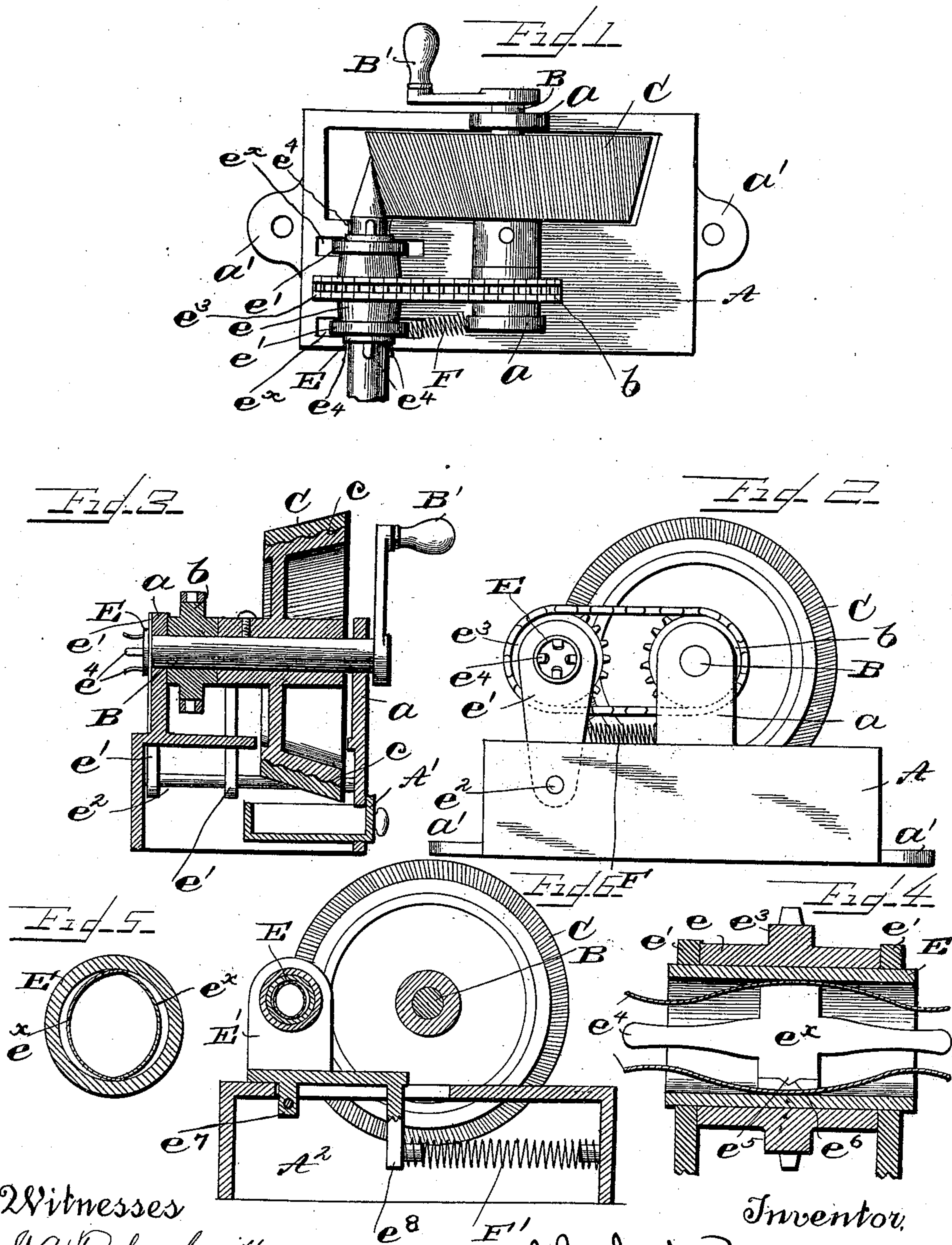


(No Model.)

C. M. WALKER.
PENCIL SHARPENER.

No. 554,608.

Patented Feb. 11, 1896.



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES M. WALKER, OF ADRIAN, MICHIGAN, ASSIGNOR TO THE WALKER MANUFACTURING COMPANY, OF SAME PLACE.

PENCIL-SHARPENER.

SPECIFICATION forming part of Letters Patent No. 554,608, dated February 11, 1896.

Application filed September 3, 1895. Serial No. 561,343. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. WALKER, a citizen of the United States, residing at Adrian, in the county of Lenawee and State of Michigan, have invented certain new and useful Improvements in Pencil-Sharpeners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention consists in the novel features of construction and combination of parts hereinafter fully described, reference being had to the accompanying drawings, which illustrate one form in which I have contemplated embodying my invention, and said invention is fully disclosed in the following description and claims.

Referring to the said drawings, Figure 1 represents a top plan view of my improved device. Fig. 2 is a side elevation of the same. Fig. 3 is a transverse sectional view of the same through the cutting-wheel. Fig. 4 is a detail sectional view of the combined chuck and sprocket-wheel. Fig. 5 is a transverse sectional view of a slightly-modified form of pencil-chuck. Fig. 6 is a longitudinal sectional view of a slightly-modified form of my invention.

In the drawings, A represents the base of the main frame of the device, which is preferably made hollow, as shown, and is provided adjacent to its center with the vertical bearing portions a a and at each end with a perforated ear a' , by which it may be secured to a table or other support. A shaft B is journaled in said bearings a a and carries on its end the cutting-wheel C, provided with a conical peripheral portion, which is corrugated like a file to form sharp inclined cutting-ribs. In forming this cutting-wheel I prefer to form the rim or cutting-surface separately from the main portion of the wheel. To this end I provide the inclined periphery of the wheel C with screw-threads c , and the inner face of the rim or file section C is provided with similar threads, so that it can be screwed onto the main body of the wheel. I may, however, attach it by other means, if

preferred. I also provide the shaft B with a sprocket-wheel b for driving the pencil-carrying chuck, as hereinafter described.

At one end of the frame or base A is located the pencil-carrying chuck, which has a movement toward and from the cutter. This device consists in this instance of a hollow sleeve E, provided interiorly with spring-arms for gripping the pencil and having its ends revolvably supported in the upper ends of a pivoted chuck-frame comprising two vertical standards e' e' , which have their lower ends engaging guiding-slots e^x e^x in the frame and pivotally supported on a cross-rod e^2 , secured in the sides of the base A. A spring F is interposed between the chuck-carrying frame and some rigid part of the base, in this instance one of the bearings a for shaft B, and this spring holds the chuck-carrying frame and chuck away from the cutter. The sleeve e is provided with a sprocket-wheel e^3 , secured thereto in any desired manner. In this instance I have shown the sprocket-wheel having a wide hub engaging the sleeve E and secured thereto by brazing or otherwise, the said hub being of a length to fit between the standards e' of the chuck-frame and prevent end-play of the chuck. A driving-chain extends around the sprocket-wheels e^3 and b and communicates motion from the shaft B of the cutter to the chuck, so as to cause the side of the pencil nearest the cutter-wheel to move in the opposite direction from that in which the face of the wheel is moving.

In making the chuck I prefer to form the spring-fingers in such a manner that they will be held in the sleeve E by frictional contact only. To this end I form a central band e^x , from which integral spring-fingers e^4 extend at each side, the ends of the band being provided the one with a tongue e^5 and the other with a recess e^6 . (See Fig. 4.) The band is bent into circular form and the interlocking portions—to wit, the tongue and recess just described—are placed in engagement and the device is then forced into the sleeve E, where it will be held by frictional contact. I may make the band e^4 in two or more sections, each carrying a number of spring-fingers, as shown in Fig. 5, in which two sections are shown.

In this form the engaging ends of the central strip or band will be provided with interlocking portions, as previously described.

To sharpen a pencil, it is pushed into the chuck through the spring-fingers, and the shaft B is revolved by means of a suitable handle B', thus turning the cutter-wheel and the chuck. The spring normally holds the chuck and pencil away from the cutter and the pencil is moved into engagement with the cutter by the operator pressing gently on the chuck-frame.

It is to be noted that the pivot of the chuck-frame is parallel to the axis of the cutter, so that as the pencil is moved up to the cutter it is held always in a position parallel to the cutter-shaft. Consequently the pencil will be cut away evenly and no undue pressure is exerted upon the lead. Hence the danger of breaking the lead, which is experienced where the chuck is pivoted on a vertical pivot, is avoided. The operator will press the chuck and pencil toward the cutter and can tell exactly how great a pressure to exert, thus regulating the feed much more satisfactorily than where the chuck is normally held up to the cutter. As soon as the operator finds that the cutter is cutting too rapidly he will slightly relax his pressure upon the chuck-frame, when the spring will force the chuck away far enough to relieve the cutter. By this means the feed is directly under the control of the operator. The cuttings pass through an aperture in the upper face of the base A into a removable drawer A', which can be drawn out and emptied when necessary.

In Fig. 6 I have shown a slight modification of my machine, in which the chuck-frame, instead of being pivoted in the frame, has a sliding movement with respect thereto. In this figure the chuck-carrying frame E' is provided with downwardly-projecting lugs e' e⁸, which extend through slots in the top of the base A², which slots form guides for the chuck-frame, keeping the chuck at all times parallel to the axis of the cutter. A spring F' is interposed between a portion of the casing and one of the lugs e⁸ and serves to hold the chuck-frame away from the cutter.

The construction of the other parts of the machine and the operation of the device are the same as previously described with reference to the other form.

As the side of the pencil toward the cutter moves in a reverse direction to that of the cutter the abrasion is very rapid and even. The cutter being circular and the pencil having the same general shape the cutter will engage only a small portion of the pencil at any time and the inclined file-teeth of the cutter

will draw away from the pencil as soon as they fairly engage it, taking away a portion of the material with them. Hence the strain exerted by the cutter upon the pencil is very slight, and with the parallel feed heretofore referred to there is no danger of breaking the lead.

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

1. In a pencil-sharpening device, the combination with the revoluble cutter, of a movable chuck-carrying frame, a pencil-chuck carried thereby, devices for rotating said chuck and a spring holding said chuck normally out of operative relation with the cutter, substantially as described.

2. In a pencil-sharpening device, the combination with the main frame, and the revoluble cutter, of a movable chuck-carrying frame movable toward and from the cutter without changing the angular position of the pencil relatively thereto and having lugs engaging guiding-slots in said frame, the chuck, a sprocket-chain engaging sprocket-wheels connected operatively with said chuck and cutter, and a spring engaging a portion of said frame and one of said lugs, for holding said frame and chuck normally out of operative relation with the cutter, substantially as described.

3. In a pencil-sharpening device the combination with the rotary cutter, of a chuck-carrying frame pivoted to the frame of the device by a pivot lying parallel to the axis of the cutter, the chuck and a spring normally forcing said chuck away from the cutter, substantially as described.

4. In a pencil-sharpening device the combination with the main frame of the rotary cutter, a chuck-carrying frame engaging guiding-slots in said frame, a pivot lying parallel to the axis of said cutter, and engaging said frame, the rotating chuck, means for driving said chuck from the cutter, and a spring normally holding said chuck away from the cutter, substantially as described.

5. In a pencil-sharpener, the combination with the cutter, of the revolving chuck-sleeve and a pencil-securing device consisting of a spring-band for engaging the interior of said sleeve and provided with interlocking portions and a series of spring-arms projecting from said band toward each end of said sleeve, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES M. WALKER.

Witnesses:

E. L. BAKER,
ALMA M. WILCOX.