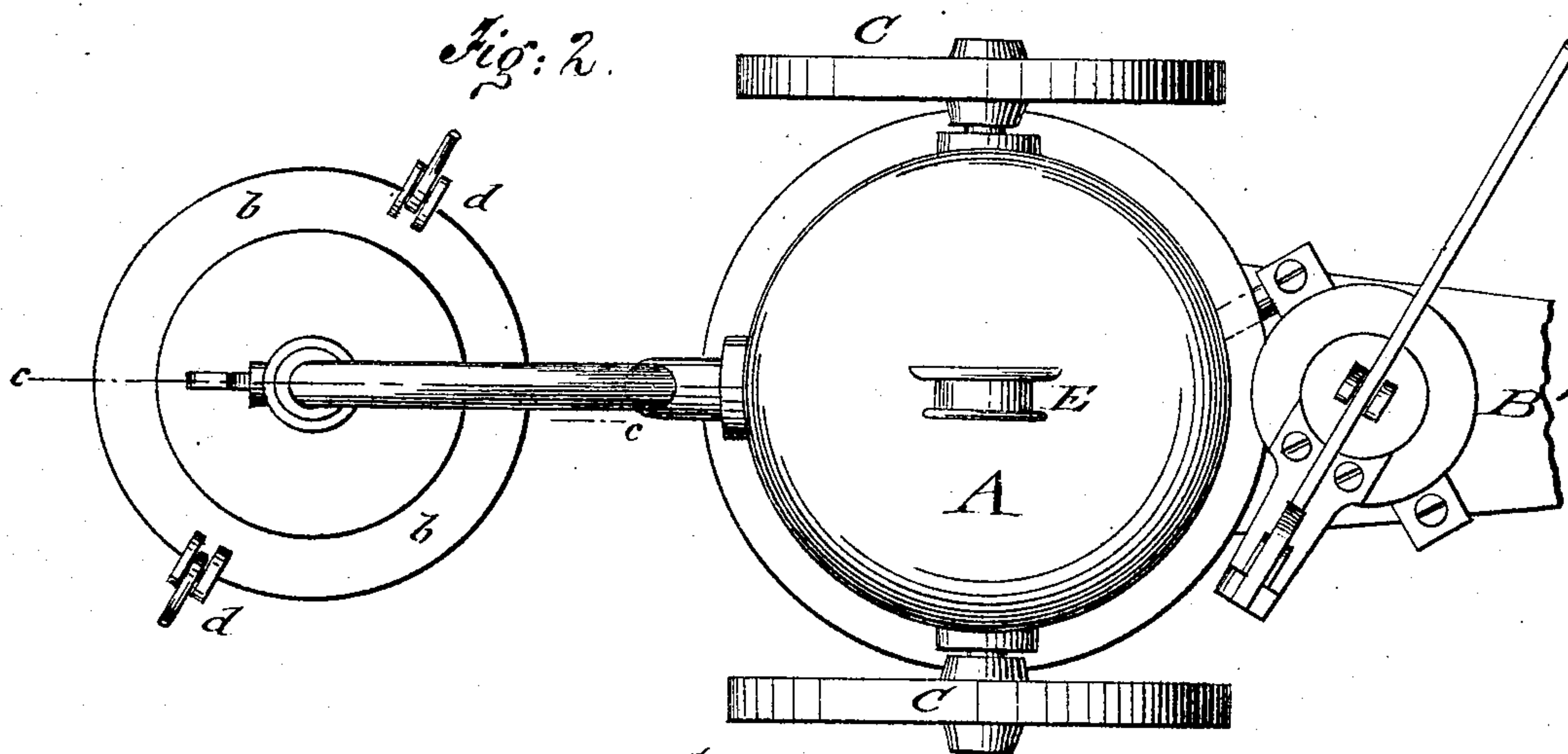
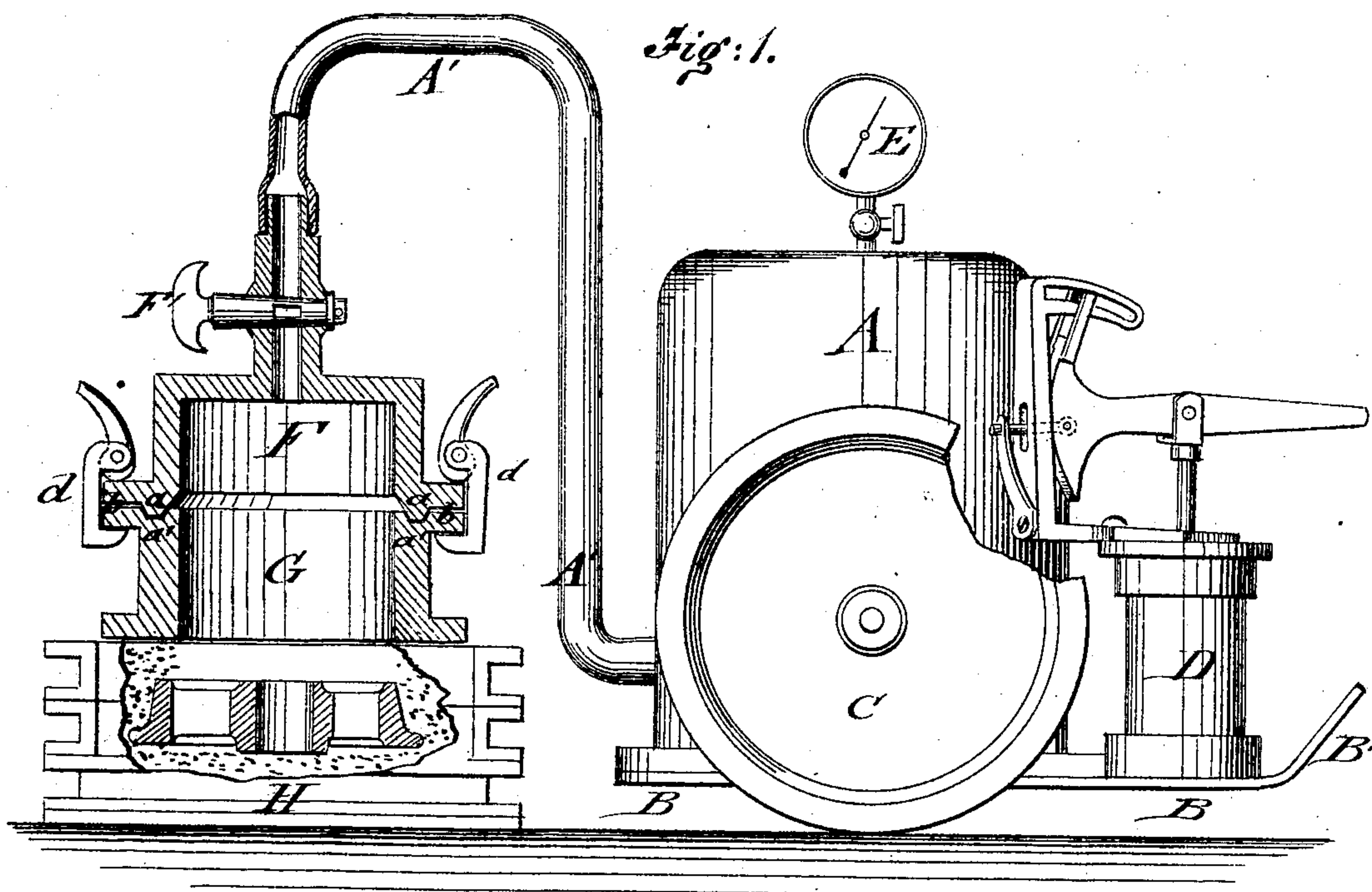


**H. W. BARNUM.**  
**Apparatus for Compressing Cast Metals in**  
**Liquid State.**

No. 145,325.

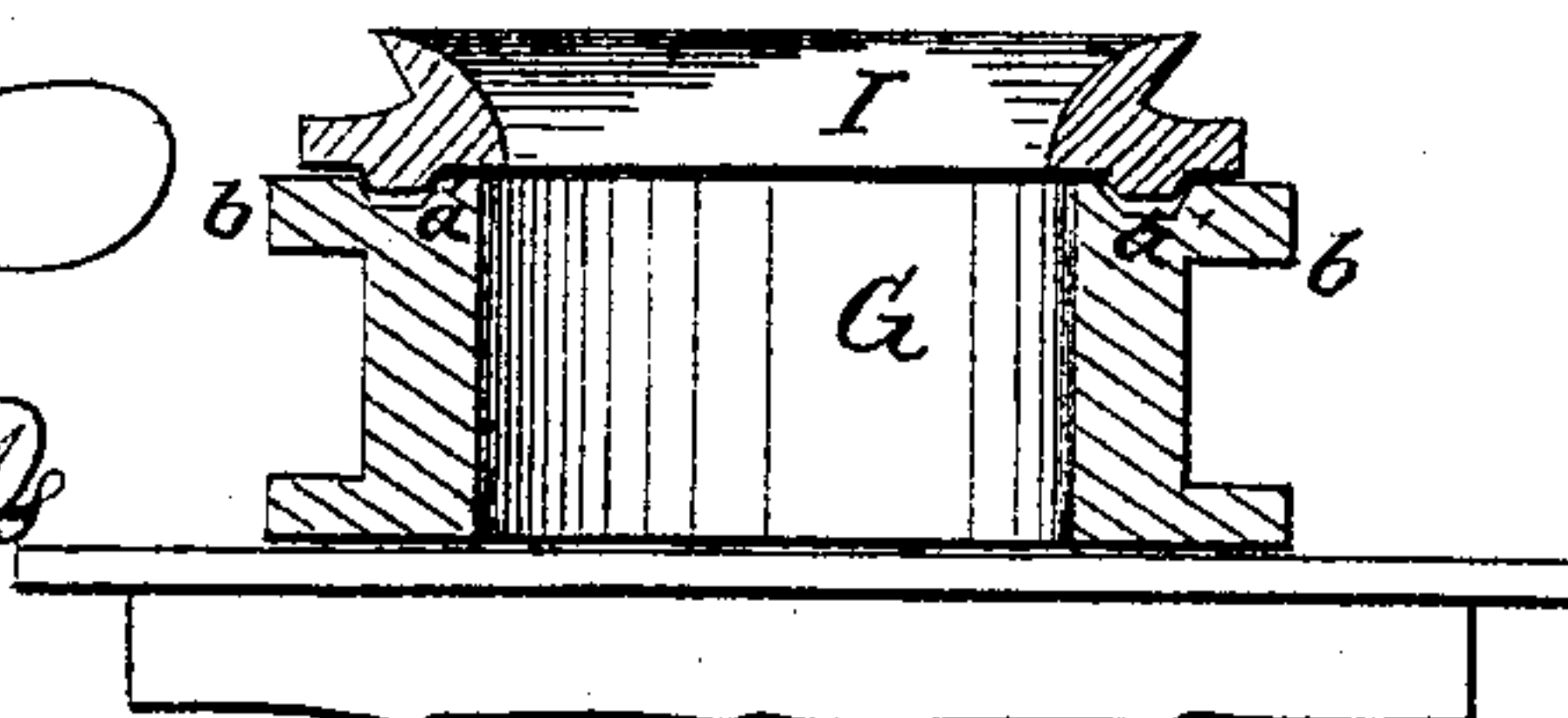
Patented Dec. 9, 1873.



*Fig: 3.*

**Witnesses:**

*Chas. Nida.*  
*Alex. F. Roberts*



**Inventor:**

*H. W. Barnum*  
**Per** *Munn & Co.*  
**Attorneys.**

# UNITED STATES PATENT OFFICE.

HORACE W. BARNUM, OF OMAHA, NEBRASKA.

## IMPROVEMENT IN APPARATUS FOR COMPRESSING CAST METALS IN LIQUID STATE.

Specification forming part of Letters Patent No. **145,325**, dated December 9, 1873; application filed September 27, 1873.

*To all whom it may concern:*

Be it known that I, HORACE W. BARNUM, of Omaha, in the county of Douglas and State of Nebraska, have invented a new and Improved Apparatus for Compressing Cast Metals in Liquid State, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a side elevation, partly in section, of my improved apparatus for compressing cast metal in the liquid state; Fig. 2, a top view of the same; and Fig. 3, a vertical central section on line *c c*, Fig. 2, of flask, cylinder, and ring.

Similar letters of reference indicate corresponding parts.

The object of my invention is to provide a portable convenient apparatus for solidifying cast metals in their liquid state by compressed air, which is forced directly on top of gate in flask after the metal is poured.

I do not claim to have originated the process of compressing metals when in the liquid state, but an improved apparatus for the purpose.

My invention consists of a portable reservoir for compressed air, with a pump attached, which latter is connected by rubber hose with a cylindrical cap that is fitted and clamped to a cylinder that is fastened to the top of flask, as hereinafter described.

In the drawings, A represents the portable reservoir, which is set on a platform, B, and provided with side wheels C, to be moved to the required place. A pump, D, is connected with reservoir A, and serves to compress the air therein. A gage, E, on reservoir, indicates the pressure of the air therein. A shaft and handle, B', of platform B, allows the removal of the reservoir like a wheelbarrow. Reser-

voir A connects, by a strong rubber or other hose, A', with a cylindrical cap, F, with a stop-cock, F', which regulates the action of the compressed air. Cap F fits nicely, by a rim, *a*, into a corresponding groove, *a'*, of connecting cylinder G, which is firmly attached to the top of flask H by bolts, dovetailed sides, or otherwise. Both cylinders F and G are coupled together by projecting flanges *b* and clamps *d*. The flask-cylinder G is provided with a clay wash, and, previous to the pouring of the liquid metal, with a ring or cap-piece, I, set on top to prevent the hot metal from coming in contact with the clay wash.

The ring I is removed as soon as the metal is poured, cap F then clamped on cylinder G, and stop-cock F' opened, so that the compressed air is let directly on top of metal through the gate of flask, compressing thereby the metal in the molds.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent—

1. The combination, with the flask and cylinder H G, of the removable cap F, rubber pipe A', and movable air-cylinder A, and pump D, as shown and described.

2. The cylinder G and removable cap F, connected by rim and groove *a a'*, and flange and couplings *b d*, in combination with the flask H, said cap and cylinder united forming a receiver for the air from the forcing apparatus, as shown and described.

HORACE W. BARNUM.

Witnesses:

BYRON REED,  
C. L. BRISTOL.