

J. C. BURGESS.
COLD IRON SHEARS.

Application filed Aug. 14, 1902.

(No Model.)

Fig. 1.

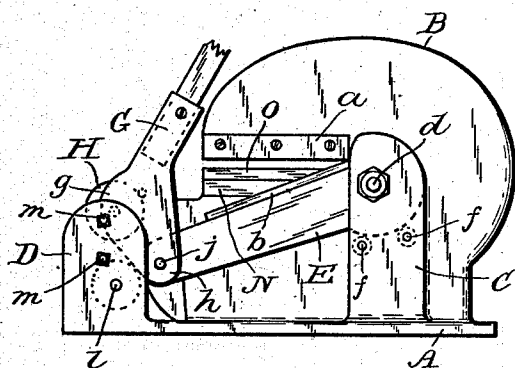


Fig. 2.

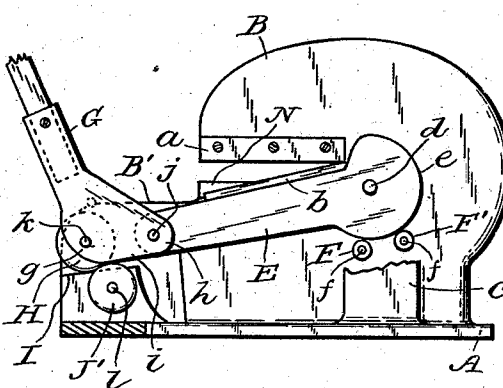


Fig. 3.

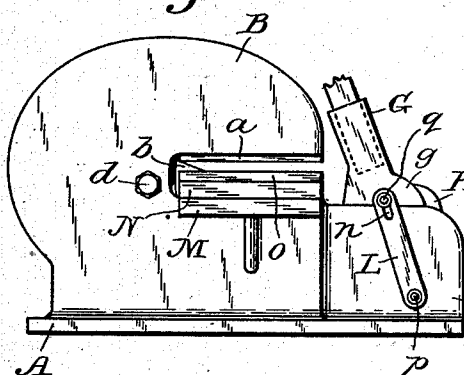


Fig. 4.

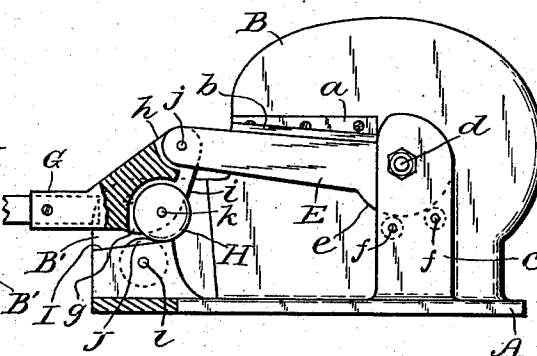


Fig. 5.

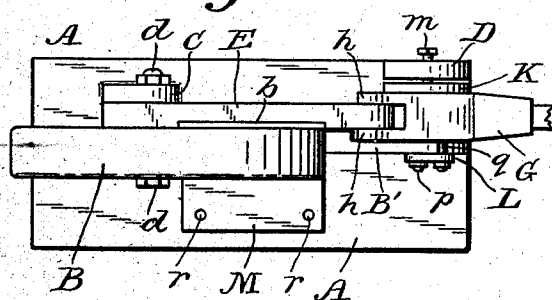


Fig. 6.

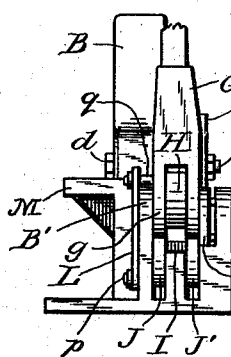
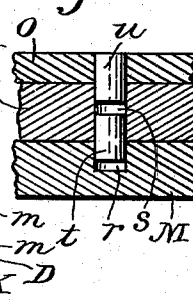


Fig. 7.



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COLD-IRON SHEARS.

SPECIFICATION forming part of Letters Patent No. 714,361, dated November 25, 1902.

Application filed August 14, 1902. Serial No. 119,588. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. BURGESS, a citizen of the United States, residing at Brighton, in the county of Northumberland, Province of Ontario, and Dominion of Canada, have invented new and useful Improvements in Cold-Iron Shears; and I do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to power-shears for cutting or shearing metals; and it has reference more particularly to hand-power shears for cutting off unheated bar-iron, the object of the invention being to provide an inexpensive and very powerful and rapid tool of this character which may be easily operated by one person and at the same time be durable and economical in use, without requiring expert attention either for adjustment or repairs.

The invention consists, chiefly, in the novel form of the foot or fulcrum end of the lever for operating the movable shear-blade and in the novel bearings for the lever; and the invention also consists in the parts and in the combination and arrangement of parts, as herein after particularly described and claimed.

Referring to the drawings, Figure 1 represents a side elevation of a shearing-tool having my improvements applied thereto and showing the movable blade in open position; Fig. 2, an elevation view of the same side of the tool from which parts are broken away to expose portions of the working parts, the movable blade being partially closed; Fig. 3, an elevation view of the opposite side of the tool, in which the movable blade is in open position; Fig. 4, an elevation view of the side shown in Figs. 1 and 2, in which portions are in vertical section, exposing operating parts, the movable blade being in closed position; Fig. 5, a top plan view, the movable blade being in closed position and the operating-lever down; Fig. 6, a front end elevation showing the operating-lever upright in position as between the positions shown in Figs. 1 and 2; and Fig. 7, a fragmentary vertical sectional view of the table and its false tops

for supporting the iron when being fed into the shears and showing the devices for holding the tops in place upon the table. The extremity of the operating-lever is broken away in the several views.

In the drawings similar reference characters indicate corresponding parts throughout.

Structurally the shears comprise a horizontal base A, upon which is a suitable upright shear-head B, to which the stationary shear-blade *a* is attached horizontally, and a gap, as usual, is formed in the head below the blade. An upright frame B' as a part of the head B extends from the base A nearly to the gap. A frame C extends upwardly at one side of the head B and aids in supporting the movable shear-blade arm. Another upright frame D extends from the base A, preferably as high as the frame B' and parallel thereto, a suitable distance therefrom. The members A, B, B', C, and D may be formed integrally of cast-iron.

The movable shear-blade *b* is secured to an arm E, which has one end thereof mounted on a pivot *d*, connected to the head B and the frame C. The arm E preferably has a convex lower bearing-face *e* concentric with the pivot-bearing thereof, and rollers F F' are mounted on axles *f* beneath the face *e*, so that the face *e* may move freely upon the rollers, the latter assisting the pivot *d* in resisting the strains put upon the shear-blade *b*.

The operating-lever G may be composed of two principal separable parts, if desired, the fulcrum end or foot of the lever having a heel *g* and a projecting toe *h*, both being bifurcated, and a straight sole *i* between the heel and the toe. The toe *h* is pivotally connected by means of a pin *j* to the radially-movable end of the arm E. A bearing-roller H is mounted in the heel *g* on an axle *k* and is designed at certain stages of the movement of the lever G to roll upon a bearing-block I, extending from the base A upwardly between the frames B' and D, the block having at the top thereof a bearing-face that is preferably straight and inclined, as shown. Between the frame B' and the block I a bearing-roller J is mounted, and a like roller J' is mounted between the block I and the frame D, an axle-shaft *l* supporting both rollers. A bearing-

plate K is adjustably supported between the frame D and the foot of the lever G, being pressed against the foot by adjusting-screws *m*, suitably disposed, so that the foot may move between the frame B' and the plate K without having lost motion or unnecessary play laterally, the sole *i* at times riding upon the rollers J J'.

At the opposite side of the frame B' from the foot is a link L, having a slot *n* and pivoted to a stud *p* near the base A, the slot extending above the frame B'. A stud *q* is secured to the lever G or its foot and extends through the slot *n*, so that the lever is prevented from rising bodily and is thus enabled to draw down the lower shear-blade if it should be necessary.

A table M is attached to the head B below the gap therein at the side opposite to the arm E, upon which to rest the articles that are to be cut, the table having false tops N and O. The false tops are prevented from sliding upon the table by means of dowels and sockets, the table having one or more sockets *r* in the top thereof. The top N has a socket *s* or two in the top thereof. The under side of the top N has dowels *t*, extending into the sockets *r*, and the top O has dowels *u*, extending into the sockets *s* and may also be inserted into the sockets *r* if the top N be removed.

In practical use the arm E may be moved radially in a vertical plane, thereby operating the movable blade *b* by means of the lever G, which in the position shown in Fig. 1 would carry the roller H, while the sole *i* would be resting upon the rollers J J'. In moving the operating-lever to the position shown in Fig. 2 the lever-foot will rock upon the rollers until the roller H descends upon the bearing-block I, when if the movement of the lever be continued the sole *i* will be raised from its supporting-rollers and the roller H will move upon the block I toward the arm E, as indicated in Fig. 4, thus forcing up the blade *b*, the inclined face of the block I accelerating the movement of the blade and its arm. The link L will move radially in harmony with the operating-lever. An upward movement of the lever will open the shear-blade. It will be observed that when the lever G is vertical, or nearly so, and it would be difficult to apply the maximum manual power the sole *i*, bearing upon the rollers near the pivot *j*, affords greater power than when the lever is more nearly horizontal, when the maximum force may be applied to the lever more easily, the whole arrangement being designed to be in harmony with the conditions under which the tool is to be operated. In cutting small sizes of iron, which usually require to be held in one hand of the operator, he may with the other hand manipulate the lever in the positions between those shown in Figs. 1 and 2 with ease.

Having thus described my invention, what I claim as new is—

1. A shearing-tool comprising a movable shear-blade arm, a fixed bearing-block, a lever provided with a foot having a toe pivoted to the arm and also having a heel provided with a roller operating upon the bearing-block.

2. A shearing-tool comprising a movable shear-blade arm, a journaled bearing-roller having a fixed axis, a bearing-block at one side of the bearing-roller, an operating-lever provided with a foot having a toe pivoted to the arm and a heel provided with a bearing-roller, the foot also having a sole adapted to ride upon the roller having the fixed axis, the roller of the heel being adapted to ride upon the bearing-block.

3. A shearing-tool comprising a shear-head having a shear-blade, a pivoted arm having a shear-blade, upright parallel frames, a bearing-block between the upright frames, bearing-rollers having fixed axes at the sides of the bearing-block, a lever provided with a foot having a toe pivoted to the pivoted arm and having a heel provided with a bearing-roller adapted to operate upon the bearing-block, the foot also having a sole adapted to operate upon the rollers at the sides of the bearing-block, the lever in its operative movements being fulcrumed first upon the bearing-rollers and then upon the bearing-block.

4. A shearing-tool comprising a shear-head having a shear-blade, a movable arm having a shear-blade and pivoted at one end thereof to the shear-head, a roller mounted below the pivoted end of the arm and partially supporting the arm, a bearing-block, and a lever having a foot pivoted to the arm and operating upon the bearing-block.

5. A shearing-tool comprising a shear-head, a movable arm pivoted to the shear-head, shear-blades, a lever-foot having a bifurcated heel and also a toe pivoted to the movable arm, a bearing-roller mounted in the bifurcated heel and carried thereby during portions of the operative movements of the lever, the foot also having a straight sole between the toe and the heel thereof, a pair of bearing-rollers having fixed axes and engaged by the sole during portions of the operative movements of the lever, a fixed bearing-block between the pair of bearing-rollers and supporting the bearing-roller of the heel when the sole is free from the pair of bearing-rollers, an adjustable bearing-plate mounted at one side of the foot, and a frame laterally supporting the opposite side of the foot.

6. In a shearing-tool, the combination with the shear-head and the movable shear-blade arm, of the table having the sockets in the top thereof, the false top having the dowels at the under side thereof and the sockets in the top thereof, and the false top having the dowels adapted to enter the sockets in the other false top or the sockets in the table, substantially as set forth.

7. In a shearing-tool, the combination of the base, the shear-head, the pivoted shear-

blade arm, the parallel frames, the bearing-
block, the pair of bearing-rollers, the lever-
foot pivoted to the arm, the bearing-plate be-
tween the foot and one of the parallel frames,
5 the adjusting-screws engaging the bearing-
plate, the bearing-roller mounted in the foot,
the pivoted link having the slot therein, and
the stud attached to the foot and extending

through the slot in said link, substantially as
set forth.

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

JAMES C. BURGESS.

Witnesses:

LEE MURPHY,
WM. DONOVAN.