

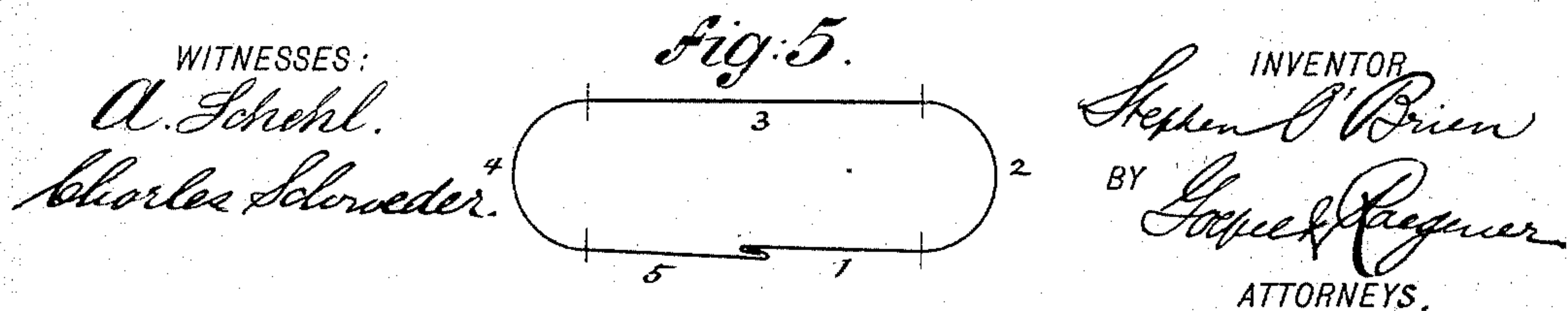
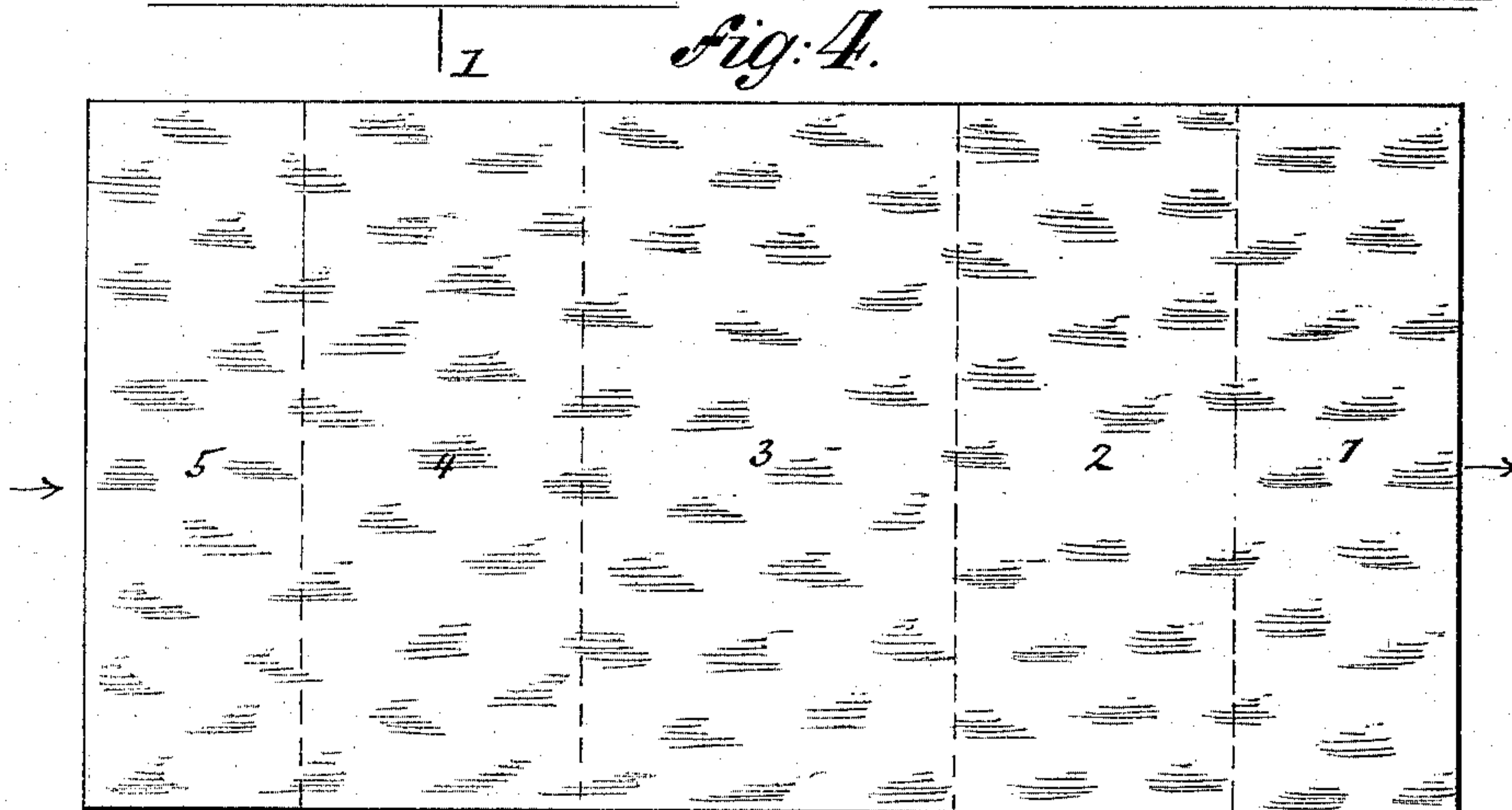
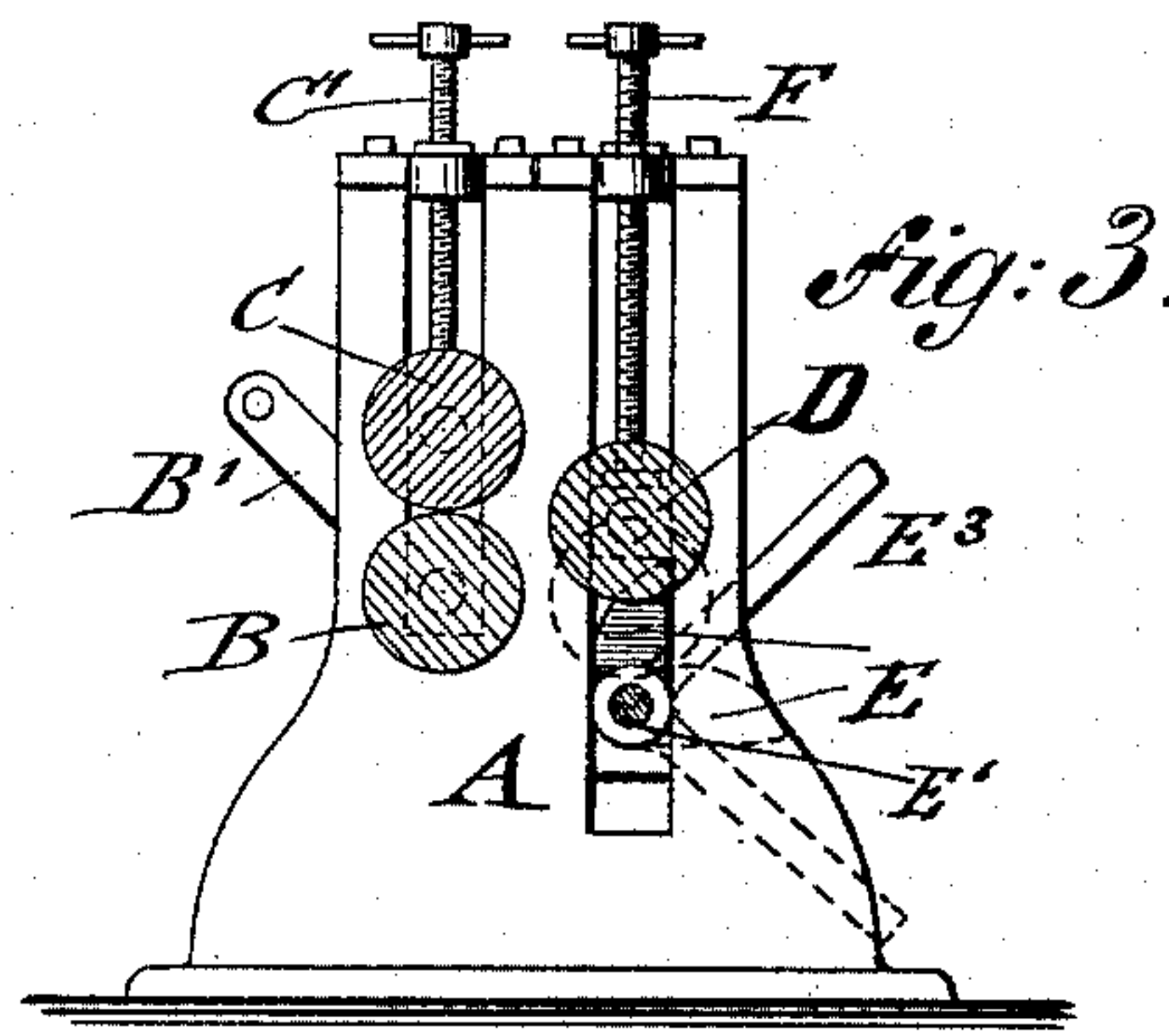
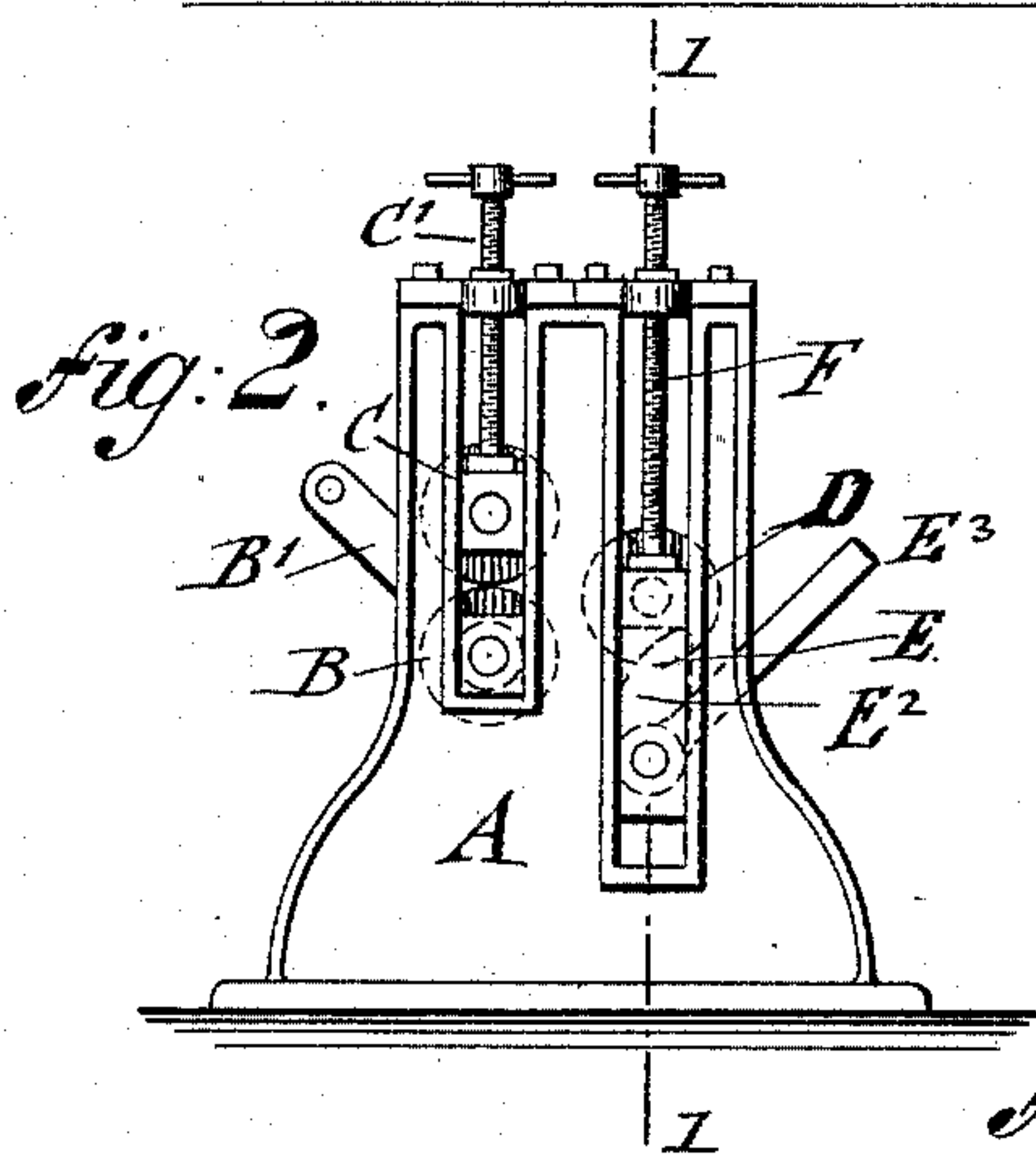
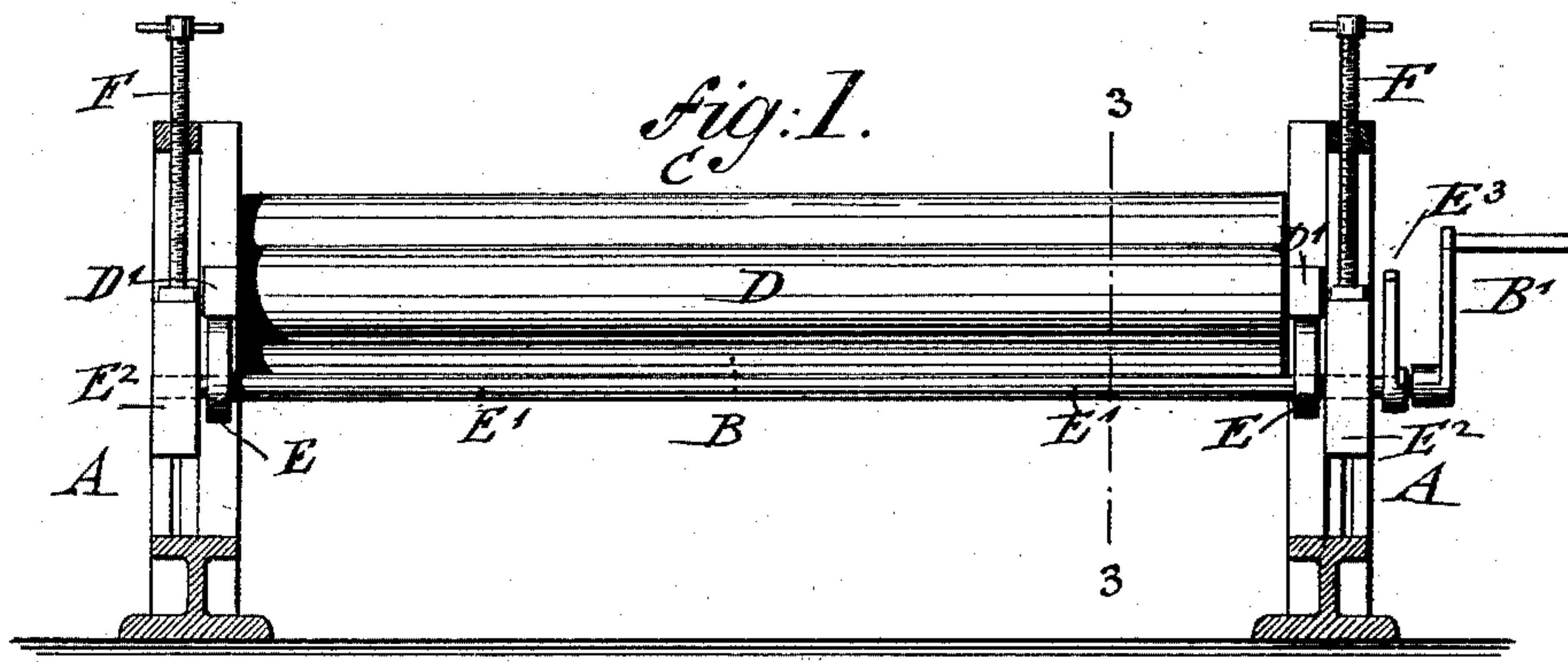
(No Model.)

S. O'BRIEN.

FORMING MACHINE FOR SHEET METAL ARTICLES.

No. 483,362.

Patented Sept. 27, 1892.



UNITED STATES PATENT OFFICE.

STEPHEN O'BRIEN, OF NEW YORK, N. Y.

FORMING-MACHINE FOR SHEET-METAL ARTICLES.

SPECIFICATION forming part of Letters Patent No. 483,362, dated September 27, 1892.

Application filed November 6, 1891. Serial No. 411,083. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN O'BRIEN, a citizen of the United States, and a resident of New York city, in the county and State of New York, have invented certain new and useful Improvements in Forming-Machines for Sheet-Metal Articles, of which the following is a specification.

This invention relates to an improved machine for forming stovepipes, flues, and other sheet-metal bodies of elongated cross-section and rounded-off ends, so as to facilitate the quick and reliable manufacture of these bodies; and the invention consists of a forming-machine for sheet-metal bodies which comprises two feed-rollers, a lower stationary roller and an upper adjustable roller, and a forming-roller, the bearings of which are supported in suitable ways and acted upon by cams that are applied to a cross-shaft, the bearings of which are also supported in ways of the supporting-standards, said cross-shaft being turned by a lever, so as to raise or lower the forming-roller by the cams at the proper time, so as to produce thereby sheet-metal bodies with flat sides and rounded-off ends.

In the accompanying drawings, Figure 1 represents a rear elevation, partly in vertical longitudinal section on line 1 1, Fig. 2, of my improved forming-machine for sheet-metal bodies. Fig. 2 is a side elevation. Fig. 3 is a vertical transverse section on line 3 3, Fig. 1, of the same. Fig. 4 is a sheet-metal blank marked on its surface, so as to bend it at the proper time and form a body of the proper shape. Fig. 5 is a vertical transverse section of the sheet-metal stovepipe or pipe bent into the shape by my improved forming-machine.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the supporting-standards of my improved machine for forming sheet-metal bodies of elongated shape. In vertical slots of the standards A A are supported the journal-bearings of two feed-rollers B and C, of which the lower feed-roller B is made stationary, while the bearings of the upper feed-roller C are engaged by screws C', which pass through screw-nuts at the upper ends of the standards A, so that the upper feed-roller C may be readily adjusted higher or lower, accord-

ing to the thickness of the sheet metal which is to be bent. To the axle of the lower feed-roller B is applied a crank-handle B', by which rotary motion is imparted to the feed-rollers, and thereby the sheet-metal blank fed forward between the rollers B and C. At the rear of the feed-rollers B and C is arranged the forming-roller D, the journal-bearings D' of which are also guided in vertical ways of the standards A and acted upon by eccentric cams E, which are firmly attached to a shaft E', that turns in suitable bearings E², which are also guided in vertical slots of the standards A, but at one side of the journal-bearings D' of the forming-roller D, as shown clearly in Fig. 1. The bearings E² of the cam-shaft E' are suspended from screws F, which pass through screw-nuts at the upper ends of the standards A in the same manner as the screws C' of the upper feed-roller C, so that the bearings E² can be adjusted higher or lower, and thereby the forming-roller moved into a position that is more or less above the contact-point of the feed-rollers B and C, so as to produce the bending of the sheet-metal blank at different radii on the principle well known in forming-machines of this class. One end of the cam-shaft E' is provided with a lever E³, which when placed into lowered position produces the motion of the cams E in downward direction, as shown in dotted lines in Fig. 3, so as to lower thereby the forming-roller D into a position below the contact-point of the feed-rollers B and C, so that when the sheet-metal blank is fed forward by the same no bending action is exerted thereon by the forming-roller D. When, however, the lever E³, and thereby the cams E are raised, the forming-roller is also raised, so that the sheet-metal blank fed by the feed-rollers is compelled to move along. The forming-roller is thereby bent to a degree corresponding to the relative position of the forming-roller toward the contact-point of the feed-rollers. When the forming-roller is permanently held in position by holding the cams in raised position, stovepipes or other sheet-metal bodies of round shape can be formed on the machine; but when it is desired to produce elongated stovepipes, flues, or other bodies with flat sides and round ends the forming-roller is alternately raised and lowered, the same pro-

ducing no bending action on the blank when in lowered position, while it produces a bending action when it is in raised position.

For conveniently operating on the blanks 5 by the machine the blanks are marked on their surfaces by means of a suitable marking-machine, as indicated in dotted lines in Fig. 4, so that as the blank passes through the feed-rollers the forming-roller can readily act 10 on the same by raising it, whereby the bent portions are produced, or lowering it so that the blank is not acted upon, and consequently flat portions are produced. If a stovepipe or flue of the shape shown in Fig. 5 is to be 15 made, a blank marked as shown in Fig. 4 is used. The end of the blank is introduced between the feed-rollers without being acted upon by the forming-roller. As soon as the second section of the blank arrives at the 20 feed-rollers the forming-roller is raised, so that a bending action on the second section of the blank is produced. When the next section passes through the feed-rollers, the forming-roller is lowered, whereby this por- 25 tion of the blank is not acted upon and retained in flat condition. When the fourth section arrives at the feed-rollers, the forming-roller is raised again, so that the opposite rounded-off end of the stovepipe is made, 30 while when the last section passes through the feed-rollers the forming-roller is lowered, so that this end portion is not affected and remains straight. The ends of the blanks are

folded over in opposite direction, so as to be interlocked and closed by a suitable closing- 35 machine, after which the elongated stovepipe with rounded ends is ready for use.

I am aware that forming-machines with forming-rollers the bearings of which are adjustable, so as to change the relative radius 40 at which the sheet-metal bodies are bent, are well known, and I do not lay any claim to forming-machines of this class.

Having thus described my invention, I claim as new and desire to secure by Letters 45 Patent—

The combination of upright supporting-standards, feed-rollers supported by said standards, a forming-roller supported in bear- 50 ings guided in ways of said standards at the rear of the feed-rollers, a cam-shaft also supported in bearings of the standards, cams on said cam-shaft for raising or lowering the forming-roller, screw-rods from which the bearings 55 of the cam-shaft are suspended, so as to adjust the same higher or lower, and a lever attached to the cam-shaft and adapted to turn the cam-shaft, so as to raise or lower the forming-roller, substantially as set forth.

In testimony that I claim the foregoing as 60 my invention I have signed my name in presence of two subscribing witnesses.

STEPHEN O'BRIEN.

Witnesses:

PAUL GOEPEL,

CHARLES SCHROEDER.