(No Model.) 2 Sheets—Sheet 1.

F. W. SCHULTZ.

WIRE SOLDER MACHINE.

No. 405,914. Patented June 25, 1889.

Fig. 1.

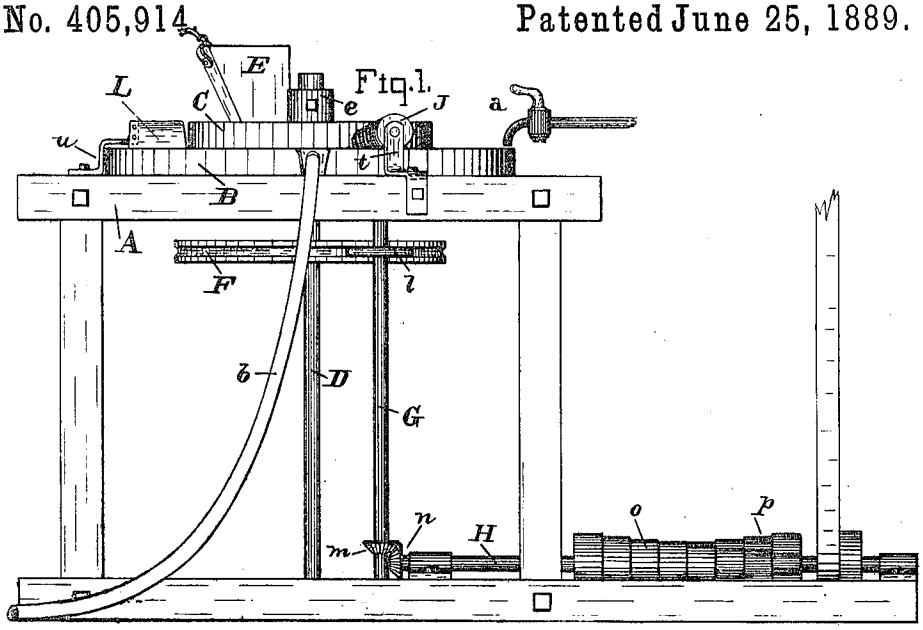
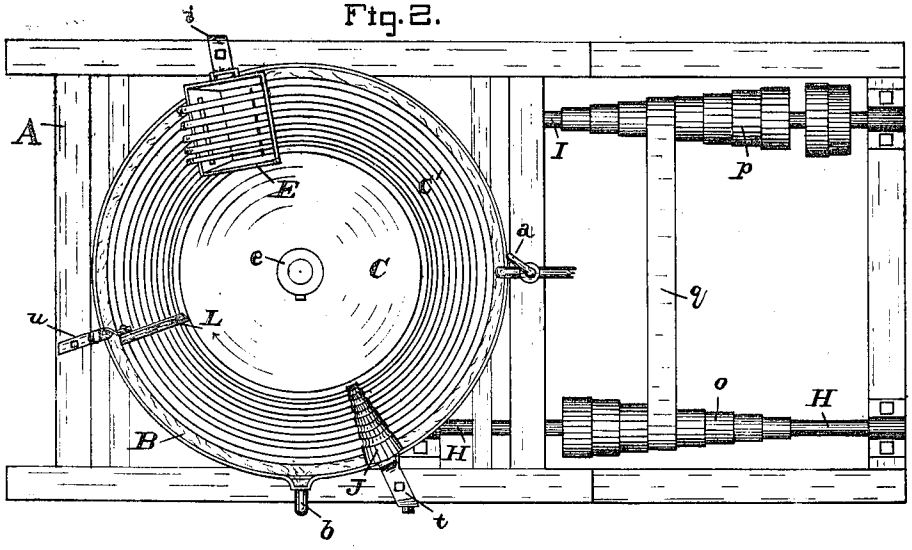


Fig. 2.



WITNESSES:

John E. Morris

A. O. Babendreier.

INVENTOR:

F. W. Schultz

BY Chas B. Mann

ATTORNEY.

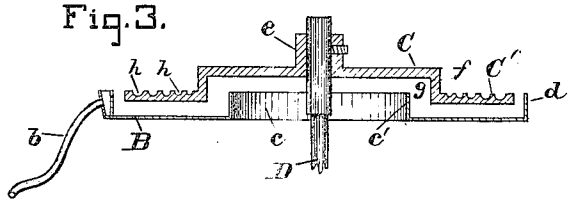
(No Model.) 2 Sheets—Sheet 2.

F. W. SCHULTZ.

WIRE SOLDER MACHINE.

No. 405,914. Patented June 25, 1889.

Fig. 3.



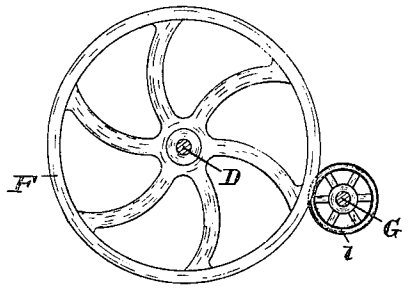


Fig. 4.

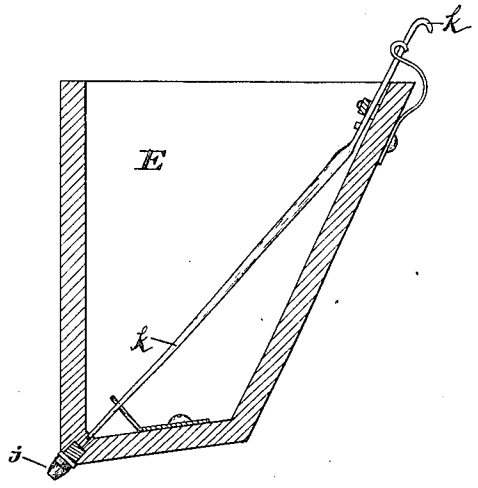


Fig. 5.

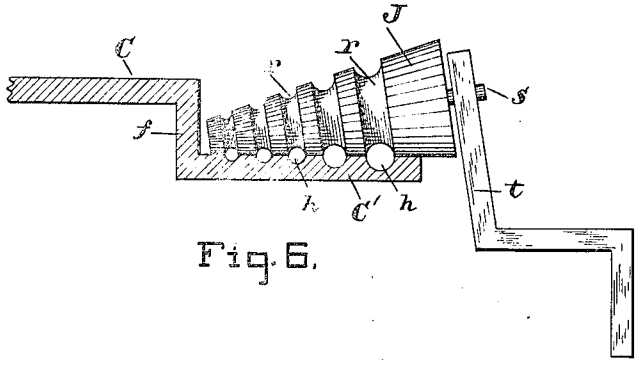


Fig. 6.

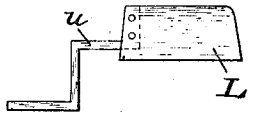


Fig. 7.

WITNESSES:

John E. Morris.

A. O. Babendreier.

INVENTOR:

F. W. Schultz

BY Chas B. Mann

ATTORNEY.

UNITED STATES PATENT OFFICE.

FREDERICK W. SCHULTZ, OF BALTIMORE, MARYLAND.

WIRE-SOLDER MACHINE.

SPECIFICATION forming part of Letters Patent No. 405,914, dated June 25, 1889.

Application filed May 9, 1889. Serial No. 310,130. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. SCHULTZ, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Wire-Solder Machines, of which the following is a specification.

This invention relates to a machine for the manufacture of wire-solder, and is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the machine. Fig. 2 is a top view of the machine. Fig. 3 is a section of the disk, annular plate, and water-receptacle. Fig. 4 is a plan view showing the driving-gear. Fig. 5 is a vertical section of the solder-receptacle. Fig. 6 is a detail view of the roller. Fig. 7 is a view of the scraper.

The frame A may be of any suitable construction, and supports a water-receptacle B, which is supplied with water from a pipe and spigot *a*, and the receptacle has a waste-pipe *b* to carry off the water. The water-receptacle has a circular open center *c* and an inside wall or rim *c'*. It also has an outer side wall or rim *d*. While the inside wall is circular, it is immaterial whether the said outer wall is circular or has other shape.

An iron disk or wheel C has a hub *e*, which is fixed on a vertical shaft D. Said disk or wheel has a depending rim *f*, which projects down from its surface, and attached to this rim is a horizontal annular plate C', the top surface of which is on a lower plane than the surface of the disk or wheel. Viewing these parts from the lower side, the depending rim *f* of the disk forms an open central cavity *g*. This particular shape of the disk C and annular plate C', setting lower, is contrived in order that the inside circular wall *c'* of the water-receptacle may take up in the open central cavity *g*, and thereby allow the said annular plate C' to set down into the stationary water-receptacle. It will thus be seen the disk and plate C' may revolve, and the latter in revolving will turn in the water that occupies the stationary receptacle, and a low temperature of the water will keep the said plate cool.

The top surface of the annular plate C' is provided with concentric grooves *h* of various sizes. Wire-solder may be formed in these grooves, and the object of the different size grooves is to be able to produce a wire of any desired size. It is deemed best, however, to produce one size of wire only at a time, and not to make several sizes at the same time.

A molten-solder receptacle E is supported by an arm or suitable bracket *i*, attached to the frame A, and has position over the annular plate C'. It is provided with teats or nozzles *j*, from which the molten solder will flow. Each teat projects down into or directly over one of the concentric grooves *h*, and the flow of solder from the teat is regulated or controlled by a plug or valve-stem *k*.

Revolving motion is imparted to the annular plate C' by mechanism which will give thereto an increased or diminished speed, as desired. When a large wire is to be made, the plate C' should revolve slower than when a small wire is to be made. The advantage of this will be understood when it is considered that it requires more time for solder to flow from the teat sufficient for a large wire, and, furthermore, that the greater amount of molten metal in a large wire requires more time for cooling. It is important, therefore, to adjust the speed of revolution to correspond, as stated, with the size of the wire to be made.

The vertical shaft D, which turns the disk, has a pulley F, and another shaft G has a pinion *l*, which may be geared or be in frictional contact with the said pulley F. This second shaft G has also a bevel-pinion *m*, which gears with a like pinion *n* on a drive-shaft H, which is provided with a speed-pulley *o*. A counter-shaft I also has a speed-pulley *p*, and a belt *q* connects the two speed-pulleys. The drive-shaft H, speed-pulleys *o p*, and belt *q* constitute the mechanism before referred to for increasing or diminishing the speed of revolution of the annular plate C'. A tapered roller J has grooves *r*, which are spaced apart to correspond to the concentric grooves on the plate. The roller turns on an arm *s*, which is supported by a bracket *t*, attached to the frame of the machine. This roller is in frictional contact with the top surface of the annular plate C', and the grooves of the roller and the grooves of the plate coin-

cide. Thus the roller does not bear on the solder-wire lying in the concentric grooves, but merely prevents the wire from leaving the said grooves.

A scraper L comprises an inclined plate attached to a shank *u*, which is secured to the frame A. The scraper-plate sets edgewise and projects across the top surface of the annular plate C′ and sets so that its lower edge will bear lightly on the said surface. Thus arranged, it serves to scrape the top surface of the plate and removes flakes and drops of solder.

The finished solder-wire, at a point past the tapered roller J, will remove itself from the grooved plate C′ if upon starting the person in attendance will simply lift the end of the wire out of the groove and let it pass off at one side of the machine. As the wire-solder leaves the revolving plate C′, it may be coiled or wound on a reel in any preferred way. In the present instance no means for this purpose is shown.

From the foregoing description the operation of the machine will be understood.

Having described my invention, I claim—

1. A wire-solder machine having, in combination, a wheel C to revolve in a horizontal plane, and having a depending rim *f*, which forms on the lower side an open central cavity *g*, and provided with a horizontal annular plate C′, a stationary water-receptacle B, having the bottom, a circular inside wall *c*′, which takes up into the said open central cavity of the wheel and forms an open center *c* and an outside wall *d*, and a vertical shaft D, extending up through the said open center of the water-receptacle and supporting the wheel C and annular plate C′, whereby the revolving annular plate sets down the stationary water-receptacle.

2. A wire-solder machine having, in combination, the frame, a horizontal annular plate provided with concentric grooves of various sizes, a vertical shaft D, supporting said plate, and a tapered roller J, having grooves of various sizes spaced apart to correspond with the said concentric grooves.

In testimony whereof I affix my signature in the presence of two witnesses.

FREDERICK W. SCHULTZ.

Witnesses:

JNO. T. MADDOX,

JOHN E. MORRIS.