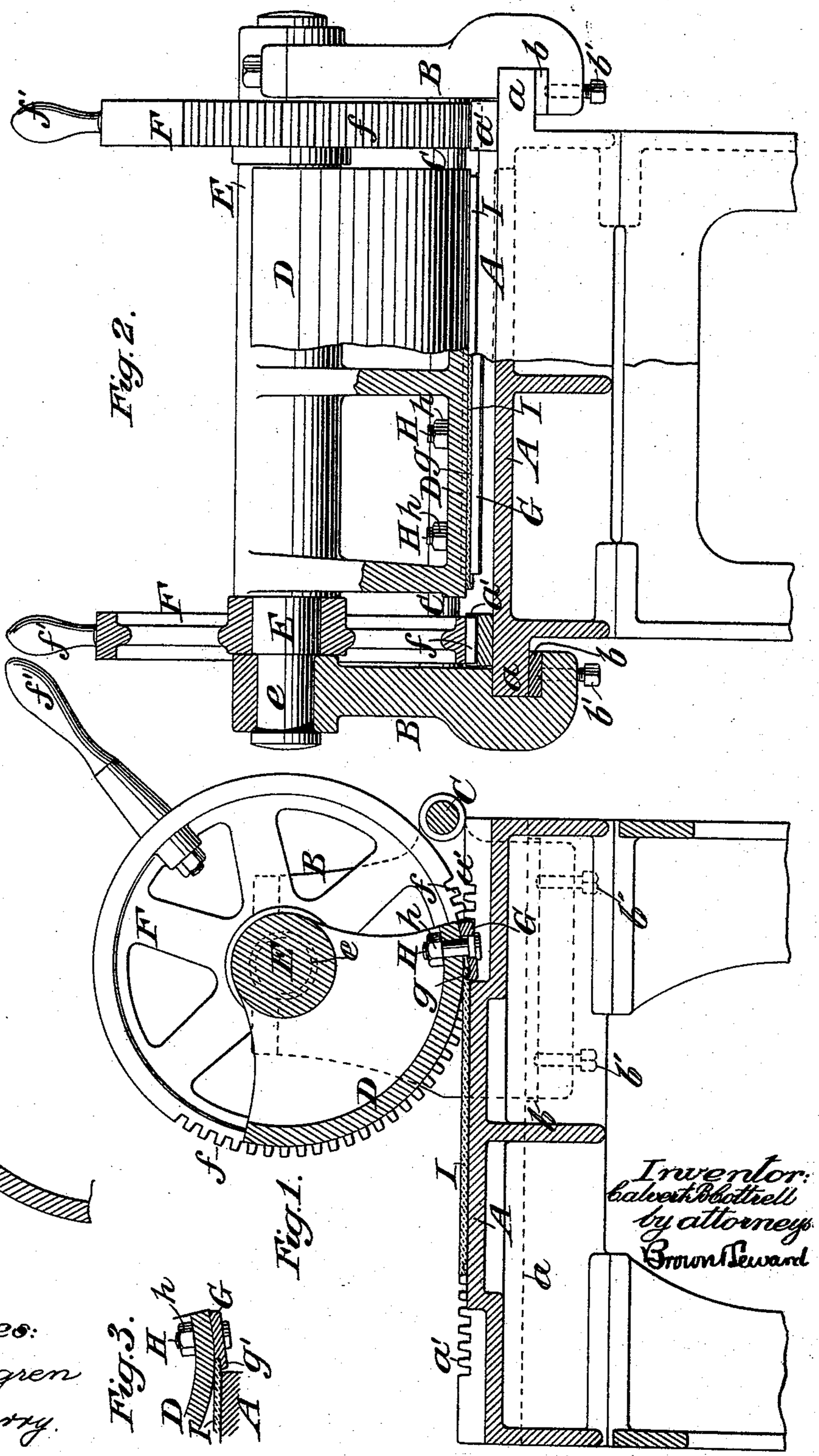
(No Model.)

C. B. COTTRELL.

MEANS FOR BENDING ELECTROTYPE PLATES.

No. 487,915. Patented Dec. 13, 1892.



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CALVERT B. COTTRELL, OF WESTERLY, RHODE ISLAND.

MEANS FOR BENDING ELECTROTYPE-PLATES.

SPECIFICATION forming part of Letters Patent No. 487,915, dated December 13, 1892.

Application filed September 22, 1892. Serial No. 446,548. (No model.)

To all whom it may concern:

Be it known that I, CALVERT B. COTTRELL, of Westerly, in the county of Washington and State of Rhode Island, have invented a new and useful Improvement in Means for Bending Electrotype-Plates, of which the following is a specification.

My invention relates to an improvement in the means for bending electrotype-plates for the purpose of making them conform to the curved face of a printing-cylinder for printing purposes.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a view of a bending device in longitudinal vertical section, the operating-wheel being shown in elevation. Fig. 2 is a view in transverse vertical section, partly in end elevation. Fig. 3 is a partial sectional view in detail, showing a modified form of clamp; and Fig. 4 is a partial view in detail of a portion of a printing-cylinder to which the curved electrotype-plate is to be applied.

A represents a bed-plate on which the plate to be bent is to be laid. The plate A is provided with laterally-projecting flanges *a*, along which the supporting-standards B are adapted to slide. The standards B form a support for the bending-tool, and they are connected together to move as one rigid whole by means of a cross bar or rod C. The supporting-standards B are fitted to embrace the flanges *a* with a sliding fit by means of shoes *b*, inserted between their lower ends, and the under sides of the flanges *a* constructed to be set toward and away from the flanges by means of set-screws *b'*.

The bending-tool consists in the present instance of a segment D of a cylinder, fixed to or formed integral with a shaft E, which terminates at its opposite ends in journals *e*, which are received in suitable bearings in the upper portions of the standards B, so as to permit the shaft to rock freely in the bearings. Operating-wheels F are fixed to rotate with the shaft E and segment D and are provided throughout a portion of their peripheries with teeth *f*, arranged to intermesh with stationary rack-bars *a'*, located along the opposite sides of the bed-plate A. The wheels F are provided with operating-handles *f'*. As the wheels F are rocked their engagement with the rack-bars *a'* will cause them to travel along the bed-plate A, their supporting standards or carriage B sliding at the same time along the ways or flanges *a*. The segment of the cylinder D is supported with its face at such a distance from the top of the bed-plate A as corresponds to the thickness of an electrotype-plate which is to be bent plus the thickness of a sheet of hard facing—paper-board, for example—which I find it desirable to spread on the top of the bed-plate A to receive the type-face of the electrotype-plate.

The bending-segment D is provided near one of its edges with a clamp consisting of a jaw G, provided with a hooked end *g*, as shown in Fig. 1, or its end might be simply arranged to lip over the edge of the electrotype-plate, as shown at *g'*, Fig. 3. When it is arranged with the hook, as shown in Fig. 1, I provide the edge of the electrotype-plate with a corresponding groove along its edge for the point of the hook to grasp. The jaw G is locked to the bending-segment D by means of draw-bolts H, which extend through the jaw and through the shell of the segment and are conveniently provided on their inner ends with nuts *h*.

In operation the plate to be bent is laid upon the hard packing of the bed-plate A and its edge clamped to the face of the bending-segment near one of its edges—in the present instance at the right-hand edge. The handles *f'* are then grasped and the wheels F rotate along the plate A, thereby causing the electrotype-plate I to conform to the curved exterior surface of the segment D. The wheels F are then rotated back to their former position and the plate I removed. When the plate is removed, it will have a tendency to straighten and will spring slowly open and form a curve of somewhat-greater radius than the radius of the segment on which it was bent. When a given quality of metal of a certain thickness is employed, the amount which the plate will tend to straighten may be very perfectly determined, and I form the curve of the bending-segment sharper than the curve of the cylinder to which the plate is to be applied,

so that when it has sprung open after being bent it will then correspond to the curve of the printing-cylinder. For purposes of illustration I have shown a small portion of the surface of the printing-cylinder in Fig. 4 having a somewhat-greater radius, and hence a more open curve, than the bending-segment D has, the curve of the cylinder in Fig. 4 corresponding to that which the plate I is supposed to assume after it is released from the face of the segment D.

What I claim is—

The bending device comprising the bed-plate on which the plate to be bent is to rest, a supporting-carriage adapted to move along the bed-plate, a rocking curved-faced bending-tool supported in the carriage, a clamp for securing the edge of the plate to the curved face of the bending-tool, and wheels geared with the table to rock the tool and drive the carriage along the table, substantially as set forth.

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