

E. M. LANG, JR.
COILING MACHINE.
APPLICATION FILED APR. 2, 1906.

978,039.

Patented Dec. 6, 1910.

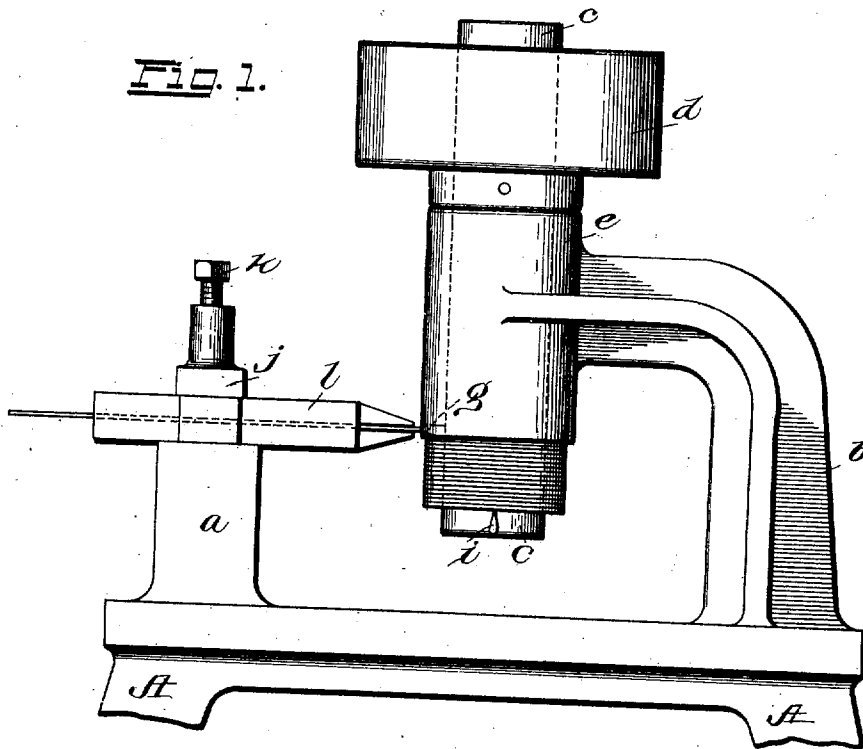


Fig. 5.

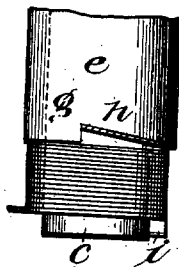


Fig. 3.

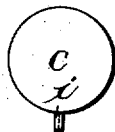


Fig. 2.

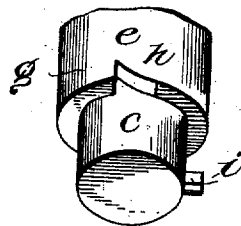
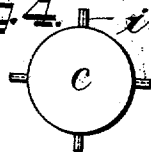


Fig. 4.



Witnesses
W. May Duralf
F. R. Piton

Inventor
E. M. Lang, Jr.
By Wilkinson & Fisher,
Attorneys.

UNITED STATES PATENT OFFICE.

EDWARD M. LANG, JR., OF PORTLAND, MAINE.

COILING-MACHINE.

978,039.

Specification of Letters Patent.

Patented Dec. 6, 1910.

Application filed April 2, 1906. Serial No. 309,293.

To all whom it may concern:

Be it known that I, EDWARD M. LANG, JR., a citizen of the United States, residing at Portland, in the county of Cumberland and State of Maine, have invented an Improvement in Coiling-Machines; and I hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to devices whereby flat strips or ribbons of the softer metals and wire may be converted into spirals and severed into split rings or segments of rings for various uses.

Briefly it consists of a revolving arbor, a stationary former or head within which said arbor revolves and a knife or knives fixed in said arbor whereby rings or segments are cut from the coil or spiral as the latter is formed.

In the drawing: Figure 1 is a side elevation of the device; Fig. 2 is a perspective view showing the lower part of the former and the shaft revolving therein. Fig. 3 is a bottom plan view of the shaft carrying the knife. Fig. 4 is a similar view of a modified form, the shaft being shown as provided with a plurality of knives, and Fig. 5 is a side view of the lower part of the former and shaft showing a coil of solder wound thereon.

The device is shown in side elevation in Fig. 1. Surmounted upon a suitable bench A is a bent arm *b* to the upper end of which is fixed the former or head *e*. The former *e* is provided vertically with a central circular aperture for the reception of the shaft or mandrel *c* which at the upper end is provided with a pulley *d*. The lower end or face of the former *e* is cam-faced, forming the slot *h*, see Fig. 2. The material of the face of the former is gradually removed at a uniformly increasing rate for about 90° of the circumference until it reaches a point *g* where the wall of the depression, see Fig. 2, will be slightly greater in height than the thickness of the material to be operated upon. Below the former *e*, the shaft is provided with a knife *i* which is rigidly fixed in the shaft with the cutting edge upward or toward the former *e*.

Various forms of heads or formers may be substituted for that shown in Fig. 1, as

for instance use may be made of that described in Letters Patent issued to Marcellus C. Lovejoy under date of the second day of January, A. D. 1906, No. 809,269.

At a convenient place upon the bench is placed a tool post *a* which is surmounted by a frame *j* adapted to receive the set screw *k* and the guide or tension spring *l*, the jaws of which are so placed as to be in the plane of the deepest portion of the groove *h* in the face of the former *e*.

In the drawing the slot or cut-away portion *h* is shown exaggerated for the sake of clearness, as in practice its depth is but a little more than the thickness of the solder.

The operation of the device will be readily perceived. The end of the ribbon or wire to be treated is passed through the guide *l*, carried around the arbor *c* several times and clamped, tied or otherwise rigidly affixed to the arbor above the knife *i*. Power is then applied to the arbor *c* by means of a belt upon the pulley *d*. After a few turns of the metal upon the shaft, it will be found that the coil thus formed grasps the shaft *c* with such rigidity that the clamping, or similar device, whereby the end which is held to the shaft may be removed. As the shaft continues to revolve, the ribbon or wire being fed through the slot *h*, the spiral or coil thus formed is forced down against the knife *i*. As coils or spirals of wire or ribbon are added, the knife holds the lowest member of the coil or spiral in place by friction until the force is such as to cut a ring of metal from the spiral which then passes off the lower end of the shaft. With another revolution of the shaft a new ring having been added at the top another ring is cut from the lower end of the spiral and passes off the shaft as before. If sundry knives are used, as indicated in Fig. 4, the result is to cut the coil or spiral into as many segments as there are knives employed, as for example, semi-circles or quadrants respectively when two or four knives are used.

The knife *i* is tapered from the bottom upwardly, as shown in Fig. 1, and being tapered as it cuts through the lowest ring of solder it either cuts slightly into or comes against the next ring of the spiral of solder. This fact and the fact that the solder is tightly wound upon the shaft or mandrel prevents the unwinding of the solder.

My invention is especially adapted for forming solder rings for attachment to metal can caps.

What I claim is:

- 5 1. In a coiling machine the combination of a bench or support, a bent arm or bracket carried thereby and terminating in a vertically located annular cylinder, the lower
10 ing through said cylinder and supported thereby, said mandrel having a knife near its lower end, and means for guiding a strip of solder to said mandrel, substantially as described.
- 15 2. In a coiling machine the combination of a bench or support, a bent arm or bracket carried thereby and terminating in a ver-

tically located annular cylinder, the lower end of which is cam faced, a mandrel passing through said cylinder and supported 20 thereby, and having a knife at its lower end, a pulley mounted on the upper end of said mandrel and spring operated adjustable devices for guiding solder to said mandrel, substantially as described.

In testimony whereof, that I claim the foregoing as my invention I have hereunto set my hand this twenty-eighth day of March, A. D. 1906.

EDWARD M. LANG, Jr.

Signed in presence of—

GEO. E. BIRD,
A. C. BERRY.