

No. 669,119.

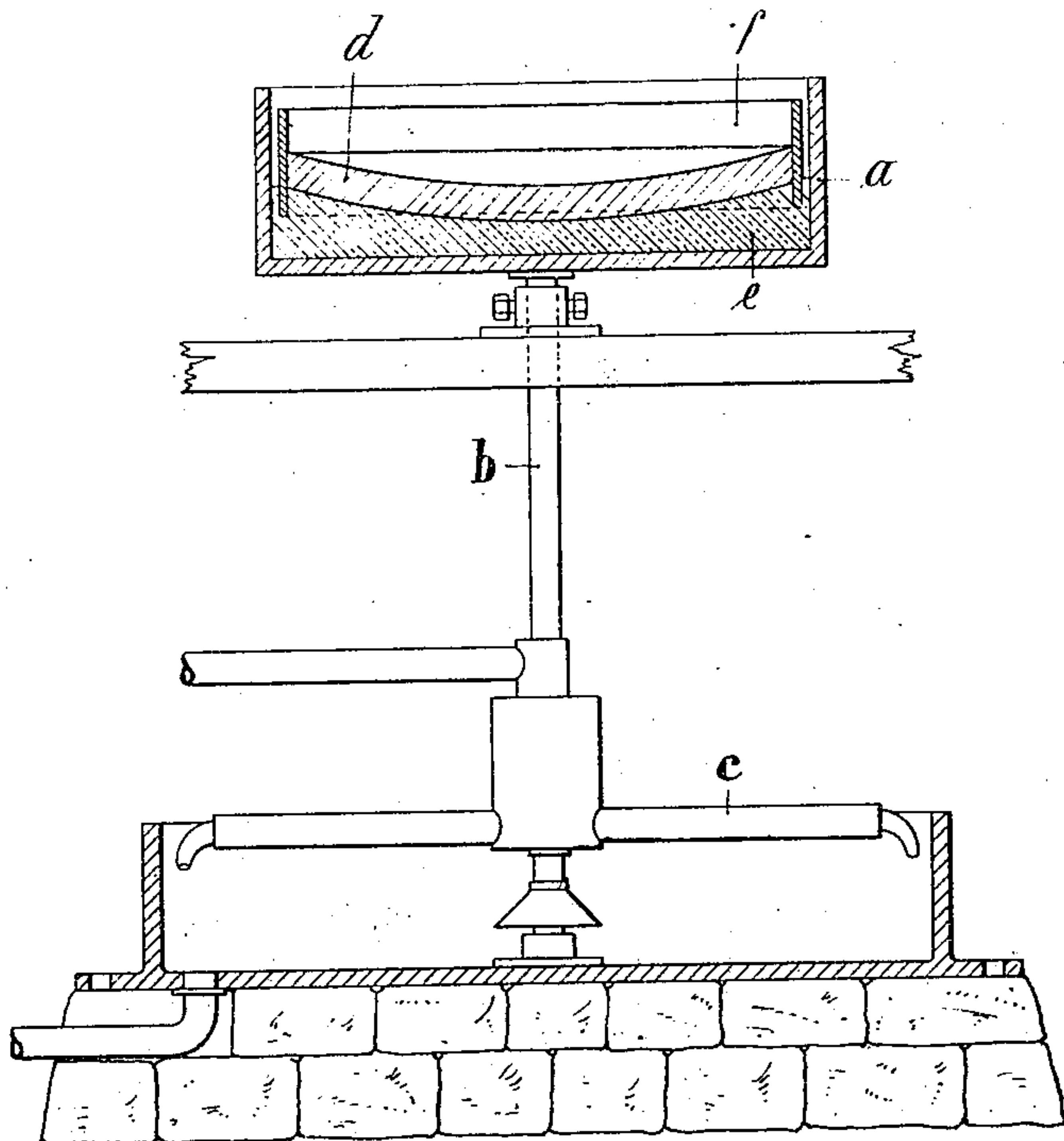
Patented Mar. 5, 1901.

A. KRANK.

PROCESS OF PRODUCING BODIES WITH PARABOLIC SURFACES.

(Application filed Oct. 12, 1900.)

(No Model.)



WITNESSES:

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ALBERT KRANK, OF WARKAUS, RUSSIA.

PROCESS OF PRODUCING BODIES WITH PARABOLIC SURFACES.

SPECIFICATION forming part of Letters Patent No. 669,119, dated March 5, 1901.

Application filed October 12, 1900. Serial No. 32,830. (No specimens.)

To all whom it may concern:

Be it known that I, ALBERT KRANK, engineer, of Warkaus, Province of Kuopio, in the Grand Duchy of Finland, Russia, do hereby declare the nature of my invention for an Improved Process of Producing Bodies with Parabolic Surfaces and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement.

This invention relates to the production of bodies with parabolic surfaces, but especially of such bodies which are suitable as reflectors—for instance, for optical instruments—after the coating of the parabolic surface with a material reflecting light. The process is founded on the well-known fact that the surface of a fluid in a rotary receptacle in consequence of the combined influence of gravitation and centrifugal force forms a paraboloid if the rotation of the vessel is a uniform one.

In the accompanying drawing an apparatus suitable for the process is illustrated in elevation and partly in vertical section.

a is the receptacle, placed on a vertically-adjustable shaft *b*, which may be uniformly rotated by suitable means—for instance, a reacting turbine *c*.

According to my process bodies with parabolical surfaces are produced by introducing into the rotating receptacle *a* a material or body which—as, for instance, wax, paste of plaster, or the like—during the rotation can be brought into a solid state by means of cooling or of some chemical influence; but as it is extremely difficult to keep the surface of the material completely smooth at the stiffening (which is of course absolutely necessary in the manufacture of reflectors) a specifically heavier body *e* with a bright surface—for instance, mercury, which body remains liquid during the whole process—is at first placed on the bottom of the receptacle *a*. The surface of this body at the rotation forms a

concave paraboloid, of which the surface of the upper body or material *d* becomes an exact (convex) copy. In order to prevent the contraction at the stiffening to cause a change of form of the hardening body and in order to facilitate the removal of said body, a ring *f* is used, which swims on the heavier body *e* and prevents the contact between the stiffening material *d* and the wall of the receptacle *a*. After the stiffening of the material *d* the body thus produced is removed and supplied with a proper reflecting coating—for instance, in a galvanoplastic way—or is used as a negative for the production of concave parabolical surfaces. The point of the invention thus consists in the use of a lower layer of a specifically heavier and liquid body with a bright surface, as only in this case the surface of the stiffened upper body becomes so smooth that the body after the applying of a reflecting coating is suitable for optical purposes or that positives, suitable as reflectors, can be produced from said body.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

The herein-described process for producing a body with a parabolic surface, comprising vertically rotating a confined liquid body with a bright surface, said body remaining in its liquid state during said rotation and applying above said liquid body a second body specifically lighter while in a liquid or plastic state, the second body hardening during said rotation whereby the lower portion of the second body will conform to the surface assumed by the first liquid during its rotation.

In witness whereof I have hereunto set my hand in presence of two witnesses.

ALBERT KRANK.

Witnesses:

A. LAUSELL,
WOUID LUIDVLAD