

(No Model.)

J. W. SMITH.

GOLD FOIL ANNEALING APPARATUS.

No. 263,607.

Patented Aug. 29, 1882.

Fig. 1

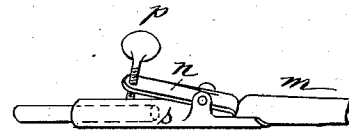
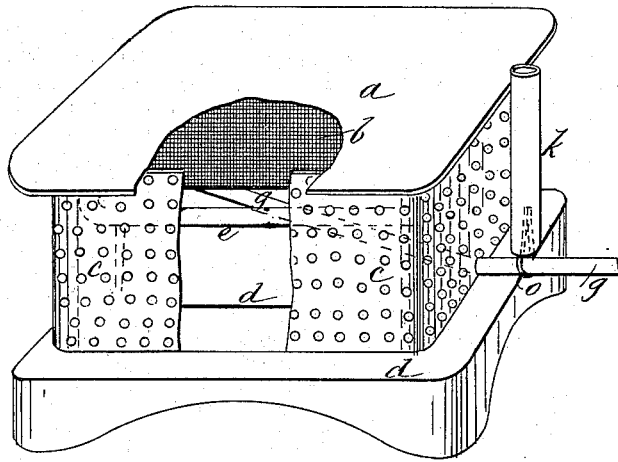
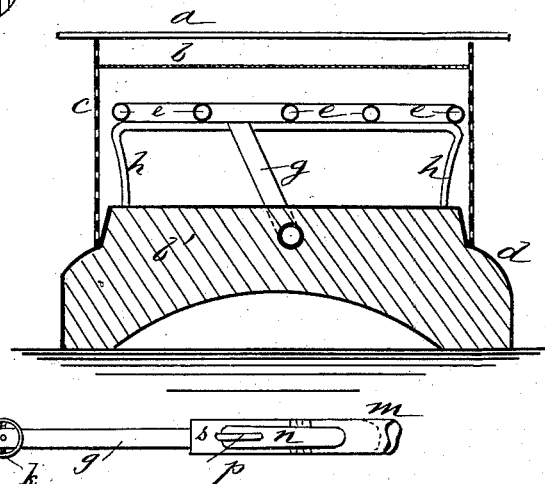
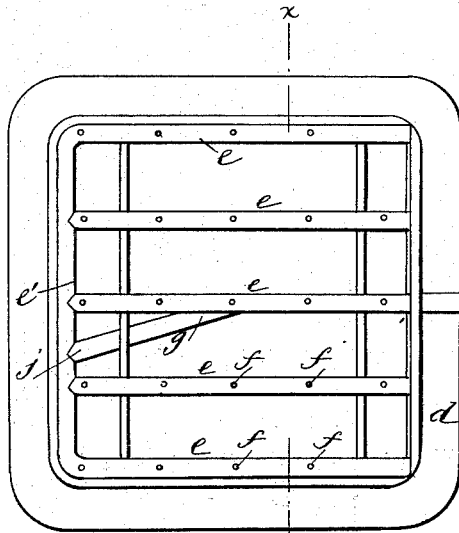


Fig. 3

Fig. 2



WITNESSES:

C. Neveu
C. Sedgwick

INVENTOR:

BY

J. W. Smith
Munn & Co.
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN WILLIAM SMITH, OF NEWPORT, RHODE ISLAND.

GOLD-FOIL-ANNEALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 263,607, dated August 29, 1882.

Application filed July 1, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN WILLIAM SMITH, of Newport, in the county of Newport and State of Rhode Island, have invented a new and Improved Gold-Foil-Annealing Apparatus, of which the following is a full, clear, and exact description.

My invention consists of an apparatus contrived for heating a plate of metal or other suitable material whereon gold-foil or other preparations of gold for filling teeth may be annealed more uniformly than by the means at present employed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of my improved gold-foil-annealing apparatus with part of the side and top broken out. Fig. 2 is a plan view with the cover removed, and Fig. 3 is a sectional elevation of Fig. 2 on line *x x*.

The base *d* of the annealing apparatus is made of thin metal of any suitable kind and of any approved form, and is filled preferably with plaster-of-paris and asbestos, but any desired heat non-conducting material, *b'*, may be used. The non-conductor serves to prevent undue heating of whatever the device rests upon.

A system of parallel metal tubes, *e*, is so connected with a tube, *e'*, placed at right angles to them as to receive a supply of illuminating-gas through the gas-supplying tube *g*, connected with the tube *e'* at *j*. In each of the parallel tubes *e* are a number of perforations, *f*, through which gas escapes, and in burning produces a distinct flame over each aperture. Within certain limits the number of tubes *e* and the number of perforations in each may be increased or diminished, or their mutual relations changed, my idea being to have their number and relations such that the plate supported over them, hereinafter described, may be heated more uniformly throughout its entire surface than is practicable when only one or two flames are employed. The system of parallel tubes is supported on the legs *h* about an inch above the top of the base *d*.

A removable cover, consisting of perforated sheet-metal sides *c*, a plain sheet-metal upper surface, *a*, and a wire-gauze partition, *b*, is placed over the system of burners and rests upon the base *d*, as shown in Figs. 1 and 3. The cover *a b c* is lifted off whenever the gas is to be lighted; but, if it is preferred, the parts *a b* may be united and detached from the sides *c*, and only the former need be raised for lighting the gas. The plate *a* may be either smooth or roughened on its upper surface, and may be made either of metal, porcelain, earthenware, or any other suitable material, or of a combination of suitable materials. The wire-gauze or perforated partition *b* is placed about one-fourth of an inch below the metal plate *a* and about the same distance above the tubes *e e'*, and it serves to make the gas burning over the apertures in the tubes non-luminous, and to diffuse the heat evenly over the under surface of the plate *a*. The perforated metal sides *c* support the parts *a b*, and also prevent drafts of air from extinguishing the gas-flames, while the perforation admit sufficient air to maintain combustion. For these sides I prefer to use perforated tin or other proper material, having about sixteen perforations each way to the square inch.

The supply-tube *g* is connected with the tube *e'* at *j*, and from this point it passes down to the base *d* and along through the non-conductor to the opposite end of the base, where it passes out, the non-conductor preventing the tube from being overheated.

About half an inch from the outside of the base *d* the tube *g* supports a Bunsen burner, *k*, and about two inches from the base is attached a rubber tube and a gas-regulator. The Bunsen burner supplies a single flame for super-annealing single pieces of gold. The tube *k* of the burner is made preferably of glass, although metal may be used instead. The tube is held in a perpendicular position by the wire *o*, which is soldered to the lower side of the tube *g*, and is bent upward on each side of the tube, the two upwardly-projecting ends passing into the tube *k*. If a metallic tube is used instead of the glass, it may be soldered to the tube *g*. At the lower end of the tube *k* is a perforation in the tube *g* for the escape of

gas to the burner, and air is admitted at the lower end of the burner to render the flame non-luminous, the tube being adapted to be raised or lowered to regulate the proper admission of air.

5 The gas-supply regulator consists of a sleeve, *s*, lever *n*, and screw *p*, and it serves to compress or release the rubber tube *m*, thus diminishing or increasing the supply of gas to the burners with accuracy, and furnishing the proper amount of heat for annealing the gold just as may be desired.

10 When the apparatus is in use, the metal plate *a* being heated uniformly throughout its entire surface, the pieces of gold to be annealed are scattered on it, and all are equally annealed and equally cohesive. If a particular piece is required to be more cohesive, it may be heated over the tube *k*.

15 20 For the sake of convenience in use the whole apparatus is made as low as is practical, about two and one-half inches being a desirable height.

The tubes *e* and *e'* are placed as near the

base as they can be without interfering with a sufficient supply of air to the centrally-located gas-jets. 25

This annealing apparatus is ornamental, simple in operation, and ready for use within one minute after the gas is lighted. While it is intended particularly for annealing gold, it is useful for warming water, and is especially adapted to warming gutta-percha for fillings. 30

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is— 35

In a foil-annealing apparatus, the combination, with the gas-supply pipe *g*, branch pipe *e'*, and perforated parallel pipes *e*, of the annealing-table *a*, perforated sides *c*, and the wire-gauze partition *b*, extending from side to side *c* beneath the table *a*, over the perforated burner-pipes *e*, as shown and described. 40

JOHN WILLIAM SMITH.

Witnesses:

T. T. PITMAN,
DARIUS BAKER.