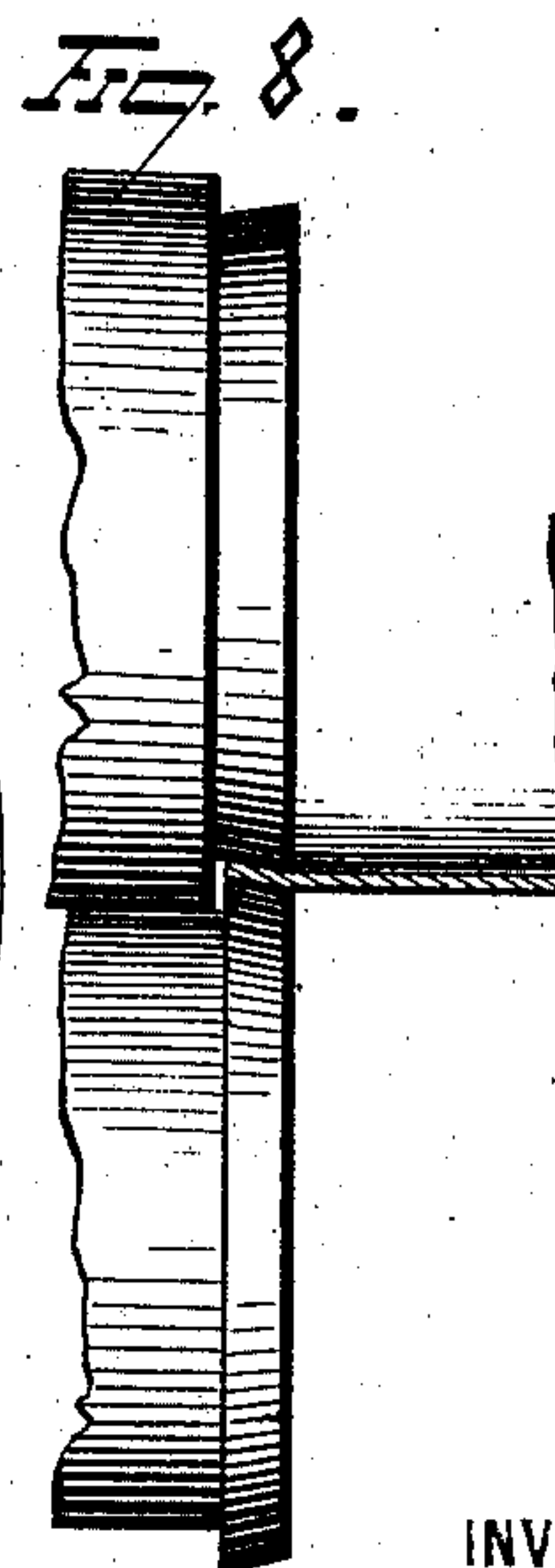
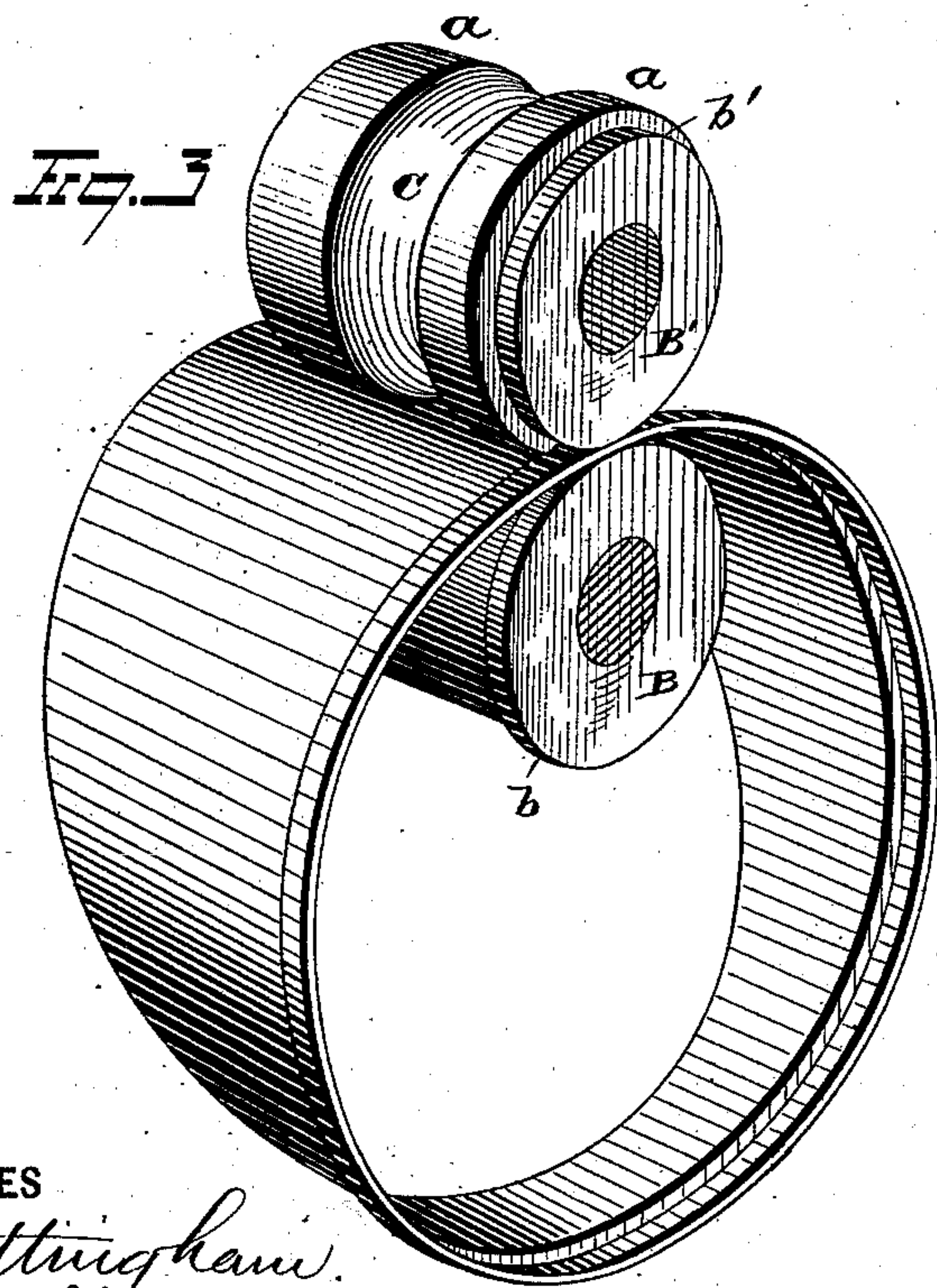
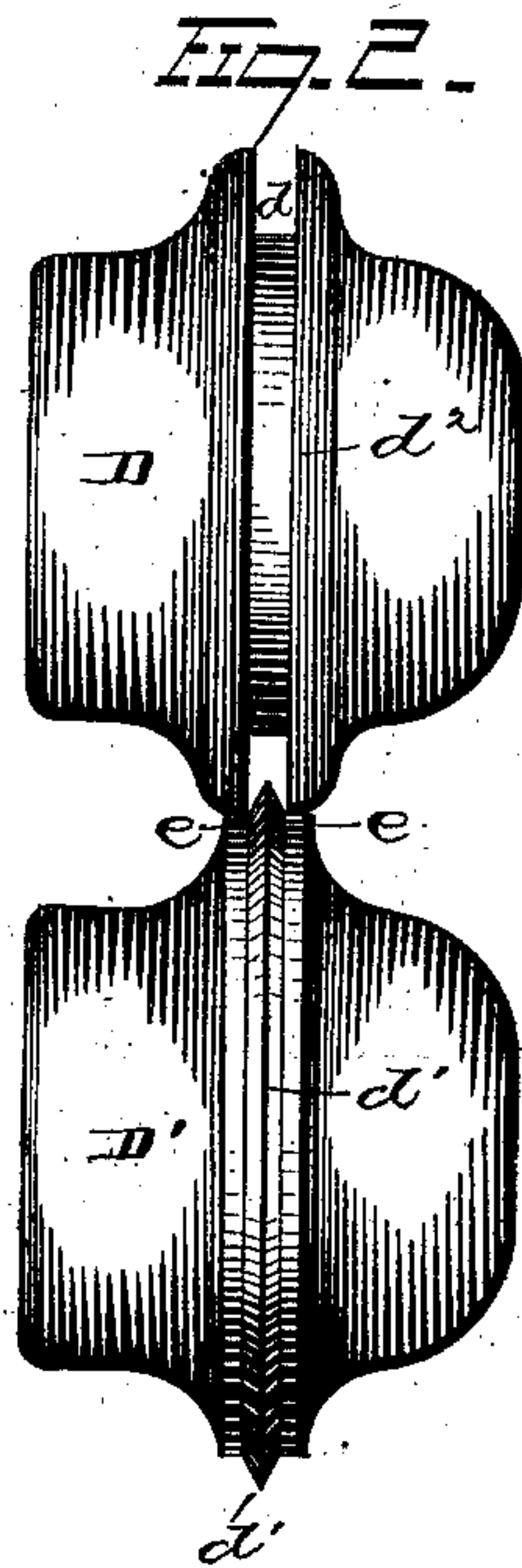
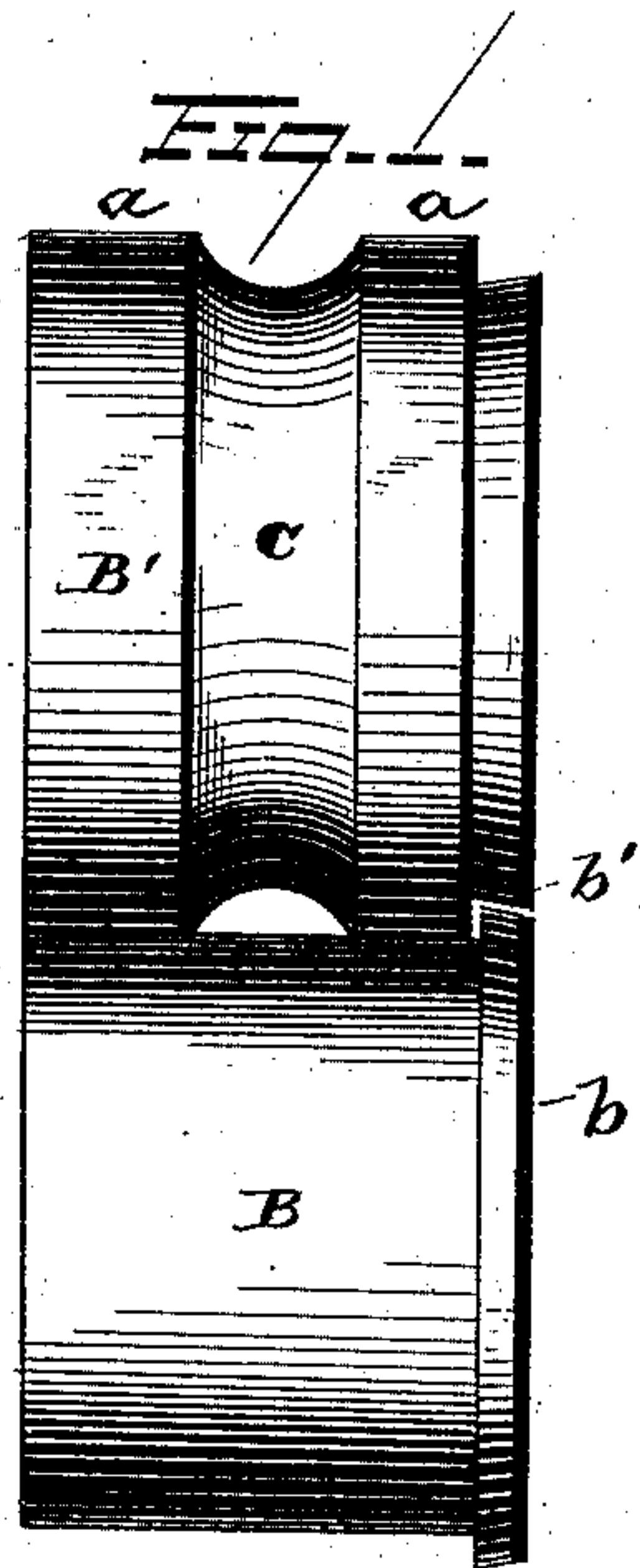


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Roll for Elbow-Pipe.

No. 227,897.

Patented May 25, 1880.



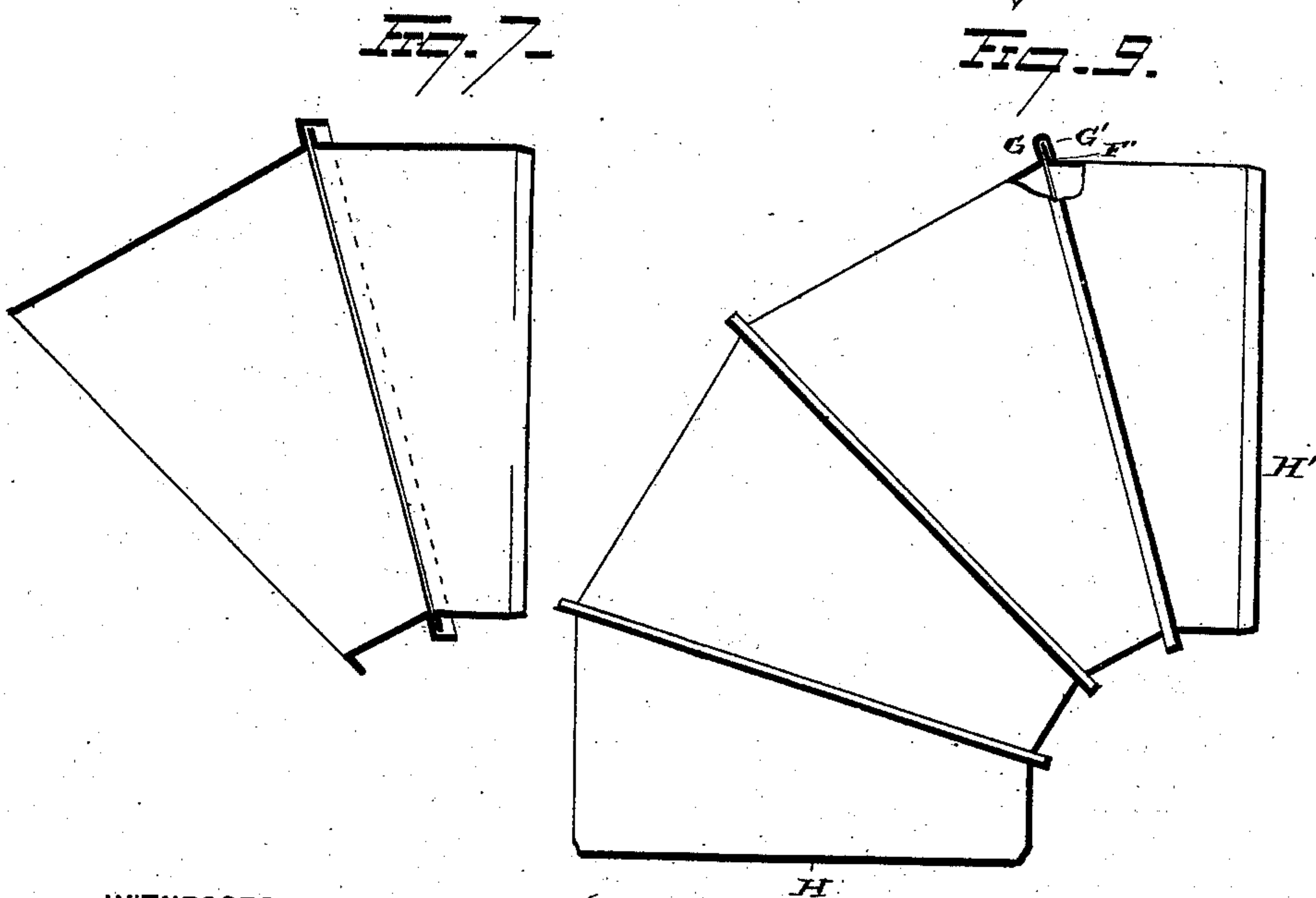
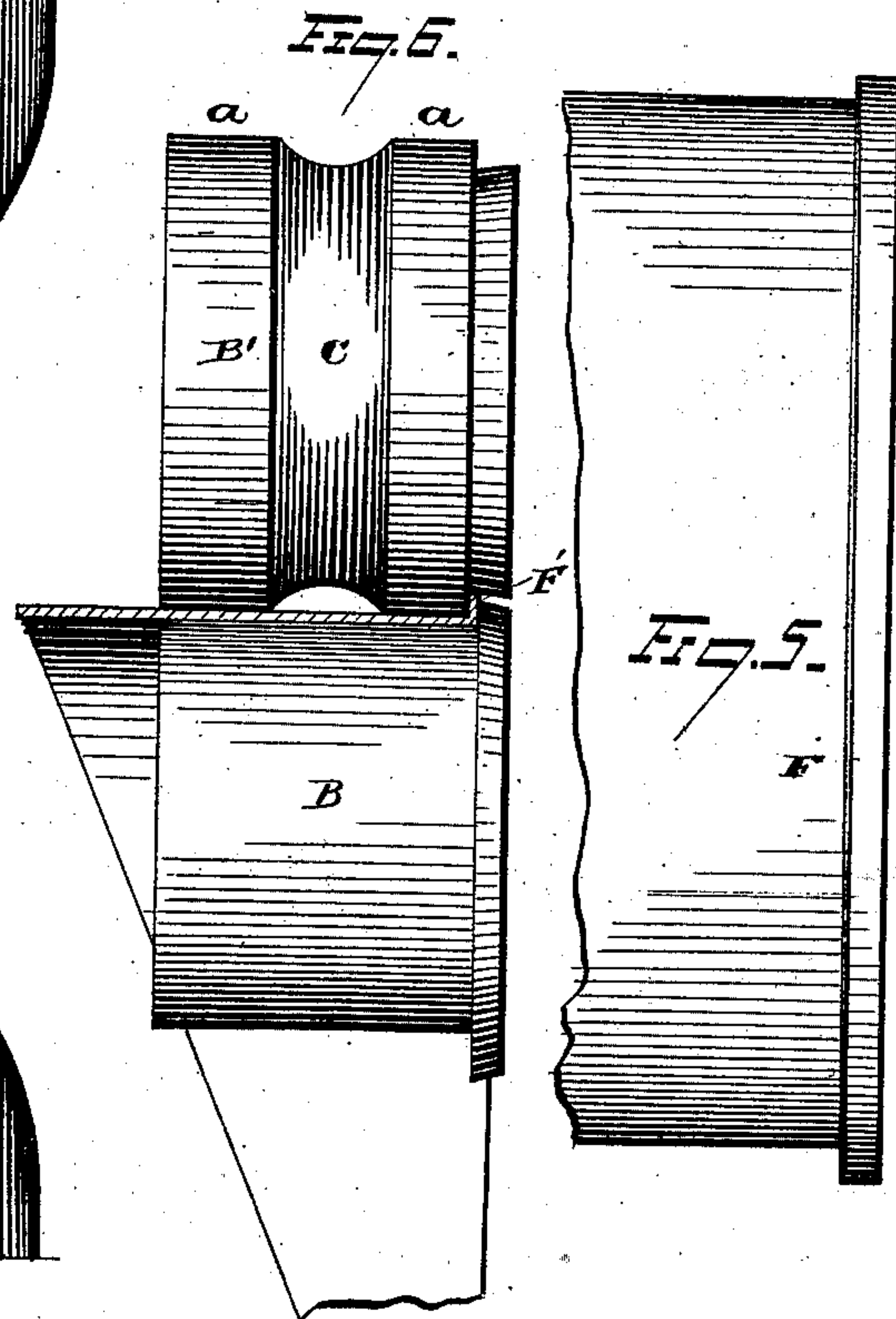
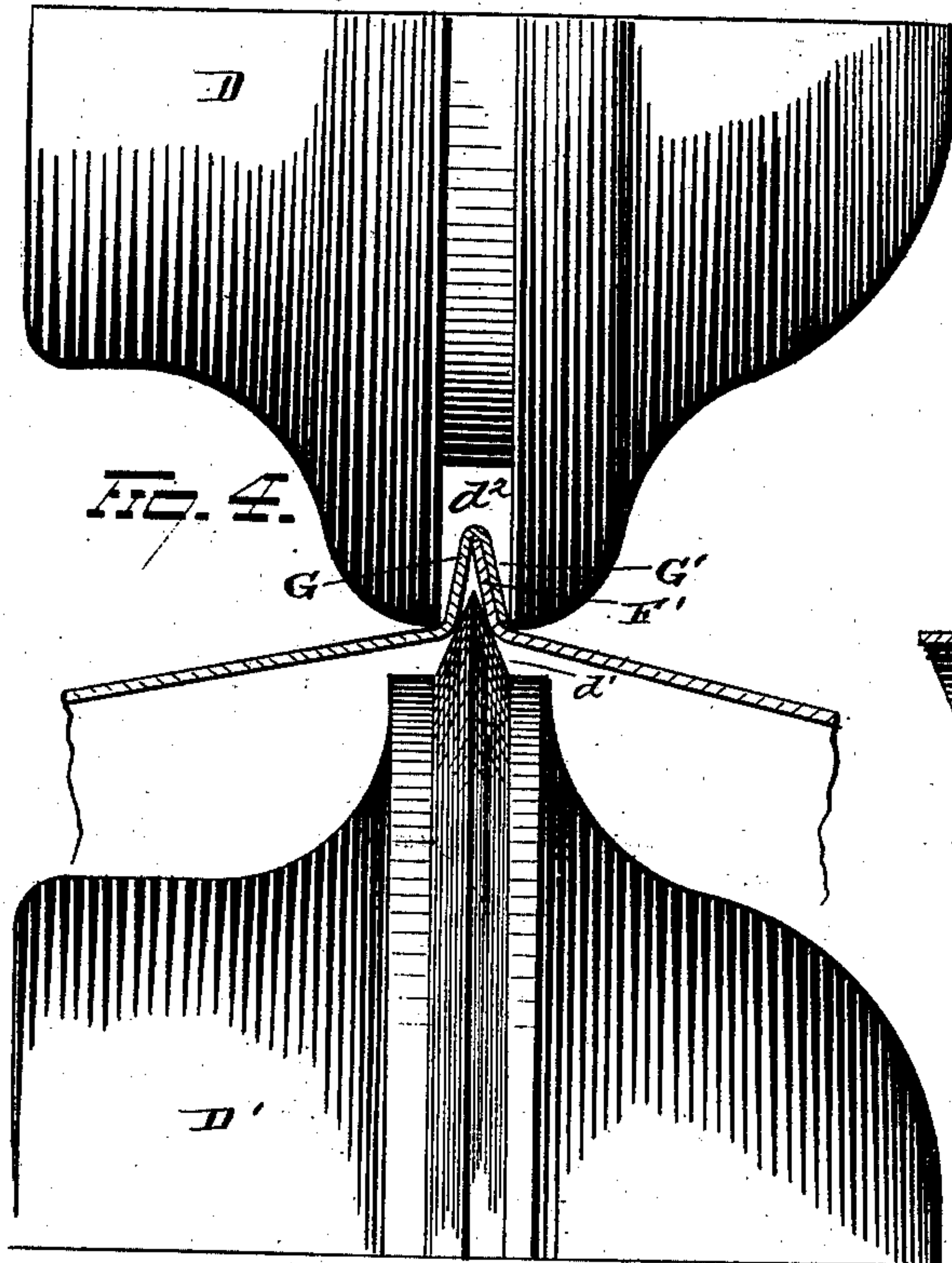
WITNESSES
E. J. Nottingham.
A. M. Bright.

INVENTORS
P. C. Helder.
J. Pfender.
By Bennett & Bennett. ATTORNEYS

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WITNESSES
E. J. Nottingham
A. M. Baugh

INVENTORS.
P. C. Helder
and
J. Pfender.
By Dequett & Dequett. ATTORNEYS

UNITED STATES PATENT OFFICE.

PHILIP C. HELDER AND JOHN PFENDER, OF EVANSVILLE, INDIANA.

ROLL FOR ELBOW-PIPES.

SPECIFICATION forming part of Letters Patent No. 227,897, dated May 25, 1880.

Application filed November 10, 1879.

To all whom it may concern:

Be it known that we, PHILIP C. HELDER and JOHN PFENDER, of Evansville, in the county of Vanderburgh and State of Indiana, have invented certain new and useful Improvements in Rolls for Elbow-Pipes; and we do hereby declare the following to be a full, clear, and exact description of the 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, and to letters of reference marked thereon, which form a part of this specification.

Heretofore a machine has been provided with one roller having an outwardly-flaring collar formed on its inner end, and with a companion roller having an annular recess, in which said collar works. The work is guided by hand, and auxiliary means are employed to assist in laying off the edges.

The first part of our invention consists in the combination, with a roller having an outwardly-flaring collar on its inner end, of a companion roller having an annular recess, in which the collar works, and further provided with a groove extending about its central body and bounded on both sides by annular treads, which latter have bearing on the first-mentioned roll. These rolls are firm in operation and produce uniform edges on the sheet metal, said uniform edges being difficult to make in machines which require the work to be guided by hand, inasmuch as the hand is liable to be lowered or raised from a fixed point.

Our rolls serve as guides, and thus assist in making complete edges exactly alike. Hence less skilled labor may be employed to operate them than if they required the sheet metal to be guided by hand.

The central groove is formed in order to permit a free passage for the rivet-heads in a section of sheet metal, and thus avoid any jar of the rolls or flattening of the rivet-heads.

The annular treads which bound the groove serve to clamp the sheet metal in position, and maintain it thus while passing between the rolls, said treads thereby serving as guides to cause the rolls to automatically hold the work in place during operation; also, heretofore a machine has been provided with a two-part roller composed of disks adapted to be

adjusted under spring-pressure to or from each other, the inner face of one of the disks being provided with an annular recess, which forms a groove for the sheet metal to be pressed therein by a collar formed on a companion roller.

The second part of our invention consists in the combination, with a solid roller provided with a central groove having walls formed straight throughout their length, of a companion roller having a collar formed V-shaped in cross-section, and provided with flat treadways at the base of its opposite sides, the inner edges of the groove-walls fitting closely against the lateral base of the collar. These rollers make a square, tight, and uniform joint, without liability of breaks, rough places, or parts half closed being formed in the work turned out by them.

Figure 1 of the drawings represents a side view of the two preparing or edging rolls mounted on their respective shafts. Fig. 2 is a similar view of the seaming or finishing rolls. Fig. 3 is a view in perspective, showing a section of pipe passing through the edging-rolls. Fig. 4 is a view representing the manner of finishing or seaming the joint. Fig. 5 is a detail view, showing one edge of the pipe-section after passage through the preparing-rolls. Fig. 6 is a detail view, showing the opposite edge of the pipe section and its passage through the rolls. Fig. 7 shows two sections joined together before passage through the seaming-rolls. Fig. 8 shows the manner of beveling the edge of end section. Fig. 9 is a view of a stove-pipe elbow with a portion of one joint in section, illustrating the completed seam or joint.

Edging-roller B is provided with an outwardly-flaring collar, *b*, on its inner end. Edging-roller B' has its corresponding end provided with an annular recess, *b'*, in which the collar works. Roller B' is further provided with groove C, extending about its central portion and adapted to permit free passage of the rivet-heads in a section of sheet metal. This groove is bounded on opposite sides by annular treads *a*, which have bearing upon roll B, and serve as guides to maintain the sheet metal in operative position during passage through the rolls.

The finishing-rollers are made as follows:

Roller D is formed with a central annular groove, d , whose walls d^2 are straight throughout their length. Roller D' is provided with central collar, d' , formed V shape in cross-section and provided at opposite sides of its base with flat treadways e . The inner edges of the groove-walls fit closely against the lateral base of the collar, and the latter works within the groove.

10 The two end sections of each elbow are formed with respective straight or slightly-beveled edges H H' to admit of their connection with the straight pipe. The bevel, as shown at H', may be imparted to the edge by hand, or by passing the section through the edging-rolls at an incline, as shown in Fig. 8.

15 The operation of edging and seaming pipe-sections with our improved rolls is as follows: The metal blanks for the pipe-sections may be cut or stamped out in any desired manner, either by hand or machinery, the production of the blanks forming no part of our invention. After the required number of blanks have been prepared and riveted in the ordinary way 20 the section of pipe as thus formed is prepared for the edging-rolls, and being inserted in these rolls, as illustrated in Fig. 3, the double edge, as shown at F, Fig. 5, is formed at a single revolution of the pipe-section, since the metal 25 readily conforms to the shape imparted to it by the flange b and recess b' . The collar F' is also turned up by inserting the section-edge partially under the edging-rolls, as shown in Fig. 6, and revolving the latter. Thus it will be observed that each section is formed on one edge 35 with the single connecting-flange F', while the opposite side is formed with the flange G and overlapping rim or edge G'. The two section-edges, when joined for passage through the finishing-rolls, fit snugly, with the guard-rim or 40 flange G' projecting over at right angles to

flange F'. After the sections have been thus joined they are inserted into the finishing-rolls D and D', as shown in Fig. 4, where contact of the walls d^2 of the upper or exterior roll 45 with the overlapping guard-rim G', in conjunction with the collar d on roller D, the latter operating on the interior of the joint, will turn down or overlap the rim G', and thereby complete the joint. The joint as thus formed 50 is perfectly tight and secure, and the elbow will be found to be effective and durable for the purpose required.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is— 55

1. The combination, with roller B, having outwardly-flaring collar b formed on its inner end, of roller B', provided at its corresponding end with annular recess b' , and also formed 60 with groove C extending about its central portion, said groove being bounded on opposite sides by annular treads a , which have bearing on the main body portion of roller B, substantially as set forth. 65

2. The combination, with solid roller D, provided with annular groove d , having walls d^2 formed straight throughout their length, of roller D', having collar d' formed V shape in cross-section and provided with flat treadways 70 e at the base of its opposite sides, the inner edges of the groove-walls fitting closely against the lateral base of the collar, substantially as set forth.

In testimony that we claim the foregoing we have hereunto set our hands this 30th day of October, 1879. 75

PHILIP C. HELDER.
JOHN PFENDER.

Witnesses:

AARON PRICE BELL,
JOSEPH BELLAMY.