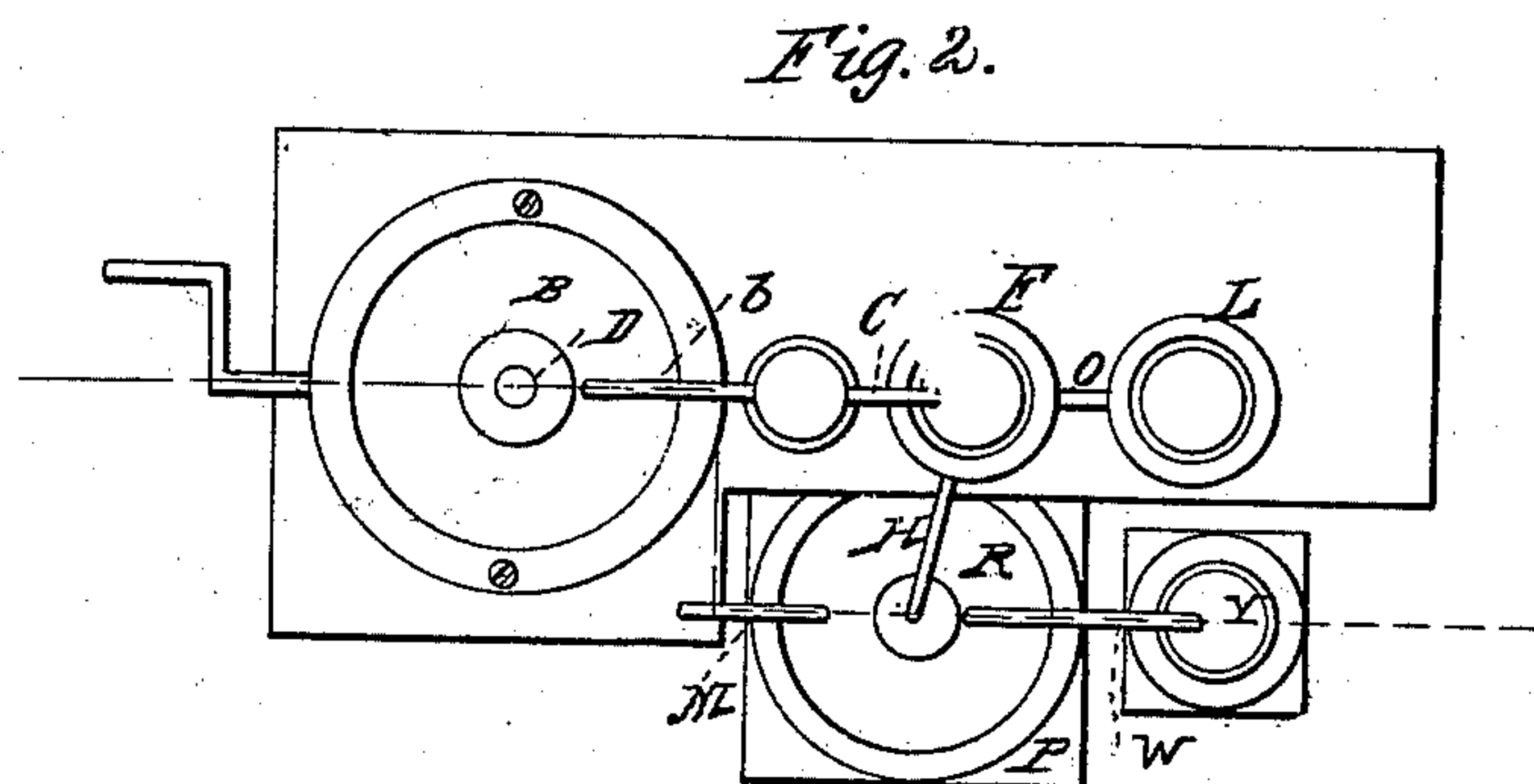
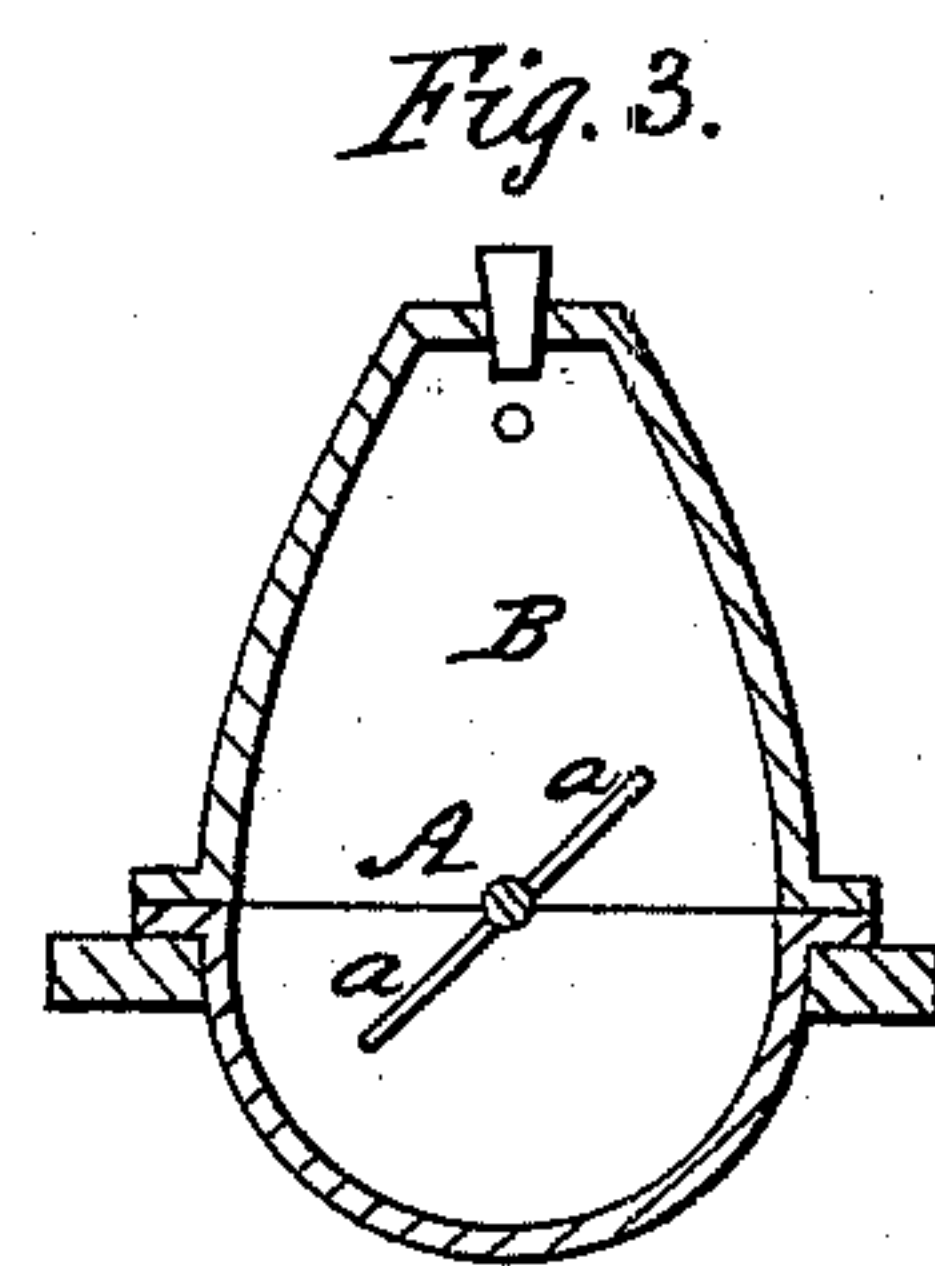
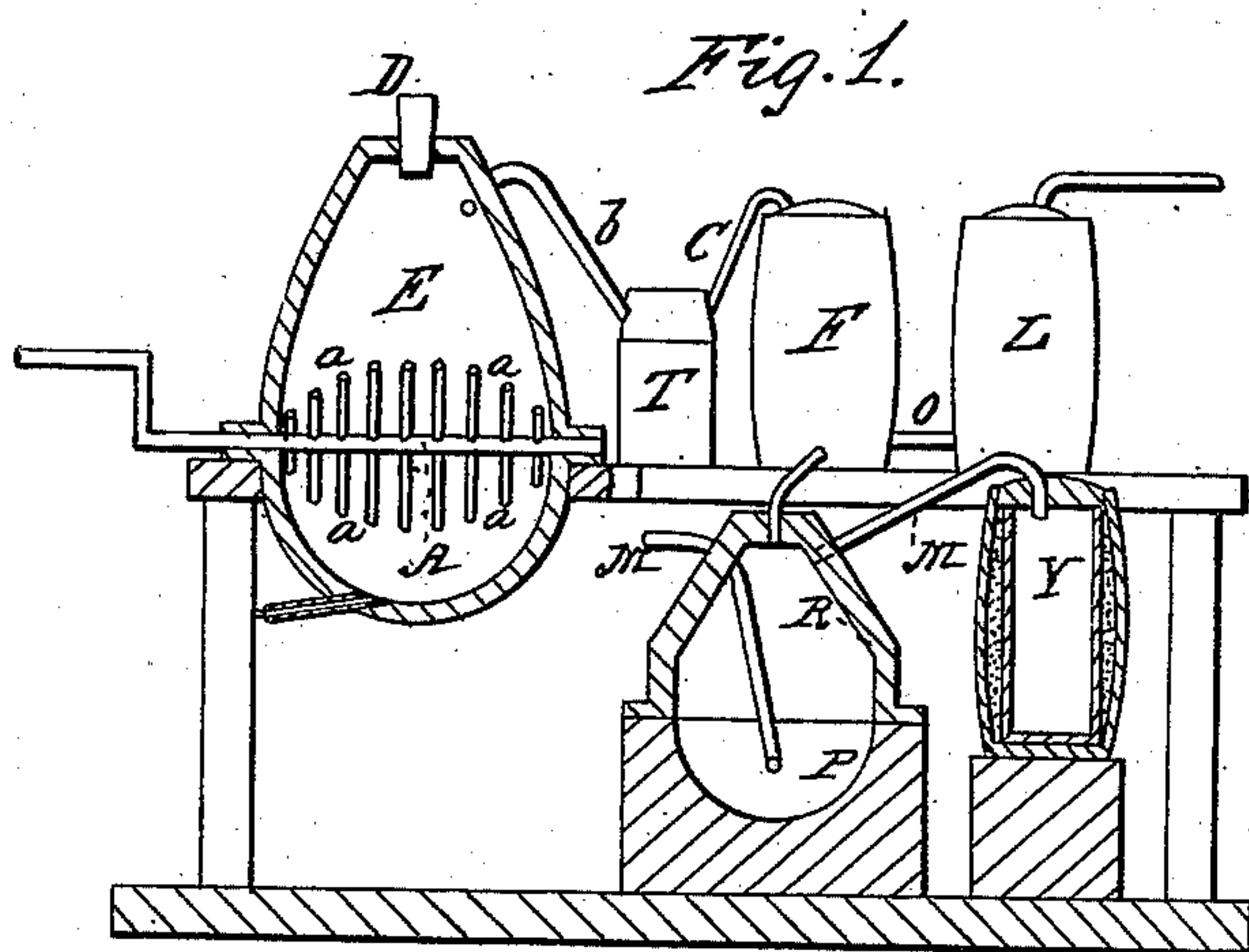


P. O'REILLY.
Making Nitric Acid.

No. 16,879.

Patented March 24, 1857.



UNITED STATES PATENT OFFICE.

PHILIP O'REILLY, OF PROVIDENCE, RHODE ISLAND.

APPARATUS FOR MAKING NITRIC ACID.

Specification of Letters Patent No. 16,879, dated March 24, 1857.

To all whom it may concern:

Be it known that I, PHILIP O'REILLY, of the city of Providence, in the county of Providence and State of Rhode Island, have
5 invented a new and useful Improvement in the Process of Manufacturing Nitric Acid; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompany-
10 ing drawings, making a part of this specification, in which—

Figure 1, is an elevation, partly in section, of an apparatus for the manufacture of nitric-acid. Fig. 2, is a plan of the same;
15 and Fig. 3, is a vertical section of the retort, at right angles to Fig. 1.

Similar letters of reference indicate corresponding parts, in each of the several figures.

20 This invention consists in forcing steam or hot air through the impure acid in the purifier, for the purpose of causing a more rapid and perfect expulsion of the nitrous fumes and chlorin.

25 To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

B, is the retort, which I make of wrought iron.

30 D, is a stopper which is removed to charge the retort.

35 A, is the agitator, consisting of a shaft, passing through a suitable box on one side of the retort, and working in a suitable box on the other side, and having attached a series of radiating arms *a, a*. By giving a rotary motion to the shaft, the arms *a, a*, are caused to agitate or stir the combusti-

bles in the retort. This may be done by hand, through the agency of a crank, or by
40 power applied through any suitable agency.

T, is the first receiver, which receives the vapor from the retort through a pipe *b*.

F, L, are two condensers, which only differ from those generally used in being
45 made of enameled iron, and in being surrounded by water. By the use of such condensers, I am enabled to condense the acid in smaller space and obviate the breakage to which earthen condensers are liable.
50

C, is a pipe, which conveys the vapor from the first receiver T, to the condenser F.

O, is a pipe which connects the two condensers.

P R, is the purifier, consisting of a granite
55 block P, hollowed out, and having a brick dome R, erected upon it.

H, is a pipe, leading from the condenser F, to the purifier.

M, is a pipe to convey steam or hot air
60 from a boiler or hot blast apparatus, below the surface of the acid in the purifier, to blow up through the acid, to expel the nitrous fumes and chlorin.

W, is a pipe, to convey the nitrous fumes
65 and chlorin to a receiver and condenser, Y.

What I claim as my invention and desire to secure by Letters-Patent, is:

Purifying nitric acid, in the manufacture, from chlorin and nitrous fumes, substan-
70 tially in the manner set forth.

PHILIP O'REILLY.

Witnesses:

STEPHEN MARTIN,
MATTHEW KENNEY.