

(No Model.)

J. E. EMERSON.

MACHINE FOR STRAIGHTENING AND TRUING BAND SAWS.

No. 356,931.

Patented Feb. 1, 1887.

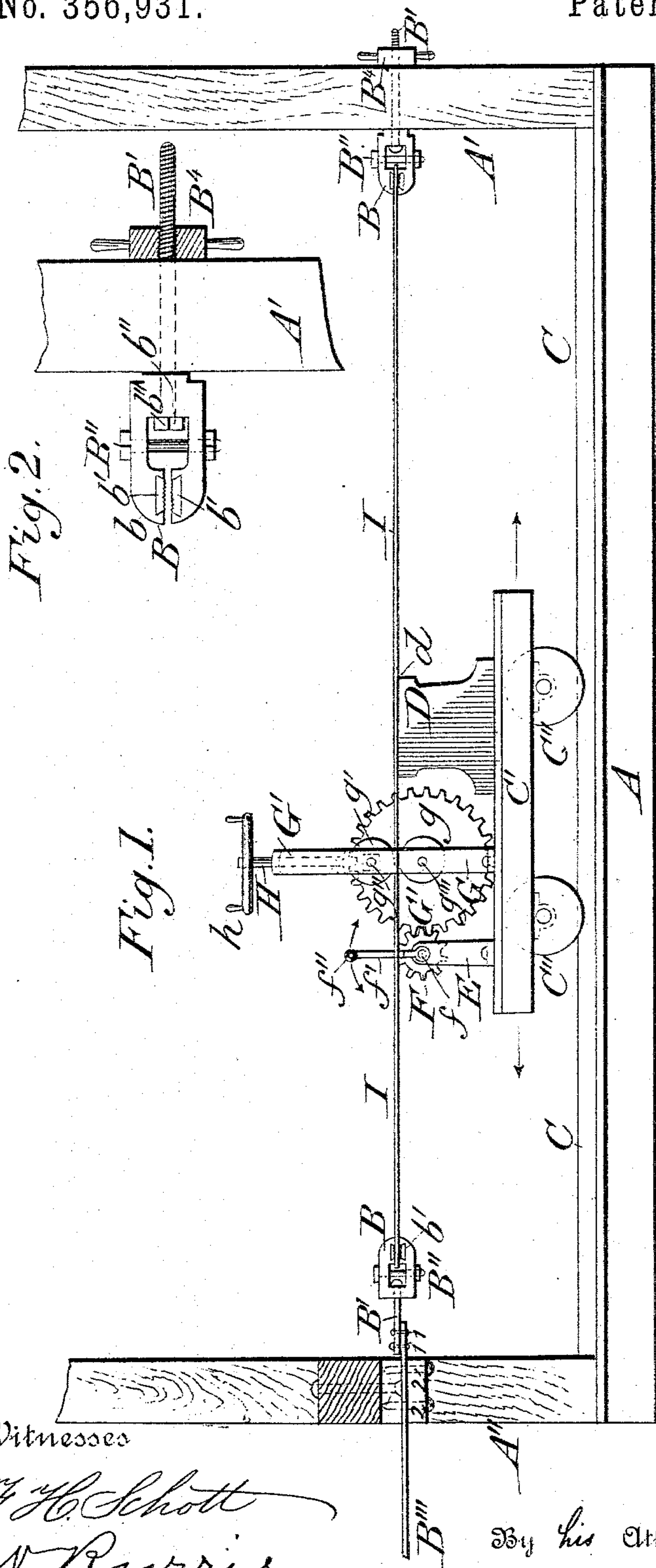


Fig. 2.

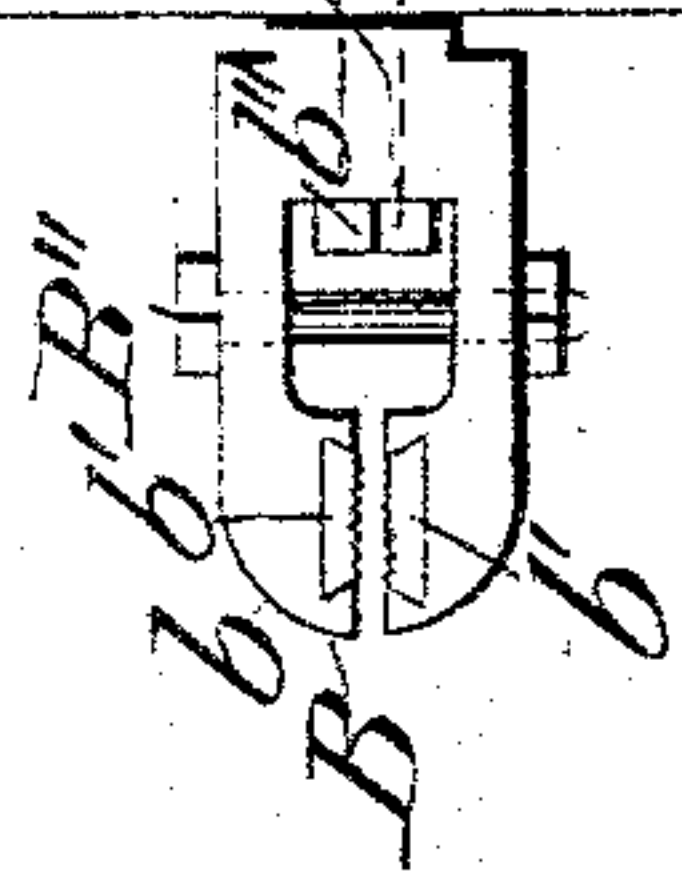
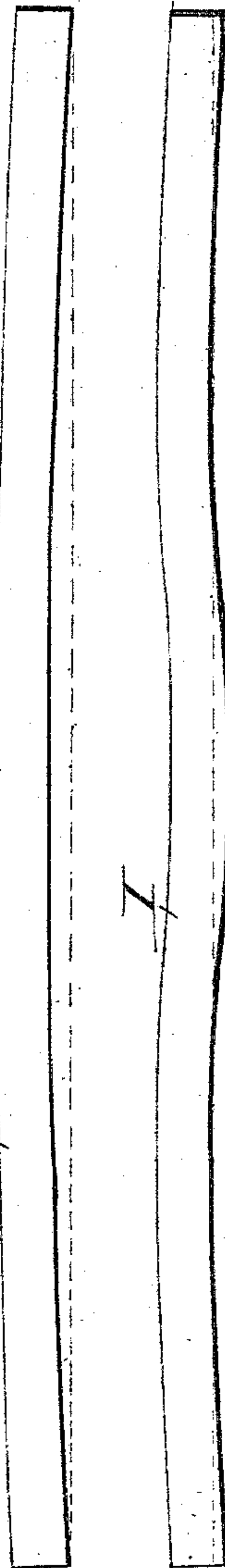


Fig. 1.

Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

JAMES E. EMERSON, OF BEAVER FALLS, PENNSYLVANIA.

MACHINE FOR STRAIGHTENING AND TRUING BAND-SAWS.

SPECIFICATION forming part of Letters Patent No. 356,931, dated February 1, 1887.

Application filed August 4, 1886. Serial No. 209,970. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. EMERSON, a citizen of the United States, residing at Beaver Falls, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Straightening and Truing Wide Band-Saw Blades, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of this invention is to improve the means for straightening and truing the blades or plates of long band-saws such as are used in sawing logs into boards or planks which are fifty or more feet in length, and which must not only be straight on their edges, but free from lumps or bends on the sides thereof; and the invention consists in the construction of devices whereby the object of the invention is obtained, as will be hereinafter fully described.

In the drawings, Figure 1 represents a side view of the device. Fig. 2 represents an enlarged view of a clamp or vise for holding an end of a saw-blade while it is being straightened and trued, and showing the means by which the elongation of the blade is taken up, kept taut, and the blade allowed to be turned over. Fig. 3 shows the bent condition of saw-blades before they are subjected to the operation of straightening and truing.

Heretofore such band-saw blades have been straightened and trued by drawing them by hand over the anvil upon which the blades were straightened, which necessitated the use of a man at each end of the blade to manipulate it while being made true and straight, and a hand to test its straightness on its edges by a straight-edge; but by my improvement in the devices the hammer-man and one helper is all that is needed, and even the helper may be dispensed with, as the hammer-man can manipulate the saw-blade upon the anvil by himself.

My device is composed of a strong framework having sills A and uprights A', and other strengthening parts (not shown) necessary to give a stable unyielding superstructure, in which the crooked or bent saw-blades are secured before they are to be straightened and trued.

B is a spring-clamp or vise having jaws b

and toothed plates b', to be forced by screw-bolt B'' upon the sides of the blade at each end while being operated upon. The clamp B is swiveled upon swivel-bolt B', which goes through upright A', so that it can rotate thereon. Bolt B' is screw-threaded on its outer end and extends a distance outside of upright A' to receive a screw-nut, B'. At the opposite upright, A'', is secured another clamp-vise, the same as that above described, except that instead of the bolt B', upon which the clamp turns being a screw-bolt, it is firmly fixed to a sliding adjustable rod or bar, B''', by rivets 1 1 or other secure means, and the adjustable rod B'', when adjusted, is firmly held in place in upright A'' by the clamping-screws 2 2 or any other secure means.

C represents the rails of a railway-track, consisting of the two rails, which are as near perfectly horizontal as possible and straight upon their upper surfaces, and extend the entire length between the uprights A' and A''.

C' represents a strong car-frame secured to and upon car-wheels C'', and so that the car can be easily run upon track C in either direction by a small amount of force.

D is the straightening-anvil, firmly secured upon the car C', and having its hammer-face d perfectly plane and parallel with the top of rails C.

E represents an upright or pair of uprights secured to the platform of car C', to which or between which is secured toothed pinion F on shaft f, and with which it easily revolves by the crank f' and handle f''.

G represents a pair of uprights secured to the platform of car C', and having a cap or plate, G', secured upon their top ends, and a pair of flattening-rollers, g g', therein or between the uprights, the roller g' having its bearings secured in movable boxes g'', that slide in grooves in uprights G, by means of raising-screws H and turning-winch h; or but one screw H may be used; but two are preferred, in order to keep the bearing equal on all parts of the width of the plate.

I represents a saw-blade in Fig. 1 in position to be acted upon, and in Fig. 3 it represents the saw-blades in their crooked condition and before they are straightened and trued.

The long blades for band-saws rarely, if

ever, come from between the rollers straight on their edges, and never but they have more or less bends in their sides. In Fig. 3 is shown some of the edgewise bends in these plates as they come from the rollers, and as it is necessary that band-saw plates be practically straight upon their edges, and the edges should also be practically parallel, hence a resort to hammering on the side of the saw-plate next the concave curve, diminishing the force of the blows toward the convex edge, so that the plate will by such hammering become practically straight, as is ascertained by applying a straight-edge thereto, as the process of so hammering the plate stretches the concave edge until it becomes as long as its opposite edge, when the plate will be straight.

The plates of band-saws in hammering them to straighten their edges become more or less indented by the hammer-strokes, and to equalize this indentation upon opposite sides of the plate requires the plate to be frequently turned over upon the anvil, which is done easily, as the saw-plate is placed into the clamp-vises B at each end, and the toothed plates *b'* forced thereon by the screw *B''* centrally upon the plates. It can then be turned over while so clamped by revolving the two clamps upon their swivel-bolts *B'*. As the hammering process will lengthen the plate more or less, and as it is necessary to have the plate at all times taut as it rests upon the anvil, the screw-nut *B** upon the outside of upright *A'* is turned up hard against upright *A'* on screw-bolt *B'*, which keeps the plate at the proper strain over and upon the anvil.

As the lengths of the saw-plates differ, means to accommodate such differences is had by riveting the swivel-bolt *B'* to an adjusting-rod, *B'''*, that goes through upright *A''*, and is secured therein when adjusted to the length of plate.

The saw-plate *I*, as seen in Fig. 1, is in length the longest the frame will receive; hence a shorter plate will draw the rod *B'''* within the uprights and lessen the distance between the clamp-vises.

The anvil *D* and car *C'* are moved in either direction by turning the winch *f''*, revolving pinion *F*, that gears into toothed wheel *G'*, which is fast on shaft *g'''* of roller *g*, which revolves roller *g*, and when roller *g'* is forced down upon the saw-plate that is between rollers *g* and *g'* the car *C'* and anvil *D* will move in the direction desired, and the saw-plate will lie upon the face of the anvil in position to be hammered at any point the moving anvil may stop.

There may be side bends in the saw-plate besides the indentations made by the hammer-strokes, and such will be leveled or taken out by the flattening-rollers *g g'* as the saw-plate *I* passes between them. Roller *g'* is raised by the screw-shaft *H* to allow the plate *I* to be revolved when necessary.

The saw-plate can be changed end for end in the clamp-vises, or the car and its anvil turned about so that the anvil will come up to the clamp-vises at either end of the saw-plate.

The rollers *g g'* are a trifle larger in diameter in the center of their lengths, so that in passing over the plate it is slightly opened or stretched more in the center of its width than at its edges, so that when the saw is in operation and strained over its driving-pulleys the edges of the saw will be most strained and be firm as the saw does its cutting, and is much less liable to tremble than when the tension is equal in its whole width. Thus these pressure-rollers perform several functions—that is, by their revolution on the saw-plate the anvil is moved under the whole length of the plate, the plate is flattened, and the center in width of the plate is opened or stretched by their use, completing their operation.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a device for straightening and truing band-saw plates, the combination of the movable anvil *D*, underneath and in contact with the saw-plate *I*, with the clamp-vises *B B*, constructed to be adjusted to keep the plate taut, and swiveled to allow the plate to be turned over upon the anvil, substantially as described.

2. In a device for straightening and truing band-saw plates, the combination of the car *C'*, anvil *D*, rail-track *C*, rollers *g g'*, gear-wheels *G'* and *F*, with means for revolving the wheels, with the saw-plate *I*, whereby the anvil is caused to travel underneath the saw-plate, as described.

3. The combination of two rotatable clamp-vises, *B B*, one having a means for adjusting the distance between the clamp-vises by the bar *B'''*, and the other constructed so as to take up the stretching of the plate in hammering by the screw-bolt *B'* and nut *B**, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES E. EMERSON.

Witnesses:

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W. W. MERCHANT, Sr.