(No Model.)

W. B. BARRY.

APPARATUS FOR TEMPERING SAWS.

No. 343,358. Patented June 8, 1886.

FIG. 1

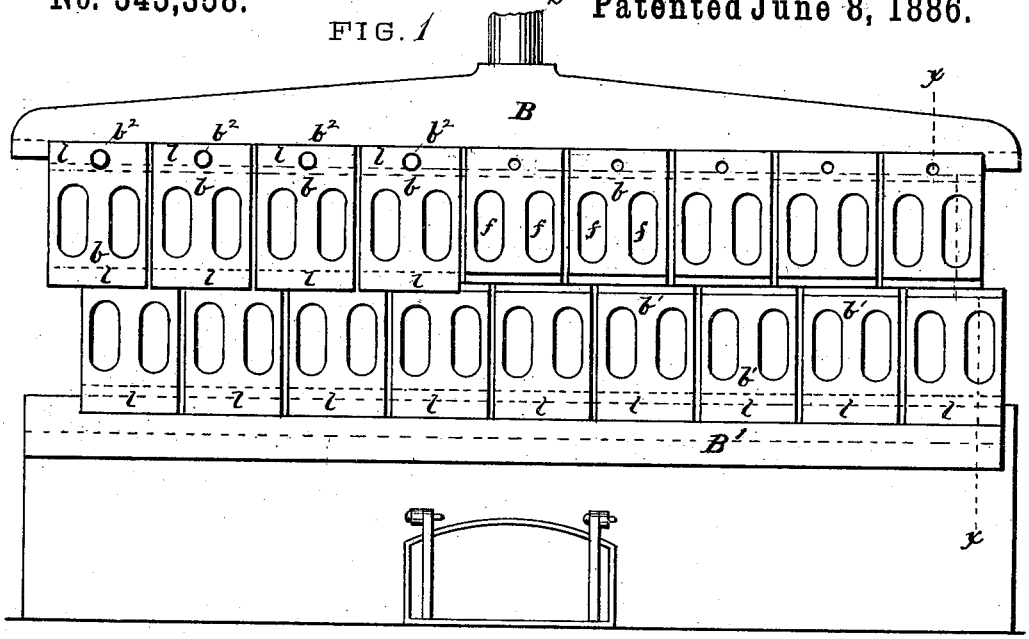


FIG. 2

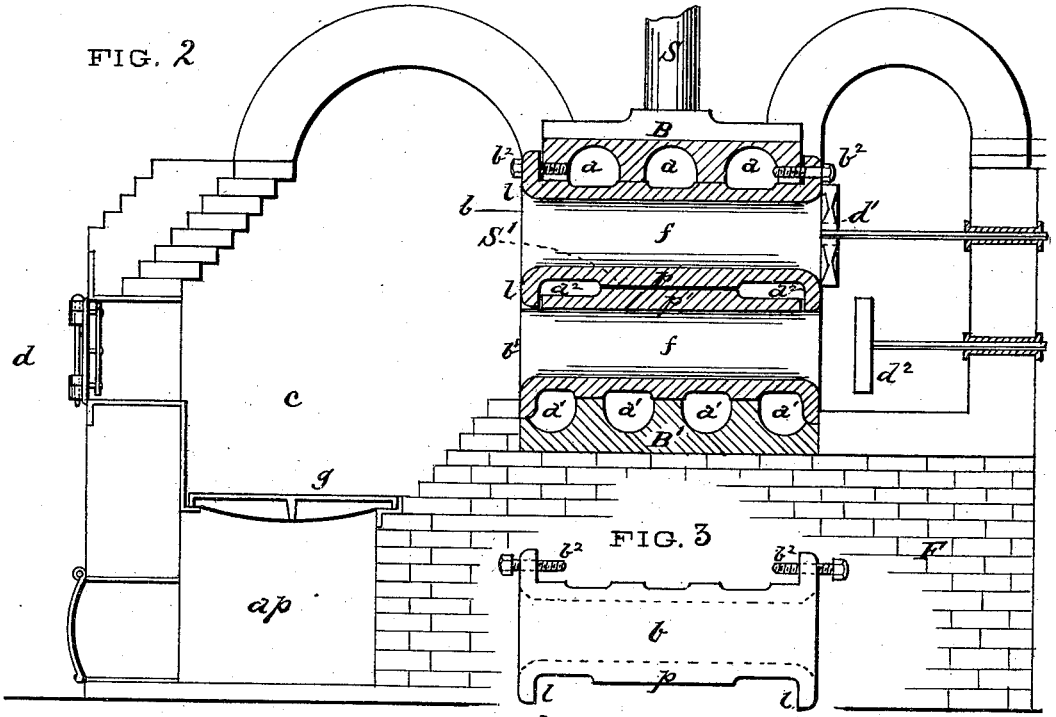
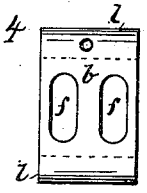


FIG. 3

FIG. 4



WITNESSES.

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WILLIAM B. BARRY, OF INDIANAPOLIS, INDIANA.

APPARATUS FOR TEMPERING SAWS.

SPECIFICATION forming part of Letters Patent No. 343,358, dated June 8, 1886.

Application filed February 12, 1886. Serial No. 191,677. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. BARRY, a resident of Indianapolis, Marion county, Indiana, have made certain new and useful Improvements in Apparatus for Tempering Saws, a description of which is set forth in the following specification, reference being made to the accompanying drawings, in the several figures of which like letters represent like parts.

My invention relates to the construction of mechanism for tempering band and crosscut saws, in which are metal blocks of suitable weight and size, one set of blocks acting as the bed upon which the saw rests, the other connected with a frame-work, which is adapted to be forced down from above by means of hydraulic or other pressure, so as to clamp the saw firmly between the different sets of tempering-blocks throughout its entire length, with suitable means for heating these blocks, so as to give the saw the required temper, while at the same time any warps or inequalities of the saw are smoothed out in the same operation, as will be understood from the following description.

In the drawings, Figure 1 is a front view of my apparatus with the overlapping fronts of a portion of the upper series of tempering-blocks removed, exposing the pressure-surfaces between which the saw passes. Fig. 2 is an end view of the apparatus with the pressure-blocks shown in section on the dotted line *x x* in Fig. 1, the end of the fire-box and ash pit being also removed to show the relative arrangement of the parts. Fig. 3 is a detail side view of one of the upper tempering-blocks, and Fig. 4 is an end view of the same.

In detail, F represents a suitable foundation on which the machinery rests, and connected with this is a furnace having the usual door, *d*, grate *g*, ash-pit *a p* below, and combustion-chamber *c* above. *b'* is a lower series of rectangular-shaped blocks resting on a base, B', through which are longitudinal openings or flues *f*, for the admission of the hot air and gases from the combustion-chamber of the furnace. In the base of these lower series of blocks are formed large air-flues *a'*, for the admission of cool air to prevent the warping of the blocks; or, if desired, the bottoms of these blocks may be left smooth and so set in the foundation as to leave suitable air spaces or flues below, which will accomplish the same result. A similar series of blocks, *b*, are arranged above this lower series in such manner that a sufficient width of the central portion of the lower surfaces of these upper blocks may be brought to bear against a corresponding width of surface upon the upper face of the lower series of blocks, and on either side these central bearing-surfaces portions of either block are cut out, so as to leave additional air-spaces, a^2, thus accomplishing the desired result of having a less width of surface to finish evenly, and at the same time to provide additional space for air-currents, if desired. It is between these bearing-surfaces of the upper and lower portions of the block that the saw is pressed in the process of straightening and tempering it.

It will be seen from Fig. 2 that the upper and lower sides of the upper series of blocks are provided with lips or flanges 1 at each end, and these flanges, coming down and bearing against the ends of the upper surface of the lower block, prevent the passage of the products of combustion in upon the saw while being compressed, and at the same time the similar flanges on the upper side of the top series of blocks form ears or lugs through which bolts are passed, and onward into the larger bar B above, whereby the upper blocks are connected with and suspended from this upper bar, B, which is preferably made solid, except that at intervals throughout its entire length openings or air-spaces *a* are left for cooling the surfaces of the upper blocks and preventing them from warping during the operation of pressing the saw.

s is a stem or shaft, which connects with any suitable pressing apparatus, hydraulic or mechanical, as may be most convenient.

My device operates as follows: The block B, with which the upper series of blocks, *b*, are connected, is raised to sufficient height to admit the entrance of the saw, so that it will rest upon the bearing-surfaces on the upper portion of the lower series of blocks and directly under the corresponding surfaces on the under side of the upper series of blocks, and then, pressure being brought to bear, the bar B, with its suspended blocks, descends and clamps the saw firmly and evenly between the two sets of blocks, and the saw in such position is indi-

cated by the heavy line marked S′ in Fig. 2. The saw is put in these clamping-blocks for tempering and smoothing directly from the oil bath, the blocks having been previously heated by means of the connected furnace to a suitable temperature before the saw is put in, and the pressure is continued for a sufficient length of time to toughen, straighten, and temper the saw, when it is withdrawn, and the operation is repeated as many times as there are saws to be tempered.

In the rear of the flues *f* are the dampers *d′* and *d²*, for opening or closing the back end of these flues, so as to regulate the admission of heat therein and the temperature of the upper and lower series of blocks.

I am aware that pressure-blocks provided with heat-flues for admitting hot air have been used for tempering and straightening saws in connection with suitable mechanism for pressing the saw between such blocks are not new, and have been heretofore used in the art, and do not broadly claim such as my invention.

What I do claim, and desire to secure by Letters Patent, is the following:

1. In a saw-tempering machine, the upper bar, B, channeled on its under side so as to form the air-flues *a*, open at the ends, a series of upper tempering-blocks, *b*, connected to the under side of the said bar B by means of the bolts *b²*, these blocks having horizontal heat-flues throughout their entire length, a central clamping or pressing surface on the under side of such blocks, a lower series of similar pressing and tempering blocks provided with similar horizontal flues, and resting on a base, B′, channeled out to provide air-flues *a′*, open at the ends, the foundation F, a suitable heating apparatus, and a press for clamping the blocks together, all combined substantially as described.

2. A saw tempering and straightening machine composed of an upper bar, B, connected with suitable pressing apparatus, a series of pressure-blocks connected with such bar and provided with central horizontal flues through which heated air may pass for heating the blocks to the required temperature, such blocks provided with a lower face for pressing the saw, a series of lower pressure-blocks provided with similar flues for admitting heat to pass, and provided with an upper pressure-surface corresponding to the pressure-surface of the lower face of the upper blocks, a series of air-flues, *a′*, formed either in the base of the lower blocks or in the foundation upon which it rests, for cooling the lower series, a series of air-flues, *a*, formed in the bar B or in the upper portion of the upper blocks, the whole resting upon a suitable foundation, a furnace for heating the blocks to the desired temperature, and a suitable pressing mechanism, all combined substantially as described.

3. In a saw-tempering mechanism, an upper bar, B, connected to a hydraulic or mechanical press, a series of pressing and tempering blocks connected with such upper bar, and containing hot-air flues which open upon the combustion-chamber of a suitable furnace and discharge into any suitable chimney or stack, a lower series of blocks provided with similar hot-air flues and arranged in a similar manner with respect to the combustion-chamber of the furnace and the stack, a series of air-flues channeled in the bar to which the upper series of blocks are attached, a similar series of air-flues channeled in the base upon which the lower series of blocks rest, or formed in the foundation below such base, suitable pressure-surfaces being left between these blocks for receiving the saw to be pressed and tempered, the outer ends of these hot-air flues provided with dampers for regulating the heat, a furnace for heating the blocks, and a press for forcing the upper series of blocks down upon the faces of the lower series, all combined substantially as described.

In witness whereof I have hereunto set my hand this 9th day of February, 1886.

WILLIAM B. BARRY.

Witnesses:
C. P. JACOBS,
HATTIE MURRY.