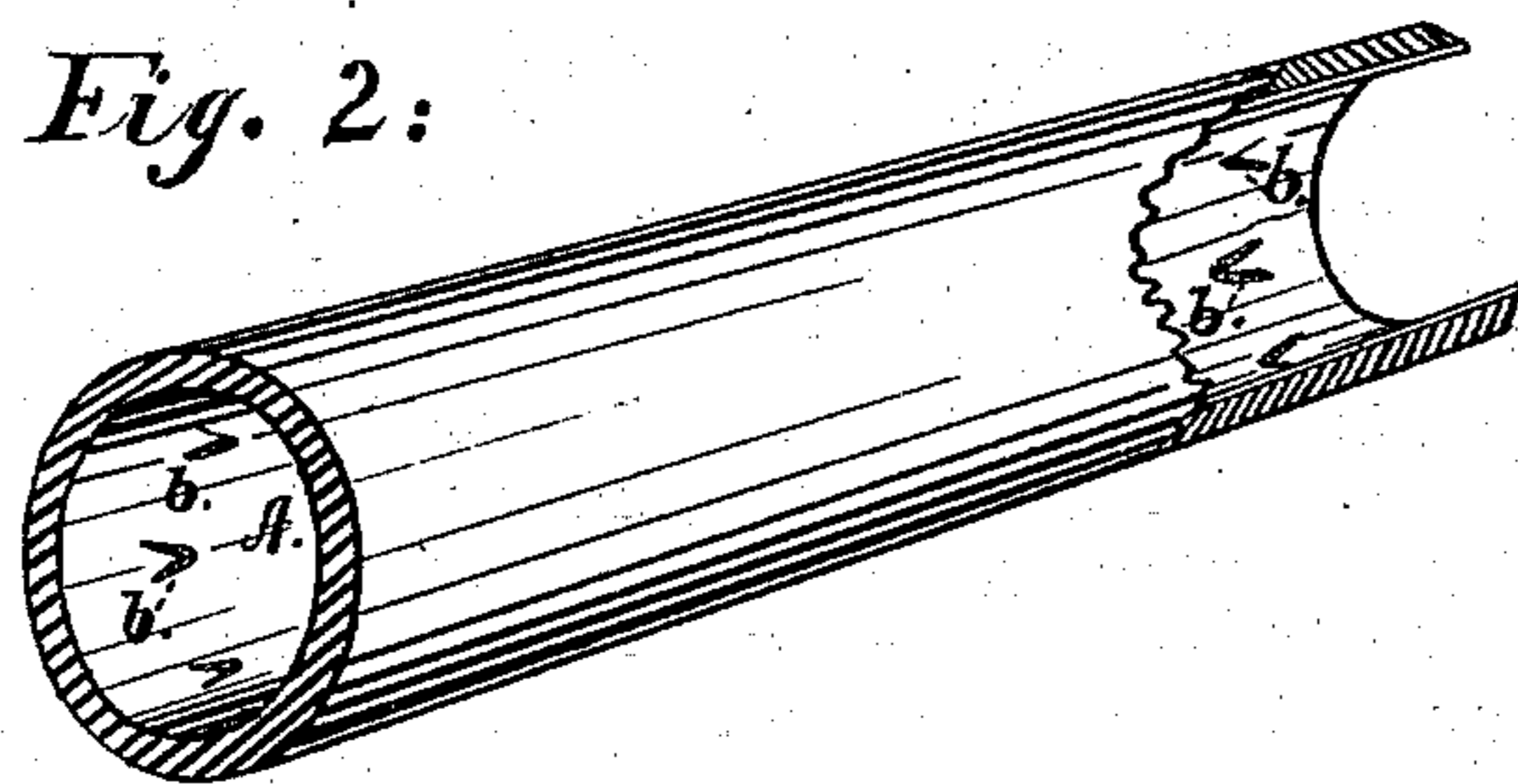
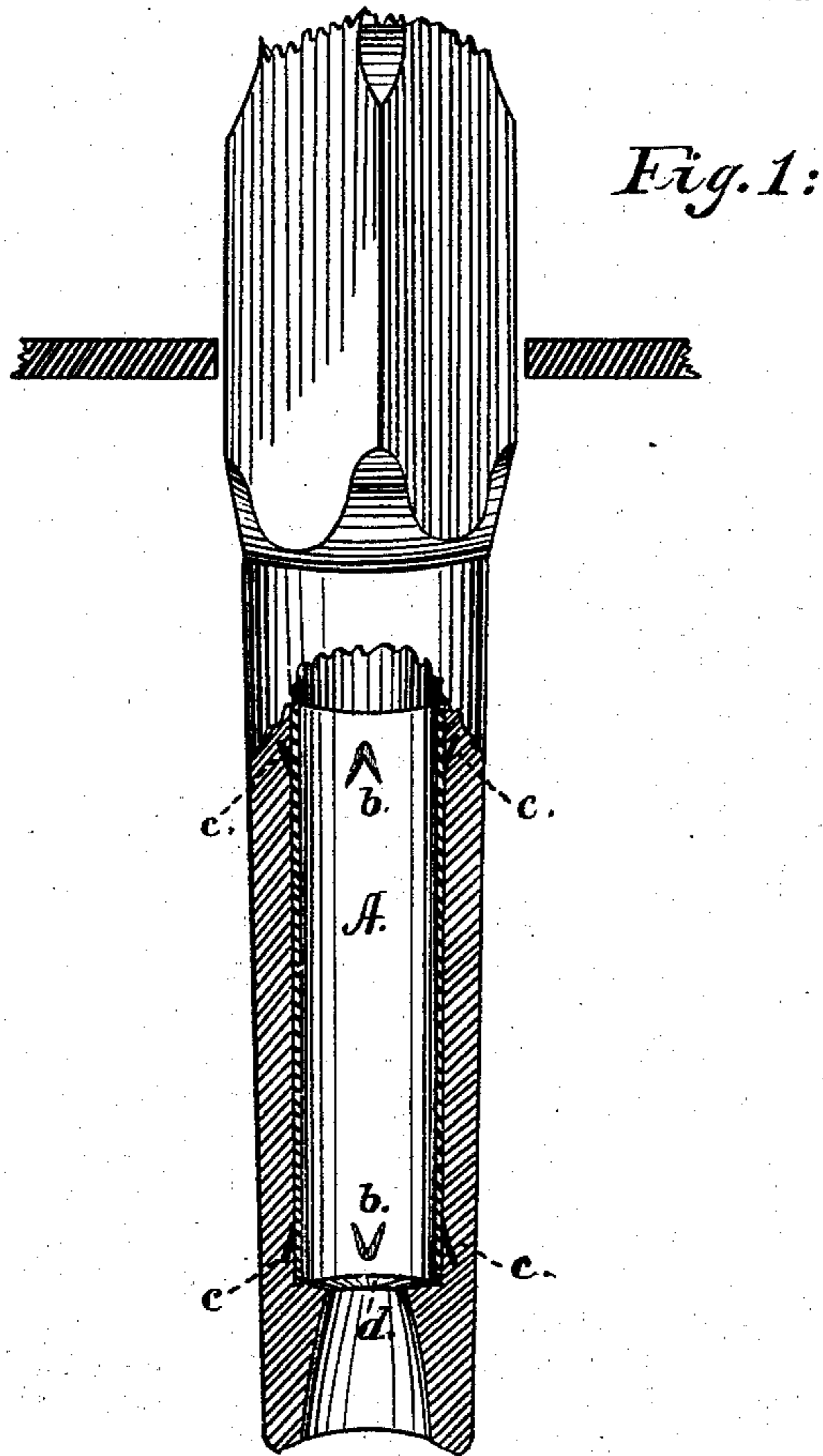


M. WOODHULL.

Fastening the Metallic Lining in Wooden Pumps.

No. 156,901.

Patented Nov. 17, 1874.



Witnesses:

*Albert Rem
Jacob H. Lutz*

Inventor:

M. Woodhull

UNITED STATES PATENT OFFICE.

MORRIS WOODHULL, OF DAYTON, OHIO.

IMPROVEMENT IN FASTENING THE METALLIC LININGS IN WOODEN PUMPS.

Specification forming part of Letters Patent No. **156,901**, dated November 17, 1874; application filed October 14, 1874.

To all whom it may concern:

Be it known that I, MORRIS WOODHULL, of the city of Dayton, State of Ohio, have invented a new and useful Improvement in the Method of Fastening the Metallic Lining in Wooden Pumps; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 represents the lower part of a wooden pump-stock, with a portion broken away to show the position and method of fastening the metallic cylinder. Fig. 2 is a perspective view of that portion of the stock in which the lining is situated, and shows at each end the location of the punctures with regard to each other.

My invention relates to that class of wooden hand-pumps in which it is the custom to line the lower portion of the head or stock with sheet metal, or its equivalent, in order to prevent the wear caused by the action of the sucker or bucket; and I take advantage of the swelling action of water upon wood to form an easy and secure method of fastening the lining by punching a number of triangular or any other shaped pieces from the lining into the encompassing wood of the pump-stock, thus forming barbs or detents to the outer surface of the metal cylinder, which hold it securely in position by the combined action of the detents upon the wood and of the water, causing the wood to embrace said detents.

In the accompanying drawings, A is the metallic cylinder, made to fit into the head of the pump at the point where the sucker works, and it is of a length greater than the stroke of the plunger, in order to allow room for punching the detents *b b* outside of the space in which the bucket moves. This cylinder is made of sheet metal, and is soldered to make a smooth and tight joint. The lower end usually rests upon a shoulder, *d*, Fig. 1, which prevents it being moved by the downward stroke of the sucker.

By using a triangular punch, though I do not wish to confine myself to this particular

shape, the detent or barb will have a sharp point, which will enter the wood and form a secure fastening. A row of four of these at each end is sufficient. These fastenings are made more secure by having the points of the detents at one end of the cylinder lying in an opposite direction to those at the other end. The force to be withstood is the action of the sucker, and while the points of the detents might lie in one direction, yet a more secure fastening is made by having them in opposite directions. It can be seen at *c c* how these points enter and are engaged by the wood encompassing them.

Another essential feature to be observed in this method of fastening is the security from any danger of splitting the wood while attaching the cylinder, although the bore of the pump may be imperfect and tend to one side—a circumstance which not unfrequently occurs.

I am aware that a fastening has been made by sinking a flange formed at each end of the cylinder into the wood of the pump; but this method necessitates a strain upon the wood, which often causes it to split, especially if the bore be imperfect.

My method of fastening, while very easily and quickly performed, is rendered doubly secure by the action of the water on that part the wood which is exposed by puncturing the cylinder. This action of the water swells the exposed wood, and causes it to embrace and crowd over the edges of the detents or barbs.

Having fully described my invention, I claim and desire to secure by Letters Patent—

The metallic cylinder A, secured to the interior of a wooden pump-stock by means of barbs or detents *b b* forced into the wood, and held in position by the swelling action of the water upon the wood exposed by puncturing said detents, substantially as herein described, and for the purpose specified.

Witness my hand this 10th day of October, 1874.

MORRIS WOODHULL.

Witnesses:

ALBERT KERN,
JACOB F. LENTZ.