United States Patent [19]

Ribar

[11] **3,879,899**

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[54] **SCISSORS SHARPENER**

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[52] **U.S. Cl.** ..... **51/92 BS;** 51/231; 269/160

[51] **Int. Cl.** **B24b 3/52;** B24b 3/58

[58] **Field of Search** ..... 51/92 R, 92 BS, 98 BS, 51/74 BS, 231, 218 R, 285; 76/82.2; 269/160

[56] **References Cited**

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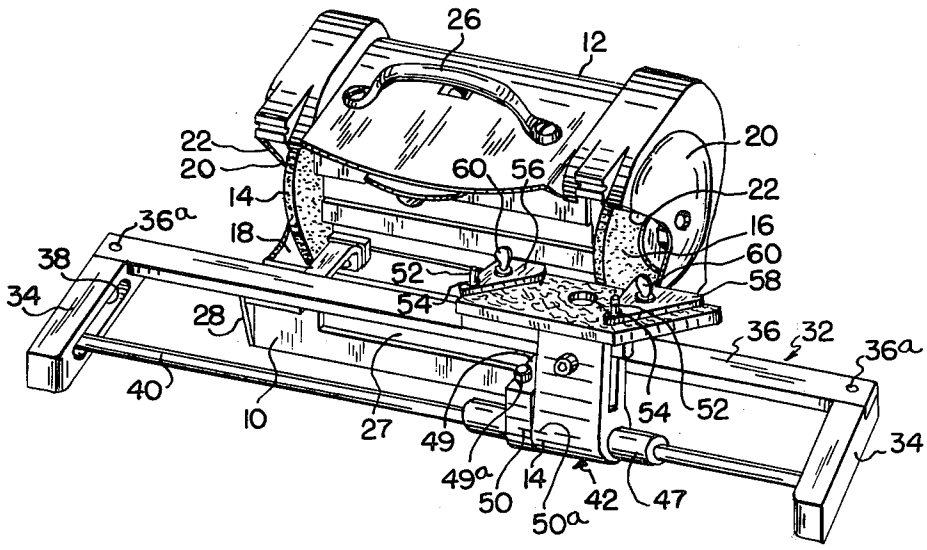
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Attorney, Agent, or Firm—Baldwin, Egan, Walling & Fetzer

[57] **ABSTRACT**

A scissors sharpener comprising a pair of laterally spaced grinding wheels mounted on a frame for rotation about generally horizontal axes, with a rod extending in the same general direction as the axes of the grinding wheels. The ends of the rod are connected to the frame by a floating connection so that each end of the rod is capable of movement through a different or to the same extent as the other end of the rod in a plane toward and away from the grinding wheels. A carriage is mounted on the rod for movement lengthwise thereof and is pivotal with respect to the rod in a direction toward and away from the grinding wheels, with the carriage having jaws for clamping a scissors blade thereon for presenting the blade to the grinding wheels for sharpening the blade. The rod is of sufficient length and the travel of the carriage is such that the carriage can be moved into coaction and move the associated blade of the scissors into coaction with either of the grinding wheels merely by adjustably positioning the rod and moving the carriage lengthwise of the rod.

11 Claims, 6 Drawing Figures



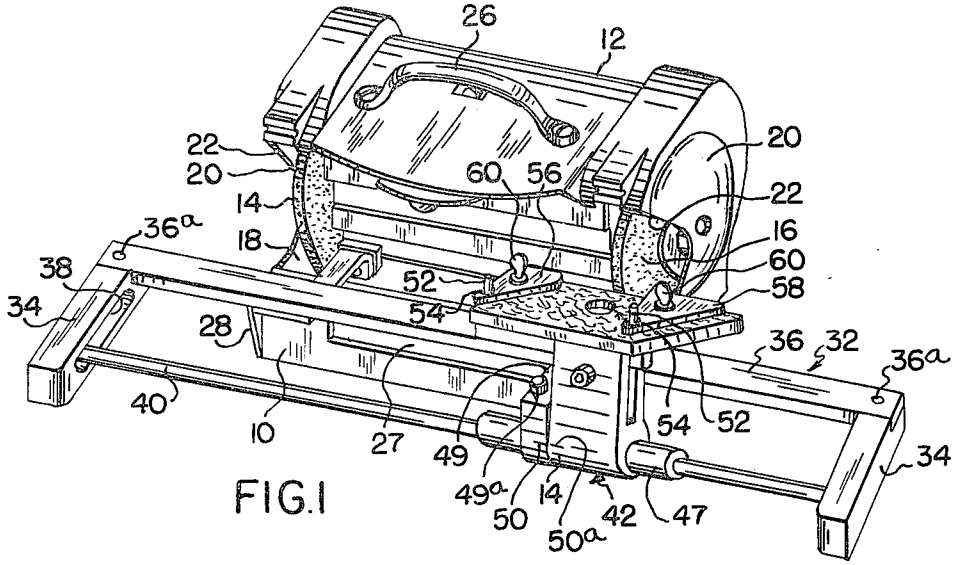


FIG.1

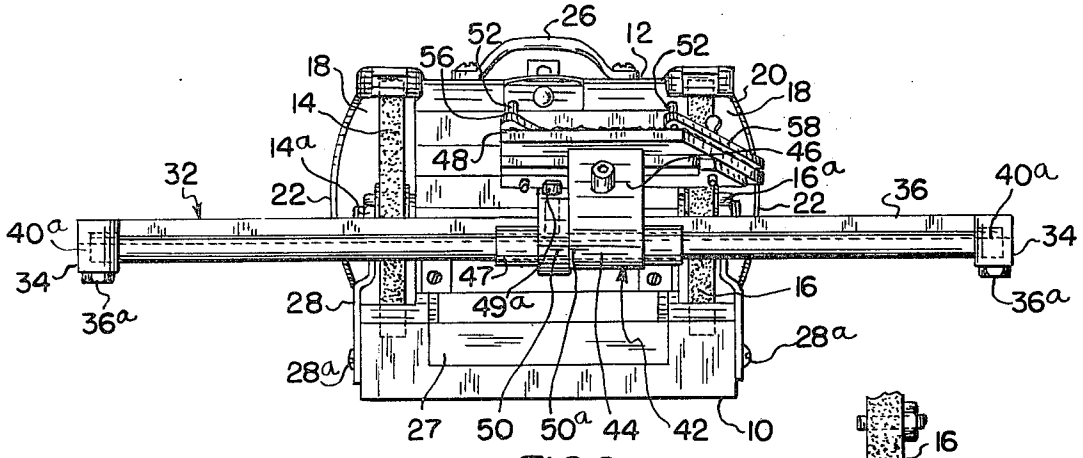


FIG.2

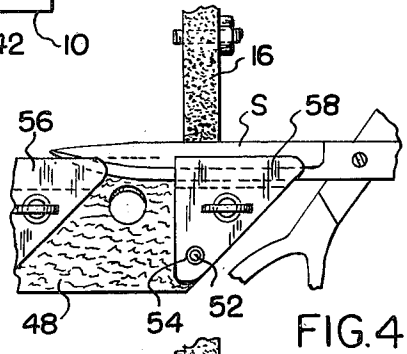


FIG.4

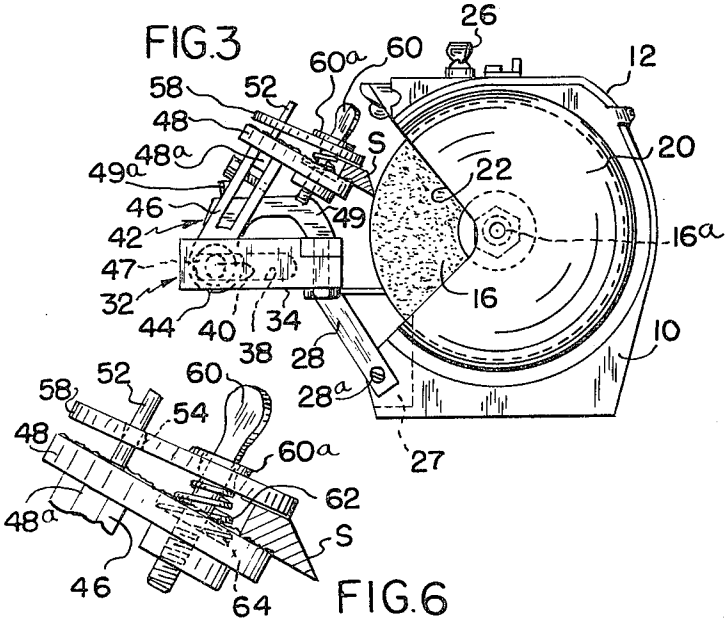


FIG.3 FIG.6

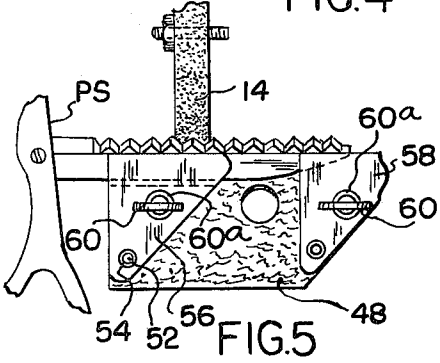


FIG.5

SCISSORS SHARPENER

This invention relates to improvements in tool sharpeners, and more particularly to a scissors sharpener wherein scissors can be presented to either of a pair of laterally spaced rotatable grinding wheels of the sharpener mechanism

BACKGROUND OF THE INVENTION

In U.S. Pat. No. 2,753,666 dated July 10, 1956 and issued to Elmer C. Sasse, there is disclosed a scissors sharpener of the general type of the present invention. However, the present scissors sharpener is an improved version of such Sasse sharpener and facilitates the sharpening of scissors of both the generally straight edge variety and the pinking scissors variety.

SUMMARY OF THE INVENTION

The present invention provides a scissors sharpener mechanism which includes a pair of laterally spaced rotatable grinding wheels mounted on a frame and wherein the rod which guides the movement of the carriage which provides for clamping of the scissors blade for presentation to the grinding wheels, extends laterally outwardly of both of the grinding wheels an amount sufficient to permit the presentation of scissors to either of the grinding wheels, merely by moving the carriage lengthwise of the rod into generally confronting relation to the selected wheel. Moreover, the carriage is provided with means thereon for facilitating the fripping of the scissors blade and thus expediting sharpening operations on scissors.

Accordingly, an object of the invention is to provide a novel scissors sharpener mechanism of the general type shown in U.S. Pat. No. 2,753,666, but which has improved features for providing for more expeditious sharpening of scissors on the sharpener mechanism.

Another object of the invention is to provide a scissors sharpening mechanism which embodies a pair of laterally spaced rotatable grinding wheels, which includes means for movably mounting a scissors blade on the sharpener mechanism for presenting the blade to the selected grinding wheel for sharpening operations on the blade, and wherein the presenting means comprises a rod in which the ends thereof float with respect to the frame of the sharpener mechanism so that each end of the rod is capable of movement to a different extent or to the same extent as the other end toward and away from the grinding wheels, and wherein the rod is of such length that the carriage of the presenting means of the mechanism can be moved into coaction with the selected one of the grinding wheels by sliding the carriage lengthwise of the rod into generally confronting relation with the selected grinding wheel.

A further object of the invention is to provide a novel scissors sharpener mechanism of the latter type wherein the carriage includes clamping jaw means for clamping the scissors blade on the carriage for presentation to the selected grinding wheel, and wherein the clamping jaw means includes means for facilitating the insertion into and the tight gripping of the scissors blades by the clamping jaw means.

A still further object of the invention is to provide a scissors sharpener which can quickly and expeditiously sharpen the blades of different varieties of scissors including for instance straight edge scissors and also pinking shears, and wherein the carriage is movable lengthwise of the frame of the mechanism for coaction

with either of the laterally spaced grinding wheels, and which includes improved means for mounting the scissors blades on the carriage for presentation to the grinding wheels.

Other objects and advantages of the invention will be apparent from the following description taken in conjunction with the accompanying drawings wherein:

FIG. 1 is a generally perspective illustration of a scissors sharpener embodying the present invention;

FIG. 2 is a front elevational view of the sharpener mechanism of FIG. 1;

FIG. 3 is an end elevational view of the mechanism of FIG. 1 taken from the right-hand end thereof;

FIG. 4 is a generally top plan, fragmentary illustration of a substantially straight edge scissors blade held by the clamping jaws of the carriage means for presenting the blade into coaction with the confronting grinding wheel;

FIG. 5. is a generally top plan, fragmentary illustration similar to FIG. 4, but showing a pinking scissors blade held by the clamping jaws of the carriage for presentation of the blade into coaction with the left-hand grinding wheel;

FIG. 6 is a fragmentary, elevational view of the carriage mechanism showing in enlarged form details of the structure thereof, including the conical spring means which coacts between the clamping jaws and the base portion of the carriage for resisting movement of the clamping jaws toward the base upon tightening of the thumb fastener means of the carriage, and which facilitates insertion of a scissors blade into the clamping jaw.

DESCRIPTION OF PREFERRED EMBODIMENTS

Referring now again to FIGS. 1 and 2, there is disclosed a scissors sharpening mechanism of the general type of U.S. Pat. No. 2,753,666 and comprising a frame 10 which includes a preferably electric motor 12 to which are operatively coupled laterally spaced grinding wheels 14 and 16 respectively, for rotation of the grinding wheels about coaxial generally horizontal axes 14*a* and 16*a*. The grinding wheels are preferably of the same general type but may be of different types, and are commercially obtainable grades of grinding wheels.

The grinding wheels 14,16 are each respectively mounted in a chamber 18 defined in part by end walls 20 of the sharpener housing which end walls have been recessed as at 22 for obtaining full accessibility by the scissors blade to the grinding wheel surface. The sharpener mechanism housing may include a handle portion 26 which facilitates the portability thereof and thus the sharpener mechanism is readily movable from one location to another location and is of such weight that this can be readily accomplished. A removable drawer 27 may be provided on frame 10 (FIG. 2) for catching the greater portion of the material produced by engagement of the scissors blade with the grinding wheels 14 and 16.

Secured to the frame 10 of the sharpener mechanism may be an auxiliary frame 28 which can be attached by any suitable means, such as fasteners 28_a, to the main frame 10 of the sharpener mechanism. Mounted on auxiliary frame 28 is a generally rigid bracket member 32 which is of generally C-shaped configuration in top plan, as can be best seen from FIG. 1, and which includes arm portions 34 and connecting body portion 36 which combine to define the general rigid C-shape

configuration of bracket **32.** Arm portions **34** can be removably coupled to the body portion **36** as by means of fastener means 36_a. Reference may be had to aforementioned U.S. Pat. No. 2,753,666 for a more complete description of the general structural arrangement of a suitable bracket **32.**

Each arm portion **34** is provided with an elongated slot **38** therein, which receives a corresponding end of a mounting guide rod **40** which is adapted for movement toward and away from the body portion **36** of bracket **32.** In other words, the ends of rod **40** are received in generally floating connection to the bracket **32.** The rod **40** lies in and is movable in a plane extending substantially parallel to the axes of the grinding wheels **14** and **16.** As can be best seen in FIG. **2** the lengthwise axis of rod **40** is preferably disposed slightly below the level of the axes of the associated grinding wheels.

Carriage **42** of the sharpener mechanism comprises a base portion **44** mounted on the rod **40** for sliding movement with respect to the rod lengthwise thereof and also preferably adapted for rotary movement about the axis of the rod toward and away from the confronting grinding wheels **14** or **16.** Base portion **44** includes bifurcated arm **46** projecting upwardly from a base sleeve **47** encompassing the rod **40.** Arm **46** clamps a base plate **48** thereon, and as by means of depending lug 48_a received between the bifurcated portions of arm **46.** Foot **49** is detachably secured, as by means of fastener **49***a*, to sleeve **47** and projects laterally for sliding engagement with the top surface of body portion **36** of bracket **32.** Foot **49** limits the pivotal movement of the carriage **42** about rod **40** toward the grinding wheels, and transmits the force from the carriage to the top surface of body portion **36** of bracket **32** during lengthwise movement of the carriage relative to rod **40.** Marking **50** on foot **49** may be aligned with marking **50***a* (FIG. **1**) on arm **46** for facilitating the positioning of foot **49** to that conventionally used for sharpening most pairs of generally straight and curved edge scissors.

Base plate **48** has a pair of spaced pins **52** projecting generally perpendicularly upwardly therefrom, with the pins being received through apertures **54** in the respective clamping jaw member **56** and **58.** A clamping or fastener member **60,** which in the embodiment illustrated is a thumb screw, extends freely through the associated clamping jaw and into threaded coaction with the underlying base plate **48** (FIG. **6**). A collar or ring portion 60_a on or coacting with the thumb screw is provided for engaging the associated jaw and thus operating to urge the respective clamping jaw **56,58** toward the base plate **48** and the underlying scissors S, upon tightening of the associated thumb screw. Jaws **56,58** are preferably of the same size and each possesses substantial area for gripping an underlying scissors blade.

A resilient means in the form of a conical coil spring **62** is provided between the base plate and the associated clamping jaw, for urging the jaw outwardly, the latter occurring upon loosening of the associated thumb screw, with the spring encircling the threaded shank of the thumb screw. With such an arrangement and with the pin **52** extending a predetermined distance above the height of the level of the base plate **48,** it will be seen that upon loosening of the thumb screw, the associated clamping jaw member **56** or **58** is retained in assembled condition with the base plate and is prevented from rotating or shifting relative to the base plate, while still being able to move outwardly and inwardly relative to plate **48.**

When it is desired to sharpen a pair of pinking scissors PS, the carriage **42** is shifted toward the left and into coacting relation with grinding wheel **14.** The clamping action of the clamping jaws **56,58** is identical to that aforedescribed, except that the blade of the pinking scissors is reversed from that shown for instance in FIG. **4,** so that the distal end of the blade extends toward the right rather than toward the left as in FIG. **4,** and the teeth of the pinking shear blade project generally upwardly, as shown in FIG. **5.**

Rod **40** may be moved so as to position the carriage **42** relative to the grinding wheel **14,** so that the upper edge of the teeth of the pinking shears just engage the periphery of the grinding wheel **14.** Adjustment to accomplish this can be accomplished by loosening the threaded set screw **49***a*, thus loosening the grip of the foot section **49** on the sleeve section **47.** Rotative adjustment of the foot section will change the angle of the base plate **48** with respect to the confronting grinding wheel, and thus will facilitate adjusting the positioning of the blade teeth on the pinking shears, so that the upper portion of the teeth thereof just engage the periphery of the wheel.

As can be seen in FIG. **2,** the rod **40** is of such length and the carriage **42** is movable lengthwise of the rod sufficiently so that the full length or extent of the cutting edge of the pinking shears can be sharpened. Moving the carriage **42** lengthwise along the rod **40** one or several times so as to lightly engage the periphery of the grinding wheel **14** with the upper portion of the scissors teeth while the wheel **14** is rotating, sharpens the teeth of the pinking shears to a fine edge. Thus, both conventional scissors and pinking scissors can be sharpened on the mechanism of the invention, and merely by placing the scissors in the correct clamped position on the sharpener mechanism.

The conical or tapered configuration of springs **62** enable compression of the spring to substantially one coil thickness upon predetermined threading rotation of the associated fastener **60,** to cause the respective jaw to be moved toward the underlying base plate **48.** Thus a great plurality of thicknesses of scissor blades can be accommodated by the clamping mechanism enabling effective clamping of both thin and thick scissor blades. Moreover, the positioning recess **64** (FIG. **6**) for the spring can be maintained at a minimum depth, the latter being preferably just deep enough to receive the compressed spring **62.**

The scissors clamping surface of the base plate **48** and the confronting surfaces of the clamping jaws **56,58** are preferably provided with a pebble or sand finish, or some other friction generating surface, so that a secure frictional gripping coaction exists between the jaws and the scissors blade and the underlying base plate upon tightening actuation of the thumb fasteners **60.**

From the foregoing discussion and accompanying drawings, it will be seen that the invention provides a novel scissors sharpener which is adapted for quickly switching from sharpening a conventional straight edge or curved edge scissors to a pinking scissors, and vice versa, and wherein the sharpener comprises laterally spaced grinding wheels with a rod extending in the same general direction as the axis of rotation of the

grinding wheels, with the ends of the rod being mounted by a floating connection so that each end of the rod is capable of movement to a different or to the same extent as the other end of the rod in a plane toward and away from the grinding wheels, and with a carriage mounted on the rod for movement lengthwise thereof and pivotal with respect to the axis of the rod in a direction toward and away from the grinding wheels, with the rod being of sufficient length and the travel of the carriage being such that the carriage can be moved into coaction with either of the confronting grinding wheels to sharpen the full extent of the blade of the scissors mounted thereon. The invention also provides a novel arrangement for facilitating the mounting of a scissors on the carriage for insuring the tight gripping coaction of the scissors on the carriage for presentation to the selected grinding wheel.

The terms and expressions which have been used are used as terms of description and not of limitation, and there is no intention in the use of such terms and expressions of excluding any equivalents of any of the features shown or described, or portions thereof, and it is recognized, that various modifications are possible within the scope of the invention claimed.

What is claimed is:

1. In a portable sicssors sharpener a frame, a pair of laterally spaced grinding wheels mounted on said frame for rotation about generally horizontal axes, one of said grinding wheels being adapted to sharpen conventional scissors and the other of said grinding wheels being adapted to sharpen pinking shears, a rod extending in the same general direction as said axes of said grinding wheels, means on said frame connecting each end of said rod to said frame by a floating connection having rod guide surfaces lying in a plane substantially parallel to said axes, so that each end of said rod is capable of movement to a different or to the same extent as the other end in said plane toward and away from said grinding wheels, a movable carriage slidably engaging said rod, said carriage comprising a base portion and means on said base portion for clamping a scissors blade to said carriage, said carriage being movable toward and away from selected of said grinding wheels and being movable longitudinally along said rod for moving the scissors blade into grinding contact with the selected one of said grinding wheels, said connections between each end of said rod and said frame being disposed laterally outwardly a predetermined distance from the corresponding grinding wheel whereby said carriage can move longitudinally of said rod a sufficient amount to carry a scissors blade into grinding contact with the selected grinding wheel for substantially the full extent of the cutting edge of the blade, said clamping means on said carriage comprising a pair of laterally spaced clamping jaw portions mounted on said base portion, means disposed between each jaw portion and said base portion for resiliently opposing free movement of the jaw portion toward the base portion, said resilient means comprising a conical compression spring, and fastener means coacting between said base portion and the respective jaw portion for adjustably forcing each of the jaw portions toward said base portion and against a scissors blade, to releasably clamp the blade between the respective jaw portion and said base portion, said spring encircling the respective fastener means and being telescopically compressible to substantially a single coil thickness upon predetermined actuation of said fastener means to force said respective jaw portion toward said base portion, shallow recess means in said base portion receiving the wider end of said spring for locating the latter relative to said base portion, said recess means being of a depth just sufficient to substantially receive said spring in the completely compressed condition of the latter, pin means on said base portion spaced laterally outwardly from the respective fastener means, aperture means in each of said jaw portions through which the respective of said pin means generally loosely projects for orienting in conjunction with the respective fastener means the respective jaw portion with respect to said base portion and restraining rotational movement of each of said jaw portions relative to said base portion in the nonclamping condition of said jaw portions, at least one of said portions having roughened clamping surfaces for providing increased frictional resistance to movement of a scissors blade in the clamping condition of said jaw portions.

2. A sharpener in accordance with claim 1 wherein said fastener means comprises a threaded fastener threadly coacting with said base portion.

3. A sharpener in accordance with claim 1 wherein both said base portion and said jaw portions have friction producing means on the confronting surfaces thereof, for facilitating the gripping of scissors blades therebetween and preventing movement of the scissors blade relative to the base portion and the associated of said jaws.

4. A sharpener in accordance with claim 1 including a bracket of generally C-shaped configuration in plan mounted on said frame, said bracket comprising said rod connecting means on said frame and including generally parallel arm portions and connecting body portion, said rod extending between said arm portions and being movably received in slots therein, said slots comprising said rod guide surfaces whereby each end of said rod is capable of movement in the associated of said slots to a different or to the same extent as the other end of the rod in its associated slot toward and away from the grinding wheels, said rod positioning said carriage for movement along the rod and with respect to the selected grinding wheel during sharpening of the scissors blade.

5. A sharpener in accordance with claim 1 wherein said fastener means comprises a thumb screw disposed in threaded coaction with said base portion, said thumb screw being accessible from the top of the respective jaw portion and having a head portion engageable with the associated of said clamping jaw portions for moving the jaw portion toward the confronting base portion of the carriage and against resistance to compression of the associated conical spring.

6. A sharpener in accordance with claim 4 wherein said carriage includes an arm projecting therefrom toward said frame and means on said frame adapted for engagement with said arm for aiding in supporting the movement of said carriage lengthwise of the rod.

7. A sharpener in accordance with claim 6 wherein the axes of rotation of said grinding wheels are axially aligned.

8. A sharpener in accordance with claim 7 wherein said clamping jaw portions comprise plate-like members mounted for movement toward and away from said base portion.

9. A sharpener in accordance with claim 8 wherein the grinding wheels are disposed within housings which include lateral side walls, said side walls being recessed to permit unobstructed accessibility between a scissors blade mounted on the carriage and the respective grinding wheel.

10. A sharpener in accordance with claim 4 including means on said frame adapted for abutting sliding coaction with means on said carriage for further supporting said carriage in its movement lengthwise of said rod and with respect to said grinding wheels, said means on said carriage and said means on said frame coacting in anti-friction relation and irrespective of the movement of the ends of said rod in said slots toward and away from the grinding wheels.

11. A sharpener in accordance with claim 5 wherein the surface of said base portion of the carriage and the confronting surfaces of each of said clamp jaw portions possess a pebble finish for frictionally gripping the associated scissors blade therebetween, upon tightening of the respective of said threaded thumb screws.

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