

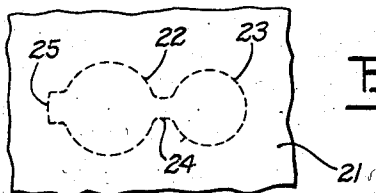
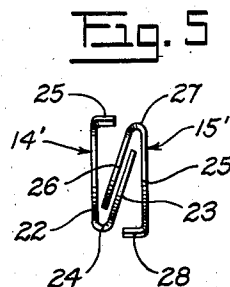
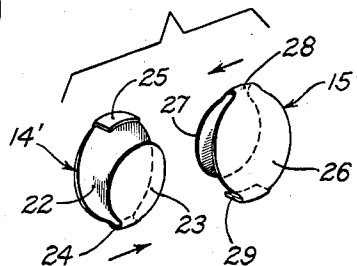
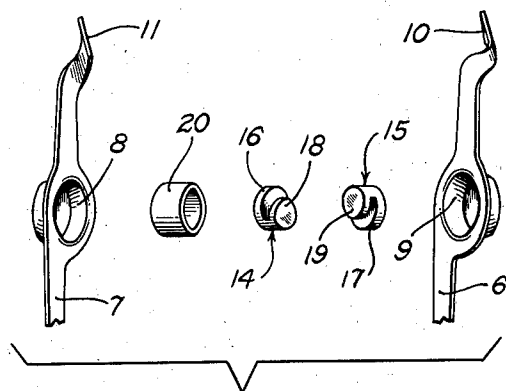
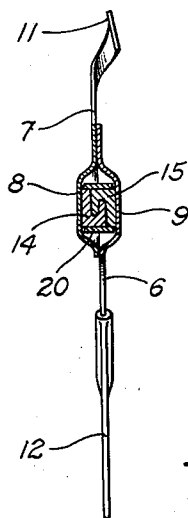
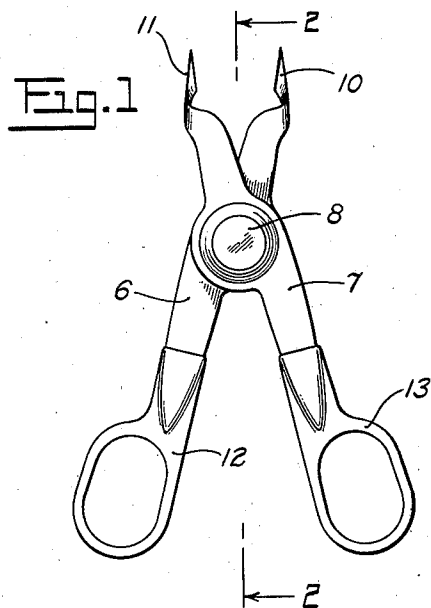
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G. VIDO

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SCISSORS AND THE LIKE

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INVENTOR.
George Vido
BY *Stephen Berstrik.*
ATTORNEY.

UNITED STATES PATENT OFFICE

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SCISSORS AND THE LIKE

George Vido, Newark, N. J.

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11 Claims. (Cl. 30—260)

The present invention relates to devices having a pair of cooperating blades or jaws pivotally connected together, such as scissors, nippers, shears, pliers and the like, and more particularly to novel means for pivotally connecting such blades or jaws together.

Heretofore, the blades of a pair of scissors or the jaws of a pair of pliers have been pivotally connected together by means of a pin passing through the blades or jaws at a point intermediate the working portions and the handle portions, and the ends of the pin were then peened over in the manner of a rivet. Such a connection, however, became loose after a period of use of the scissors or pliers, particularly scissors, thereby causing the blades to recede away from each other at the cutting portions thereof so that the cutting edges would become spaced a relatively small distance from each other and, therefore, would no longer be capable of cutting anything, thus rendering the scissors useless even though the cutting edges remained sharp.

Moreover, such a connection can be applied only to rigid steel blades having a definite minimum thickness, and cannot be used in scissors having blades cut out or stamped out of relatively thin sheet metal.

Accordingly, one of the objects of the present invention is to avoid the foregoing disadvantages and drawbacks in the construction of scissors, nippers, shears, pliers and the like.

Another object is to provide, in a pair of scissors or pliers, novel means for pivotally connecting together the cooperating blades or jaws without the use of a pin or rivet, whereby separation or spreading of the blades or jaws away from each other is substantially prevented even after prolonged use of said scissors or pliers.

A further object of the invention is to provide novel means for pivotally connecting the cooperating blades of a pair of scissors without the use of a pin or rivet, whereby said blades may be made out of relatively thin sheet metal instead of relatively thick forged steel.

Still another object is to provide scissors, shears, nippers and the like, which are relatively inexpensive to manufacture and may be made more quickly in large quantities in mass production, and which may, therefore, be sold at a lower price than heretofore.

A still further object is to provide, in a device of the class described and having a pair of cooperating blades or jaws, novel means for pivotally connecting said blade or jaws together,

comprising, instead of a pin or rivet, a pair of complementary members, one for each blade or jaw and attached thereto, each member having a tongue and recess, the tongue being in a plane substantially parallel to the plane of its associated blade and adapted to fit into the recess of the other member so as to engage the tongue of said other member in overlapped relation for relative sliding rotation between said members to provide pivotal operating movement of the blades or jaws, and means for holding said members in assembled relation to prevent disengagement thereof and, hence, of the blades or jaws.

Other objects and advantages of the invention will appear more fully hereinafter from a consideration of the detailed description which follows, taken together with the accompanying sheet of drawings wherein two embodiments of the invention are illustrated by way of example. It is to be expressly understood, however, that the drawing is for purposes of illustration and description only and are not to be construed as defining the limits of the invention, reference being primarily had for this purpose to the appended claims.

The invention consists substantially in the construction, combination, location and relative arrangement of parts and steps of the invention for obtaining the results desired in accordance with the foregoing objects, as set forth in the specification, as illustrated in the drawing by way of example and as finally defined in the claims.

In the drawing, wherein like reference numerals refer to like parts throughout the several views:

Fig. 1 is a plan view of a pair of cuticle nippers illustrating one embodiment of the invention;

Fig. 2 is a central longitudinal section taken on line 2—2 of Fig. 1;

Fig. 3 is an exploded view of the parts of the nippers shown in Figs. 1 and 2, illustrating the relation of the parts prior to assembly;

Fig. 4 is an enlarged exploded view of another embodiment of the novel connecting means of the invention;

Fig. 5 is a side view of an assembly of the elements shown in Fig. 4; and

Fig. 5a is a plan view showing the manner in which the elements of Figs. 4 and 5 are cut out or stamped out of a piece of sheet metal.

Referring now to the drawing, and more particularly to Figs. 1, 2 and 3, the invention is

carried out as follows, to produce the novel construction shown:

First, blades 6 and 7 are cut or stamped out of relatively thin sheet metal in any suitable manner known in the sheet metal working art so as to provide substantially cylindrical, cup-shaped cavities 8 and 9, respectively in said blades 6 and 7 intermediate the ends of each blade as shown. Then one end of each of the blades is formed and sharpened to provide a pair of cutting edges 10 and 11, and handles 12 and 13 of any suitable material are attached to the other ends of said blades 6 and 7 or, if desired, the handles may be formed integrally with said blades.

The next step is to separately form a pair of complementary members 14 and 15 comprising the novel connecting means of the invention. In the embodiment shown in Figs. 2 and 3, said complementary members 14 and 15 may be formed by taking two relatively short cylindrical pieces of metal and cutting a transverse slot in each to form circular bases 16 and 17, respectively, and circular tongues 18 and 19, respectively, on said members 14 and 15, the tongues 18 and 19 being cut down to a somewhat smaller diameter than the bases 16 and 17, and the width of the space between the base and tongue of each member being substantially equal to the thickness of the tongue, so that the tongues may engage each other in overlapping relation to make a snug fit, as shown in Fig. 2, when the members 14 and 15 are assembled together to provide relative sliding rotation between said members. The periphery of each tongue also provides a bearing surface during the relative rotation of said members 14 and 15 in assembled relation.

If desired, the members 14 and 15 may be die-cast in the desired form shown in Fig. 3.

The next step is to form, in any suitable manner, an annular metal member or ring 20 having a width substantially equal to the combined thickness of the members 14 and 15 when assembled together, and having an internal diameter substantially equal to the diameter of the bases 16 and 17 so that said ring 20 may be slipped over said members 14 and 15 when assembled, as shown in Fig. 2.

After the component parts are thus formed, they are assembled together as follows, with particular reference to Fig. 3 of the drawing:

The member 15 is inserted into the cavity 9 of the blade 6 and is rigidly attached therein by soldering or brazing the base 17 to the bottom of said cavity 9. Then the member 14 is assembled with said member 15 by inserting the tongue 18 into the space between the base 17 and tongue 19 of the member 15 so that said tongues 18 and 19 are in overlapping relation as shown in Fig. 2 to provide relative sliding rotation between said members 14 and 15. If desired, the elements 14 and 15 may be put together first and then inserted into the cavity 9.

Then the ring member 20 is slipped over the members 14 and 15 to hold them together in assembled relation and to prevent their coming apart. If desired, the members 14 and 15 and the ring 20 may be assembled together first and then the whole assembly inserted into the cavity 9 of blade 6.

Finally, the blade 7 is connected to the blade 6 by placing the cavity 8 over the base 16 of the member 14 and rigidly attaching said base 16 to the bottom of the cavity by soldering or brazing or in any other suitable manner to form a

permanent connection and bond therebetween. The assembled structure will then appear as shown in Figs. 1 and 2.

In Figs. 4 and 5 is shown another embodiment of the novel connecting means of the invention. In this embodiment, the complementary members are indicated as 14' and 15', respectively. Each member is made as follows:

A piece of relatively thin sheet metal 21 is taken, and out of it are cut out or stamped out a pair of discs 22, 23 which are not separate but joined to each other at one point on their peripheries as at the point 24, the disc 22 being of slightly greater diameter than disc 23 and having a projection 25 thereon.

After these members are cut out or stamped out as indicated above, each member is then taken and the two discs 22 and 23 thereof are bent toward each other at the point 24, and the projection 25 on the disc 22 is bent toward the disc 23 and substantially at right angles to the plane of disc 22.

The complementary member 15' is formed in the same manner and comprises a larger disc 26 joined to a smaller disc 27 at the point 28, the larger disc 26 having the projection 29 thereon.

The manner of assembling the members 14' and 15' and joining them to the blades 6 and 7 is substantially the same as that in which the members 14 and 15 are assembled together and joined to the blades, namely, as follows:

The member 14', for example, is rigidly attached to the blade 7 in any suitable manner as, for example, by soldering or brazing the disc 22 thereto. Then the member 15' is assembled with the member 14' by inserting the disc 27 between the discs 22 and 23 of the member 15' so that the discs 23 and 27 are in overlapping relation to provide relative sliding rotation between said members 14' and 15'.

The next step is to connect the blade 7 to the blade 6, which is done by placing the blade 6 over the blade 7 and rigidly attaching the blade 6 to the disc 26 in any suitable manner as, for example, by soldering or brazing said disc 26 to the blade 6, with the projection 25 engaging the member 15' at its periphery and the projection 29 engaging the member 14' at its periphery, as shown in Fig. 5.

Thus, in accordance with the invention, there are provided novel means for pivotally connecting together the cooperating blades or jaws of a device of the class described, without the use of a pin or rivet, whereby separation or spreading of the blades or jaws away from each other is substantially prevented even after prolonged use of the device of the invention.

It is to be understood that while the illustrated embodiments of the invention show the novel connecting means applied to nippers of relatively thin sheet metal, said connecting means may likewise be applied to scissors, shears and the like having blades of forged steel.

Although only two embodiments of the invention have been illustrated and described, various changes in the construction and relative arrangement of the parts and in the steps of the method, which will now appear to those skilled in the art, may be made without departing from the spirit or scope of the invention. Reference is, therefore, to be had to the appended claims for a definition of the scope of the invention.

What is claimed is:

1. In a device of the class described having a

pair of cooperating blades or jaws, means for pivotally connecting said blades or jaws together without the use of a pin or rivet, comprising a pair of complementary members, one for each blade or jaw and attached thereto, each member having a tongue and recess, the tongue being in a plane substantially parallel to the plane of its associated blade and adapted to fit into the recess of the other member when assembled therewith, so as to engage the tongue of said other member in overlapping relation for relative sliding rotation between said members to provide pivotal operating movement of the blades or jaws.

2. In a device of the class described having a pair of cooperating blades or jaws, means for pivotally connecting said blades or jaws together without the use of a pin or rivet, comprising a pair of complementary members, one for each blade or jaw and rigidly attached thereto, each member having a tongue and recess, the tongue being in a plane substantially parallel to the plane of its associated blade and adapted to fit into the recess of the other member when assembled therewith, so as to engage the tongue of said other member in overlapping relation for relative sliding rotation between said members to provide pivotal operating movement of said blades or jaws, and means for holding said complementary members in assembled relation to prevent disengagement thereof and of said blades or jaws.

3. In a device of the class described having a pair of blades of relatively thin sheet metal provided with cutting edges, each blade having a substantially cylindrical cavity intermediate its ends, means for pivotally connecting said blades together without the use of a pin or rivet, comprising a pair of complementary members, one for each blade and each member having a substantially circular base and a tongue spaced from said base, one member having its base rigidly attached to one blade in the cavity thereof, and the other member having its base attached to the other blade in the cavity thereof with the tongue of said latter member in overlapping relation with the tongue of said first member, and means on each of said members for preventing disengagement thereof.

4. In a device of the class described having a pair of cooperating blades provided with cutting edges, means for pivotally connecting said blades together without the use of a pin or rivet, comprising a pair of complementary members of relatively thin and flexible sheet metal, each being rigidly attached to its associated blade and each comprising a pair of discs joined together at one point on their peripheries and bent toward each other at said point so as to face each other, one disc being of slightly greater diameter than the other and having a projection bent at right angles toward said smaller disc, the larger disc of one member being attached to one blade and the larger disc of the other member being attached to the other blade, with the smaller disc thereof engaging the smaller disc of the first member in overlapping relation, and the projection on the larger disc of each member engaging the periphery of the other member to hold said members in assembled relation and prevent disengagement thereof.

5. In a pair of scissors or the like having a pair of cooperating blades provided with cutting edges, means for pivotally connecting said blades together without the use of a pin or rivet, comprising a member on one of said blades interme-

diate its ends and provided with a tongue in a plane substantially parallel to the plane of said blade, and a complementary member on the other of said blades intermediate its ends and also provided with a tongue in a plane substantially parallel to the plane of said second blade and engaging the tongue of said first member in overlapping relation to provide sliding rotation between said members and pivotal movement between the associated blades about an axis passing through substantially the centers of the faces of said tongues.

6. In a pair of scissors or the like having a pair of cooperating blades provided with cutting edges, means for pivotally connecting said blades together without the use of a pin or rivet, comprising a member on one of said blades intermediate its ends and provided with a tongue in a plane substantially parallel to the plane of said blade, and a complementary member on the other of said blades intermediate its ends and also provided with a tongue in a plane substantially parallel to the plane of said second blade and engaging the tongue of said first member in overlapping relation to provide sliding rotation between said members and pivotal movement between the associated blades about an axis passing through substantially the centers of the faces of said tongues, and means for holding said members in assembled relation to prevent disengagement thereof.

7. In a pair of scissors or the like having a pair of cooperating blades or jaws, means pivotally connecting said blades or jaws together without the use of a pin, screw or rivet, comprising a pair of round interlocking members moved radially relatively to each other into interlocked engagement for relative rotatable sliding movement therebetween about a common axis, one of said members being attached to one of said blades or jaws and the other member being attached to the other of said blades or jaws.

8. In a pair of scissors or the like having a pair of cooperating blades or jaws, means pivotally connecting said blades or jaws together without the use of a pin, screw or rivet, comprising a pair of round interlocking members moved radially relatively to each other into interlocked engagement for relative rotatable sliding movement therebetween about a common axis, one of said members being attached to one of said blades or jaws and the other member being attached to the other of said blades or jaws, and means around the peripheries of said interlocked members for preventing radial disengagement thereof.

9. In a pair of scissors or the like having a pair of cooperating blades or jaws, means pivotally connecting said blades or jaws together, comprising a pair of interlocked members each having a pair of parallel opposed surfaces in planes parallel to the plane of movement of said blades or jaws, one of said members being attached to one of said blades or jaws and the other member being attached to the other of said blades or jaws, and the parallel surfaces of one member slidably inter-engaging the parallel surfaces of the other member for relative rotatable sliding movement therebetween about a common axis passing through the center of said members at right angles to the planes of said surfaces.

10. In a pair of scissors or the like having a pair of cooperating blades or jaws, means pivotally connecting said blades or jaws together, com-

prising a pair of interlocked members each having a pair of parallel opposed surfaces in planes parallel to the plane of movement of said blades or jaws, one of said members being attached to one of said blades or jaws and the other member being attached to the other of said blades or jaws, the parallel surfaces of one member slidably inter-engaging the parallel surfaces of the other member for relative rotatable sliding movement therebetween about a common axis passing through the center of said members at right angles to the planes of said surfaces, and means for holding said members in assembled relation along their peripheries.

11. In a pair of scissors or the like having a 15

pair of cooperating blades or jaws, means pivotally connecting said blades or jaws without the use of a pin or rivet extending through said blades or jaws comprising a pair of interlocking members forming substantially a cylinder when interlocked and each having a transverse tongue and recess, one of said members being on one of said blades or jaws and the other member being on the other of said blades or jaws, the tongue of one member extending into the recess of the other member to provide relative rotatable sliding movement between said members about the axis of the cylinder formed by said two members.

GEORGE VIDO.