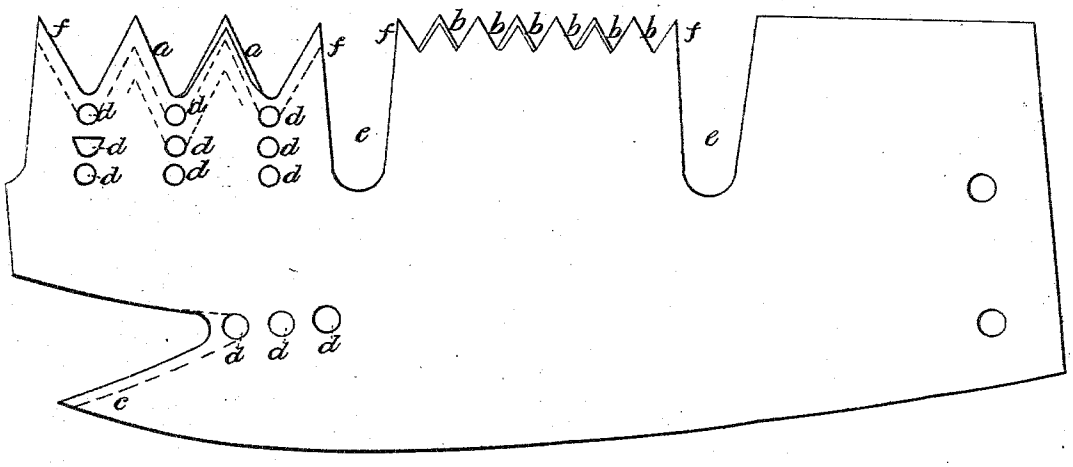
J. E. Emerson,

Saw.

No. 66,692. Patented July 16, 1867.



Witnesses:
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United States Patent Office

JAMES E. EMERSON, OF TRENTON, NEW JERSEY.

Letters Patent No. 66,692, *dated July* 16, 1867.

IMPROVEMENT IN SAWS.

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, JAMES E. EMERSON, of Trenton, in the county of Mercer, and State of New Jersey, have invented certain new and useful Improvement in Saws; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, which is made a part of this specification, and which represents a side elevation of a saw-blade, which, for the sake of convenience of illustration, has been made to exhibit several varieties of teeth.

The first part of my invention consists in providing the saw with apertures or perforations, a series or plurality of which extend consecutively and in a definite line from or near the throat or point of juncture of each pair of teeth, and which subserve the purpose of facilitating the sharpening of the saw, as will be hereinafter more fully explained. The second part of my invention consists in a novel method of forming the saw with clearing-teeth, in connection with chambers or openings in the blade, for the purpose of removing the saw-dust from the kerf, and cutting off the ridge which remains at the base of the kerf in consequence of the "set" position of the teeth.

In order that others skilled in the art to which my invention appertains may be enabled to fully understand and use the same, I will proceed to describe it in detail, in connection with the accompanying drawings.

The figure is a representation of a single blade, having a set of large teeth, *a*, and of small teeth *b*, such as are formed on the blades of cross-cut or reciprocating saws, and a circular or slitting saw-tooth, *c*. It is of course to be understood that this embodiment of the several varieties of teeth in a single blade is merely to condense the illustration, the individual saws, as manufactured, necessarily embracing but one kind of working-tooth. *d d d* represent apertures, which are punched through the thickness of the blade or otherwise produced therein, a plurality of which apertures extend in a definite line or series from the point of juncture between each pair of teeth toward the back of the saw-blade. The object and utility of these apertures will be understood from the following explanation: Under the method of construction heretofore most commonly adopted, it is necessary to bring the saw-gummer into requisition as often as the teeth need sharpening, the operation of said instrument involving considerable difficulty, and the instrument itself being in many instances unobtainable. The use of the gummer is rendered necessary, because the file itself cannot be made to cut with the required precision, or form the curvature at the throat of the teeth to obviate cracks or fractures. It will be seen that in my case the apertures *d*, being taken as a guide, enable the file to be effectively applied with facility. To enable the metal between the apertures *d* to be readily removed by the file, I propose to soften this part of the blade through the agency of heat, which may also serve as a medium for toughening the blade in the region of said apertures. The apertures *d* may be made in various forms. In circular saws the apertures *d* should be disposed in a line corresponding to the direction in which the teeth wear and are sharpened, as shown in the drawing. I am aware that John Lippincott obtained a patent on the thirteenth day of March, 1866, for a saw in which is provided a "slot or indentation, having parallel sides, and extending into the blade below the root or termination of the inclined side of the teeth, for the purpose of serving as a guide in dressing the saw with a file." By this method a large portion of metal is removed, and the teeth are made liable to yield or vibrate, and hence operate inefficiently. In my saw each portion of metal between the apertures *d* adds to the strength and rigidity of the teeth. *e e* represent chambers or openings formed at suitable intervals in the saw-blade, and extending into the latter from the extreme cutting-edge to a point considerably beyond the base of the teeth, said chambers terminating in a curve, to avoid liability of fracture. These openings or chambers *e* divide the teeth into sets of any desired number, as may be properly calculated in constructing the saw, each of such sets being concluded by a half tooth, *f*, the point of which stands out of line with and somewhat nearer the longitudinal centre of the saw than the points of the working-teeth. This half tooth *f* serves not only to remove the ridge at the base of the kerf, but also clears the kerf of saw-dust, and deposits the same in the chamber *e*, which carries the dust out of the kerf and drops it. The clearing-tooth *f* has straight or rectilinear sides, so that in dressing the same the relation of its point to the points of the working-teeth will always be uniformly maintained. It is also well braced and steady in operation, from the fact of being joined at one side to the section of the saw upon which a set of the working-teeth are formed. I am aware that it is not new to form a hooked clearing-tooth on the toothed sections of a saw, each feature being exhibited in a withdrawn application, filed by George R. Atkins, in 1857; but in this case the clearing-tooth is not susceptible of dressing or filing without changing the relation between the points of the clearing and working-teeth to such an extent as to materially impair or altogether destroy the efficiency of the saw.

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

The provision in a saw of apertures *d*, for facilitating dressing or sharpening, substantially as described.

J. E. EMERSON.

Witnesses:

CHAS. D. SMITH,

CHAS. A. PETTIT.