(No Model.)

H. AIKEN.

BLADE FOR SHEARS.

No. 331,934. Patented Dec. 8, 1885.

Fig 1.

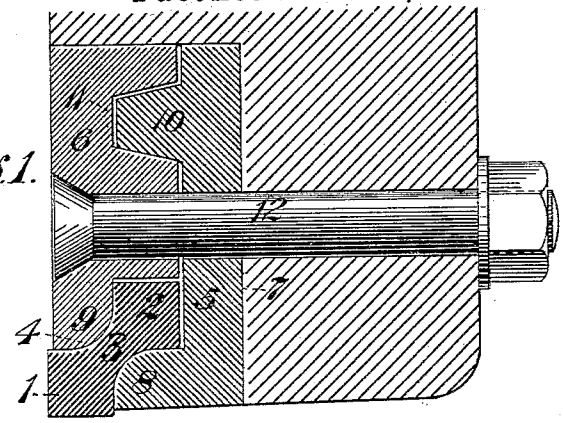


Fig 2.

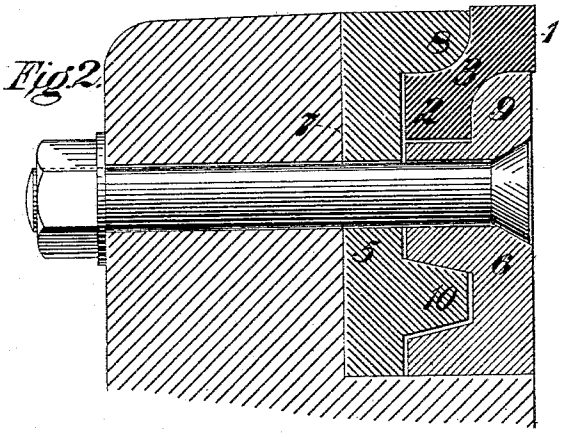


Fig 3.

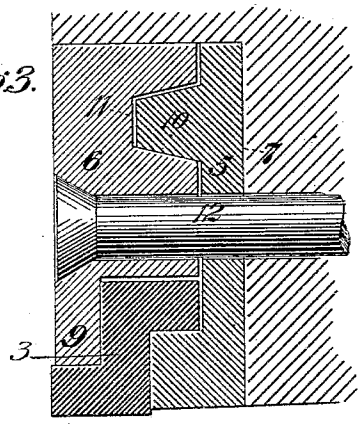


Fig 4.

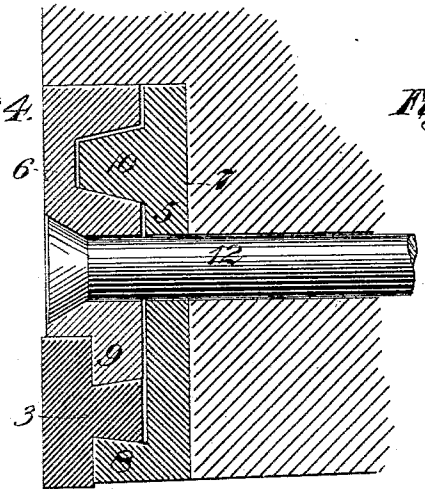
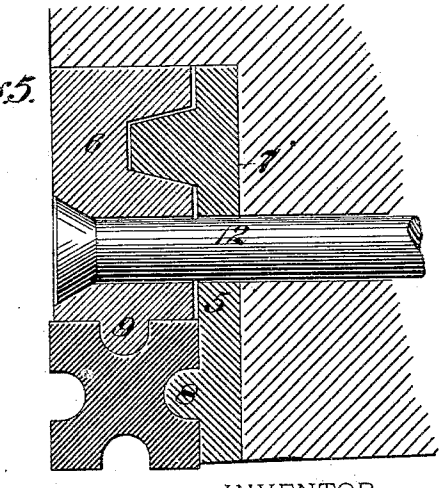


Fig 5.



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UNITED STATES PATENT OFFICE.

HENRY AIKEN, OF PITTSBURG, PENNSYLVANIA.

BLADE FOR SHEARS.

SPECIFICATION forming part of Letters Patent No. 331,934, dated December 8, 1885.

Application filed October 1, 1885. Serial No. 178,721. (No model.)

To all whom it may concern:

Be it known that I, HENRY AIKEN, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, a citizen of the United States, have invented or discovered certain new and useful Improvements in Blades for Shears, of which improvements the following is a specification.

In the accompanying drawings, which make part of this specification, Figure 1 is a transverse sectional elevation of a portion of the upper or moving jaw of a power shear-machine. Fig. 2 is a similar view of the lower or stationary jaw. Figs. 3, 4, and 5 are similar views of jaws of a shear, showing modified forms of the cutting-blade.

The invention herein relates to certain improvements in the construction and manner of securing the cutting-blades of power-shears, and has for its object such a construction of the cutting-blade as will enable it to be readily and easily constructed and finished, and at the same time provide in the same structure an increased number of cutting-edges, thereby increasing the length of service of the blade; and it is a further object of said invention so to construct the jaws and blade of the shears that the latter may be easily and quickly removed for the purpose of either bringing a new cutting-edge into operative position or for inserting an entirely new blade; and to these ends my invention consists in the construction and combination of parts, substantially in the manner hereinafter more fully described and claimed.

My improved blade consists of two or more rectangular bars of steel, 1 and 2, and a connecting web, neck, or portion, 3. In the form of blade shown in Figs. 1 and 2 the bars 1 and 2 are so arranged that the diagonals of one bar will be parallel with the corresponding diagonals of the other bar, the connecting web or portion being prolongations of adjacent corners. The length of this connecting web or portion is immaterial, as the shear parts or members 1 and 2 may be made so as to touch at their corners or sides. In this web or connecting portion are formed grooves or recesses 4 on opposite sides thereof, for the reception of correspondingly-shaped lugs on the shoe 5 and clamping-plate 6, whereby the blade is attached to the jaws of the shears.

As the jaws of the shears and the blade-attaching devices are similar as regards the attachment of blades, the description of the manner of connecting one blade will be sufficient. In the face of the jaw is formed a recess, 7, against the back wall of which is placed the shoe 5, the upper edge of such shoe resting against the upper wall of the recess, as shown in Fig. 1. The lower edge of the shoe is provided with an outwardly-projecting flange, 8, having its upper corner rounded to fit the circular groove in the web 3 of the cutting-blade. The blade, resting on the flange 8, is held in position by the clamping-plate 6, provided with a retaining-rib, 9, having its inner corner round to correspond with the curvature of the groove in the opposite side of the web 3. The upper end of the plate 6 rests against the upper wall of the recess 7, thus providing a firm support as against the upward thrust of the knife in cutting. A portion of this upward thrust is transferred to the shoe 5 by means of the rib 10, formed on the shoe near its upper end, said rib being constructed to fit within the groove 11, formed in the inner face of the clamping-plate. The sides of the rib 10 and the groove 11 are formed tapering, as shown, so as to provide for slight inequalities in the thickness of the web and bar portions in different blades. The clamping-plate and shoe are held in place by a series of bolts, 12, passing through holes in the plate, shoe, and clamping-jaw, as shown.

The relative arrangement of parts above described in connection with the upper or movable jaw will be reversed in the lower jaw, as will be readily understood. When the edge of the blade (shown in cutting position in Fig. 1) becomes chilled or injured, the blade can be turned end for end, thereby bringing a new edge into operative position, and when the second edge is dulled the blade can be turned over, thus bringing one of the cutting-edges of the other bar into operative position, and finally, a fourth edge may be brought into operation by again turning the blade end for end.

In Fig. 5 is shown a form of blade embodying the same principles of construction as are shown in Figs. 1 and 2, but composed of double the number of bars and cutting-edges. In this form of blade the grooves 4 are formed between two adjacent bars or shearing members

in the same side, instead of between two diagonally-arranged bars, and the positions of the supporting-flange 8 and the retaining-rib 9 are correspondingly changed, as shown. Eight cutting-edges can be brought into operative positions in using this form of blade.

In Figs. 3 and 4 are shown blades embodying the same general principles of construction, but having only two cutting-edges. The web or connecting portion 3, uniting the bars 1 and 2 in Figs. 3 and 4, is a prolongation of adjacent sides of the bars, the bars in Fig. 3 being arranged in different vertical plane, and in this case the web is laterally extended on one side, the grooves 4 being formed in opposite sides of the lateral extension, as shown. The shape and location of the supporting-flange 8 and retaining-rib 9 are made to conform with changes in the shape of the blade.

Other forms of blades than those shown and embodying the same principles of construction may be made, and therefore I do not wish to limit myself to the exact forms of blades, as shown and described.

These blades can be easily made by rolling in suitable grooved rolls to the exact size and shape desired, and can then have their faces ground to produce the requisite cutting-edge. By thus constructing the blades the laborious and expensive method of forming and repairing the blades for shears now in use is avoided, such method consisting in drawing the temper of the bar from which the cutter is to be made, forging such bar to shape, retempering the forged bar, and then straightening and grinding the cutting-edge.

I claim herein as my invention—

1. A blade for shears, consisting of two or more right-angular or approximately right-angular steel bars or shearing members united in an integral structure by a web or connecting portion, substantially as set forth.

2. A shearing-blade having in combination two or more right-angular or approximately right-angular shearing parts or members and a groove or recess back of the cutting-edge of each such member, such grooves or recesses being of like construction in each blade and in like relationship to the contiguous cutting-edge, whereby to provide a means of securing the blade to the jaws of the machine in reversed positions, substantially as set forth.

3. A shearing-blade having two or more right-angular or approximately right-angular shearing parts or members united by a web or connecting portion grooved or recessed, as described, in combination with a shoe having a supporting-flange and a clamping-plate having a retaining-rib, said flange and rib being constructed to fit the grooves or recesses in the blade, substantially as set forth.

4. A shearing-blade having in combination two or more right-angular or approximately right-angular shearing parts or members united at contiguous corners in an integral structure and a groove or recess back of each part or member, such grooves or recesses being of like construction in each blade and in like relationship to the contiguous cutting-edge, substantially as set forth.

In testimony whereof I have hereunto set my hand.

HENRY AIKEN.

Witnesses:

DARWIN S. WOLCOTT,

R. H. WHITTLESEY.