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G. O. CARLSON

SHEARS

Filed June 13, 1924

Fig. 1.

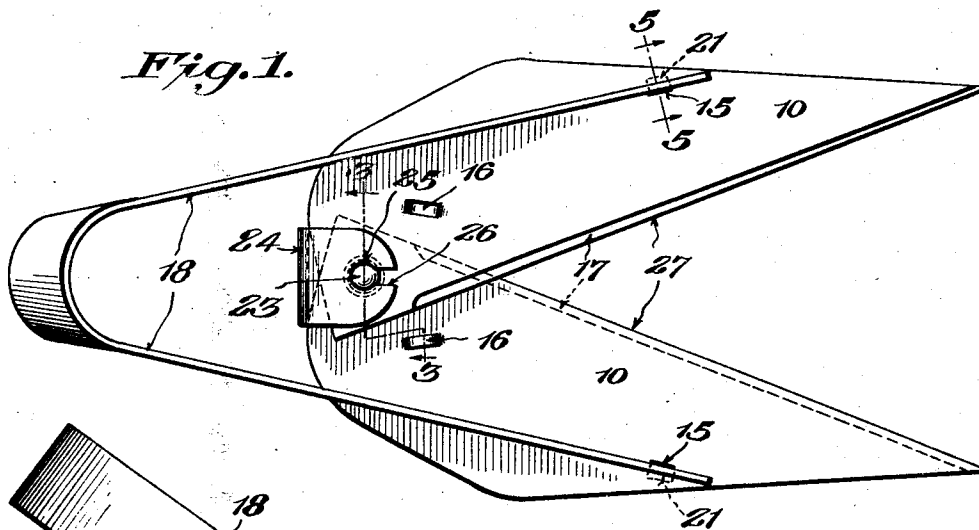


Fig. 2.

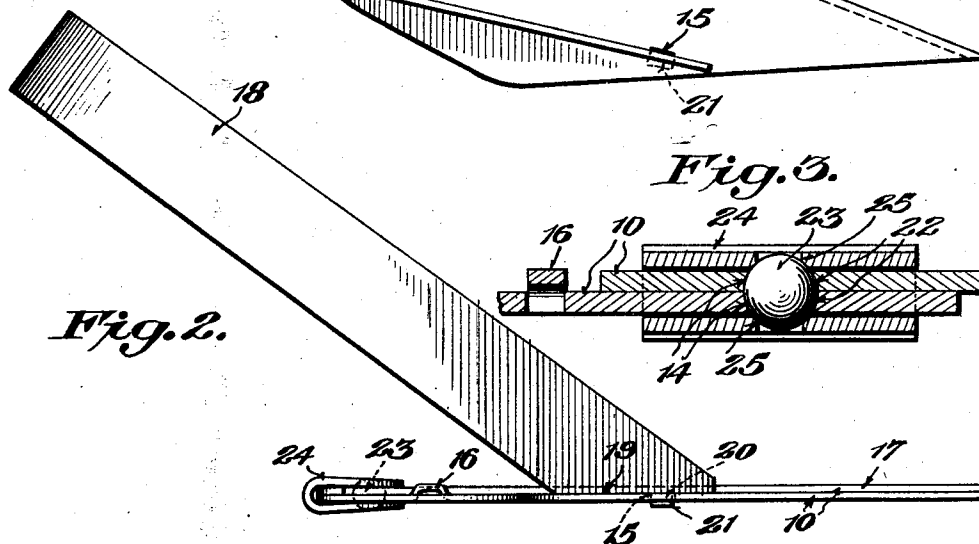


Fig. 3.

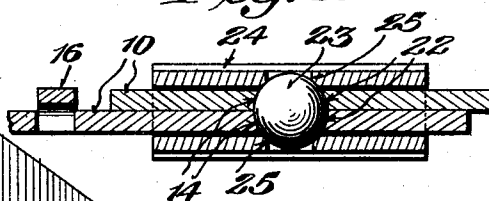


Fig. 4.

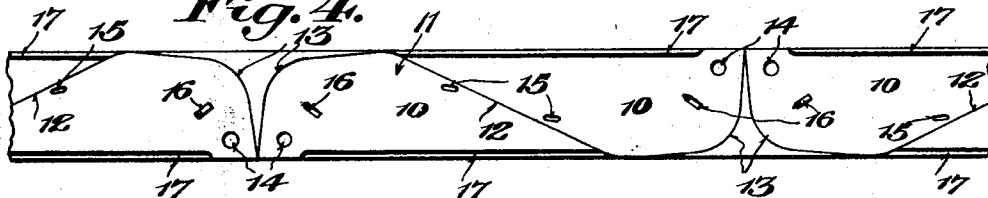
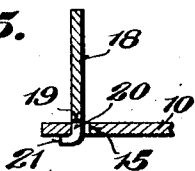


Fig. 5.



WITNESS:

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## UNITED STATES PATENT OFFICE.

GUSTAVE O. CARLSON, OF WETHERSFIELD, CONNECTICUT, ASSIGNOR OF ONE-THIRD TO HENRY HANSON, OF MIDDLETOWN, CONNECTICUT, AND ONE-THIRD TO CARL O. HEDSTROM, OF PORTLAND, CONNECTICUT.

## SHEARS.

Application filed June 13, 1924. Serial No. 719,909.

*To all whom it may concern:*

Be it known that I, GUSTAVE O. CARLSON, a citizen of the United States, residing at Wethersfield, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Shears, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to new and improved shears.

It is the object thereof, among other things, to provide a highly efficient device of this character that will be easy to operate without strain upon the fingers or hand, wherein the cutting edges of the blades will at all times maintain proper relative positions, and so designed as to be of few parts, produced with the minimum waste of material that will require practically no skill to assemble.

To these, and other ends, my invention consists in the shears, having certain details of construction and combinations of parts, as will be hereinafter described and more particularly pointed out in the claims.

Referring to the drawings, in which like numerals of reference designate like parts in the several figures;

30 Figure 1 is a plan view of my improved shears;

Figure 2 is a side elevation thereof;

Figure 3 is an enlarged sectional view of some of the parts, taken generally upon line 3—3 of Figure 1;

40 Figure 4 is a plan view of a strip of metal, outlined thereon a series of blades as used in my invention, to illustrate the method of manufacture and the slight waste of material; and

Figure 5 is a fragmentary sectional view of a portion of the shears, taken generally upon line 5—5 of Figure 1.

The blades of my improved shears are designated 10 and are preferably made from a sheet of metal, designated 11, by merely cutting the same diagonally upon the lines 12 and rounding the rear corners at 13, substantially as shown. It is not essential, however, to round these corners, but find it desirable to do so in order to remove a sharp corner that might possibly cause injury.

During the same operation of cutting the blades from the sheet of metal, the openings

14 and 15 are also formed therein and the offset 16 projected from one side thereof. Thereafter, the long edge of the blade is beveled at 17 to provide the cutting edge.

As these blades are preferably made from hard metal, it is not necessary to temper the same to provide a durable cutting edge. This, however, is not essential, as the blades may be made from soft metal and subsequently hardened.

The handle 18 is preferably a strip of spring metal bent midway of its length with angular faces 19 at its opposite ends and a tongue 20 projecting therefrom and terminating in a lip 21 at its outer end.

The opening 14 in each of the blades is formed with a concaved seat 22 for the ball 23. This ball is of such size that when seated between the two blades 10, on the seats 22, a portion thereof projects through the openings 14 in the blades and is exposed upon the outer faces thereof.

When the blades are thus assembled with the ball they are held together with a spring tension by a clip 24, preferably of U shape and having near its free ends, a circular opening 25, into which projects the exposed portions of the ball 23 and leading therefrom are the slots 26 to facilitate such assembly. When thus assembled, the blades are connected with each other by a ball joint, and the clip 24 applies a slight inward pressure to the outside face of each of the blades so that the cutting edges 17 are always in proper relative positions for cutting and cannot separate from each other, as is common with most shears heretofore made.

The handle 18 is assembled with the blades by passing one of the tongues 20 thereon through the slot 15 in one of the blades and the lip 21 thereon engages the opposite side thereof, thus the blade is between the face 19 and the lip 21. The tongue 20 upon the opposite end of the handle is then secured to the other blade in the same manner. When thus assembled, the tension of the handle 18 is exerted to hold the blades in their open position and they are closed by pressure of the hand upon both sides of the handle. The inward or closed position of the blades is limited by the offset 16, each of which engages the cutting edges of the other blade, and the outer or open position by the engagement of the rear end thereof

with the back wall of the clips as shown in Figure 1.

Any other form or shape of handle may be substituted for the one herein shown, or the same may be made integral with the blades, or omitted entirely. The shape of the blades may, of course, be varied indefinitely, or they may be so formed as to make a handle, as is common in shears; and in other ways the detail construction of my improved shears may be varied over that herein shown and suggested and within the spirit and scope of the appended claims.

What I claim as new and desire to secure by Letters Patent, is:—

1. Shears having blades; a ball by which the blades are pivotally connected; and means outside of the blades having connection with the ball for maintaining the same in operative relation with the blades.

2. Shears having blades, each of which is provided with a ball seat; a ball seated upon said seats and projecting through the blades; and means having connection with the ball for maintaining the blades and ball in operative relation to each other.

3. Shears having blades with offset portions thereon; a ball by which the blades are pivotally connected; means outside of the blades for maintaining the same in operative relation to each other; said offset portions being so positioned as to limit the relative movement of the blades toward each other.

4. Shears having blades; a ball by which the blades are pivotally connected, said ball projecting through and outside of each of the blades; and a spring tension member that applies a limited pressure to the outer side of each of the blades and engages the ball, whereby the blades are held in frictional and operative contact with each other.

5. Shears having blades; a ball by which the blades are pivotally connected, said balls projecting through and outside of each of the blades; and spring tension means for applying a limited pressure to the outer side of each of the blades, whereby the blades are held in frictional contact with each other, said spring tension means being held against relative movement by the ball.

6. Shears having blades; a ball by which the blades are pivotally connected; a spring clip projecting over the end of both of said blades and having connection therewith and said ball for holding the blades in operative relation with each other.

7. Shears having blades; ball means for

pivotally connecting the blades; and means for holding the blades and ball means in operative relation to each other, comprising a spring clip having companion openings therethrough substantially opposite each other and into which projects the said ball.

8. Shears having blades; ball means for pivotally connecting the blades; means for holding the blades and ball means in operative relation to each other, comprising a spring clip having companion openings therethrough substantially opposite each other and into which projects the said ball, and a slot leading from each of said openings of less width than the openings.

9. Shears having blades with stop shoulders thereon, ball means for pivotally connecting the blades; means connected with the ball for maintaining the ball means in operative relation with each other and limiting the open position of the blades, each of the stop shoulders projecting into the path of movement of the other blade.

10. Shears having blades; a ball by which the blades are pivotally connected; and a single handle separably connected with both of the blades.

11. Shears having blades; a ball by which the blades are pivotally connected; and a single handle separably connected with both of the blades upon the same side thereof.

12. Shears having blades with handle retaining openings therein and pivotally connected with each other; and a spring tension handle having end faces at an acute angle to their length with a tongue projecting from each of such faces for each of said openings and into which the same project and by reason thereof the handle and blades are separably secured together.

13. Shears having blades pivotally connected with each other, each blade having an opening therethrough; a spring tension handle having end faces at an angle to the length thereof with a tongue projecting from each of such end faces that terminate in a lip which is on one side of the blade when the handle is assembled therewith.

14. Shears having blades connected with each other; a one-piece handle constructed of spring material, bent between its ends and having end faces at an acute angle to its length and having a separable connection at each end with one of the blades.

In testimony whereof, I have hereunto affixed my signature.

GUSTAVE O. CARLSON.