No. 726,974. PATENTED MAY 5, 1903.

A. M. McLERAN.

SHARPENING MACHINE.

APPLICATION FILED FEB. 8, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 2.

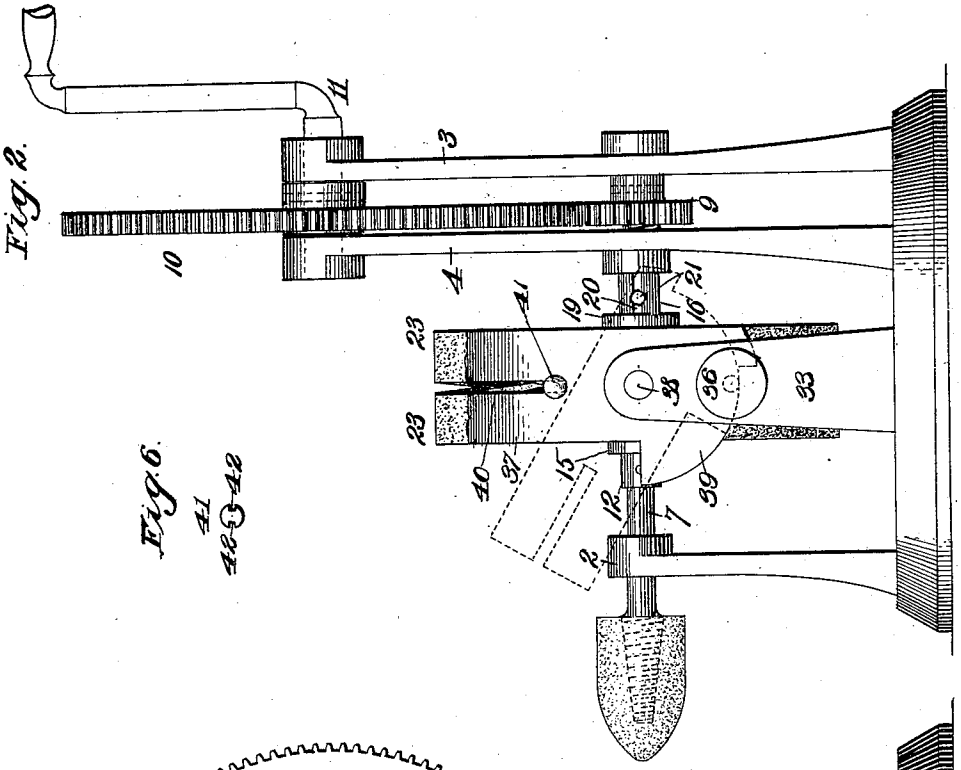
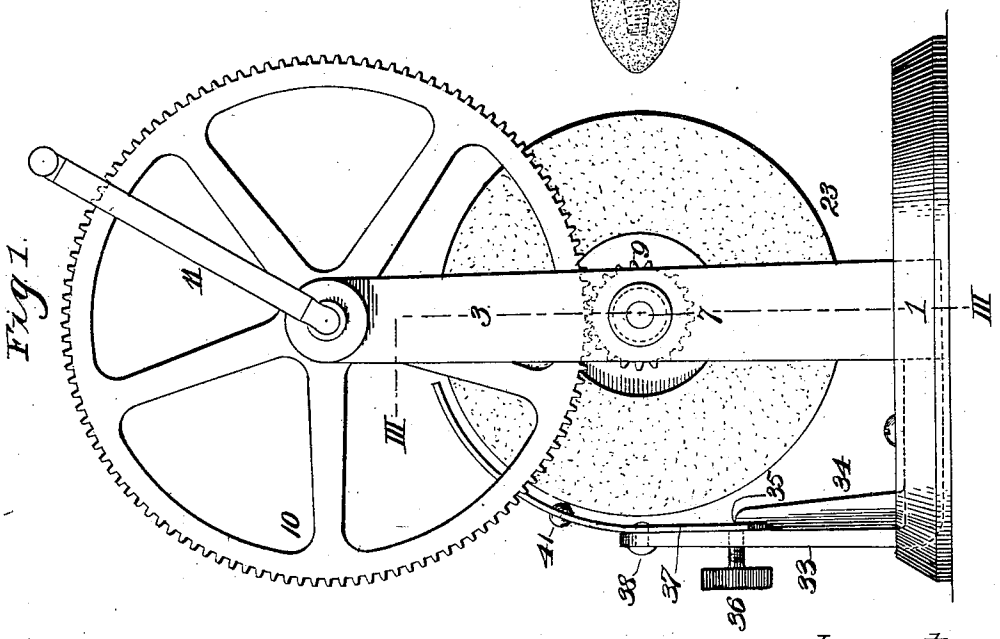


Fig. 6.

Fig. 7.



Witnesses:

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THE NORRIS PETERS CO. PHOTO-LITHO., WASHINGTON, D. C.

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SHARPENING MACHINE.

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NO MODEL. 2-SHEETS—SHEET 2.

Fig. 4.

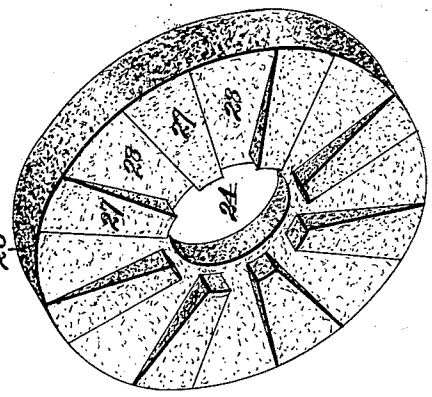


Fig. 5.

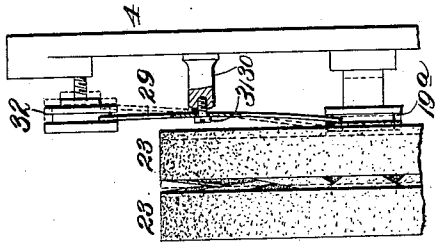
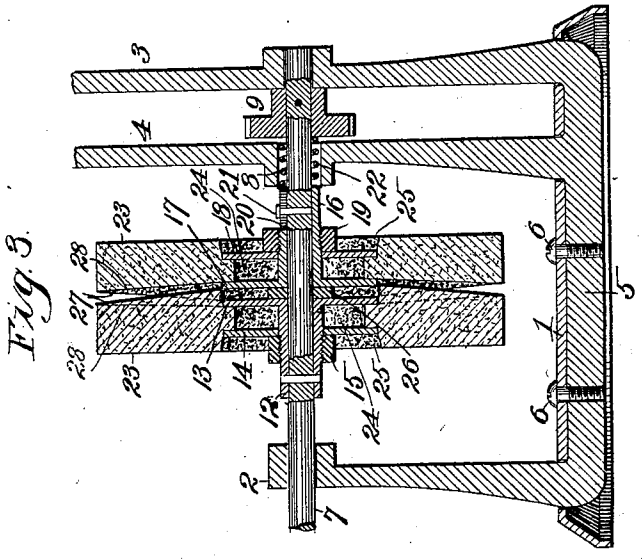


Fig. 3.



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No. 726,974. Patented May 5, 1903.

UNITED STATES PATENT OFFICE.

ALVORD M. McLERAN, OF KANSAS CITY, MISSOURI.

SHARPENING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 726,974, dated May 5, 1903.

Application filed February 8, 1902. Serial No. 93,267. (No model.)

To all whom it may concern:

Be it known that I, ALVORD M. McLERAN, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Sharpening-Machines, of which the following is a specification.

My invention relates to sharpening-machines, and more especially to machines for sharpening butcher, paring, and household knives in general, also shears, scissors, and the like; and my object is to produce a machine of this character whereby the sharpening operation may be performed quickly and easily even by an unskilled person.

To this purpose the invention consists in certain novel and peculiar features of construction and organization, as hereinafter described and claimed, and in order that it may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1 is a side view of a machine embodying the invention. Fig. 2 is a front view of the same. Fig. 3 is a central vertical section taken on the line III III of Fig. 1. Fig. 4 is a detail perspective view of one member of the sharpening-wheel. Fig. 5 is a broken view, partly in section, disclosing a modified construction. Fig. 6 is a detail view of the knife-edge rest.

In the said drawings, 1 designates a circular base of hollow construction, and 2, 3, and 4 vertical arms integrally connected at their lower ends, as at 5, and projecting up through openings in said base, the connection 5 fitting in the base and being bolted thereto, as at 6.

7 designates a shaft journaled in arms 2 and 3 and extending loosely through opening 8 of arm 4, a cog-pinion 9 being secured rigidly on said shaft between arms 3 and 4 and intermeshing with the master-gear 10, secured upon a crank-shaft 11, journaled in the upper ends of said arms 3 and 4.

12 designates a sleeve secured rigidly, preferably as shown, on shaft 7 and provided with a flange 13 at its end contiguous to arm 4, and mounted upon said sleeve is a washer 14 of the same diameter, preferably, as flange 13 and adapted to be forced toward the latter by means of a nut or collar 15, secured upon said sleeve.

16 designates a sleeve slidingly mounted on shaft 7 between sleeve 12 and arm 4 and provided at its inner end with a flange 17 like flange 13 and with a washer 18 like washer 14, said washer 18 being likewise adjustable by a nut or collar 19 engaging sleeve 16. Sleeve 16 is provided with a longitudinal slot 20, engaging a guide-pin 21, projecting radially from the shaft, so as to permit said sleeve to move longitudinally, but not rotatably, upon the shaft, and interposed between said sleeve and pinion 9 and encircling the shaft within opening 8 of arm 4 is an expansive spring 22, the tendency of said spring being to force the sliding sleeve toward the stationary sleeve, as shown clearly in Fig. 3.

A sharpening-wheel of emery, corundum, or equivalent material consists of two similar members 23, each member being provided with a central opening 24, through which its companion sleeve extends, and around said openings the members are provided in their outer faces with recesses 25 to receive the clamping-washers 14 and 18, which clamping-washers clamp the members firmly against the flanges 13 and 17, said flanges being spaced apart by means of a collar or washer 26 on the shaft in order to positively limit the approach of the movable member toward the stationary member. The inner faces of the members are formed with alternating radial ribs 27 and notches 28, the faces of the ribs sloping outward in a straight continuous plane to the outer edge of the members, to which point the notches also converge. The members are so disposed upon the shaft that their ribs interlock—that is to say, the ribs of one enter the notches of the other—so that the sloping faces of the ribs of one member intersect the corresponding faces of the other, as shown clearly in Fig. 3.

In Fig. 5 I show a modification of the means above described for holding the movable grinding member pressed yieldingly toward the stationary grinding member, this modification also making provision for varying the tension of said pressure. In said figure in lieu of the nut 19 a peripherally-grooved nut 19^a is employed, the groove receiving the lower end of a flat spring 29, fulcrumed upon a lug 30, projecting from arm 4 and secured in position by a bolt 31. The upper end of

said spring engages a peripherally-grooved set-screw 32, mounted in arm 4 and adapted when turned in one direction to increase the tension of said spring and when turned in the opposite direction to diminish the tension of the same.

Referring now to the rest for the knife or other device to be sharpened, 33 is an arm integrally cast with bar 5 and projecting up through the base. At its inner side said arm is provided with a rib 34, having a notch 35 in its upper end, a set-screw 36 being mounted in said arm contiguous to said notch, so as to clamp with more or less pressure against the opposing face of the notch a curved plate 37, arranged at the inner side of and pivoted to arm 33, as at 38, this plate at its lower end curving concentrically of such pivot, as at 39, so as to always lie within the sphere of action of the set-screw, and thus enable the latter to clamp the plate in a vertical position or at the desired angle thereto. That portion of the plate above the curved lower end approximates in width the grinding-wheel and extends parallel with the periphery of the same to a point almost vertically above its center and is centrally bifurcated, as at 40, from its extreme upper end to a point contiguous to the top of arm 33. The walls of the bifurcation are preferably parallel and fit into the opposite grooves 42 of a lead or equivalent ball 41, disposed at the lower end of the bifurcation and adapted to form a rest for the blade of the knife being sharpened, so that it will not dull the latter should it be pressed down between the grinding members to the bottom of the bifurcation.

In practice to sharpen a butcher-knife or like device it is inserted edge down between the members of the grinding-wheel and at the same time in the bifurcated plate. The crank-shaft is then operated by hand or otherwise, as hereinbefore intimated, so as to rotate the grinding-wheel, and thereby sharpen the knife, the latter being forced inward toward the center of the wheel and at the same time drawn longitudinally through the same. By this means a knife can be sharpened quickly and easily by a novice, the spring keeping the knife-edge in proper contact with both members of the wheel irrespective of the depth to which the knife penetrates the latter. When it is desired to sharpen shears or other bevel-edge devices, the set-screw 36 is loosened and plate 37 turned to the proper angle, as indicated, for instance, by dotted lines, Fig. 2, in which position it is resecured by the set-screw. The blade of the shears is then placed flatly upon the upper edge of the plate with its cutting edge against the flat or outer face of the contiguous member of the grinding-wheel. The latter is then rotated so as to grind the blade to the proper degree.

From the above description it will be apparent that I have produced a sharpening-machine which embodies the features of advantage enumerated as desirable in the statement of invention and which will be found of great convenience and utility for housekeepers, as well as for butchers, cutlery establishments, and the like. It will also be apparent that I have produced a device which is practically everlasting, as the grinding members can be easily and cheaply replaced when worn out.

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

1. A sharpening-machine, comprising a shaft suitably journaled, a grinding-wheel mounted upon and rotatable with said shaft, said grinding-wheel comprising two members having their inner faces formed with alternating lugs and notches, with the surfaces of at least one set of the lugs sloping outward and coinciding at their outer ends with the corresponding ends of the notches, the lugs of one member fitting in the notches of the other member, means for holding said members together with a yielding pressure, and a bifurcated plate opposite the edge of said grinding-wheel and having its bifurcation in the plane of said lugs and notches.

2. A sharpening-machine, comprising a shaft suitably journaled, a grinding-wheel mounted upon and rotatable with said shaft, said grinding-wheel comprising two members having their inner faces formed with alternating lugs and notches, with the surfaces of at least one set of the lugs sloping outward and coinciding at their outer ends with the corresponding ends of the notches, the lugs of one member fitting in the notches of the other member, means for holding said members together with a yielding pressure, a bifurcated plate opposite the edge of said grinding-wheel and having its bifurcation in the plane of said lugs and notches, and a seat of soft metal for the knife-edge at the lower end of said bifurcation.

3. A sharpening-machine, comprising a shaft suitably journaled, a grinding-wheel mounted upon and rotatable with said shaft, said grinding-wheel comprising two members having their inner faces formed with alternating lugs and notches, with the surfaces of at least one set of the lugs sloping outward and coinciding at their outer ends with the corresponding ends of the notches, the lugs of one member fitting in the notches of the other member, means for holding said members together with a yielding pressure, a bifurcated plate opposite the edge of said grinding-wheel having its bifurcation in the plane of said lugs and notches, and a seat of soft metal for the knife-edge at the lower end of said bifurcation; said seat being in the form of a ball grooved at its side edges to engage the plate at the edges of said bifurcation.

4. A sharpening-machine, comprising a shaft, a grinding-wheel thereon, a notched arm, a curved plate pivoted to said arm and having its lower end engaging said notch, and its upper end forming a support and gage for

the article being sharpened, and a set-screw mounted in said arm and engaging said plate to hold it at the desired point of adjustment.

5. In a sharpening-machine, a shaft suitably journaled and driven, a grinding-wheel mounted thereon consisting of two members, one being stationary and the other movable longitudinally on the shaft, a grooved nut or collar secured on the shaft, and a spring suitably fulcrumed and engaging said grooved nut or collar at one end and connected to the frame of the machine at its other end.

6. In a sharpening-machine, a shaft suitably journaled and driven, a grinding-wheel mounted thereon consisting of two members, one being stationary and the other movable longitudinally on the shaft, a grooved nut or collar secured on the shaft, a set-screw suitably mounted and having its head grooved, and a spring suitably fulcrumed and engaging at its opposite ends said grooved nut or collar and the set-screw, and adapted to force the sliding member toward the other member, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

ALVORD M. McLERAN.

Witnesses:
H. C. RODGERS,
G. Y. THORPE.