No. 644,956. Patented Mar. 6, 1900.

F. A. WILLIAMS.

LEVER SHEARS.

(Application filed Oct. 14, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

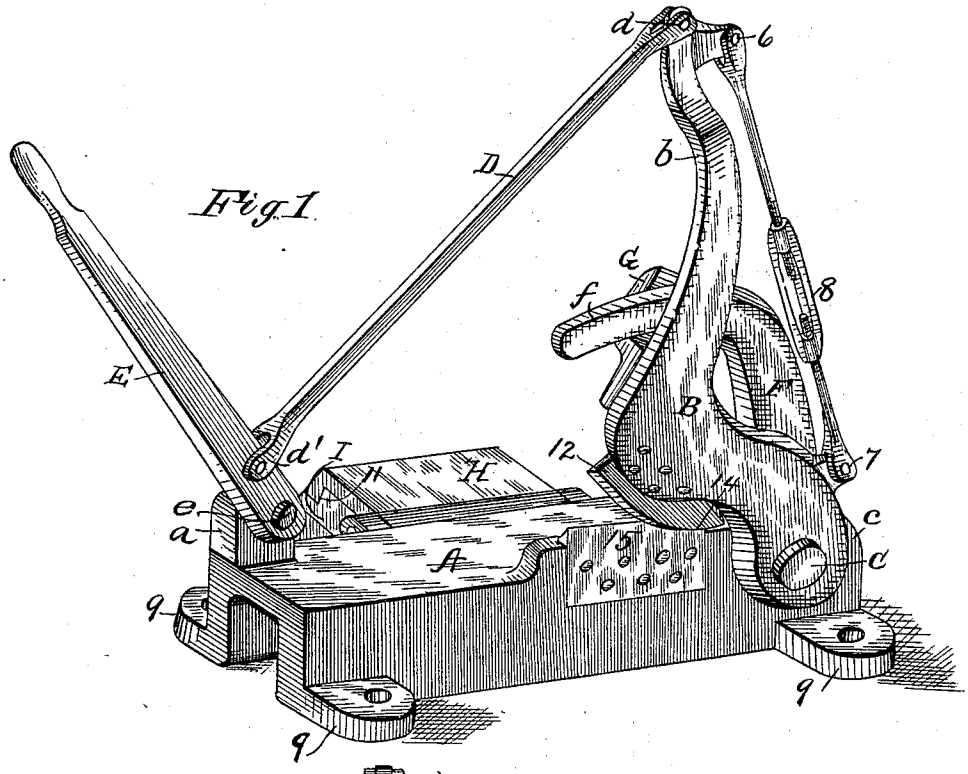


Fig. 2.

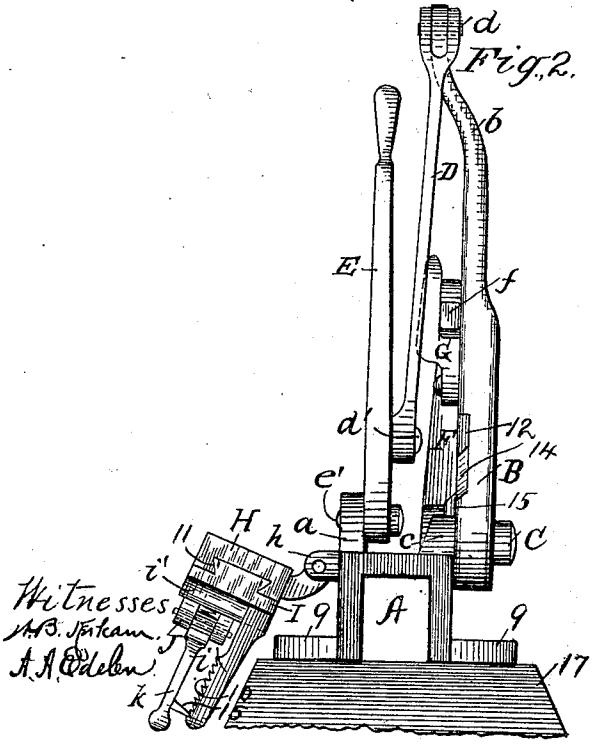
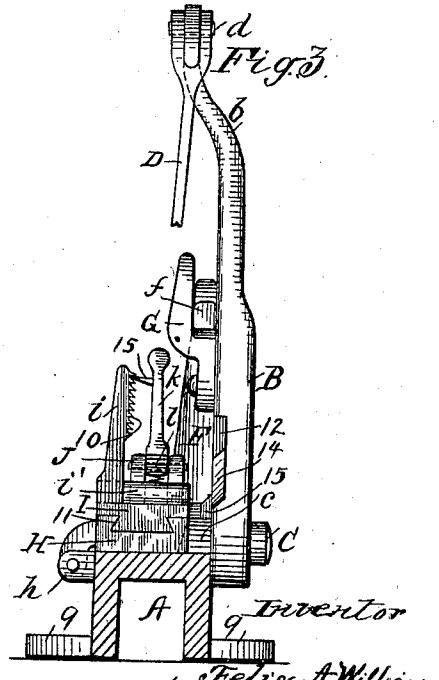


Fig. 3.



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Fig. 4

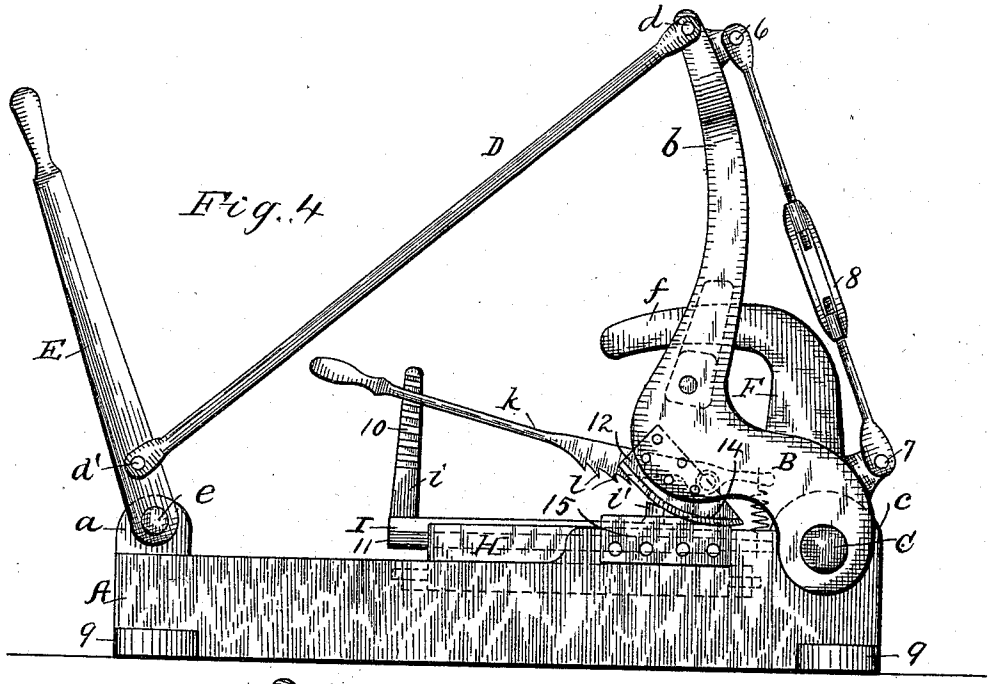
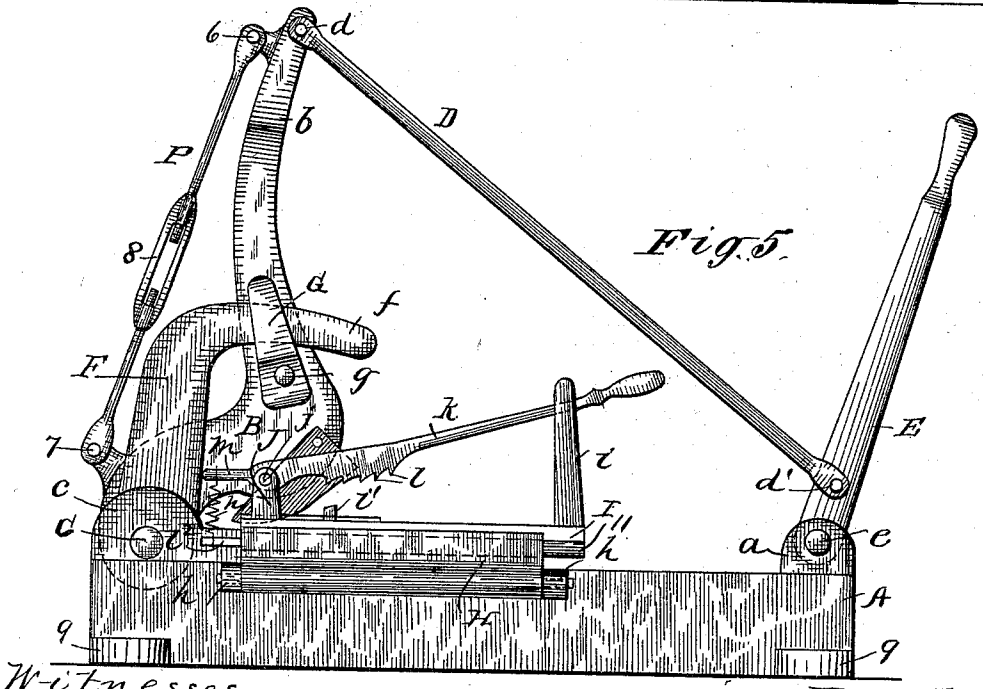


Fig. 5.



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UNITED STATES PATENT OFFICE.

FELIX A. WILLIAMS, OF ELIASVILLE, TEXAS.

LEVER-SHEARS.

SPECIFICATION forming part of Letters Patent No. 644,956, dated March 6, 1900.

Application filed October 14, 1899. Serial No. 733,667. (No model.)

To all whom it may concern:

Be it known that I, FELIX A. WILLIAMS, a citizen of the United States, residing at Eliasville, in the county of Young and State of Texas, have invented certain new and useful Improvements in Lever-Shears; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has reference to improvements in metal-working shears, but more particularly shears that are designed to be operated by hand; and which consists of certain novel features of construction which will be hereinafter fully described in the specification, elucidated in the drawings, and clearly pointed out in the claims.

One object of the present invention is to provide an economical, cheap, and durable hand-lever shears for metal-working and which will be available for heavy as well as for light work.

A further object of the present invention is to adapt this class of shears for blacksmith-shops for cutting hot iron as well as cold iron, and to meet these demands the shears have been somewhat peculiarly constructed in reference to their lever mechanism.

A further object of the invention is to construct my improved shears so that they can be operated by a single person with as much facility as larger shears doing the same work and requiring several persons to attend them.

A further object of my invention is to arrange the movable shear-blade at such an angle as to reduce the power required to operate the levers.

A further object of the present invention is to arrange the arm bearing the movable shear-blade in a vertical position and have the lower portion extending from the blade fulcrumed at right angles to the long end of the lever for compactness, so that the operator can be in close proximity to the cutter when manipulating the shears.

A further object of the present invention is to employ a hinged table which can be thrown in and out of its working position instantly and which is provided with a movable bed for feeding cold-rolled iron to the shears when accurate work is required and also for splitting or shearing plate-iron of considerable thickness for boiler-workers and other useful arts.

A further object of the invention is to provide a brace adjacent to the movable shear-arm in combination with a half-staple for holding the shear-blades in close contact when cutting heavy metal.

To more fully elucidate my invention, I will proceed to describe the drawings, in which—

Figure 1 represents my improved shears in a perspective view. Fig. 2 represents the device in front elevation with the hinged table turned down out of its working position. Fig. 3 also represents the device in front elevation with the table turned up in operative position with the bed in section. Fig. 4 represents the device in side elevation. Fig. 5 represents the reverse side in side elevation.

The frame of the machine is indicated by the letter A and is preferably built of cast-iron. Said frame is provided with feet 9 for securing the frame to a base or foundation 17, as indicated in Fig. 2 of the accompanying drawings. Secured to a lug *c* on said frame A by a bolt C is a movable arm B, which is provided with a vertical extension *b*. To the free end of said extension *b* is pivoted at *d* a draw-bar D. The opposite end of said draw-bar is secured to a hand-lever E by a pin *d'*. Said hand-lever E is secured to the frame of the machine by a pin *e* on a lug *a*, the latter being attached to said frame previously referred to. At the rear of said arm B are ears for securing the extreme ends of a tie-rod at 6 and 7, respectively. The tie-rod is bisected and screw-threaded for receiving a turn-buckle 8 for drawing the rod taut, so as to brace said arm B, so it will not spring or become broken when operating the device. Secured to said frame A is a standard F and which has a right-angled extension *f* for engagement with a half-staple G. Said staple is secured to the movable arm B by a rivet *g*. The object of standard F is to prevent the movable arm from springing away from the shear-blades 12 and 15, respectively, when heavy work is employed on the shears. Secured to said frame A are ears *h* for hinging thereon a table H and which is adapted to be thrown in and out of its operative position,

as indicated in the various figures of the accompanying drawings. Said table is provided with dovetailed ways for the reception of a movable bed I, said bed being provided with dovetailed sides 11 to engage said ways in table H. At the rear end of said bed I are lugs J for supporting a hand-lever *k*, which has an extension *m* for securing one end of a spiral spring *n*. The opposite end of said spring is secured to a rod i^2, extending from the rear of said bed I. Hand-lever *k* is also provided with serrations or teeth *l* for holding work securely upon the bed. Said lever is provided with a pawl for engaging teeth or serrations 10, formed upon a standard *i*, located on the front end of the bed I. Said lever *k* is elastic toward the handle end for the purpose of yielding when holding work upon the bed I. By this means any of the notches can be entered by the pawl 16, thus insuring a firm clamping device. Also secured to said bed I is a stop *i'* for holding the work exactly at right angles to the shear-blades in conjunction with the hand-lever *k* previously referred to.

The movable shear-blade 12 is a right line on its front portion, and as it extends toward the heel 14 it is in the form of a flat arc. By this arrangement of the blade and the angle it is secured to the movable arm B. Less power is required to shear metal than by the ordinary shears in present use. The main object of the movable arm B, with its extension *b*, is for compactness, so that the hand-lever E can be close to the shears. By this means a single person can operate the device, using one hand for holding the work and the other hand for operating the lever E. No other system of levers could accomplish these results as regards their compactness, as indicated by the present invention.

When operating my improved shears, the table is not employed for cutting hot iron, as such work is not of sufficient importance to require accurate shearing. The table is employed mainly for cold-rolled iron and for accurate shearing.

The hinged table is so located on the frame of the machine that it is not in the way of the person operating the shears.

I claim—

1. In hand-lever shears consisting of a right-angled lever, the vertical portion or operating-arm being of greater length than the base or short arm of said right-angled lever, an adjustable brace secured to the extreme free ends of said right-angled lever, the short arm of said right-angled lever being pivoted to a support or frame, a shearing-blade secured at the angle of said right-angled lever for engagement with a shear-blade secured to a frame or support and contacting said shear-blade on said right-angled lever, a draw-bar secured to the long arm of said right-angled lever, the opposite end of said draw-bar being secured to an operating-lever which is pivoted to the frame of the machine, in combination with a lateral brace contacting the long arm of said right-angled lever and a half-staple engaging said lateral brace for the purpose as shown and described.

2. In hand-lever shears consisting of a right-angled lever, the vertical portion or operating-arm being of greater length than the base or short arm of said right-angled lever, said short arm being pivoted to a support or frame, a shearing-blade secured at the angle of said right-angled lever for engagement with a shear-blade secured to the frame or support forming part of said machine, in combination with lateral brace, consisting of a half-staple secured to the vertical arm of said right-angled lever, a standard engaging said half-staple at one end, the opposite end or base being secured to the frame or support of the machine for the purpose as shown and described.

3. In hand-lever shears consisting of a right-angled lever, the perpendicular or vertical portion being of greater length than the base or short arm of said right-angled lever, said short arm being pivoted to a frame or support, a shearing-blade secured at the angle of said right-angled lever for engagement with a shear-blade secured to the frame or support forming part of the machine, and the means for operating said right-angled lever, in combination with a hinged table which is provided with a clamping device thereon, said clamping device consisting of a serrated lever, and a serrated standard for securing said serrated lever for the purpose as shown and described.

4. In hand-levers, the combination of a right-angled arm bearing a shear-blade, said shear-blade in contact with a blade on the frame supporting said right-angled arm, a hinged table on said frame, said table provided with a bed and operating-lever for securing work on said bed, for the purpose as shown.

In testimony whereof I affix my signature in presence of two witnesses.

FELIX A. WILLIAMS.

Witnesses:
I. W. KIRKLAND,
G. P. DANIEL.