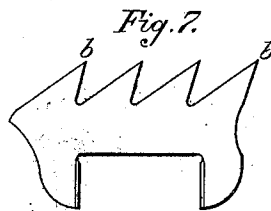
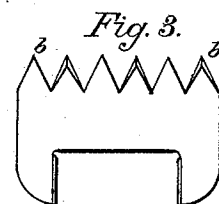
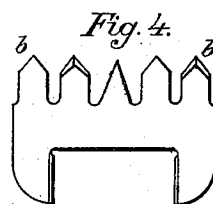
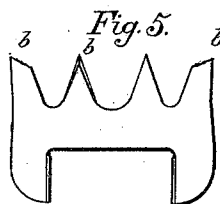
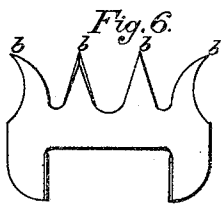
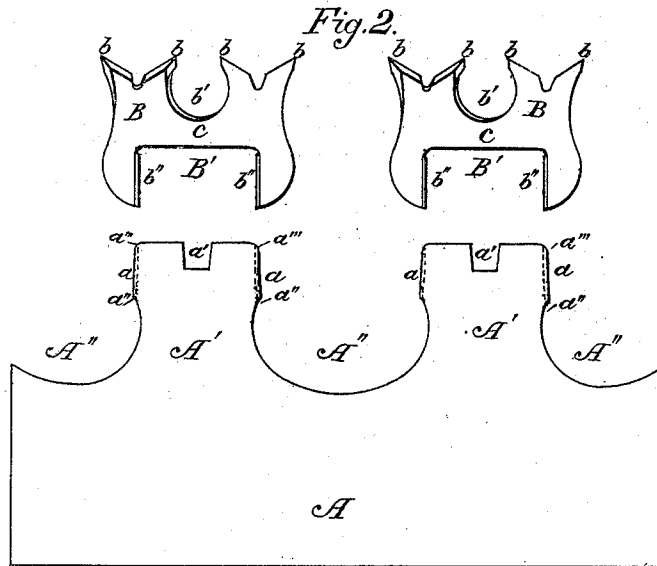
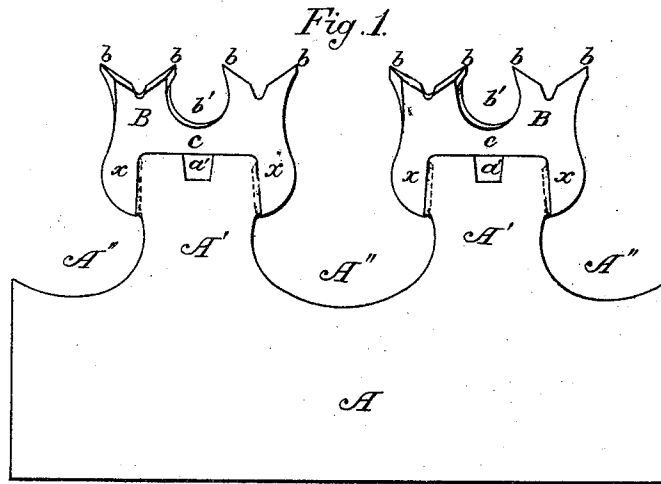


J. E. EMERSON.

CROSS-CUT SAW.

No. 170,833.

Patented Dec. 7, 1875.



ATTEST:

J. H. Schott,
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INVENTOR:

James E. Emerson
By N. Crawford atty.

UNITED STATES PATENT OFFICE.

JAMES E. EMERSON, OF BEAVER FALLS, PENNSYLVANIA.

IMPROVEMENT IN CROSSCUT-SAWS.

Specification forming part of Letters Patent No. **170,833**, dated December 7, 1875; application filed November 27, 1875.

To all whom it may concern:

Be it known that I, JAMES E. EMERSON, of Beaver Falls, in the county of Beaver and State of Pennsylvania, have invented certain Improvements in Crosscut-Saws, of which the following is a specification:

Insertable and removable teeth for circular saws have long been in use, but to use removable teeth or cutters upon a crosscut-saw is believed to be new; consequently the object of this invention is to furnish crosscut-saws with teeth that are removable, that can be set and sharpened with the same facility as solid teeth, and, when worn down as far as safety dictates, can be removed and a new set attached at less cost than the solid-toothed saw could be gummed for; and it consists in the construction of the saw-blade, whereby the object of this invention is accomplished.

In the drawings, Figure 1 represents a side view of the saw complete; Fig. 2, a side view of the saw-plate and the teeth ready to be attached to the plate; and Figs. 3, 4, 5, 6, and 7 represent modifications of the teeth or cutters.

A represents the blade of the saw-plate, having the projecting bases A' to receive and hold the removable plate with the teeth, and a circular or other shaped opening, A'', between or each side of the bases A', that extend into the saw-blade beyond the base of the removable plate with the teeth, which form ample dust-spaces between each set of removable teeth. The outer portion of the projecting bases A', or that portion that receives the set of teeth, is a trifle narrower at the extreme outer point, at a''', than at point a'', and is finished on its edges with a V-shaped groove to receive a corresponding-shaped rib on the removable teeth. B B are the removable plates, having a series of teeth or cutting-points, b, thereon, and a recess, B', centrally located on the edge opposite the cutting-points b of the teeth, and have projecting V-shaped ribs b'' on opposite sides of the recesses B', that enter the grooves a in the bases A'. The opposite sides of the recesses B', having ribs b'', are parallel, and the width of the opening between these opposite ribs is just equal to the width of the outer projection of base A' between the grooves a, and the removable teeth B have an opening, b', between the pairs of

cutting-points b, and tempered, so that the part c between the cavity or opening b' and the recess B' becomes a spring, and will allow the projecting shoulders x x to open at their outer extremities, to be forced upon the slightly-tapering bases A', and keep their hold upon their bases when in use, without liability of becoming loose.

a' is a recess in the outer central part of each base A', to insert a tapering lever to remove the plate B when it is necessary to do so. The removable plates B have a series of projecting cutting teeth or points, b, thereon, and are generally constructed as seen in Figs. 1 and 2; but it is obvious that any shaped cutting-points or any number of such points can be formed upon the removable plate B, as is seen in Figs. 3, 4, 5, 6, and 7, to correspond with the use that the saw may be put to. The removable plates B, with the teeth thereon, are cut by a die and punched from sheet-steel, then formed into perfect shape for finishing in a die by a drop or other hammer, when the V-shaped rib is formed on the inner edges of the recess. This construction of the removable plate with the teeth of a saw thereon is so cheap that, after dressing the teeth a few times, or until the teeth become shortened, (and if in a solid saw would need gumming,) the teeth can be removed from the saw-blade and a new set attached cheaper than a solid-toothed saw could be gummed, thus renewing the saw at short intervals.

No device, such as rivets, screws, spring-catches, or means of holding the plates, other than the slight spring in the plate to hold it in secure position on the saw, is used; hence there is no danger of springing or buckling the plate in attaching the teeth.

Another advantage in this construction of a crosscut-saw is, the blade may be narrower and contain less stock; consequently it will be lighter and easier operated.

Crosscut-saws as ordinarily constructed, with solid teeth, are very much wider in the center of their length than at the ends, forming a segment of a circle on the cutting-points, and are so constructed because the wear is many times greater at or near the center than at the ends, and because there is greater liability to damage the central portion of the

teeth of a saw than at the ends ; hence the saw can be made to be much nearer a straight line on the cutting-points when the teeth are removable ; and as the blades having the teeth are all interchangeable, if the teeth on one removable plate become, by wear or accident, shorter than those at the ends, they can be transposed, and place the shortest teeth at the ends of the saw, and those taken from the ends put in the middle ; or, by having several sets of plates, with the different kinds of teeth thereon, the same blade answers for a saw for different kinds of work, such as fast sawing, smooth sawing, with fine teeth, or splitting with the teeth, as seen in Fig. 7 ; consequently one blade may be used an indefinite length of time, only renewing the plates B as the teeth or cutting-points *b* become shortened, so as to effect the successful operation of the saw.

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

1. A crosscut-saw composed of the blade A, having the projecting bases A' and spaces A'' between them, and the removable plate B, having a series of cutting-points or teeth, *b*, substantially as described.

2. A crosscut-saw constructed to have the teeth thereof attachable and removable, in the manner substantially as described.

3. The attachable and removable plate B, having two or more cutting-points or teeth, *b*, thereon, and forming a part of a crosscut-saw, substantially as described.

JAMES E. EMERSON.

Witnesses:

A. G. McCREARY,
DAVID T. NILES.