R. W. DEELY.

REVOLVING-SHEARS

No. 172,850. Patented Feb. 1, 1876.

Fig. 1

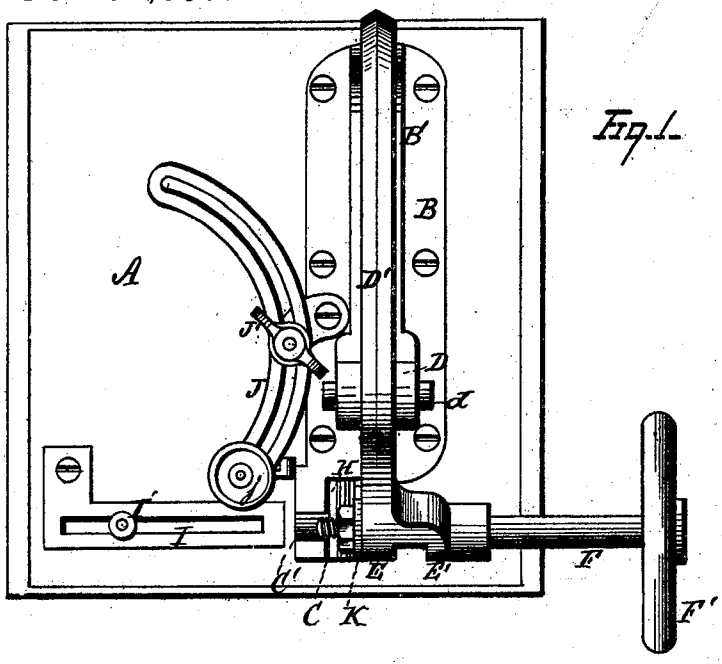


Fig. 2

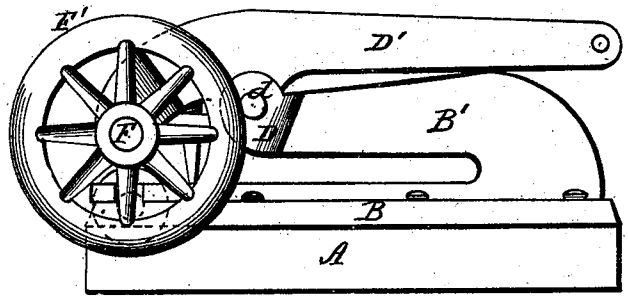


Fig. 4

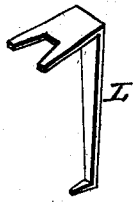
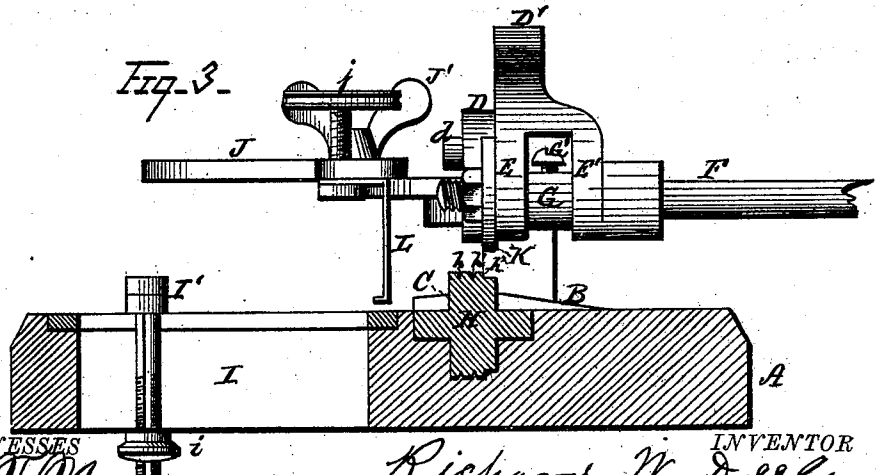


Fig. 3



WITNESSES

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UNITED STATES PATENT OFFICE.

RICHARD W. DEELY, OF RICHMOND, INDIANA, ASSIGNOR TO HIMSELF AND A. SAMSON, OF SAME PLACE.

IMPROVEMENT IN REVOLVING SHEARS.

Specification forming part of Letters Patent No. **172,850**, dated February 1, 1876; application filed May 26, 1875.

To all whom it may concern:

Be it known that I, RICHARD W. DEELY, of Richmond, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in Revolving 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention has relation to sheet-metal cutters; and consists in a revolving knife mounted on a shaft in the end of a lever or slide, said lever or sliding frame being attached to a proper stand or support, and adapted to be raised or lowered by foot or hand power, to bring the revolving knife against the material operated upon; also, in an adjustable loose roller, provided with grooves, against which roller the revolving knife impinges; also, in adjustable guides, rests, and set-screws for the guidance and support of the material operated upon, in cutting either straight lines, circles, or regular curves—all constructed, arranged, and adapted to operate substantially as and for the purposes hereinafter more fully described and claimed.

In the drawings, Figure 1 is a plan view; Fig. 2, a side elevation, and Fig. 3 a sectional front view. Fig. 4 is a detached view of the adjustable removable guide.

A is a support, table, or other suitable frame, to which is secured the casting or body B, constructed, as shown, of the bed portion B and curved separated portion B′. In the end of the bed portion B is constructed a slot, C, and cross-groove C′. In the end of the portion B′ is constructed a bearing, D. D′ is a lever, secured to or pivoted to the arm B′ in the bearing D by pin *d*. The end of this lever D′ is formed or constructed with journal-bearings E E′, into which is received a shaft, F, on the inside end of which is secured the revolving knife K, and on the outside end is a wheel, F′, by which the knife is revolved. The shaft F is secured and held in place by a collar, G, and set-screw G′, placed between the bearing portions E E′, and through which the shaft passes. H is a roller, revolving loosely in the bearings C′ of the frame B, provided around its periphery with different-sized V or straight grooves *h* h^1, and a shoulder, h^2. This roller forms the bearing for the knife K. Secured and working in a slot, I, in the support A is an adjustable rest, I′. J is a slotted curved adjustable guide, secured to the frame B′ by thumb-screw J′, and provided at its end with a set-screw, *j*. The rest I′ is adjusted by a thumb-nut, *i*, on the under side of the support A. L is a guide, which may be attached at any point on the slotted arm J by set-screw reaching from it to near the table.

In cutting circles the rest I′ is fastened by thumb-nut *i* at a distance from cutting-point equal to the radius of the circle to be cut. The set-screw *j* is then fastened over the rest I′ by the thumb-screw J′, when the metal is clamped between rest I′ and set-screw *j*, so that the metal will be cut in a circle or part of circle.

In cutting larger curves than can be guided by the rest I′ and set-screw *j*, or in cutting straight lines, the material is cut to such curve or line a sufficient distance to reach from the knife to a point under guide J, and guide L is then fastened on guide J, pressing on edge of the curve or line as cut, thus guiding the material, so as to continue the cutting in the same curve or line.

The material to be operated upon, whether it be paper, leather, or sheet metal, is placed beneath the knife K, and on bearing-roller H, resting on and held straight in place by the screws or rests *j* I′, which, together with the guide J, are brought up and adjusted in any desired or appropriate position to hold the article steady, and secure it in place. Revolution, by means of the wheel F′, or otherwise, is then given to the knife K. The end *d*′ of the lever D′ is now pressed up by suitable treadle or connection, which brings the knife down tight onto the material and against the bearing-roller H, thus cutting it, as is apparent. The article is moved backward and forward by the friction of knife K and bearing H, and guided by hand, so as to cut any desired shape. By loosening the lever D′ the knife is released from contact with the material. Thus any desired length of cut may be

made, and a cut may be commenced at the central portion of the sheet without cutting through from the edge.

The object and use of the guide L are as follows: When desired to cut straight lines the curved arm J is adjusted so as to bring the guide L in a straight line behind the knife K. As the material is divided or cut by the knife, each portion of it is made to pass on either side of the guide, the guide following the slit or cut, and bearing upon the edge thereof. Thus, as long as the sheet is held up tight against this guide, the cut is always perfectly straight. When desired to cut curves or circles the arm J is adjusted so as to bring the guide L to one side out of a straight line from the knife K. The material to be cut is then started in a curve by hand until the cut or slit reaches the guide L. By the position of the guide, as the material is carried along by the cutting-knife, it is caused, by the guide pressing on the edge of the curve or line as cut, to curve or turn around, thus cutting in a circle, as is apparent. The size of circle or curve is regulated by the different degree or inclination and distance the guide L is set on the arm J from the knife K.

Different forms, sizes, &c., knives K may be employed, and they may be adjusted so as to enter any one of the grooves in the bearing-roller, or at the edge thereof, to cut different material, or for other purposes, by adjusting the shaft F, which shaft is adjusted by removing the set-screw or key G′, which loosens the shaft and allows it to be adjusted or slipped along any desired or appropriate degree. I have shown this adjustable knife as mounted in the end of a lever fulcrumed to the body B′; but it may be attached to any other support above the table by lever or sliding frame.

The lower bearing-roller may also be revolved with the knife by gearing or belt, instead of by friction, as shown, if preferred, and the bearing also be made laterally adjustable the same as the knife. This bearing-roller may also be secured to a hinged or sliding support, and be adjustable in a like manner as the knife, and the knife remain stationary so as to press the material to be cut up against the knife, instead of pressing the knife upon the material to be cut.

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

1. The revolving knife K secured to the end of a shaft, F, mounted or journaled in the end of a pivoted lever, D′, whereby the knife is adapted to be both laterally adjusted and raised or lowered at will, substantially as and for the purposes described.

2. In combination with the shaft F, carrying the knife K and collar G, the pivoted lever D′ and head E E′, whereby the knife may be raised and lowered at will, as and for the purposes described.

3. In combination with the head E E′, the revolving knife K, shaft F, and collar G, whereby the knife K may be laterally adjusted to any desired degree, as and for the purposes described.

4. In combination with the head E E′, carrying the adjustable revolving knife K, the bearing-roller H, constructed around its periphery with different sized and shaped grooves h h^1 and shoulder h^2, as and for the purposes described.

5. In combination with the curved arm or guide J j, the removable adjustable guide L, substantially as and for the purposes described.

6. The improved machine for cutting sheet metal, composed of frame B B′, pivoted lever D′, revolving knife K, adapted to be laterally adjusted and raised and lowered by means of the lever D′, shaft F, and collar G, grooved roller H h, and guides and rests I I′ J J′ L, all constructed, arranged, and adapted to operate as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand this 25th day of May, 1875.

RICHARD W. DEELY.

Witnesses:

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