No. 795,916. PATENTED AUG. 1, 1905.

H. JONES.

MACHINE FOR BENDING HOOKS.

APPLICATION FILED APR. 11, 1903.

4 SHEETS—SHEET 1.

Fig. 1.

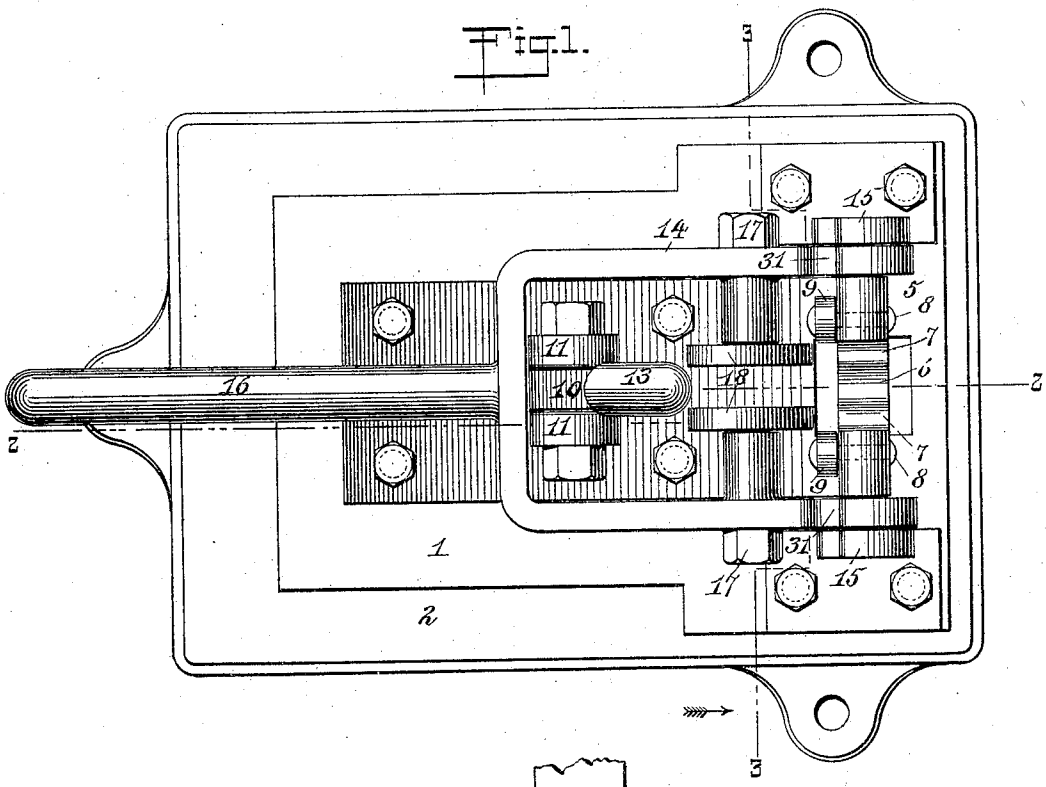
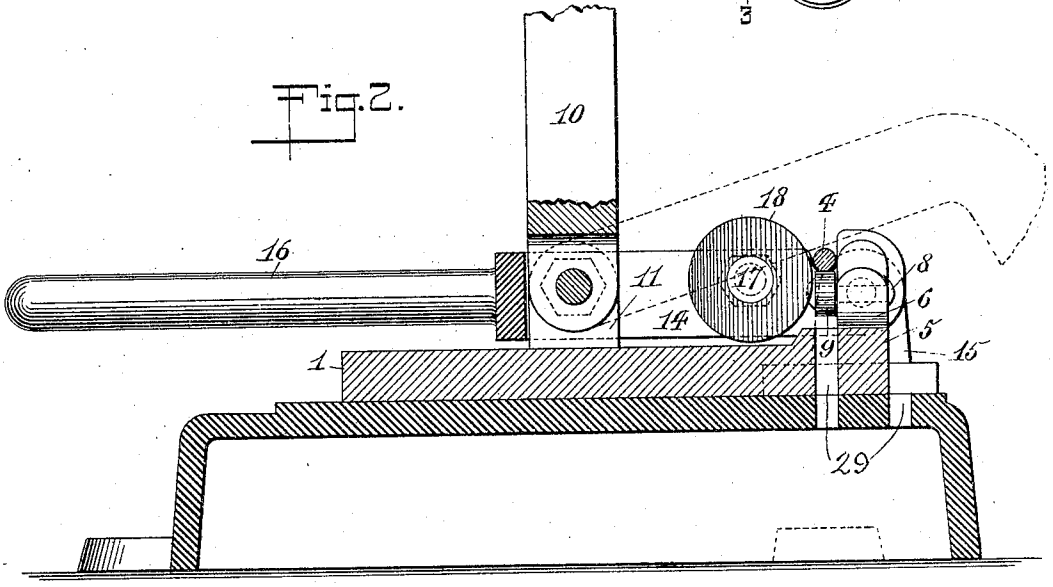


Fig. 2.



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Fig. 3.

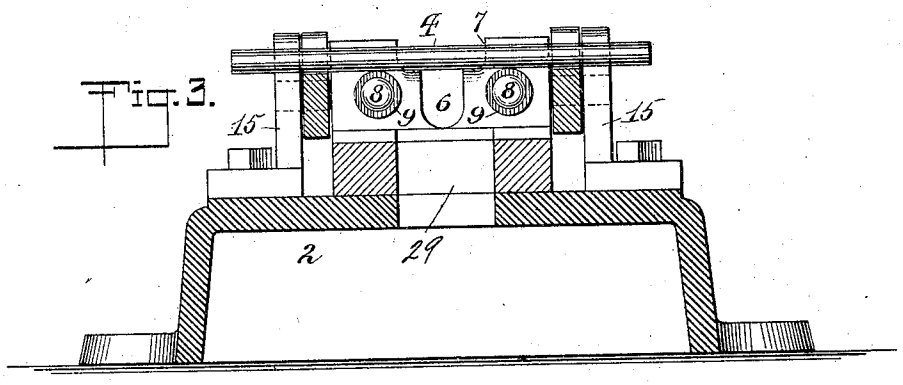


Fig. 4.

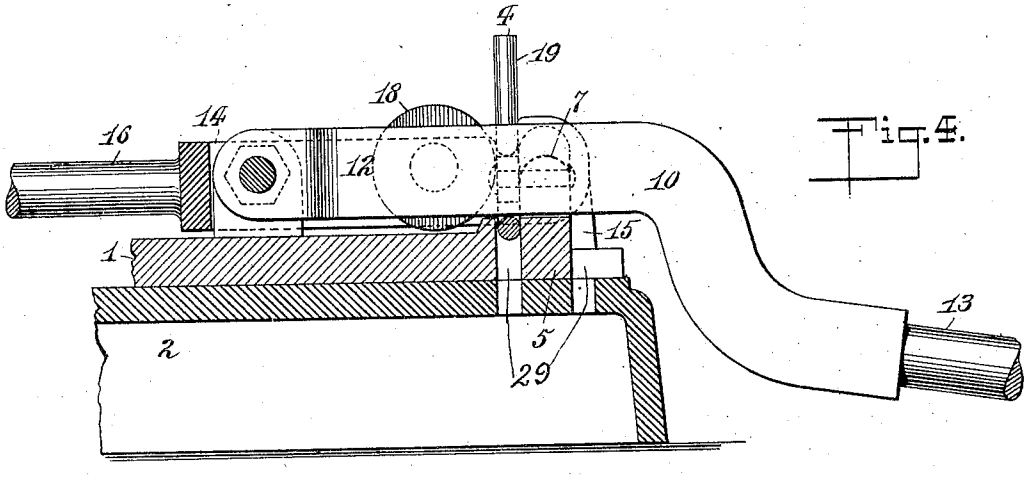
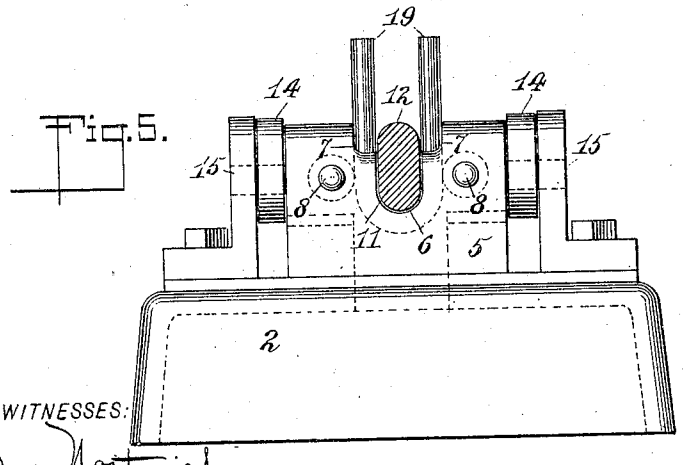


Fig. 5.



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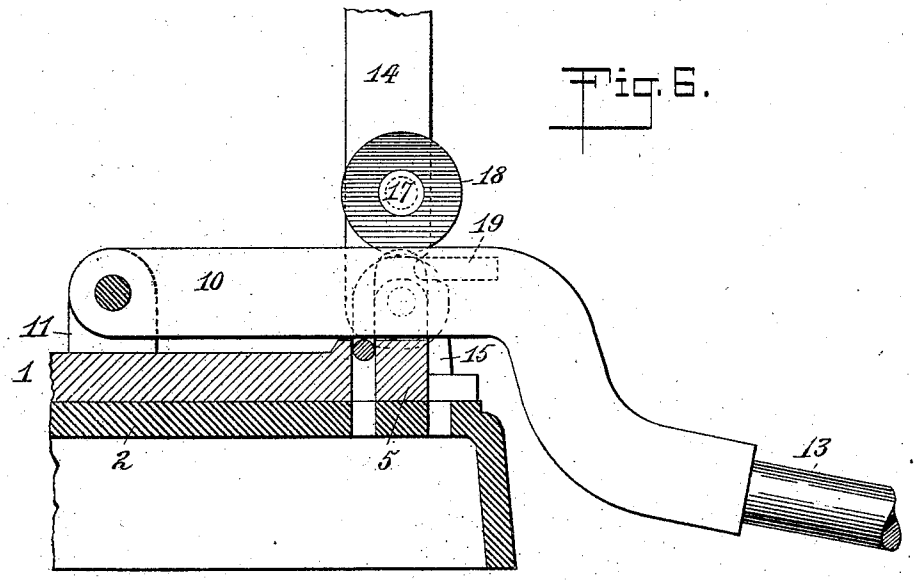


Fig. 6.

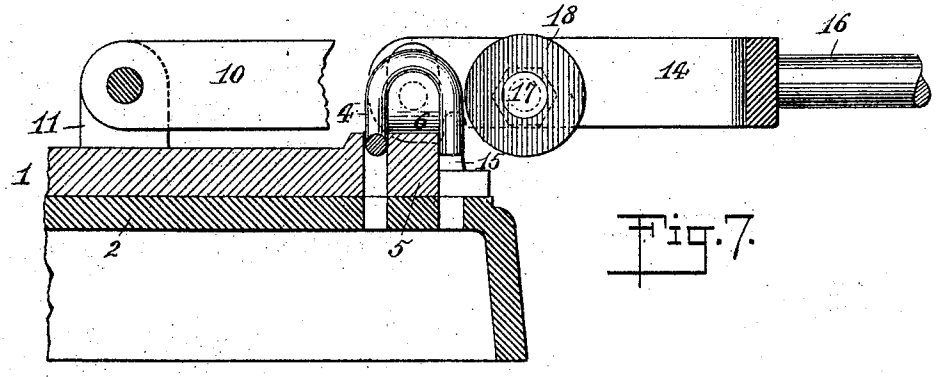


Fig. 7.

Fig. 8.

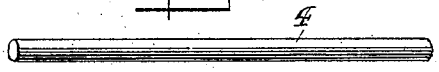


Fig. 9.

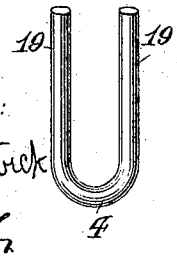


Fig. 10.

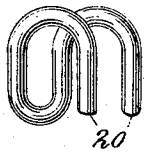
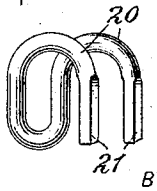


Fig. 11.



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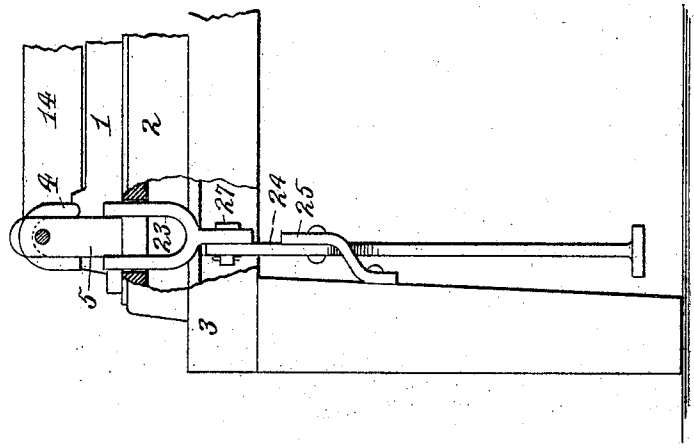


Fig. 13.

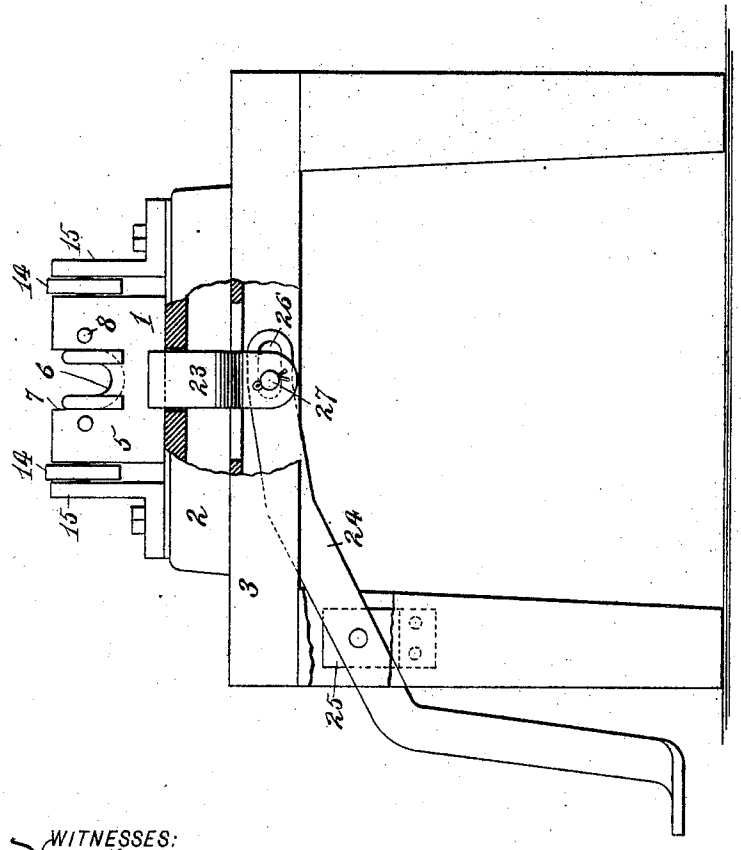


Fig. 12.

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UNITED STATES PATENT OFFICE.

HARRY JONES, OF MAHWAH, NEW JERSEY, ASSIGNOR TO AMERICAN BRAKE SHOE AND FOUNDRY COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

MACHINE FOR BENDING HOOKS.

No. 795,916. Specification of Letters Patent. Patented Aug. 1, 1905.

Application filed April 11, 1903. Serial No. 152,233.

To all whom it may concern:

Be it known that I, HARRY JONES, a citizen of the United States, and a resident of Mahwah, in the county of Bergen and State of New Jersey, have made and invented certain new and useful Improvements in Machines for Bending Hooks, of which the following is a specification.

My invention relates to machines for bending hooks, the object being to devise a machine of this character which shall be simple in construction, easily and readily operated, and by means of which the hooks may be formed with rapidity and precision.

With these and other ends in view, the invention consists in certain novel features of construction and combinations of parts as will be hereinafter fully described and pointed out in the claims.

In the accompanying drawings in which like numerals of reference indicate like parts in all the figures,

Fig. 1 is a plan view of my improved machine for making hooks.

Fig. 2 is a vertical longitudinal sectional view taken on the line 2 2 of Fig. 1.

Fig. 3 is a vertical transverse sectional view taken on the lines 3 3 of Fig. 1, and in the direction of the arrow.

Fig. 4 is a vertical longitudinal sectional view of part of the machine showing the manner of making the first U-shaped bend.

Fig. 5 is a view showing one lever swung to the front, which lever is shown in section, the second lever being in lowered position to the rear.

Fig. 6 is a vertical longitudinal sectional view showing one lever depressed to form the first bend and the other lever in the act of making the second bend.

Fig. 7 is a similar view showing the second lever in the position when completing the second bend.

Fig. 8 is a perspective view of the metal rod from which the hook is formed.

Fig. 9 is a perspective view of the hook after the first bend.

Fig. 10 is a perspective view of the hook after the second bend.

Fig. 11 is a perspective view of the completed hook with the shanks flattened.

Fig. 12 is a front view, and Fig. 13 a side view of the machine showing the means for ejecting the completed hook, several parts being broken away and others shown in section.

The hook consists of a metal rod bent U-shaped at its center and having its two shanks thus formed bent U-shaped, both extending in the same direction from and at right angles to the part having the first U-shaped bend, as exemplified in Fig. 7.

The machine is constructed with a base plate 1, bolted to a hollow base 2, which in turn is secured upon a table 3 or analogous support.

At the front end of the base plate, a die is provided for bending the rod 4 from which the hook is to be formed, and this die consists of a metal block 5 (see Fig. 5) from the top edge of which a U-shaped recess 6 extends downward and at the upper end of each side of this recess 6 a notch 7 is formed, the bottom shoulders formed by said notches being rounded in the direction of the longitudinal plane of the die block to conform to the transverse section of the rod 4 from which the hook is to be made, and the bottom parts of said notches are also curved in the direction from the front to the rear of the block 5 as shown in dotted lines at 7 in Fig. 4, and in full lines in Fig. 2. At each side of the recess 6 a pin 8 extends through the die block from front to rear and is headed or otherwise secured in said block and on the inner projecting end of each pin 8, a roller 9 is mounted in such a manner that the highest point of its circumference will be about on the same level as the lowest points of the notches 7.

A lever 10 is pivoted between ears 11 projecting upward from the base plate some distance beyond the die block 5, the edges of which lever are rounded semi-circularly as shown at 12 in Fig. 5, and this lever is provided with a suitable handle 13.

The rod 4 for making the hook is placed upon the rollers 9 in such a manner that its center will coincide with the center of the recess 6 as shown in Fig. 3, and the lever 10 then forced down as shown in dotted lines in Fig. 2, and in full lines in Fig. 4. The edge of this lever, acting on that part of the rod above the notch 6 forces down the central part of the rod resting on the rollers 9 and thereby the rod is bent into U-shape as shown in Figs. 4 and 5, the two shanks 19 of the U-shaped part thus formed being in a plane

parallel with the front of the die block, and extending upwardly above the same.

The lever 10 is retained in its lowered position for the purpose of holding the bent rod in place during the second operation as hereinafter described.

A U-shaped lever 14, notched as shown at 31 to permit of the rod 4 being placed upon the rollers 9, is pivoted to ears 15 projecting upward from the base plate 1 at the ends of the die block in such a manner that said lever may be swung from the rear of the die block over the top of the latter, to the front, and which lever is provided with a handle 16. From the inner surface of each arm or shank of the lever 14, projects a spindle or stud 17, on the inner end of each of which spindles a roller 18 is mounted in such a manner that when said lever 14 is in the position as illustrated in Figs. 1 and 2, the peripheries of the wheels or rollers 18 will be directly behind the shanks 19 of the U-shaped hook, or in other words the foremost part of the peripheries of said wheels or rollers are in the same vertical plane as the rear faces of the rollers 9. The studs or pins 17 are of such length that the central longitudinal plane of each wheel or roller 18 will be in the same vertical plane, (extending from the front to the rear of the machine,) with its respective shank 19 of the U-shaped hook already formed by means of the lever 10. After the lever 10 has been forced downwardly, as described, the lever 14 is first brought into vertical position, whereby by means of the rollers 18, the upper halves of the shanks 19 are turned or bent over at right angles upon the rounded shoulders formed by the bottoms of the notches 7, as shown in Fig. 6, and by forcing the lever 14 down into position shown in Fig. 6, the free ends of the shanks 19 are bent around in U-shape over the semi-circularly curved bottoms of said notches 7, and then downwardly onto or against the front of the die block, so that the shanks 19 are in a plane at right angles to the plane through the first U-shaped bend, the U-shaped shanks extending in the same direction. The first U-shaped bend is at the bottom of the hook, and the bends in the shanks are at the top of the hook. The lever 14 is then swung back into its original position, the hook thus formed remaining in the machine. One or more blows are now delivered on the extreme ends 20 of the hook, for the purpose of flattening the same as shown at 21 in Fig. 11, the front of the die block acting as an anvil.

The completed hook must now be removed from the die block and this is accomplished by means of a U-shaped ejector 23 embracing the bottom of the die block and mounted to slide vertically through the base-plate 1, the lever 10 being first thrown backwardly to its original position.

A foot lever 24 is pivoted to a bracket 25 of the supporting table 3, and at its upper end is provided with a slot 26 through which a pin 27 in the lower end of the ejector 23, passes. When the pedal end of this foot lever is depressed, the upper end is forced upward and in turn forces upward the U-shaped ejector, the upper ends of which strike against the bottom of the hook on the die block and force the hook off the block. To allow of such movement of the ejector, the base 1 and the support 2 are provided with the coincident apertures 29 at the front and rear of the die plate.

From the foregoing description it will be understood that the machine is exceedingly simple in construction and easily and readily operated by unskilled persons, it being necessary only in forming the hook to properly insert a rod after being cut to the proper length and heated, to swing over the lever 10, then the lever 14, which operations properly bend the hook, and after returning the lever 14 to its original position, to strike the ends of the hook a few blows with a hammer to flatten the same. To eject the hook it is simply necessary to swing back the lever 10 to its original position and operate the foot lever, the entire operation consuming but a few moments of time.

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

1. The combination with a die block, of a pair of supports for the rod on the block, a pivoted bar swinging between the supports for bending the rod in a plane parallel with the front of the block, and a lever pivoted to the block to swing over the supports for bending the ends of the bent rod in planes at right angles to the first bend, substantially as described.

2. The combination with a die block having a rounded top, of supports for a rod beside of said die block, a lever for forcing the rod downwardly between the supports, and a second lever pivoted to swing over the die in the same plane as the first lever, for bending the upwardly extending shanks of said bent rod over the rounded top of the die block, substantially as set forth.

3. The combination with a die block, of supports behind the die block for supporting a rod horizontally and parallel to the die block, a lever mounted to swing in a plane transversely to that of the die block, and to force down between the supports the rod resting thereon, a second lever mounted to swing in a plane at right angles to that of the die block and over the top of the same, and means on said second lever for bending over the shanks of said bent rod, substantially as set forth.

4. The combination with a die block having a recess in its upper edge and a notch in each side of the recess at the top of the die block, which notches form concave shoulders at their lower ends and are curved convexly from front to rear of the die block, of supports for a rod

on the die block, a lever mounted to move down into the recess of the die block, and a second lever pivoted to swing over the top of the die block from rear to front, substantially as set forth.

5. The combination with a die block having a recess in its top edge and notches formed in the side edges of said recess at the top of the die block, supports for a rod on the back of the die-block, a lever adapted to be forced down into the recess in the die block, a second lever pivoted to swing over the top of the die block, and rollers on said second lever, which rollers are directly behind the notches in the die block, and in line therewith from front to rear of the die block, substantially as set forth.

6. The combination with a die block, of supports on the same, a lever mounted to swing down between said supports, a second lever mounted to swing over the top of the die block, and formed to bend upwardly projecting shanks over the top edge of the die block, an ejector mounted to slide upward on the die block from the bottom, and means for operating said ejector, substantially as set forth.

7. The combination with a die block, of supports on the same, a lever mounted to swing down between said supports, a second lever mounted to swing over the top of the die block, a U-shaped ejector mounted in openings in said die block, and a foot lever for operating said ejector, substantiallyas set forth.

8. The combination with a suitably formed die block for holding a rod, of a lever co-acting with the block to make a central bend in the rod and another lever engaging the upturned ends of the rod after such bend, and adapted to bend the ends in a plane perpendicular to that of the first bend, the block being provided with anti-friction supports for the rod and the second bending lever having rollers thereon to engage the rod ends in bending.

Signed at Mahwah, in the county of Bergen and State of New Jersey, this 21st day of March, A. D. 1903.

HARRY JONES.

Witnesses:
C. D. JOHNSON,
FRED J. SEYMOUR.