

E. M. KIMBALL.
Appliance for Flat-Filing.

No. 204,493.

Patented June 4, 1878.

Fig. 1

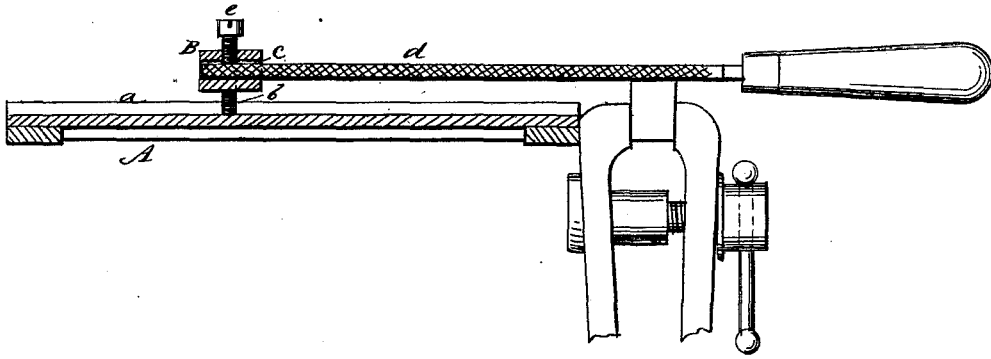


Fig. 2

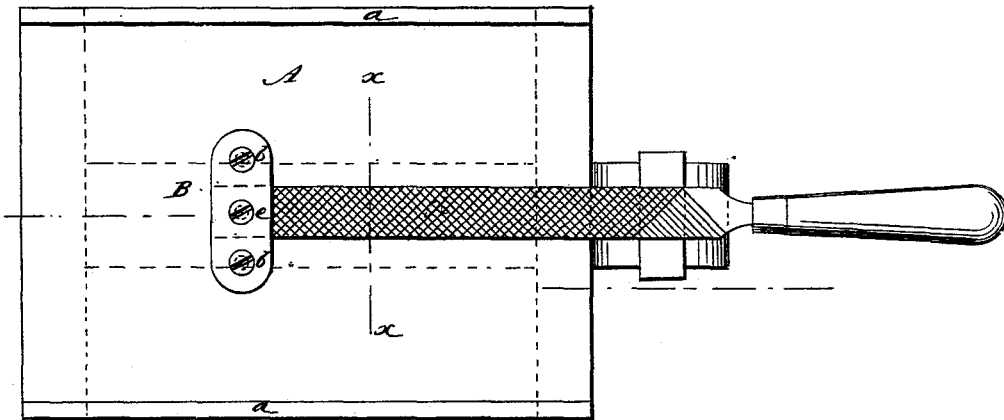
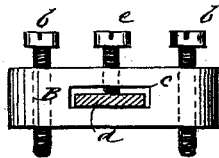


Fig. 3.



WITNESSES:

C. Neveu
C. Sedgwick

INVENTOR:

E. M. Kimball
BY *Mumtco*

ATTORNEYS.

UNITED STATES PATENT OFFICE.

EPHRAIM M. KIMBALL, OF TOLEDO, OHIO, ASSIGNOR TO HIMSELF AND
ORAN F. FOSTER, OF SAME PLACE.

IMPROVEMENT IN APPLIANCES FOR FLAT FILING.

Specification forming part of Letters Patent No. **204,493**, dated June 4, 1878; application filed
April 16, 1878.

To all whom it may concern:

Be it known that I, EPHRAIM M. KIMBALL, of Toledo, in the county of Lucas and State of Ohio, have invented a new and Improved Appliance for Flat Filing, of which the following is a specification:

Figure 1 is a side elevation, partly in section, of my improved appliance. Fig. 2 is a plan view. Fig. 3 is a detail view taken in section on line *x x* in Fig. 2.

Similar letters of reference indicate corresponding parts.

The object of my invention is to provide a simple and convenient means of flat filing, by which plain surfaces on small work may be quickly and economically produced.

The invention consists in a plain flat plate, which is secured to the stationary jaw of a vise, and in an adjustable head or guide, which is secured to the end of the file.

Referring to the drawing, A is a plate of iron or steel, which is made perfectly plane, and is provided with flanges *a* on its edges. The plate is secured in any convenient and substantial way to the back jaw of a bench-vise.

An adjustable head, B, having the gage-screws *b*, is provided with a mortise, *c*, for re-

ceiving the end of the file *d*, and has a set-screw, *e*, for clamping the end of the file in the mortise.

The work to be filed is clamped in the vise, and the screws *b* are adjusted at the proper height to bring the file parallel with the plate when the work is finished.

The plane plate A may be fitted to the carriage of a lathe, and the live spindle of the lathe may have an index-plate, when a piece of work may be placed between the centers and filed into any polygonal form.

By means of my improved device the inexperienced can rapidly produce superior work, and those skilled in handling the file will be enabled to produce more work with less care than heretofore.

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

The head B, having the mortise *c* and screws *b e*, and the plate A, in combination, substantially as and for the purpose specified.

EPHRAIM MILTON KIMBALL.

Witnesses:

FRANCIS G. KIMBALL,
JOHN J. MANOR.