Oct. 3, 1950 C. J. DALLEY 2,524,653

THREAD CLIPPER

Filed Aug. 28, 1947

Fig. 1.

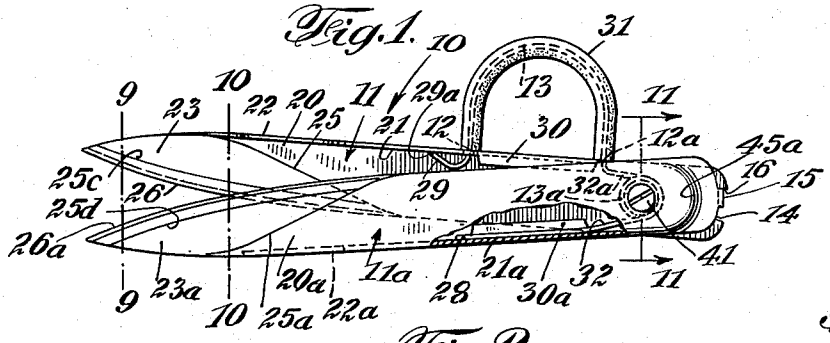


Fig. 2.

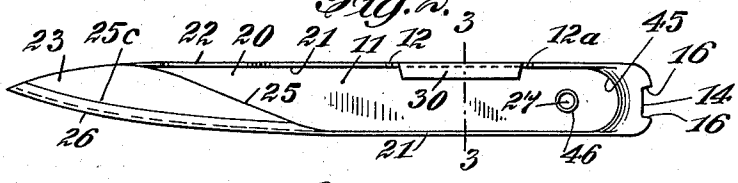


Fig. 3.

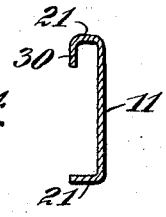


Fig. 4.

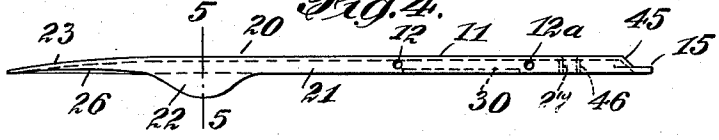


Fig. 5.

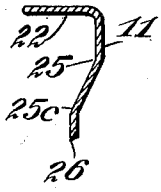


Fig. 6.

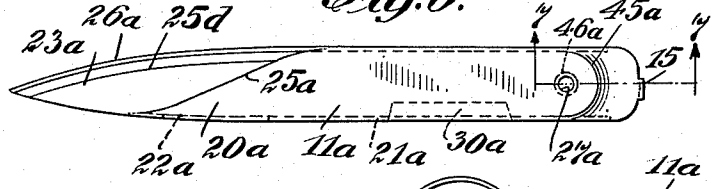


Fig. 7.

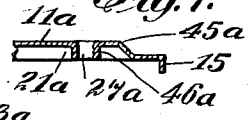


Fig. 8.

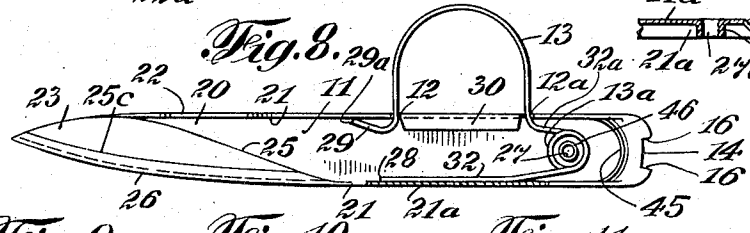


Fig. 9.

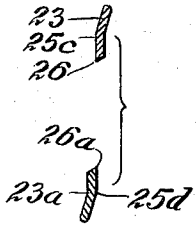


Fig. 10.

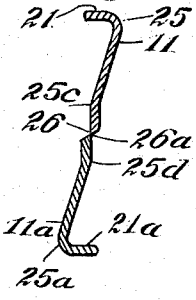
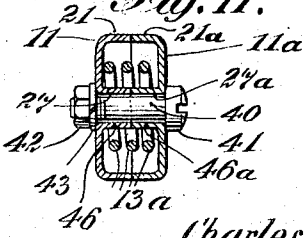


Fig. 11.



INVENTOR.
Charles J. Dalley
BY
C. P. Goepel
his ATTORNEY

Patented Oct. 3, 1950

2,524,653

UNITED STATES PATENT OFFICE

2,524,653

THREAD CLIPPER

Charles J. Dalley, Maplewood, N. J.

Application August 28, 1947, Serial No. 770,976

2 Claims. (Cl. 30—253)

1

This invention relates to thread cutters or shears; heretofore, such shears were made of forgings, and were rather costly. The object of this invention is to provide an efficient shears and at as low a cost as possible.

The invention contemplates a pair of shear blades, each substantially like the other, and each stamped by cold die operation from sheet metal. For this purpose, a shell-like body portion is provided with a pivot opening for the pivot shaft or bolt, and with means for limiting the movement of the blade or body portion. A longitudinal rim or flange extends along one longitudinal side to give strength to the blade, this rim or flange having extended portions, as shown, one to form a pressure abutment, and the other, to act as a protecting member. Diagonally of the blade is a bend line along which the blade is bent to convert the initially flat shell-like structure into a shear blade so as to bring the other longitudinal side to a position to provide a cutting edge, with, preferably, a second bend line along which the body portion is again bent to provide a straight part to enable a grinding action to always maintain the cutting edge in proper position. The superposed blades pivoted by the uniting bolt and nut, of the kind described, make up the shears, with a spring disposed between them to normally maintain the shear blades in open position, pressure applied to the pressure abutments closing the blades for the cutting operation.

The invention also contemplates the provision of a special spring wire, one end of which rests against one shear blade, and the other end of which rests against the other shear blade, the spring wire being provided with a tension portion, and extending out of the second blade to form a finger enclosure. Preferably, the tensioning is obtained by bending the spring into a coil of one or more convolutions. A protective covering for the part extending outside of the blade is provided. Thus, by pressing upon the pressure abutments with a finger passing through a finger enclosure, the pivoted ends of the cutting shears being held in the palm of the hand, the cutting edges askew to each other in scissor fashion are pushed toward each other for the cutting operation against the action of the spring, the tension of the spring returning the cutting edges to open position, upon release of pressure on the pressure abutments, ready for the next cutting operation.

The improved shears is light in weight, easily produced under mass production methods, and inexpensive.

Embodiments of the invention will be more fully

2

described hereinafter, the embodiments shown in the drawings, and the invention will be finally set forth in the claims.

In the accompanying drawings:

Fig. 1 is a plan view partially broken away of the improved thread cutter;

Fig. 2 is an inner side view of one blade without spring;

Fig. 3 is a vertical section on line 3—3 of Fig. 2;

Fig. 4 is a side view of Fig. 2;

Fig. 5 is a vertical section on line 5—5 of Fig. 4;

Fig. 6 is an outside side view of the other blade;

Fig. 7 is a longitudinal detail section taken on line 7—7 of Fig. 6;

Fig. 8 is an inner side view like Fig. 2 but with the spring applied thereto;

Fig. 9 is a vertical section on line 9—9 of Fig. 1;

Fig. 10 is a vertical section on line 10—10 of Fig. 1; and

Fig. 11 is a vertical section on line 11—11 of Fig. 1.

Similar characters of reference indicate the same parts throughout the various views.

Referring to the drawings, the shear 10 consists of two matching blades 11 and 11*a*, substantially identical in construction, save that one member 11 has a pair of openings 12, 12*a*, for the passage of a wire loop 13, and has a notch 14, and the other member 11*a* has a projection 15 to move within the notch 14, and be limited in its movement by the walls 16 of said notch.

Each blade is stamped, thus eliminating drop forging which obviates grinding and polishing, which tends to increase the cost of manufacture. With the employment of pressed steel blades, such grinding and polishing is substantially eliminated, all the work being done cold.

Each blade 11, or 11*a*, has an elongated body portion 20, 20*a*, having a longitudinal flange 21 or 21*a*, part of which is laterally extended to form a pressure member abutment 22, or 22*a*, for the application of the thumb and finger when operating the shears, and another part 30, 30*a*, is bent over to protect the finger, when passing through the spring finger enclosure. The flange 21, 21*a* is bent at about a right angle to the plane of the body portion, to strengthen the blades (Fig. 10). The abutment 22, 22*a*, is at right angles to the body portion (Fig. 5). The parts, 30, 30*a*, are bent down forming with the flange 21, 21*a*, an inverted U (Fig. 3). The bent over inverted U parts 30 (Fig. 3), extend from opening 12 to opening 12*a*, and serve as a protection to the user, at the same time giving strength to the shell or body portion.

The tip parts 23, 23a of the body portions 20, 20a, do not have the longitudinal flanges 21, 21a (Fig. 9). The body portions are bent along the diagonal lines 25, 25a, to provide cutting edge supporting portions 23, 23a, one cutting edge 26 being askew to the other 26a in the known scissor construction. In these portions 23, 23a, further bend lines 25c, 25d, are preferably provided, which enable the actual cutting edges to be in a shearing plane even after grinding of the cutting edges. The parts of the body portions from the bend lines 25c, 25d to the cutting edges 26, 26a, are parallel with each other (Fig. 10). This enables grinding for sharpening the cutting edges, to wear away the metal and still maintain the askew scissor action relationship.

One blade 11 is shown in inner side view in Fig. 2, with its top view in Fig. 4, and the other blade 11a is shown in outer side view in Fig. 6. The blade 11 has a pivot hole 27, and the blade 11a has a pivot hole 27a.

A pivot bolt 40 of known construction with a head flange 41, is passed through the holes 27, 27a, to secure the body portions together, with the desired yieldability for the operation of the blades, on the fastening of the nut 42, against the spring washer 43, for example. Each blade has an inwardly extending bearing lug 46, 46a.

In addition to the improved blade described, an important improvement is the following:

A spring 32 has one end 28, which rests on the flange 21a of the body portion 11a, held in position against lateral movement by the bent over inverted U part 30a. The spring 32 then extends around the hubs 46 and 46a, where several convolutions 13a, are formed to give tension to the spring, and then with its part 32a passes through the nearest opening 12a, in the flange 21 of the body portion 11, where it is formed into a loop 13 to accommodate one finger of the hand, after which it enters the other opening 12 in the flange 21 of the body portion, spaced from the first opening about the thickness of the middle finger. The spring wire 32 then passes through the second opening 12 and along the under side of the flange 21 of the body portion 11, where it is bent about at right angles to itself, as shown by the hook portion 29, the tip 29a of which abuts against the flange 21. Preferably, before the spring wire is inserted into the second opening 12a, it is passed through a tubular envelope 31 of suitable slightly yieldable material, as closely wound wire, fabric, or rubber, for the purpose of making the finger action more agreeable while the shear is in use. Thus, a one piece spring wire, serves the double function of a spring and of a guard for the finger. This structure is applied to a thread shear in the embodiment shown, but may find application to any other suitable type of shears.

The body portions have in proximity to the bolt openings 27, 27a, a curved portion 45, 45a, from which the metal is depressed to form the cutout 14 and projection 15, shown as an example of the confinement means limiting the movement of the blades.

The simple construction of the stamped body portions permits ready assembly. After the spring has been applied to one body portion in the manner described (Fig. 8), the other body portion is applied, the end 28 of the spring placed in the inverted U part of the other body portion, and then the bolt is fastened to the tightness desired.

The shear is used by placing the pivoted end in the palm of the hand, with the middle finger, preferably, passing through the wire loop and the index finger and thumb pressing upon the abutments to close the shears, the spring within the blades opening the same on the release of the pressure on the abutments.

It will have been noted that on the one hand, the body portions have the strengthening flanges 21, 21a, with the pressure members or abutments 22, 22a, and guard members 30, 30a, and the movement controlling projection 15 and notch 14, and in addition thereto have the bend lines 25, 25a and 25c, 25d, whereby a practically operative shearing blade is constituted by a stamping operation, and on the other hand, a double function spring is provided, which acts as a tension member to normally maintain the blades in open position, and at the same time acts as a finger guide.

Each of the blades may be stamped so as to form a shell, and then subjected to further stamping actions to provide the bend lines.

I have described several forms of my invention, but obviously various changes may be made in the details disclosed without departing from the spirit of the invention as set out in the following claims.

I claim:

1. In a thread cutter or the like, a blade of a stamped flat metal body having a transverse flange along the length of the flat body with a pair of openings therein, a second blade of a stamped flat metal body having a transverse flange along the length of the blade, each blade having a cutting edge on its side opposite to the flanged side, a spring, shaped to exert a tension, having one end against said flange of the second blade and the other end against the flange of the first blade, and passing through said pair of openings of the first blade, to form a finger enclosure, outside of the blade, a pivot bolt for said two blades, and means limiting the movement of said blades.

2. In a thread cutter or the like, a pair of blades, each of a stamped metal flat body, and each having a bent transverse flange along the length of one side, and a cutting knife edge on the other side, each having a pivot bolt hole at one end, each flat body having a bend line parallel with said cutting edge between angular surfaces of said flat body, one of which terminates in the knife cutting edge, and having a bend line diagonal to the flat body for disposing the aforesaid angular surfaces towards each other and meet the said cutting edges askew scissor fashion to each other, a spring shaped to exert a tension between said pair of blades, having one end acting against one flange, and the other end acting against the other flange, to normally hold the blades in open position, a pivot bolt for said pivot holes joining the blades, and means limiting the movement of the blades.

CHARLES J. DALLEY.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
415,216	McDonough	Nov. 19, 1889
770,347	Brown	Sept. 20, 1904
1,186,235	Schrade	June 6, 1916
1,299,104	Arnold	Apr. 1, 1919
1,979,743	Hershey	Nov. 6, 1934
2,064,730	Carrier	Dec. 15, 1936
2,142,738	Wakeley	Jan. 3, 1939