(No Model.)

R. J. DEARBORN.

KNIFE SHARPENER.

No. 563,023. Patented June 30, 1896.

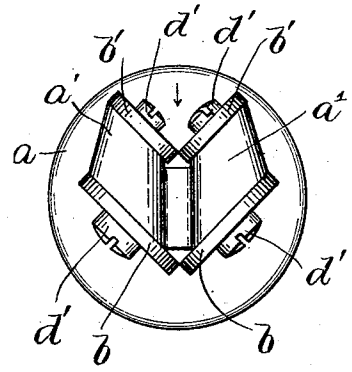

FIG. 1

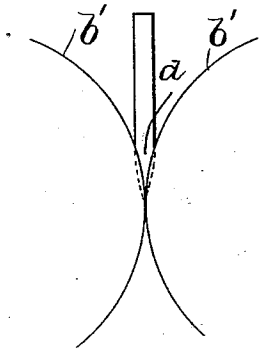

FIG. 2.

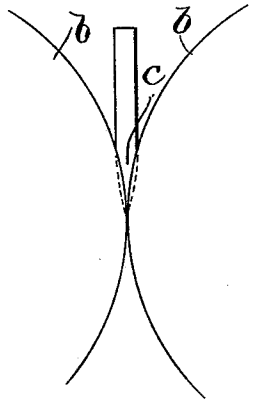

FIG. 3.

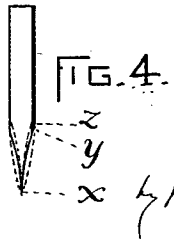

FIG. 4.

WITNESSES:
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UNITED STATES PATENT OFFICE.

RICHARD J. DEARBORN, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO FRANK J. HUGHES, OF SAME PLACE.

KNIFE-SHARPENER.

SPECIFICATION forming part of Letters Patent No. 563,023, dated June 30, 1896.

Application filed April 1, 1895. Serial No. 544,008. (No model.)

To all whom it may concern:

Be it known that I, RICHARD J. DEARBORN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Knife-Sharpeners, of which the following is a specification.

This invention relates to that class of knife-sharpeners wherein a blade to be sharpened is drawn through a throat formed by converging cutting edges which may be edges of the peripheries of disks; and the special object of the present invention is to increase the efficiency and durability of such devices and also to produce a better effect on the blade, such object being attained by distributing the work of sharpening among a plurality of sets of disks whose peculiar relations form the gist of the invention and are specified hereinafter, and pointed out in the claim.

The drawings which accompany and form part of this specification illustrate an embodiment of the invention.

Figure 1 shows a top plan view of the device; Figs. 2, 3, and 4 are diagrams illustrating the sharpening effect.

The letter *a* designates a suitable frame or base support, having formed upon it a pair of bosses *a'* with beveled end faces of different areas at different ends. Against the beveled faces at one end are placed disks *b* of suitable metal and each having its periphery at right angles to its sides, so as to form on each disk two annular cutting edges where the periphery and sides meet. The disks project beyond the faces of the bosses and two of their annular cutting edges come in contact and form a throat *c*, as best illustrated in diagram Fig. 3. On the other end faces of the bosses there are placed disks *b'* of similar construction and arrangement to the first-named disks. These disks *b'*, however, are of less diameter than the disks *b*, and therefore their meeting cutting edges form a wider throat *d*, Fig. 2. The several disks are fastened to their supporting-surfaces by screws *d'*, and are held fixed during use. To effect the sharpening, the blade is drawn through the throats *c* and *d*, which aline longitudinally of the device, and the cutting edges which form the sides of said throats act to remove minute shavings from the sides of the blade.

By the above-described peculiar arrangement of the two sets of different-sized disks, it will be seen that the throat formed between the disks of larger diameter has less abruptly converging sides than the throat formed by the smaller disks. Consequently the throat of the smaller disks will act on a less extent of the blade transversely thereof than the throat of the larger disks, but on a greater angle, which can best be understood by reference to Figs. 2 to 4, which show the throats considerably enlarged and an end view of the blade.

The blade to be sharpened is moved in the direction of the arrow in Fig. 1, and is first acted upon by the smaller disks *b'*, which reduce the blade in thickness on one angle from point *x* to point *y*, Fig. 4, thereby forming a cutting edge on the blade. Then the larger disks further reduce the blade on a different angle from point *x* to point *z*. Thus the desired extent of taper in the sides of the blade is produced, and the work is equally divided between the two pairs of disks instead of being performed entirely by one.

When the angles on the disks where the cutting takes place become somewhat blunted, the screws *d'*, which secure the disks, may be loosened and the disks partially rotated to bring fresh portions of the angular edges into position for action, the disks being then again secured, this operation being repeated until the entire circle of each cutting edge has been utilized. Then the disks can be reversed to bring the edges which were before separated into operative relation. The disks can therefore be kept in good condition for a long time without sharpening.

What I claim as my invention is as follows:

A knife-sharpener comprising a suitably-constructed base-support, and two pairs of sharpening-disks, one pair behind the other, and the disks of that pair being of less diameter than those of the front pair, the said disks being set angularly to form a throat between the edges of the peripheries of each pair of disks and the two throats being in

line so that a blade drawn through them may have its sides first reduced on one angle by the throat of the smaller disks and then reduced on another angle by the throat of the larger disks, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 26th day of March, A. D. 1895.

R. J. DEARBORN.

Witnesses:
A. D. HARRISON,
ROLLIN ABELL.