May 26, 1964 C. CHELAZZI 3,134,364

ADJUSTABLE CORE-POINTER FOR CORE-DROPPING PENCILS

Filed Nov. 25, 1957

FIG. 1.

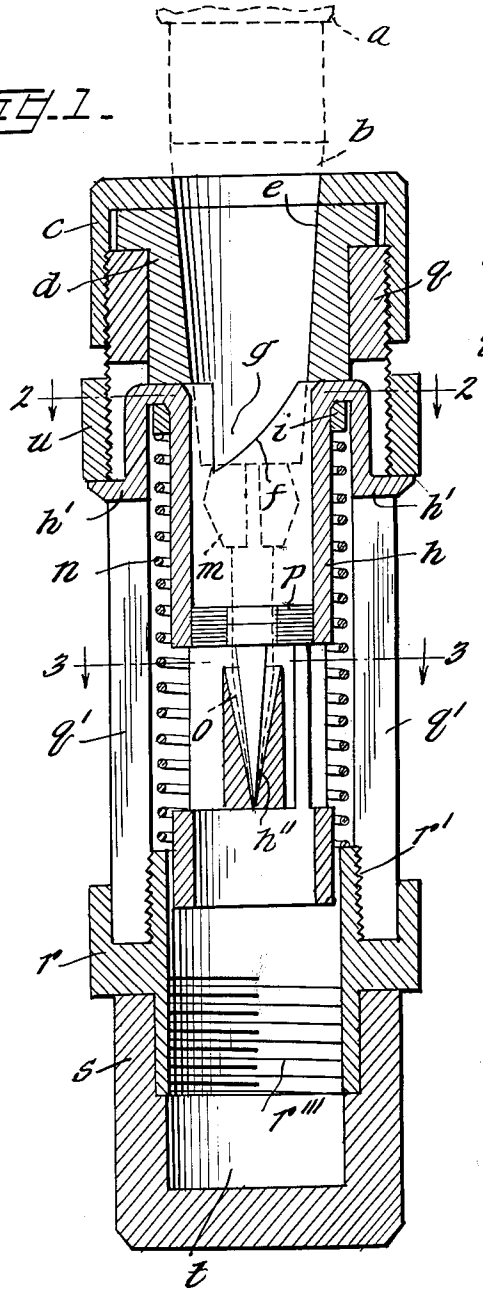


FIG. 2.

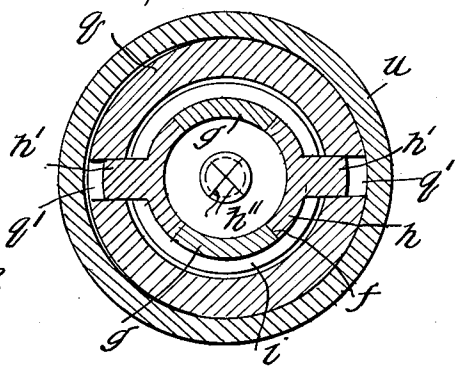


FIG. 3.

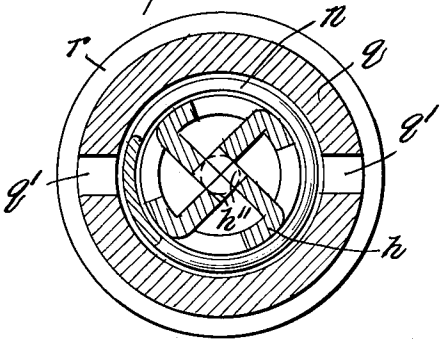
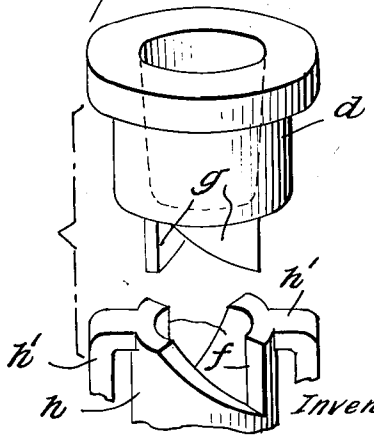


FIG. 4.



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ADJUSTABLE CORE-POINTER FOR CORE-DROPPING PENCILS

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3 Claims. (Cl. 120—92)

Pencil sharpeners known in the art, operate in such a way that the extent of protrusion of the lead from the pencil and the operation for sharpening the lead itself are effected by a rough estimate with a considerable loss of time and the need for a certain degree of trial and error, particularly if the draftsman requires lines having a constant thickness.

Accordingly, it is an object of this invention to provide an improved pencil sharpener.

It is another object of this invention to provide an improved pencil sharpener which may be quickly and easily operated to produce a point having a predetermined thickness.

The pencil sharpener according to the present invention has considerable advantages, wherein, after setting, there will be no need for further adjustment or further trial, so that it may be utilized more easily and rapidly.

Briefly, in accordance with this invention, there is provided a pencil sharper for pencils of the type incorporating a replaceable lead, comprising two tubes capable of being moved axially with respect to one another against the action of a spring. One of such tubes forms a cutting device having one or more cutting edges and is provided with parts for engagement with the other of said cylindrical tubes under the influence of the said spring thereby to press the cutting edges against the lead to be sharpened. The cutting device incorporates teeth for engagement with mating teeth upon the tube with which it engages to lock the cutting device in adjusted positions.

These and various other objects and features of the invention will be more clearly understood from a reading of the detailed description of the invention in conjunction with the drawing, in which:

FIGURE 1 is a longitudinal section of the sharpener;

FIGURES 2 and 3 are two cross sections on the lines 2—2 and 3—3 respectively; and

FIGURE 4 is a perspective of the teeth engaging elements.

A small flanged tube *d* is provided with a frustoconical bore *e* in which rests the tip *b* of pencil *a*, while the lead gripping chuck *m* of the pencil enters freely into the pencil sharpener. The pencil is a conventional type of draftsman's pencil which grips the lead in chuck *m* and releases the lead by downward movement of the chuck in response to relative movement of the body *a* with the tip *b*.

When the pencil is pressed into the bore *e*, the chuck *m* moves relatively to the pencil body to free the lead and, while the tip of the lead *o* enters into contact with cutting edges h^{11} of a cutting device *h* forming a tube, the chuck exerts pressure on sliding plates *p* which are slidably mounted into device *h* above the cutting edges h^{11} of the device *h*. This pressure overcomes the resistance of a helical spring *n*, which presses upwardly a ring *i* which in turn causes parts of the device *h* to abut on the tube *d*, and this pressure causes the device *h* to be lowered. The pencil is rotated around its axis in a clockwise direction looking downwards from the pencil. Two teeth *g* of the tube *d*, which is caused to turn by friction exerted in the bore *e* through the tip of the pencil, engage mating helical teeth *f* of the device *h*, to push the cylinder *h* downwardly when, by reducing the manual pressure on the pencil, the chuck *m* is again allowed to clamp the lead. By rotating the pencil in the opposite direction, the teeth *g* move away from the mating teeth *f*, so as to disengage the device *h* and permit the edges h^{11} to press upon the tip of the rotating lead and, consequently to perform a uniform removal of the lead until two projections h^1 of the cutting device *h* are prevented from further upward movement by engagement with the lower edge of a tube *u*. For adjusting purposes, the height of tube *u* is set by screwing it on or unscrewing it relative to body *q*, such tube *u* acting as a stop.

The external body *q* acts as follows:

Apertured cap *c* threadably engages body *q* and engages the top of the flanged tube *d*. Body *q* has two longitudinal slots q^1 for permitting the passage and sliding movement of the projections h^1 which, in their turn, assist the adjustment of the stroke of the device *h*. The body *q* co-operates with the projections h^1 to prevent the device *h* from turning. The body *q* acts as a guide for the device *h* and houses the helical compression spring *n*. A tube *r* engages the body *q* by means of threads r^1. The upper end of tube *r* supports the helical spring *n*. Rotation of the tube *r* adjusts the pressure of helical spring *n* by vertical movement of the body *r* through the action of the threaded engagement r^1. On the lower portion of the body *r*, a cup *s* is engaged to act as a collecting store *t* for the material removed from the lead during the sharpening operation. Alternatively, in place of the store *t*, the body *r* may be screwed onto a store of greater width and greater weight which may also act as a pedestal.

It will be clear that the pencil sharpener of the invention may be provided:

(1) without the adjusting ring *u* and therefore without the necessity for the cutting device *h* projecting in any way from the external body, although the sharpener cannot then be set as described; and

(2) with a container of greater size that acts also as a solid and sufficiently heavy pedestal onto which it may be screwed by making use of the appropriate thread r^{111}.

The working of the pencil sharpener is as follows:

The tip of the pencil is introduced and pressed into the frustoconical bore thus releasing the chuck and permitting the tip of the lead to contact the cutting edges. Then the pencil is turned and the ratchet teeth press upon the cutting device which moves down and is followed by the lead. To prevent the lead from movement when the sharpening occurs, the pencil is turned back by a small extent while pressure is maintained to cause the ratchet teeth to disengage and permit the chuck to clamp the lead as pressure is released from the pencil.

By turning the pencil in the bore with a slight pressure and in a direction contrary to that used to produce the downward movement of the cutting edges, the cutting device is disengaged to permit the edges to press on the tip of the lead, as the blades return in upward movement along the axis, while the pencil is normally rotated to sharpen the lead until the projections of the cutting device *h* engage and are stopped by the edge of the tube *u*. The sharpening operation is now terminated and can be safely assumed that the tip of the lead has assumed the required configuration.

While I have shown and described one embodiment of this invention, it is understood that the features thereof may be incorporated in other embodiments without departing from the spirit and scope of this invention.

What I claim is:

1. A core-pointer for a pencil comprising a frame including a first tube, a second tube having a pointer thereon including at least one cutting edge and having at least one projection, a helical spring positioned between said tubes and pressing said tubes into engagement and a member rotatably mounted in said frame and having teeth thereon which mesh with complementary teeth on said second tube, said member having an aperture therein to receive a pencil.

2. A core-pointer for pencils according to claim 1 fur-

ther including a cylindrical ring threadably engaging said first tube and engaging said projection to determine a limiting position for said second tube.

3. A core-pointer according to claim 1 further including a cylindrical member mounted within said frame and having projections thereon which extend through apertures in said frame, said last-mentioned apertures defining helical surfaces in said frame whereby rotation of said

cylindrical member moves said cylindrical member axially of said frame, said cylindrical member engaging said spring to define a compression-increasing device for said spring.

References Cited in the file of this patent

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