(No Model.)

A. TREGO.

COMBINED PENCIL TIP AND SHARPENER.

No. 441,384. Patented Nov. 25, 1890.

Fig. 1.

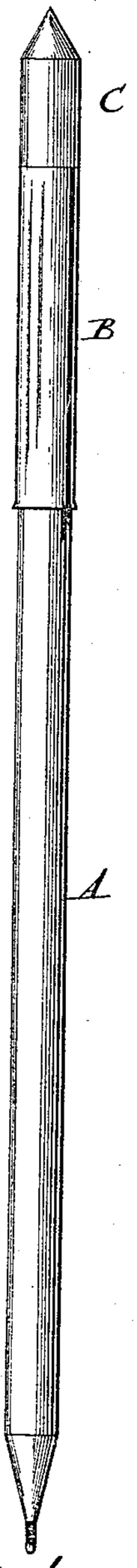

Fig. 2.

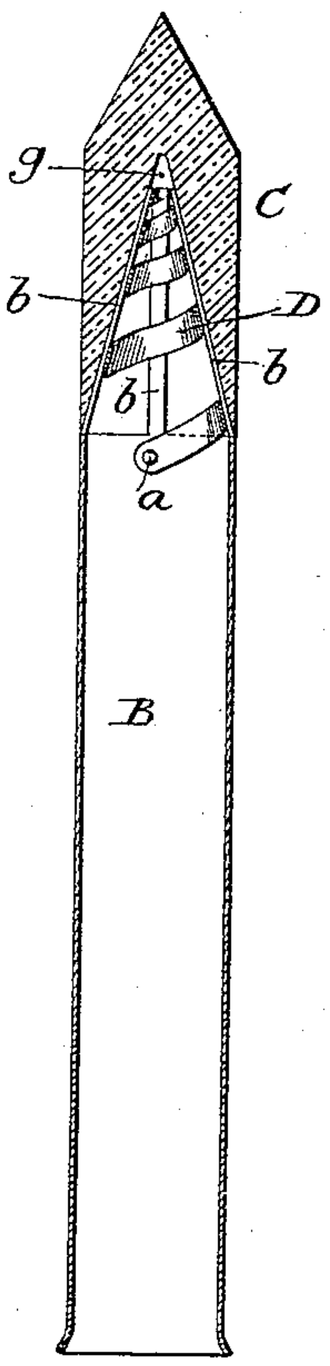

Fig. 3.

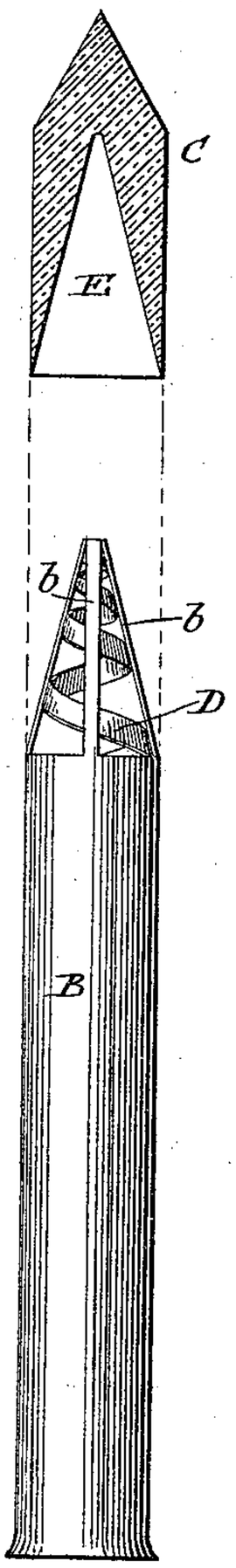

Fig. 4.

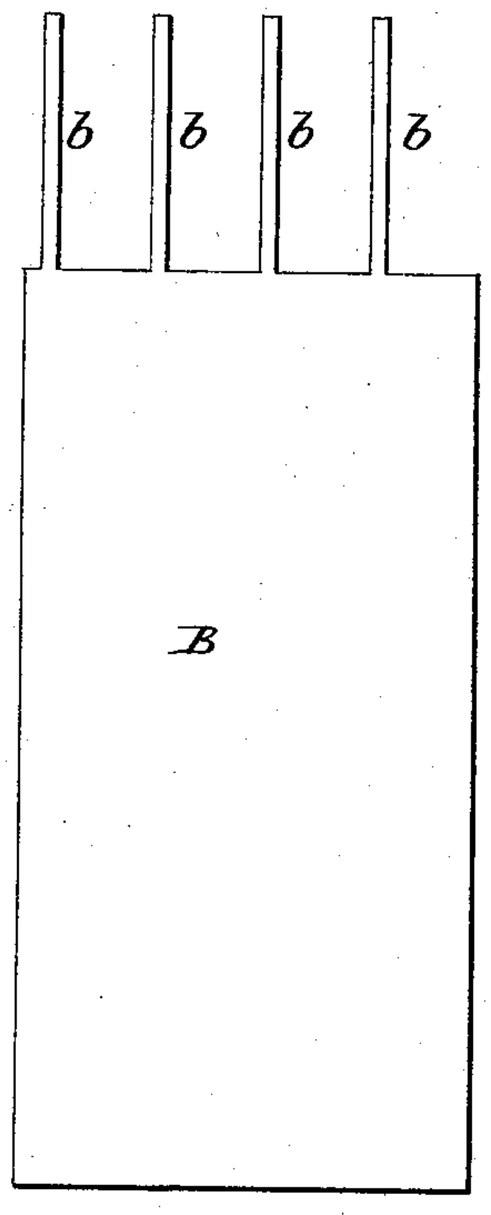

Fig. 5.

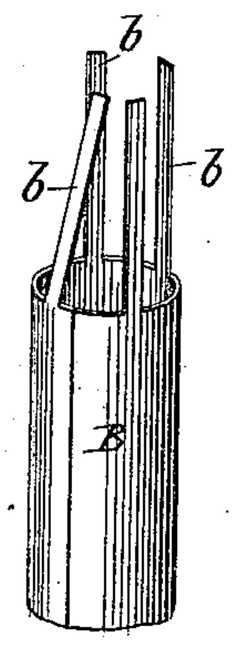

Fig. 6.

Fig. 7.

Attest:

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COMBINED PENCIL TIP AND SHARPENER.

SPECIFICATION forming part of Letters Patent No. 441,384, dated November 25, 1890.

Application filed February 24, 1890. Serial No. 341,496. (No model.)

To all whom it may concern:

Be it known that I, ALBERT TREGO, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Combined Pencil Tips and Sharpeners, of which the following is a specification sufficiently full and clear to enable others skilled in the art to make and use the same.

The object of my invention is to provide a combined pencil tip and sharpener which will effectually protect the sharpened end of the pencil when carried in the pocket and be convenient and readily accessible for the purpose of sharpening the pencil when needed.

Another object of my invention is to provide a knife of peculiar construction in the end of the pencil-tip which will serve to readily sharpen the pencil without splitting the wood.

I attain these objects by the means shown in the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of a pencil provided with my improved pencil tip and sharpener. Fig. 2 is a vertical section of the combined pencil tip and sharpener. Fig. 3 is a side elevation thereof with the rubber detached from the end of the tip and shown in section. Fig. 4 is a plan view of the blank from which the tip is formed. Fig. 5 is a perspective view of part of the blank after being rolled into a cylinder to form the tip for receiving the spiral knife or cutter. Fig. 6 is a side view of the spiral knife detached, and Fig. 7 is a plan view of the same.

Similar letters represent corresponding parts in all the figures.

A in Fig. 1 represents an ordinary pencil having on the end thereof the cylindrical metallic tip B, which carries a rubber pencil-eraser C. The cylindrical tip B is formed of thin sheet metal and is stamped in the form shown by Fig. 4. This stamped plate is then rolled into a cylinder, as shown by Fig. 5, with the supports *b* extending from one end thereof. Between these supports *b* is rigidly held the spiral knife D, the latter being held at one end by a rivet *a* to the casing or tip B and securely fastened to the supports *b* by solder or otherwise. The knife D is formed of flat metal bent to a spiral form and has one edge sharpened to form the cutting-edge. The degree of spiral given to the knife is such as to conform to the bevel required for the sharpened end of the pencil. The part C consists of a removable rubber piece having in the center thereof a conical-shaped recess E, adapted to fit over the knife D and supports *b* and to be held in place by the elasticity of the rubber. This recess E is of a depth somewhat greater than the altitude of the spiral knife D and supports *b*, leaving a space *g* when the rubber is in place.

In order to prevent cutting the lead of the pencil and to allow the lead to pass entirely through the coil, the convolutions of the spiral of the knife are not continued to the end or apex *f* of the cone thus formed, but stop at a point *e* of the spiral the sectional area of which is about equal to the sectional area of the lead in the pencil. It will thus be seen that when the pencil is turned in the knife D the lead of the pencil will not be cut materially by the knife, while the wood will be readily and completely removed, as may be necessary.

The operation of my device is as follows: To sharpen a pencil, the rubber tip is removed. One end of the pencil is inserted into the casing and pressed against the spiral knife D. The pencil is then turned, when the spiral knife will remove the wood in regular layers without splitting or injuring the pencil. The rubber tip being removed, the shavings will fall between the spiral coils. The construction and arrangement of parts are also designed to protect the sharpened end of the pencil when the same is carried in the pocket. To effect this, the parts being assembled as in Figs. 1 and 2, the sharpened end of the pencil is inserted in the casing and pressed forward, when the wooden conical end of the pencil will bear against the spiral coils of the knife, while the exposed lead will pass beyond the end or apex of the knife into the cavity of the rubber tip.

I place stress on the character of knife employed, as by its conical form it acts on the entire conical face of the pencil-point, and the layers of wood are removed nearly in the line of the grain thereof.

What I desire to secure by Letters Patent is—

1. In a combined pencil tip and sharpener, the combination, with the casing, of a spiral knife secured therein at several points in the convolutions of the spiral, whereby the knife is securely held in place, said knife consisting of a flat metal spiral coil having one edge thereof sharpened, substantially as described.

2. In a combined pencil tip and sharpener, the combination of a casing provided with converging supporting-arms on one end thereof, and a spiral knife held between said arms and secured thereto at a plurality of points in the convolutions of the spiral, whereby rigidity of the knife is secured, substantially as described.

3. In a combined pencil tip and sharpener, the combination of a casing having supporting-arms at one end, a spiral knife secured between said arms, and a removable rubber tip adapted to rest on said arms and cover said knife, substantially as described.

4. In a combined pencil tip and sharpener, the combination of a cylinder-casing provided at one end with supporting-arms *b*, formed integral therewith, a spiral knife secured to the casing and arms, and a removable rubber tip adapted to cover said knife and arms, substantially as described.

5. In a combined pencil tip and sharpener, the combination of a casing having arms on one end thereof formed integral therewith, a spiral knife secured to said arms, a removable rubber tip provided with a conical recess and adapted to cover said knife and arms, substantially as described.

6. In a combined pencil tip and sharpener, the combination of a casing, a spiral knife D, secured to one end thereof, and a rubber tip C, having the conical recess *g*, of greater depth than the altitude of said spiral knife, adapted to cover said knife and form a protecting-recess for the point of a pencil, substantially as described.

ALBERT TREGO.

Witnesses:
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