

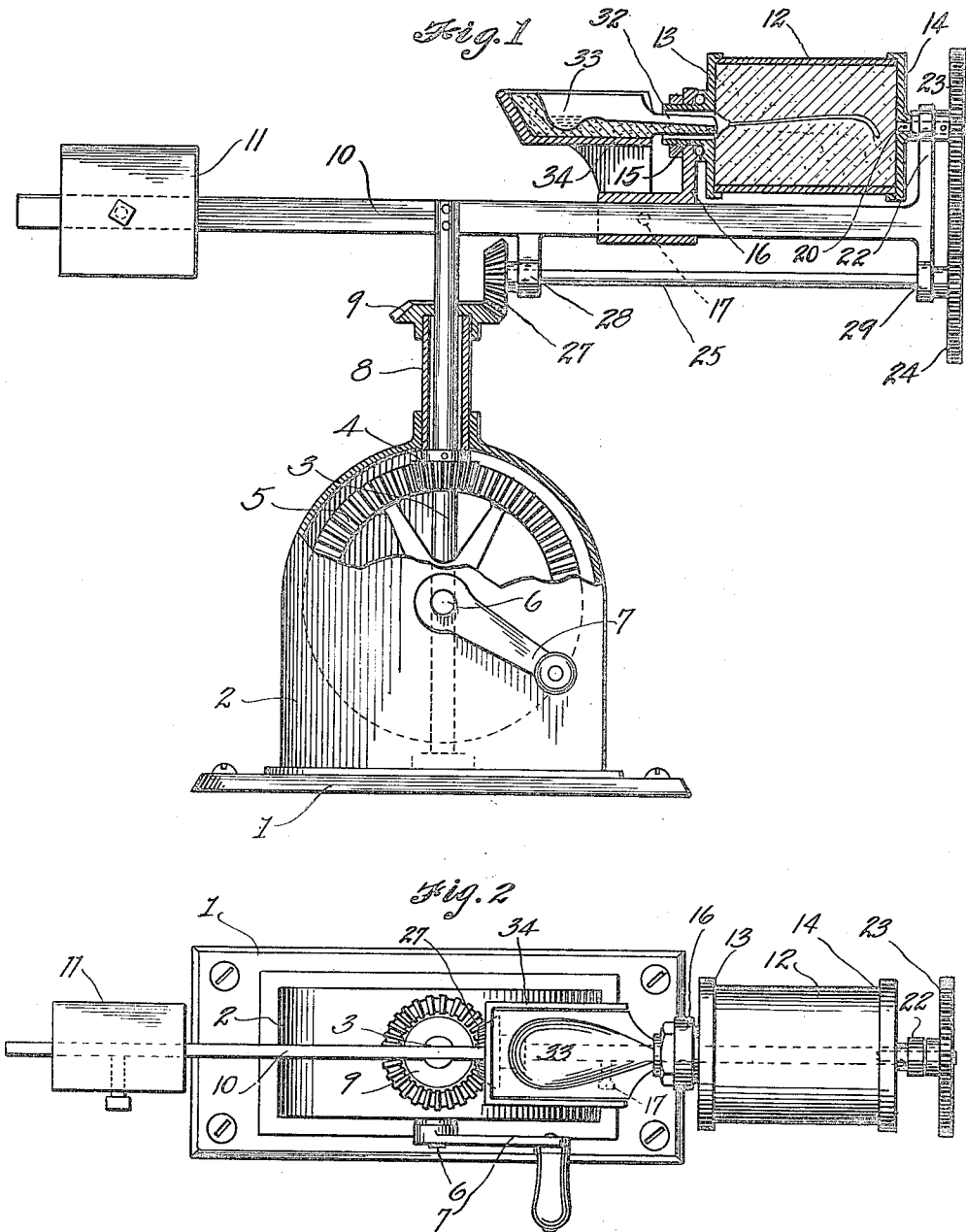
June 3, 1924.

1,496,429

C. O. POLLEN

DENTAL CASTING MACHINE

Filed July 24, 1922



Inventor
Clarence O. Pollen.

By Attorney
Richard J. Cook

UNITED STATES PATENT OFFICE.

CLARENCE O. POLLEN, OF TACOMA, WASHINGTON.

DENTAL CASTING MACHINE.

Application filed July 24, 1922. Serial No. 577,064.

To all whom it may concern:

Be it known that I, CLARENCE O. POLLEN, a citizen of the United States, and a resident of Tacoma, county of Pierce, and State of Washington, have invented certain new and useful Improvements in Dental Casting Machines, of which the following is a specification.

This invention relates to improvements in machines for dental casting, and more particularly to machines of that character which utilize the principle of centrifugal force for distributing the metal properly within the mould.

It is known that machines for the above purpose, which utilize the principle of centrifugal force, are already in use, such machines comprising a mould and a crucible that are mounted on a supporting arm which is revolved in such manner that the metal will be caused to flow from the crucible into the mould. In such machines, there are several disadvantages; the principal one being that the metal is forced by the centrifugal force to the outer end of the mould and consequently builds up faster there than it does toward the inner part of the mould, thereby causing the walls of the mould to be distorted to such an extent that it is often necessary to make a new impression.

It is the principal object of this invention to improve upon the machines, as above stated, and to thereby overcome the disadvantages as noted, by the provision of additional means whereby the casting mould will be rotated at a high rate within its supports to cause the metal delivered thereinto to be distributed equally to all parts thereof while, at the same time, the support, the crucible and mould will be revolved only at such rate of speed that is sufficient to thereby cause the casting metal to be delivered into the mould.

In accomplishing these and other objects of the invention, I have provided the improved details of construction, the preferred forms of which are illustrated in the accompanying drawings, wherein—

Figure 1 is a side view, partly in section, of a dental casting machine constructed in accordance with the present invention.

Figure 2 is a plan view of the same.

Referring more in detail to the drawings—

1 designates a base plate and 2 a gear

housing mounted thereon; the latter having a vertical shaft 3 revolvably supported therein and equipped with a gear 4 that operates in mesh with a larger driving gear wheel 5 fixed on a supporting shaft 6 to which a crank 7 is attached, and whereby the gear 5 may be rotated to effect rotation of the shaft 3. The upper end of the shaft 3 extends through a sleeve 8 that is fixed within the housing and which, at its upper end, has a beveled gear wheel 9 non-rotatably fixed thereto.

Secured to the upper end of the shaft 3, is a horizontal arm 10 having a counterbalancing weight 11 adjustably fixed on one end thereof and having a casting mould mounted at the opposite end. The mould comprises a cylindrical casing 12 clamped at its opposite ends, between supporting discs 13 and 14; the former having a hollow hub portion 15 rotatably mounted within a supporting bracket 16 that is adjustable along the arm and which may be locked at adjusted positions by means of a set screw 17 threaded through the bracket and against the arm. The disc 14 has a supporting shaft 20 mounted revolvably within a standard 22 at the end of the arm 10, and provided at its outer end with a gear wheel 23 that operates in mesh with a similar gear 24 fixed to the outer end of a shaft 25 that extends parallel with and beneath the arm 10, and which, at its inner end, has a beveled gear 27 operating in mesh with the non-rotatable gear wheel 9. The shaft 25 is revolvably supported in bearings 28 and 29 formed as a part of the arm 10.

The hub portion 15, which supports the disk 13, is hollow and, extending there-through, is a spout 32 of a crucible 33 wherein metal for the casting purpose may be melted; the crucible being supported within a seat 34 formed as a part of the bracket 16.

Assuming that the machine is so constructed, to use the same, first, the investment is properly made within the mould and this will have a sprue opening leading to the hub 15, of the disc 13, so that the metal may flow thereinto from the spout of the crucible. The metal is then melted in the crucible by means of a blow torch and when it is in the proper form the parts are set in motion by turning the crank 7. This causes the entire mould and crucible to be revolved about the shaft 3, while at

the same time the mould 12 is rotated on its supporting axis by means of the gear connection provided; it being apparent that since the gear wheel 9 is fixed, the gear 27 will be caused to rotate as it is carried about the shaft 3 and this, in turn, will effect rotation of the gears 24 and 23, and the casting mould connected with the latter. When the mould is revolved at sufficient speed, the molten metal will be carried, by centrifugal force, from the crucible into the sprue opening of the investment and will fill the mould. At the same time the mould is revolved it is rotated, and this effects an equal distribution of the metal over all parts of the investment. The gearing ratio is such that the rate of rotation of the crucible and mould would be only sufficient to cause a flow of metal from the crucible into the mould while the rate of rotation of the mould would be much faster so as to cause the centrifugal force of the metal away from the center of the mould to overcome its centrifugal force with respect to the supporting shaft 3.

It is readily apparent that by the use of a machine of this character, any building up of the metal at the outer portion of the mould will be overcome and that, in this way, the distortion of the walls of the mould is eliminated.

It is possible to obtain this result by mechanism not like that shown and, for

this reason, I do not wish to be limited only to the mechanism herein illustrated.

Having thus described my invention, what I claim as new therein and desire to secure by Letters Patent, is:

1. A casting machine of the class described, comprising a rotatable supporting shaft, an arm fixed to extend laterally from the shaft, a casting mould rotatably fixed on said arm having an end opening, a crucible adjustable on the arm at the inner side of the mould, having a delivery spout extended into registration with said mould opening, means for rotating the supporting shaft to revolve the mould and crucible, and means for rotating the mould while being revolved by said arm.

2. A casting machine comprising a rotatable supporting shaft, an arm fixed to extend laterally from the shaft, a casting mould rotatably fixed on said arm having an end opening, a crucible having a delivery spout into registration with said mould opening, a gear fixed concentric to the supporting shaft, a gear on the supporting axis of the mould and a driving shaft rotatably supported from the arm having gears thereon meshing with the first gear and the mould gear, and means for rotating the supporting shaft.

Signed at Seattle, Washington, this 18th day of July, 1922.

CLARENCE O. POLLEN.