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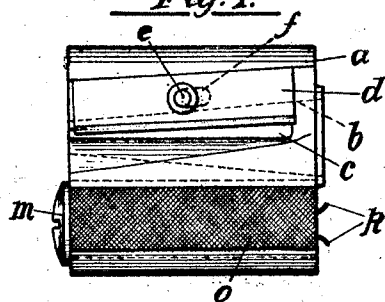
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F. SPANINGER

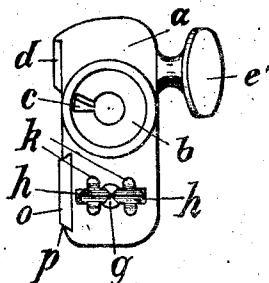
SHARPENER FOR PENCILS AND THE LIKE

Filed Aug. 31, 1923.

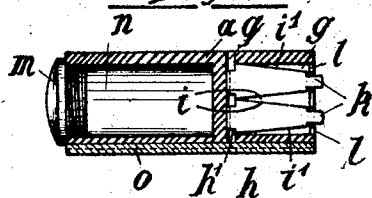
*Fig. 1.*



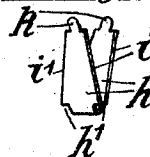
*Fig. 2.*



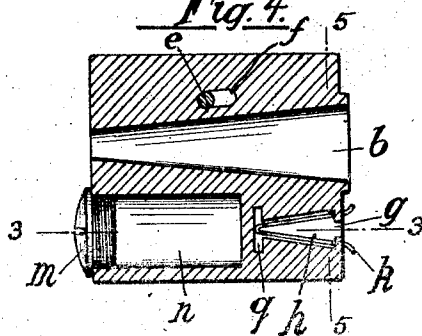
*Fig. 3.*



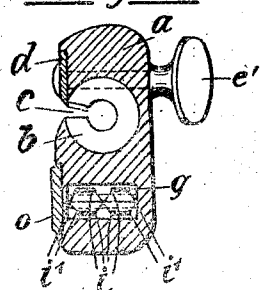
*Fig. 6.*



*Fig. 4.*



*Fig. 5.*



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## UNITED STATES PATENT OFFICE.

FERDINAND SPANINGER, OF STUTTGART, GERMANY.

## SHARPENER FOR PENCILS AND THE LIKE.

Application filed August 31, 1923. Serial No. 660,345.

*To all whom it may concern:*

Be it known that I, FERDINAND SPANINGER, a citizen of the German Republic, and a resident of Stuttgart, Germany, have invented a new and useful Improved Sharpener for Pencils and the like, of which the following is a specification.

The frequent breaking off of the point of pencils and the like when pointing or sharpening them with the aid of the pointers or sharpeners which have become known up to now (apart from the fact that there is hardly any sharpener enabling the operator to produce a really unobjectionable point) is to be ascribed to the fact that the sharpener is to remove parts of the shell, as well as particles of the graphite, both at a time. Besides, the graphite is generally either harder or softer than the material forming the shell, and the consequence in either case is that the point breaks off.

The object of the present invention is to obviate that drawback, and I attain this object by the use of two sharpening devices, one for the graphite, the other for the shell.

The latter device is known per se, singly, and consists of an obliquely arranged knife extending into a conical recess corresponding to the pointed end of the shell, i. e. to the shape the shell end is to receive. The means for sharpening the graphite consist of two small, oblique, clamp-like knives, at the edges of which the graphite is removed and pointed or sharpened by a rotation of the pencil etc. The clamp-like knives are inserted into a suitably shaped opening of the body of the sharpener, and are easily exchangeable.

Owing to this construction of the pencil it is rendered possible to sharpen even long projecting graphite pieces without any danger of breaking them off.

My invention is illustrated diagrammatically by way of example in the accompanying drawing in which Figure 1 is a plan of the improved sharpener, Figure 2 is a side-view thereof, Figure 3 is a longitudinal section on line 3—3 of Fig. 4, Figure 4 is a horizontal longitudinal section through the sharpener, Figure 5 is a cross-section in line 5—5 of Figure 4, and Figure 6 is a perspective view of a detail.

The body *a* of the sharpener is provided

in known manner with a conical bore *b* having a lateral slot *c* through which the knife *d* projects into said bore. The knife is adjustable in radial direction with respect to the bore so as to project more or less therein to according to the adjustment; it is affixed in its adjusted position by means of a screw *e*, the shaft of which extends through an oblong slot *f* and is provided at its free end with a knob *e'* by which it may be turned and drawn home. The other end of the screw *e* is rotatably connected with the knife which can be displaced as far as permitted by the slot *f*.

The body *a* contains also a cavity *g*, the shape of which appears best from Figures 4 and 5. This cavity is triangular in section in the sectional view Figure 4, and quadrangular in section in the sectional view Figure 5; in other words, it is wedge-shaped, and there are inserted into it two elastic double-knives *h* which form a kind of clamp, the legs of which tend to spread. Figure 6 is a perspective representation of a set of these knives and their arrangement relatively to one another, and shows also their shape. Each knife-half is approximately trapezoidal, and the two halves are disposed angularly in such a manner that they diverge from their smaller ends to their broader ones. Two of these knives are arranged side by side in the wedge-shaped cavity of the body, in such a manner, that the four cutting edges *i* diverge from the point where the two double-knives contact with each other.

The graphite end is introduced into the space or gap between the four cutting edges, and the point is sharpened, or the point proper is formed, by turning the graphite end in this space or gap.

Each knife is provided with a projecting lug at its front end, i. e. its small end, and there are provided, at the entrance to the wedge-shaped recess *g*, corresponding notches *l* into which the lugs *k* engage when the knives have been introduced into said recess, whereby the knives are secured in their proper operative position. In order to remove the knives from the recess *g*, the two lugs *k* pertaining to a knife are moved a little towards each other whereby the lugs are disengaged from the notches *l*. Besides, each double-knife is provided with two re-

cesses  $h^1$  located at the converging cutting or sharpening edges, where the two knives forming a pair are connected with each other. In other words, the cutting or sharpening edges are somewhat shortened near the place of connection, and the object of the pair of recesses at each angle is to prevent the graphite point from breaking off.

10 Behind the recess  $g$ , in the body  $a$  of the sharpener, another recess  $q$  of oblong section is provided and serves to receive, gather, and conduct away the scraped-off particles of graphite.

15 Each knife, or double-knife respectively, has two sharpening edges  $i$  and two sharpening edges  $i^1$ , which may be exchanged one for the other when one pair of edges has become blunt. In order to exchange the pairs of cutting edges, the lugs  $k$  are disengaged from the notches  $l$  and the double-knife is turned by  $180^\circ$  whereafter the lugs are again inserted into the notches.

25 The body  $a$  contains also a chamber  $n$  which is closed by a lid-forming screw  $m$  and is intended to receive spare double-knives or other small parts.

Laterally from the wedge-shaped recess  $g$  and the just-mentioned chamber  $n$  a file  $o$  is attached to the body  $a$  and held in place by dove-tailed guides  $p$  so as to be detachable from the body and to permit sharpening the graphite end or point also separately, i. e. not by means of the knives  $h$ , especially in such a manner that instead of a pointed end a wedge-shaped end, like the operative end of a screw-driver, is produced.

The external shape of the body may be as desired.

I claim:

1. A sharpener for pencils and the like, comprising, in combination, a body of oblong cross-section, a cutting knife so arranged as to be adapted to remove an appropriate part of the shell of the graphite or the like, two double-knives arranged side by side in a wedge-shaped recess of said body and consisting each of two trapezoidal knives connected with each other at their broad ends and diverging towards their small ends, the connected ends being located at the inner end of the wedge-shaped recess, and means for securing these knives in their operative position, as set forth.

2. A sharpener for pencils and the like, comprising, in combination, a body of oblong cross-section, a cutting knife so arranged as to be adapted to remove an appropriate part of the shell of the graphite or the like, two double-knives arranged side by side in a wedge-shaped recess of said body and consisting each of two trapezoidal knives connected with each other at their broad ends and diverging towards their

small ends; projecting lugs at these latter ends, and notches provided in the body at the entrance to the said wedge-shaped recess and adapted to receive said lugs, the connected ends being located at the inner end of the wedge-shaped recess, and means for securing these knives in their operative position, as set forth.

3. A sharpener for pencils and the like, comprising, in combination, a body of oblong cross-section, a cutting knife so arranged as to be adapted to remove an appropriate part of the shell of the graphite or the like, two double-knives arranged side by side in a wedge-shaped recess of said body and consisting each of two trapezoidal knives connected with each other at their broad ends and diverging towards their small ends and having a sharpening edge at each of its longitudinal sides, the connected ends being located at the inner end of the wedge-shaped recess, and means for securing these knives in their operative position, as set forth.

4. A sharpener for pencils and the like, comprising, in combination, a body of oblong cross-section, a cutting knife so arranged as to be adapted to remove an appropriate part of the shell of the graphite or the like, two double-knives arranged side by side in a wedge-shaped recess of said body and consisting each of two trapezoidal knives connected with each other at their broad ends and diverging towards their small ends and having a sharpening edge at each of its longitudinal sides and a recess at each end of the connection of the two knives, the connected ends being located at the inner end of the wedge-shaped recess, and means for securing these knives in their operative position, as set forth.

5. A sharpener for pencils and the like, comprising, in combination, a body having a conical bore adapted to receive the shell of the pencil etc., a wedge-shaped recess adapted to receive separate sharpening knives for the freed end of the graphite etc., a chamber adapted to receive spare parts, means to close this chamber, a cutting knife extending through a slot of the body into the conical bore, two double-knives arranged side by side in the said chamber, and consisting each of two trapezoidal knives connected with each other at their broad ends and diverging towards their small ends, the connected ends being located at the inner end of the wedge-shaped recess, and means for securing these knives in their operative position, as set forth.

6. A sharpener for pencils and the like, comprising, in combination, a body having a conical bore adapted to receive the shell of the pencil etc., a wedge-shaped recess adapted to receive separate sharpening knives for the freed end of the graphite etc., a cutting

knife extending through a slot of the body into the conical bore, two double-knives arranged side by side in the said chamber, and consisting each of two trapezoidal knives  
5 connected with each other at their broad ends and diverging towards their small ends, the connected ends being located at the inner end of the wedge-shaped recess, means for securing these knives in their operative position, and a detachable file attached to  
10 the said body, substantially as described.

In testimony whereof I affix my signature.

FERDINAND SPANINGER.