No. 747,466. PATENTED DEC. 22, 1903.

O. L. McCLELLAN.

METAL BENDING MACHINE.

APPLICATION FILED JULY 27, 1903.

NO MODEL. 3 SHEETS—SHEET 1.

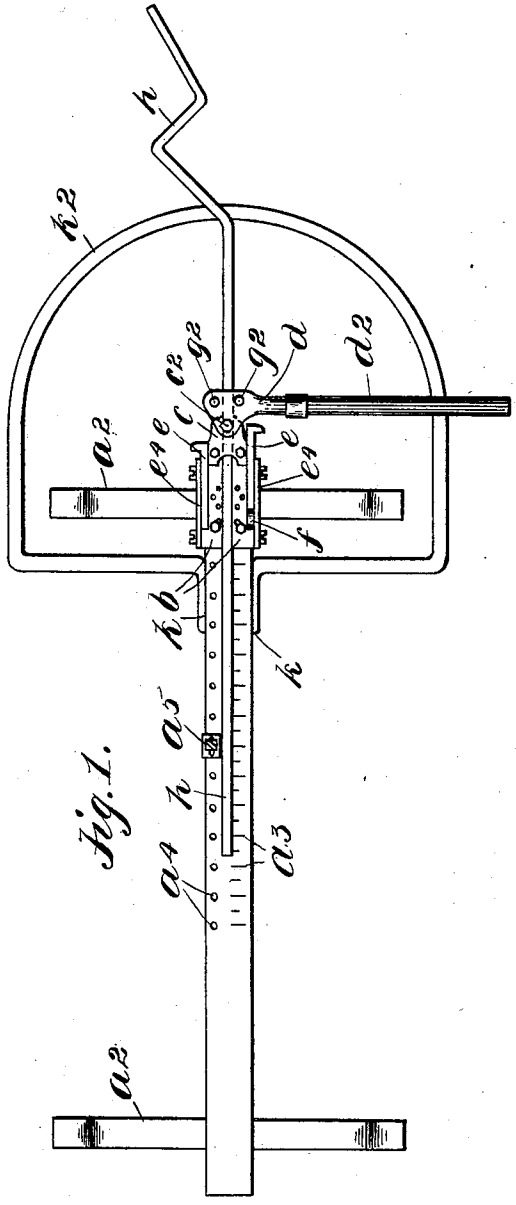



Fig. 1.

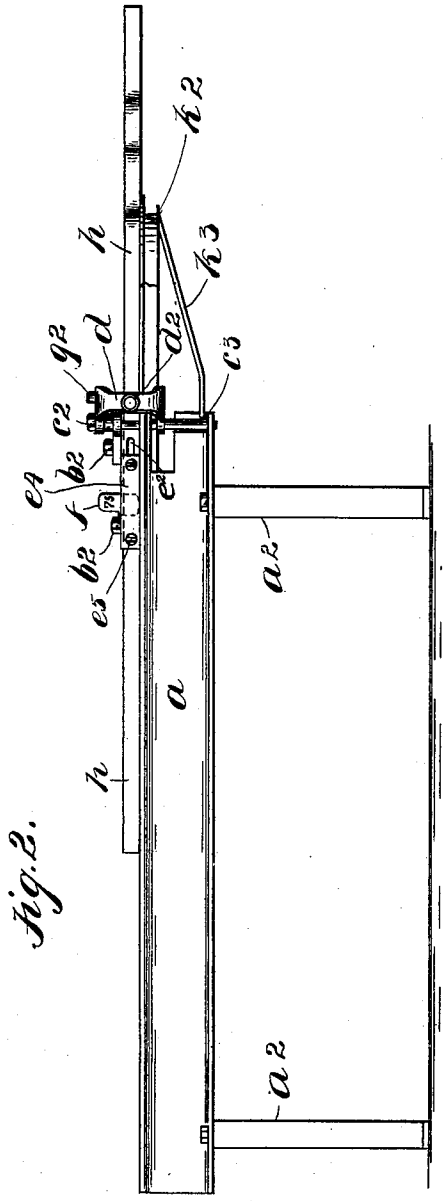



Fig. 2.

WITNESSES

C. E. Mulreany

H. A. Robinson

INVENTOR

Othie L. McClellan

BY Edgar Tate & Co.

ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NO MODEL. 3 SHEETS—SHEET 2.

Fig. 3.

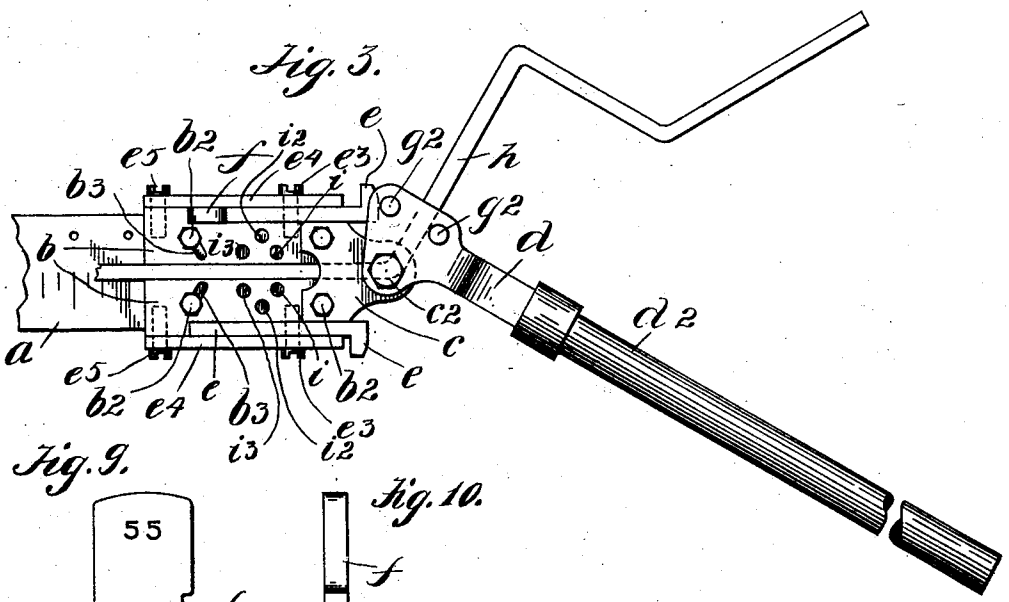


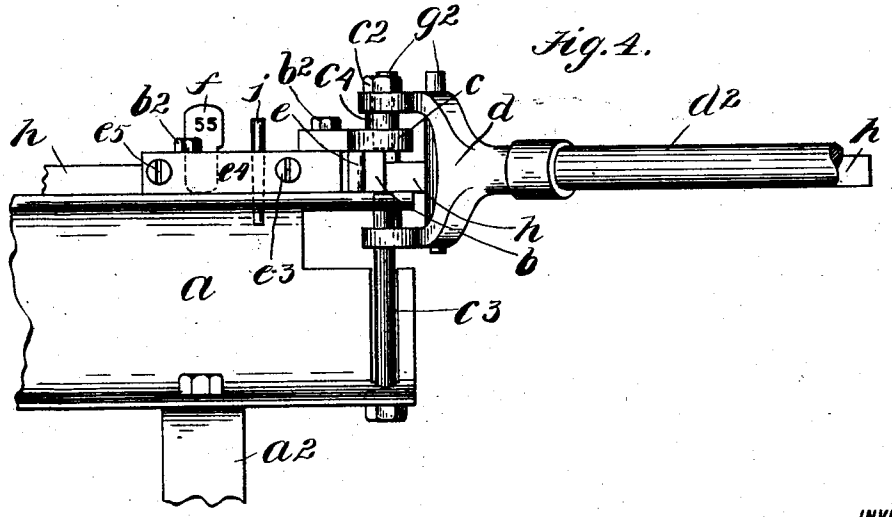

Fig. 9.




Fig. 10.




Fig. 4.




WITNESSES

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NO MODEL. 3 SHEETS—SHEET 3.

Fig. 5.

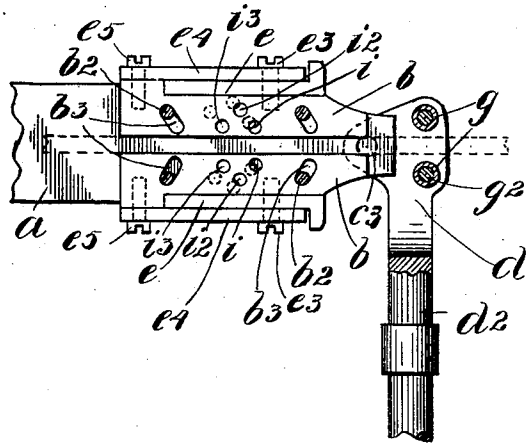



Fig. 7.

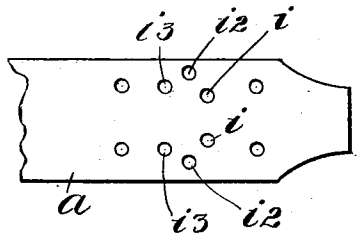
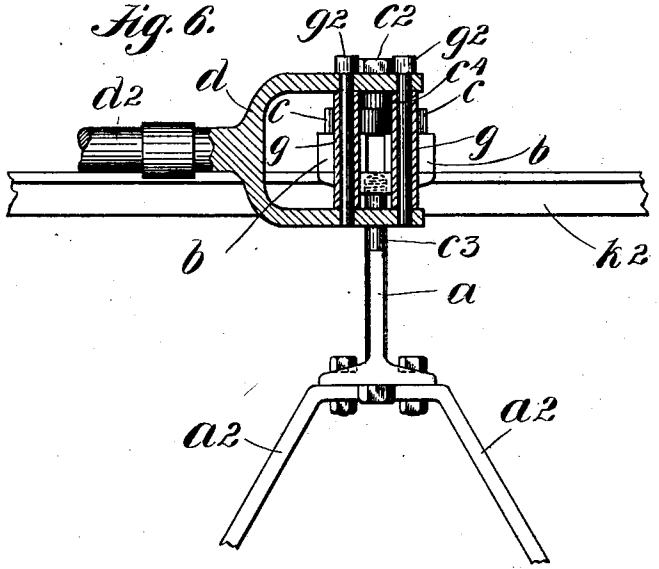



Fig. 8.




Fig. 6.




WITNESSES

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H. A. Robinson

INVENTOR

Othie L. McClellan

BY Edgar Tate & Co.

ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 747,466. Patented December 22, 1903.

# UNITED STATES PATENT OFFICE.

OTHIE L. McCLELLAN, OF WOODSIDE, NEW YORK.

## METAL-BENDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 747,466, dated December 22, 1903.

Application filed July 27, 1903. Serial No. 167,104. (No model.)

*To all whom it may concern:*

Be it known that I, OTHIE L. McCLELLAN, a citizen of the United States, residing at Woodside, in the county of Queens and State of New York, have invented certain new and useful Improvements in Metal-Bending Machines, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

The object of this invention is to provide an improved machine for bending metal, and particularly for bending steel or similar bars for use as frames or holders for sheet-metal cornice-moldings, a further object being to provide a machine of this class which may be used in all cases where it is necessary to bend strips or bars of metal.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which—

Figure 1 is a plan view of my improved metal-bending machine; Fig. 2, a side view thereof; Fig. 3, an enlarged plan view of one part of the machine and showing the method of its operation; Fig. 4, a side view thereof; Fig. 5, a view similar to Fig. 3 with parts of the machine removed; Fig. 6, a section of one end of the hand-bar of the machine; Fig. 7, a plan view of a part of the construction shown in Fig. 5; Fig. 8, a side view of a guide-pin which I employ; Fig. 9, a side view of a key which I employ, and Fig. 10 an edge view thereof.

In the practice of my invention I provide a main beam $a$, which is preferably of the form of an ordinary I-beam and which is provided with supports $a^2$, two of which are shown, and these supports are secured to the bottom of the beam in any desired manner. The top of the beam $a$ is provided adjacent to one side with a scale $a^3$, which represents inches and fractions thereof, and adjacent to the other side is a plurality of holes $a^4$, adapted to receive a pin connected with a guide-block $a^5$. To one end of the beam, on the upper side thereof, I attach the blocks or jaws $b$, which are held thereon by means of the set-screws $b^2$. These set-screws engage in the slot-openings $b^3$, formed in the said blocks $b$, and the slot-openings are provided to enable the said blocks to be adjusted so that the openings between them may be increased or decreased, as desired. Above one end of the blocks $b$ I attach the bearing-block $c$, to which I in turn attach, by means of a pivot-bolt $c^2$, one end of the yoke $d$, formed upon the end of the arm $d^2$. The lower end of the yoke $d$ is fastened to the upper flange of the beam $a$ by means of the set pivot-bolt $c^3$, and interposed between the upper end of the yoke $d$ and the bearing-blocks $c$ I provide a bushing $c^4$.

Attached to the blocks $b$, on each side thereof, are movable members $e$, which are provided with slots $e^2$ and are held upon the said blocks by means of the screws $e^3$ and the plate $e^4$, which is in turn secured to the blocks $b$ by means of the screws $e^5$. The movable members are positioned by means of keys $f$. (Shown in Figs. 9 and 10.) These keys engage between the said movable members and the blocks $b$, and the movable members are thereby moved outwardly, as shown in Fig. 3, and during the operation of the machine the outer end of either movable member engages with either of the rollers $g$, which are held upon the yoke end $d$ by means of pins $g^2$.

In the operation of my apparatus a rod $h$, of metal or other material to be bent, is passed between the blocks $b$ and the rollers $g$, as shown by the dotted lines in Fig. 5, and the movable member in line with the direction in which the material is to be bent is positioned by means of one of the keys and acts to stop the arm at the proper angle to which it is desired to bend the material. As in Fig. 3, I show a bend of sixty degrees to the bar $h$, and I show the position of the parts just after the bend has been made. The key $f$ is a key corresponding to that shown in Fig. 9, and these keys may be constructed to give the various angles to which the material may be bent by this machine. When there is no key interposed between the ends of the movable members and the blocks $b$, the said movable members are set so that the arm will bend the material which it engages to an angle of ninety degrees. It is obvious, however, that while I have shown this form of construction I may not limit the backward movement of the said members, but may con-

struct the parts so that they may move further to bend the material beyond the ninety-degree point, thereby making an acute angle in one direction and an obtuse in the other.

In order to adjust the blocks *b* with a space between them which will represent the standard sizes, I provide the openings $i$ $i^2$ $i^3$ in the blocks *b* and corresponding openings in the top of the beam *a*. When the said blocks are nearest together, as shown in Fig. 5, none of these openings are in alinement, and when these blocks are separated the openings *i* in the block and in the beam will come into alinement. Guide-pins *j* may then be inserted in the said openings and the parts held in proper position until they are fastened by means of screws $b^2$. The next outward movement would bring the openings $i^2$ into alinement, and the further movement would bring the opening $i^3$ into alinement. These openings may or may not be used, as desired, and they represent the size of the bars and are provided to facilitate the operation of the apparatus, and I may provide a greater or lesser number of such openings than I have shown in the drawings.

Secured to the beam by any suitable means at *k* is a platform $k^2$, which is designed to guide the end of the bar and to prevent it from sagging.

This device is simple in construction and operation and perfectly adapted to accomplish the result for which it is intended, and changes in and modification of the construction described may be made without departing from the spirit of my invention or sacrificing its advantages.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a metal-bending machine, a suitably-supported body portion, adjustable blocks attached to one end of the said body portion, a swinging arm having a yoke end attached to the end of said body portion adjacent to the said adjustable blocks, rollers mounted in the yoke end of the said arm and adapted to engage and bear on either side of a rod or bar which may be passed between the said adjustable blocks to bend the same to any desired angle, and means for regulating the movement of said arm, substantially as shown and described.

2. In a metal-bending machine, a body portion, adjustable blocks attached to one end of the said body portion, a swinging arm having a yoke end attached to the end of said body portion adjacent to the said adjustable blocks, rollers mounted in the yoke end of the arm and adapted to engage and bear on either side of a rod or bar which may be passed between the said adjustable blocks to bend the same to any desired angle, movable members attached to either side of the adjustable blocks and adapted to move outwardly to engage the said rollers, and means for holding the said movable members in position, substantially as shown and described.

3. In a metal-bending machine, a body portion, adjustable blocks attached to one end of the said body portion, a swinging arm having a yoke end attached to the end of said body portion adjacent to the said adjustable blocks, rollers mounted in the yoke end of the said arm and adapted to engage and bear on either side of a rod or bar which may be passed between the said adjustable blocks to bend the same to any desired angle, movable members attached to either side of the adjustable blocks and adapted to move outwardly to engage the said rollers, a key adapted to be located behind the said movable member to lock the same in proper position and to limit the movement of the said arm, substantially as shown and described.

4. In a metal-bending machine, a body portion suitably supported, adjustable blocks attached to one end of the said body portion, a swinging arm having a yoke end attached to the end of said body portion adjacent to the said adjustable blocks, rollers mounted in the yoke end of the arm and adapted to engage and bear on either side of a rod or bar which may be passed between the said adjustable blocks to bend the same to any desired angle, means for regulating the movement of the said arm, and means for adjusting the said adjustable blocks to increase or decrease the space between them, substantially as shown and described.

5. In a metal-bending machine, a body portion, adjustable blocks attached to one end of the said body portion, a swinging arm having a yoke end attached to the end of said body portion adjacent to the said adjustable blocks, rollers mounted in the said yoke end of the arm and adapted to engage and bear on either side of a rod or bar which may be passed between the said adjustable blocks to bend the same to any desired angle, movable members attached to either side of the adjustable blocks and adapted to move outwardly to engage the said rollers, means for holding the said movable members in position, and means for adjusting the said adjustable blocks to increase or decrease the space between them, substantially as shown and described.

6. In a metal-bending machine, a body portion, adjustable blocks attached to one end of the said body, a swinging arm having a yoke end attached to the end of said body portion adjacent to the said adjustable blocks, rollers mounted in the said yoke end of the arm and adapted to engage and bear on either side of a rod or bar which may be passed between the said adjustable blocks to bend the same to any desired angle, movable members attached to either side of the adjustable blocks and adapted to move outwardly to engage the said rollers, a key adapted to be located behind the said movable member to lock the same in proper position to limit the move-

ment of the said pivotal arm and means for adjusting the said adjustable blocks to increase or decrease the space between them, substantially as shown and described.

7. In a metal-bending machine, a body portion suitably supported, adjustable blocks attached to one end of the said body portion, a swinging arm pivotally attached to the end of the said body adjacent to the adjustable blocks, means on said swinging arm for engaging either side of a rod or bar which may pass between the said adjustable blocks to bend the same to any desired angle, and means upon said body portion for measuring off lengths of the various bends on the rod or bar, substantially as shown and described.

8. In a metal-bending machine a body portion suitably supported, adjustable blocks attached to the said body portion, a swinging arm pivotally attached to the end of the said body portion adjacent to the said adjustable blocks, devices on the said arm to engage either side of a rod or bar which may pass between the said adjustable blocks, to bend the same to any desired angle, means for regulating the movement of said arm, and means on the body of the machine for measuring off the lengths of various bends, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 24th day of July, 1903.

OTHIE L. McCLELLAN.

Witnesses:
C. E. MULREANY,
H. A. ROBINSON.