No. 762,374. PATENTED JUNE 14, 1904.

F. E. V. BAINES.

MACHINE FOR SHARPENING OR CUTTING PENCILS OR THE LIKE.

APPLICATION FILED DEC. 21, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

FIG. 1.

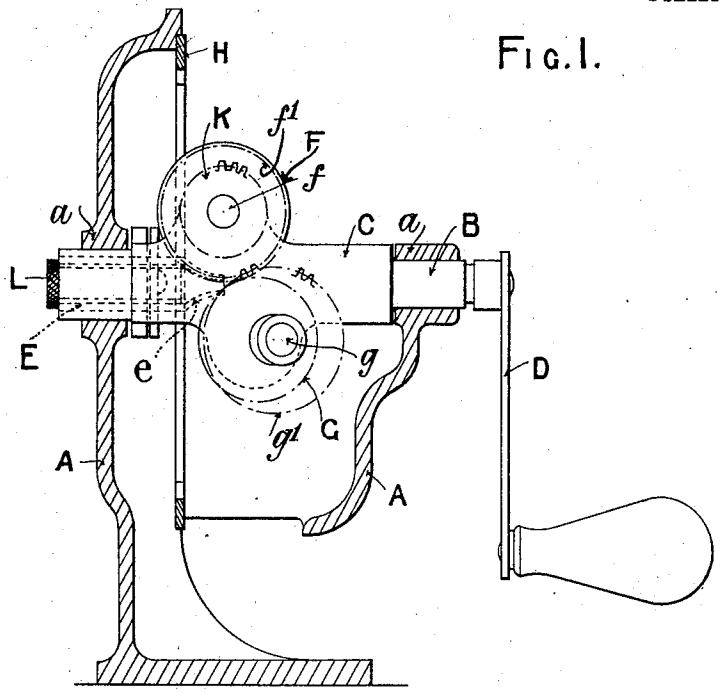
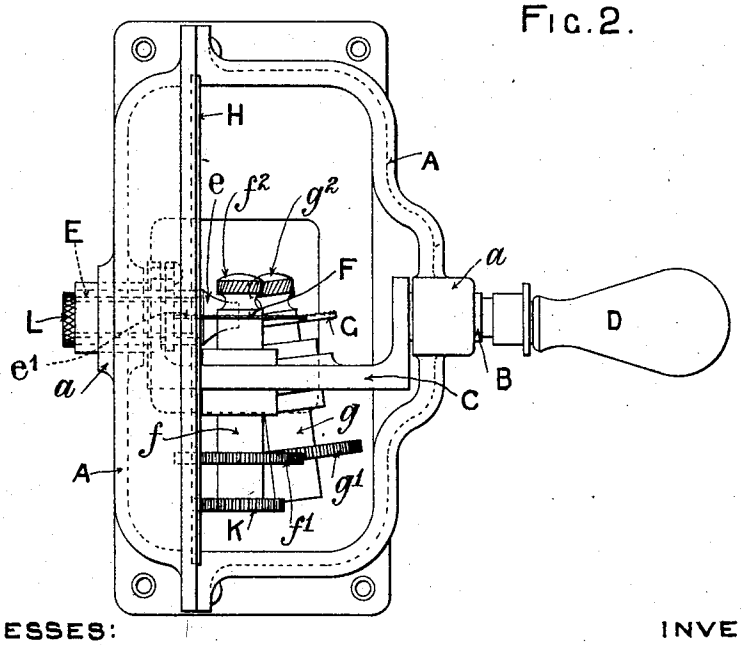


FIG. 2.



WITNESSES:

Hedley J. Harrop.

G. V. Symes.

INVENTOR.

F. E. V. Baines.

Per Robert B. Phillips.

Attorney.

NORRIS PETERS, INC., LITHO., WASHINGTON, D. C.

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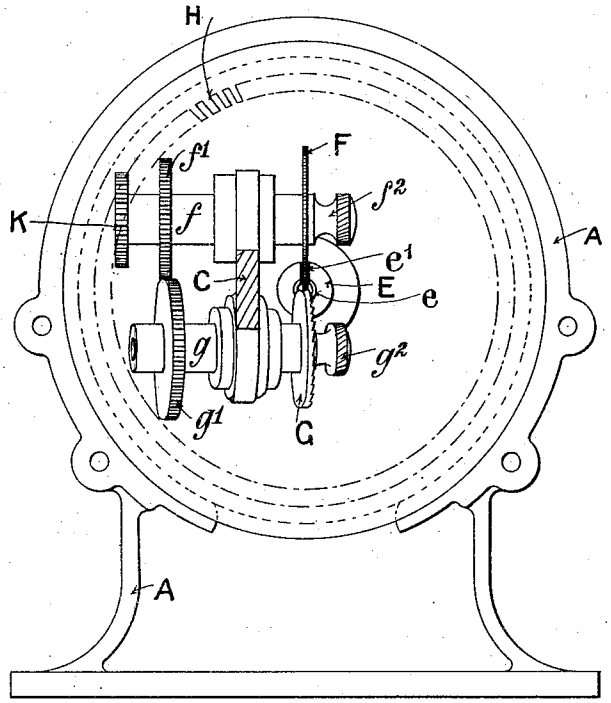
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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.



WITNESSES:

Hedley J. Harrop.

G. V. Symes.

INVENTOR.

F. E. V. Baines.

Per Robert S. Phillips.

Attorney.

MORRIS PETERS, INC., LITHO., WASHINGTON, D. C.

No. 762,374. Patented June 14, 1904.

UNITED STATES PATENT OFFICE.

FREDERICK EDWARD VESEY BAINES, OF GREENWICH, ENGLAND.

MACHINE FOR SHARPENING OR CUTTING PENCILS OR THE LIKE.

SPECIFICATION forming part of Letters Patent No. 762,374, dated June 14, 1904.

Application filed December 21, 1903. Serial No. 186,046. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK EDWARD VESEY BAINES, a subject of the King of Great Britain and Ireland, residing at 16 Gloucester Terrace, Greenwich, in the county of Kent, England, have invented a certain new and useful Improvement in Machines for Sharpening Cutting Pencils or the Like, (for which I have applied for Letters Patent in Great Britain, No. 28,466, bearing date December 24, 1902,) of which the following is a full and complete specification.

This invention relates to a new or improved machine for sharpening or cutting pencils and the like, its object being to provide a sharpening device which will readily and efficiently cut or sharpen pencils and the like in a manner more nearly perfect than has hitherto been possible either by hand or machine.

A machine constructed according to the present invention comprises, essentially, an arrangement having a circular cutter provided with a peripheral cutting edge, which I call the "shaping-cutter," a second circular cutter having a face-cutting edge, which I call the "sharpening-cutter," both cutters being mounted directly or indirectly on a shaft carried in bearings formed on or within a suitably-shaped frame or casing, a guide or holder adapted to fit in one end of said shaft to receive the pencil or the like to be cut or sharpened, and means or mechanism for imparting not only a rotary motion to the cutters, but also a rotary or planetary motion of said cutters around the pencil or the like, and in some cases also a feeding motion to the pencil or the like.

In the accompanying drawings, which illustrate, by way of example, one form this invention may assume, Figure 1, Sheet No. 1, is a view in side elevation, partly in section. Fig. 2, Sheet No. 1, is a view in plan; and Fig. 3, Sheet No. 2, is a view in front elevation, partly in section, with part of the frame removed.

Throughout the views similar parts are marked with like letters of reference.

In a suitably-shaped metal frame A, adapted to stand on or be secured to a table or desk, is a horizontal shaft B, adapted to rotate in suitable bearings *a*. This shaft B is U-shaped at its center, forming a frame C, which divides the said axle into two parts, on one of which is fixed a cranked handle D for rotating it, while the other part forms or carries a tubular guide or holder E for the pencil, the inner end of said guide or holder being shaped to form a truncated cone *e*, the inner wall of which is dished inwardly or of a concave contour corresponding with the curve produced by the shaping-cutter.

The shaping-cutter F, which is adapted to cut the wood portion only of the pencil, is an edge cutter, and the other or sharpening cutter G, which is adapted principally to cut or sharpen the core of graphite or the like of the pencil, but cuts also that portion of the wood of the pencil adjacent to the core reduced in diameter by the shaping-cutter, is a face-cutter. These two cutters F and G are mounted on axles *f* and *g*, running in bearings in the frame C, the position of the axle *f* with respect to the shaft B being such that the cutter F rotates in a plane with the axis of said shaft and projects through an axially-arranged slot *e'* in the end *e* of the guide or holder E. The position of the axle *g* with respect to the shaft B is such that the cutter G rotates at an angle to the axis of the shaft B, so as to produce a tapering point to the pencil. The cutter E cuts away the wood of the pencil in a curve corresponding to the curve of the cutter, but not quite down to the core or graphite. The cutter G cuts or grinds away the core or graphite and also continues the cut of the wood of the pencil as left by the shaping-cutter on a fresh curve at the reduced diameter of the wood. The axles *f* and *g* are caused to rotate on their respective axles and to rotate around the shaft B by being geared together by spur-wheels *f'* and *g'* or by equivalent mechanism and by one of the said axles being geared with a fixed rack, such as H, by means of a spur-wheel, such as K.

The guide or holder E is made of a sufficiently large internal diameter to receive the largest pencils, and it is provided with interchangeable bushes or sleeves L for varying

the internal diameter of said guide or holder to enable it to receive and support pencils of a smaller size.

To sharpen a pencil, it is inserted in the guide or holder E, held from rotating, and pressed gently forward. The axle B is then rotated by the handle D, so as to bring the cutters into operation, with the result that a point of a finer and more serviceable kind than is possible by any known method is produced. It will be understood that, owing to the particular arrangement of the cutters, the point produced comprises two distinct curves, that of the wooden portion or the major part thereof produced by the shaping-cutter being a sharply-defined inwardly-curved cone of a concavity corresponding to the arc of the cutter, while that produced by the second cutter—the sharpening-cutter—is of a curve of small radius for a portion of its length and for the remainder a gradually-tapering cone. The cutters are fixed on their axle by nuts f^2 g^2, so that they can easily be detached and replaced when necessary. The sharpening-cutter instead of being mounted at an angle to the axis of the shaft B may have its cutting-face formed to the desired curve or angle; but I prefer the arrangement described, whereby the cut of the said cutter on the wood of the pencil next the graphite or core is in a direction nearly in line with the grain of the wood, as this produces a smoother cut on that part of the wood similar to that produced by the shaping-cutter on the other portion of the wood. Means may be provided to prevent the pencil from rotating in its guide. Further, it will be understood that more than two cutters may be employed without departing from the spirit and scope of this invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A machine for sharpening or cutting pencils and the like, comprising a U-shaped shaft, a frame to support said shaft, a guide or holder to receive the pencil or the like formed in said shaft, means for rotating said shaft, a bearing carried by said U-shaped shaft at right angles thereto, an axle mounted in said bearing, an edge cutter mounted on said axle and adapted to work on the axial line of the pencil, a bearing carried by said U-shaped shaft at an acute angle thereto, an axle mounted in said bearing, a face-cutter mounted on said axle and adapted to work on the side of the pencil at an acute angle with the axis thereof, and means for communicating a rotary motion to said cutters about their axles and a planetary motion to said axles, as set forth.

2. In a pencil-sharpening machine the combination with two rotary cutters the one adapted to work on the axial line of the pencil and the other on the side of the pencil at an acute angle with the axial line thereof, of means for giving a planetary motion to said cutters and of a guide for holding pencil, as set forth.

3. A machine for sharpening or cutting pencils or the like, comprising a shaft B shaped to form a frame C at about the center of its length, a frame A for supporting shaft B, a guide or holder E in said shaft for the pencil or the like, the inner end of said guide being formed as a truncated cone and having an axial slot e', a bearing carried by the U-shaped shaft B at right angles thereto, an axle f mounted in said bearing, an edge cutter F mounted on the axle f and adapted to rotate in plane with the axis of the shaft B and project through the axial slot e' in the guide or holder E, a bearing carried by the U-shaped shaft B at an acute angle therewith, an axle g mounted in the said bearing, a face-cutter G mounted on the axle g and adapted to rotate at an angle with the axis of said shaft, a handle D for rotating said shaft, and means for communicating motion from the shaft B to said cutters so that they rotate both on their respective axles and around the said shaft B by a planetary motion, as set forth.

FREDERICK EDWARD VESEY BAINES.

Witnesses:
A. MILLWARD FLACK,
G. V. SYMES.