No. 751,636. PATENTED FEB. 9, 1904.

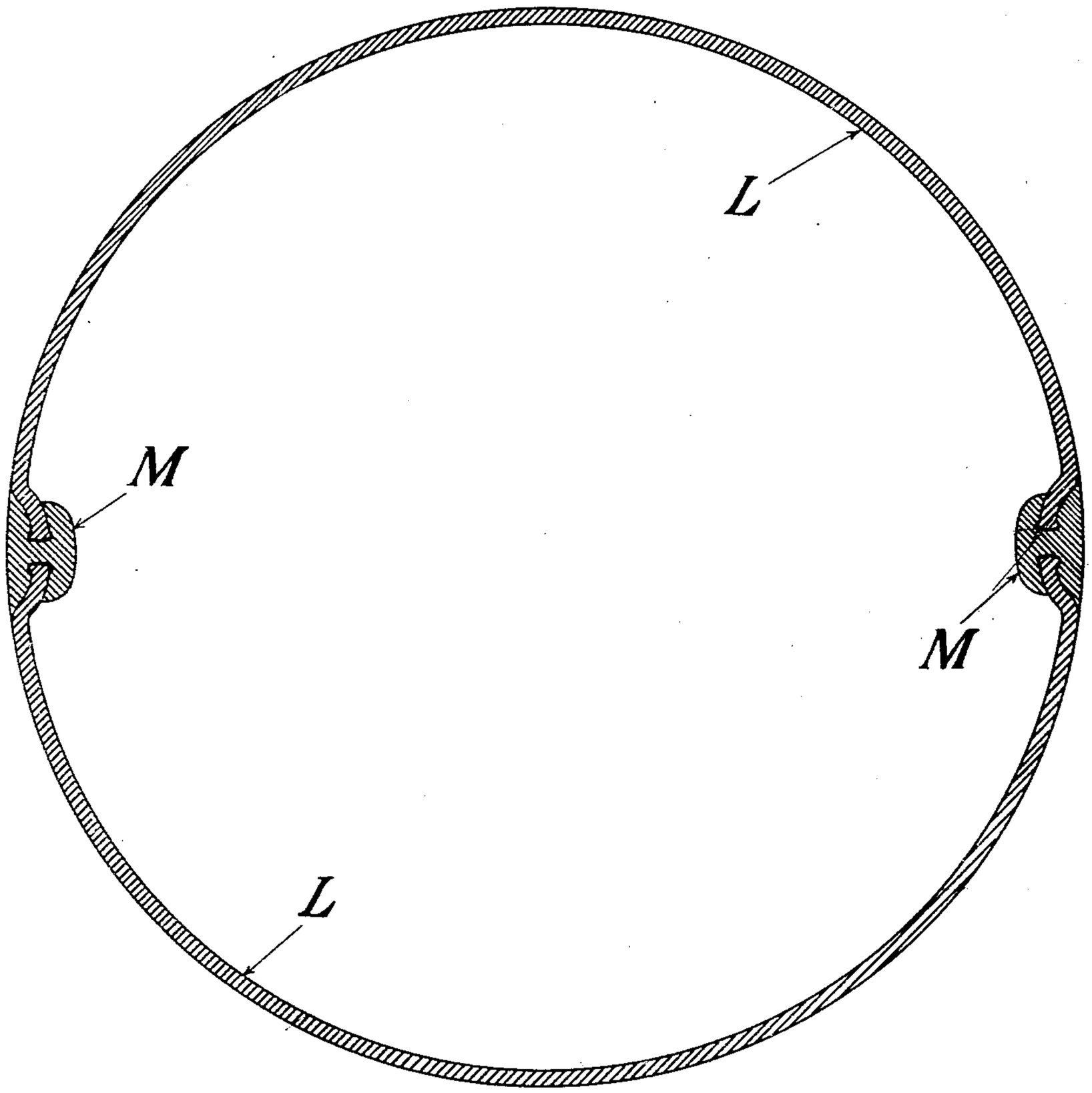
E. HANCOX.

MACHINE FOR WORKING PIPE PLATES.

APPLICATION FILED DEC. 2, 1901.

NO MODEL. 3 SHEETS—SHEET 1.

Fig. 1



Witnesses.
William Hadlet.
Jonathan Lee

Inventor.
Edwin Hancox.

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NO MODEL. 3 SHEETS—SHEET 2.

Fig. 2

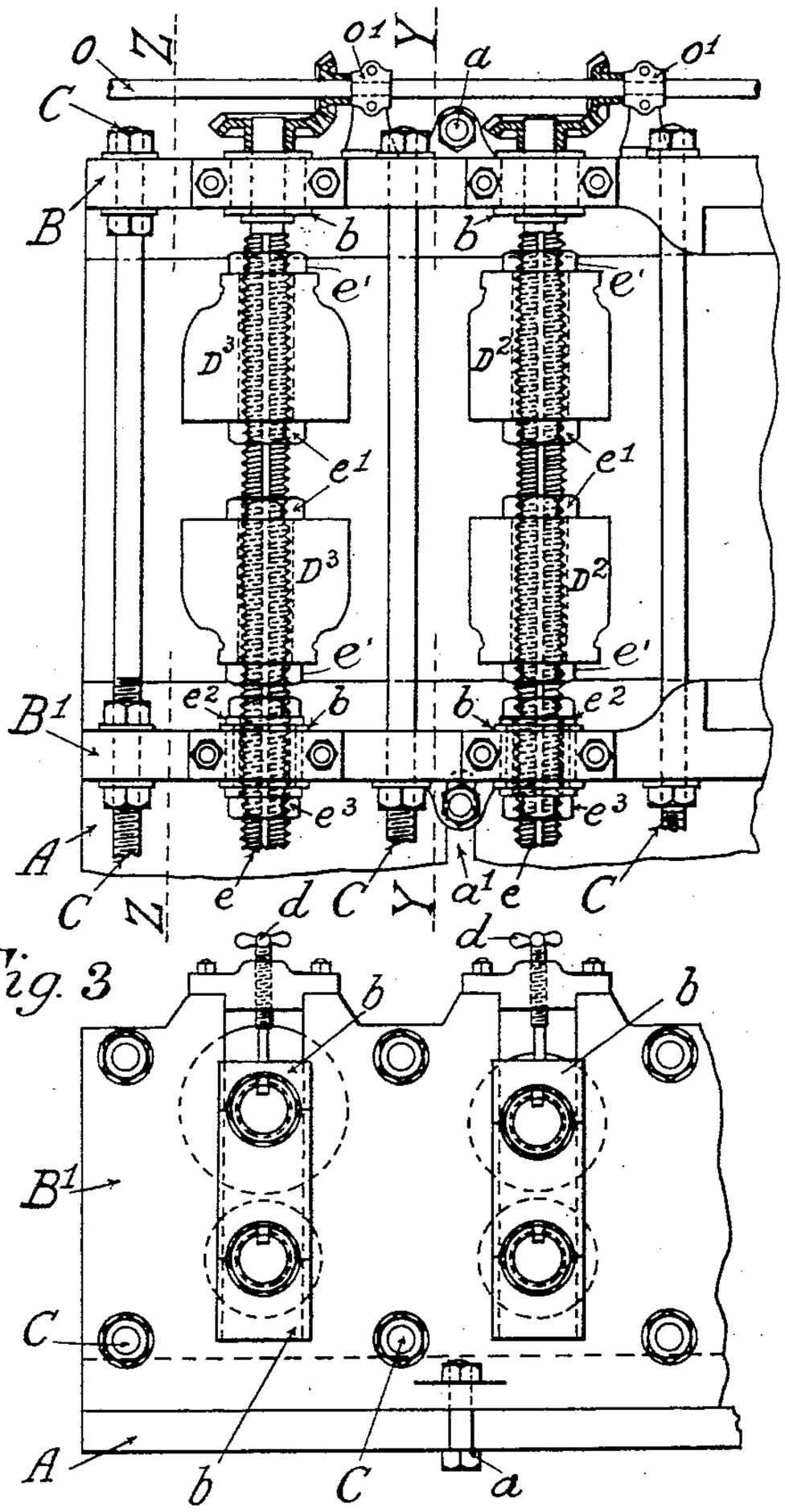

Fig. 3

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NO MODEL. 3 SHEETS—SHEET 3.

Fig. 4.

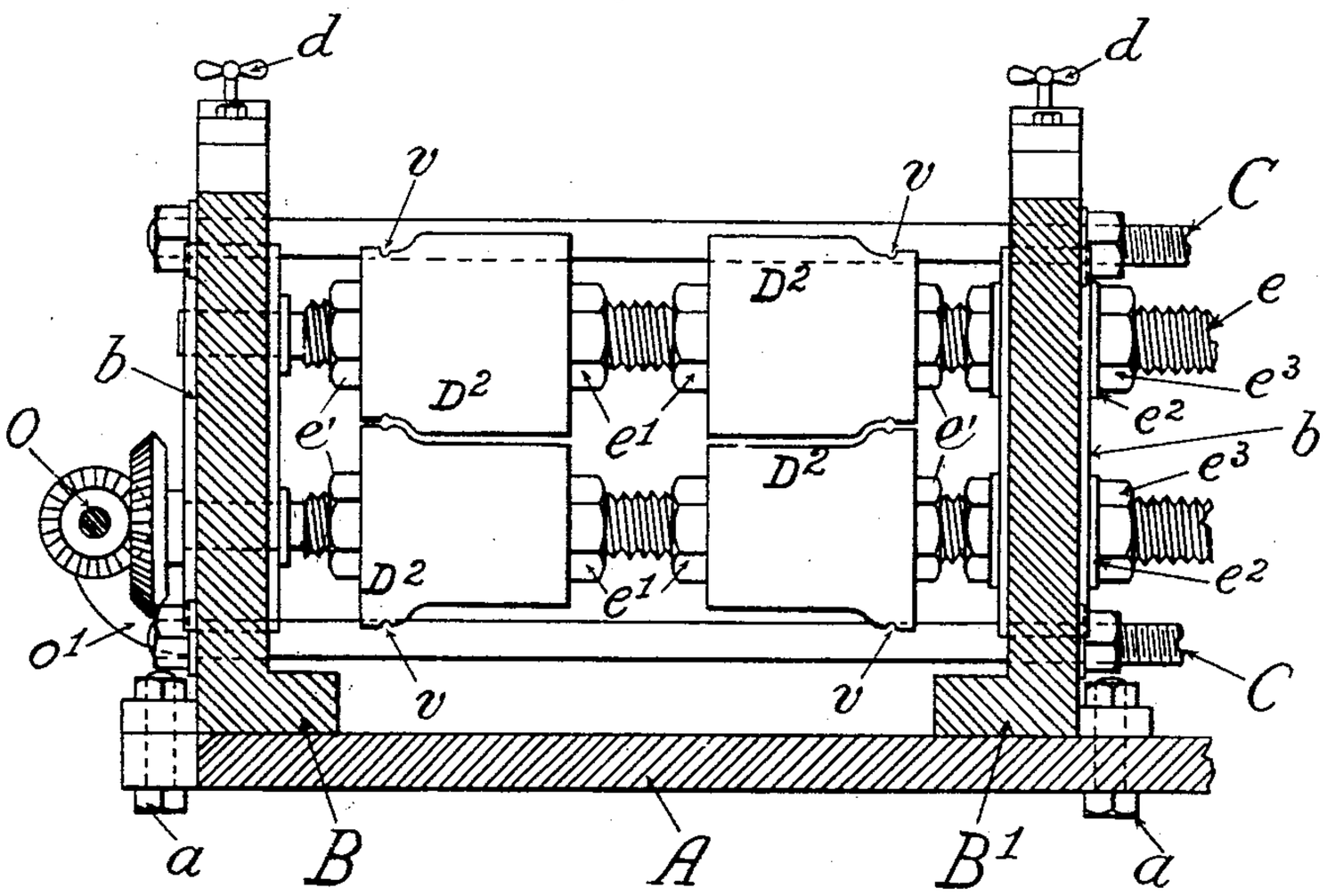
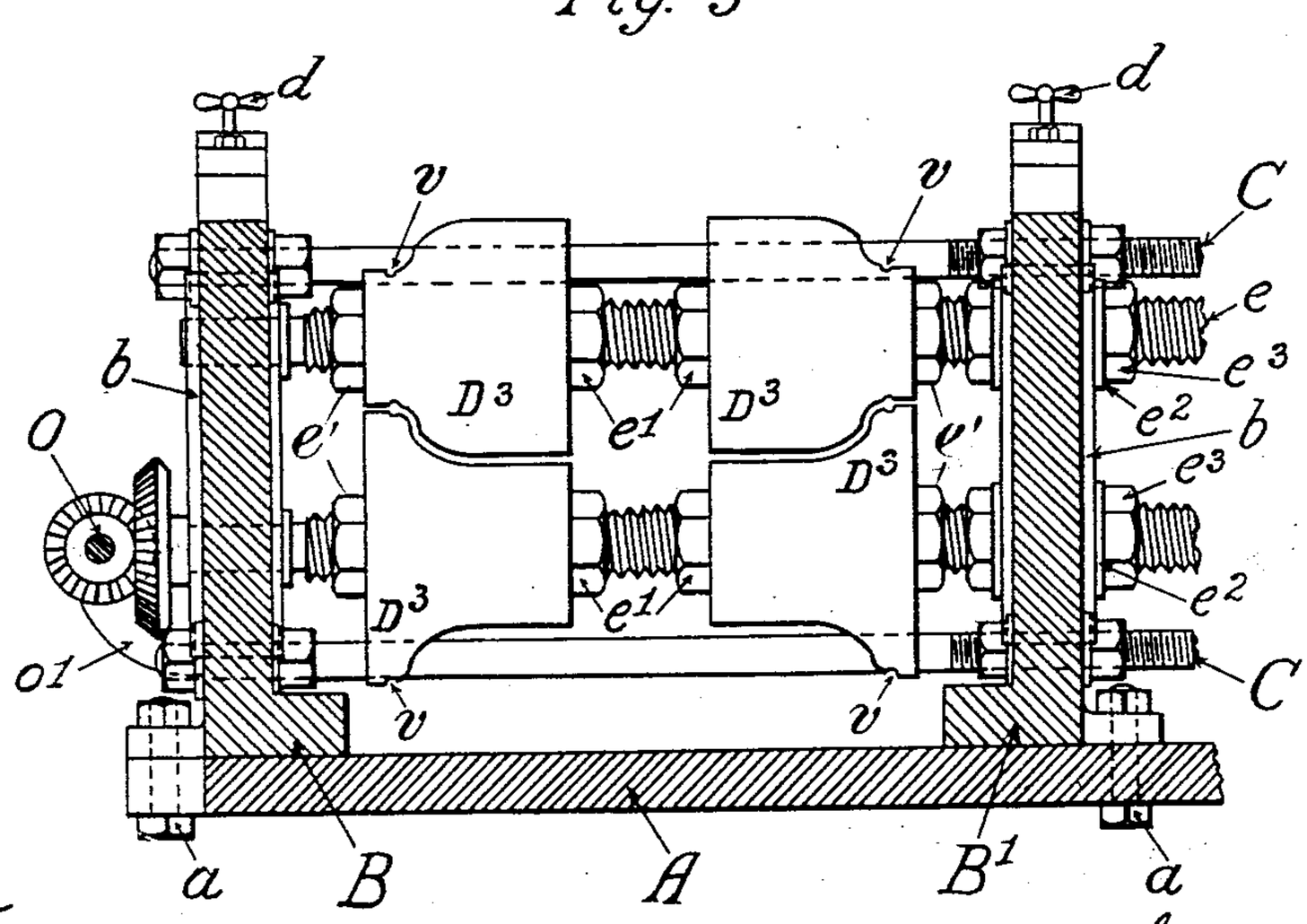


Fig. 5



Witnesses:
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Jonathan Slee

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Edwin Hancox

No. 751,636. Patented February 9, 1904.

UNITED STATES PATENT OFFICE.

EDWIN HANCOX, OF STOCKTON-ON-TEES, ENGLAND.

MACHINE FOR WORKING PIPE-PLATES.

SPECIFICATION forming part of Letters Patent No. 751,636, dated February 9, 1904.

Application filed December 2, 1901. Serial No. 84,460. (No model.)

To all whom it may concern:

Be it known that I, EDWIN HANCOX, a subject of the King of Great Britain, residing at Stockton-on-Tees, in the county of Durham, England, have invented a new and useful Machine for Working Pipe-Plates, of which the following is a specification, reference being had to the drawings accompanying and forming part of the same.

This invention relates to the manufacture of rivetless pipes from metal plates the longitudinal edges of which have been upset into a dovetail or approximately dovetail shape. The said plates are then bent to an arc of a circle and secured together by longitudinal locking-bars of a cross-section approximately like the letter **H** closed down upon their edges. In order to produce a special form of rivetless pipe, the sides of the dovetail-edged metal plates are bent or crimped inward, so as to produce, in conjuction with locking-bars of a modified **H**-section, a rivetless pipe presenting a flange exterior.

The object of the present invention is to provide simple and effective apparatus for bending or crimping the edges of the plates to the section required for the purpose just described and is more especially intended for working plates whose edges have already been upset or thickened, as will be more clearly understood hereinafter.

In the annexed drawings, Figure 1 is a cross-section of a rivetless pipe having a smooth flush exterior. Fig. 2 is a plan view of my machine for bending the edges of the plates into the form shown in Fig. 1. Fig. 3 is an end view of the apparatus shown in Fig. 2. Fig. 4 is a section on line Y Y, Fig. 2. Fig. 5 is a section on line Z Z, Fig. 2.

In Fig. 1, L L are two plates bent to the semicircular form shown and having their edges bent inwardly and thickened. M M are longitudinal locking-bars which unite the two plate-sections L L to form the pipe. It will be noticed that there are no rivets used in its construction and that the exterior is smooth.

In the remaining figures A is a base of suitable form having side pieces B B′ fastened thereto by bolts *a a*. One of the bolts is secured in a slot *a′*, so that the frame B′ can be adjusted toward or away from the other. The two are braced by means of the rods C C C, screw-threaded at their ends to permit the adjustment just described. In the side frames B B′ are vertical slots carrying sectional bearings *b b*, controlled by the screws *d d*. In the bearings rotate the screw-threaded shafts *e e*, the ends which work in the bearings of the side frame B′ having sleeves e^2, held in adjusted position thereon by the lock-nuts e^3 e^3. The shafts *e e* carry roll members D^2 D^3, which are secured in any desired position thereon by lock-nuts at each end, as *e′*. The roll members are of suitable configuration to produce the desired bending of the plate edges when the plates are passed through them and have grooves *v v* to receive the upset or thickened part of the extreme edge. The rolls are driven by any suitable means, as by the shaft *o* in bearings *o′*, through bevel-gears, as shown. By reason of the adjustability of the roll members and the roll-shaft bearings the machine is not limited to plates of one width, as by separating or bringing together the roll members wider or narrower plates may be worked. It will be noticed that the rolls are graduated—that is, the rolls D^2 give merely a preliminary bend, which is completed by the other set D^3. The number of rolls may of course be increased if it is desired to produce the bend still more gradually.

While my invention is particularly intended to work plates having their edges already thickened, it is clear that its use is not in any manner limited to that kind of plates.

Having now described my invention, what I claim is—

1. In a machine for bending pipe-plates having upset or thickened edges, in combination, a roll having its ends gradually reduced in a curve and a circumferential groove in such reduced portion, and a coacting roll having its ends gradually enlarged in a corresponding curve and a coöperating circumferential groove in such enlarged portion, substantially as and for the purposes described.

2. In a machine for bending pipe-plates, in combination, a set of rolls for giving a preliminary bend to the plate edges, comprising a roll having its ends gradually reduced in a

curve and a coacting roll having its ends gradually enlarged in a corresponding curve, said rolls having each a circumferential groove on its enlarged or reduced portion respectively to coöperate with the corresponding groove on the coacting roll, and a set of rolls for giving a further bend to the plate, comprising a roll having its end gradually reduced in a curve to a smaller diameter than the corresponding roll in the preceding set and a coacting roll having its ends enlarged in a corresponding curve, said rolls having each a circumferential groove on its enlarged or reduced portion respectively to coöperate with the corresponding groove on the coacting roll, whereby a plate in passing through the machine will gradually be given the desired degree of curvature, substantially as and for the purposes described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 21st day of November, A. D. 1901.

EDWIN HANCOX.

Witnesses:
T. W. MALKIN,
JNO. S. SHORT.