

(No Model.)

E. O. POHL.  
SQUARING SHEARS.

No. 459,159.

Patented Sept. 8, 1891.

Fig. 1.

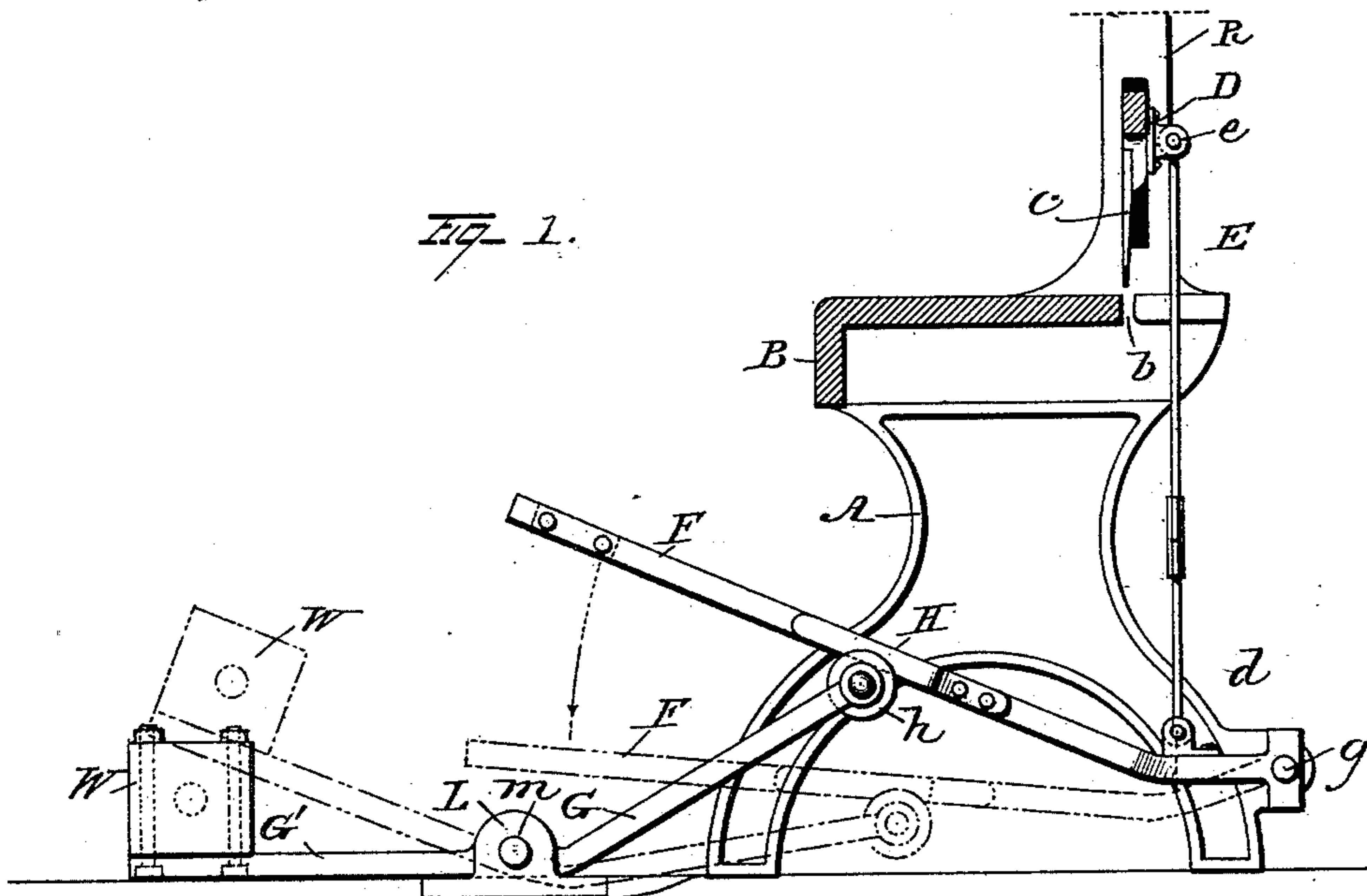
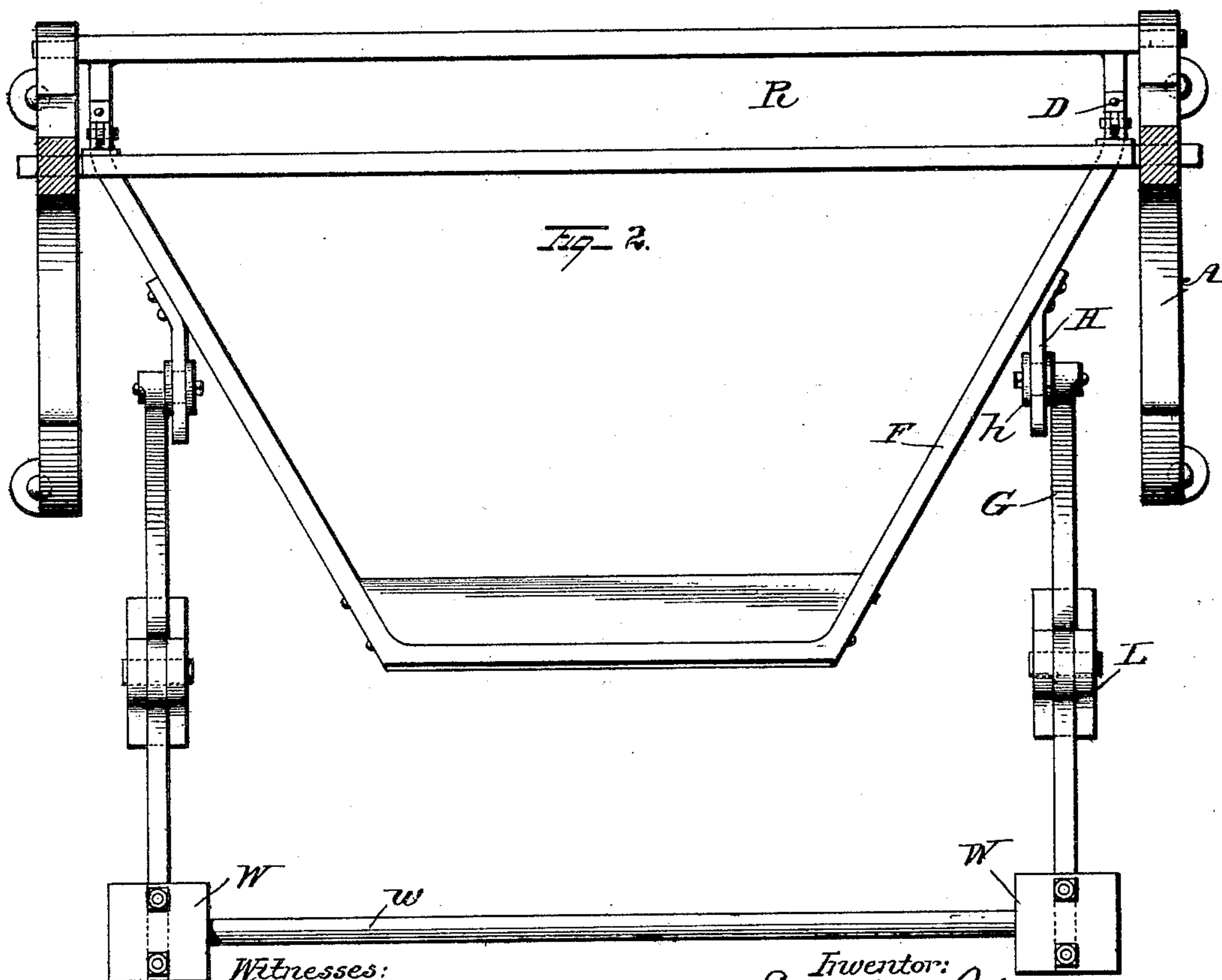


Fig. 2.



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# UNITED STATES PATENT OFFICE.

ERNEST OTTO POHL, OF PHILADELPHIA, PENNSYLVANIA.

## SQUARING-SHEARS.

SPECIFICATION forming part of Letters Patent No. 459,159, dated September 8, 1891.

Application filed November 26, 1890. Serial No. 372,710. (No model.)

*To all whom it may concern:*

Be it known that I, ERNEST OTTO POHL, a citizen of the United States, and a resident of the city of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Squaring-Shears, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to squaring-shears for cutting sheet metal, and has for its object the construction and arrangement of the treadle mechanism for actuating the knife cross-head and the combination therewith of a lever and counterbalancing-weight, so as to dispense with the use of springs to hold up the knife cross-head and to enable the treadle to be operated with less power and with greater ease and facility by the operator.

To that end my invention consists in the mechanisms and in the combination and arrangement thereof, as hereinafter fully described.

In the accompanying drawings, illustrating my invention, in which similar letters of reference indicate like parts in the several views, Figure 1 is a side elevation, partly in section, of the parts of the squaring-shears containing my improvement; and Fig. 2 is a top plan view of Fig. 1 with the cutting-table removed.

The apparatus consists of the supporting-frame composed of the two uprights A on either side, upon which are mounted the vertical cross-head supports R on either side of the frame and the cutting-board B. The knife C is mounted in a cross-head D, to which are linked on either side two operating-bars E, connected at the upper end thereto at *e* and at the lower end at *d* to a treadle F, which is mounted at one end pivotally in the frame A at *g*. This treadle extends forward beyond the line of the cutting-board to such an extent that a man may easily jump upon it for the purpose of depressing it. Its normal position is as shown in Fig. 1, and in that position, in connection with the lever and counterbalancing-weight, hereinafter mentioned, it holds up the linked operating-bars E, supporting the knife cross-head, the normal position of which is raised, as shown in Fig. 1.

In front of the frame of the machine and

at either side thereof is placed a standard L, which affords a bearing for the pivot-bar *m*, which passes through a recess in the bar G 55 G'. This bar is constructed in the form (shown in Fig. 1) of a straight bar G', which supports at its outer end a counterbalancing-weight W and extends to the pivot *m*, from which point it proceeds, as at G, forward at 60 an angle in the direction of the treadle-board, terminating at that point in a rounded head, which is recessed, and through which recess is passed a bolt or nut carrying on the inner side a revolving grooved wheel *h*, and to the 65 side of the treadle-board is secured a bar H, (see Fig. 2,) adapted to fit in the groove of the said wheel *h*.

The operation of the device is as follows: The normal position of the parts is as shown 70 in Fig. 1, with the balance-weight W resting upon the ground, in which position the end G of its supporting-bar is raised and holds up the treadle F, which rests, by means of its attachment H, in the grooved wheel *h*, 75 and the said treadle in that position holds up the supporting-rod E, which in turn holds up the cross-head D, containing the cutting-knife C, above the cutting-opening *b* in the cutting-board B. Metal being placed upon 80 said cutting-board and under the knife, the operator steps upon the treadle-board F, which descends by means of his weight, and thus depresses the arm G of the lever-bar carrying the balance-weight W, the said arm G 85 sliding easily on the arm H of the treadle as the latter moves on the sliding surface in the groove of the rotating wheel *h*. This depression of the treadle in turn reciprocates the linked rod carrying the knife cross-head. 90 The position of the treadle, lever-arm, and weight when the treadle is depressed is shown by the dotted lines in Fig. 2. The parts are so constructed relatively to each other that the weight of the cross-head is counterbal- 95 anced by the weight W at the end of the lever-bar G G', so that little weight or force is required from the operator upon the treadle to bring down the knife cross-head and so operate the machine for the purpose for which 100 it is designed, the return movement being automatic through the counterbalancing-weight, while the action of the parts is facilitated by the described means of a sliding connection

consisting of the rotating wheel *h*, placed between the lever-arm *G* and the arm *h* of the treadle, in addition to which, in consequence of this construction and arrangement of parts, the necessity for the usual springs to hold up the knife cross-head is entirely obviated.

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

- 10 1. In a squaring-shears, the combination, with a supporting-frame, of a knife cross-head mounted therein, a treadle pivoted in said frame at its extreme end and linked near its fulcrum directly to said cross-head, whereby  
15 the knife may be pressed down, and a counterbalanced pivoted lever arranged to exert an upward pressure beneath the free end of the treadle and operating to keep the same normally elevated, substantially as described.
- 20 2. In a squaring-shears, the combination, with a supporting-frame, of a knife cross-head mounted therein, a treadle pivoted at its extreme end in said frame, a reciprocating lifting-bar linked at either end to the treadle near  
25 its fulcrum and to the knife cross-head, said parts being so arranged relatively to each other that the weight of the knife cross-head

will tend to depress the treadle, and a counterbalanced centrally-pivoted lever consisting of the arms *G* *G'*, arranged at an angle 30 with the free arm *G*, bearing upward against the under surface of the treadle at its balance-center and operating to overcome the weight of the knife cross-head and keep the treadle normally elevated, substantially as 35 described.

3. In a squaring-shears, the combination, with a supporting-frame, of a knife cross-head mounted therein, a reciprocating bar linked thereto at one end, a treadle pivoted in said supporting-frame and linked to said reciprocating bar at its other end and operating to raise and depress the knife, and a counterbalanced lever provided with a rotating grooved wheel, and an arm sliding in said groove and 45 secured to the treadle, substantially as described.

In testimony whereof I have hereunto affixed my signature this 22d day of November, A. D. 1890.

ERNEST OTTO POHL.

Witnesses:

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H. T. FENTON.