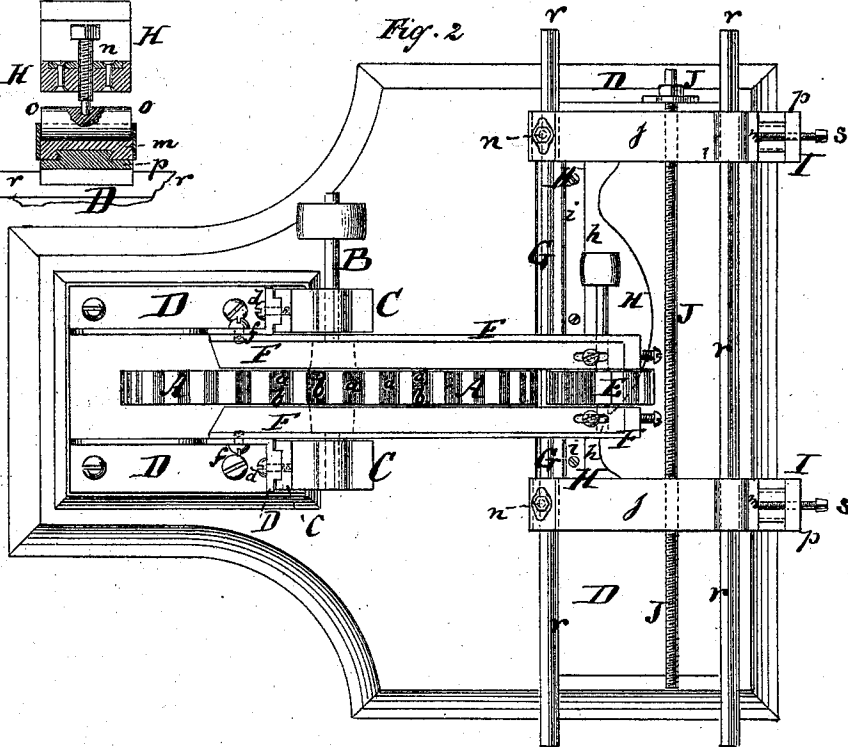
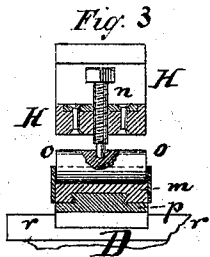
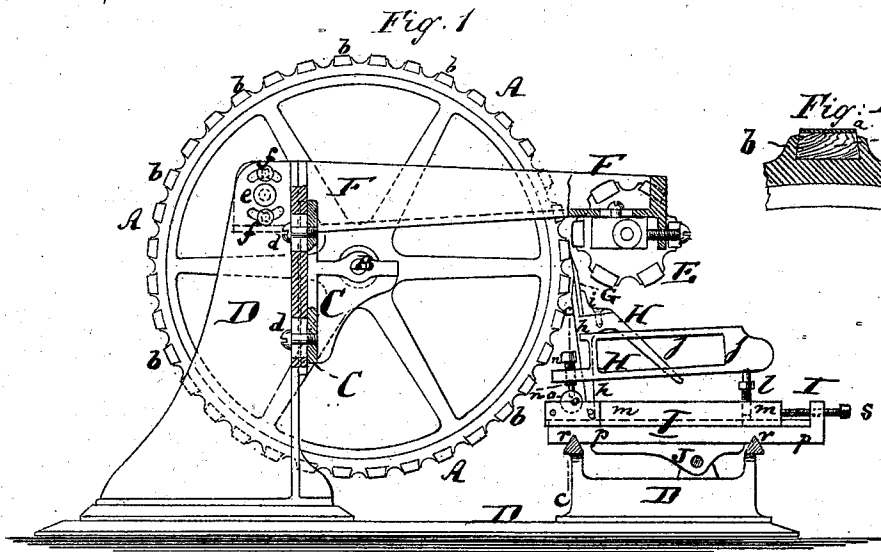


W. H. WILLIAMS.
Knife-Sharpening Machines.

No. 150,807.

Patented May 12, 1874.



Witnesses.

Inventor.

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UNITED STATES PATENT OFFICE.

WILLIAM H. WILLIAMS, OF GREEN POINT, ASSIGNOR TO GRAHAM, DORSETT & CO., OF NEW YORK, N. Y.

IMPROVEMENT IN KNIFE-SHARPENING MACHINES.

Specification forming part of Letters Patent No. 150,807, dated May 12, 1874; application filed March 5, 1874.

To all whom it may concern:

Be it known that I, WILLIAM H. WILLIAMS, of Green Point, in the county of Kings and State of New York, have invented a new and Improved Knife-Grinding Machine, of which the following is a specification:

Figure 1 is a side elevation, partly in section, of my improved knife-grinding machine. Fig. 2 is a plan or top view of the same; Fig. 3, a detail vertical transverse section on the line *c c*, Fig. 1; Fig. 4, a detail sectional view of the rim of the grinding-wheel.

Similar letters of reference indicate corresponding parts in all the figures.

This invention has for its object to produce a machine for rapidly and properly sharpening the knives of veneer-cutting machines, and all other styles and kinds of knives of every shape and purpose.

The invention chiefly consists in the new form of grinding-wheel, which is a toothed wheel of metal, and provided with a grinding-surface at the end of each tooth, but with a non-grinding recess between every pair of teeth. By this arrangement the objection to all grinding-wheels of the present construction, that they will unduly heat the knives, is overcome in my wheel, as cool air will be carried to the blade behind every section of the grinding-surface, and the knife will, even under the most rapid action of the wheel, remain cool. Therefore, a wheel of my invention can be operated with much greater speed than a wheel having a continuous grinding-surface, and the grinding process will be more rapidly performed than could be done heretofore. The second part of my invention consists in applying the emery or other grinding substance to little blocks of wood or equivalent material, and in inserting these pieces into recesses which are formed for their reception in the teeth or projections of the grinding-wheel. The prepared grinding-blocks can be readily removed when worn, and as readily replaced, without disturbing the wheel in its supporting-frame. The third part of my invention consists in the combination with each other, and in one machine, of two grinding-wheels of the kind described, the same being so hung that they can be simultaneously ap-

plied to opposite sides of the same knife, to grind both sides of the same edge at once; or one of the wheels can be brought into operation, and the other not, as may be desired. To effect this purpose the wheels are hung in adjustable frames, as will be hereinafter more fully described. Fourthly, my invention consists in a new construction and arrangement of the knife-holder, which is made to be laterally movable, and so that it can also be oscillated toward and away from the knife, as will be hereinafter more fully described.

In the accompanying drawing, the letter *A* represents the grinding-wheel. The same is made of suitable diameter and thickness, and with alternate projections and recesses along its circumference, as is clearly indicated in Fig. 1. Each projection is the carrier of grinding substance, which is applied to it in suitable manner. But I prefer to apply the emery or other grinding substance, *a*, (see Fig. 4,) to the faces of little pieces, *b b*, of wood, and to insert the pieces of wood that are thus prepared in dovetail or other shaped recesses that are for their reception formed in the edge of the wheel *A*. In fact, the teeth of the wheel *A* may be formed entirely by the removable blocks *b*, if desired. The wheel *A* is mounted upon a shaft, *B*, which has its bearings in a suitable frame, *C*, and receives rotary motion by suitable mechanism. But for the purpose of making the grinding-machine applicable to all styles and kinds of knives, I prefer to make the frame *C* adjustable on a stationary frame, *D*, that supports the entire mechanism of the machine, and to use bolts *d d*, passing through slots, as in Fig. 1, for effecting the requisite connection of the parts. *E* is another grinding-wheel, substantially constructed like the wheel *A*, as far as the use thereon of my invention is concerned, and hung in a frame, *F*, that is supported on the frame *D*. I prefer to connect the frame *F* to *D* by means of a pivot-bolt, *e*, and by one or more additional bolts, *f*, passing through curved slots, as shown in Fig. 1. By the bolt or bolts *f* the frame *F* can be secured at any suitable inclination. If the knife *G* is to be ground on one side by the wheel *A* alone, the frame *F* is swung up, as in Fig. 1, to bring the wheel *E* clear of

the knife. If, however, the knife is in the same position to be ground only by the wheel E, and not by A, then the frame C is raised, to clear the knife of the wheel A, and the frame F is swung down to bring E into contact with the knife G. If both wheels A and E are to operate simultaneously, then the frames C and F are both let down in the requisite manner. The knife G is held in a clamp, H, which is made of a main bar or beam, *h*, and of a fastening-bar, *i*, the latter being applied to *h* by screws or otherwise, so that it will hold the knife in position, as indicated in Fig. 1. Two arms, *j j*, project backward from the ends of the bar *h*, and rest with their outer ends on the ends of screws *l l*, that project from the upper slides *m* of the laterally-movable carriage I, that supports the knife. The front of the clamp H—i. e., that part of it which is under the knife G—has two downwardly-projecting screw-pins, *n n*, whose lower ends rest in indentations made in small cylindrical blocks *o o*, that are placed within nearly semi-cylindrical recesses in the upper slides *m*, as shown in Fig. 1, and more fully in Fig. 3. The whole clamp with the knife G can thus be tilted or inclined, more or less, by means of the screws *l l*, and will, under the influence of said screws, rock on and with the blocks *o*, and the knife can, therefore, be set at any desired angle to the grinding-surface of the grinding-wheel. By the screws *n* the adjustment can be made still more complete. The carriage I consists of two blocks, *p p*, that slide on lateral rails *r r* of the

frame D, and can be moved sidewise by a screw, J, that is hung in the frame D. The upper slides *m m* rest on the blocks *p*, and can be adjusted at right angles to the screw J by means of screws *s s*. (Shown in Figs. 1 and 2.) By the screws *s* the position of clamp H and knife G as to distance from the grinding-wheel can be regulated by the screw J. The whole carriage with clamp and knife is fed along, in the requisite manner, until the whole length of the cutting-edge has been properly sharpened.

I claim as my invention—

1. The grinding-wheel provided with recesses along its edge, said recesses being filled with detachable blocks *b b*, that carry the grinding substance, as set forth.

2. In a knife-grinding machine, the supporting-frame D, carrying the two adjustable frames C and F, each being provided with a grinding-wheel, A and E, to permit the separate or joint use of said wheels, substantially as set forth.

3. The combination of the knife-clamp H with the screws *l l*, pins *n n*, and cylindrical indented blocks *o o*, substantially as and for the purpose herein shown and described.

4. The carriage I, consisting of the parts *p* and *m m*, and of the screws *s s*, and combined with the screw *n* and cylindrical indented blocks *o o*, clamp H, and screws *l l*, for operation substantially as described.

W. H. WILLIAMS.

Witnesses:

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