N. B. SLAYTON.

Apparatus for Reducing Metal for Dental Purposes.

No. 205,508. Patented July 2, 1878.

Fig: 1.

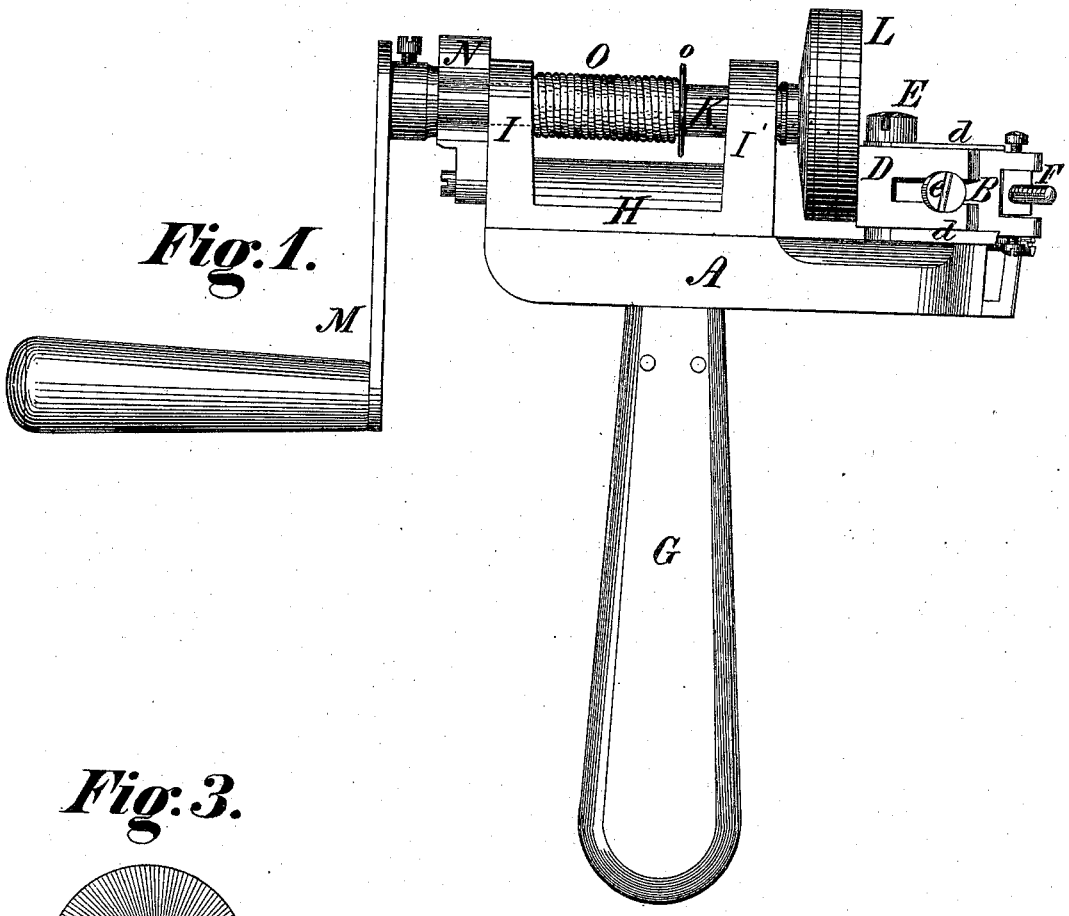


Fig: 3.

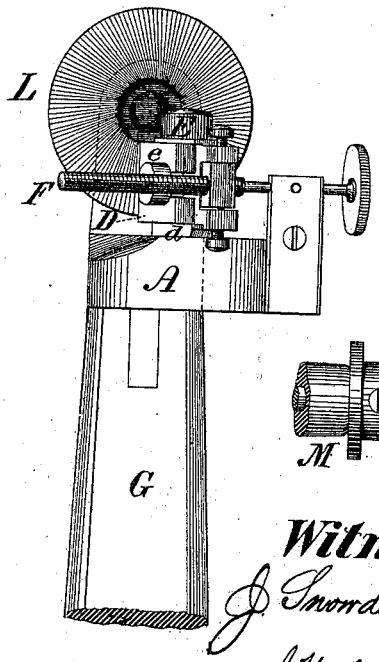
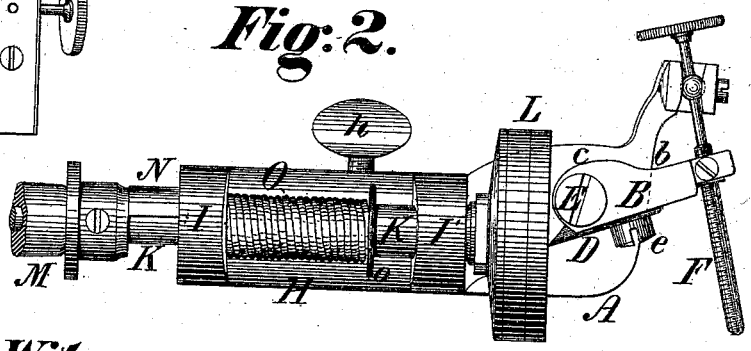


Fig: 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

NELSON B. SLAYTON, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN APPARATUS FOR REDUCING METAL FOR DENTAL PURPOSES.

Specification forming part of Letters Patent No. **205,508**, dated July 2, 1878; application filed September 5, 1877.

To all whom it may concern:

Be it known that I, NELSON B. SLAYTON, of Rochester, New York, but now residing at Florence, Italy, have invented certain new and useful Improvements in Lathes for Reducing Metals for Dental Purposes, of which improvements the following is a specification.

My present invention is based upon the discovery made by me that gold or tin, or alloys of these metals, reduced from a mass to the form of fibers, shreds, shavings, or ribbons, afford a metallic filling for teeth not only more available in form, but superior in quality, to the foils, sponges, or crystals heretofore made by the processes of hammering, rolling, or beating, or by the use of chemicals.

My new product and the process of obtaining it have been fully described in other applications filed simultaneously herewith.

The object of the invention herein claimed is to provide the dentist or the manufacturer with a light and portable instrument, specially adapted for reducing a mass of metal to the form of a fibrous and textile filling for teeth, with uniformity in the fibers, shreds, shavings, or ribbons, while at the same time permitting of adjustment which will give a range of fine or coarse, or long or short, fibers, shreds, or shavings, or a continuous ribbon, as may be desired for different purposes, which ends I attain by means of a lathe, in which the mass of metal to be reduced is chucked upon one end of a horizontal shaft supported in proper bearings, and provided at the other end with a suitable winch or handle for rotating the mass of metal against the edge of a knife or cutter adjustable to such an angle with the face of the mass to be reduced as will produce the desired length of cutting, the shaft also having free end play in its bearings, and being provided with a spring having its tension so adjusted as to determine and maintain a given pressure of the surface of the metal to be reduced against the cutter, and at the same time to admit of a vibrating or yielding endwise movement of the shaft, so that the action of the cutter, at whatever angle adjusted, may be intermittent, and thus produce shorter or longer fibers, shreds, or shavings, as desired for different classes of use.

The subject-matter claimed will hereinafter be specified.

In the accompanying drawings, which show all my improvements as embodied in the best way now known to me, Figure 1 represents a side elevation of my improved lathe with an ingot of metal mounted therein; Fig. 2, a plan or top view, and Fig. 3 an end view, thereof.

The bed-plate A of the lathe is shown as provided with a handle, G, which may be secured to any suitable support. A detachable shaft-carrier, H, is fitted upon the bed-plate by means of pins and a thumb-screw, *h*, by which means the shaft-carrier can readily be removed to mount an ingot, and as readily be replaced and secured in position. A shaft, K, revolves in bearings I I′ in the shaft-carrier. The ingot L is secured upon the projecting end of the shaft next the cutter, so as to present one face vertically to the cutting-edge of the knife. A winch, M, is mounted on the other end of the shaft. A locking-collar, N, pivoted to the outside of the shaft-carrier between the winch and the adjacent bearing I, can be thrown over the shaft to lock it in its retracted position, or that farthest removed from the cutter, when desired, or be thrown back when the shaft requires to be moved longitudinally forward.

A spiral spring, O, encircles the shaft K, one end acting against the collar *o* fixed on the shaft, and the other against one of the bearings of the shaft-carrier. The spring thus tends constantly to press the surface of the ingot up to the cutter.

The mass of metal to be reduced is cast or otherwise formed into a short hollow cylinder or perforated disk, of such length and diameter as may be consistent with the width of the fibers, shreds, shavings, or ribbons to be produced. The diameter of the central opening of this perforated disk or ingot, as I prefer to call it, is such as to leave an annulus a little less in width than the depth of the cutting-edge, so that the cutter shall extend entirely across and bear upon the entire surface of the annulus.

The bed-plate A has a bracket-extension, near the edge of which a knife-rest, B, is

mounted so as to project beyond the bed-plate for some distance, as shown. The back *b* of the rest, or that portion nearest the face of the ingot, is provided with a round or cam-shaped end, *c*, for a purpose hereinafter described.

A knife or cutter, D, is fitted between guides *d d* in the face of the rest B, and held by a set-screw, *e*, which permits of this cutting-edge being adjusted toward or from the face of the ingot, as may be required by the original or reduced length of the ingot or other circumstances.

The knife-rest is pivoted upon a short stud or spindle, E, on the bed-plate, which supports its shouldered end near the face of the ingot, while its projecting or outer end is adjusted by means of a thumb-screw, F, so as to determine the angle at which the edge of the cutter is presented to the face of the ingot, and consequently the length of the cutting.

The shank or handle of the thumb-screw works through a swivel-block, *f*, on the bracket-extension, thus compensating the angular movement of the knife-rest as it is adjusted on its pivots by the thumb-screw.

When the cutter is retracted beyond a certain point, it is obvious that its rounded shoulder *c* will abut against the face of the ingot, and thus prevent it from bearing upon the cutter as it acts as a cam to force the ingot backward, and that conversely within certain limits the depth of cut would be regulated by feeding the cutter forward, as the retraction of the cam-surface *c* permits the spring to force the ingot closely against the cutting-edge.

I do not broadly claim an endwise-moving shaft or an adjustable knife-rest, nor broadly the combination of a shaft and adjustable knife-rest, as these are *old*; but I *am not* aware of the existence previous to my invention of a lathe having an adjustable knife-rest mounted on the bed-plate in a fixed position, or of an endwise-moving ingot-bearing spring-shaft co-operating with such cutter.

I claim as my invention—

1. The combination, substantially as hereinbefore set forth, of the fixed bed-plate, the endwise-moving ingot-bearing shaft mounted in fixed bearings therein, its feeding-spring, and the knife-rest, adjustable on a fixed pivot on the bed-plate in the line of the ingot-bearing shaft, for the purposes specified.

2. The knife-rest, constructed, as described, with a rounded or cam-shaped pivoted end, adapted to bear upon the ingot and regulate its pressure upon the cutter.

In testimony whereof I have hereunto subscribed my name.

NELSON B. SLAYTON.

In presence of—

J. A. B. WILLIAMS,

S. T. JONES.