

L., W. & J. BEESLEY.

MACHINE FOR PUNCHING AND SHEARING METAL.

No. 172,599.

Patented Jan. 25, 1876.

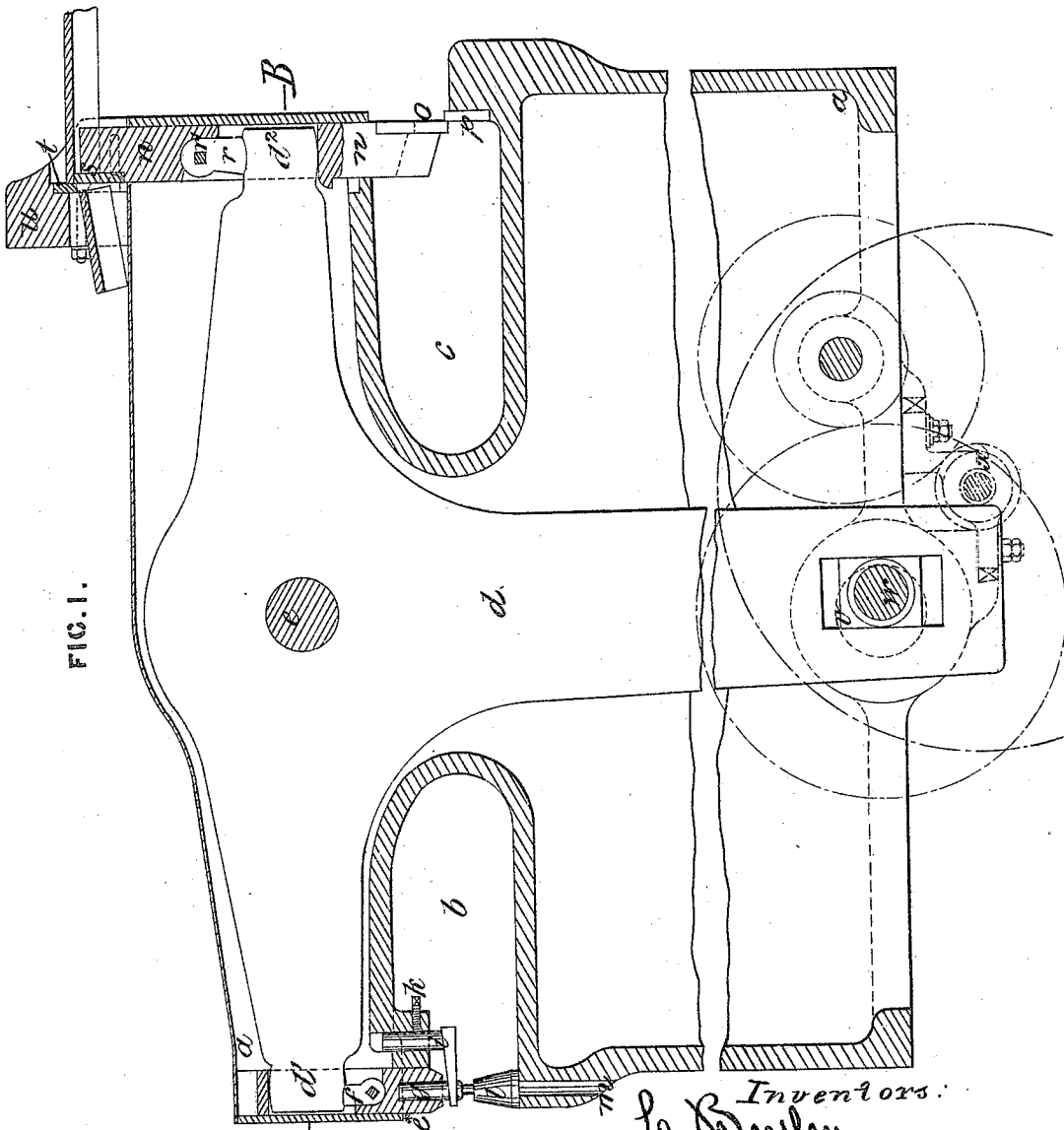


FIG. 1.

Witnesses
 Henry Gentner
 C. E. Stetson

Inventors:
 L. Beesley
 W. Beesley
 J. Beesley
 By their attorney J. E. Stetson

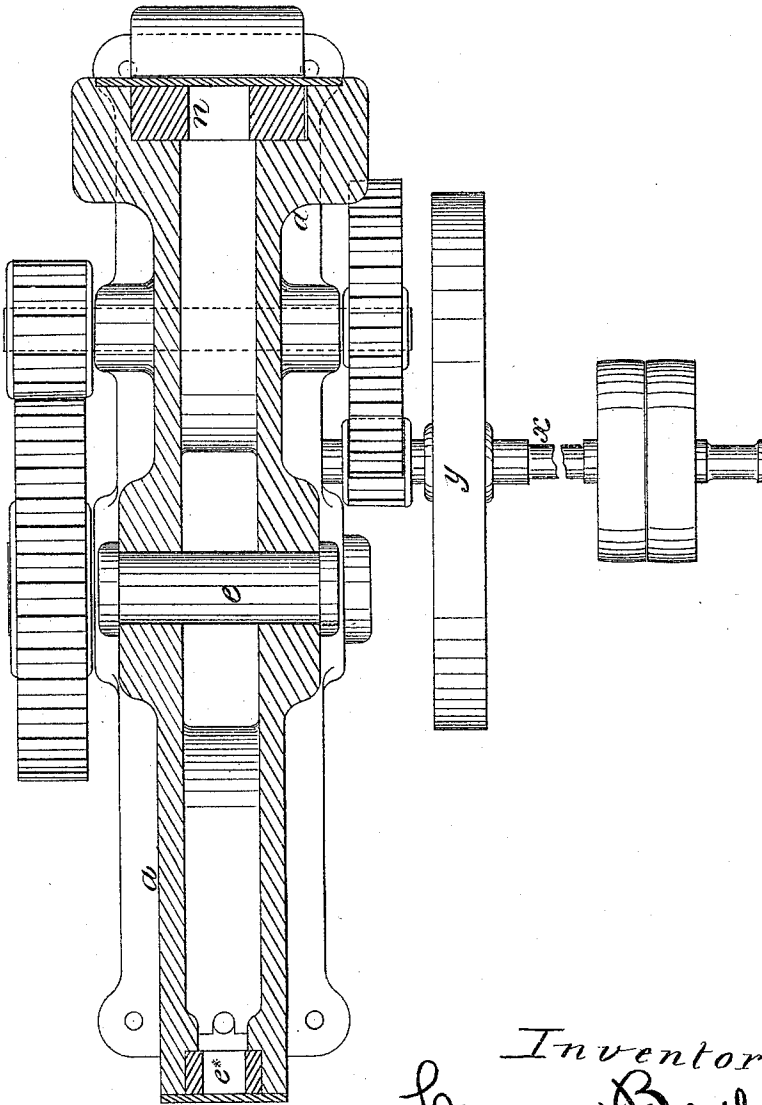
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FIG. 2.



Witnesses:

Henry Gardner
C. C. Stetson

Inventors:

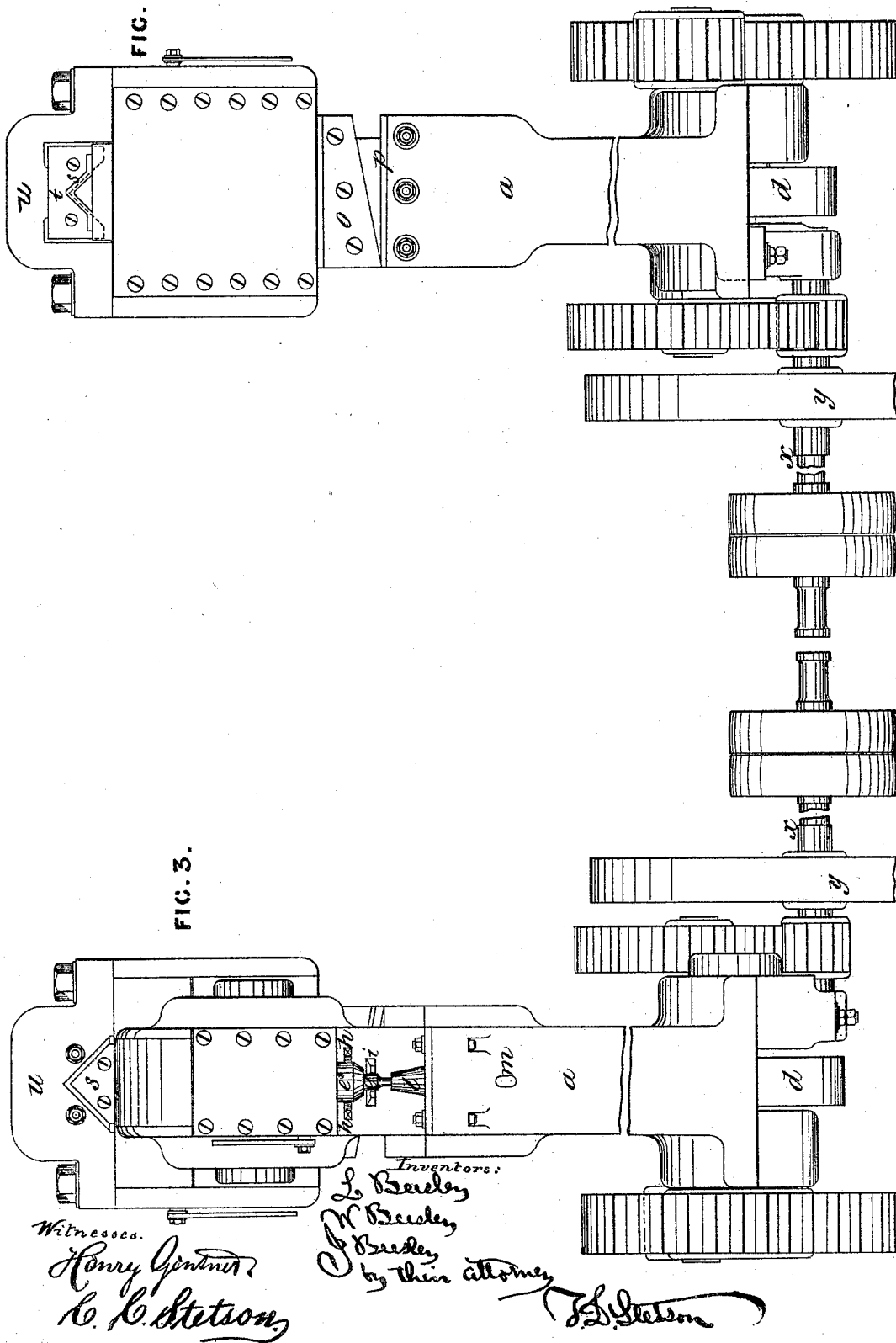
Lawrence Beesley
William Beesley
James Beesley
by their attorney
Thomas D. Stetson

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UNITED STATES PATENT OFFICE.

LAWRENCE BEESLEY, WILLIAM BEESLEY, AND JAMES BEESLEY, OF
BARROW-IN-FURNESS, GREAT BRITAIN.

IMPROVEMENT IN MACHINES FOR PUNCHING AND SHEARING METAL.

Specification forming part of Letters Patent No. 172,599, dated January 25, 1876; application filed
November 3, 1875.

To all whom it may concern:

Be it known that we, LAWRENCE BEESLEY, WILLIAM BEESLEY, and JAMES BEESLEY, all of Barrow-in-Furness, in the county of Lancaster, Kingdom of Great Britain and Ireland, have invented an Improved Machinery for Punching and Shearing Metals and Cropping Angle-Iron, of which the following is a specification:

This invention has for its object improvements in machinery for punching and shearing metals and cropping angle-iron; and relates, first, to the use of a lever, one part or arm of which is horizontal, and another part or arm vertical, such lever having a partially-rotating motion on a suitable center in the upper part of the main body or casting of the machine communicated to the said lever at or near the lower end of its vertical arm through the medium of a cam, eccentric, or other suitable device, actuated by means of gearing arranged at the lower part of the main body or casting of the machine. The necessary punches or moving shears are carried by the horizontal part of the lever.

By this arrangement a light machine of great strength is produced, and we are enabled not only to increase the size of gap, but also to very considerably reduce the depth of arm or portion of casting overhanging each gap, thereby materially increasing the working facilities of the machine.

The invention further relates to the use, in combination with the above lever, of arrangements for cropping angle-iron. For this purpose we employ a moving cutter or cutters, connected to and deriving motion from the horizontal part of the lever, and provided with suitable guides so as to cut against a fixed die or dies.

Figure 1 is a sectional elevation of the machine as made with a T-shaped lever for punching and shearing metals and cropping angle-iron. Fig. 2 is a sectional plan in the line A B of Fig. 1, with the lever removed. Fig. 3 is an elevation of the punching end of the machine. Fig. 4 is an elevation of the shearing end of the machine.

a is the main frame or casting of the machine, formed with two gaps, one, *b*, for punch-

ing, and the other, *c*, for shearing. Within the main casting *a* is a wrought-iron T-shaped lever, *d*, working on a shaft or pin, *e*, supported by the casting *a*. The horizontal arm *d'* of the lever enters a slot in a slide, *e^x*, which is provided with a cam, *f*, worked by a lever on the outer end of its spindle for throwing the slide in and out of operation. The spindle passes through a slot in the casting *a*. The cam and slide are shown in position for punching. The punch *g* is secured in the boss on the end of the slide *e^x* by set-screws *h*, Fig. 3. *i* is the guard, secured by a screw, *k*; *l*, the female die, and *m* the hole in the main frame for the burrs to pass through. *n* is a slotted slide, worked by the horizontal arm *d²* of the T-shaped lever, and has secured to it by countersunk screws the top cutter *o* of the shears, whose bottom blade or cutter *p* is secured to the main casting *a* by bolts with countersunk heads. *n* is also the slide of the angle-iron cropping apparatus. The entire slide *n* is thrown in and out of operation by a cam, *r*, (shown in gear in Fig. 1,) which is worked by a spindle, *r'*, actuated by a lever outside the main casting. When the cam *r* is out of gear, the shears and angle cropper will be out of action. *s* is the bottom blade of the cropper, secured to the slide *n* by suitable screws; and *t* is the top blade, which is inserted in the frame *u*, secured to the main casting by suitable bolts, as shown. The lower end of the vertical arm of the T-shaped lever *d* is formed with a slot fitted with a sliding block, *v*, actuated by an eccentric-pin, *w*, which works in the block, as shown. This pin receives motion through suitable gearing, as shown, from a shaft, *x*, provided with a fly-wheel, *y*, and fast and loose pulleys.

When the machine is to be used for punching only, or for shearing only, the main casting may be made with only one gap, and the lever *d* with only one horizontal arm, thus converting it into an inverted L-shaped lever, whose horizontal arm may be provided with arrangements for punching or for shearing.

This arrangement will be readily understood without further description.

We claim—

1. The combination of the partially-rotating

lever d d^1 d^2 , the cutter o , and the punch g , with the cams r f , so constructed and arranged that the cams will serve to throw the cutter and punch, respectively, in and out of gear at will, as and for the purposes specified.

2. In combination with the horizontal arm d^2 of a lever, d , the slide n , arranged to be put in and out of gear by the cam r and carrying cutters o s , the one, o , operating in conjunction with a fixed cutter, p , and the other with a cutter, t , carried by a frame, u , bolted to the

upper part of the main casting of the machine, all substantially as hereinbefore described, for the purpose specified.

LAWRENCE BEESLEY.
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Witnesses:

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Notary Public, Barrow-in-Furness.
J. C. HEMINGWAY, *his Clerk.*