

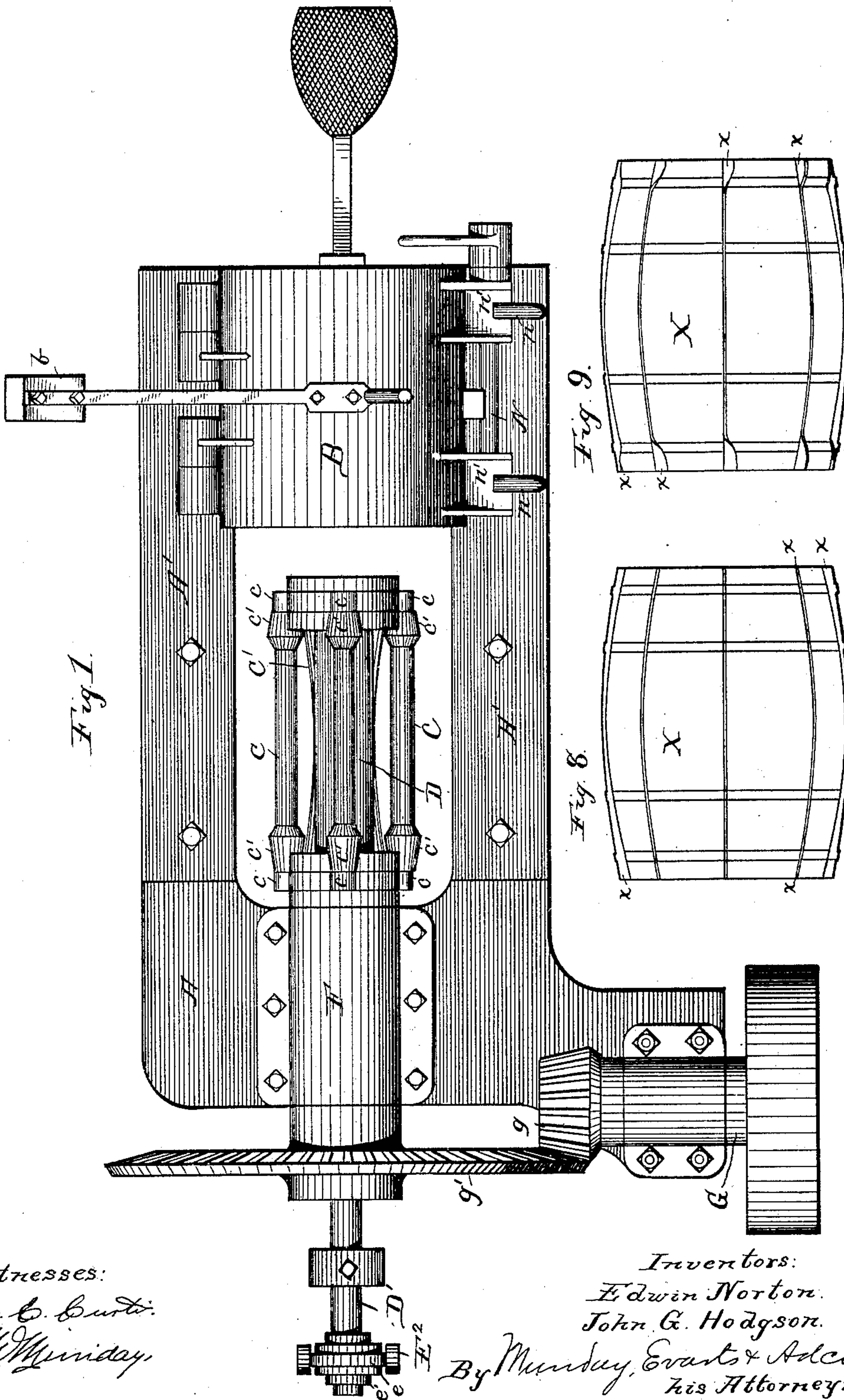
(No Model.)

3 Sheets—Sheet 1.

E. NORTON & J. G. HODGSON.
SHEET METAL BARREL MACHINE.

No. 354,569.

Patented Dec. 21, 1886.



Witnesses:
Law. C. Curtis.
A. W. Munday.

Inventors:
Edwin Norton.
John G. Hodgson.
By Munday, Evans & Adcock
his Attorneys:

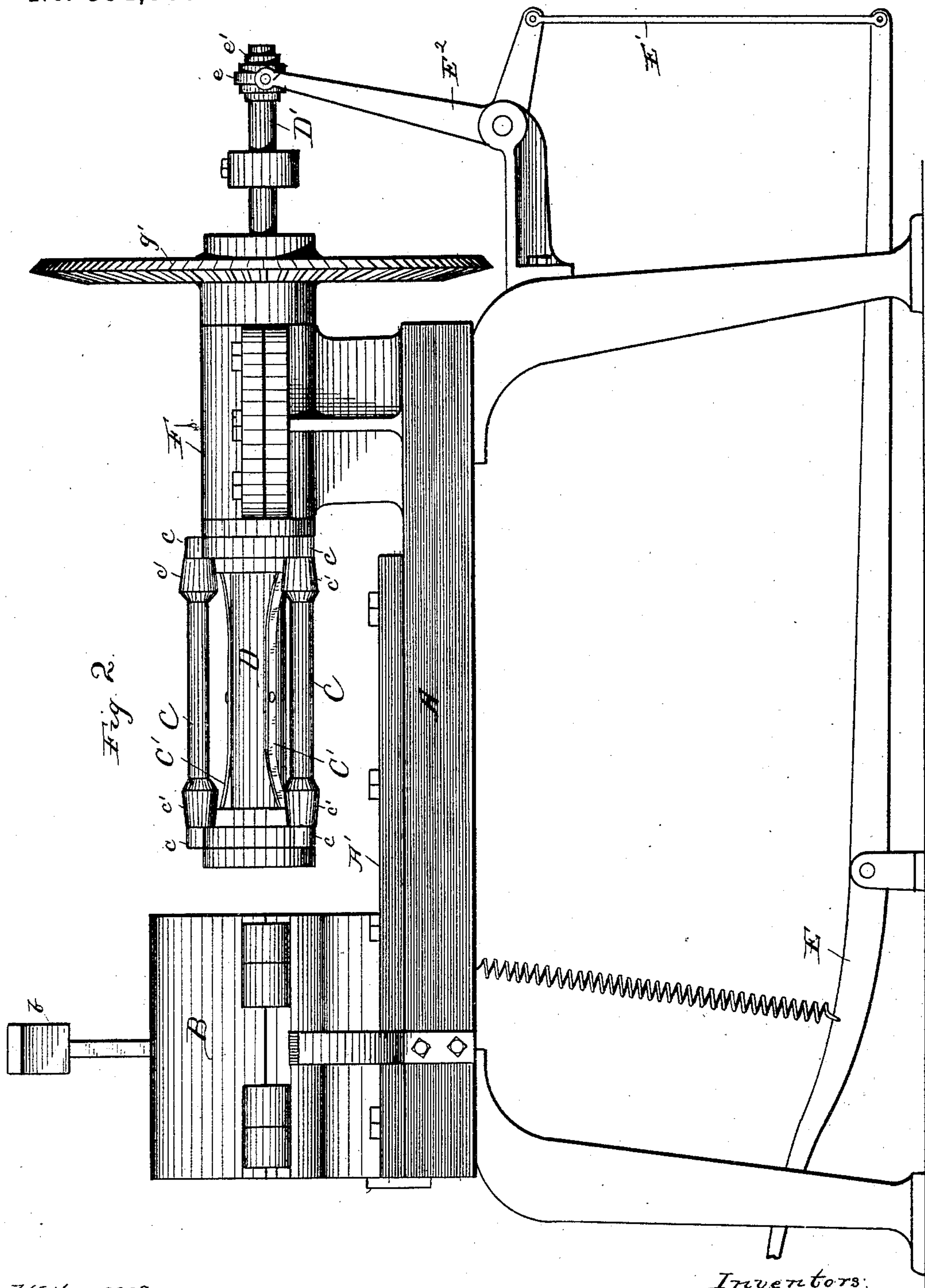
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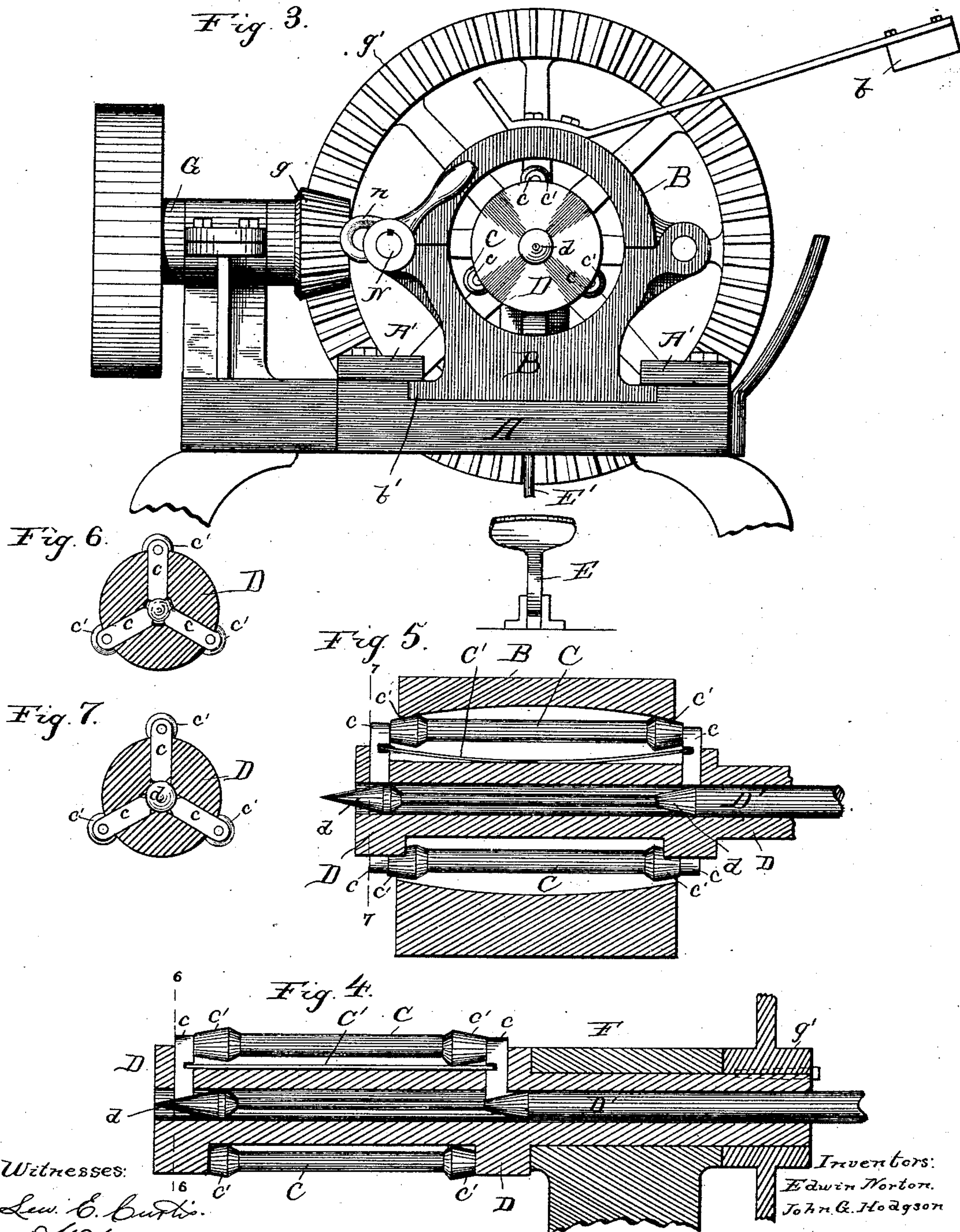
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Edwin Norton.

John G. Hodgson

By Munday, Everett & Cook
their Attorneys:

UNITED STATES PATENT OFFICE.

EDWIN NORTON AND JOHN G. HODGSON, OF CHICAGO, ILLINOIS, ASSIGNORS
TO EDWIN NORTON AND OLIVER W. NORTON, BOTH OF SAME PLACE.

SHEET-METAL-BARREL MACHINE.

SPECIFICATION forming part of Letters Patent No. 354,569, dated December 21, 1836.

Application filed September 3, 1886. Serial No. 212,569. (No model.)

To all whom it may concern:

Be it known that we, EDWIN NORTON and JOHN G. HODGSON, citizens of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Machines for Making Sheet-Metal Barrel-Bodies, of which the following is a specification.

This invention relates to the manufacture of sheet-metal vessels of a barrel form having gore shape or tapering longitudinal folds or ribs extending from end to end, to strengthen the body and give it the desired barrel or curved shape. In such bodies the longitudinal folds project radially inward, and would interfere with the proper inserting or seating of the ends or heads in the end of the barrel-body, and at the rim or extreme end of the body these folds are turned or folded down flat to permit the insertion of the heads.

The object of the present invention is to provide a machine for turning or folding down the folds or ribs at the rims of such barrel or other body; and to this end it consists in the novel devices and novel combinations of devices herein shown and described, and more particularly pointed out in the claims.

In the accompanying drawings, which form a part of this specification, and in which similar letters of reference indicate like parts, Figure 1 is a plan view of a device embodying our invention. Fig. 2 is a side elevation. Fig. 3 is an end view. Fig. 4 is a central longitudinal section of the reciprocating expansible revolving former. Fig. 5 is a similar view showing the former expanded. Fig. 6 is a cross-section on line 6 6 of Fig. 4. Fig. 7 is a cross-section on line 6 6 of Fig. 5. Figs. 8 and 9 are views showing the sheet-metal barrel-body before and after it is operated upon by the machine.

In said drawings, A represents the frame of the machine; B, the reciprocating mold for clamping the barrel or other body to be operated upon. The interior of this mold corresponds in shape to the barrel or body to be clamped therein. The upper half or part, B, of the mold is hinged to the lower half, and provided with locking clamps or devices opposite the hinge. The hinged part of the mold

is also furnished with a counterbalance-weight, *b*, to facilitate the opening and closing of the mold. The lower half of the mold B reciprocates in a suitable slideway, A', on the frame of the machine, the guides *b'* fitting in said slideway.

C C are formers journaled on radial slides *c*, which are mounted in radial slots or holes in the hollow revolving head D.

The formers C are preferably three in number, and have conical faces *c' c'* at each end to correspond to the curve or inclination of the mold B at its extremities. The radial slides *c* have or should have tapering or wedging inner ends, and are simultaneously operated by a reciprocating pin or wedge, D', having two cone-faces, *d d*; and which pin D' is mounted in the hollow revolving head D. The wedge or pin D' is operated by means of treadle or foot-lever E through link E', bent lever E², having yoke *e*, pivoted to a collar, *e'*, on the end of the shaft or wedge D'. The revolving head D is journaled in a suitable bearing, F, on the frame of the machine, and is driven from the driving-shaft G by a bevel-gear, *g*, thereon, which meshes with a bevel-gear, *g'*, on the revolving head D or its shaft.

In operation the sheet-metal barrel, as shown in Fig. 8, is placed within the reciprocating mold B. The operator then slides said mold over the revolving former C C, the former being then contracted, as shown in Figs. 1 and 2, and then the operator, by placing his foot upon the treadle E, expands the formers C C radially while they revolve inside the barrel clamped in the mold, and thus flatten or turn down the ribs or folds *x* of the barrel X, as shown in Fig. 9. When the pressure of the foot is removed from treadle E, the formers C C are retracted by the flat springs C', which are secured to the slides *c* at their ends and to the head D near their middle, so that the finished barrel-body with its mold B may be reciprocated off of the formers. The formers C C are preferably made round or conical and journaled upon the slides *c c*. Rigid or non-journaled formers may, however, be employed, if desired, in which case the revolving former C may be made integral with its slides *c c*. The cone-faces *d d* of the pin or wedge D' are simi-

lar to each other, so that the formers C C will be expanded equally at each end. By employing three or more radially-expansible formers they press against the can or barrel at three
5 radial points of the mold and counteract the pressure of each other, and thus serve to center the revolving head in the mold and to better sustain and support the stock of the barrel or can being acted upon.

10 In operating upon sheet-metal bodies of a cylindrical or other form the mold will of course be of a cylindrical or other form to correspond to the shape of the body.

It is preferable that the mold should conform to the shape of the can or sheet-metal
15 body throughout its entire length, as thereby the stock is better supported; but it may be made to so conform only at its ends which receive the pressure of the revolving expansible formers. The formers C C are duplicated
20 at each end, so as to operate at both ends of the barrel at once. The invention, however, may be practiced by machines constructed to operate on only one end of the barrel at a
25 time.

As shown in the drawings, the mold is intended to be reciprocated by hand. It may, however, be reciprocated automatically. An equivalent construction of our machine would
30 be to make the mold stationary and mount the revolving expansible former upon a reciprocating slide. The construction shown, however, is the preferable one.

The upper or hinged half of the mold is
35 locked or clamped closed by means of hooks or catches *n* on the crank-shaft N, which is journaled on the lower half of the mold, and which hooks *n* fit over lips or projections *n'* on the upper half of the mold.

40 We hereby disclaim the screw-threading device shown and described in the patent to F. F. Voight, No. 335,727, of February 9, 1886. In our invention both the mold and the revolving former have no reciprocating movement
45 while the work is being done, and the wedge or device for radially expanding the revolving former is movable, so that by gradually expanding the formers the radially-projecting ribs in the barrel-body may be gradually folded
50 down without breaking or cracking the stock. In said Voight patent the threading-tool is in fact not radially expansible while the work is being done, as in our invention, but is simply radially adjustable.

55 We claim—

1. The combination of a reciprocating mold, B, with a revolving hollow head, D, radial slides

c, former C, treadle E, link E', lever E², and collar *e'*, substantially as specified.

2. The combination, with a non-reciprocating revolving radially-expansible former, of a
60 reciprocating mold for clamping the vessel adapted to move the same over the revolving former and hold it stationary while said former is revolving and being expanded within it, and
65 mechanism for radially expanding said former as the same revolves, substantially as specified.

3. The combination, with a non-reciprocating revolving radially-expansible former, of a
70 reciprocating mold for clamping the vessel adapted to move the same over the revolving former and hold it stationary while said former is revolving and being expanded within it, a revolving hollow head, D, in which said radi-
75 ally-expansible former is mounted, a reciprocating wedge or pin, D', and a treadle and connecting mechanism for moving said wedge or pin, and thus radially expanding said former as it revolves, substantially as specified.

4. The combination, with a non-reciprocating
80 radially-expansible former, C, having a cone-face at each end, hollow revolving head D, having a pair of radial slides, *c*, upon which said former is journaled, a reciprocating wedge or pin, D', having two inclined faces, *d d*, to
85 operate said radial slides, a treadle and connecting mechanism for reciprocating said wedge or pin, and thus radially expanding said former as it revolves, and a reciprocating two-
90 part barrel-form mold for clamping the vessel adapted to move the same over said former and hold it stationary while said former is revolving and being expanded within it, sub-
stantially as specified.

5. The combination, with a revolving hollow
95 head, D, having three pairs of radial slides, *c c c*, and radially-expansible formers C C C, journaled upon said slides, and each having two cone-faces, reciprocating wedge or pin D', having two cone-faces, *d d*, to operate said radial
100 slides, springs C' C' C', mechanism for reciprocating said pin D' and thus radially expanding said formers as they revolve, and a reciprocating two-part barrel-form mold, B, for
105 clamping the vessel adapted to move the same over said formers and hold it stationary while said formers are revolving and being expanded within it, substantially as specified.

EDWIN NORTON.
JOHN G. HODGSON.

Witnesses:

S. W. NORTON,
O. R. SWIFT.