

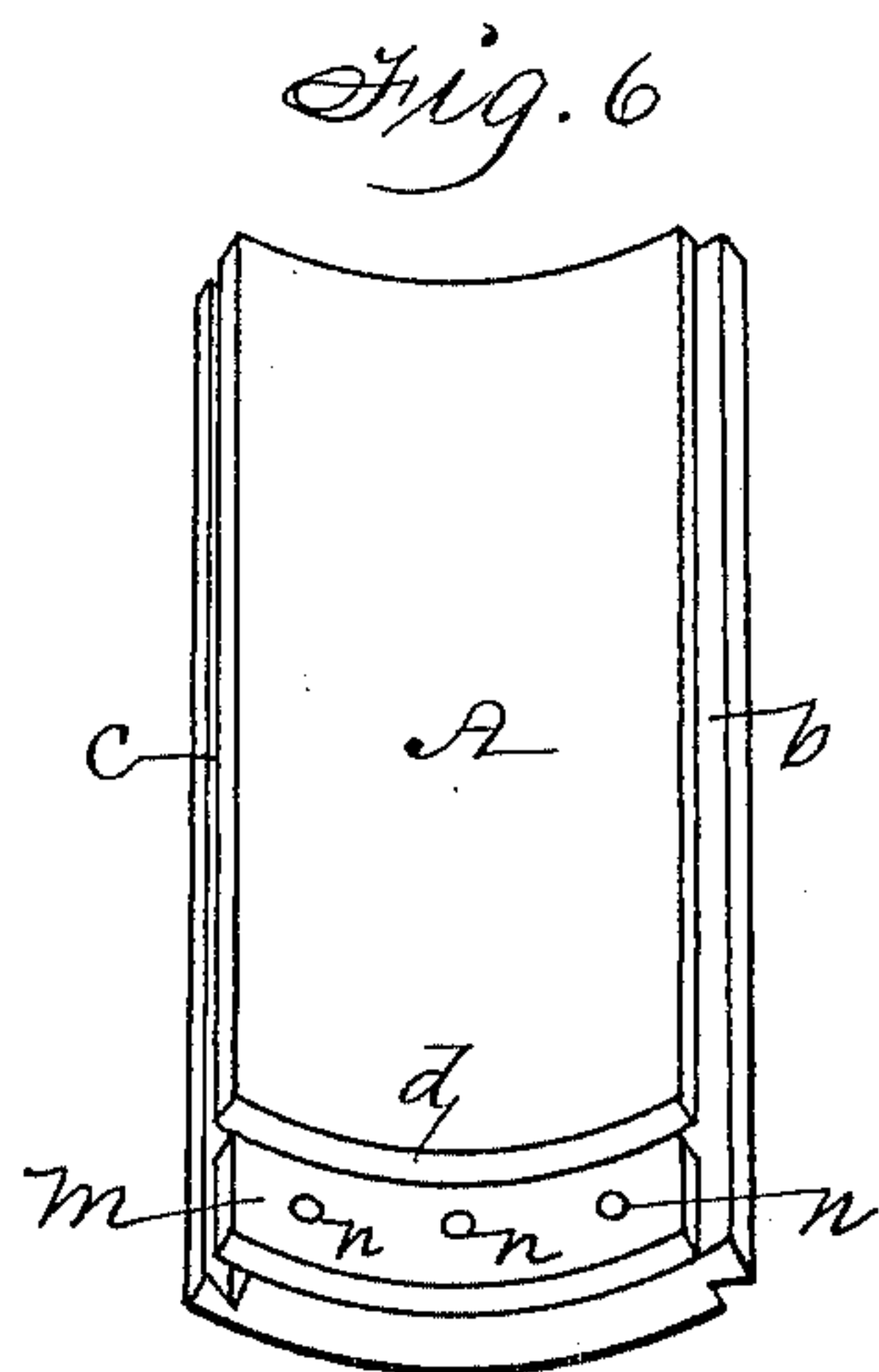
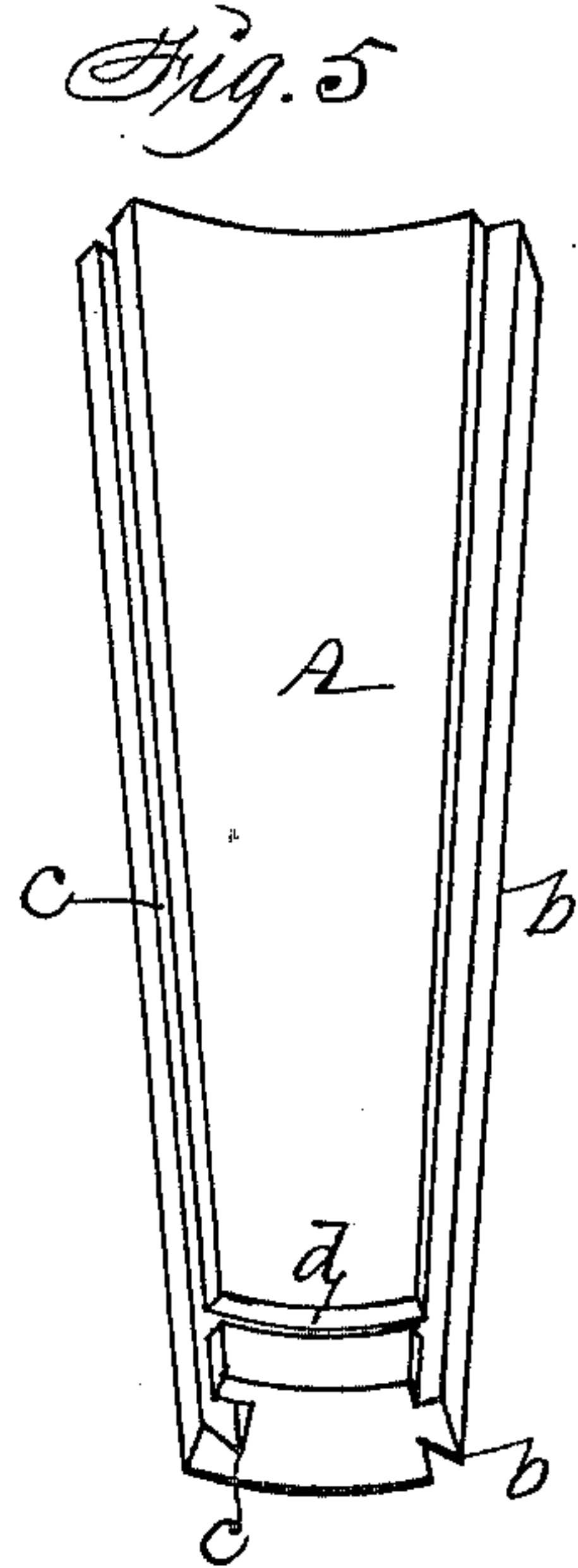
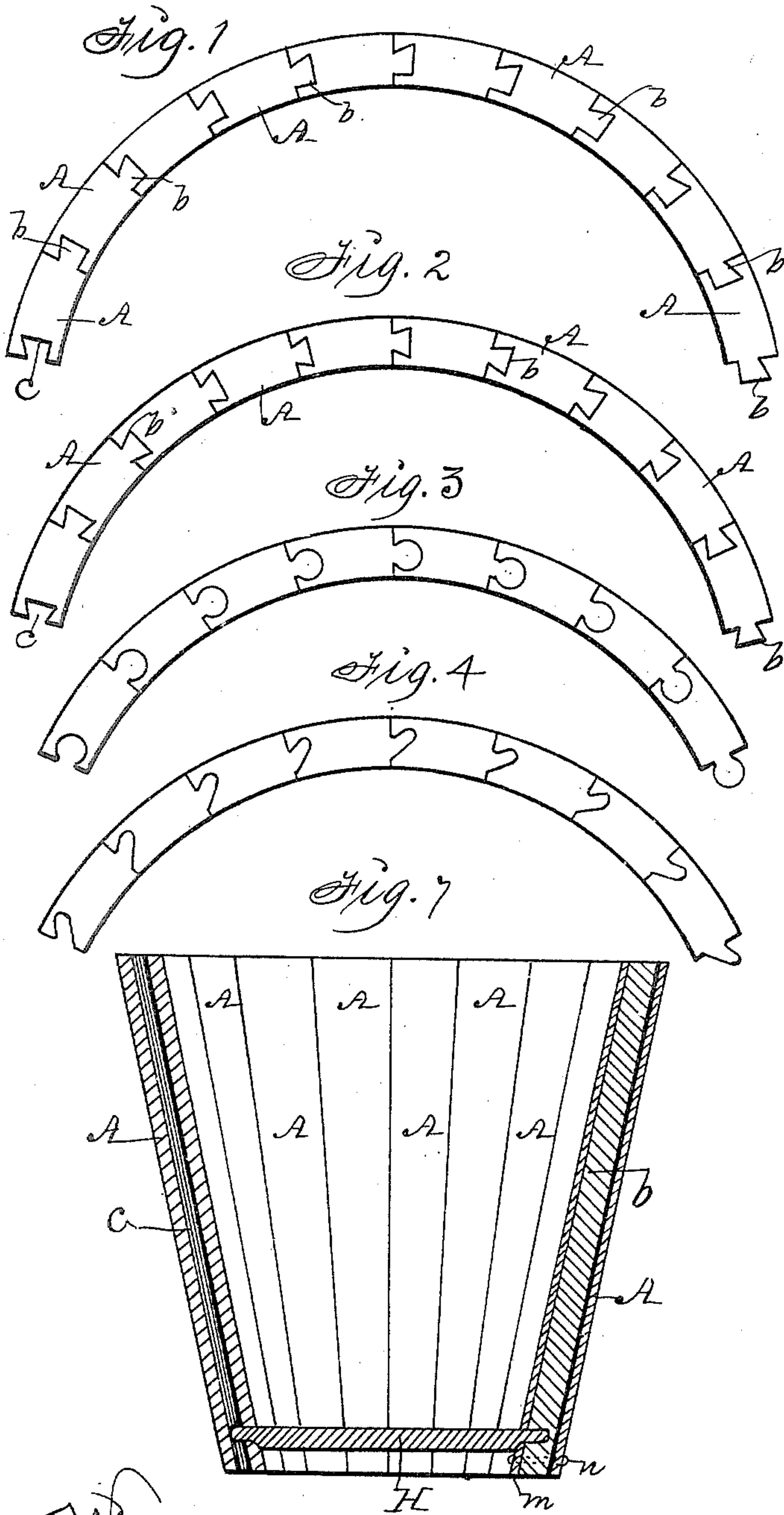
No. 667,953.

Patented Feb. 12, 1901.

G. ROSS.
WOODEN VESSEL.

(Application filed July 19, 1900.)

(No Model.)



Witnesses
L. H. Orwig,
J. C. Stuart.

Inventor: Grant Ross,
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UNITED STATES PATENT OFFICE.

GRANT ROSS, OF DES MOINES, IOWA, ASSIGNOR OF ONE-HALF TO J. C. TATE, OF SAME PLACE.

WOODEN VESSEL.

SPECIFICATION forming part of Letters Patent No. 667,953, dated February 12, 1901.

Application filed July 19, 1900. Serial No. 24,191. (No model.)

To all whom it may concern:

Be it known that I, GRANT ROSS, a citizen of the United States, residing at Des Moines, in the county of Polk and State of Iowa, have
5 invented a new and useful Wooden Vessel, of which the following is a specification.

My object is to prevent the annoyances and loss incident to wooden pails, tubs, and tanks leaking and collapsing on account of the
10 shrinking of the wood and consequent impairment of the joints.

My invention consists in the construction and combination of interlocking staves, a bottom, and a locking device for retaining
15 all the parts united, as hereinafter set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a top view of a section of a cylindrical vessel of equal diameter from top to
20 bottom. Figs. 2, 3, and 4 show modified forms of tongues and grooves for joining staves together. Fig. 5 is a perspective view of a tapering stave adapted for making wooden vessels that are larger in diameter at
25 the top than at the bottom. Fig. 6 is a perspective view of the lower end portion of a stave adapted for locking all the parts together. Fig. 7 is a vertical sectional view of a pail and shows how the staves and bottom
30 are locked together.

The letter A designates a wooden stave that may vary in width, thickness, and length as desired. It has an integral tongue *b* at one edge, extending its entire length and that is
35 narrower at its inner portion than at its outer portion, and a corresponding groove *c* in its other edge, adapted to admit the tongue *b* by inserting the lower end of the tongue of the mating stave into the top of the groove and
40 then pressing it downward to produce a joint extending from top to bottom. The connection thus produced between adjoining staves will prevent them from becoming separated without moving them longitudinally, and
45 consequently the abutting edges of staves will remain securely connected when the wood shrinks, and the vessel therefore cannot collapse.

Each stave A has a transverse groove *d* on
50 the bottom portion of its inside face, and when they are in coinciding position the circumfer-

ential edge of the bottom H is fitted and fixed in said transverse grooves.

In assembling the staves that are to be connected to form a vessel they are all joined
55 together at their edges by means of the tongues *b* and grooves *c*, excepting one, before the bottom is put in place. Leaving out the one stave that has the locking device at its lower end allows the bottom H of the vessel to be
60 connected with the assembled staves. By then pressing the locking-stave into its place all the staves are thereby keyed together. The only difference between the locking-stave and the others is that in place of a transverse
65 groove *d* in its lower end portion a section is removed and a removable block *m* fitted in its place and fastened thereto by means of pins or screws *n*, as shown in Figs. 6 and 7, or in any suitable way, so that the key or
70 locking stave cannot move, and consequently all the parts will be securely locked together, so that when the wood does shrink they will nevertheless remain securely connected, and swelling the wood will again make the joints
75 water-tight.

Heretofore metal straps have been fixed to staves above the bottom and extended below the bottom and fixed to the under side of the
80 bottom; but it is objectionable to have metal straps exposed on the inside of a vessel and greatly advantageous to have the locking device entirely below the bottom of the vessel.

Having thus described the manner of forming and combining the staves and bottom and
85 locking them together, the advantages and practical utility of my invention will be readily understood by persons familiar with the art to which it pertains, and

What I claim as new, and desire to secure
90 by Letters Patent, is—

1. In a cylindrical wooden vessel, a plurality of staves each having a tongue on one of its edges extending from end to end and a corresponding groove in its other edge and
95 coinciding transverse grooves in the inside faces and lower portions of the staves and the lower end of one stave adapted for fastening a locking device thereto below its transverse groove, arranged and combined in the man-
100 ner set forth for the purposes stated.

2. A cylindrical wooden vessel, a plurality

of staves each having a tongue on one of its
edges extending from end to end and a cor-
responding groove in its other edge and coin-
ciding transverse grooves in the inside faces
5 and lower portions of the staves, and the
lower end of one stave adapted for fastening
a locking device thereto below the transverse
grooves, a bottom fitted in the coinciding
transverse grooves in the staves and a lock-
10 ing device positioned on the under side of the
bottom and fixed to one of the staves, ar-
ranged and combined for the purposes stated.

3. A cylindrical wooden vessel comprising

a plurality of staves joined together by means
of tongues and grooves at their edges and 15
provided with coinciding transverse grooves
in their inside faces and lower portions, a
bottom fitted in said transverse grooves and
a locking-stave having an inside face portion
removed from its lower end and a block fitted 20
and fixed in its place, arranged and combined
as and for the purposes stated.

GRANT ROSS.

Witnesses:

E. P. ALEXANDER,
THOMAS G. ORWIG.