

(No Model.)

C. I. LOVEREN.

MACHINE FOR MAKING GEM SETTINGS.

No. 297,611.

Patented Apr. 29, 1884.

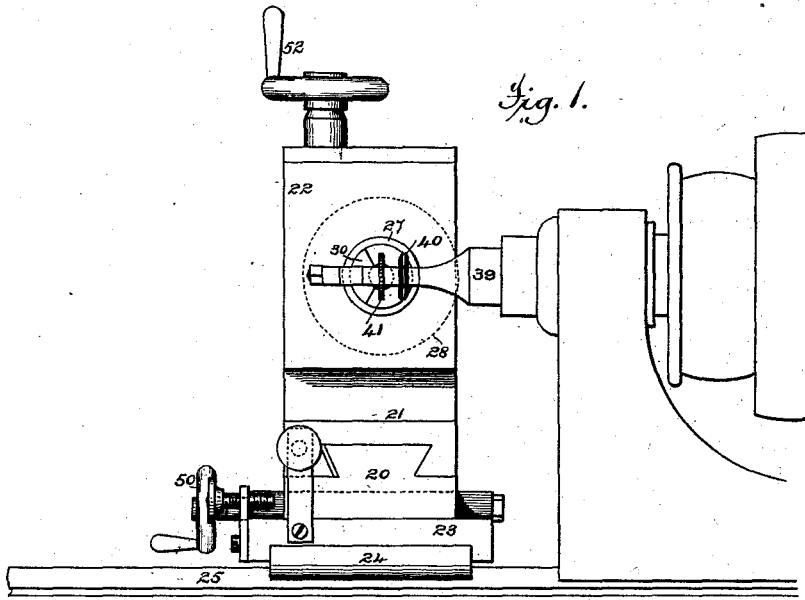


Fig. 1.

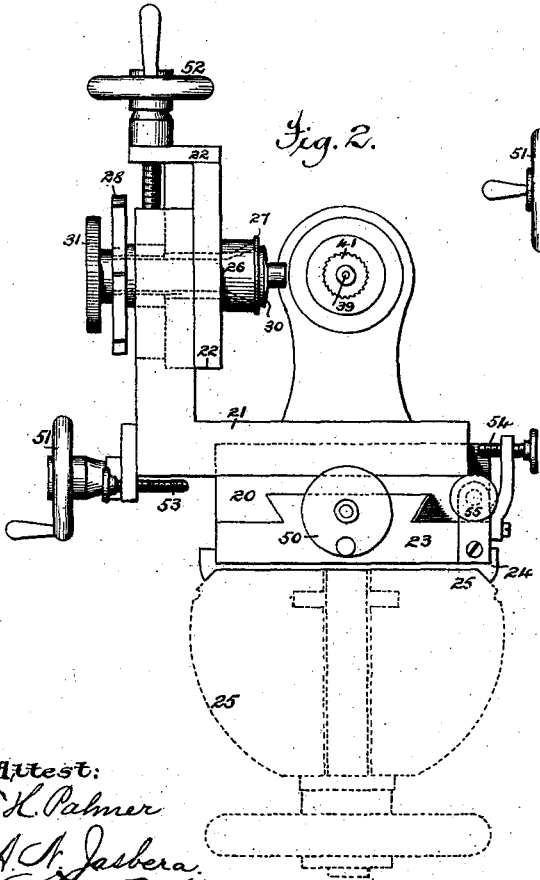


Fig. 2.

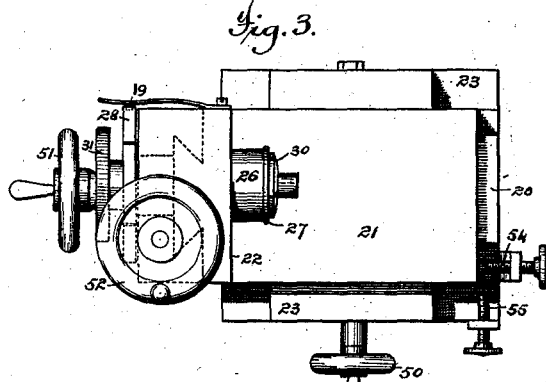


Fig. 3.

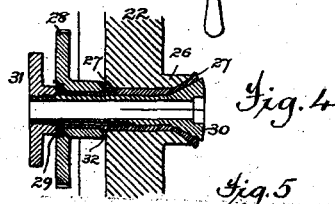


Fig. 4.

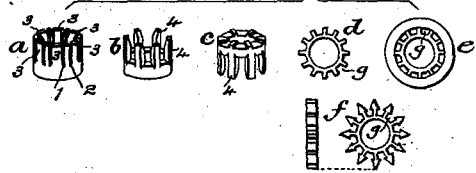


Fig. 5.

Attest:
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UNITED STATES PATENT OFFICE.

CHARLES I. LOVEREN, OF BROOKLYN, NEW YORK.

MACHINE FOR MAKING GEM-SETTINGS.

SPECIFICATION forming part of Letters Patent No. 297,611, dated April 29, 1884.

Application filed September 25, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES I. LOVEREN, a citizen of the United States, residing in the city of Brooklyn, Kings county, and State of New York, have invented certain new and useful Improvements in Machines for Making Settings and other Ornaments, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to that class of machines or lathes which hold and revolve the material that is formed or shaped, and more particularly to an attachment for said machines whereby certain portions of the material held by the attachment may be cut away, leaving projections or cramps on the material, thus forming a setting for holding gems and stones, and also in making ornamental designs on the material for other similar purposes.

Heretofore in the manufacture of this class of settings and other regular ornamentations it has been necessary to cut the projections, cramps, or ornamentations wholly by hand, the regularity of the design consequently depending upon the experience and eye of the workman.

It is the object of the present invention to produce this class of articles by automatic means, so that they may be manufactured quickly and inexpensively and without the aid of an experienced workman.

My improvements consist of a "rest" and holder for the material to be shaped or formed, used in connection with a lathe or other machine in which are carried suitable revolving cutters or formers, such as were patented to me September 20, 1881, No. 247,204.

In the drawings, Figure 1 is a front view of my improvement attached to the bed of an ordinary bench-lathe, showing a portion of the bed and the revolving arbor carrying the cutters or formers. Fig. 2 is a side elevation of the same. Fig. 3 is a plan view of the rest. Fig. 4 is a partial sectional view showing the manner of holding the chuck to the rest and gage-plate, and Fig. 5 are views of two different shapes that can be produced by my improvement.

This improved rest consists of three adjust-

able slides, 20 21 22, so arranged and held in relation to each other that a like number of adjustments in different directions may be made in operating the rest. The slide 20 is carried in dovetailed ways on a base-plate, 23, that is secured (adjustably) through a shoe, 24, to the bed 25 of the lathe. Upon this slide 20 is carried the slide 21 in dovetailed ways cut at right angles to those in the base-plate 23, so that its movements are at right angles to those of the slide 20. In the vertical projecting portion of the slide 21 the slide 22 is carried in dovetailed ways therein, so that said slide can be moved in a vertical direction up or down, as necessity may require in the operation of forming the material. This vertical slide 22 is provided with a projection, 26, and is bored through to receive a hollow sleeve, 27, suitably shaped to receive a "spring-chuck," 30, for holding the tubing or wire to be shaped. On the rear end of this hollow sleeve is secured a gage-plate, 28, by a nut, 29, so that the gage-plate and sleeve will move together in the hole in this slide 22, sufficient friction being imparted by said nut between the conical portion of the sleeve and the bearing in the projection 26, so that the hollow sleeve will not be moved accidentally. This gage-plate 28 is provided with notches or depressions on its circumference, corresponding to the number of cuts to be imparted to the tubing or wire, and is held in position by a spring-seated point, 19, engaging with the notches therein, that allows it to be revolved intermittently step by step and held at equidistant points. The chuck 30 is held in the hollow spindle by a back nut or hand-wheel, 31, and prevented from turning therein by a short stud, 32, which enters a groove in the chuck. This chuck is of the ordinary spring-chuck pattern, provided with a hole running through its entire length, and of a size equal to that of the tubing or wire it is to hold, its back nut, 31, drawing the conical portion of the chuck into the hollow sleeve 27, and acting to force its jaws together, and thus clamp and firmly hold the tubing therein.

The operations of the machine are as follows in cutting cramps or projections and the like on tubing, wire, &c.: An arbor, 39, carrying suitable cutters or formers, as 40 41, is secured

to the lathe-spindle, and a piece of tubing of whatever diameter and length it is desired the finished article should be (or the tubing may be of any length, and, after the projections or cramps are cut on said tubing, be cut off at the desired length of the article) is secured in the chuck 30, a gage-plate, 28, having notches or depressions corresponding to the number of cuts it is desired to make in the tubing, having been previously secured to the hollow sleeve 27. The lathe-spindle is then set in motion, revolving the arbor 39 and cutters 40 41, and the end of the tubing projecting from the chuck at right angles to the center of motion of said cutters is moved up and into position for the action of one of the cutters—say the double cutter 40—by adjusting either of the slides 20 21 22 through their respective hand-wheels, 50 51 52, the latter of which is only used to adjust the height of the tubing to that of the cutters, so that they will cut on the bottom of the tubing, and to effect any desired angle the bottom of the cut should be, and the hand-wheel 51 being used to present and feed the tubing to the cutters until they have cut the required depth, a suitable stop, as 53, regulating and determining the depth of such cut made by the double cutter 40. This proper adjustment and position of the slides and tubing being accomplished, the tubing is moved up to the cutters by a suitable movement of the slide 21 until the end of said slide abuts against the stop 53, (the result of which is the making of two narrow cuts, 1 2, in the tubing,) when it is withdrawn therefrom by a reverse movement of the handle 51, whereupon the gage-plate 28 is turned one notch, and thus partially rotating the tubing, and the latter is again moved up to the cutters 40, repeating the operations until the entire number of cuts have been made, and giving to the tubing a series of cuts, as shown at *a* in Fig. 5. The tubing is now moved along and suitably presented to the action of the single cutter 41 through the hand-wheel 50 moving the slide 20 until it abuts against a stop, 55, which carries with it in such movement the slides 21 22, (the height of the tubing not being changed,) when the same operations will be repeated as with the double cutter 40, a suitable stop, 54, determining the distance to which the slide is moved, and consequently regulating the depth at which the cutter 41 will cut. The action of this last cutting operation will be to cut away certain portions, 3, of the metal left standing between the cuts 1 2 first made, and will leave the narrow projections or cramps, as 4, standing, as seen at *b*, Fig. 5. This being accomplished, the tubing is released from the chuck, and if it be for a setting, as shown at *b* in said figure, it will require no further manipulation, but be ready for polishing and receiving the gem. Should, however, the setting require short points on the back end, as at *c*, Fig. 5, the tubing will be reversed in the

chuck, and suitable cuts be made in said back end in a similar manner as before described, using a suitably-shaped cutter for the purpose.

The form of ornament shown at *f*, Fig. 5, is made in very much the same manner, using first a cutter suitable to make the cuts *g* in a piece of tubing, as shown at *d*, after making which another piece of tubing is put over the short projections thus left, and soldered thereto, as shown at *e*, and another suitably-shaped cutter then makes the outside cuts, and the ornament is completed. In making this style of ornament where the projections stand out from the circumference of the tubing, I prefer to mount the tubing on an arbor in the same way as the cutters are, and the arbor secured in the sleeve 27 instead of the chuck, the cutting operations being precisely the same, the height of the slide 22 being adjusted so as to bring the tubing sufficiently over the cutters so that they will cut into the circumference of the tubing instead of into its end.

It will be seen that all kinds and styles of this class of settings and ornaments can be readily produced, the only change that is necessary being the change in the shape of the cutters and the number of the projections or cramps to be made, the latter being regulated by a gage-plate having the desired number of notches.

Where one size of tubing or wire is used in forming these settings, it is obvious that the vertical adjustment of the slide 22 would not be needed, and hence could be dispensed with, said slide becoming a part of the vertical portion of the slide 21; or, in other words, the slide 22, with its adjustment, may be omitted, and the hollow spindle and chuck be similarly held in said vertical portion of the slide 21.

What I claim is—

1. The combination, with suitable slides, as 20 21, of the hollow sleeve, as 27, and chuck 30, and means carried by the vertical portion of said slide 21 for supporting the same, substantially as described.
2. The combination, with suitable slides, as 20 21, of the hollow sleeve, as 27, chuck, as 30, gage-plate 28, and means carried by the vertical portion of said slide 21 for supporting the same, substantially as described.
3. The combination, with the slides 20 21, of the slide 22, provided with means for vertically adjusting it and for carrying a chuck, as 30, substantially as described.
4. The combination, with the slides 20 21 and the base-plate 23, of the slide 22, provided with means for vertically adjusting it and for carrying a chuck, as 30, substantially as described.
5. The combination, with the slides 20 21, of the slide 22, provided with a hollow sleeve, as 27, a chuck, as 30, and means for vertically adjusting said slide 22, substantially as described.
6. The combination, with the slides 20 21,

of the slide 22, provided with a hollow sleeve, 27, a chuck, 30, and a gage-plate, 28, and means for vertically adjusting said slide 22, substantially as described.

5 7. The combination, with the slide, as 22, hollow sleeve 27, having short stud 32, and gage-plate, as 28, of a chuck, as 30, mounted in said hollow sleeve and held therein by a back nut, 31, substantially as described.

In testimony whereof I have hereunto set to my hand in the presence of two subscribing witnesses.

CHAS. I. LOVEREN.

Witnesses:

GEO. H. GRAHAM,
GILMER CROWELL.