No Model.)

J. W. DOUGLAS.

LEVER SHEARS.

No. 321,804. Patented July 7, 1885.

Fig. 1.

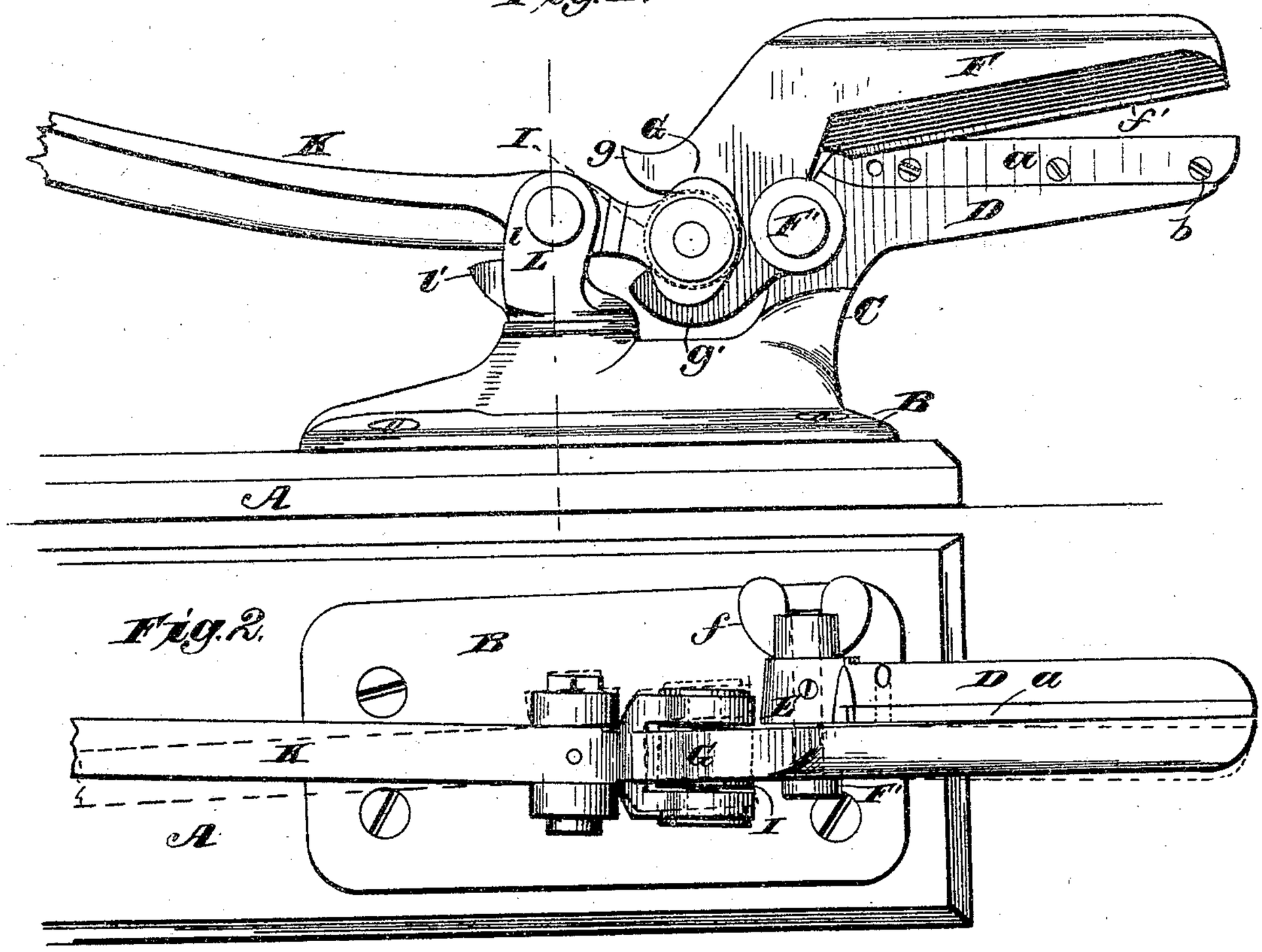


Fig. 2.

Fig. 3.

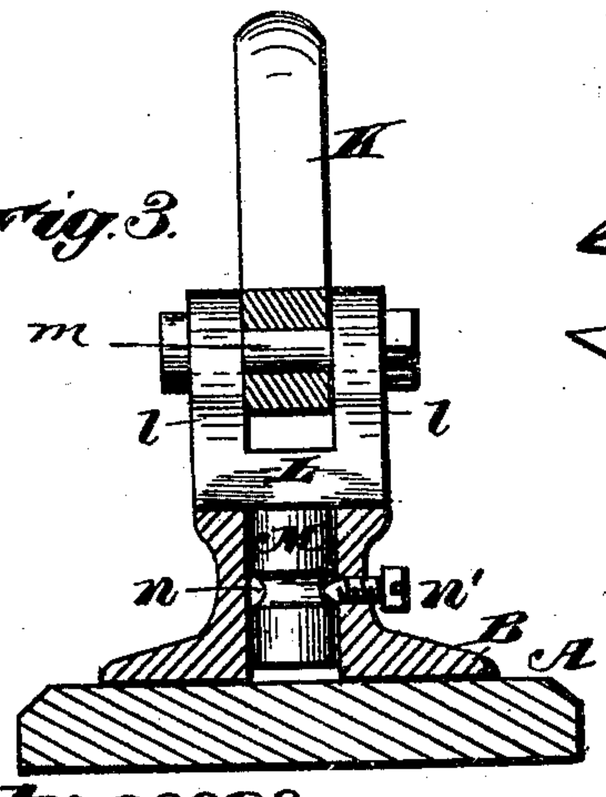
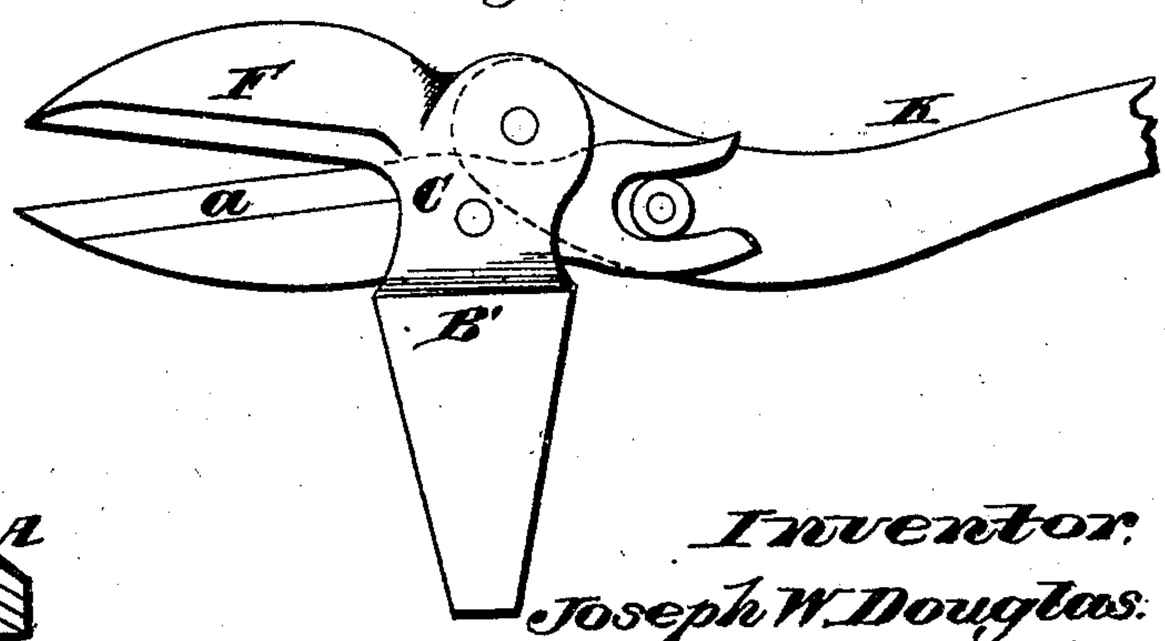


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOSEPH W. DOUGLAS, OF MIDDLETOWN, CONNECTICUT.

LEVER-SHEARS.

SPECIFICATION forming part of Letters Patent No. 321,804, dated July 7, 1885.

Application filed June 10, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH W. DOUGLAS, a citizen of the United States, residing at Middletown, Connecticut, have invented new and useful Improvements in Lever-Shears for Cutting Metal, &c., of which the following is a specification.

My invention relates to lever-shears for cutting sheet metal and other material, and has for its object to provide a simple, powerful, and efficient device for such purposes, wherein the operator may easily throw the cutting-blades into close and accurate engagement, or effect a slight separation of their edges, as circumstances may require.

My invention consists in a lever or power shears having the lower fixed blade mounted upon a supporting bed-plate, the upper or movable blade pivoted upon the heel thereof, and having the rearwardly-projecting portion forked to receive a friction-disk carried by an actuating-lever which is fulcrumed upon a bearing rising from the bed-plate in rear of the jaws.

My invention also consists in the combination, with the fixed jaw of a lever shearing mechanism, of a movable jaw pivoted upon the heel of the fixed jaw, an actuating-lever engaging with the rearwardly-projecting portion of the movable jaw, said lever being fulcrumed upon a stud having a swivel-bearing upon the base-plate, whereby the lateral movement of the lever throws the movable blade toward or from the fixed blade, thereby securing a close and accurate engagement of the cutting-edges, and compensating for the wear of the parts.

Referring to the drawings, Figure 1 is a side elevation. Fig. 2 is a plan view. Fig. 3 is a vertical section taken through the center of the actuating-lever and its support, and Fig. 4 is a side elevation of a modification.

A in said drawings represents a bench-support, or portable block, upon which is mounted a bed-plate, B, formed of metal, from one end of which rises a post, C, upon which is formed a stationary jaw, D, which supports the cutting-blade *a*, said blade lying in a channel or recess formed in the vertical face of the jaw, to which it is secured by screws *b* in the usual manner.

Upon the heel of the fixed jaw D is formed a bearing, E, for the upper or movable jaw, F, said bearing receiving a pivot-pin, F′, upon which the movable jaw turns. The end of this pin is threaded and provided with a thumb-nut, *f*, by which the upper and lower jaws may be drawn closely together.

The upper or movable jaw, F, projects rearwardly from the pivot-bearing F′, and is provided with a fork, G, having the upper and lower curved branches, *g* and *g′*. Between these branches plays a friction-disk, I, journaled in the forked end of a lever, K, which is fulcrumed upon a stud or similar support, L, rising from the bed-plate B. It will readily be seen that by raising the lever K the movable jaw F will be raised, said jaw carrying a cutter-blade, *f′*, mounted and secured thereupon in a manner similar to that already described in connection with the lower jaw and its cutter. It is evident that, as the cutting power of these jaws is exerted by the downward stroke of the operating-lever, and as friction is, as far as possible, eliminated, I obtain increased power together with great strength and simplicity of construction.

The stud L, upon which the actuating-lever K is fulcrumed, consists of an upper portion having two forks or parallel arms, *l l*, between which the lever is supported by means of a fulcrum-pin, *m*, passing through each. This stud is provided with a swivel, M, which is seated within a socket in the bed-plate B, and provided with a circumferential groove, *n*, which receives the end of a screw, *n′*, tapped through the bed-plate. This screw prevents the swivel from being thrown out of its socket by any movement of the actuating-lever K, while at the same time it permits the free swivel movement of the stud-bearing.

It will readily appear from Fig. 2 that the operator, by a slight lateral movement of the actuating-lever K, can throw the cutting-edge of the movable jaw F closely against the edge of the fixed jaw D, and retain these cutting-edges in close engagement throughout the entire stroke.

By these simple means the wear of the cutters, as well as of the pivot-pin F′, which supports the movable jaw, may be compensated, and the efficiency and accuracy of the shears greatly promoted.

Upon the swiveled stud L, I form a stop-

lug *l'*, which limits the downward movement of the lever K. The upward movement of said lever is limited by the upper forked-branch, *g*, of the rearwardly-projecting jaw F, which strikes the lever K behind its friction-disk and stops its upward movement.

In Fig. 4 I show a construction wherein the bed-plate is in the form of an angular or other shaped shank, B', which can be set in a socket in the bench or support A. This bed-plate or shank carries the post C, to which the stationary cutting-blade *a* is fixed, and such post also serves as the bearing or support for the fulcrum-pin F', of the movable jaw F, as well as the bearing or support for the fulcrum-pin of the lever K. In this instance the forked shank G of the movable jaw embraces a friction disk or roller, I, carried at the side of the lever.

Having thus described my invention, what I claim is—

1. In a lever shearing mechanism, the combination, with a fixed jaw, of a movable jaw actuated by a lever which is fulcrumed upon a support swiveled upon the base-plate, whereby a lateral movement of said lever throws said movable jaw toward or from the fixed jaw, substantially as described.

2. In a lever shearing-machine, the combination, with a fixed jaw, of a movable jaw pivoted to its heel, and having a rearwardly-projecting forked extremity which receives a friction-disk, the latter being journaled upon the forked end of an operating-lever fulcrumed upon a stud rising from the bed-plate, substantially as described.

3. In a lever shearing-machine, the combination, with the bed-plate, of a post carrying the fixed jaw, a movable jaw pivoted to the heel of the fixed jaw, and having a forked rearwardly-projecting extremity, which receives a friction-disk carried by an actuating-lever, a stud upon which said lever is fulcrumed, and a swivel-joint between said stud and the bed-plate, substantially as described.

4. In a lever shearing-machine, the combination, with a movable jaw having a fork, G, of an actuating-lever having journaled in its end a friction-disk, I, which engages with the branches of said fork, substantially as described.

5. In a lever shearing-machine, the combination, with a fixed jaw, of a movable jaw pivoted to the heel thereof, and having a rearwardly-projecting forked extremity, an actuating-lever, K, fulcrumed upon a swiveled stud, L, and a friction-disk carried by said lever and engaging with the forked end of the movable jaw, substantially as described.

6. The combination of a bed-plate carrying a post, having an attached fixed cutting-jaw, a movable jaw fulcrumed on the post and provided with a forked shank, and a pivoted lever having a friction disk or roller engaging the forked shank, substantially as described.

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

JOSEPH W. DOUGLAS.

Witnesses:

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