

No. 747,382.

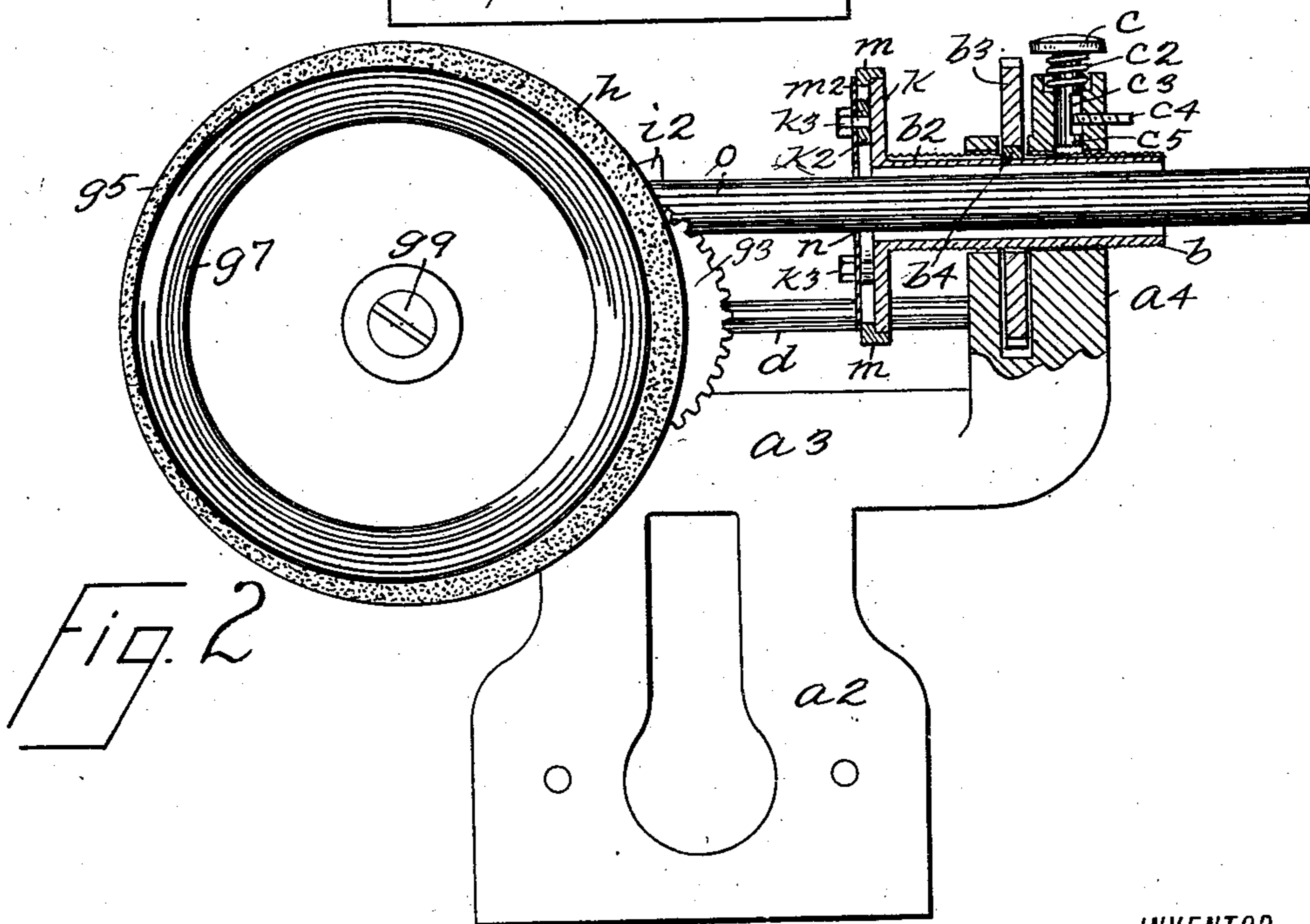
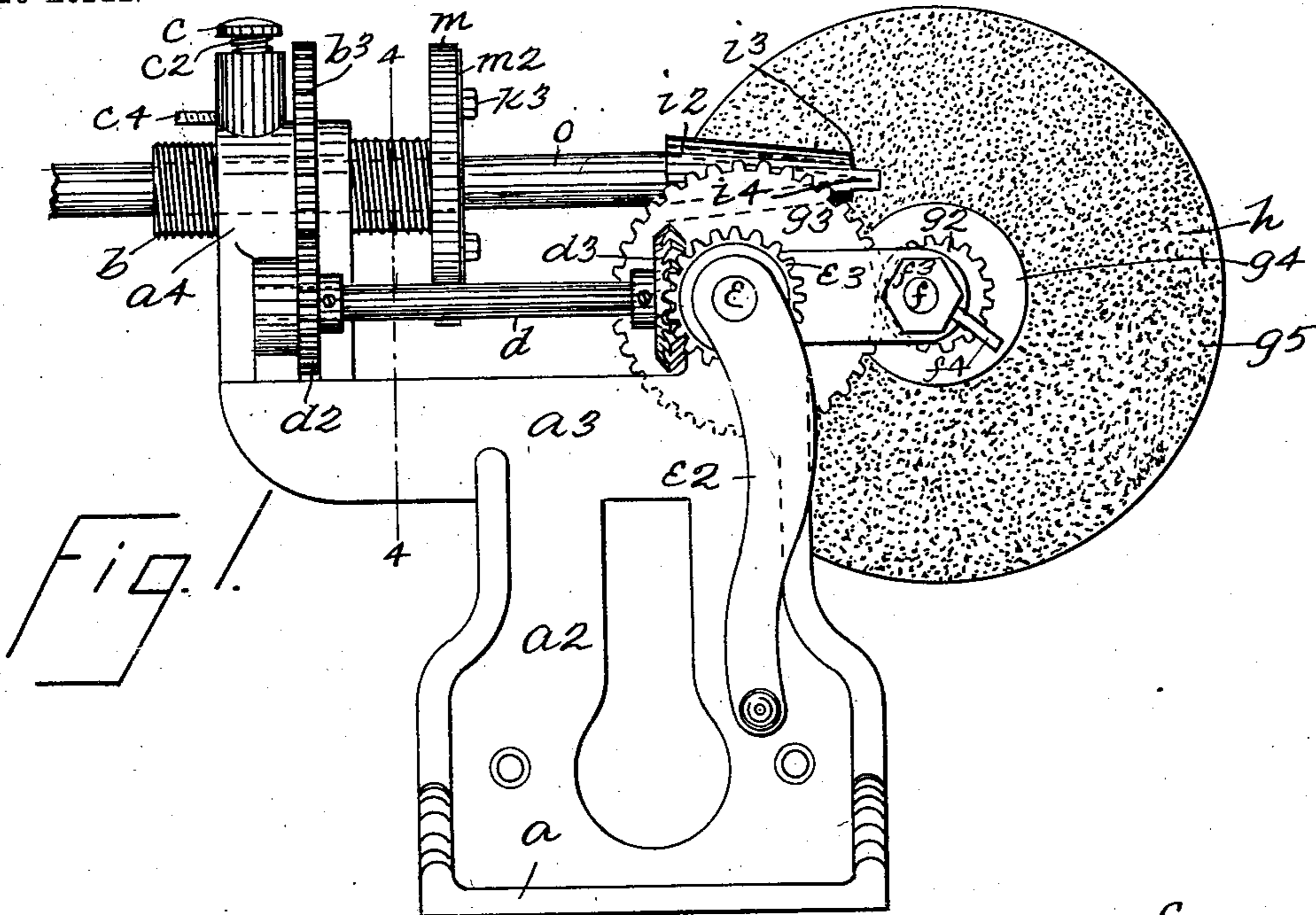
PATENTED DEC. 22, 1903.

H. E. CURTIS.
PENCIL SHARPENING DEVICE.

APPLICATION FILED OCT. 10, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES

J. C. Larsson
J. A. Stewart

INVENTOR

Henry E. Curtis

BY

Edgar Tate & Co.

ATTORNEYS

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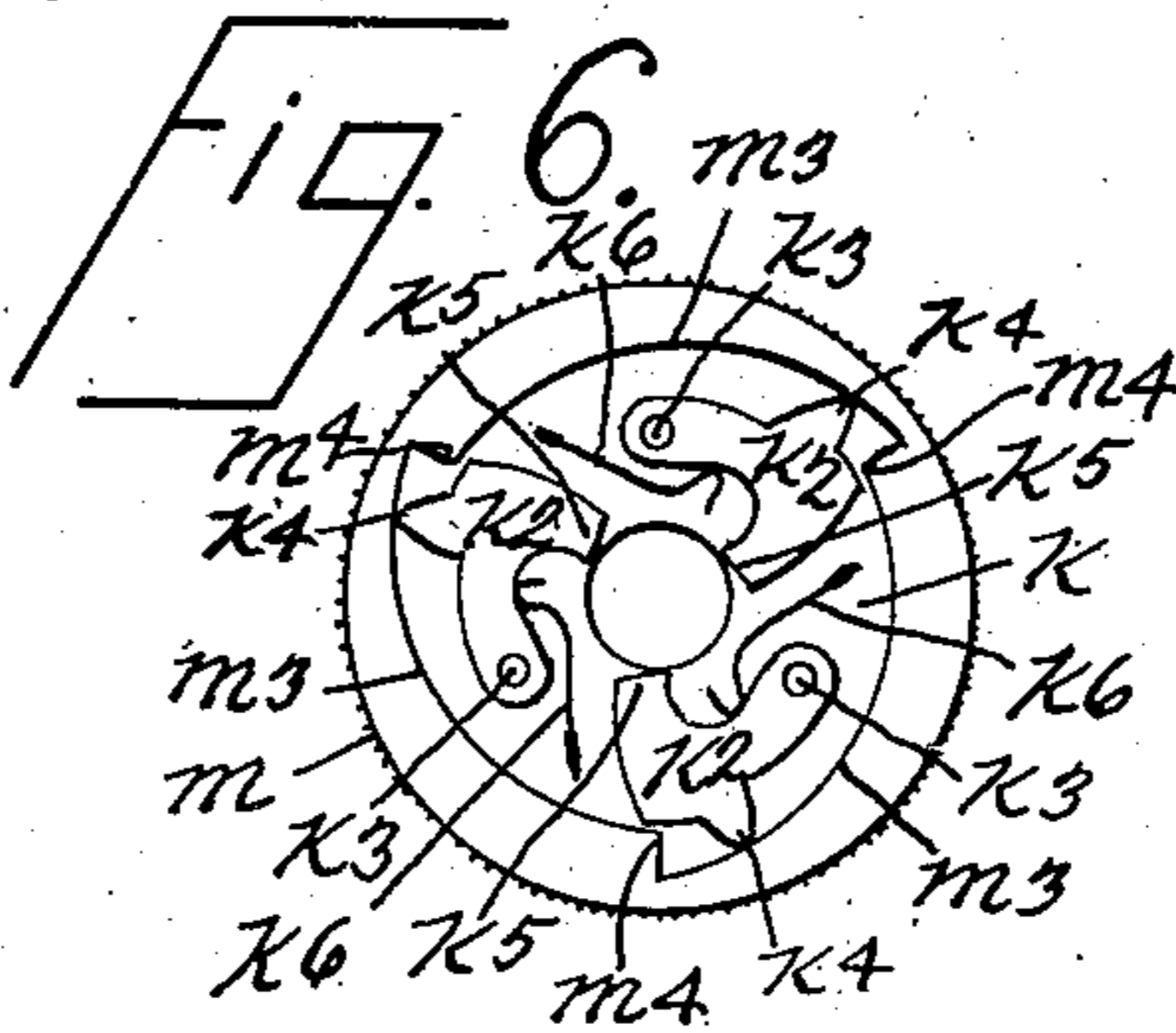
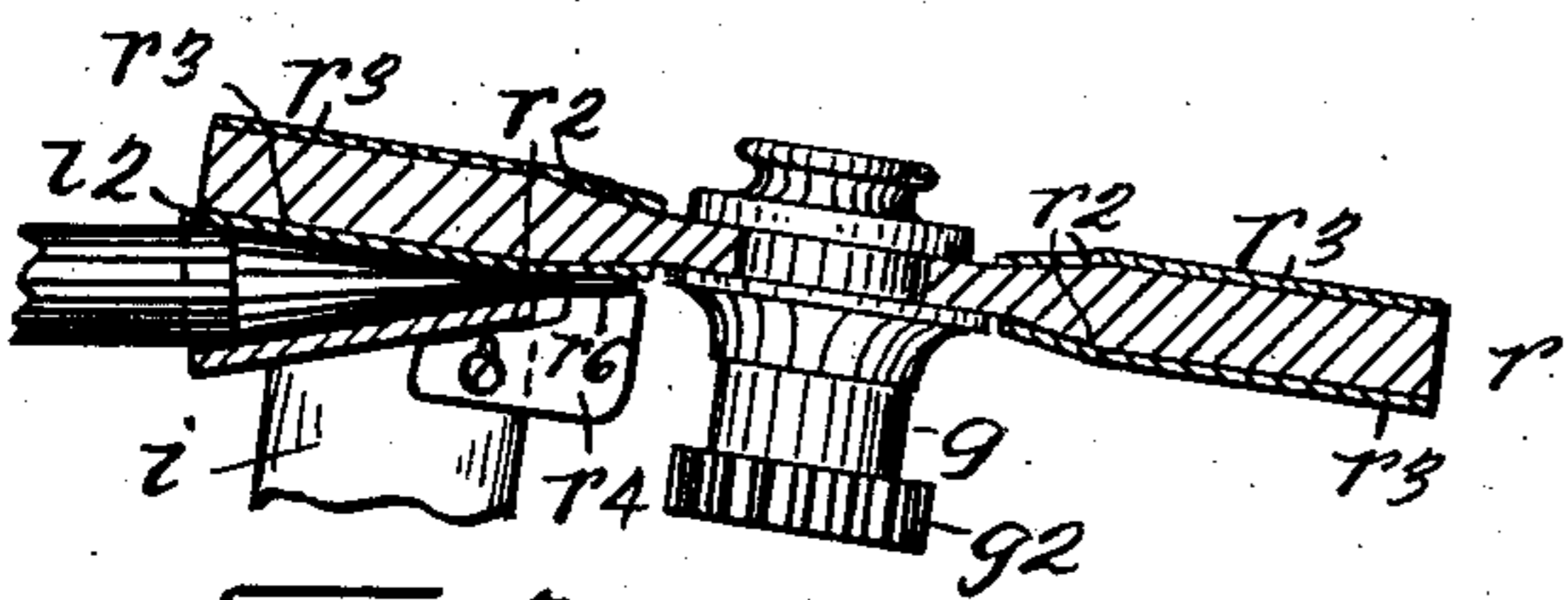
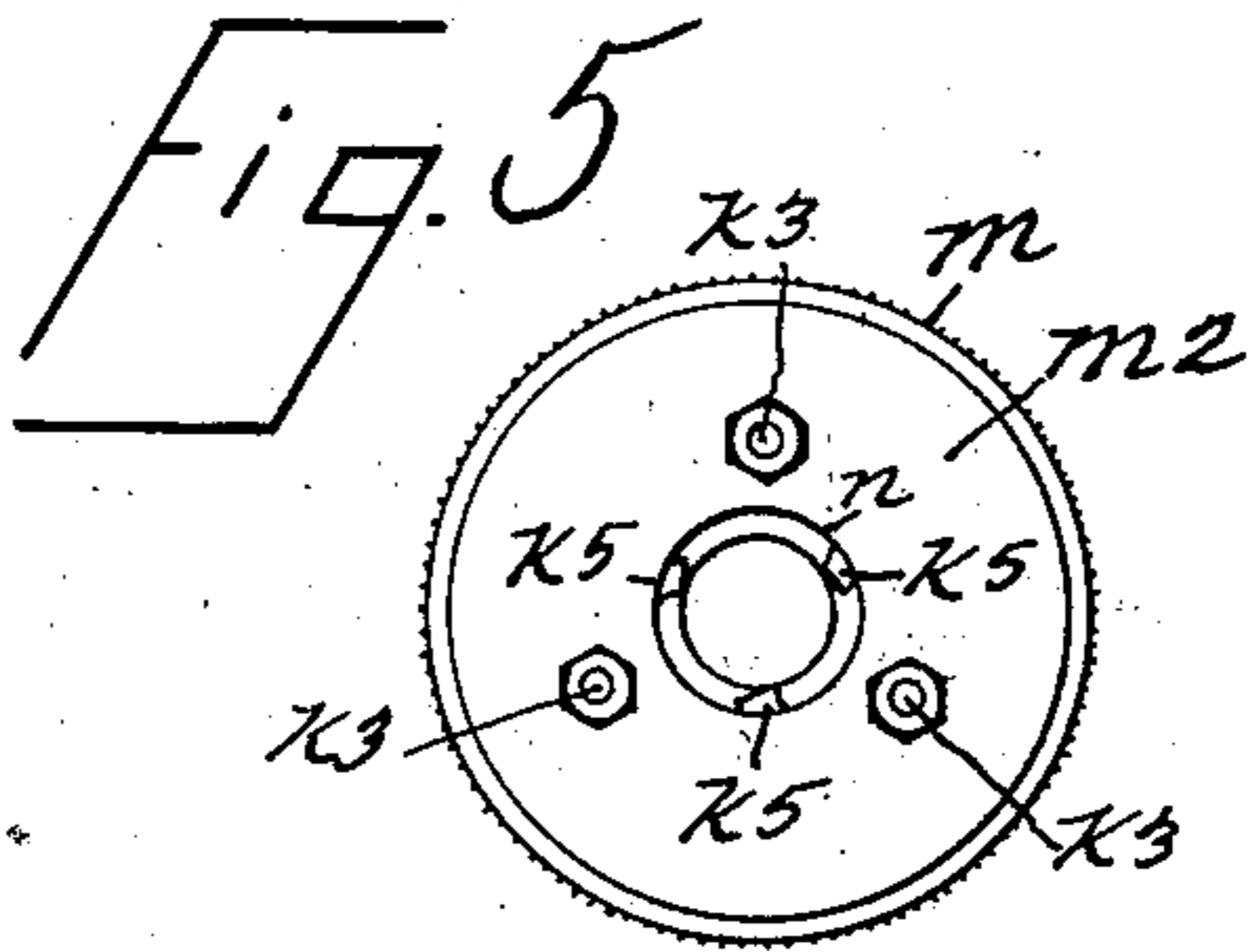
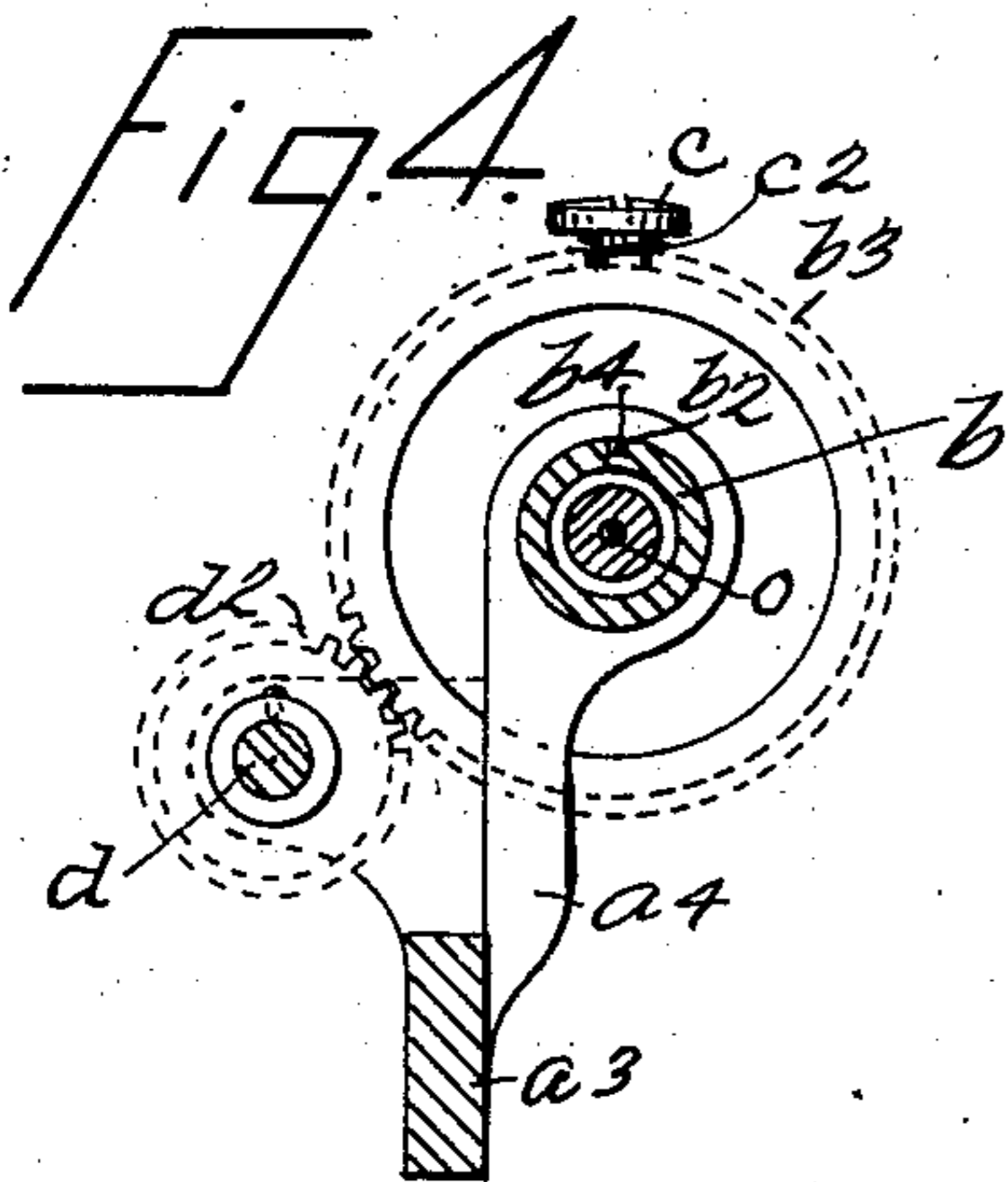
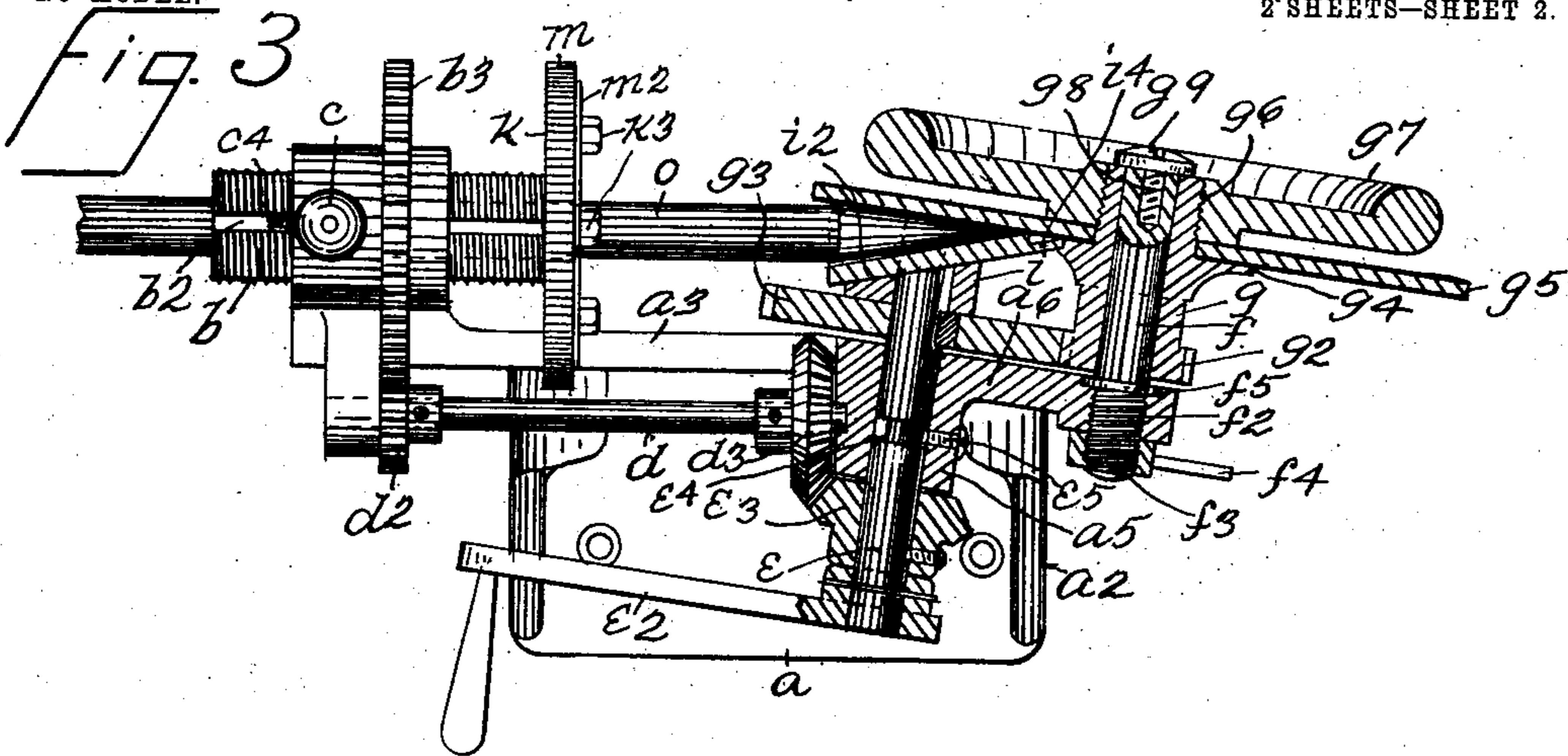
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2 SHEETS—SHEET 2.



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F. A. Stewart

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UNITED STATES PATENT OFFICE.

HENRY ELLSWORTH CURTIS, OF NEW YORK, N. Y.

PENCIL-SHARPENING DEVICE.

SPECIFICATION forming part of Letters Patent No. 747,382, dated December 22, 1903.

Application filed October 10, 1902. Serial No. 126,656. (No model.)

To all whom it may concern:

Be it known that I, HENRY ELLSWORTH CURTIS, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Pencil-Sharpening Devices, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

The object of this invention is to provide an improved pencil-sharpening device designed for use in offices, schools, and other and similar places, a further object being to provide a device by which pencils of any description, kind, or class may be sharpened quickly and neatly and without the litter which is caused by a knife or similar sharpener and one that can be secured in a convenient place accessible to all who desire to use the same.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which—

Figure 1 is a front side elevation of my improved pencil-sharpening device; Fig. 2, a sectional back side elevation thereof; Fig. 3, a sectional plan view thereof; Fig. 4, a section on the line 4-4 of Fig. 1; Fig. 5, a face view of a clutch which I employ; Fig. 6, a similar view with the face-plate of the clutch removed, and Fig. 7 a view similar to Fig. 3 of details of the construction and showing a modification.

In the practice of my invention I provide a frame or support comprising a base a , an upright portion a^2 , and a horizontal top portion a^3 , which is provided at the left-hand end thereof with an upright member a^4 and at the right-hand end thereof with an upright member a^5 .

Mounted in the top of the upright member a^4 is a horizontal tubular shaft b , screw-threaded on its outer side and provided at one side with a longitudinal groove b^2 . Mounted on the tubular shaft b is a gear-wheel b^3 , provided with a spline or rib b^4 , which fits in the groove b^2 , and by means of this construction the tubular shaft b is free to move through

the wheel b^3 and said shaft is turned by said wheel.

Mounted in the top of the frame member a^4 is a vertically-movable pin c , normally held in a raised position by spring c^2 , and this pin is provided at one side with a longitudinal recess c^3 , adapted to receive the end of a screw c^4 , which is passed horizontally through that part of the member a^4 in which the pin c is mounted, and by means of this construction the said pin is made vertically movable, while outward movement is limited by the screw c^4 , and said pin is normally held in a raised position by the spring c^2 . The pin c is also provided on the bottom end thereof with transverse threads or teeth c^5 , which correspond with the threads on the tubular shaft b , and by depressing said pin by the thumb or finger and at the same time turning the wheel b^3 the tubular shaft b will be fed inwardly or outwardly, as hereinafter described.

Mounted horizontally of the frame or support and in bearings formed on or connected with the members a^4 and a^5 is a shaft d , and this shaft is provided at one end with a gear-wheel d^2 , which operates in connection with the wheel b^3 , and the other end of said shaft is provided with a beveled gear-wheel d^3 .

Mounted in the top portion of the member a^5 of the main frame or support and at a slight lateral angle to the tubular shaft b is a main shaft e , provided at one end with a crank e^2 , adjacent to which is a beveled gear-wheel e^3 , which operates in connection with the beveled gear-wheel d^3 , and said shaft is provided with an annular groove e^4 , adapted to receive the end of a screw e^5 , by means of which the said shaft is prevented from longitudinal movement.

The upright member a^5 of the main frame or support is provided with an arm a^6 , which projects at right angles to the shaft e , and mounted in the arm a^6 is a supplemental shaft f , which is parallel with the shaft e and substantially in the same horizontal plane. That part of the shaft f which passes through the arm a^6 is screw-threaded at f^2 , and the said arm is correspondingly threaded, and placed on the outer end of the screw-threaded portion of the shaft f is a nut f^3 , having a handle f^4 . The shaft f is also provided with a thin

collar f^5 , which fits in the corresponding recess in the arm a^6 in the position of the parts shown in Fig. 3, and mounted on said shaft is a short sleeve g , having a pinion or smaller gear-wheel g^2 , which operates in connection with a larger wheel g^3 , secured to the shaft e . The short sleeve g is provided centrally with an annular flange or collar g^4 , against which is placed a disk or wheel g^5 , and the outer end of the sleeve g is screw-threaded, as shown at g^6 , and placed thereon. In the form of construction shown is a fly-wheel g^7 , and at the outer end of the shaft f is a screw g^8 , having a head g^9 , which holds the tube g upon the shaft f .

Instead of using the fly-wheel g^7 for the purpose of holding the disk or wheel g^5 on the sleeve g an ordinary nut may be employed; but I prefer the use of the fly-wheel, for the reason that it facilitates and aids the operation of the device or machine. The disk or wheel g^5 may be composed of any desired material and in the form of construction shown is sanded on both sides, as shown at h in Figs. 1 and 2, said wheel being preferably rougher on one side than on the other, or an ordinary emery-wheel may be employed, if desired.

The member a^5 of the main frame or support is also provided with a supplemental upwardly-directed member or arm i between the wheels g^3 and g^5 , and this member is provided at the top thereof with a conical socket i^2 , adapted to receive the end of a pencil to be sharpened, and said conical socket i^2 is provided with a longitudinal opening on the side adjacent to the wheel g^5 , and the smaller end thereof is open at i^3 , and the side of the open end at i^3 , adjacent to the wheel g^5 , is preferably provided with a finger-piece i^4 .

The tubular shaft b is provided at its inner end with a clutch-head k , the inner side of which is provided with three dogs k^2 , pivoted at k^3 , each of which is provided with an outwardly-directed projection k^4 and with an inwardly-directed nose k^5 , and each of these dogs is provided with a spring k^6 , secured to the clutch-head k and adapted to force the said dogs outwardly. Mounted on the clutch-head k is a ring or band m , which is held in place by a plate m^2 , which is secured to the clutch-head k by headed pins or screws k^3 , on which the dogs k^2 are pivoted, and the ring or band m is provided internally with cam-surfaces m^3 , which coact with the dogs k^2 , and at one end of each of which is a radial shoulder or projection m^4 , and by turning the ring or band m in one direction the noses of the dogs k^2 will be forced inwardly, and by turning said ring or band in the other direction the noses of said dogs will be forced outwardly by the springs k^6 .

The plate m^2 is provided with a central opening n , through which a pencil o may be passed, and by passing a pencil through the tubular shaft b , as shown in Figs. 1, 2, and 3, and then turning the ring or band m to

the right the dogs k^2 will be caused to securely grasp and hold the pencil. In this position of the parts the pointed end of the pencil is forced to enter the socket i^2 , as shown in Fig. 3, and if now the pin c be depressed and the crank e^2 turned the wheel g^5 will also be turned, together with the tubular shaft b , and said tubular shaft b will be fed forwardly or in the direction of the socket i^2 and the pencil will be gradually sharpened, as will be readily understood. The forward movement of the tubular shaft b is very slow and depends on the comparative sizes of the gears d^2 b^3 and e^3 and d^3 , together with the pitch of the thread of the tubular shaft b , and it will be apparent that this forward movement of the tubular shaft b may be regulated as desired in the construction of the device.

The side of the socket member i^2 adjacent to the disk or wheel g^5 is, as hereinbefore stated, open, and the said disk or wheel forms a part of the socket into which the end of the pencil passes, and by adjusting the position of the shaft f in the arm a^6 it will be seen that the capacity of the socket i^2 may be regulated to an extent and by means of this adjustment a longer or shorter point may be provided for the pencil.

In Fig. 7 I have shown a modification in which I substitute for the disk or wheel g^5 a disk or wheel r , which is thickened except at the center, whereby annular beveled portions r^2 are formed, and sandpaper is secured to the opposite sides of the disk or wheel r , as shown at r^3 . I also secure to the arm or support r a plate r^4 , which has a flange-piece r^6 , adapted to bear on the point of the pencil as it passes through the socket-piece i^2 . The plate r^4 is adjustable toward and from the pointed end of the socket-piece i^2 and prevents the point of the pencil from being broken. With this construction the point of the pencil will be given a longitudinal concave surface, as will be readily understood and as is shown in Fig. 7, and the point of the pencil may also be made longer than with the construction shown in Fig. 3.

This device is simple in construction and operation and perfectly adapted to accomplish the result for which it is intended, and changes in and modifications of the construction described may be made without departing from the spirit of my invention or sacrificing its advantages.

It will be understood that in practice the device is secured to a bench, desk, or any other suitable support and any kind or class of a pencil may be quickly, easily, and conveniently sharpened, and, if desired, any suitable receptacle may be provided for the reception of dust or litter which may be occasioned by the sharpening of the pencil. It will also be understood, of course, that the wheel g^5 operates simply as a grinder for sharpening a pencil and any suitable wheel may be employed for this purpose.

Having fully described my invention, what

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

1. In a device of the class described, a frame or support, a tubular shaft mounted horizontally in the top portion thereof and movable longitudinally and provided at its inner end with a clutch-head, a main power-shaft mounted in the frame or support at a lateral angle to the tubular shaft, another shaft mounted parallel with the main power-shaft, a sleeve mounted on the last-named shaft and geared in connection with the main power-shaft, a grinding-wheel connected with said sleeve, a socket member supported adjacent to one side of the grinding-wheel and adapted to receive the end of a pencil passed through the tubular shaft and clutch-head, said socket member being open on the side adjacent to the grinding-wheel and means for operating the tubular shaft, the power-shaft and the sleeve on which the grinding-wheel is mounted, substantially as shown and described.

2. In a device of the class described, a frame or support, a screw-threaded shaft mounted therein and provided in one side with a longitudinal groove, a gear-wheel mounted thereon and provided with a spline or rib movable in said groove and a vertically-movable spring-supported pin mounted over the tubular shaft and provided at its lower end with threads or teeth adapted to engage with the threads of said shaft, substantially as shown and described.

3. In a device of the class described, a frame or support, a screw-threaded shaft mounted therein and provided in one side with a longitudinal groove, a gear-wheel mounted thereon and provided with a spline or rib movable in said groove and a vertically-movable spring-supported pin mounted over the tubular shaft and provided at its lower end with threads or teeth adapted to engage with the

threads of said shaft, said tubular shaft being provided at one end with a clutch-head and having pivoted dogs adapted to engage a pencil passed through said tubular shaft, substantially as shown and described.

4. In a device of the class described a frame or support, a screw-threaded shaft mounted therein and provided in one side with a longitudinal groove, a gear-wheel mounted thereon and provided with a spline or rib movable in said groove and a vertically-movable spring-supported pin mounted over the tubular shaft and provided at its lower end with threads or teeth adapted to engage with the threads of said shaft, said tubular shaft being provided at one end with a clutch-head and having pivoted dogs adapted to engage a pencil passed through said tubular shaft, said dogs being operated in one direction by springs and the other by a ring or band mounted on the clutch-head, substantially as shown and described.

5. A device of the class described comprising a frame or support, a grinding disk or wheel the central portion of which is thinner than the rest thereof, whereby beveled or inclined surfaces are formed adjacent to said center portion, a socket member secured adjacent to one side of said disk or wheel and adapted to receive the end of a pencil, and means for feeding a pencil into said socket member and for turning said disk or wheel, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 4th day of October, 1902.

HENRY ELLSWORTH CURTIS.

Witnesses:

ROBERT BETTY,
LEWIS SYKES.