

No. 618,285.

Patented Jan. 24, 1899.

P. D. O'BRIEN.

ROLLING MILL SHEARS.

(Application filed Feb. 20, 1895. Renewed Oct. 1, 1898.)

(No Model.)

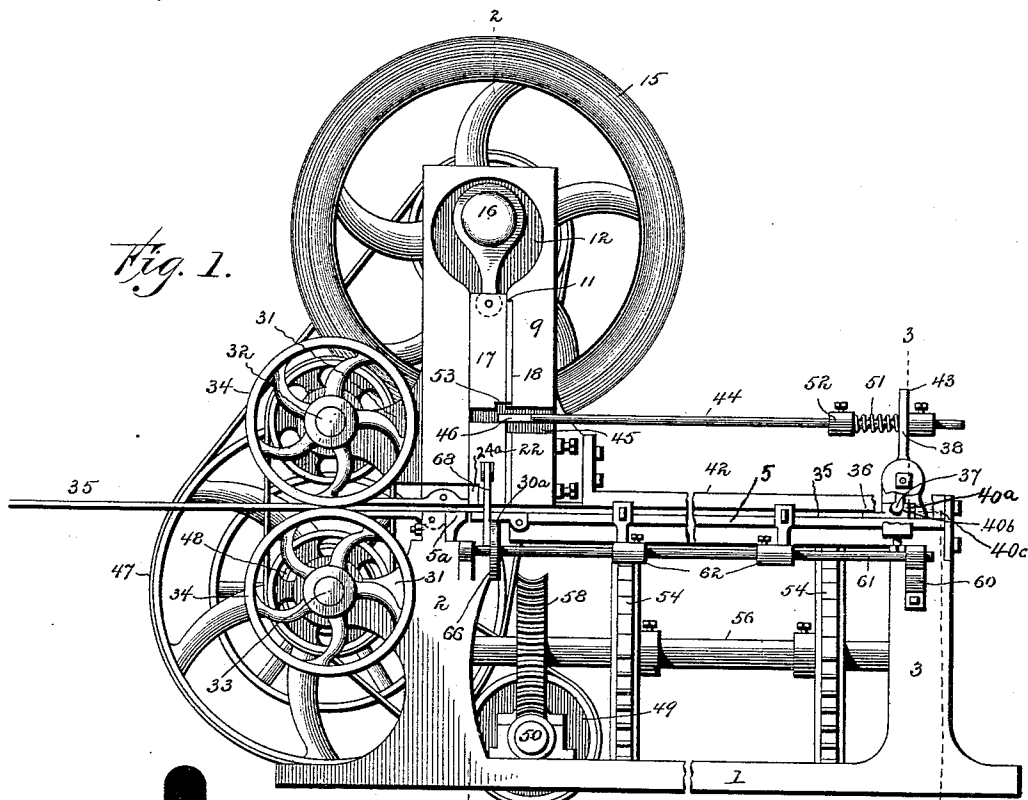


Fig. 2.

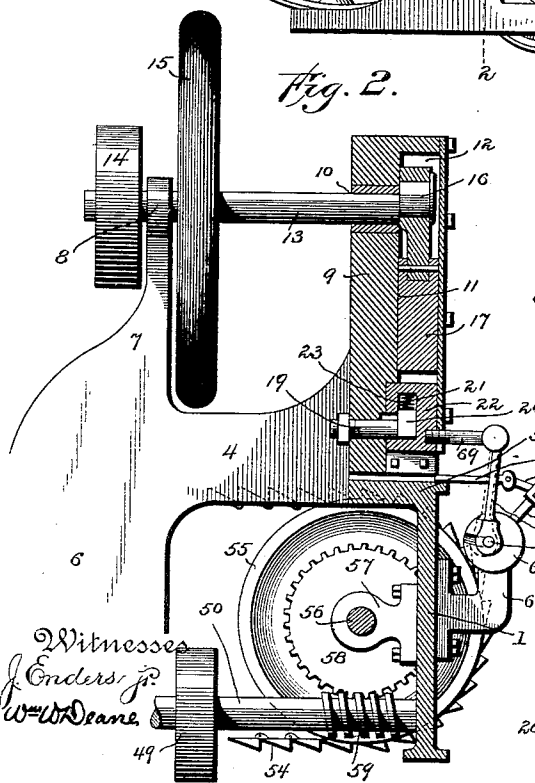
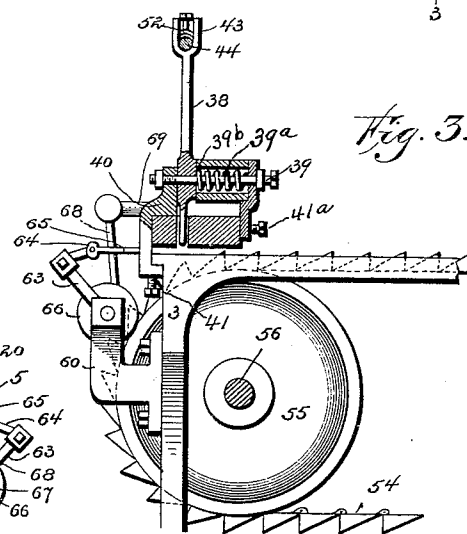
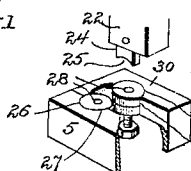


Fig. 3.



Patrick D. O'Brien, Inventor

Fig. 4.



Edward M. Weaver, Attorney

Witnesses
J. Enders, Jr.
W. W. Deane

UNITED STATES PATENT OFFICE.

PATRICK D. O'BRIEN, OF YOUNGSTOWN, OHIO, ASSIGNOR OF ONE-HALF TO
MICHAEL LOGUE, OF SAME PLACE.

ROLLING-MILL SHEARS.

SPECIFICATION forming part of Letters Patent No. 618,285, dated January 24, 1899.

Application filed February 20, 1895. Renewed October 1, 1898. Serial No. 692,443. (No model.)

To all whom it may concern:

Be it known that I, PATRICK D. O'BRIEN, a citizen of the United States, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Rolling-Mill Shears; and I do hereby declare the following to be a full, clear, and exact description of my invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

In the drawings, Figure 1 represents an elevation of my machine. Fig. 2 is a sectional view on the line 2 2 of Fig. 1. Fig. 3 is a partial section on the line 3 3 of Fig. 1, and Fig. 4 is a detail view of the punch and dies.

In all of the figures the same numeral indicates the same part.

1 represents the supporting-plate of the machine, integral to which are the upright portions 2 and 3 and the lateral yoke 4, the use of which will hereinafter be fully explained. Secured at the top of the portions 2 and 3 is a horizontal elongated table 5. The yoke 4, projecting laterally from the plate 1, comprises a supporting-foot 6, a vertical arm 7, with the bearing 8 therein, and a vertical plate 9, parallel to the said arm 7 and having a bearing 10. In the face of the vertical plate 9 is an open slot 11, the upper portion 12 of which presents an enlarged circular form concentric with the bearing-opening 10. Journalled in the bearings 8 and 10 is a shaft 13, with a belt-pulley 14 and a fly-wheel 15, and having at its extremity eccentric wrist-pin 16, moving within the circular portion 12 of the slot 11 and pivotally secured to the reciprocating bar 17, slidably secured in the slot 11 by means of the key 18.

Passing through the plate 9 is a bolt 19, having a rectangular head 20, entering the slot 21 of the striker 22, reciprocating in the slot 11, and maintained in a normally-raised position by means of the coil-spring 23. The lower end of the striker 22 is armed with the blade 24^a, adapted to shear with the blade 5^a, the pivoted shelf 30^a falling a sufficient distance to permit the cut and being returned

by a spring or other means not deemed necessary to show.

For the purpose of saving material and cutting the rounding ends desirable for certain purposes, say for the manufacture of hooping-irons, I have devised another construction of shears, (shown in Fig. 4,) wherein the blade 24 is provided with curved or concave cutting-edges 25, reciprocating between the dies 26 and 26^a, seated, respectively, in the shouldered seats 27 and 29 and secured in place by the bolts 28. The said shouldered seats are formed in a box 30, adapted to be secured in and to form a continuous portion of the table 5.

Journalled in the brackets 31, integral to the upright 2 and to the plate 9, are the shafts 32 and 33, mounted upon which are the smooth-faced pulleys 34, adapted to engage between them the hoop-iron band 35 and to feed the same upon the table 5 until its end 36 impinges the slidable block 40^a, resting upon the bed 5, and in the upper surface of which is a socket 40^b, in which projects and engages the finger 37 of the lever 38, pivoted on the bolt 39 of the clamp 40, secured by the bolts 41 and 41^a to the plate 5 and the guide-plate 42, respectively. The block 40^a is limited in its movement by the stop 40^c, which, if desired, may be adjustable. Secured to the bolt 39 is a spiral spring 39^a, the other end 39^c of which is secured to the lever 38, the said spring being adapted to return the said lever 38 to its initial position after the cut has been made. At the extremity of the lever 38 is a fork 43, embracing the rod 44, projecting through the slot 45 of the plate 9 and resting its rectangular extremity 46 on the striker 22. The plate 17, as will be readily understood, is adapted to rise and fall with the movement of its eccentric coupling with the shaft 13, power being transmitted thereto by the belting of the pulley 14 to the pulley 47 of the shaft 33, a pulley 48 of which is belted to the pulley 49 of the main shaft 50. In the lowest position of this plate 17 it hardly touches the striker 22; but the moment the band 35 is fed in and trips the finger 37 the lever 38 is made to throw the rod 44 till its end 46 intervenes be-

tween the said plate 17 and the striker 22, causing the former to actuate the latter and the blade 24 to cut the hoop-band 35 in such a manner as to leave a rounded end upon both its sides. When the rod 44 is retracted by the coil-spring 51, held against the fork 43 by a keeper 52, the end thereof rests under the rabbet 53 of the plate 17 and is not impinged thereby in its reciprocation. The strip now being cut in the length predetermined by the adjustment of the clamp 40 is pushed from the table 5 to the endless chains 54, mounted upon the pulleys 55, secured to the shaft 56, journaled in brackets 57 and actuated by means of the worm gear-wheel 58, engaged by the worm 59 of the line-shaft 50. I will now describe the mechanism by which this is accomplished.

In the brackets 60 of the uprights 2 and 3 is journaled the rocking shaft 61, adjustably secured to which are the sleeves 62, having projecting arms 63, pivoted to links 64, also pivoted to the fingers 65, adapted to lie transversely upon the table 5 and to fit between the said table and the guide-plate 42. Mounted upon the rocking shaft 61 is a solid wheel 66, in one face of which is a radial slot, adjustably secured in which is the wrist-pin 67, journaled to which is the crank 68, the other end of which is pivoted to the arm 69, secured to the striker 22 and moving therewith. It will be readily understood that when the striker 22 has been forced down the shaft 61 is rocked and the fingers 65 sweep across the plate 5 and cast the cut band 35 upon the carriers already described.

Having fully described my invention, what I desire to claim is—

1. In a metal-shearing machine, the combination with the table, the vertical plate, the vertically-reciprocating bar, the vertically-movable spring-actuated striker located below said bar with a space therebetween, and means for reciprocating said bar, of the finger 37 at the outer end of said table, the lever

with which said finger is connected, the clamp to which said lever is pivoted, the fork at the upper end of said lever, the laterally-movable rod provided with keepers actuated by said lever to be projected through a slot in said vertical plate whereby its inner end will be interposed between the vertically-reciprocating bar and the striker, substantially as described.

2. In a metal-shearing machine, the combination with the vertically-movable bar, the vertically-movable striker and means for reciprocating the same, of the crank-arm secured to said striker, the horizontal rock-shaft, the wheel provided with a wrist-pin with which the other end of said crank-arm is connected, the sleeves on said rock-shaft, the links, the projecting arms and the endless-chain carriers and means for operating the same, substantially as described.

3. In a metal-shearing machine, the combination with the table, the vertical plate, the vertically-reciprocating bar, the vertically-reciprocating striker located below said bar with a space therebetween, the finger 37 at the outer end of the table, the lever with which said finger is connected, the clamp to which said lever is pivoted, the fork at the other end of said lever, and the laterally-movable spring-actuated rod adapted to be projected through a slot in said plate, of the crank-arm secured to said striker, the horizontal rock-shaft having a wheel and wrist-pin with which said crank-arm is connected, the sleeves on said shaft, the links and projecting fingers and the endless-chain carriers and means for operating the same, substantially as described.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

PATRICK D. O'BRIEN.

Witnesses:

M. V. CUNNINGHAM,
S. B. MCDOUGALL.