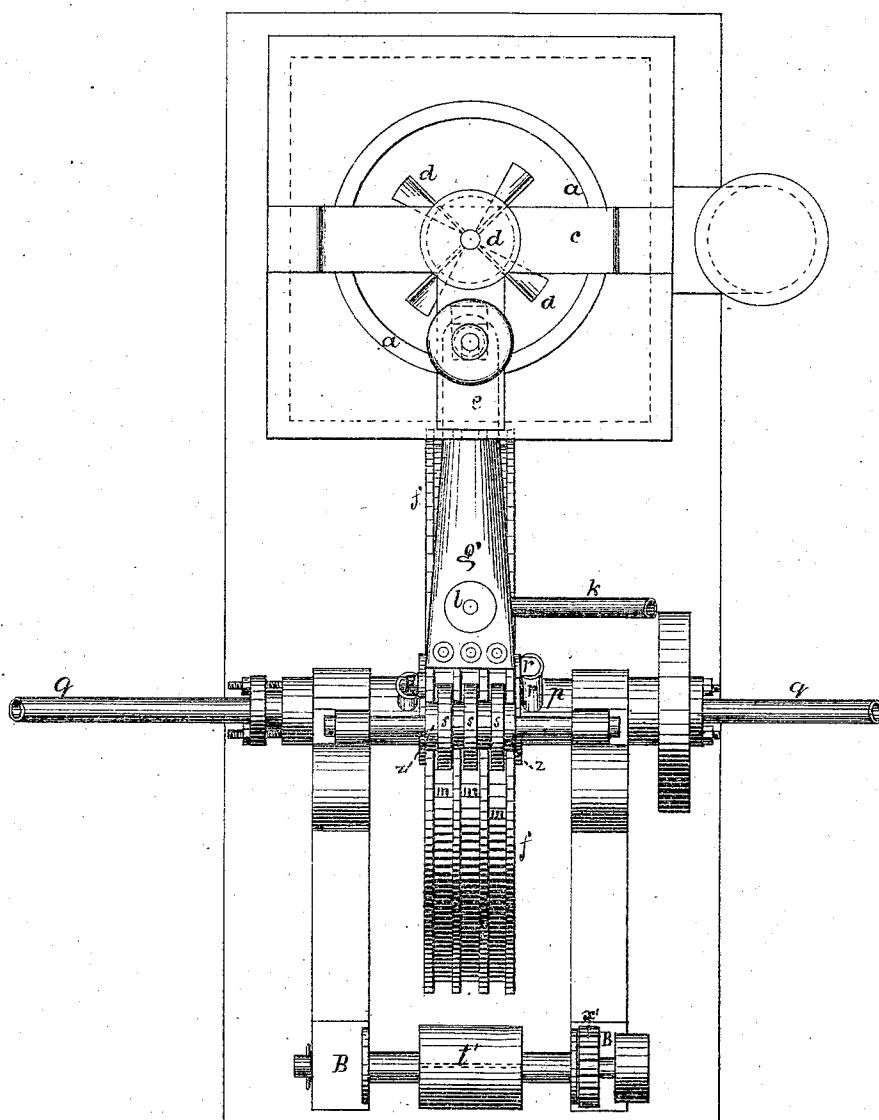


Machines for Preparing Metal Solders, Printers Lead, &c.

No. 118,550.

Patented Aug. 29, 1871.



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REUBEN PAINTER.

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FIG. 2.

FIG. 4.

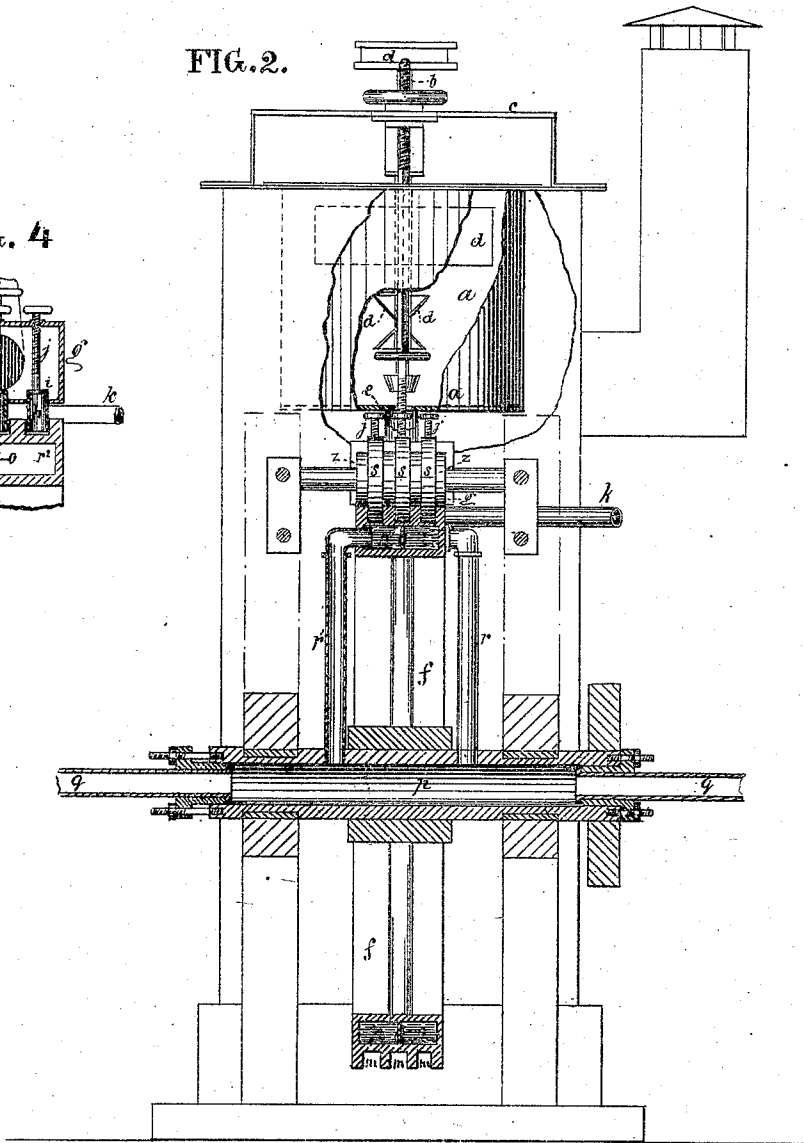
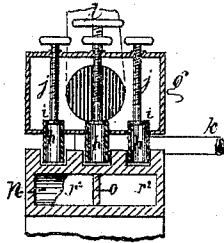
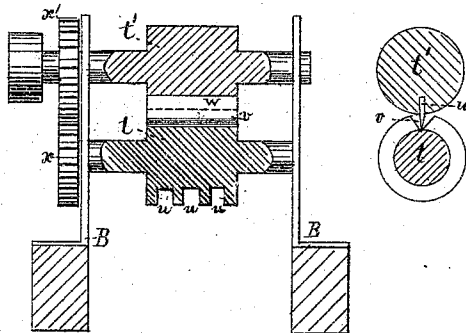


FIG. 3.



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UNITED STATES PATENT OFFICE.

REUBEN PAINTER, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN MACHINES FOR PREPARING METAL FOR SOLDER, PRINTERS' LEAD, &c.

Specification forming part of Letters Patent No. 118,550, dated August 29, 1871.

To all whom it may concern:

Be it known that I, REUBEN PAINTER, of Baltimore, in the county of Baltimore and State of Maryland, have invented a new and Improved Machine for the Manufacture of Solder, Printers' Lead, &c.; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of specification, in which—

Figure 1 is a top view. Fig. 2 is a transverse vertical section through the grooved wheel, hollow shaft, and water-pipes. Fig. 3 is a transverse vertical section through the cutting apparatus; and Fig. 4 is a transverse vertical section through the conducting-pipe, showing the screws in connection with the flow-tubes.

This invention relates to a machine in which metals for the manufacture of solders, printers' leads, &c., are melted, and afterward stirred and drawn off from the melting-pot through a tube having an adjustable feed apparatus, from which the compound is drawn off into circumferential grooves in a revolving wheel, within which grooves the compound is pressed by a flanged roller above, and also cooled by means of cold water introduced within an annular closed box cast in the rim of the wheel, next to the grooves therein, the compound being sent out of the grooves by means of spring-scrappers fitting in the latter, and passed through a cutting apparatus, wherein it is divided into pieces of suitable length, being then a marketable commodity.

Referring to the drawing, *a* is the kettle within which the metals are placed. As the different metals employed—such as lead, tin, &c.—have a tendency to remain separate the one from the other, I have invented a stirrer for keeping them mixed, which consists of a vertical shaft, *b*, stepped in the bottom of the kettle *a*, and supported by a cross-piece, *c*, above the kettle, and spiral blades *d* projecting horizontally from the shaft *b*. Instead of spiral blades a rake attached to the shaft may be employed. This stirrer receives motion by means of a belt connecting the drum *d* with any sufficient driving power, and keeps the different metals well mixed, so that they may form a homogeneous compound. A hole opens through the bottom of the kettle into a pipe, *e*, which leads from the kettle through the side of the furnace adjacent to the wheel *f*. A funnel-shaped pipe, *g*, is fit-

ted upon the outer end of the pipe *e*. At its outer or broader end the pipe *g* is provided with a number of tubes, *h*, passing through its bottom and extending some little distance above the latter. This extension of the tubes *h* is for the purpose of causing the molten liquid flowing into the pipe *g* to collect in somewhat of a quantity on the bottom of the latter before reaching the tops of the tubes *h*, in order both that it may the better retain its heat and also be free from currents, and so flow as well through one tube as another. The tubes *h* have valves *i* attached to the bottoms of screws *j*, which pass through the top of the pipe *g*, vertically over the tubes *h*, so that by means of these screws the flow of the liquid through the tubes *h* can be regulated as to quantity at pleasure. The pipe *g* is provided with a waste-pipe, *k*, for withdrawing any surplus that may accumulate therein, which waste-pipe is also furnished with a screw-valve, *l*, like the others. The tubes *h* open at their lower ends the circumferential grooves *m* of the wheel *f*, and consequently discharge the molten metal into said grooves. The wheel *f* has an annular closed box, *n*, cast in its rim, which box is divided into two equal parts by an annular longitudinal partition, *o*. The shaft *p* of the wheel *f* is hollow, and has water-pipes *q q* connected with it at each end, and radial pipes *r r¹* connect the hollow shaft *p* with the box *n* at opposite sides thereof. The ends of the pipes *r r¹* are not opposite each other in the box *n*, and a transverse partition, *r²*, crosses the box, the end of the pipe *r* being at one side of the partition and the end of the pipe *r¹* being at the other side of it; hence the cold water forced into the pipe *r* has to make the complete circuit of the box *n* before it reaches the outlet-pipe *r¹*. The water thus keeps the wheel cool, and is itself discharged as soon as it gets at all warm. The molten metal stiffens in the grooves *m*, and, extending along the same, is compressed, smoothed, and evened by the flanges *s* of an adjustable roller, *z*, which is mounted in standards above the wheel *f*, the flanges *s* entering the grooves *m* as far as necessary. The metal at the proper points is sent out of the grooves *m* by scrapers or other suitable device, and passed between rollers *t t'* mounted in standards *B* opposite the periphery of the wheel *f*. The lower roller *t* is grooved circumferentially, as shown at *u*, and also has one longitudinal peripheral groove, *v*. The

roller *t'* has a longitudinal knife, *w*, attached to its periphery, which, as the rollers revolve, enters the groove *v*. The strips of metal pass through the grooves *u*, and are cut by the knife *w* into pieces of convenient length. The means for effecting the revolution of the rollers *t t'* consist of spur-gears *x x'* on the respective shafts, engaging with each other, and a band-wheel, *y*, to receive a belt connecting it with the motor. Instead of the upper spiral blade a rake may be used, with teeth extending as low as the bottom of the lower blade.

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

1. In combination with the kettle *a*, the stirring apparatus, consisting of the shaft *b* and spiral blades *d*, as specified.

2. The pipe *g*, provided with the feed-tubes *h* whose tops are at any suitable distance above the bottom of the pipe, and with the screws *j*, all combined as described.

3. The combination of the grooved wheel *f* with the flanged roller *s z*, as set forth.

4. The wheel *f*, having an inclosed annular box, *m*, in its rim, provided with longitudinal and transverse partitions *o r*, and combined with water-pipes *r r'*, and hollow shaft *p*, as explained.

5. The combination of the roller *t* having the transverse grooves *u* and longitudinal groove *v* with the roller *t'* having the knife *w*, as specified.

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Witnesses:

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