

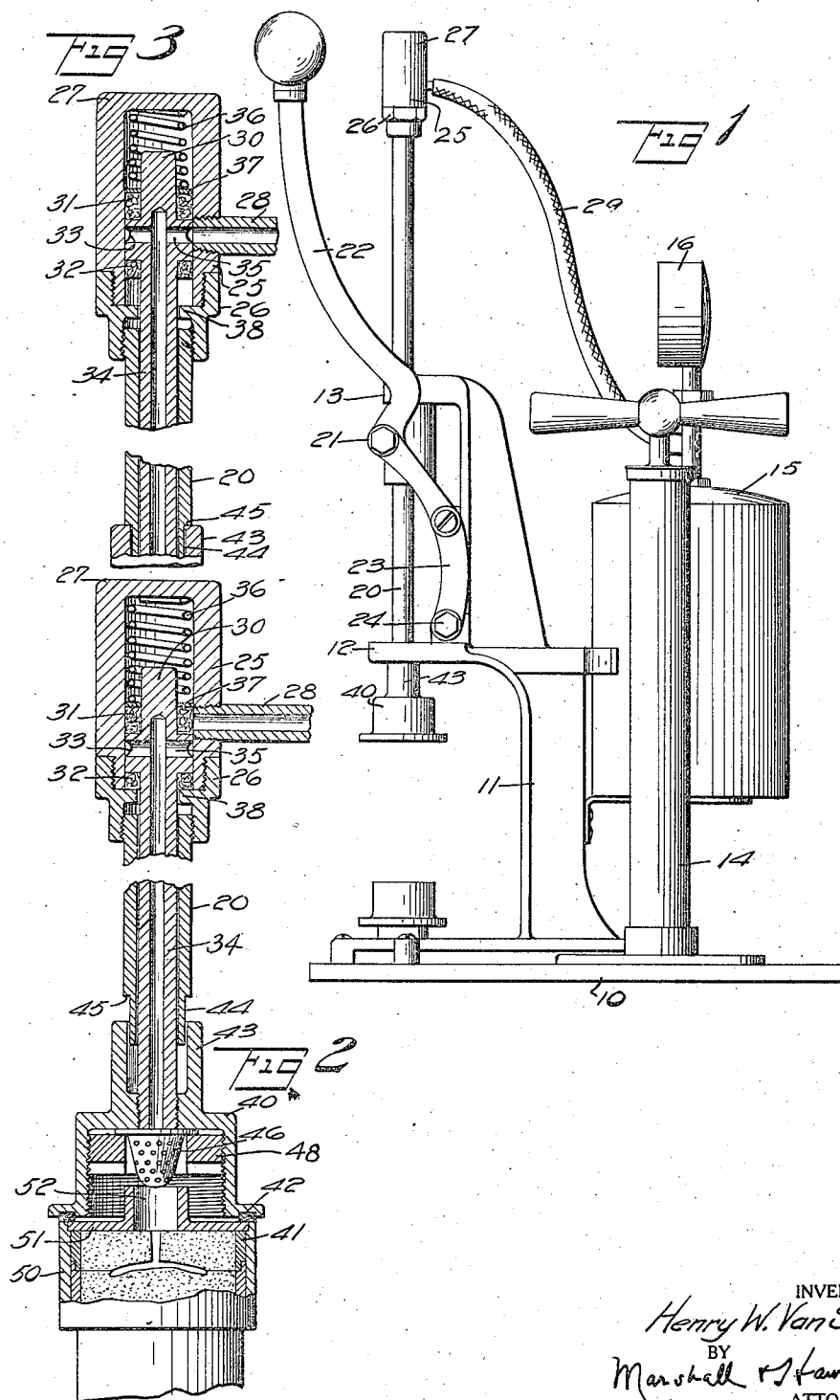
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H. W. VAN SICLEN

DENTAL CASTING MACHINE

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DENTAL CASTING MACHINE.

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This invention relates to dental casting machines such as are used by dentists in casting plates, bridges, inlays or other restorations.

5 In machines of the character specified, a cap is used for closing the flask in which the casting is to be formed and compressed air is admitted to the cap for the purpose of insuring a perfect casting and forcing the
10 metal into all portions of the mold cavity.

The invention has for its salient object to simplify the construction of machines of the character described and particularly to simplify the valve construction for controlling
15 the passage of the compressed air to the cap and flask.

Another object of the invention is to provide a machine of the character described that will be self-contained and compact and
20 so constructed and arranged that no flexible tubes or hose, which rapidly deteriorate in use on machines of this character, will be located near the flask so as to be affected by the heat thereof.

25 Further objects of the invention will appear from the following specification taken in connection with the drawings, which form a part of this application, and in which—

35 Fig. 1 is an elevational view of a machine constructed in accordance with the invention.

Fig. 2 is a longitudinal sectional view through the air conduit, sealing cap and
40 valve structure showing the valve closed, and

Fig. 3 is a view similar to Fig. 2, but showing the valve open.

The invention briefly described consists
45 of a casting machine having a cap adapted to seal the upper end of a flask, a conduit for conducting air to the cap and valve structure located at the upper end of the conduit. In the particular form of the invention shown,
50 the valve structure comprises a valve fixedly secured to the upper end of the air conduit and a valve casing movably mounted on the valve and having an air inlet conduit connected thereto and communicating there-
55 with. In operation, when the lever actuating means is operated, the valve casing will be depressed, placing the valve in communication with the air intake conduit of the casing, thereby permitting air to pass

to the sealing cap and thence to the flask
55 and casting. Further details of the invention will appear from the following description.

In the form of the invention illustrated, the machine comprises a base 10 having an
60 upright frame 11 secured thereto. Spaced bearings 12 and 13 are formed on the frame 11 for supporting the plunger and air conduits as hereinafter set forth.

A pump 14 is supported on the base and
65 communicates with an air pressure supply tank 15 having a gauge 16 thereon for indicating the air pressure therein.

A sleeve or plunger 20 is slidably mounted
in the bearings 12 and 13 and is pivotally
70 connected at 21 to a lever 22, which in turn is connected through a link 23 to the frame 11 at 24.

A valve casing 25 is connected to the
upper end of the sleeve or plunger 20.
75 through a coupling 26, the upper end of the casing being closed as shown at 27. An air intake conduit 28 communicates with the casing intermediate its ends and is connected by a tube 29 to the pressure tank 15.
80

A slide valve 30 is reciprocably mounted
in the casing 25 and has packing 31 and 32
at the two ends thereof and a groove 33
intermediate the ends. The valve 30 is
formed on or secured to the upper end of
85 a hollow valve stem 34 and the annular groove 33 communicates with the longitudinal opening in the valve stem by means of radial openings 35. A spring 36 is interposed between the closed end 27 of the valve
90 casing and the packing 31, a washer 37 preferably being interposed between the spring and the packing.

The closing movement of the valve, under
the influence of spring 36 is limited by the
95 engagement of the packing washer 32 with an internal flange 38 formed on the coupling 26.

The hollow valve stem 34 which forms an
air conduit has mounted on its lower end, a
100 cap 40 which is adapted to fit over the upper end of the flask 41, a gasket 42 being interposed between the cap and the flask.

The cap 40 has formed thereon an upwardly extending portion 43 adapted to receive the reduced end portion 44 of the
105 sleeve or plunger 20, this reduced end portion forming a shoulder 45 for limiting the

movement of the plunger into the cap extension 43 and for insuring the registration of the annular groove 33 of the valve with the conduit 28 when the plunger is depressed.

The cap 40 preferably has secured therein by a nut 48 a thimble 46 for diffusing the air as it passes into the flask.

The flask 41 is shown as supported in a cup-like base 50 and the upper end of the flask has a cover 51 mounted thereon having a central opening 52 for permitting the air to enter the flask. It will be understood, however, that any form of flask, flask support and cover may be used.

In operation, the flask having a mold formed therein, is mounted in the flask support 50. Molten metal is placed in the mold cavity and the lever 22 is swung in a counter-clockwise direction, thereby forcing the plunger 20 downwardly. The plunger carries with it the valve casing, valve and hollow valve stem or air conduit and the cap which closes and seals the flask. When the cap has engaged and sealed the flask, continued manipulation of the lever and downward movement of the plunger will cause the plunger and casing carried thereby to move relative to the valve stem and valve, thereby placing the valve in a position in which the air intake conduit of the casing registers with the annular groove 33 of the valve, permitting air to pass downwardly through the hollow valve stem to the cap. When the pressure on the lever is released and the lever is swung in the opposite direction, the spring 36 will cause the valve to move to the position shown in Fig. 2 or to its closed position, thereby shutting off the air pressure from the cap and closing the air passage.

Although one specific embodiment of the invention has been particularly shown and described, it will be understood that the invention is capable of modification and that changes in the construction and in the arrangement of the various cooperating parts may be made without departing from the spirit or scope of the invention, as expressed in the following claims.

What I claim is:

1. In a casting machine, a cap adapted to close and seal a flask, a hollow valve stem secured to said cap; a plunger slidably mounted on said valve stem, a valve mounted on the free end of said valve stem, a casing secured to said plunger and enclosing said

valve, an air intake conduit connected to said casing, means for sliding said plunger on said valve stem to open and close the valve, and sealing means in said casing above and below the valve openings for preventing leakage of the air past the valve.

2. In a casting machine, a cap adapted to close and seal a flask, a hollow valve stem secured to said cap, a valve mounted on the free end of said valve stem and having radial openings therein communicating with the longitudinal opening in said hollow valve stem, a plunger slidably mounted on said valve stem and having a casing secured to one end thereof, an air intake conduit communicating with said casing, means for effecting relative movement between said plunger and casing and said valve and valve stem to establish communication between said casing, intake conduit and the radial openings in said valve, and sealing means in said casing above and below the valve openings for preventing leakage of the air past the valve.

3. In a casting machine, a cap adapted to close and seal a flask, a hollow valve stem secured to said cap, a plunger slidably mounted on said valve stem, a valve mounted at the free end of said valve stem having an annular groove therein and radial openings connecting said groove to the longitudinal opening in said hollow valve stem, a casing enclosing said valve and secured to said plunger, an air intake conduit communicating with said casing, means for sliding said plunger and casing on said valve stem to establish communication between said casing, intake conduit and the groove in said valve, and sealing means in said casing above and below the valve openings for preventing leakage of the air past the valve.

4. In a casting machine, a cap adapted to close and seal a flask, a hollow valve stem secured to said cap, a plunger slidably mounted on said valve stem, a valve mounted on the free end of said valve stem, a casing secured to said plunger and enclosing said valve, an air intake conduit connected to said casing, means for sliding said plunger on said valve stem to open and close the valve, and resiliently compressed sealing means in the casing above and below the valve for preventing leakage of the air past the valve.

In witness whereof, I have hereunto set my hand this 25th day of October, 1924.

HENRY W. VAN SICLEN. [L. s.]