F. W. WRIGHT & E. J. PILBLAD.

DENTAL CASTING MACHINE.

APPLICATION FILED APR. 25, 1910.

985,489.

Patented Feb. 28, 1911.

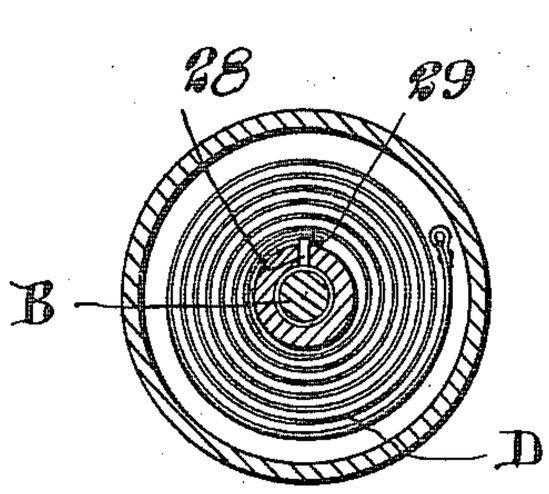

FIG. 3.

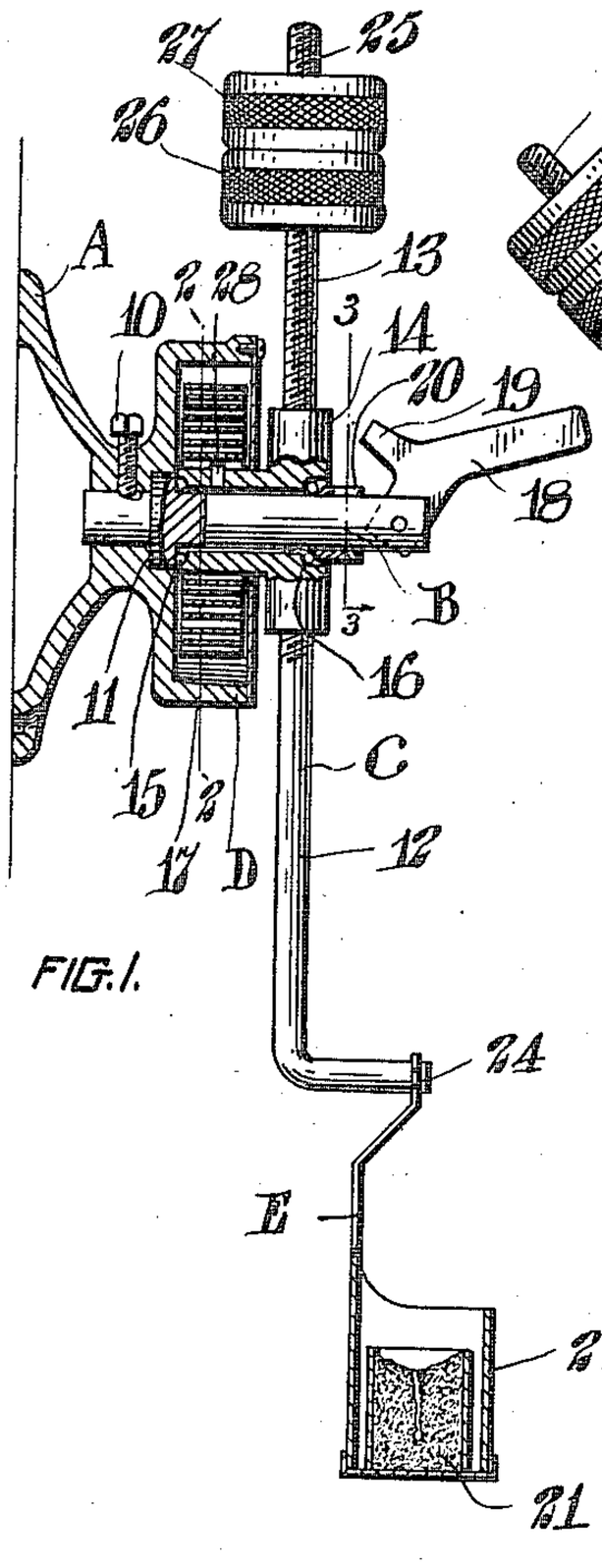

FIG. 1.

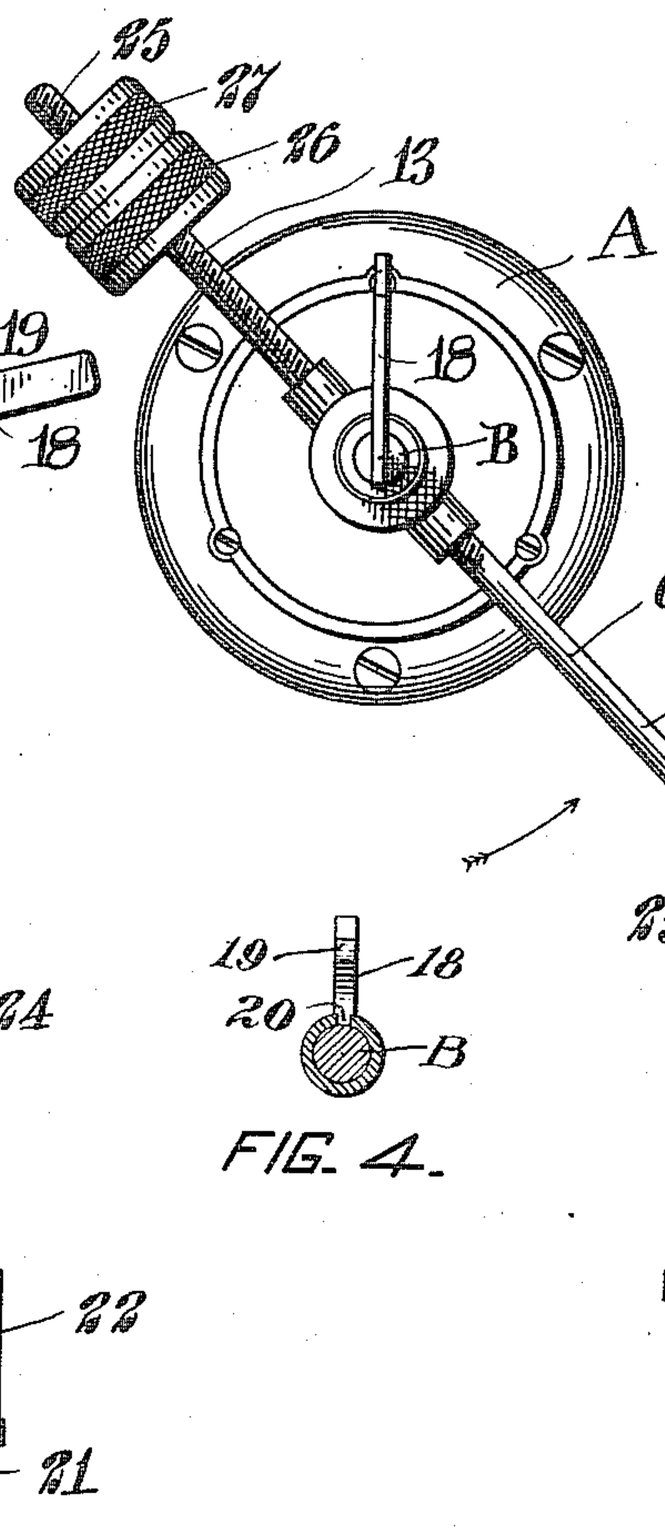

FIG. 2.

FIG. 4.

WITNESSES

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DENTAL CASTING-MACHINE.

985,489. Specification of Letters Patent. Patented Feb. 28, 1911.

Application filed April 25, 1910. Serial No. 557,603.

To all whom it may concern:

Be it known that we, FREDERIC WILLIAM WRIGHT and ERIC JULIUS PILBLAD, both of New Glasgow, in the Province of Nova Scotia, Canada, have invented certain new and useful Improvements in Dental Casting-Machines, of which the following is a specification.

Our invention relates to improvements in dental casting machines of the type in which the molten material is forced into the recesses in the mold by centrifugal action, and the objects of our invention are to prevent spilling or spluttering of the molten material: to enable the heat to be applied in a convenient manner and to cause the material to be forced into the recesses of the mold by the air pressure as well as by the centrifugal force and inertia of the fluid metal: to provide an improved form of release trigger: to provide improved means for adjusting and counter-balancing the weight of the mold, and finally to provide an improved form of mold which may be readily detached and which will be convenient of access of the molten material and heating means, all as hereinafter more fully set forth and described in detail in the accompanying specifications and drawings.

In the drawings: Figure 1 is a side view of the machine partially in section. Fig. 2 is a front elevation. Fig. 3 is a section on the line 2—2, Fig. 1. Fig. 4 is a sectional detail on the line 3—3, Fig. 1.

In the drawings, like characters of reference indicate corresponding parts in each figure.

Referring to the drawings, A represents the central supporting frame which may conveniently be in the form of a casting and which supports a pintle B on which the molding element revolves, said pintle in the embodiment illustrated being ratained in the frame by means of a set screw 10 bearing against a portion of the pintle which extends into a suitable socket 11 provided in the frame.

Rotatably mounted on the pintle B is the casting member C which has diametrically extending arms 12 and 13 carrying the mold and counter-weight respectively.

The center portion of the molding member 14 is made in the form of a bearing sleeve and to facilitate the rotation it is desirable to provide ball bearings between this sleeve and the pintle. This is accomplished by providing ball bearing cones 15 and 16 on the pintle B between which and the bearing sleeve 14 sets of bearing balls are inserted.

To rotate the casing member at the proper moment, a helical spring located within a casing member 17 is provided, formed on the frame and having one end connected to the casing member and the other end connected to the sleeve 14.

The casting member is adapted to be held stationary during filling of the mold by means of a pivoted trigger member 18 pivoted to the pintle B and having a tongue 19 adapted to enter a slot 20 on the bearing sleeve, said sleeve being so arranged that in normal position the arms of the casting member will extend at an angle of about 45° to the vertical, or at an advance of 45° in the direction of motion from the point on the bearing sleeve at which the trigger engages. The advantage of this is that when the trigger is released, the upward jerk of the mold will cause the air pressure to be forced up against the surface of the mold which will assist the inertia of the metal and the forces of gravity in forcing the metal into the recesses of the mold.

From experience it is found that an angle of substantially 45° produces the most desirable effect and an effect which is vastly superior to that which is produced when they are supported from perpendicular position.

Following the present invention, the mold supporting member E is in the form of a casing adapted to contain the mold 21 which is placed loosely therein, the mold supporting member being attached to the arm 12 by means of a key hole slot 23 adapted to

fit over a stud 24. The mold supporting member is thus free to swing about the stud, and during rotation will after it is once started assume a substantially radial position. It will also be noted that with the arms extending at 45° and the mold supporting member hanging vertically, access may be readily had to the top of the mold to enable it to be heated by the blow pipe F, or any other well known means. The opposite arm 13 carries a counter-weight, and in order to permit adjustment to be made for different sizes of molds, this counter-weight is adjustable, the adjustment according to the present invention being effected by moving the counter weight inwardly and outwardly on the arm. In the embodiment illustrated, the arm 13 is provided with a screw-threaded section 25 on which two counter-weights 26 and 27 in the form of nuts are mounted.

In order to permit release of the spring from the casting member after the spring has become unwound, the connection between the spring and the casting member is such that it will disengage when the casting member is going in the reverse direction to that which would produce winding of the spring. In the embodiment illustrated, a pin 28 is provided on the sleeve 14 adapted to be engaged by a hook-shaped end 29 on the spring.

In the operation of the invention, the spring is first wound up and the casting member held in position (at an angle of 45° to the vertical) by the trigger 18. The mold 21 previously prepared is dropped into position in the support or casing 22, and the gold or other filling to be used is placed in the cavity in the mold and heat is supplied through a blow pipe or other sufficient source of heat. When the metal is fluid, the trigger is released and through the tension of the spring the casting member will be rapidly revolved in the direction of the arrow. In the first instance this will produce the upward jerk of the mold, causing the fluid metal through the combined forces of gravity, air pressure and inertia of the metal, to flow down into the various recesses in the mold, and after the first starting, the centrifugal action will cause the metal to occupy every part of the mold, and thereby, produce a casting which will conform in the minutest detail to the mold. After the spring has become unwound, the casting member will continue its motion, disengaging from the spring, as hereinbefore described.

As many changes could be made in the above construction and many apparently widely different embodiments of the invention within the scope of the claims could be made without departing from the spirit or scope thereof, it is intended that all matter contained in the accompanying specifications and drawings shall be interpreted as illustrative and not in a limiting sense.

What we claim as our invention is:

1. In a casting machine of the character described, a rotatable casting member adapted to rotate in a vertical plane having a radial arm thereon, a mold supported at the extremity of the arm, means tending to rotate the casting member, and means normally preventing rotation of the casting member and holding the casting member in position with the arm extending at a substantial angle to the vertical.

2. In a casting machine of the character described, a rotatable casting member adapted to rotate in a vertical plane having a radial arm thereon, a mold supported at the extremity of the arm, means tending to rotate the casting member, and means normally preventing rotation of the casting member and holding the casting member in position with the arm extending at an angle of substantially 45° to the vertical.

3. In a casting machine for the purpose specified, a rotatable casting member adapted to rotate in a vertical plane having a radial arm thereon, a mold supporting member at the extremity of the arm, means connected to the casting member tending to rotate the same and a trigger member normally engaging the casting member at a different angle to that of the radial arm, whereby, when the trigger is engaged the arm will be held at a substantial angle to the vertical.

4. In a casting machine of the character described, a rotatable casting member adapted to rotate in a vertical plane having a radial arm thereon, a mold pendulously supported from the extremity of the arm, means tending to rotate the casting member, and means normally preventing rotation of the casting member and holding the casting member in position with the arm extending at a substantial angle to the vertical.

5. In a casting machine for the purpose specified, a rotatable casting member adapted to rotate in a vertical plane having a radial arm thereon, a mold pendulously supported from the extremity of the arm, means connected to the casting member tending to rotate the same and a trigger member normally engaging the casting member at a different angle to that of the radial arm, whereby, when the trigger is engaged the arm will be held at a substantial angle to the vertical.

6. In a casting machine of the character described, a supporting frame in the form of a casting having a casing member on the outer side, a pintle removably held in the frame, a casting member rotatably mounted on the pintle formed at the center with a bearing sleeve having a slot therein, a trig-

ger pivoted to the pintle and adapted to engage the slot, a counter-weight at one end of the casting member, a mold at the opposite end and a spiral spring having the outer end fixed to the casing member and having the inner end detachably connected to the bearing sleeve of the casting member.

In witness whereof we have hereunto set our hands in the presence of two witnesses.

FREDERIC WILLIAM WRIGHT
ERIC JULIUS PILBLAD.

Witnesses:
EDWARD J. TREEN,
HARRY L. GASS.