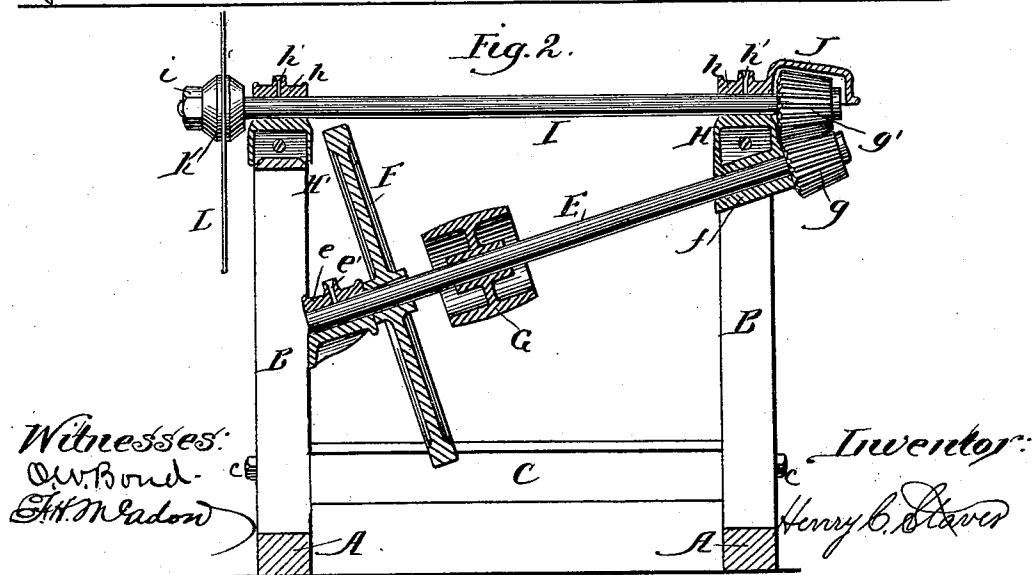
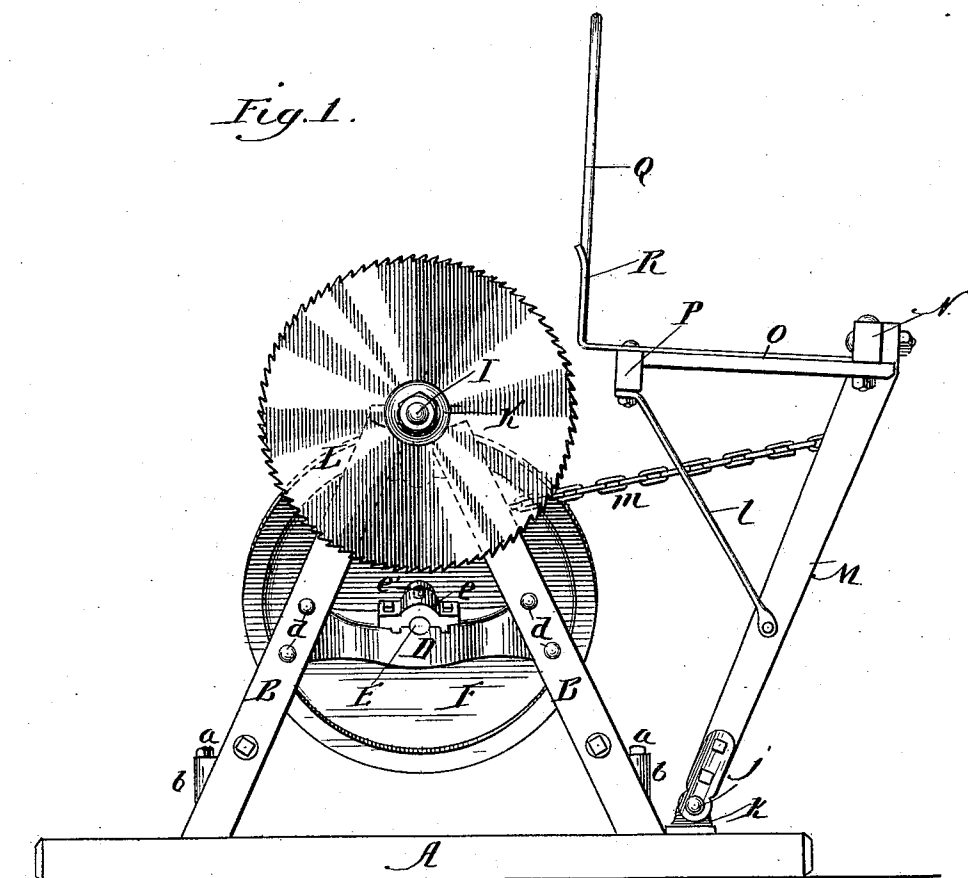


(No Model.)

H. C. STAVEL.
SAWING MACHINE.

No. 461,455.

Patented Oct. 20, 1891.



UNITED STATES PATENT OFFICE.

HENRY C. STAVER, OF ENGLEWOOD, ILLINOIS.

SAWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 461,455, dated October 20, 1891.

Application filed April 3, 1889. Serial No. 305,613. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. STAVER, a citizen of the United States, residing at Englewood, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Sawing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, forming a part hereof, in which—

Figure 1 is an end elevation showing the carrying-frame thrown back; Fig. 2, a sectional elevation showing the balance-wheel, saw-shaft, driving-gear, and pulley.

This invention is primarily designed for use with sawing-machines termed "portable," but can also be used with sawing-machines which are located permanently.

The object of the invention is to enable a balance or fly wheel to be used without interfering with the movement of the carriage which presents the piece to be sawed to the saw and to permit sticks of any length to be placed upon the frame and presented to the saw without liability of coming in contact with and preventing the operation of the balance or fly wheel; and its nature consists in providing a driving-shaft having its upper end journaled near the top of the frame and its lower end journaled below its upper support, giving the driving-shaft a horizontal inclination in relation to the plane of the saw-arbor, and mounting on such inclined driving-shaft a balance-wheel below the plane of the saw-arbor, a horizontal saw-arbor and driving-gear on the end of the saw-arbor, and the upper end of the inclined driving-shaft meshing direct one with the other, and in the several parts and combination of parts herein-after described and pointed out in the claims as new.

In the drawings, A represents the bottom or base-pieces of the saw-frame.

B are the end pieces of the saw-frame, secured to the bottom pieces A by bolts *a* and brackets *b* or in any other firm manner.

C are the side pieces of the saw-frame, running from end piece to end piece and secured to the end pieces B by bolts *c* or otherwise; D, an end cross-piece attached to the end

pieces B by bolts *d* or otherwise; E, a shaft, one end of which is mounted in a journal-box *e* on the cross-piece D, said box having an oil-passage *e'*; F, the balance-wheel, keyed or otherwise firmly secured to the shaft E to have its hub adjacent to the end of the journal-box *e*; G, a pulley keyed or otherwise fastened to the shaft E adjacent to the balance-wheel F, and this pulley has its exterior face rounded or inclined both ways from the center for the purpose of holding a driving-belt (not shown) thereon and preventing such belt from running and drawing the shaft E endwise; H H', brackets secured to the upper end of the side pieces B. The bracket H on its underside has a journal box or bearing *f*, in which is mounted the shaft E, and as this bearing *f* is higher than the bearing *e* the shaft E stands at an incline, giving an inclination to the fly-wheel F and pulley G, and this inclination of the shaft E is one that brings the balance-wheel F below the saw-shaft, as shown in Fig. 2. The shaft E projects beyond the box *f*, and to its end is secured a bevel-gear *g*, which meshes with the bevel-gear *g'*, secured to the end of the saw-arbor; I, the saw-arbor, mounted in suitable journal-boxes *h* on the brackets H H', each box having an oil-passage *h'*, and to the end of this arbor is attached the bevel-gear *g'*.

J is a cap or housing covering and protecting the bevel-gears *g g'*; K, a clamp for the saw on the end of the arbor I; L, the saw secured between the parts of the clamp K and held in place by the nut *i* on the end of the arbor I; M, standards or uprights, one for each end of the machine, and each pivoted by a pin or pivot *j* to a bracket or ear *k*, secured to the base-piece A; N, a top rail or piece bolted or otherwise secured to the upper end of the standard M; O, supporting-pieces bolted or otherwise secured to the rail N; P, a rail or piece bolted or otherwise secured to the front ends of the supporting-pieces O and braced at each end by a rod *l*, extending up from the standard M, and, as shown, the backward movement of the frame formed by the pieces M N O P is limited by chains *m*, attached to an end piece B and the standard M. The parts M N O P constitute the carriage or support on which the piece to be sawed is placed; Q, a guide and guard for passing over

the saw; R, guards for holding the piece on the carriage or frame.

The operation is as follows: The piece to be sawed is placed on the frame or carriage therefor, with the frame or carriage thrown back, as shown in Fig. 1, and by advancing the carriage or frame the piece is presented to the saw and cut off, and when cut off the carriage or frame is withdrawn and the piece moved endwise on the carriage or frame the distance required for the length of cut and the frame or carriage again advanced and the piece cut off, and these operations are repeated until the piece on the carriage or frame is cut into pieces of the desired length, when a new piece is placed on the carriage or frame, and the operations repeated therewith. The balance-wheel is driven from the shaft E, which shaft is driven from the pulley G, and the shaft E, through the bevel-gears *g* and *g'* drives the arbor I to revolve the saw L to do its work, and as the saw is driven from the shaft E, which shaft carries the balance-wheel F, it will be seen that the saw is controlled by the balance-wheel as effectually as if such wheel was on the end of the arbor I, and at the same time the balance-wheel is located below and out of the way of the carriage or frame and the piece carried thereon, so that it is free to run without interference from the frame or the piece being sawed. The location of a fly-wheel below the plane of the saw-arbor permits of the use of a balance or fly wheel of sufficient size to control the saw, and such balance-wheel is entirely out of the way as it runs below the line of the sawing, and by thus placing the balance or fly wheel the frame or carriage is left clear for the reception of long pieces without interfering therewith, and such pieces can overhang the end of the saw carriage or frame and the balance-wheel be entirely out of the way thereof, and a balance-wheel located as shown and described enables the machine as a whole to be made very compact with the balance-wheel out of the way and in position to do the work required.

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

1. The combination, in a sawing-machine, of a driving-shaft journaled at the upper end near the top of the frame of the machine and journaled at its lower end below its upper support, giving the driving-shaft a horizontal inclination in relation to the plane of the saw-arbor, a driving-gear on the upper end of the

driving-shaft, a balance-wheel carried by the inclined driving-shaft below the plane of the saw-arbor, a horizontal saw-arbor, and a driving-gear on the end of the saw-arbor meshing direct with the driving-gear of the inclined shaft for running a balance-wheel below and clear of the saw-arbor and locating the driving-gears with their centers of motion close together, substantially as and for the purposes specified.

2. The combination, in a sawing-machine, of a driving-shaft journaled at its upper end near the top of the frame of the machine and journaled at its lower end below its upper support, giving the shaft a horizontal inclination in relation to the saw-arbor, a balance-wheel carried by the inclined driving-shaft, a driving-pulley secured to the inclined driving-shaft, a driving-gear on the upper end of the inclined shaft, a horizontal saw-arbor, and a driving-gear on the end of the saw-arbor meshing direct with the driving-gear on the upper end of the shaft for locating the balance-wheel below and clear of the saw-arbor and driving the saw-arbor, substantially as and for the purposes specified.

3. The combination, in a sawing-machine, of a driving-shaft having an upper and lower journal in different horizontal planes, giving the driving-shaft a horizontal inclination, a balance-wheel mounted on the inclined driving-shaft, a driving-gear on the upper end of the inclined driving-shaft, a horizontal saw-arbor, a driving-gear on the end of the saw-arbor meshing direct with the driving-gear on the upper end of the driving-shaft, and a movable frame or carriage for the piece to be sawed, substantially as and for the purposes specified.

4. The combination, in a sawing-machine, of a driving-shaft having a horizontal inclination, a horizontal saw-arbor carrying the saw, a balance-wheel on the inclined driving-shaft below the plane of the saw-arbor, a driving-pulley on the inclined driving-shaft, a driving-gear on the upper end of the inclined shaft, a driving-gear on the end of the saw-arbor meshing direct with the driving-gear of the inclined shaft, and a movable carriage or frame supporting the piece to be sawed, substantially as and for the purposes specified.

HENRY C. STAVER.

Witnesses:

O. W. BOND,
F. H. McADOW.