O. Long.

Making Metal Tools.

No. 63,403. Patented Apr. 2, 1867.

Fig: 1.

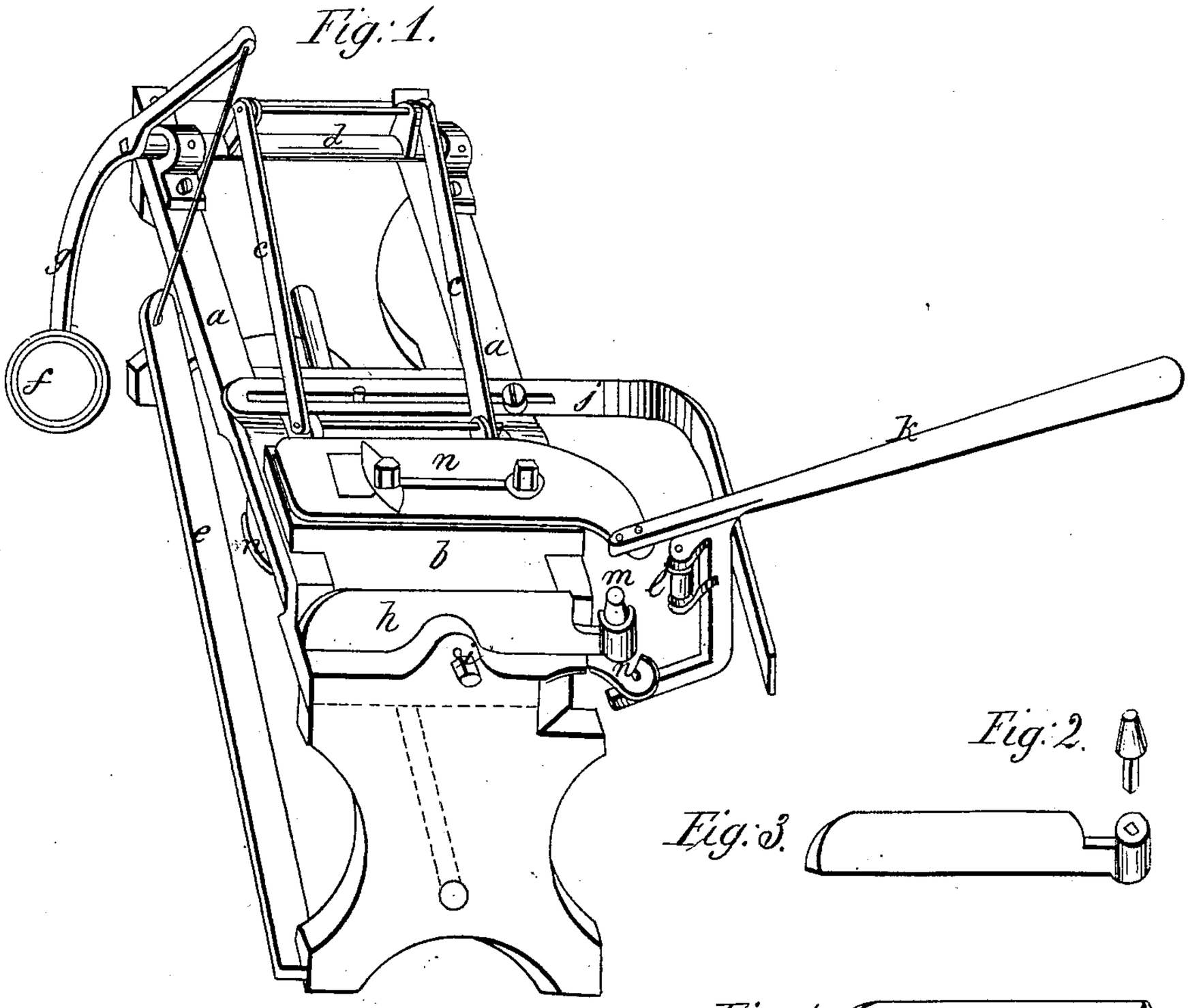
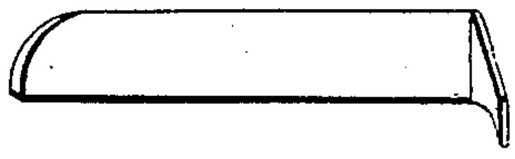


Fig: 2.

Fig: 3.

Fig: 4.



Witnesses;
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OBED LONG, OF JOLIET, ILLINOIS.

Letters Patent No. 63,403, *dated April* 2, 1867.

IMPROVEMENT IN MACHINES FOR BENDING BARS OF METAL.

The Schedule referred to in these Letters Patent and making part of the same.

Be it known that I, OBED LONG, of Joliet, in Will county, and State of Illinois, have invented a new and useful Machine for Bending or Forming Rods or Bars of Metal into Hooks, and also into Eyes, such as are commonly made at a shop with hammer and anvil; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view; and

Figures 2, 3, and 4 are views of sectional parts.

The nature of my invention consists of a device for bending and forming rods or bars of iron or other metal into the form of hooks and also eyes.

In fig. 1, *a* represents the main frame, resting at either end upon a bench, and bearing the reciprocating head-blocks *b* sliding thereon, by means of the two connection-rods *c c*, attached to the cranks of the shaft *d*, operated by the foot of the operator on the trip *e*, causing a reciprocating motion to the block *b*. Two connection-rods are used, as shown in fig. 1, to give uniformity of motion to either end of the head-blocks *b*. *f* represents a weight attached to the crank *g*, for the purpose of sliding the head-block *b* back as soon as the operator lifts his foot from the trip. *h* represents an adjustable former held to its place by the thumb-screw *i*. The bar of metal is placed between the head-block *b* and the former *h*, with the outer end touching the gauge *j*, which is set at any distance so as to regulate the length of the hook or eye. After the bar is so placed the head-block *b* is moved forward by the foot on the trip so as to press the rod or bar tightly against the former, when the lever *k* is moved around with the friction-roller *l* bearing against the rod or bar, and bends the same around the nipple *m* on the end of the former, thus forming an eye. To form a hook, the former, shown in fig. 4, is used with a right-angle section at the end, around against which the rod or bar is bent, thus forming a hook. The section at the end may be of any angle, to form any shaped hook desired. The lever *k* is attached to the head-block *b* by means of the slotted plates *n*, both on the upper and under side of the same, projecting, as shown in fig. 1, to meet the lips of the lever *k*, to which they are hinged. By means of thumb-screws in the slot in the plates, they may be adjusted so as to place the lever *k* in the right position to bend any sized or length rod or bar. Figs. 2 and 3 show the nipple and the former detached. Any sized nipple may be placed in the former to make any sized eye. It is designed to bend either hot or cold metal.

The particular improvement in this invention consists in being able to dispense with the necessity of driving a mandrel in the eye. The nipple *m* is slightly tapered from the base to the apex, thus making it easy to remove the eye after it is bent around the nipple.

Claims.

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

1. The lever *k*, with the friction-roller *l*, combined with the slotted plates *n n*, constructed as and for the purposes described.

2. I claim the use of the trip *e* and the weight *f* with the crank-shaft *d* and the connecting-rods *c c*, constructed and arranged for the purpose of operating the head-block as described.

3. I claim the adjustable former *h*, in combination with the nipple *m* and the gauge *j*.

4. I claim a combination of all the parts described, substantially as and for the purposes set forth.

OBED LONG.

Witnesses:

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