

No. 746,245

PATENTED DEC. 8, 1903.

R. BAGGALEY.
MACHINE FOR CASTING METAL.

APPLICATION FILED MAR. 16, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

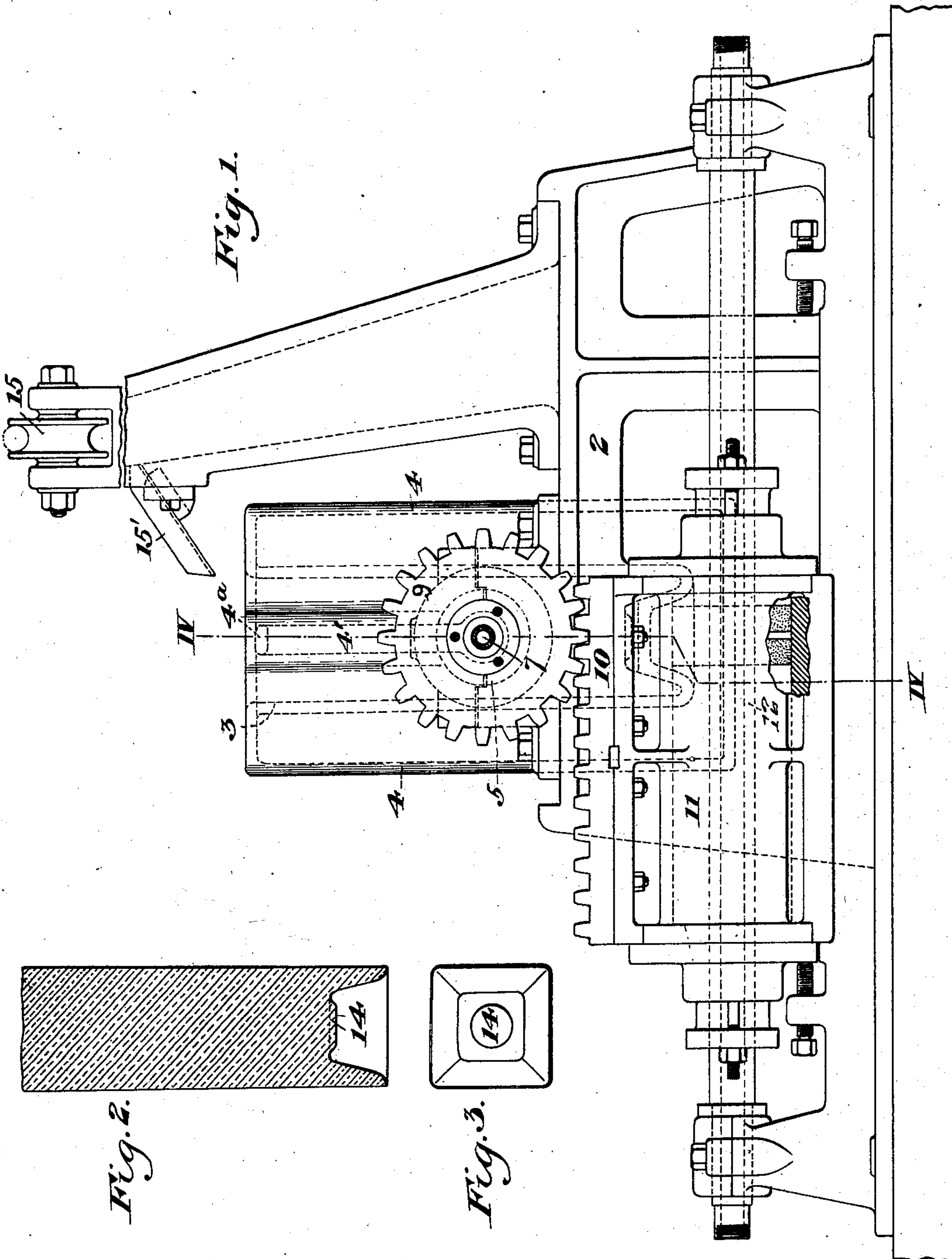


Fig. 2.

Fig. 3.

WITNESSES

E. M. Lindquist.
Geo. B. Fleming

INVENTOR

Ralph Baggailey

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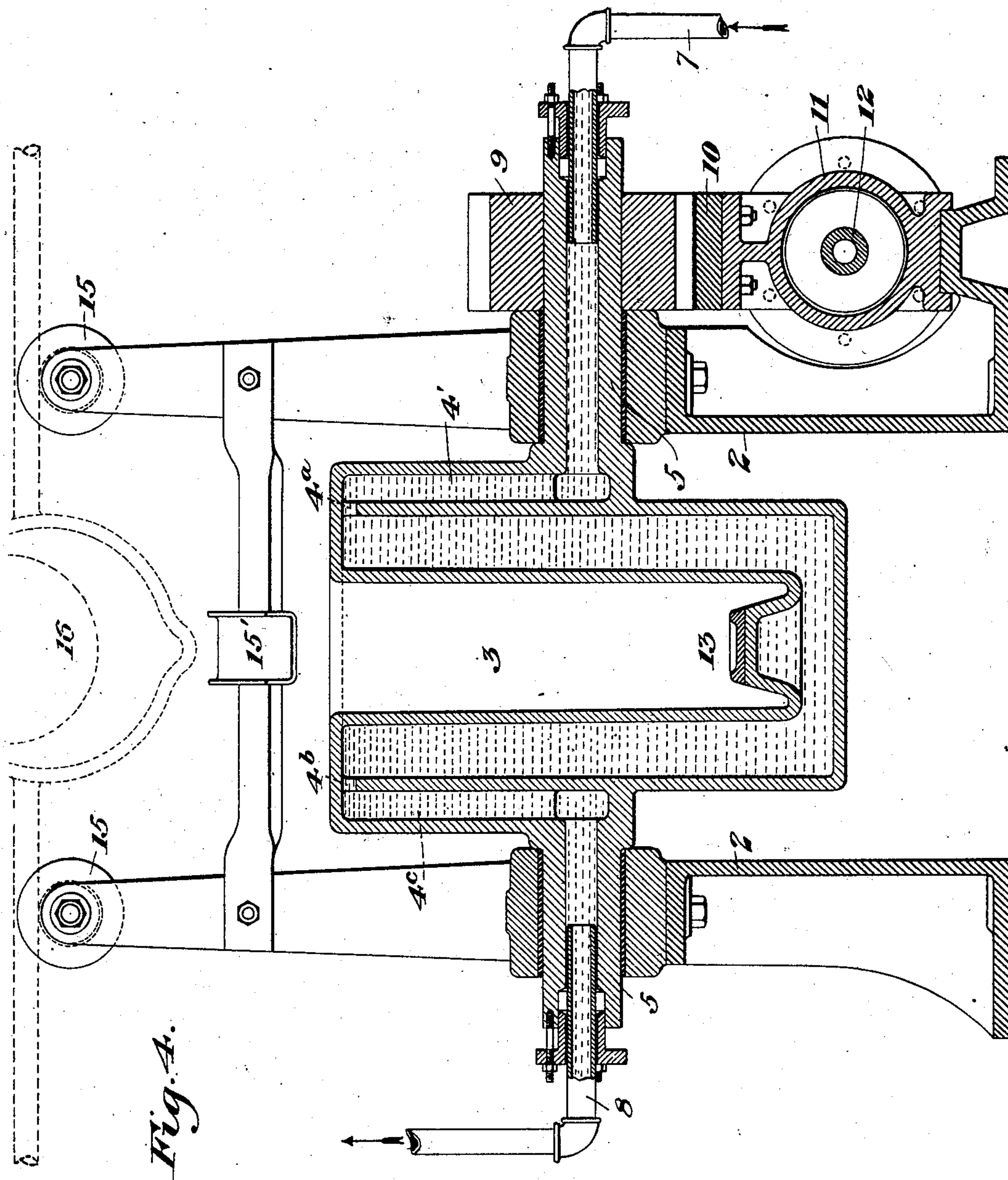


Fig. 4.

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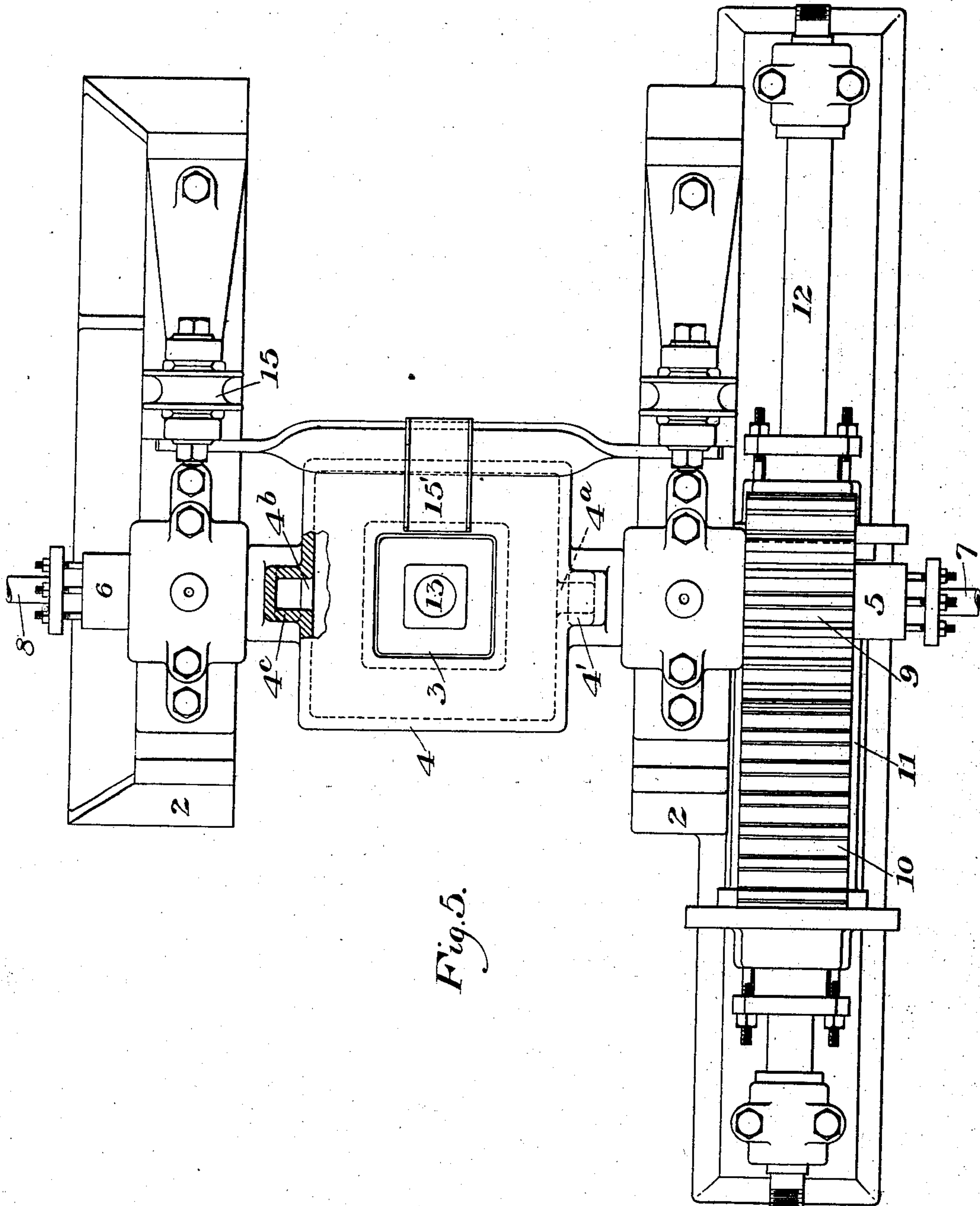


Fig. 5.

WITNESSES

L. A. Conner
L. M. Corwin

INVENTOR

Ralph Baggageley

UNITED STATES PATENT OFFICE.

RALPH BAGGALEY, OF PITTSBURG, PENNSYLVANIA.

MACHINE FOR CASTING METAL.

SPECIFICATION forming part of Letters Patent No. 746,245, dated December 8, 1903.

Application filed March 16, 1903. Serial No. 147,985. (No model.)

To all whom it may concern:

Be it known that I, RALPH BAGGALEY, of Pittsburgh, Allegheny county, Pennsylvania, have invented a new and useful Machine for Casting Metal, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of my improved machine. Figs. 2 and 3 are a vertical section and a bottom end view of a pig cast therein. Fig. 4 is a vertical section on the line IV IV of Fig. 1, and Fig. 5 is a plan view of the machine.

The operation of casting copper pigs as heretofore conducted has been very wasteful, not only because the apparatus which has been employed causes the spilling of a considerable portion of the metal in pouring it into the molds, but also because the pigs are cast with fins, which, absorbing oxygen from the air, become very brittle and break off in handling and shipping, thus occasioning a very considerable loss.

The object of my invention is to provide means whereby the present losses resulting from the shipment of copper, whether the same be in pigs, slabs, or bars, may be eliminated. To accomplish this result, I use a water-jacketed mold which is closed at the lower end and is shaped to give the pig the desired conformation. The ingot cast therein has all its fins concentrated at the upper open end of the mold, and the fins when so concentrated may be readily removed by suitable cutting or trimming machines, so that in pouring and shipping no part of the copper will be broken loose and lost.

In the accompanying drawings, 2 represents the frame of the machine, and 3 is the mold, which is of greater height than width and is formed with hollow walls 4 for the passage of a stream of water and with trunnions 5 5 at about the middle of its height through which inlet and outlet pipes 7 and 8 extend for the introduction of water to cool the mold. The water enters a chamber 4' at one side of the mold, from the top of which it overflows through a passage 4^a into the main water-passage around the mold-cavity. Thence after filling the main cavity it flows through a passage 4^b at the top into a side chamber 4^c,

from which it flows through the outlet-pipe 8. As the mold is filling the air rises to the top of the chambers and is displaced through the passages 4^a and 4^b and is caused to go out through the pipe 8. To rotate the mold on its trunnions, I prefer to employ a pinion 9, fixed to one of the trunnions and operated by a rack 10, fixed to and movable with a cylinder 11, which is reciprocated on a plunger 12, the latter being hollow and serving for the introduction and discharge of the water or compressed air by which the cylinder is operated. The lower end of the mold is shaped with an inwardly-projecting portion, as shown in Fig. 4, so as to form an ingot with a concave end, which is of very convenient form for handling, and I preferably set in the mold a detachable piece 13, which forms in the base of the concavity a rosette or tablet portion 14, Fig. 2, on which the name of the person for whom the ingot is made may be cast or the weight of the ingot may be stamped. As the upper end of the mold is open, the top of the ingot is irregular in form, and all the fins being concentrated at that end may readily be trimmed off by machinery after the ingot has been discharged from the mold.

15 15 are wheels journaled in uprights of the machine-frame and adapted to constitute rests for the trunnion of the ladle, and 15' is a spout to conduct the metal to the cavity of the mold.

The parts being in the position shown in Fig. 1, molten metal is charged into the ladle 16 from a furnace or converter in proximity to which the casting-machine is set, and the ladle is tilted on the wheels 15, so as to teem the molten copper into the mold. The mold has a capacity a little in excess of the capacity of the ladle, so that the ladle may be emptied into the mold. There is therefore no surplus of metal and no loss in pouring. When the pig has been cast, the ladle is righted and the mold is rotated on its axis into an inverted position, whereupon the pig drops from the open end of the mold, the mold-cavity being of flaring shape, so as to cause its discharge. The mold can then be righted and another pig cast therein. The operation is thus very rapid and can be carried on with the labor of only one man.

Fins which are trimmed from the pigs can

be returned to the refining-furnace for re-treatment or, if desired, to the mold and become incorporated in the next pig that is cast.

5 Within the scope of my invention the apparatus may be modified in various ways, since

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

10 1. A machine for casting copper pigs, having a water-cooled mold open at the top and provided with a closed inwardly-projecting bottom portion adapted to form a hand-hole on the bottom of the pig; substantially as de-
15 scribed.

2. A machine for casting copper pigs, having a water-cooled mold open at the top and provided with a closed inwardly-projecting bottom portion adapted to form a hand-hole on the bottom of the pig, and with a detach- 20-able piece on said inwardly-projecting portion adapted to cast a distinguishing-mark at the end of the concavity; substantially as described.

In testimony whereof I have hereunto set 25 my hand.

RALPH BAGGALEY.

Witnesses:

GEO. B. BLEMING,
H. M. CORWIN.