Sheet 1,
2 Sheets.

W. J. McLea.

Bending Mach.

No. 85,531. Patented Jan. 5, 1869.

Fig: 1.

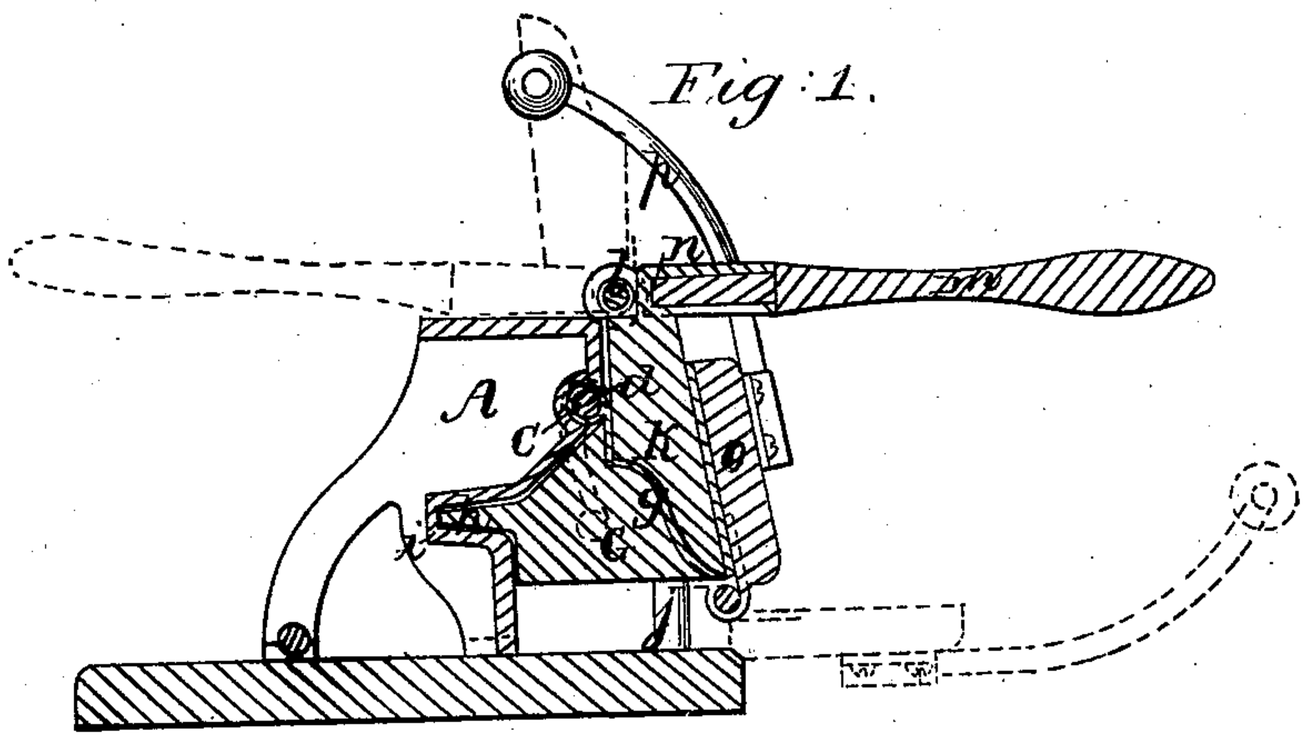
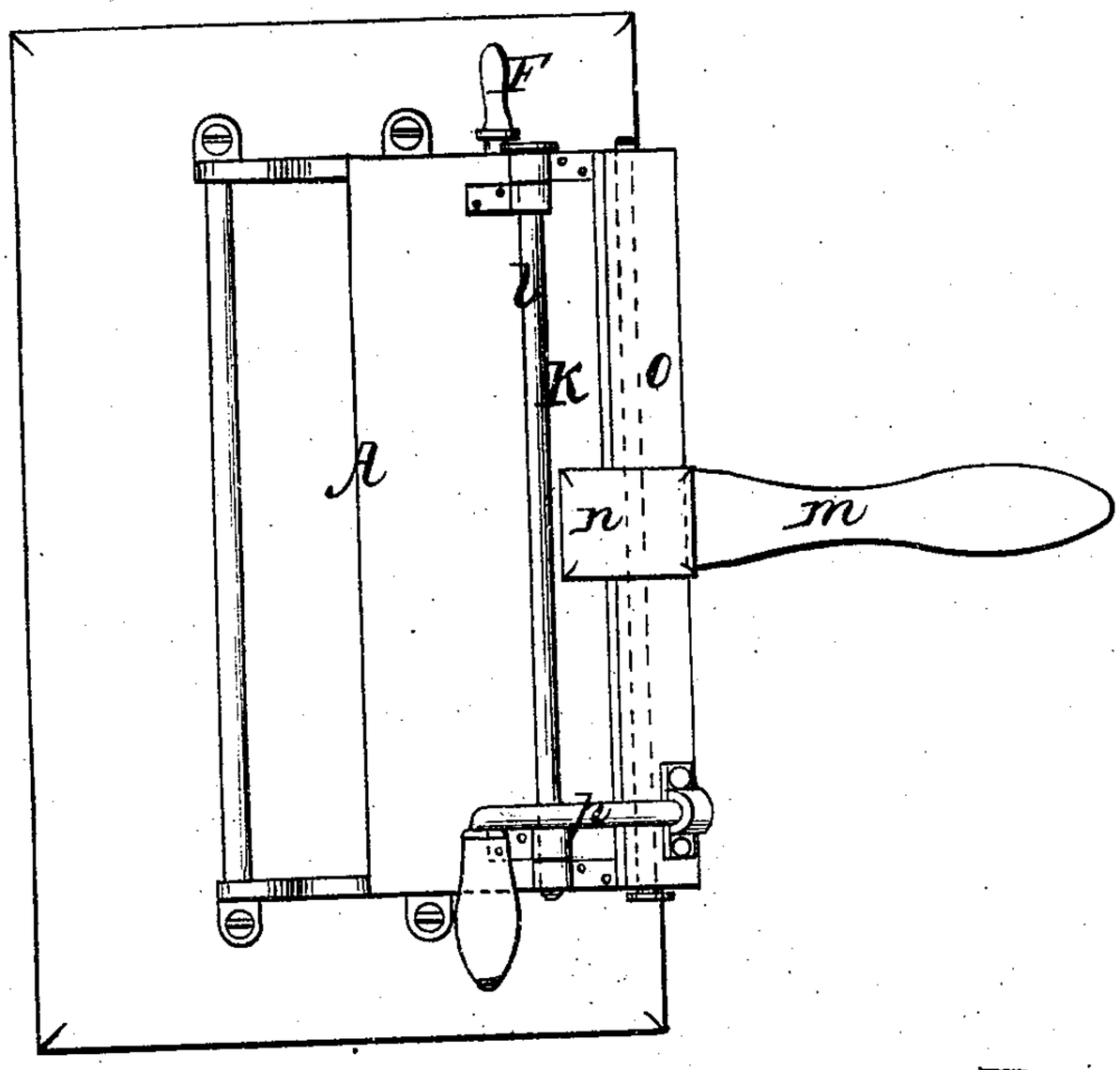


Fig: 2.



Witnesses;
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Gottlob Burkhardt.

Inventor;
Wm J. McLea
Fostuck & Heyatt Attys

Sheet 2,
2 Sheets.

W. J. McLea.

Bending Mach.

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Fig: 3.

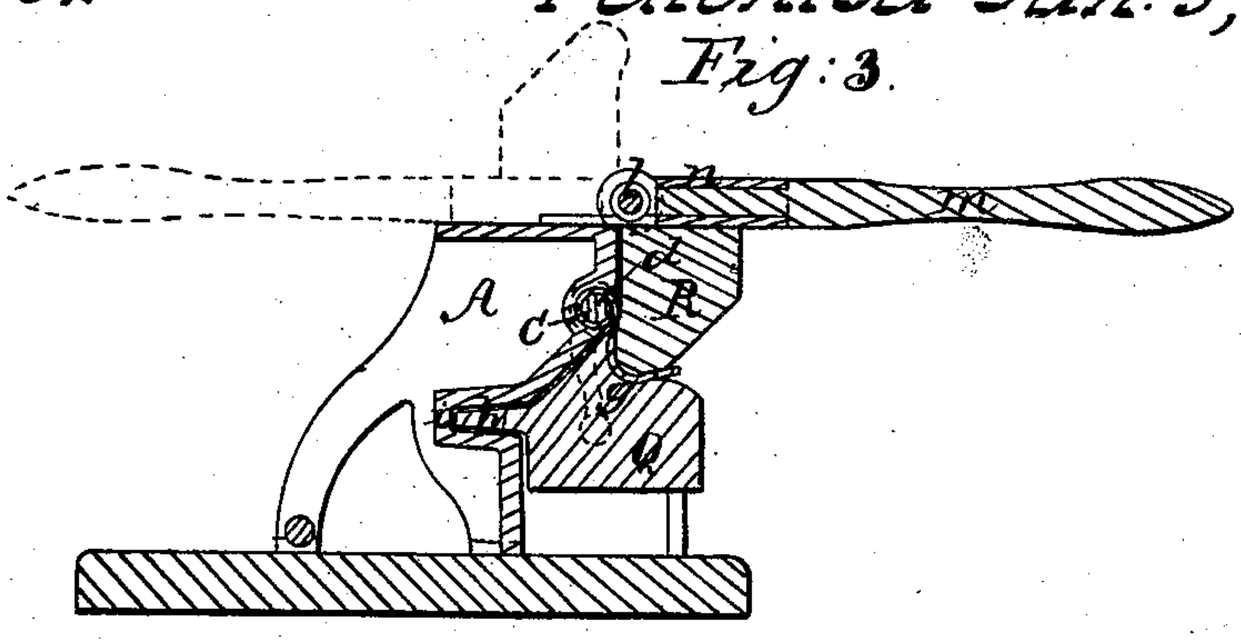

Fig: 4.

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United States Patent Office.

WILLIAM J. McLEA, OF LEROY, NEW YORK.

Letters Patent No. 85,531, *dated January* 5, 1869.

IMPROVEMENT IN MACHINE FOR BENDING SHEET-METAL.

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

To all whom it may concern:

Be it known that I, WILLIAM J. McLEA, of Leroy, in the county of Genesee, and State of New York, have invented a certain new and useful Improvement in Metal-Bending Machines for Forming Eaves-Troughs, &c.; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure I is a transverse section of my improved machine.

Figure II is a plan of the same.

Figures III and IV are corresponding views of the machine, with a different style of former substituted.

Like letters of reference designate like parts in all the figures.

The object of my invention is the construction of a machine for bending metal which will permit the ready employment of formers of different kinds. As heretofore constructed, machines have been adapted for bending with only one style of former, which makes it necessary to have as many different machines as there are different styles of formers. This involves a great amount of expense, which it is desirable to avoid.

My invention consists of a machine in which both of the formers are separate or detachable from the main frame, so that the different kinds can be readily substituted and used with the same frame and bead-forming device, levers, &c.

In the drawings—

A is the main frame, rigidly secured in place, and of any suitable form, as shown.

In the front side of this frame is formed a cylindrical groove, *b*, lengthwise of the machine, in which fits a bead-forming shaft, *c*, having a longitudinal slit, *d*, for receiving the edge of the metal to be formed into a bead.

F is a crank, at one end of the shaft.

G represents one of the formers, made separate from the frame, *g* being the face or pressure-surface thereof.

The adjacent side, which is contiguous to the main frame, is made to conform therewith, and is provided with a ledge, *h*, for fitting in a corresponding longitudinal groove, *i*, in the frame, when the two are coupled together. Any other suitable mode of connection may be adopted which will be sufficiently strong to resist the pressure brought to bear upon the former.

This former may be provided with short legs *j*, for supporting the outer edge, or be cast with a longitudinal ledge, or any other means for the purpose may be adopted.

K is a former, the counterpart of G, and is hinged to the upper edge of the frame A in any suitable manner that will permit the ready removal of the former when required.

A simple and convenient means is that shown, which consists of any ordinary hinge, with the axial pin *l* loosely fitting therein, so as to be easily withdrawn for uncoupling the hinge.

The former K is operated by a lever *m*, fitting in a socket, *n*.

O is a pressure-plate or bar, hinged to the outer edge of the former, G, for bending the back side of an eaves-trough.

It is actuated by a lever, *p*.

The operation of my improvement, constructed as above described, for forming an eaves-trough, is as follows:

The edge of the metal to be bent is first inserted in the slit in the shaft *c*, when the latter is turned or rotated in its socket, which forms the required bead. The former, K, is then brought down upon its counterpart G by means of its lever, which forms the metal into the required shape. The pressure-plate O is then brought up in the position shown in Fig. I, which forms the back of the trough.

For bending another style of trough, such as is used on top of the roof, near the lower edge, the plate O is dispensed with, the formers G K detached, and others, Q R, substituted, as shown in Figs. III and IV.

It will be observed that all of the different kinds of formers that are to be connected to the frame, as a substitute for G, should correspond in construction, except as to the contour of the face. After the trough is formed, it is withdrawn, with the shaft *c*, from the groove *b*, by a movement lengthwise of the machine.

The cylindrical form of the groove for the bead-shaft serves to retain it in place therein during the forming of the bead, and to render the latter of uniform shape.

It is evident that my improved machine can be used with any variety of former, whereby a single machine is made capable of performing the functions of half a dozen or more, from which results not only a great saving in the cost of fitting up a shop, but also a corresponding economy of floor-space, which is a matter of great importance.

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

The combination, in a metal-bending machine, of a frame, A, and detachable formers, substantially as set forth.

WM. J. McLEA.

Witnesses:

P. CARPENTER,

A. G. COLLINS.