No. 813,141. PATENTED FEB. 20, 1906.

B. S. COWLES.

MACHINE FOR BENDING CAST IRON.

APPLICATION FILED AUG. 17, 1904.

Fig. 2.

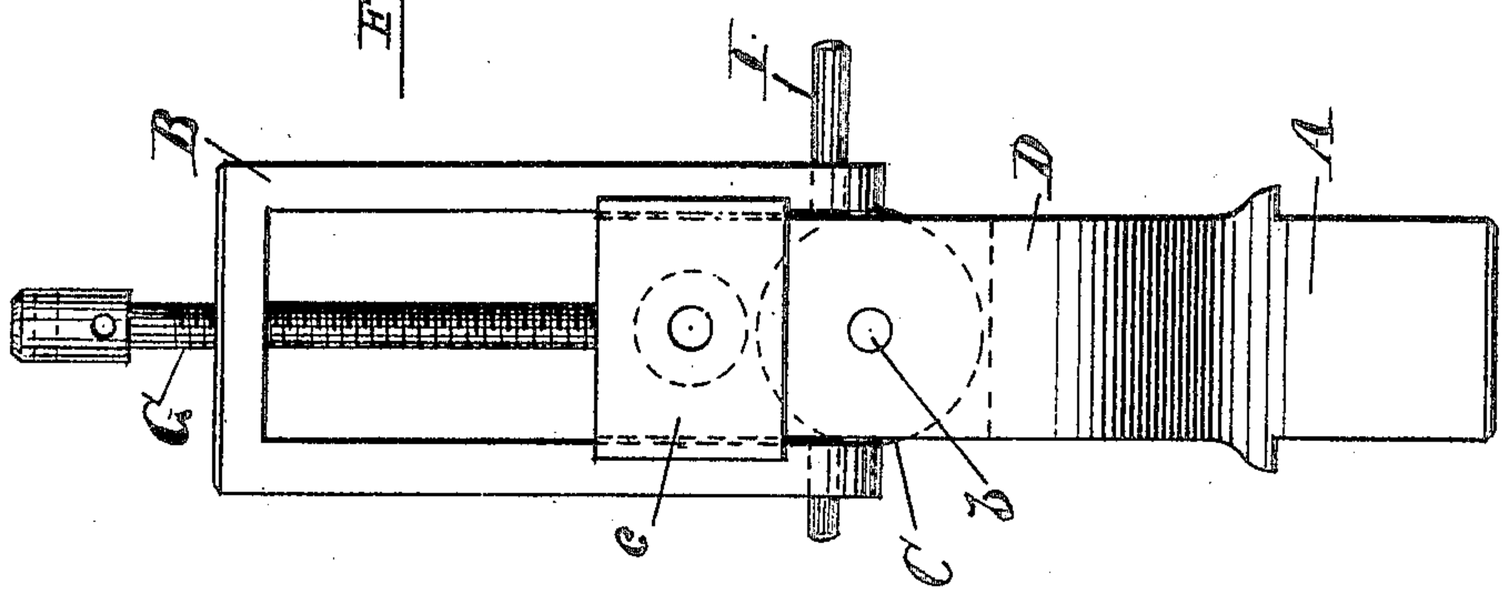
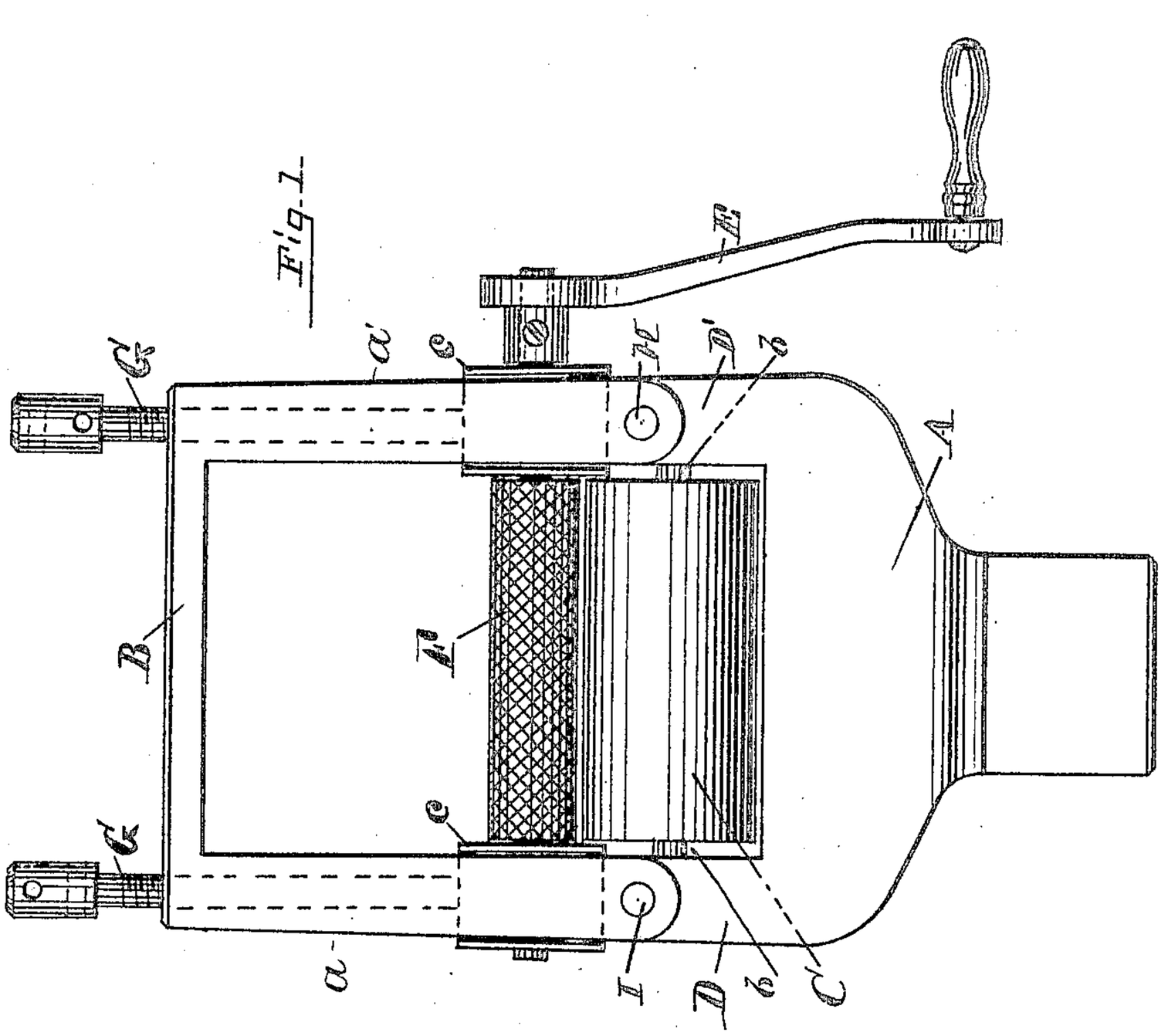


Fig. 1.



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BURTON S. COWLES, OF PLAINVILLE, CONNECTICUT, ASSIGNOR TO THE COWLES ENGINEERING CORPORATION, OF NEW HAVEN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

MACHINE FOR BENDING CAST-IRON.

No. 813,141. Specification of Letters Patent. Patented Feb. 20, 1906.

Application filed August 17, 1904. Serial No. 221,087.

To all whom it may concern:

Be it known that I, BURTON S. COWLES, a citizen of the United States, residing in Plainville, in the county of Hartford and State of Connecticut, have invented a new and useful Improvement in Machines for Bending Cast-Iron, of which the following is a specification.

My invention relates to a machine for bending cast-iron—that is, for giving to a rod (for example) of cast-iron a permanent bend.

My invention will be set forth in the claims.

As is well known, ordinary cast-iron—such, for example, as gray cast-iron—is quite fragile, and it has been considered to be impossible to give to it a permanent bend without substantial fracture unless it is first converted into some other form of iron—such, for example, as malleable iron; but I have discovered that, for example, gray cast-iron may even when cold be given a permanent bend by suitably manipulating it, and in the drawings I have shown one embodiment of a machine for doing so and which I have found successful in actual practice in bending cold piston-rings made of gray cast-iron.

The drawings show the preferred form of my invention in front elevation in Figure 1 and side elevation in Fig. 2.

A B represent a frame formed of two parts pivoted together at H and fastened in place by a pin I.

C is a supporting-anvil in the form of a roll, having its face preferably entirely smooth and journaled in the lower part of the frame.

F is a bending member and is a roll, as shown, of one-half of the diameter of the anvil C and which may, if desired, be mounted in sliding journal-blocks *c c*, which may be adjusted by the screws G G, so that the pressure desired may be given to a rod of iron passed through between the rolls.

E is a crank for driving the roll F.

The bending-roll F has its face knurled to form projections close together around its circumference. With my machine shown in the drawings having a bending-roll of less diameter than the supporting-roll the rod takes a bend downward—that is, toward roll or anvil C. By rotating roll F a continuous succession of pressures is given to the rod between the rolls. Obviously as the roll F rotates the successive projections on its face come into successive contact with and embed themselves into the rod while it is still held firmly between the two rolls at a point farther on—that is, at the point where the rolls are closest together. The smooth face of the lower roll gives a smooth surface of one face of the iron, which is usually desirable. By regulating the pressure of the screws G G the iron may be expanded slightly, if desired, or particular portions of the iron expanded to any desired extent.

What I claim is—

1. In a machine for bending cast-iron in combination, a single supporting-roll and a bending-roll directly above the supporting-roll between which a rod of iron may be passed, the face of said bending-roll knurled, substantially as described.

2. In a machine for bending cast-iron in combination, a supporting-roll and a bending-roll of one-half the diameter of the supporting-roll, said bending-roll having its face knurled, substantially as described.

3. In a machine for bending cast-iron in combination, a supporting-roll, a bending-roll adjacent to the same whereby a bar of iron may be passed through and compressed between said rolls, said bending-roll of smaller diameter than the diameter of the supporting-roll and having its face knurled, substantially as described.

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Witnesses:
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