

No. 617,363.

Patented Jan. 10, 1899.

G. SKOGSE.
MACHINE FOR ROLLING METAL TUBES.

(Application filed May 5, 1898.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 5. B'

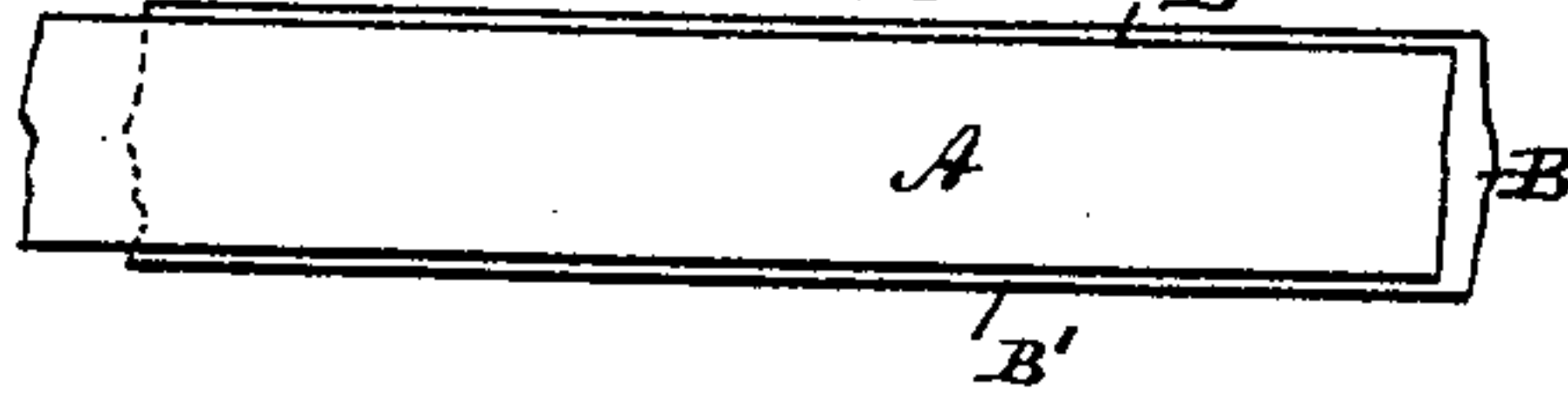


FIG. 1.

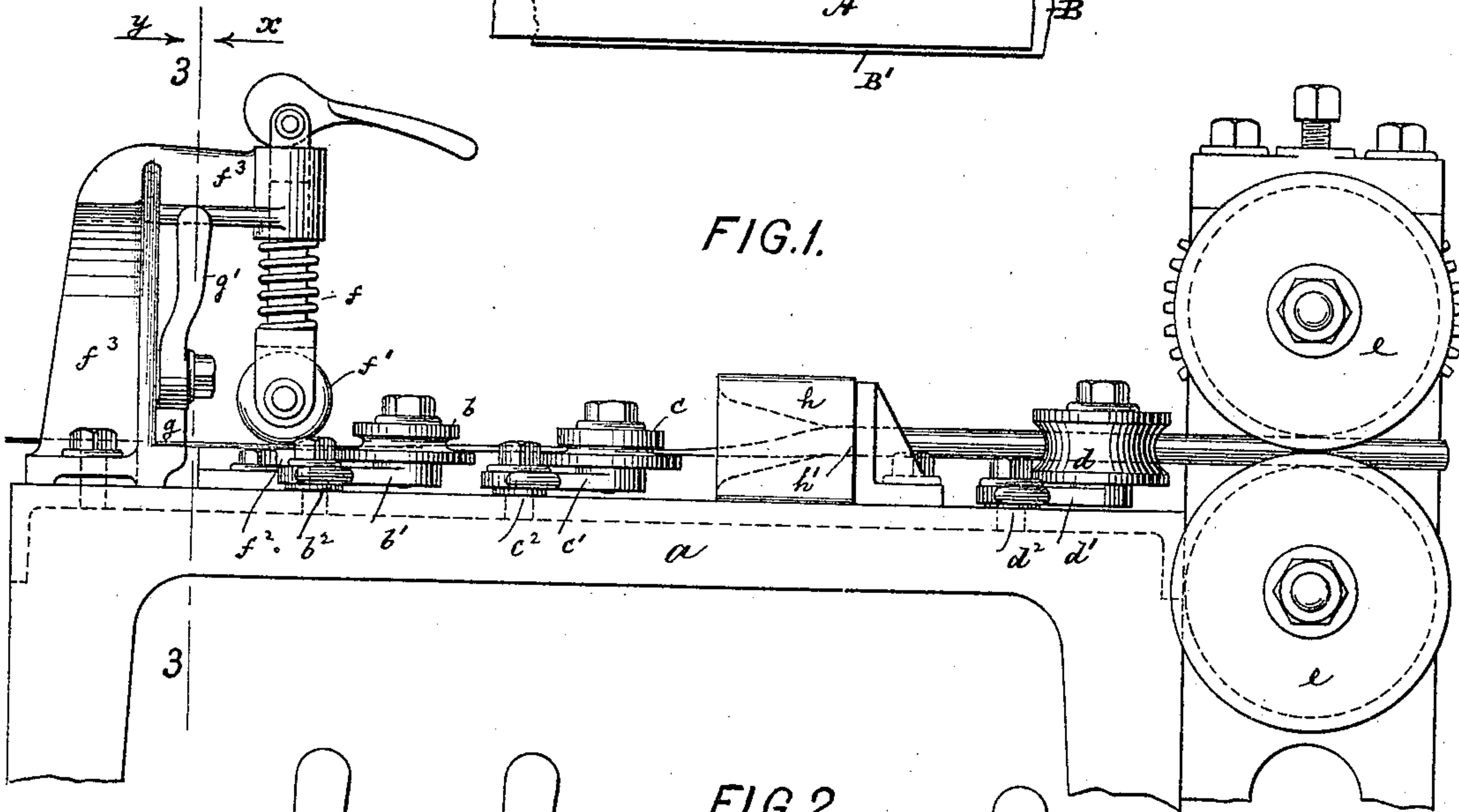


FIG. 2.

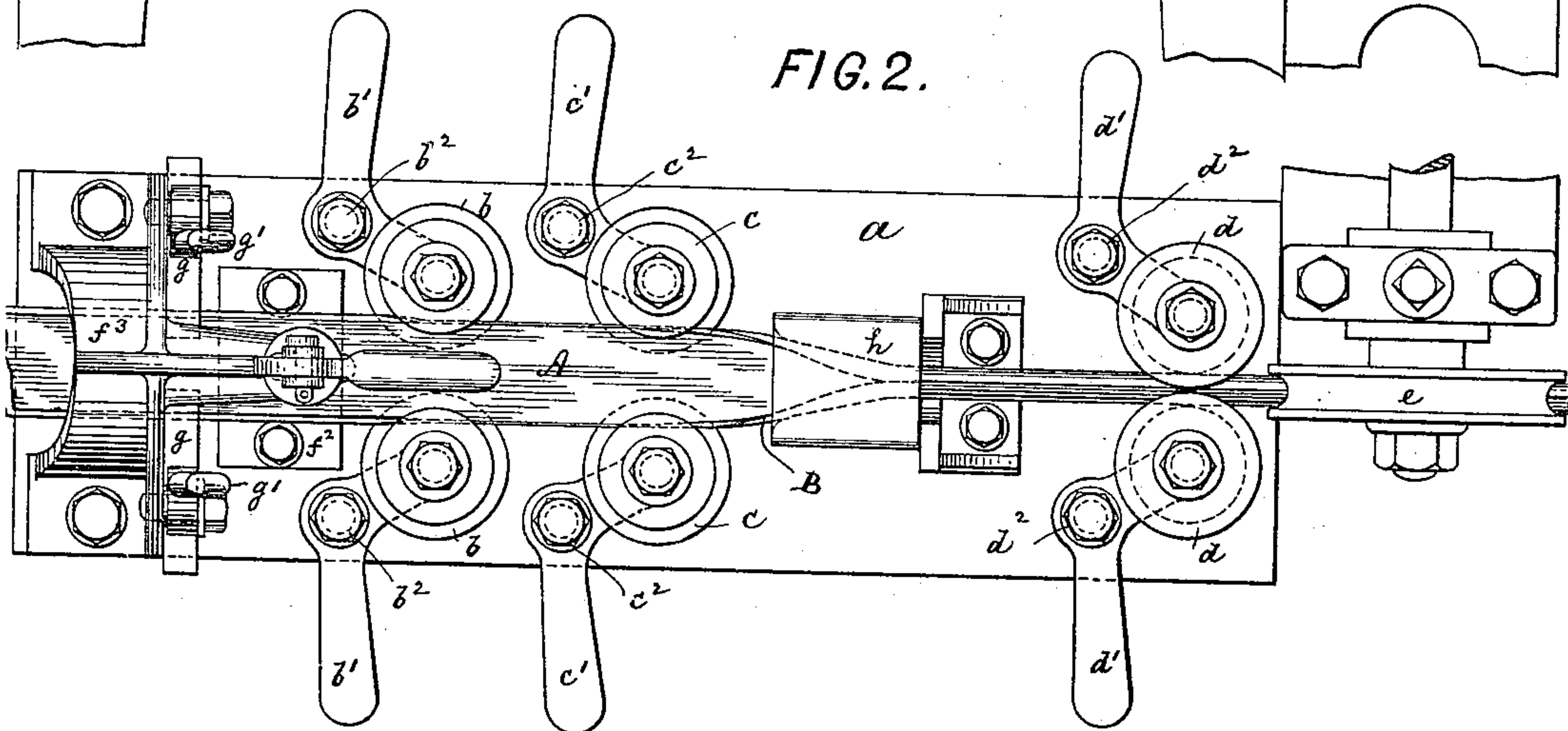


FIG. 3.

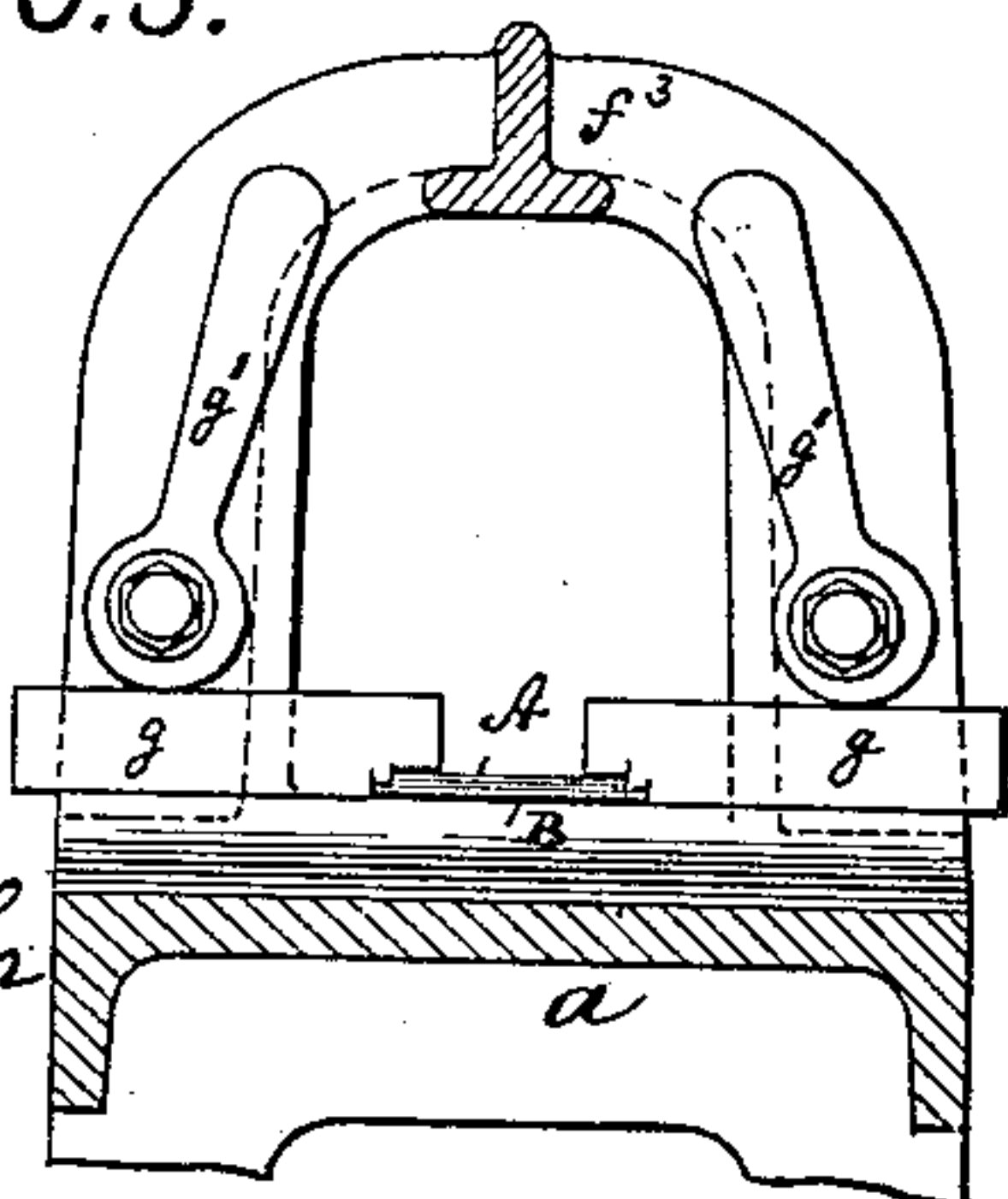
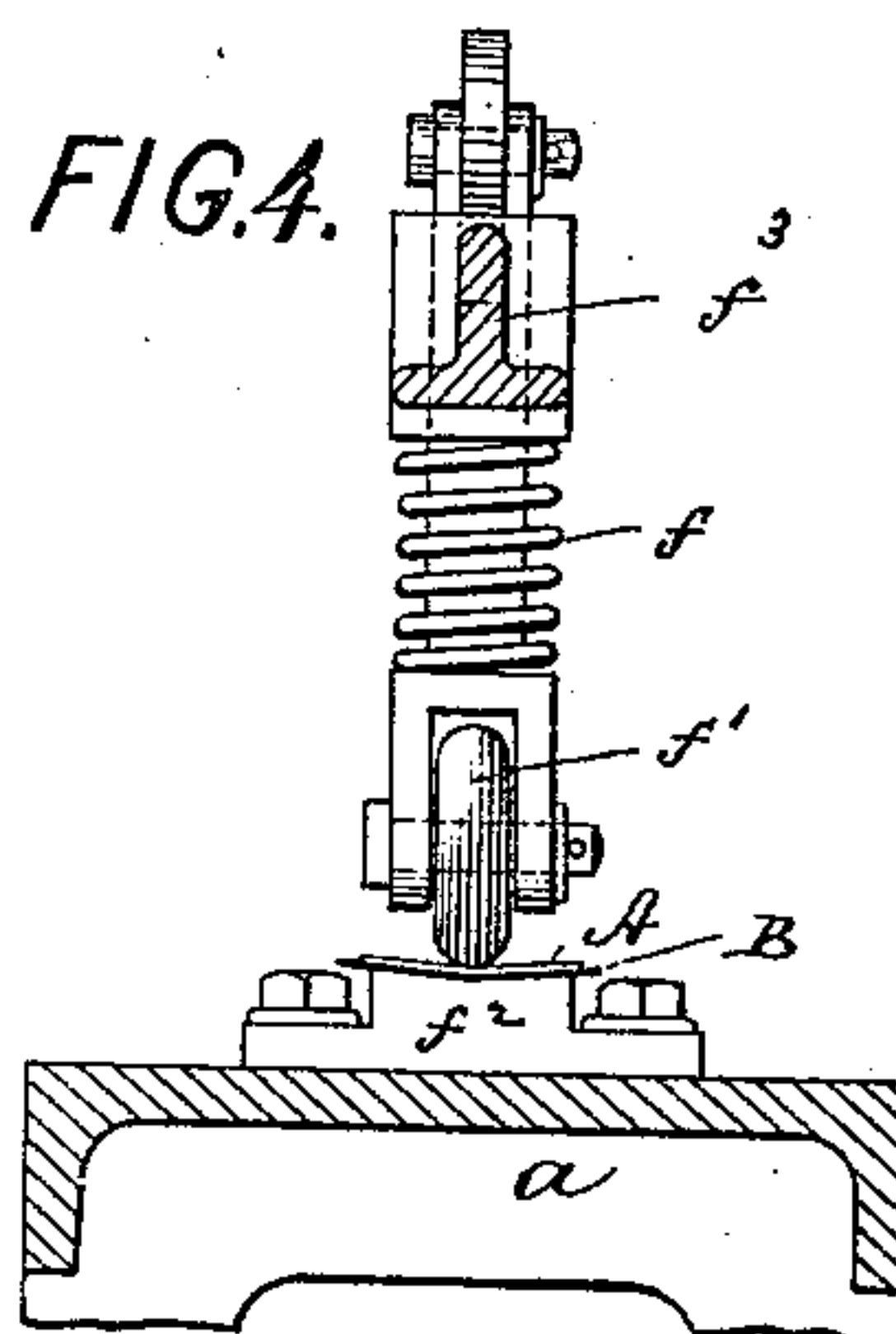


FIG. 4.



Witnesses:

John Becker.
William Miller

Inventor:

Gustave Skogse
by his attorneys
Roeder & Priesen

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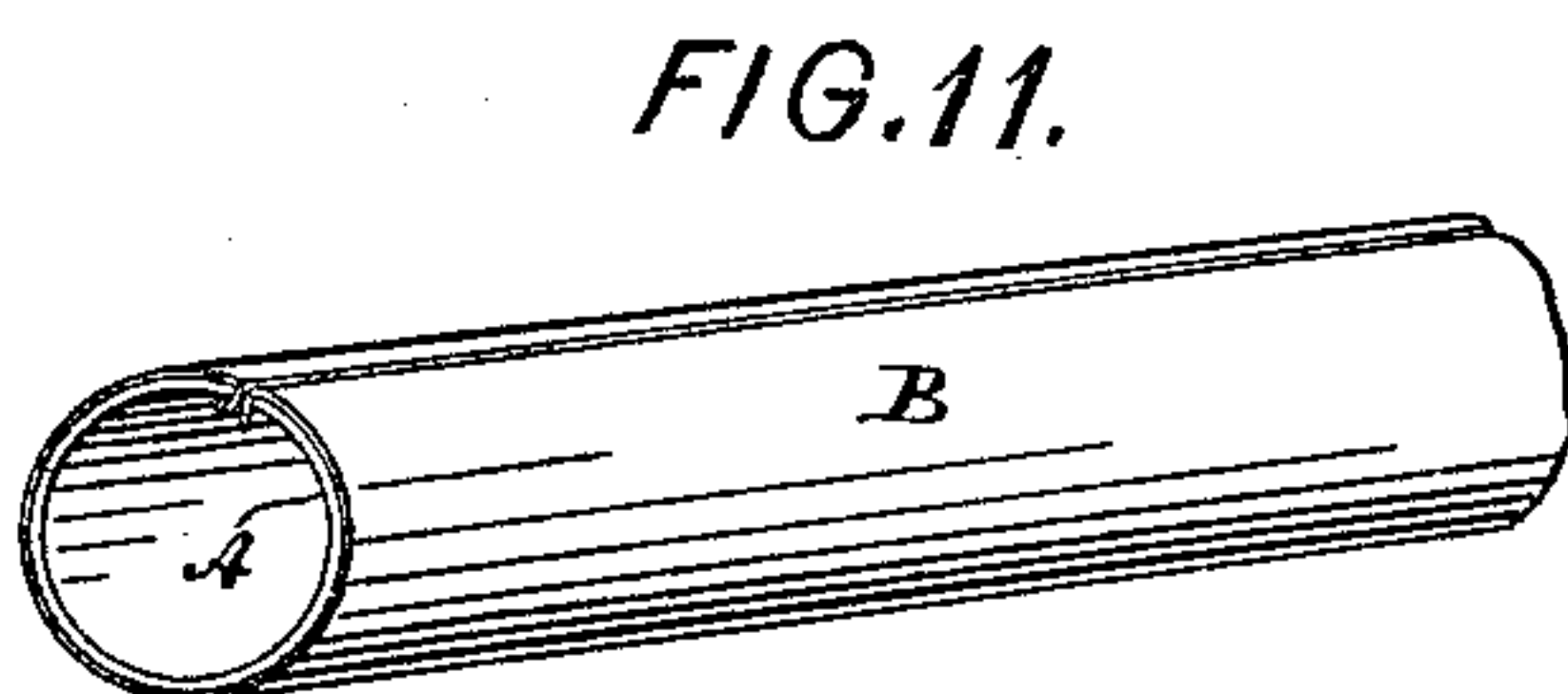
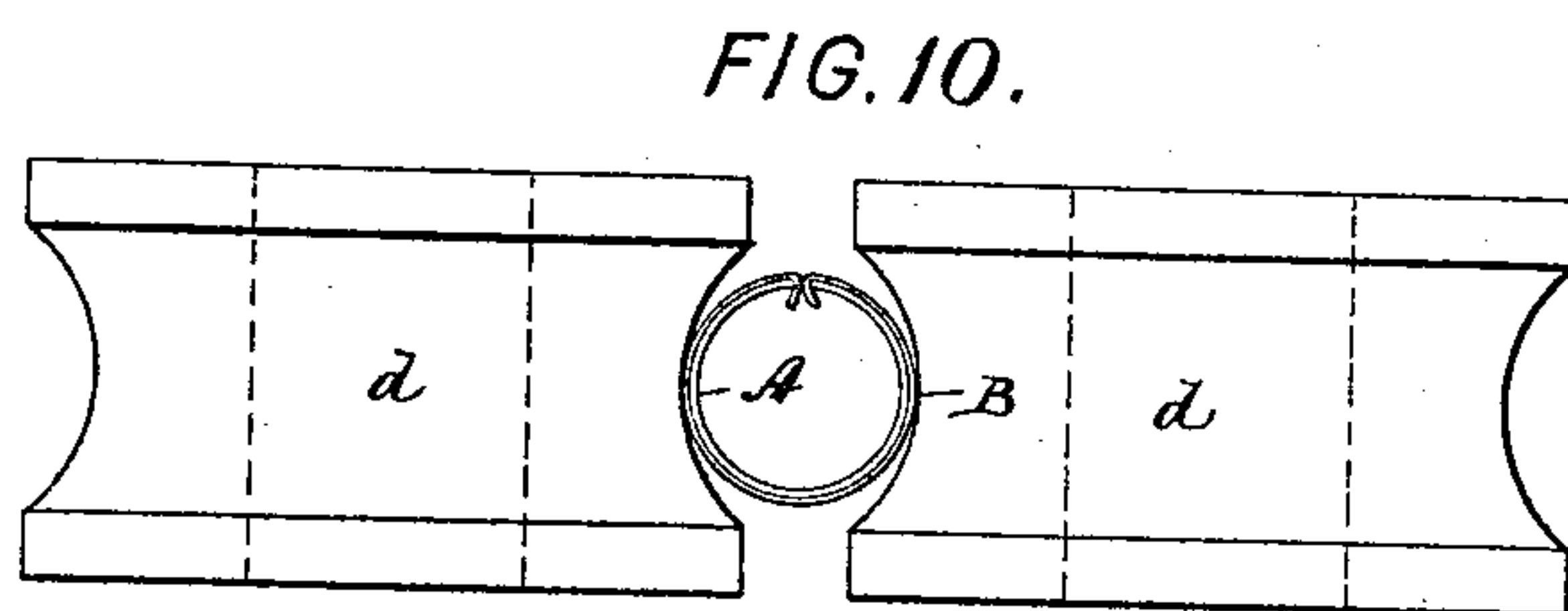
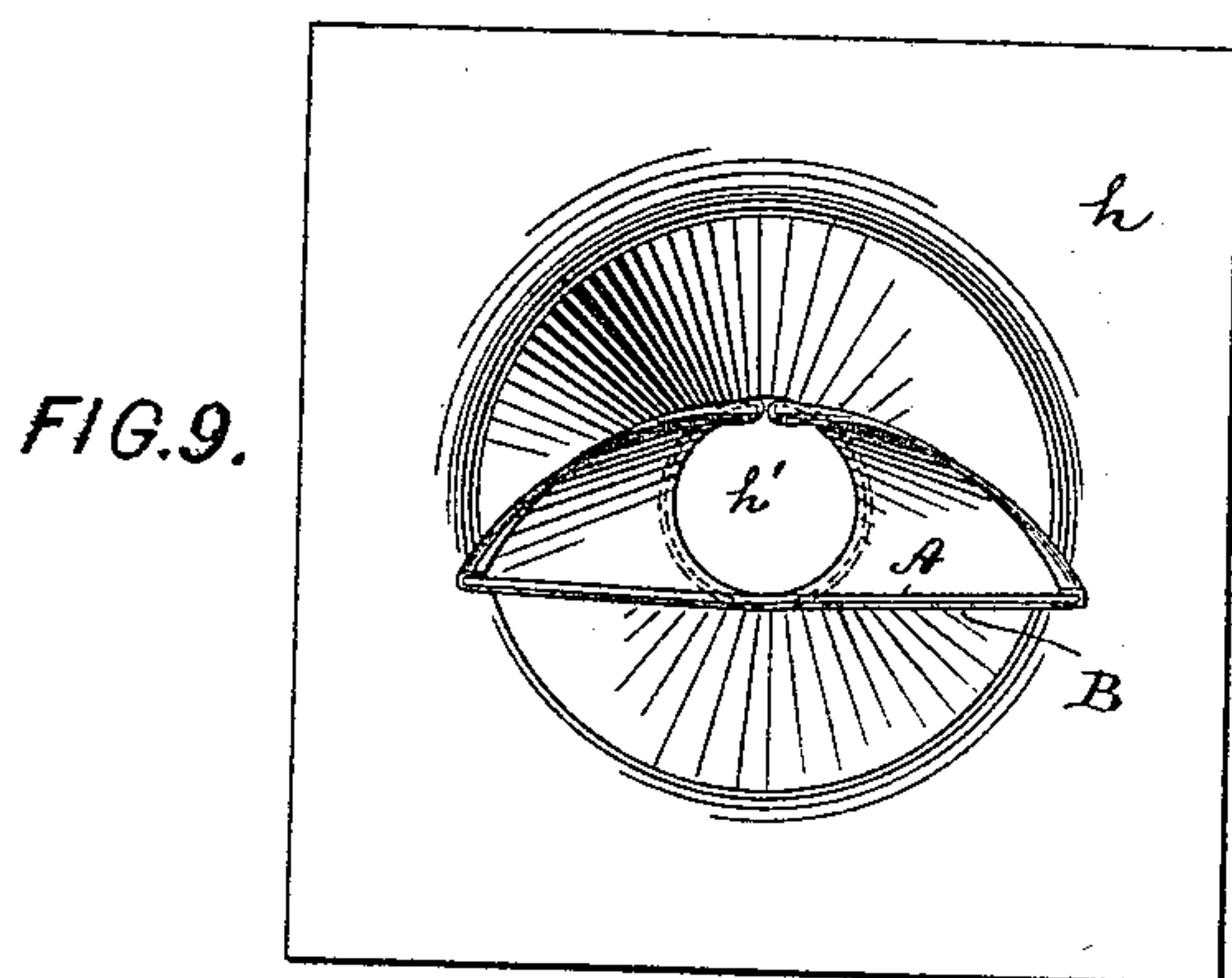
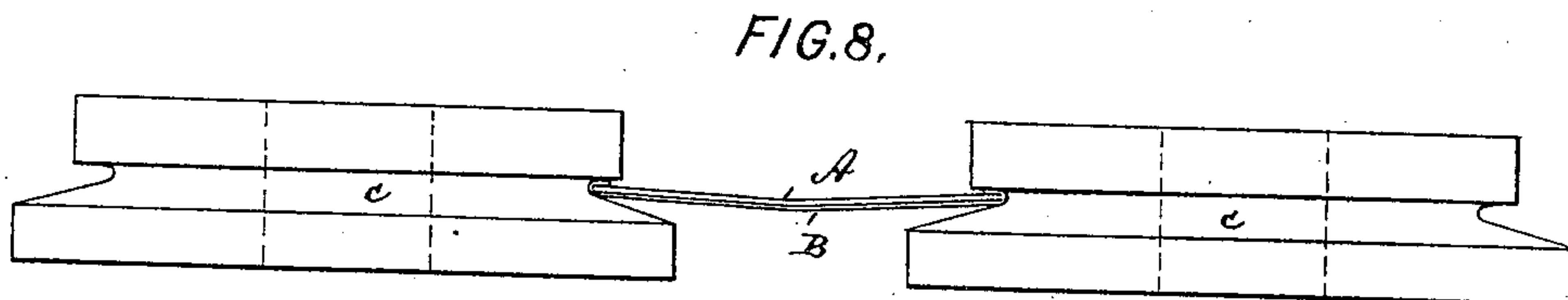
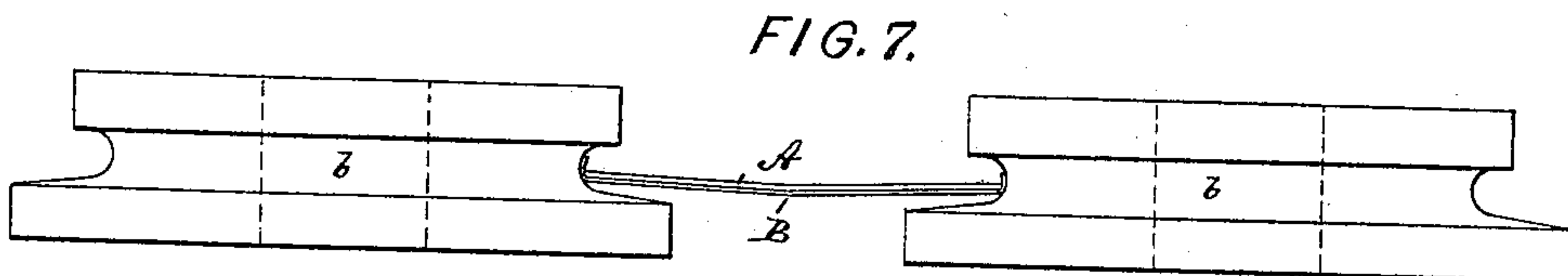
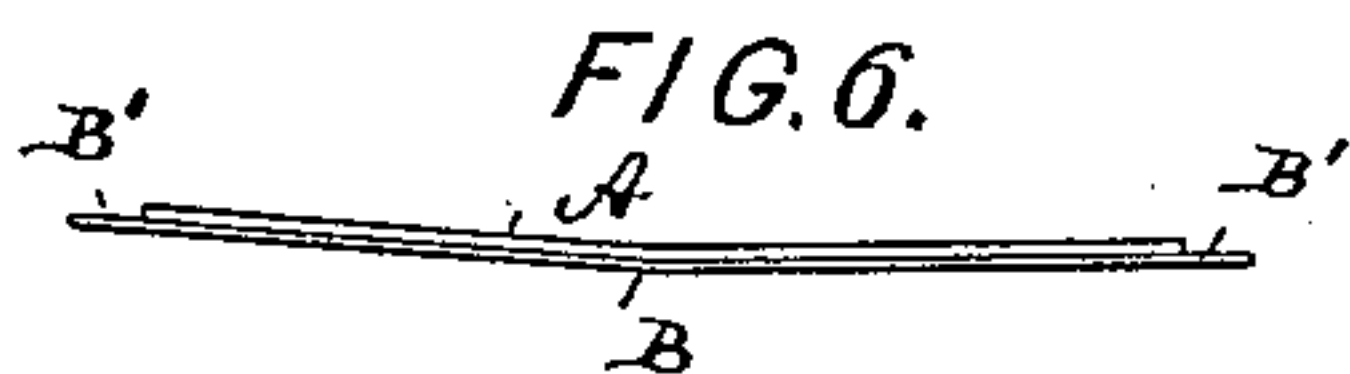
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MACHINE FOR ROLLING METAL TUBES.

(Application filed May 5, 1898.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses:

John Becker.
William Miller.

Inventor:

Gustave Skogse
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UNITED STATES PATENT OFFICE.

GUSTAVE SKOGSE, OF NEW YORK, N. Y., ASSIGNOR TO THE PHENIX TUBE COMPANY, OF SAME PLACE.

MACHINE FOR ROLLING METAL TUBES.

SPECIFICATION forming part of Letters Patent No. 617,363, dated January 10, 1899.

Application filed May 5, 1898. Serial No. 679,817. (No model.)

To all whom it may concern:

Be it known that I, GUSTAVE SKOGSE, of New York, (Brooklyn,) county of Kings, and State of New York, have invented new and useful Improvements in Machines for Rolling Metal Tubes, of which the following is a specification.

This invention relates to a machine for making in one operation from two blank strips of metal a compound tube consisting of a slotted hollow core and a surrounding shell having flanges that project into the slot of the core, such tube forming the subject of an application for a patent filed on even date herewith.

In manufacturing the tube I center a strip of the metal, such as steel, which is to form the core upon a wider strip of metal, such as brass, which is to form the covering and fold the projecting margins of the brass upon the steel. The compound blank thus formed is then rolled into a tube which is in condition to be brazed and finished. Thus the construction of the tube is simplified and its output may be greatly increased and cheapened.

In the accompanying drawings, Figure 1 is a side elevation of my improved machine for rolling metal tubes. Fig. 2 is a plan; Fig. 3, a vertical section on line 3 3, Fig. 1, looking in the direction of the arrow x ; Fig. 4, a similar section looking in the direction of the arrow y ; Fig. 5, a plan of the blank strips that go to form the compound tube; Fig. 6, a cross-section thereof; Fig. 7, a detail of the flanging-rolls b ; Fig. 8, a detail of the upsetting-rolls c ; Fig. 9, a detail of former h ; Fig. 10, a detail of the rolls d , and Fig. 11 a perspective view of the tube as delivered by the machine.

The letter a represents the bench of the machine, to the upper side of which there are pivotally secured three, more or less, pairs of rolls—viz., the flanging-rolls b , upsetting-rolls c , and shaping-rolls d —between which the blank is drawn by the grooved power-rollers e .

The rolls of each pair b c d are held in adjustable relation to each other to accommodate blanks of different widths, the adjustment being shown to be effected by pivoting each roll to an elbow-lever b' c' d' , bolted to

the machine-bed at b^2 c^2 d^2 . By slacking the nuts of these bolts the latter may be so set as to properly gage the rolls, as will be readily understood. The rolls b are grooved, Fig. 7, to turn up a flange, the rolls c , Fig. 8, to flatten such flange, and the rolls d , Fig. 10, to shape the tube.

In front of the first pair of rolls b there is arranged a spring-actuated presser-foot f , having presser-roll f' above base-plate f^2 , Fig. 4, and mounted in a bracket f^3 , bolted to the machine-frame. The roll f' is adapted to firmly hold the upper work-blank against the lower work-blank, so as to prevent buckling.

g g are a pair of laterally-adjustable gages adapted to be held in position by eccentrics g' or otherwise and notched at their inner edges, Fig. 3, to accurately fit and center the two layers of the blank.

Between the roll c and the rolls d there is placed a fixed funnel-shaped former or conductor h , the sides of which converge to form a circular draw-hole h' .

The operation of the machine will be readily understood. A strip of steel or other metal A , which is to form the core, is placed upon a wider strip of brass or other metal B , which is to form the covering, Fig. 5, and the compound blank thus formed is centered by the gages g and drawn beneath presser-roll f' , between rolls b c , through draw-hole h' , and between rolls d by the power applied to either one of the rollers e . The strips will be so centered by the gages g that a margin B' of equal width will be formed along the two edges of strip A by the projecting ends of strip B . This margin is first turned up by the rolls b , Fig. 7, to form an upright or approximately upright flange, and then the rolls c fold or lap this flange flat upon the face of strip A , Fig. 8, to intimately connect the two layers of the blank. The compound blank thus united is next passed into and through the draw-hole of the conductor h , Fig. 9, to be rolled into an approximately circular form, which rolling operation is completed by the rolls d , Fig. 10.

The grooved feed-rollers e serve not only to draw the tube through the machine, but also to impart its final shape to it, so that after the tube leaves such rollers it has acquired

the form shown in Fig. 11. From this figure it will be seen that the tube is composed of a slotted tubular core and of a surrounding tubular shell, the flanges of which project through the slot into the hollow of the core. These flanges are shown to be sprung slightly off the inner side of the core, which is due to the strain resulting from the drawing operation. The tube after leaving the machine is ready to be brazed on its open joint and to be finally drawn through a hardened-steel die to give it a finished surface.

It will be seen that by my machine a compound metal tube is produced from two metal strips in one operation, so that the manufacture of the tube is considerably cheapened and the output largely increased.

What I claim is—

1. A machine for making metal tubes which consists of means for lapping the margin of one metal strip around the edge of another metal strip, and means for rolling the compound blank thus formed into tubular form, substantially as specified.

2. A machine for making metal tubes which consists of grooved rolls for flanging the margin of one metal strip, grooved rolls for lapping such flange upon the face of another metal strip, and of means for rolling the compound blank thus formed into tubular form, substantially as specified.

3. A machine for making metal tubes which consists of a presser-foot adapted to bear upon

a pair of superposed metal strips, means for lapping the margin of one metal strip around the edge of another metal strip, and means for rolling the compound blank thus formed into tubular form, substantially as specified.

4. A machine for making metal tubes which consists of a presser-foot adapted to bear upon a pair of superposed metal strips, grooved rolls for flanging the margin of one metal strip, grooved rolls for lapping such flange upon the face of the other metal strip, a funnel-shaped former, and a pair of grooved rolls adapted to engage the work after emerging from such former, substantially as specified.

5. A machine for making metal tubes which consists of a centering-gage, a presser-foot, a set of flanging-rolls, a set of upsetting-rolls, a funnel-shaped former, and a pair of grooved rolls adapted to engage the work after emerging from such former, substantially as specified.

6. In a machine for making metal tubes, the combination of a pair of laterally-adjustable flanging-rolls with a pair of laterally-adjustable upsetting-rolls, a funnel-shaped former, a pair of laterally-adjustable shaping-rolls, and a pair of power-rollers, substantially as specified.

GUSTAVE SKOGSE.

Witnesses:

WILLIAM SCHULZ,
F. V. BRIESEN.