Ebenezer W. Phelps Imp.t in Saw Gumming & Sharpening Machines

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PATENTED JUN 21 1870

Fig: 1.

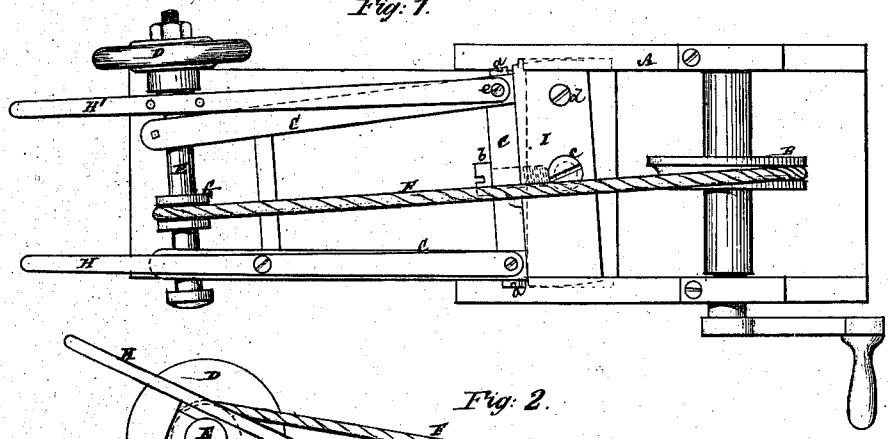


Fig: 2.

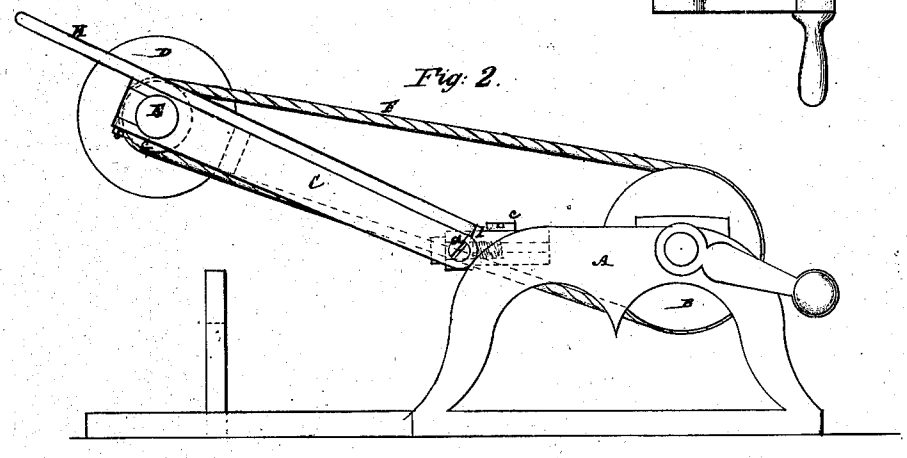
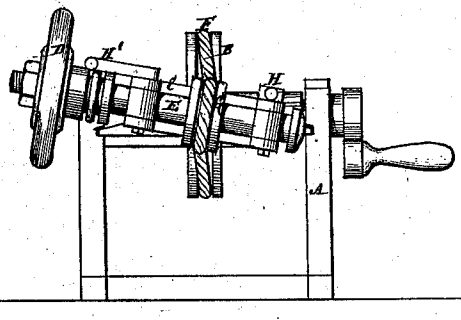


Fig: 3.



Witnesses:
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EBENEZER W. PHELPS, OF ELIZABETH, NEW JERSEY.

Letters Patent No. 104,639, *dated June* 21, 1870.

IMPROVEMENT IN SAW-GUMMING AND SHARPENING MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, EBENEZER W. PHELPS, of Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Saw-Gumming and Sharpening Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing forming part of this specification, and in which—

Figure 1 represents a plan of a saw-gummer and filer or sharpener, constructed in accordance with my improvement;

Figure 2, a side view of the same; and

Figure 3, a front view thereof.

Similar letters of reference indicate corresponding parts.

My invention relates to machines for gumming and filing or sharpening saws, also applicable to the sharpening of the cutter-teeth in reaping and mowing-machines, by means of a revolving emery-wheel, or other like reducing device. It will suffice here, however, to refer to the machine as used for gumming and sharpening saws.

The invention consists in certain peculiarities of construction or mode of hanging and operating the emery-wheel, whereby facilities are afforded to it for every movement necessary to grind the teeth of the saw or cutter, either under their hooked fronts, or over their rounded backs, however hollow or rounded the curvature of them; also, for changing the bevel of the teeth without moving the entire machine.

Said invention is especially applicable to circular mill-saws, the grinding of which, without removal from their spindles, it provides for.

Referring to the accompanying drawing—

A represents the main frame, which supports the driving-pulley B, and to which the swinging frame C is attached.

In applying the machine to the saw, the main frame A is bolted or otherwise secured to its place, and rotary motion communicated to the driving-wheel B either by engine-power or hand.

The swinging frame C may be counterbalanced at its free end, to facilitate operation of the machine.

D is the emery-wheel, fast on a cross-shaft, E, at the outer or free end of the swinging frame, and deriving its motion by a band or rope, F, through a pulley, G, from the driving-pulley B.

Said wheel may either be rounded or V-shaped on its edge, according to the description of the saw or cutter to be operated on.

H H′ are handles or levers connected with the swinging frame C, and by which the latter is manipulated, as required.

The swinging frame C has its side pieces pivoted, as at *a a*, to its back piece, to allow of an up-and-down movement of the swinging frame, which provides for the working of the emery-wheel in and out of the teeth, and said back piece of the swinging frame, pivoted, as at *b*, to allow of the rocking of said frame, which provides for following the curvature or shape of the teeth on their front and back edges.

The block I, to which the swinging frame C is secured by the pivot *b*, may be stationary on the main frame, but it is preferred to attach it thereto by a vertical pivot, *c*. This allows of the swinging frame C being moved laterally, to change the bevel of the saw-teeth, or to allow of the emery-wheel grinding at different bevels.

Said adjustment, when made, may be secured by a set-screw, *d*, or other suitable means, according to the bevel required.

A fuller or more perfect adjustment, however, in this respect, is attained by providing for the sliding of the emery-wheel shaft E in its bearing, by pivoting the one handle or lever H′, as at *e*, and connecting it with said shaft, so that the latter may be moved by it laterally, in relation to the swinging frame.

To sharpen a circular mill-saw while on its arbor, the machine is set up to the side of the saw on the log-carriage, and near the rear edge of the saw, that is, where the teeth, or one of them, stands pointing upward, or nearly so. The machine is set so that the emery-wheel will stand over said tooth, and the frame of the machine being made fast to the carriage, the tooth lying in relation to the emery-wheel, as specified, is ground, as required, by the manipulation of the swinging frame, after which the saw is turned round till the next tooth comes in right position, and so on till the several teeth have been sharpened.

To sharpen common mill-saws, cross-cut saws, and mower and reaper-knives, the same should be laid on a suitably-elevated platform, and the emery-wheel be made with a V, instead of a rounded edge, as necessary in sharpening large circular-saws.

A machine constructed to operate as described has numerous advantages. Thus it is adapted to gumming and sharpening circular mill-saws, without the necessity of the removal of the saw from its arbor, (which is a saving of time and labor,) which is always required in rehanging and truing up a circular mill-saw when it is rehung on the arbor.

Furthermore, the emery-wheel is so perfectly under the control of the operator, that it can be brought in contact with the tooth in any desired position. Not only, too, may the saw be sharpened in less time and with less labor than by filing, but the cost of the emery-wheel, as compared with files, is infinitely less,

and a superior edge given to the teeth, and with every facility, as regards meeting varied curvatures, shapes, or bevels.

What is here claimed, and desired to be secured by Letters Patent, is—

1. The shaft E of the emery-wheel D, made capable of longitudinal adjustment, substantially as specified, and whereby provision is made for lateral adjustment of said wheel, relatively to the frame C, which carries it, as and for the purposes described.

2. The frame C, arranged to swing laterally on a center, as at *d*, in combination with its pivoted attachment, as at *a a*, to provide for its up or down adjustment, substantially as specified.

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Witnesses:
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