J. J. CARTER.

Steam-Engine for Sawing-Machines.

No. 200,895. Patented March 5, 1878.

Fig. 1.

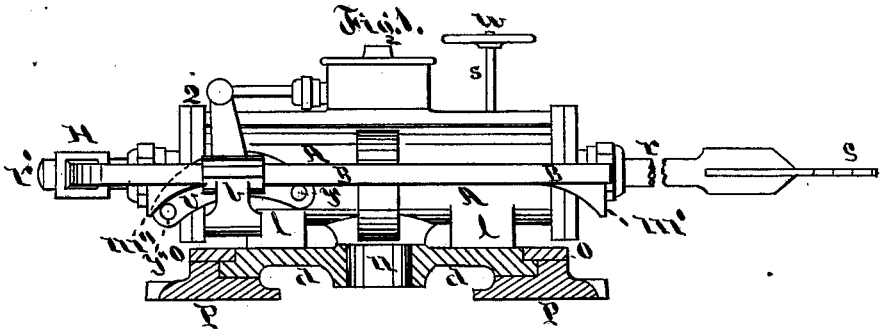


Fig. 2.

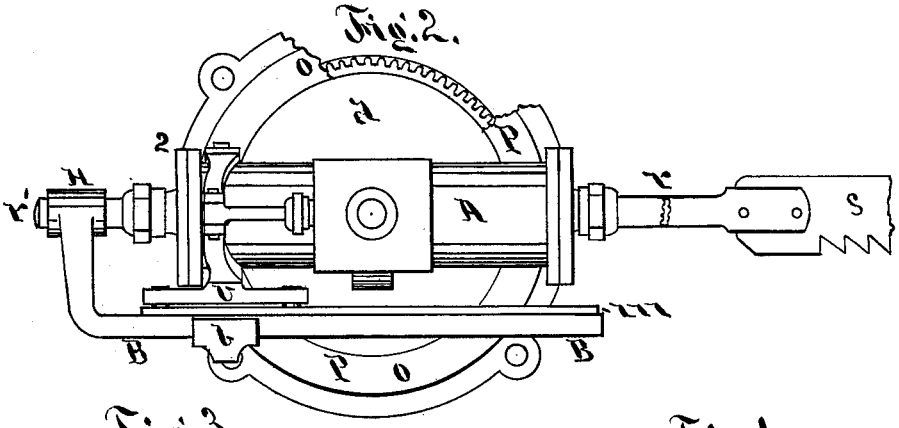


Fig. 3.

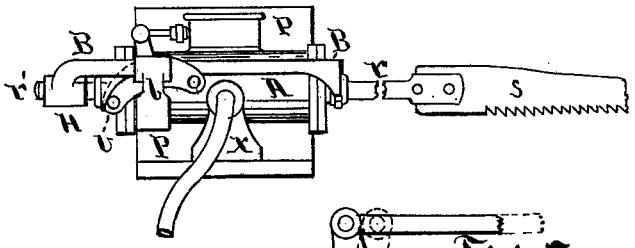


Fig. 4

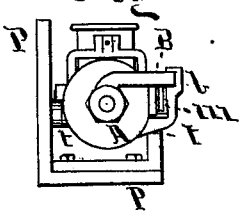
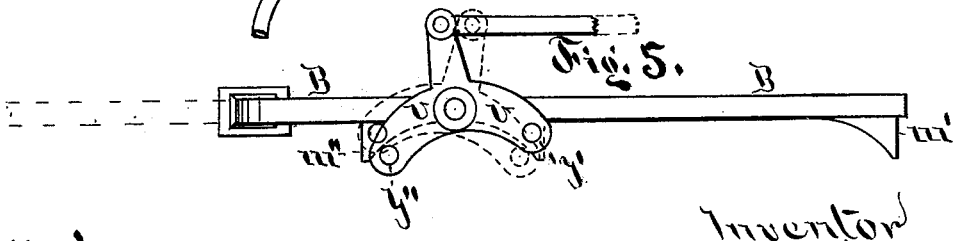


Fig. 5.



Witnesses

Frank G. Waterhouse,

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UNITED STATES PATENT OFFICE.

JAMES J. CARTER, OF SACRAMENTO, CALIFORNIA.

IMPROVEMENT IN STEAM-ENGINES FOR SAWING-MACHINES.

Specification forming part of Letters Patent No. **200,895**, dated March 5, 1878; application filed August 9, 1877.

To all whom it may concern:

Be it known that I, JAMES JOSEPH CARTER, of the city and county of Sacramento, State of California, have invented a new and Improved Steam-Engine for Sawing-Machines, for felling and sawing up trees, of which the following is a full specification:

The nature of my invention consists of a steam-engine constructed so as to be used in combination with a saw, for the purpose above set forth.

Referring to the accompanying drawings, Figure 1 is an elevation of a machine embodying the most essential parts of my invention. Fig. 2 is a plan of Fig. 1. Fig. 3 is a longitudinal elevation of the machine attached to an angle-bed, C. Fig. 4 is an end elevation of Fig. 3. Fig. 5 is a detail, to show the valve-gearing and the parallel rod B, used to keep the saw from turning.

My invention consists of a steam-engine, A, a parallel rod, B, used for the purpose of keeping the piston-rod *r* and saw *s* from turning, a valve-gearing, *v*, and a bed-plate, to which the engine A is attached so as to oscillate freely upon the bed, so that when the bed-plate is fixed immovably the engine is free to oscillate in line with the cut of the saw while at work.

In Figs. 1 and 2, the cylinder A is attached to the bed-plate P by means of the disk *d*, which is rigidly fixed to and made a part of the cylinder A. By means of the lugs *l* (see Fig. 1) the disk *d* is made to fit in the bed P, to which it is secured by means of the annular ring *o*, in such a manner as to allow the disk *d* to freely rotate in the bed P, thus allowing the cylinder to oscillate in the periphery of the disk *d*.

I have cogs either all or partly around, (see Fig. 2, where P is broken off,) and in these cogs I have a pinion or screw mesh, so as to cause the rotation of *d*. In Fig. 1 is shown a hand-wheel, *w*, and shaft *s*, used for the purpose of working said pinion. Through the disk *d* there is a central opening, through which the exhaust-steam passes.

In Figs. 3 and 4 is shown an angular bed-plate, to which the cylinder A is attached through its trunnions *t*, the trunnion of one side of the cylinder A having a bearing in P, and the opposite trunnion having a bearing in the stanchion *x*, (see Figs. 3 and 4,) which is bolted to P, thus allowing it to be oscillated freely, by means of the lever *k*, (see Fig. 3,) or by other suitable means. In this case the live and exhaust steam pass in and out through the trunnions, as in the case of the common oscillating engine.

With this engine I make the piston-rod *r* extra heavy, in order that its rigidity will preserve the alignment between the saw and the cylinder, and prevent it from springing while at work. Directly to the piston-rod *r* I attach the saw S. (See Figs. 1, 2, and 3.)

The piston-rod *r* runs through the back head Q of the cylinder A; and on the piston-rod, at *r* I rigidly attach the parallel rod B by means of the eye H, the rod B being bent at right angle, (see Fig. 2,) so as to project vertically from the piston-rod *r*, and then bent so as to be parallel to the cylinder or piston-rod, so that when the piston is in motion the rod B slides in the bearing *b*, said bearing *b* being an open box, formed as a bracket, and bolted on the side of the cylinder A. (See Figs. 1 and 4.)

Now, as the rod B is securely fixed to the piston-rod *r*, it is plain that, by making the rod B to work in the bearing *b*, the piston-rod *r* and the saw S are prevented from turning, thus doing away with the necessity of cross-head and slides.

Attached to and made a part of the rod B is a plate or bar, *m*, provided with wide curved ends *m' m''*, so arranged as to act as cams upon the pins *y' y''* of the valve-gearing *v*, as shown in Figs. 1, 2, 3, and 4, and more plainly set forth in detail drawing, Fig. 5. Now, the cams *m' m''* being so arranged that when the piston forces B one way, as it reaches the end of its stroke the plate *m''* slides on the pin *y''* placed in the rocker *v*, causing *v* to move so as to draw the valve in the opposite direction, producing the return-stroke to the piston, which, in turn, causes B to move in the direction shown by the dotted lines, so that the end of the plate or cam *m'* strikes on the pin *y'*, reversing the position of the rocker *v* and valve again, as shown by the dotted lines.

I do not claim the combination of the steam-engine with the saw or the means of working the same, or the rotating disk *d*, or the trunnions *t*, as I have reason to believe that the same is now known and used; but

I claim as my improvement—

The combination of the connected piston and parallel rods, the latter serving to operate the valve, and also to prevent the piston-rod from turning, substantially as set forth.

JAMES J. CARTER.

Witnesses:

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JOHN H. ANDREWS.