E. MORF.

APPARATUS FOR MELTING AND PROJECTING FUSIBLE SUBSTANCES.

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1,100,602. Patented June 16, 1914.

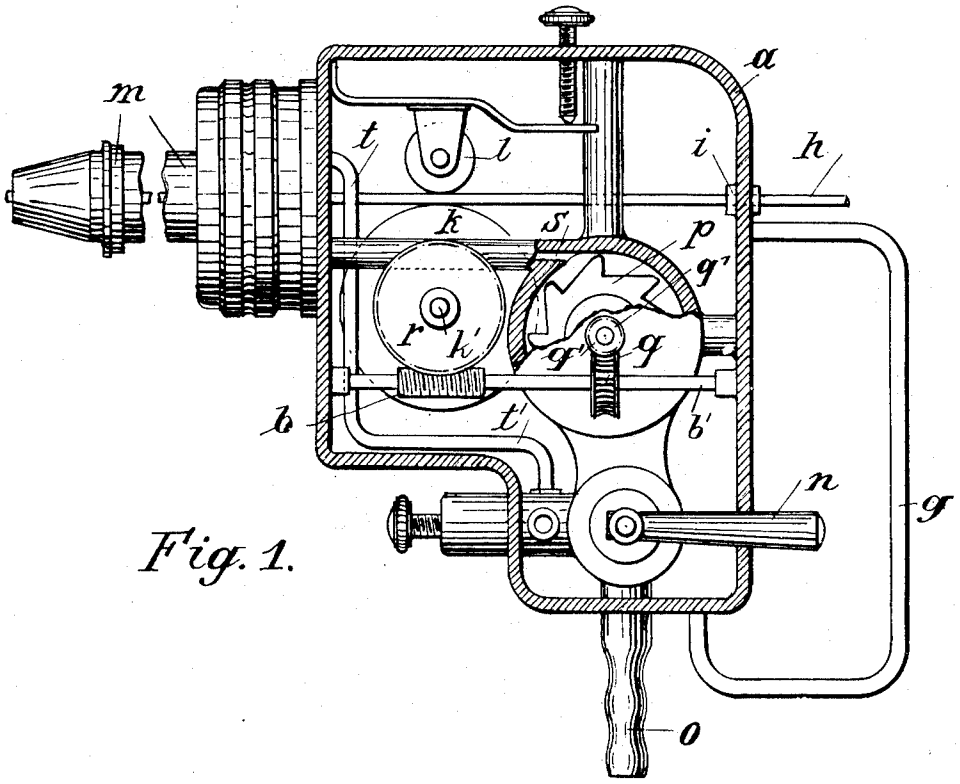


Fig. 1.

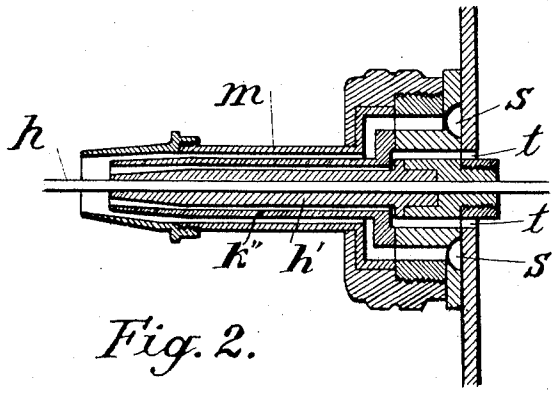


Fig. 2.

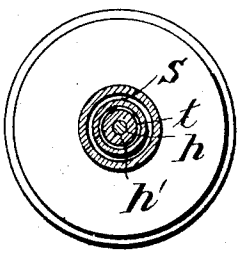


Fig. 3.

WITNESSES

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APPARATUS FOR MELTING AND PROJECTING FUSIBLE SUBSTANCES.

1,100,602. Specification of Letters Patent. Patented June 16, 1914.

Application filed September 20, 1913. Serial No. 790,870.

To all whom it may concern:

Be it known that I, ERIKA MORF, a citizen of the Swiss Republic, residing at Zurich, in Switzerland, have invented certain new and useful Improvements in Apparatus for Melting and Projecting Fusible Substances, of which the following is a specification.

The object of this invention is to provide an improved apparatus or appliance whereby a fusible substance, as for example a metal wire, may be melted and then projected in a molten state against a surface for the purpose of providing same with a fixed or detachable coating, the appliance being either portable or stationary, as most convenient for the work to be performed.

An embodiment of the invention is shown in section in the accompanying drawing, in which—

Figure 1 is a view of the apparatus as a whole, partly in elevation and partly in section. Fig. 2 is a section of part of the apparatus, and Fig 3 a section perpendicular to the plane of Fig. 2.

The apparatus illustrated comprises a casing a wherein are mounted two feed-rollers k and l with parallel axes, spaced apart, so that a wire h can be fed between them through the casing. Fixed to the axle k^1 of the roller k is a worm-wheel r meshing with a worm b. To the spindle b^1 of the latter is fixed a worm wheel q engaged with a worm q^1 fixed to the spindle of a small turbine p arranged within the casing. A pipe o supplies compressed air to this turbine, which is capable of revolving at a high rate of speed, the supply of compressed air being regulated by means of a valve n.

The casing is provided with a burner nozzle m, within which are two concentric conduits s and t (Figs. 2 and 3) surrounding a guide tube h^1 through which the wire is fed from the rollers k, l. This guide-tube and the wall k'' separating the conduit s and t, terminate a short distance from the orifice of the nozzle m.

The conduit t is supplied, through a pipe t^1, with a combustible gas or vapor, or a mixture of combustible gas and air. Benzin vapor, or a mixture of that vapor with oxygen, or a mixture of oxygen and hydrogen, are examples of fuel suitable for the purposes of the appliance. The conduit s is in communication with the exhaust pipe s^1 of the turbine p, so that at the discharge end of the burner nozzle m compressed air and combustible gas meet and are intimately mixed, the proportions being regulated according to the material to be melted. Examples of suitable proportions are 1:15 in the case of lead, 1:10 in the case of brass, and 1:2 in the case of copper.

The mixture is ignited at the orifice of the nozzle, and on wire being fed through the nozzle, by means of the feed roller k actuated by the turbine, the forward end of the wire is melted by the flame and the molten metal is projected in the form of spray from the nozzle, by the pressure of the air.

The casing has a handle g whereby it can be conveniently held, somewhat in the manner of a piston, the nozzle being directed toward the object to be coated with metal.

What I claim as my invention and desire to secure by Letters Patent of the United States is:—

1. In apparatus for the purpose set forth, the combination of a burner, mechanism actuatable by compressed gaseous fluid for feeding a fusible solid substance to a position wherein it is melted by said burner, and means for conducting gaseous fluid from said feed mechanism to said burner.

2. In apparatus for the purpose set forth, the combination of a burner, mechanism for feeding a fusible solid substance to a position wherein it is melted by said burner, a turbine actuatable by gaseous fluid for actuating said feed mechanism, and means for conducting gaseous fluid from said turbine to said burner.

3. In apparatus for the purpose set forth, the combination of a casing, a burner nozzle on said casing, mechanism for feeding a wire from said casing through said burner nozzle, a turbine actuatable by gaseous fluid for actuating said feed mechanism, and means for conducting gaseous fluid from said turbine to said burner nozzle.

4. In a fusing and projecting apparatus, a nozzle having heat producing means, an air blast associated with said fusing nozzle, and means for feeding fusible material to the nozzle.

5. In a fusing and projecting apparatus a nozzle, an air blast device, feed means to feed in the direction of the nozzle the material to be fused and projected, and fusing means between the feed means and the discharge end of the nozzle.

6. In a fusing and projecting apparatus, means to produce fusing heat, an air blast associated with the said means to project the fused material, and means for feeding the fusible material to a position to be subjected to the influence of the fusing means and air blast.

7. In a fusing and projecting apparatus, a nozzle, a combined fusing and air blast device associated with said nozzle, and means for feeding fusible material to a position to be fused and projected by the said combined device.

In witness whereof I have signed this specification in the presence of two witnesses.

ERIKA MORF.

Witnesses:
PAUL ZOLLER,
ROGER AMES BURR.