

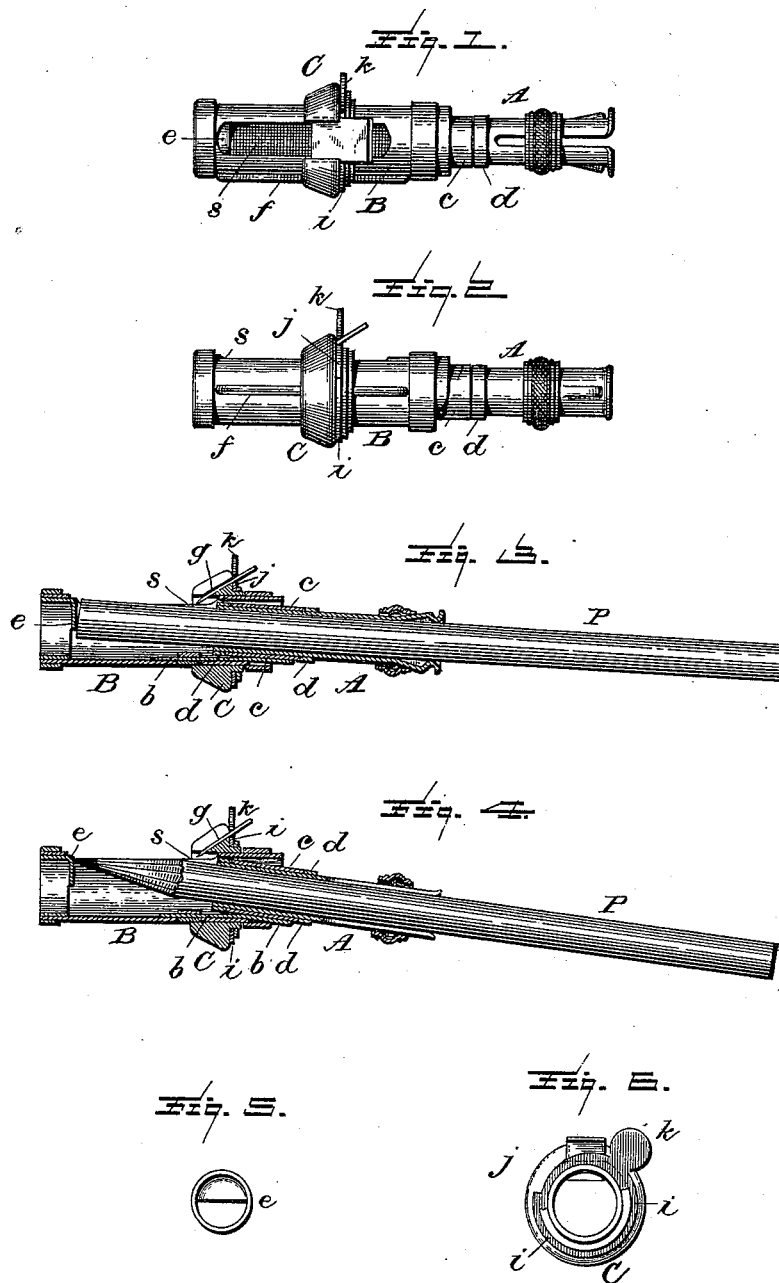
(No Model.)

2 Sheets—Sheet 1.

G. R. SANDELL.
PENCIL SHARPENER.

No. 421,767.

Patented Feb. 18, 1890.



Witnesses

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Inventor

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 7.

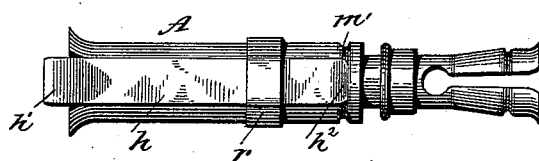


Fig. 8.

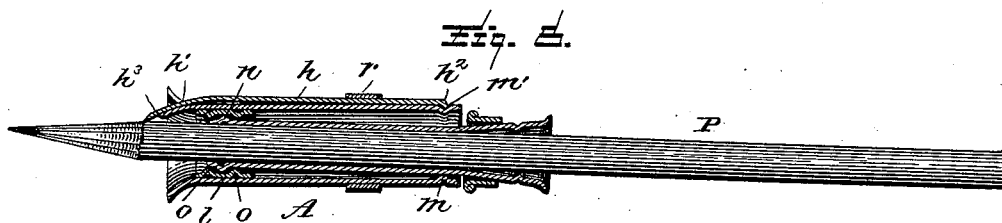


Fig. 9.

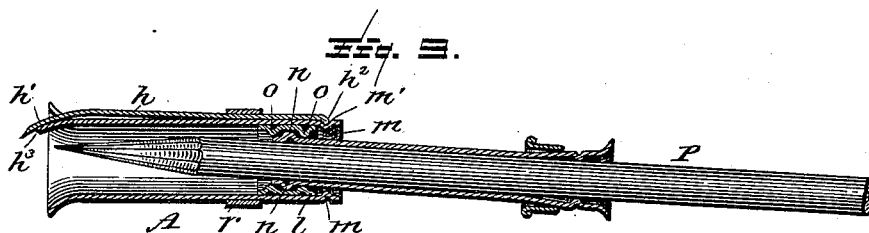
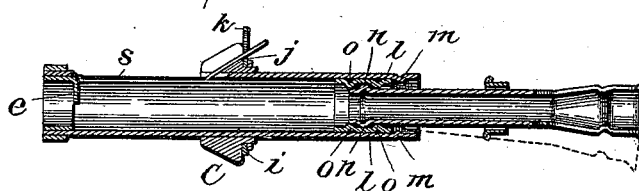


Fig. 10.



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UNITED STATES PATENT OFFICE.

GUSTAF R. SANDELL, OF BROOKLYN, ASSIGNOR TO THE EAGLE PENCIL COMPANY, OF NEW YORK, N. Y.

PENCIL-SHARPENER.

SPECIFICATION forming part of Letters Patent No. 421,767, dated February 18, 1890.

Application filed November 4, 1889. Serial No. 329,171. (No model.)

To all whom it may concern:

Be it known that I, GUSTAF R. SANDELL, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Pencil-Sharpener, of which the following is a specification.

The pencil-sharpener in which my invention is embodied comprises, essentially, a knife, knife-carrying tube or knife-carrier, and a pencil-holder, the two being placed upon the prolongation one of the other, so that a pencil may be inserted in the holder to project into or through the knife-carrier far enough to bring under the knife that portion of it which is to be sharpened, and being jointed and swiveled together, so that the one may rotate as well as tilt lengthwise independently of the other. The knife by which the pencil is sharpened has a longitudinal movement with reference to the pencil-holder, for which purpose either it may be mounted in a holder which in turn is mounted on and movable lengthwise of the carrier, or it may be directly attached to the carrier itself or some part fixed thereto, in which event the carrier and pencil-holder, in addition to their swiveled and tilting connection, should be capable of longitudinal movement with reference to each other.

Both plans of carrying my invention into effect are illustrated in the accompanying drawings.

Figure 1 is a plan, and Fig. 2 is a side elevation, of a sharpener in which the knife-carrier and the pencil-holder are jointed together, so as to be capable of both rotating and tilting lengthwise independently of each other, and are combined with a knife-holder mounted on and movable lengthwise of the knife-carrier. Figs. 3 and 4 are longitudinal central sections of this species of sharpener, representing the different positions assumed by the guide-tube and pencil-holder relatively to each other at different stages in the operation of sharpening the pencil. Fig. 5 is a face view of the stop for the pencil in the carrier. Fig. 6 is an end view of the sliding knife-holder, together with the knife and knife clamp or tightener. Fig. 7 is a plan, and Figs. 8 and 9 are longitudinal central sectional views, (representing the parts in dif-

ferent positions hereinafter explained,) of that species of sharpener in which the knife is attached to the carrier itself, and the carrier and pencil-holder not only can rotate and tilt lengthwise independently of each other, but are also capable of longitudinal movement with reference to each other. Fig. 10 is a longitudinal central section of a modification hereinafter more specifically referred to.

Referring now to Figs. 1 to 6, inclusive, the pencil-holder A is of tubular form, provided at its outer end with split jaws to permit the easy insertion of the pencil, and with a sliding clamping-ring *a*, which may be slid onto those jaws for the purpose of clamping the inserted pencil in place.

B is the knife-carrier or knife-carrying tube. These two tubes are jointed together end to end by a joint which will permit one to tilt with reference to the other longitudinally. This joint manifestly can be provided for in many ways. When, as in the present instance, it is designed to introduce one end of the pencil-holder a short distance into the knife-carrier, the latter is made of greater diameter internally than the external diameter of the pencil-holder A, so that when the unsplit end of the latter is inserted in the carrier it may have the necessary play therein to permit its tilting longitudinally. In any event, however, the internal diameter of the knife-carrier should be sufficiently greater than the diameter of the pencil, which enters it from the holder, to permit that tilting of the pencil which is required to cause its forward portion to protrude through the guide-slot *s*, formed longitudinally in the carrier.

The joint between the knife-carrier and pencil-holder is furnished in the present instance by a flexible metal tongue *b*, which is secured at one end to a sleeve *c*, swiveling in the holder A between shoulders or beads *d* thereon, and at its outer end to the interior of the carrier. In this way I provide a joint which not only will permit the holder and the carrier to tilt longitudinally in relation to each other, but will also allow them free rotary movement independently of each other.

The guide-slot *s* in the carrier B is of at least the length of the taper end to be cut upon the pencil, and is of such width that

the pencil, when tilted toward the slot, will protrude therethrough only sufficiently to permit a chip or shaving to be conveniently cut from it by the knife, the slot thus serving to gage the size of chip or shaving to be cut.

In the forward end of the carrier is a stop *e* for the end or point of the pencil, formed conveniently of a shallow thimble of a size to fit in the end of the carrier and having the lower half of its bottom removed, so as to provide an outlet for shavings, pencil-dust, &c. The upper half of the bottom forms the stop.

The knife-holder *C* is annular in form, encircling the carrier *B* and having longitudinal movement only thereon, which latter result is conveniently secured by providing on the carrier a longitudinal spline *f*, which engages and enters a groove in the adjoining face of the holder. In bearings *g* in the holder is set the knife *h*, with its lower edge flush and parallel with the slot *s*. This knife may be soldered or otherwise secured in place. I prefer to make it removable, and for this purpose combine with it a clamp or tightener consisting of a ring *i*, placed around the carrier and supported and held in place in an annular groove on the exterior, in which it can rotate, the outer edge of said ring being just under the projecting outer end of the knife. On this outer edge of the ring is formed a wedge or cam surface *j*. By bringing this surface under the knife (as can easily be done by rotating the cam-ring by the knob or handle *k*, with which it is provided) the latter will be clamped and held most firmly in place.

The operation of the device will be readily understood by reference to Figs. 3 and 4.

In Fig. 3 the pencil *P* is wholly unsharpened and is represented in the position it occupies when the sharpening operation is about to take place. The blunt front end of the pencil next to the guide-slot projects through the slot so far as permitted by the latter and for a small portion only of the length ultimately to be cut or acted on by the knife. With the parts in this position the knife-carrier is pushed forward to make the first cut, and is then drawn back, the pencil is slightly rotated, so as to bring another portion of its circumference to protrude from the slot, the knife again makes a cut, and so on. As the operation proceeds more and more of the length of the pencil is cut away and more and more tilt is permitted to the holder until when the pencil is fully sharpened the parts will occupy the position shown in Fig. 4. It will be noticed that really but little strain is put upon the holder or upon the joint between the holder and carrier during this operation, the pencil itself bearing at its top against the carrier under the slot *s* at all times during the sharpening operation.

In the sharpener shown in Figs. 7 to 9, inclusive, letters of reference corresponding to those which appear in Figs. 1 to 6 indicate

corresponding parts. In this species of sharpener the knife, instead of being attached to a slide or holder movable lengthwise of the carrier, is attached fixedly to the carrier itself. For this reason the carrier and pencil-holder, in addition to their capacity for rotating and tilting lengthwise independently of one another, are also capable of sliding bodily lengthwise relatively to each other. The joint for this purpose is furnished by an intermediate sleeve *l*, which fits closely in and can slide lengthwise of the carrier *A*, the extent of its retraction or rearward movement being limited by a knurl or internal bead *m* at the rear of the carrier. The pencil-holder at its front end fits in this sleeve with sufficient looseness to permit it to tilt lengthwise to the needed extent, and is held in place by an external knurl or bead *n* on it, which is contained between two internal knurls or beads *o* on the sleeve. Thus the holder can not only tilt and rotate, but also slide longitudinally independently of the knife-carrier. I arrange the knife *h* so that its inclined front end shall overhang and project somewhat beyond the carrier *A*, as seen, a portion of the carrier-tube at this point being preferably extended beneath the knife, as seen at *h*, to form a rest and gage for the pencil. I prefer in this arrangement (for the purpose of making the knife readily removable) to provide it with a flat shank *h'*, provided at the rear with a bent-over portion or tongue *h''*, which enters the external groove *m'* in the carrier, the knife being clamped in this position by a clamping-ring *r*, which surrounds the carrier and embraces the shank of the knife, as shown in the drawings. The operation of this form of sharpener will be readily understood from the foregoing explanation in connection with Figs. 8 and 9, in which the parts are shown, in connection with a pencil, in the position which they assume at the two extremes of longitudinal movement of the pencil-holder with reference to the knife-carrier. In this arrangement the knife, owing to its shank *h'*, has a certain capacity for yield. By bearing with the thumb or fingers upon the shank with more or less pressure the action of the knife upon the pencil will be correspondingly modified. The carrier *A* might, if made of sufficient length, be provided with a slot similar to the slot *s* of the sharpener illustrated in Figs. 1 to 6, and such a modification is illustrated in Fig. 10, in which the ring or holder *C* is fixed on the knife-carrier, the latter is prolonged to the rear of the said holder sufficiently to afford the needed support for the pencil-holder during its longitudinal movement, and the pencil-holder is united to the carrier by a sleeve *l* in a similar manner to that described with reference to Figs. 6 to 9, the sleeve playing lengthwise in this elongated portion of the carrier.

Having now described my invention and the manner in which the same is or may be carried into effect, what I claim as new, and

desire to secure by Letters Patent, is as follows:

1. In a pencil-sharpener, the combination, with the knife-carrier, of a pencil-holder 5 jointed thereto, so that it may both rotate and tilt lengthwise independently of said carrier, substantially as and for the purposes set forth.

2. In a pencil-sharpener, the combination, 10 with the knife-carrier, of a pencil-holder movable longitudinally relatively to the carrier and jointed thereto, so that it may both rotate and tilt lengthwise independently of said carrier, substantially as and for the purposes 15 hereinbefore set forth.

3. The combination of the knife-carrying tube, the knife attached thereto, the pencil-

holder, and the intermediate sliding connecting-sleeve *l*, substantially as and for the purposes hereinbefore set forth.

4. The knife-carrying tube, the knife placed 20 thereon and provided with a shank having a tongue which enters a groove or depression *m'* in the knife-carrying tube, and the clamping-sleeve *r*, in combination with the longi- 25 tudinally-movable swiveled and tilting pencil-holder, substantially as and for the purpose hereinbefore set forth.

In testimony whereof I have hereunto set my hand this 1st day of November, 1889.

GUSTAF R. SANDELL.

Witnesses:

SAMUEL KRANS,

C. S. BRAISTED.