C. F. CARR & S. S. WILCOX.

File.

No. 167,495. Patented Sept. 7, 1875.

Fig. 1.

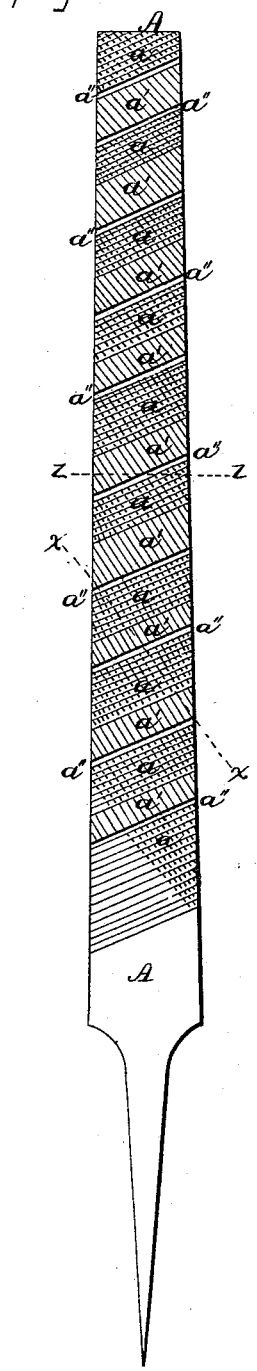


Fig. 2.

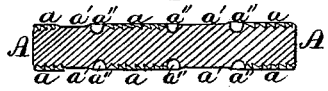
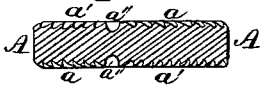


Fig. 3.



WITNESSES:

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John R. Young

INVENTORS.

C. F. Carr and S. S. Wilcox,

by Prindle and Lawrence their attys

UNITED STATES PATENT OFFICE.

CHARLES F. CARR AND STEPHEN S. WILCOX, OF ADEL, IOWA.

IMPROVEMENT IN FILES.

Specification forming part of Letters Patent No. **167,495**, dated September 7, 1875; application filed July 21, 1875.

To all whom it may concern:

Be it known that we, CHAS. F. CARR and STEPHEN S. WILCOX, of Adel, in the county of Dallas and in the State of Iowa, have invented certain new and useful Improvements in Files; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, in which—

Figure 1 is a plan view of the face of a file constructed in accordance with our improved method. Fig. 2 is a cross-section of the same upon line *x x* of Fig. 1, and Fig. 3 is a like view upon line *z z* of same figure.

Letters of like name and kind refer to like parts in each of the figures.

The design of our invention is to increase the efficiency of files employed for working metal; and it consists, principally, in a file provided upon its abrading surface with alternate sections of cross-cut and single-cut teeth, substantially as and for the purpose hereinafter specified. It consists, further, in a file provided at suitable points upon its abrading surface with diagonal grooves or channels, which exceed in transverse dimensions, and extend below, the cuts that form the teeth, substantially as and for the purpose hereinafter shown.

In the annexed drawing, A represents a file of ordinary shape, the surface of which is provided with a number of sections, *a* and *a*, of cross-cut teeth, and with corresponding intermediate sections *a'* and *a'*, of single-cut teeth, all of usual form. At the point of intersecton between each cross-cut and single-cut section *a* and *a'*, is formed a groove or channel, *a''*, which is parallel with the sides of said sections, and has a depth and width considerably greater than that of any cut employed in the formation of the teeth.

The file is now complete, and combines the advantages of both single and cross cut files, so that when used it enables the surface of metal to be cut away with greater rapidity than would be practicable if a single-cut file was employed, and with far more smoothness than could be obtained by the use of a cross-cut file.

The diagonal grooves collect the particles of metal cut away, and prevent the same from becoming wedged into the teeth of the file, where said particles would not only prevent the operation of said teeth, but would also cause grooves or scratches to be made upon the surface of the metal being operated upon.

Having thus fully set forth the nature and merits of our invention, what we claim is—

1. As an improvement in files, alternate sections of cross and single cuts *a* and *a'*, respectively, substantially as and for the purpose specified.

2. As an improvement in files, a series of diagonal grooves or channels, *a''*, extending across the face of the same, substantially as and for the purpose shown.

In testimony that we claim the foregoing we have hereunto set our hands this 12th day of July, 1875.

CHARLES F. CARR.
STEPHEN S. WILCOX.

Witnesses:
S. L. WARD,
T. F. MCCOMAS.