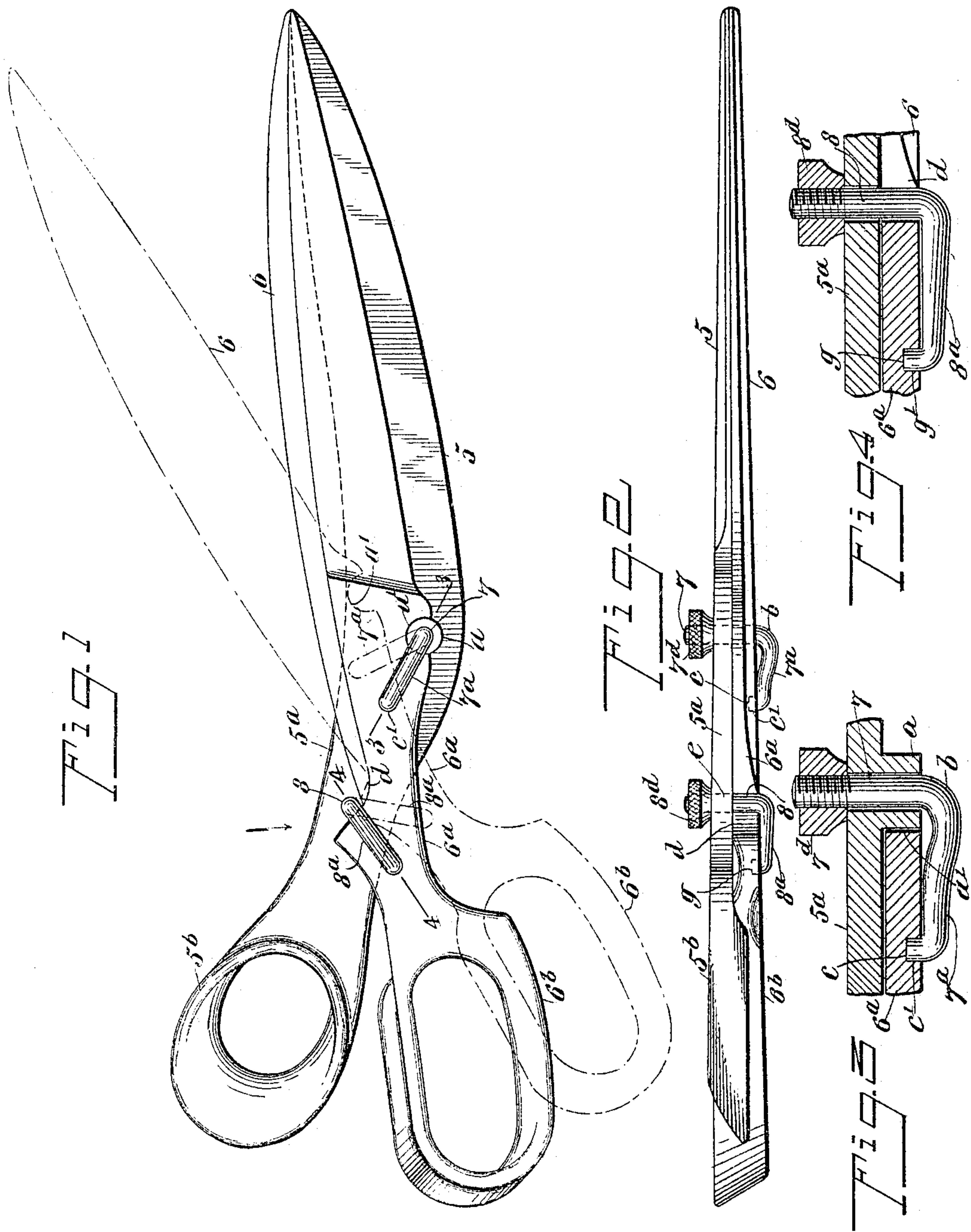


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O. C. ABBOTT.
SHEARS AND SCISSORS.
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WITNESSES:

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SHEARS AND SCISSORS.

No. 801,629.

Specification of Letters Patent.

Patented Oct. 10, 1905.

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To all whom it may concern:

Be it known that I, ORRIS CHARLES ABBOTT, a citizen of the United States, and a resident of Butte, in the county of Silver-bow and State of Montana, have invented new and useful Improvements in Shears and Scissors, of which the following is a full, clear, and exact description.

The object of this invention is to provide novel features of construction for shears and scissors that confer a drawing and shearing movement to the normally upper blade when the instrument is used. This action is effected by the provision of two spaced rock-arms as connections between the cutting-blades, which arms are so disposed that a quick opening movement of the blades is effected with a limited divergence of the handle-bows of the instrument by the location of one rock-arm that serves as a fulcrum near said bows. Furthermore, the relative position of the two rock-arms adapts them for joint action as toggle-levers, increasing the manual power applied upon the bows for the closure of the blades and the shear-cutting of material with which they engage.

The invention consists in the novel construction and combination of parts, as is hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side view of a pair of shears embodying the invention. Fig. 2 is an edge view of the same seen in the direction of the arrow in Fig. 1. Fig. 3 is an enlarged transverse sectional view substantially on the line 3 3 in Fig. 1, and Fig. 4 is a similar view substantially on the line 4 4 in Fig. 1.

The improvements are shown as applied upon shears of a kind generally used for cutting cloth or other fibrous material, and, as represented in Fig. 1, 5 indicates the blade of the shears that is lowermost in use, and 6 the upper blade, these blades being of usual form, each having a flat side and an opposite beveled side that inclines toward the flat side, forming therewith a sharp cutting edge.

Integral with the upper blade 6 is a shank or handle member 6^a, that is narrowed somewhat and extends nearly straight from the heel of the blade, terminating in an oblong

ring or bow 6^b, which is of a size that permits the free insertion therethrough of two fingers of the right hand of the operator.

A handle member 5^a is formed integral with the blade 5 and extends at an obtuse angle from the heel thereof, said member at the outer end having a bow 5^b, shaped for the reception of the thumb of the right hand when the shears are used. The adjacent sides of the handle members 5^a 6^a are flattened, and the bow member 6^b is slightly inclined outward, thus affording proper clearance for the free reciprocation of the handle members when they are lapped upon each other and held to rock upon pivotal connections that will be described.

The obtuse angular trend of the handle member 5^a and bow member 5^b from the blade 5 disposes the integral parts 5^a 5^b above the handle member 6^a and bow 6^b when the blades of the shears are pivoted together, thus adapting the bow members 5^b 6^b for convenient manipulation, as hereinbefore mentioned. Upon the blade 5, where the handle member 5^a projects from the heel thereof, a circular boss *a* is formed that projects from the flat side of said blade at a point near the back or normally lower edge of the same, and said boss is centrally perforated for the reception of a pivot-shaft 7. As clearly shown in Fig. 3, the shaft 7 is in the form of a short cylindrical rod threaded at one end and having a nut 7^d mounted thereon. In the material forming the shaft 7 a bend *b* is formed, essentially at a right angle, this bend defining the length of the shaft and affording a rock-arm 7^a thereon. The length of the rock-arm is such that it may be extended diagonally upward and toward the bow member 5^a when the shear-blades 5 6 are pivotally connected and closed, as indicated by full lines in Fig. 1.

A short pivot *c* is formed at one side of the rock-arm 7^a and upon its free end, the axes of the pivot *c* and shaft 7 being parallel with each other.

In the normally lower edge of the handle member 6^a, near the heel of the blade 6, a semi-circular notch *a'* is formed, which is adapted to loosely receive and fit with its defining edge upon the upper side of the cylindrical boss *a* when the blades 5 and 6 are connected together. In the handle member 6^a, somewhat above and rearward from the notch *a'*, a

perforation c' is formed transversely, which loosely receives the pivot formation c . An angular notch d is formed in the upper edge of the handle member 6 at a suitable distance rearward from the pivot c , and in the handle member 5^a, near its center of width, a transverse perforation e is formed, that is positioned immediately above the defining edge of the notch d when the shear-blades are together closed.

In the perforation e a pivot-shaft 8 is fitted, having a rock-arm 8^a on one end and a thread on the opposite end for the reception of a nut 8^d. A pivot g is laterally formed on the free end of the rock-arm 8^a, said pivot projecting from the same side of the arm as the shaft 8 and parallel with it. The arms 7^a 8^a are preferably equal in length, and, as shown in Figs. 1 and 4, the rock-arm 8^a extends toward the handle member 5^a for an engagement of the pivot g within a perforation g' , formed in the handle member 6^a near its center of width.

It will be seen that when the shafts 7 8 are inserted through the handle member 5^a at different points and the pivots on the rock-arms 7^a 8^a are respectively seated in the perforations c' g' these shafts and rock-arms, as well as the pivots on the latter, may be secured in place by the nuts 7^d 8^d and the shear-blades be adapted for rocking movement, so as to cause their cutting edges to diverge or close toward each other, and it will be noted that the adjustment of said nuts will regulate the pressure of one blade upon the other laterally, so as to insure a proper shearing action of their cutting edges.

In operation the act of spreading apart the bows 5^b 6^b will rock the blades 5 6 upon the rear shaft 8 as a fulcrum, and as said shaft is comparatively near said bows the angle of their divergence is proportionately reduced, so that the blades 5 6 are fully opened or diverged at their points by a very moderate opening movement of the bows and handle members from which they are extended. It will be observed that the angular divergence of the handle members 5^a 6^a causes the arm 8^b to rock toward the boss a , as represented by dotted lines in Fig. 1, and at the same time a similar rocking movement is communicated to the rock-shaft 7^a, as is also shown by dotted lines in the same figure. The forward rocking movement of the rock-arms 7^a 8^a slides the handle-arm 6^a and blade 6 forward on the arm 5^a and blade 5, the notch a' being correspondingly moved upward and forward from the boss a . Upon applying pressure on the bows 5^b 6^b, that have been spread apart by manual effort, as just described, the closure of the blades 5 6 is started and a rearward rocking movement of the rock-arms 7^a 8^a commenced. As the closure of the blades is being effected the shaft 7 becomes the fulcrum, and the rock-arms 7^a 8^a coact to draw

the blade 6 rearward, thus giving the cutting edge of said blade a rearward drawing and shearing action that pulls the fibrous material between the blades toward the fulcrum, greatly aiding the severance of the material.

It will be seen that the cooperation of the rock-shafts 7 8, rock-arms 7^a 8^a, and the pivoted engagement of the ends of said rock-arms within perforations in the handle member 6^a considerably lessens the labor of using the device as the opening movement given to the blades is reduced and quickened, and the peculiar arrangement of the rock-arms adapts the rock-arm 7^a to serve as a toggle-lever, increasing the efficiency of power applied upon the bows 5^b 6^b for their compression toward each other.

The rock-arm 7^a may be given resilience, and thus afford a slightly-yielding connection between the blades and facilitating their shearing action.

As shown by dotted lines in Fig. 1, the forward rocking movement of the rock-arm 7^a when the bows 5^b, 6^b are diverged and the blades 5, 6 are opened, and the corresponding movement of the rock-arm 8^a, serves to limit the opening movement of the blades. Also when the bows are compressed toward each other the rearward and downward movement of the blade 6 and handle member 6^a causes the notch a' to be drawn toward the boss a , whereon the defining edge of said notch is seated when the blades are fully closed, this contact serving to arrest the closing movement of the blades.

It is obvious that the improvements may be applied upon scissors as well as upon shears by a proper proportion of parts. For effective operation and durability the working parts and, in fact, the complete shears or scissors are preferably constructed of hardened steel.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination with crossed blades, each having a handle member and a bow thereon, of spaced pivot-shafts held to rock on one of said blades, one near its handle member and the other near the bow thereon, and lateral pivots on said rock-arms near their free ends, engaging perforations in the other blade and its handle member.

2. The combination with two blades, each having a flat side and one cutting edge, said sides lapping together, a straight handle member on the upper blade, an oblong bow thereon, an obtuse angularly-bent handle member on the lower blade, the handle members each having a flat side, said sides lapping and crossing each other, and a bow on the bent handle member, of a pivot-shaft rockably held in a transverse perforation in the lower blade near its handle member, a rock-arm on one end of said shaft, a pivot on the

outer end of the arm engaging a perforation
in the handle member of the upper blade,
said arm trending rearward and upward, a
similar pivot-shaft rockably held in the
5 handle member of the lower blade nearer the
bow thereon, a rock-arm on one end of said
shaft lapping upon the handle member of the
upper blade and trending toward the bow
thereon, a pivot on the outer end of said arm
10 engaging a perforation in said handle mem-

ber, and an adjustable nut on the remaining
end of each pivot-shaft.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

ORRIS CHARLES ABBOTT.

Witnesses:

O. N. PERRY,
JACOB ZUNDEL.