

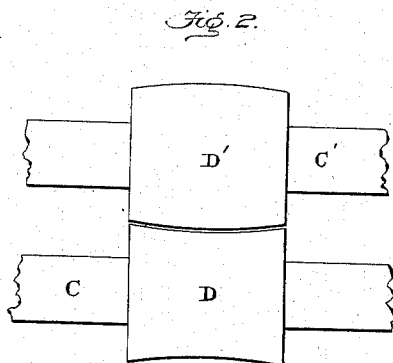
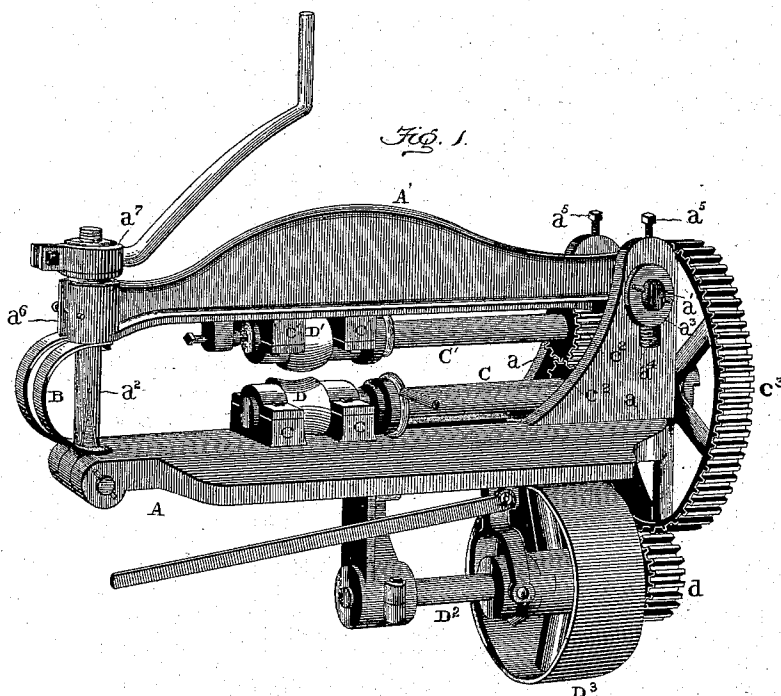
(No Model.)

H. R. SMITH.

MACHINE FOR STRETCHING AND STRAIGHTENING BAND SAWS.

No. 565,640.

Patented Aug. 11, 1896.



Witnesses

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-Inventor-

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Att'y's

UNITED STATES PATENT OFFICE.

HARRY R. SMITH, OF ALPENA, MICHIGAN.

MACHINE FOR STRETCHING AND STRAIGHTENING BAND-SAWS.

SPECIFICATION forming part of Letters Patent No. 565,640, dated August 11, 1896.

Application filed November 2, 1895. Serial No. 567,692. (No model.)

To all whom it may concern:

Be it known that I, HARRY R. SMITH, a citizen of the United States, residing at Alpena, in the county of Alpena and State of Michigan, have invented certain new and useful Improvements in Machines for Stretching and Straightening Band-Saws, of which the following specification contains a full, clear, and exact description, reference being had to the

drawings, in which—

Figure 1 is a front elevation of my improved machine, and Fig. 2 is a detail showing the rolls.

My invention relates to machines for stretching and straightening band-saws.

The object of my invention is to provide a machine of this class which will remove all inequalities or lumps from the saw without hammering and make it perfectly smooth and straighten it by stretching it first on one side and then on the other, to give it the proper tension and impart to it a concave inner face, so that it will fit the drive-pulleys, but be perfectly flat when under strain thereon in the operation of sawing. These objects I accomplish by the convex and concave rolls, as will be hereinafter described and claimed.

The frame of the machine may be of the usual character and consists in the base A, having parallel vertically-slotted standards a^1 at one end and a vertically-swinging bolt a^2 at the other, and the upper adjustable section A', which has its pivot a' mounted in spring-supported bearings a^3 , sliding in the standard-slots. These bearings may be adjusted down against the action of their springs a^4 by means of the set-screws a^5 . The opposite end of the adjustable section A' is provided with a vertical slot a^6 to receive the swinging bolt a^2 , which has a nut a^7 bearing on the upper side of the section A', a bow-spring B being interposed between the base and frame-section at this end. Thus by properly adjusting the nut a^7 and the set-screws a^5 the section A' may be kept in exact parallelism with the base.

C is a shaft journaled in bearings $c c$ on the base A, and C' is a parallel shaft journaled thereabove in bearings $c' c'$ on the frame-section A'. These two shafts are connected by the pinions c^2 , while shaft C is also provided with a large gear-wheel c^3 , meshing with pin-

ion d on the drive-shaft D², the latter having a drive-pulley D³ and a suitable clutch mechanism. I do not claim this frame and shafting as my invention, nor do I claim the same in connection with flat-faced rolls on the shafts, nor a pair of convex rolls, nor a convex and a flat roll, as these have all been employed in different saw-straightening machines.

Upon the shaft C, I mount a concave roll D, and upon the shaft C' there is a convex roll D', the concave roll serving as the anvil for the convex roll. These rolls may be of any suitable size and are ground on true circles. The circles on which they are formed may vary for different mills which require saws of different tension; but in the majority of cases it will be a sixty-foot (60 ft.) circle.

The operation is as follows: A band-saw is passed between the two rolls and the convex roll will act upon its center and stretch it longer than at its edges, and it will do it so evenly and leave it so smooth that no break will follow. The saw is run through in this manner, first one side and then the other, and when it has the proper tension it will, when raised from either side, drop down at the center, thus . A gage having the exact curvature of the rolls is applied to both sides of the saw, and any part of the saw not in proper condition will be detected, when it may be again passed through the rolls. The saw is ordinarily treated in this manner by the rolls to within about an inch and a quarter from the base of its teeth and to about the same distance from its back. In practice I begin to roll and stretch the saw next to the base of its teeth, then next to its back, and then in its longitudinal center, and so on the other side, and it is seldom that a saw has to be treated more than once on a side.

The saw being held between convex and concave rolls cannot twist and buckle while its center is being stretched, and when the saw becomes the same shape as the rolls it will no longer be stretched, as there will not be pressure enough for that, and all of its lumps and inequalities will have been removed. Moreover, these rolls will cause the saw to tightly fit the crown of the drive-pulleys of the sawing-machine, and no slippage can take place, and the saw will be so free

from all sorts of inequalities that much less "set" will be required and more lumber can be sawed.

It will be seen that, as the convex roll only does the stretching, a saw having a projection on one side and a hollow on the other will have the same entirely removed, which would not be the case if two convex rolls were used, as then the raised and hollow parts would both be stretched together and not removed, since both convex rolls perform the stretching on both sides of the same, while my concave roll acts only as the anvil for the convex roll. The objection regarding two convex rolls applies equally to two flat rolls and to a flat and a convex roll. Moreover, these old rolls cannot impart the concave to the saw nor can they hold those parts of the

saw at opposite sides of its center from buckling and becoming uneven. The working faces of my rolls are of less width than the width of the saws to be treated.

What I claim is—

A machine for stretching and straightening band-saws, comprising a frame, parallel shafts journaled therein and geared together, a convex roll on one shaft, a mating anvil-forming concave roll on the other shaft; said rolls being of less width than the saws to be treated, means for adjusting one of the shafts toward the other, and a drive mechanism, substantially as set forth.

HARRY R. SMITH.

Witnesses:

JOHN C. COMFORT,
ZEB M. KNIGHT.