms Y Y are attached to the side pieces A B, and have the circular ends *y y*, in which are made round holes, which receive the ends *p p* of the axle of the driving-pulley P, and form the boxes for the same, as shown in detail in Fig. 7.

A belt, Z, runs around the driving-pulley P and the pulley O, or the crank-shaft R, and thus serves to communicate motion to the saw. It is readily seen that by this mode of hanging the pulley P in the arms Y Y, attached to the frame A B, the relation of the driving-

pulley P and pulley O, and consequently the action of the belt Z, remains unchanged during any movement of the whole main frame of the machine.

The axle of the driving-pulley P is provided with a square hole of the same size as the driving-shaft S T which passes through it, so that it can slide along said shaft, but cannot revolve except with the shaft.

The shaft S T is of a peculiar construction, the part S consisting of a square hollow tube, with a journal, s, and universal joint X at its end, while the part T consists of a round part, T', a square part, T, of the same size as the outer surface of the part S, a collar, t', between the round portion T' and the square portion T, and a square part, t, of the same size as the interior of the tube S, into which it fits, as seen in Figs. 2, 3, and 7. A movable support, U, having a collar, V, with square hole v, of the same size as the shaft S T, hung in a box at its top, is used, in combination with the driving-shaft, to support it in the middle, and thus prevent it from wobbling. The shaft-posts W W are made with feet, as shown, or in any other suitable manner, and serve as bearings for the shaft, as shown. The power is communicated to the driving-shaft by a rod attached to the universal joint X, and to the engine or horse-power in any ordinary manner.

The operation of our machine is readily seen: The shaft S T is placed parallel to the log to be sawed, and at a suitable distance from the log to allow a space for the saw mechanism A B C, which sets with the end of the piece A against the log, the whole being so arranged that the driving-pulley P shall be close to the collar s' of the driving-shaft S T at the first cut of the log, which extends in the direction of the driving-shaft. The point d is then driven into the log, the saw H

lowered by the lever J, and the first cut made. The saw is then raised, the point d drawn out of the log, and the main frame of the machine A B C slid along the ground till in position for another cut, and in the same manner the operation is continued until the whole log is cut up. The driving-pulley P slides along the shaft S T until it strikes the collar t', when the part t commences to slide out of the tube S, and this is continued until the part t is nearly out of the tube S, the tube S being supported by the supporter U V, and the forward post W being moved forward whenever the collar t' comes up to it.

It is readily seen that this arrangement allows of the sawing of a very long log without the moving of the motive power, the length of sawing depending on the length given to the tube S and part t.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

The driving-shaft S T, composed of the tube S, with journal s, and shaft t T T', with collar t', when used in combination with the driving-pulley P of a sawing-machine, said pulley being maintained in its relative position to the machine by means of arms Y Y, the extended ends of which form the boxes of the driving-pulley P, substantially as and for the purpose specified.

As evidence that we claim the foregoing we have hereunto set our hands in presence of two witnesses this 4th day of May, A. D. 1868.

JOHN FREY.
JOHN M. EICHHOLTZ.

Witnesses:

JOB ABBOTT,
ED. N. BEEBOUT.