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3,453,731

HANDTOOLS

Filed Oct. 19, 1966

FIG. 1

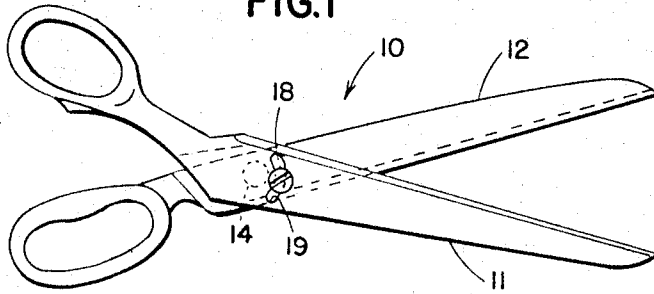


FIG. 2

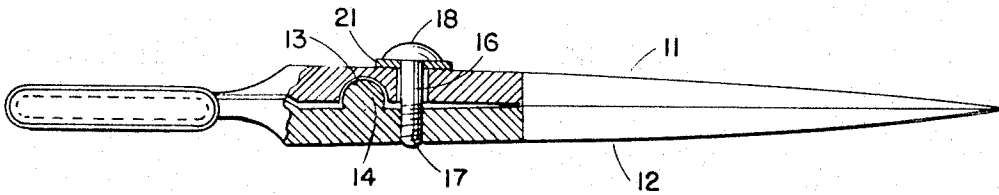


FIG. 3

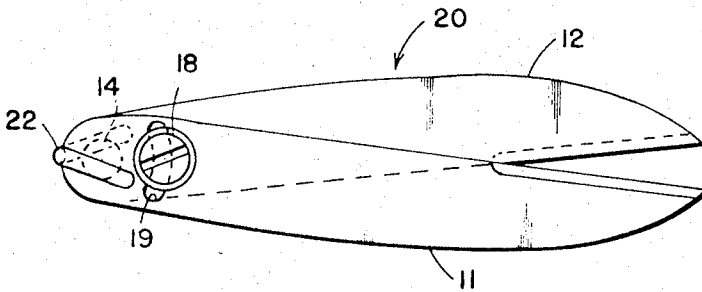


FIG. 4

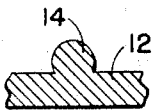
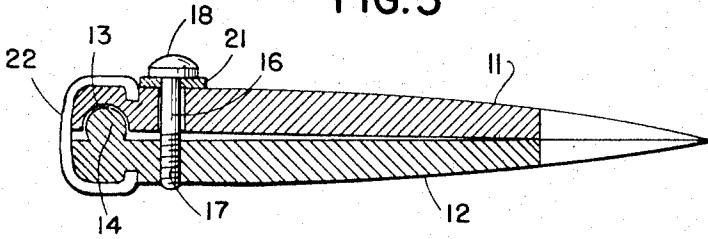


FIG. 5

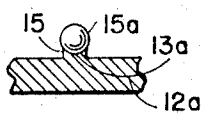


FIG. 6

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HANDTOOLS

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4 Claims

ABSTRACT OF THE DISCLOSURE

A handtool with pivoting blades, such as scissors, shears or the like, wherein the pivot point consists of a ball-and-socket structure and the blade tension adjustment is independent from the pivot point, being forward thereof.

This invention relates in general to handtools having pivoted blades, jaws or the like, and more particularly to scissors, shears, snips, thread clips, pliers, wrenches, and like tools, and concerns novel improvements in the structure of such tools.

The invention consists in such novel features, construction arrangements, combinations of parts and improvements as may be shown and described in connection with the device herein disclosed by way of example only and as illustrative of preferred embodiments. Objects and advantages of the invention will be set forth in part hereafter and in part will be obvious herefrom or may be learned by practicing the invention, the same being realized and attained by means of the instrumentalities and combinations pointed out in the appended claims.

It is an object of the present invention to provide a tool with a half-ball post pivot and forward blade tension adjustment.

It is another object of the present invention to provide novel pivot means for tools having blades, jaws or the like.

Furthermore, it is an object of the present invention to provide an improved pivot means for such type tools for reducing the friction of the blades or jaws.

Still another object of the present invention is to provide means for separating the blade tension adjustment devices from the pivoting devices in such type tools.

Yet a further object of the present invention is to provide contrivances for manufacturing blade- or jaw-type tools easily and economically.

Various further and more specific purposes, features and advantages will clearly appear from the detailed description given below taken in connection with the accompanying drawing which forms part of this specification and illustrates merely by way of example embodiments of the device of the invention. In the following description and in the claims, parts will be identified by specific names for convenience, but such names are intended to be as generic in their application to similar parts as the art will permit. Like reference characters denote like parts in the several figures of the drawing, in which:

FIG. 1 shows a scissors having a substantially half ball post pivot and a separate blade tension adjustment device according to the invention;

FIG. 2 shows a side view in longitudinal section of the scissors shown in FIG. 1, partly broken away;

FIG. 3 shows a plan view of a thread clip or snip having a half ball post pivot and a separate blade tension adjustment device according to the invention;

FIG. 4 is a longitudinal section of the cutting tool shown in FIG. 3, partly broken away;

FIG. 5 is a detailed section of the pivots in FIGS. 1 and 3; and

FIG. 6 is a section of an alternate construction of the pivot.

Referring now in more detail to the drawing illustrating preferred embodiments by which the invention may be realized, there is disclosed in FIG. 1 a scissors designated in general by the numeral 10. The scissors has an upper cutting blade 11 and a lower cutting blade 12. A recess or indentation 13 is provided in the underside of upper blade 11, and a protrusion or mating post with a substantially half ball end 14 is provided on the upper side of lower blade 12, being an extension thereof. Preferably the centerline of the half ball portion is raised above the centerline of the device to prevent the possibility of transverse forces causing the socket to climb on the half ball portion when the device is operated. By virtue of this structure, an antifriction pivot joint between blades 11 and 12 has been produced, the structure constituting a half ball shaped pivot. An alternate construction is shown in FIG. 6 wherein the extension portion 15 of lower blade 12a has a cavities end 13a to accommodate a ball 15a. This ball may be steel, plastic, or any other suitable material.

A screw 16 engages the threads of a correspondingly threaded hole 17 in lower blade 12 adjacent the pivot. Screw 16 protrudes with its head 18 over the upper side of upper blade 11, and is arranged to hold the two cutting blades 11 and 12 together. An arcuate slot 19 is provided in upper blade 11, through which screw 16 extends, having clearance for easy motion of upper blade 11 in relation to lower blade 12. An anti-friction washer 21, made of any suitable anti-friction material, for example, nylon, is interposed between head 18 of screw 16 and the upper side of upper blade 11. This construction provides a blade tension adjusting screw forward of the pivot.

FIGS. 3 and 4 show a similar arrangement of structure of the subject of the invention on a thread clip or snip 20 wherein a spring 22 is attached to blades 11 and 12, which serves the purpose of urging the forward portions of blades 11 and 12 of the cutting tool to open position thereof. It is quite obvious that in the typical one-hand operation of the cutting tool 20 the palm of the operator's hand, when engaging the rearward portion of the tool, becomes less fatigued because of the novel anti-friction pivot device of this invention.

It is understood that the invention is applicable to other type handtools, the invention being directed to the fulcrum area of the tool, wherein there is provided a ball-shaped, spherical pivot about which the blades or jaws rotate, replacing the conventional screw or pin. Where transverse forces are present, the use of the half ball post principle described herein is preferable. The screw included in the tool is simply to adjust the blade or jaw tension, one of the blades or jaws containing an arcuate slot so that the screw does not act as a pivot.

From the foregoing, it is evident that there has been provided herein a handtool which has an upper blade member 11 and a lower blade member 12, upper blade member 11 having a recess or cavity 13 in its surface, and lower member 12 being provided with a protrusion 14 or 15, 15a disposed in recess 13, providing a pivot, the protrusion being either an integral extension 14 (FIG. 5) of member 12, or a cavities extension comprising part 15 and a ball-shaped member 15a (FIG. 6) adapted to be disposed in cavity 13a; and an adjustable tension means adjacent the pivot forward thereof, the tension means comprising a threaded hole 17 in lower member 12, an arcuate slot 19 in the upper member 11, and a screw 16, the screw having a head 18 and projecting into the threaded hole 17 through slot 19.

While the invention has been described and illustrated with respect to certain preferred examples, which give satisfactory results, it will be understood by those skilled

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in the art after understanding the principle of the invention, that various changes and modifications may be made without departing from the spirit and scope of the invention and it is intended therefore in the appended claims to cover all such changes and modifications.

I claim:

1. A handtool comprising an upper member and a lower member, one of said members having a recess in the surface thereof and the other one of said members being provided with a protrusion, said protrusion being an extension of said other one of said members, said protrusion being disposed in said recess providing a pivot, and adjustable tension means adjacent said pivot, forward thereof, said tension means comprising a threaded hole in said lower member, an arcuate slot in said upper member, and a screw, said screw having a head, said screw engaging said threaded hole through said slot, and anti-friction means under said head.

2. A handtool according to claim 1 and wherein said extension comprising a cavity therewithin, and a substantially ball-shaped member adapted to be disposed in said cavity.

3. A handtool according to claim 1 and wherein said extension comprising a cavity therewithin, and a substantially ball-shaped member adapted to be disposed in said cavity.

4. A handtool comprising an upper member and a

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lower member, each of said members having a blade portion at the forward end thereof, one of said members having a recess in the surface thereof and the other one of said members being provided with a protrusion, said protrusion being an integral extension of said other one of said members, said extension having a cavity, and a substantially ball-shaped member disposed in said cavity, said protrusion being disposed in said recess thereby forming a pivot, and adjustable tension means between said pivot and said blade portions.

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U.S. Cl. X.R.

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