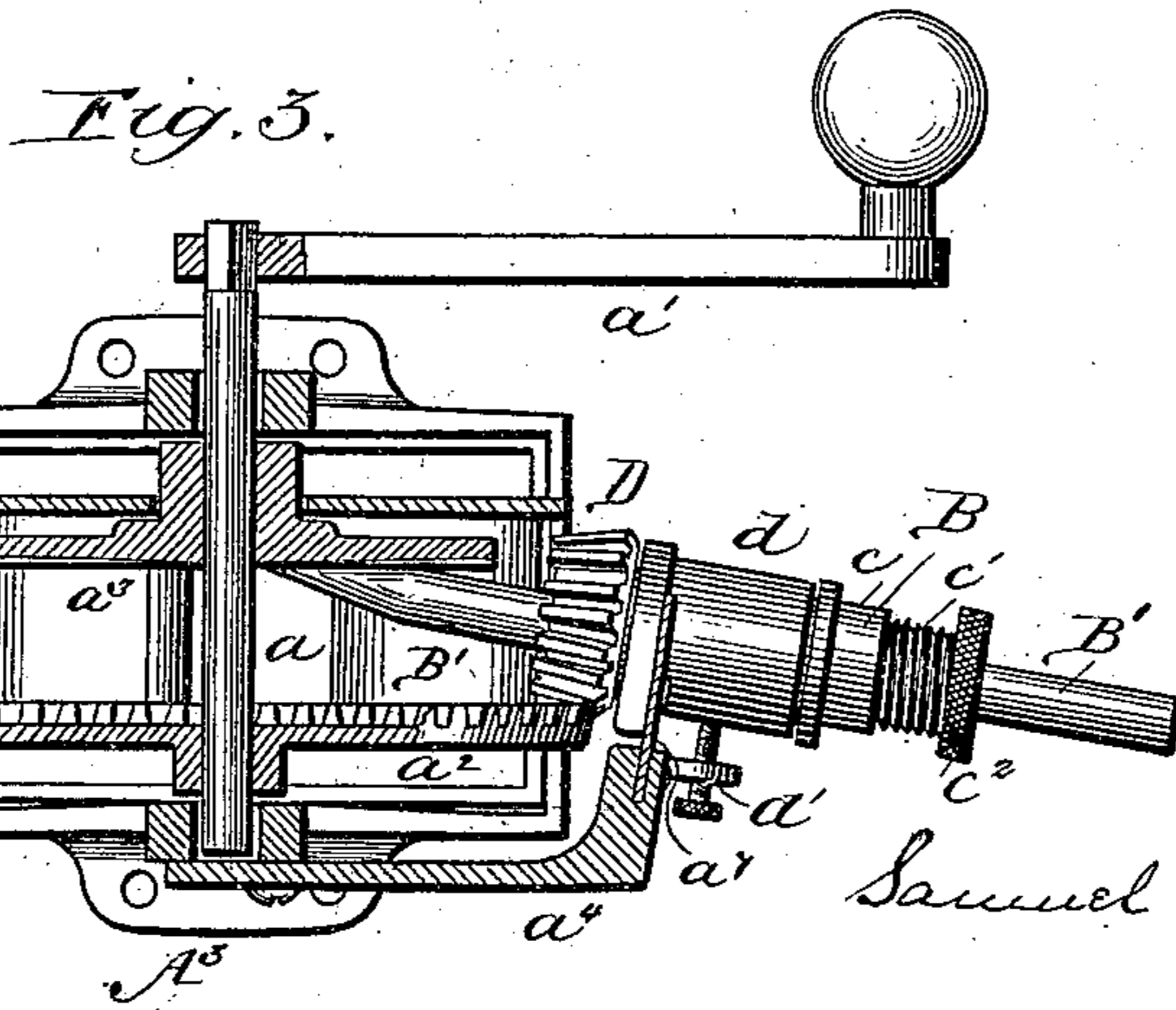
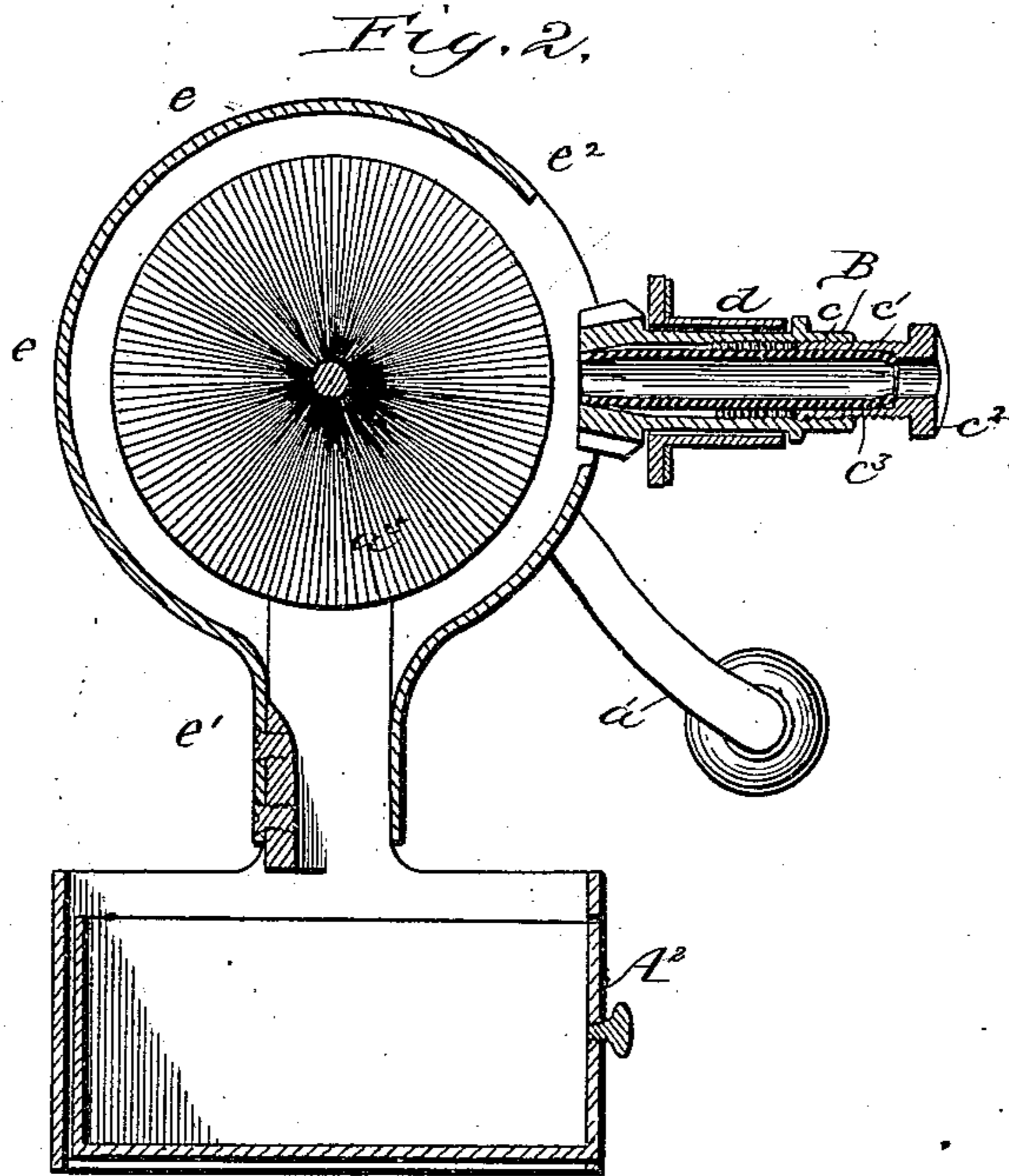
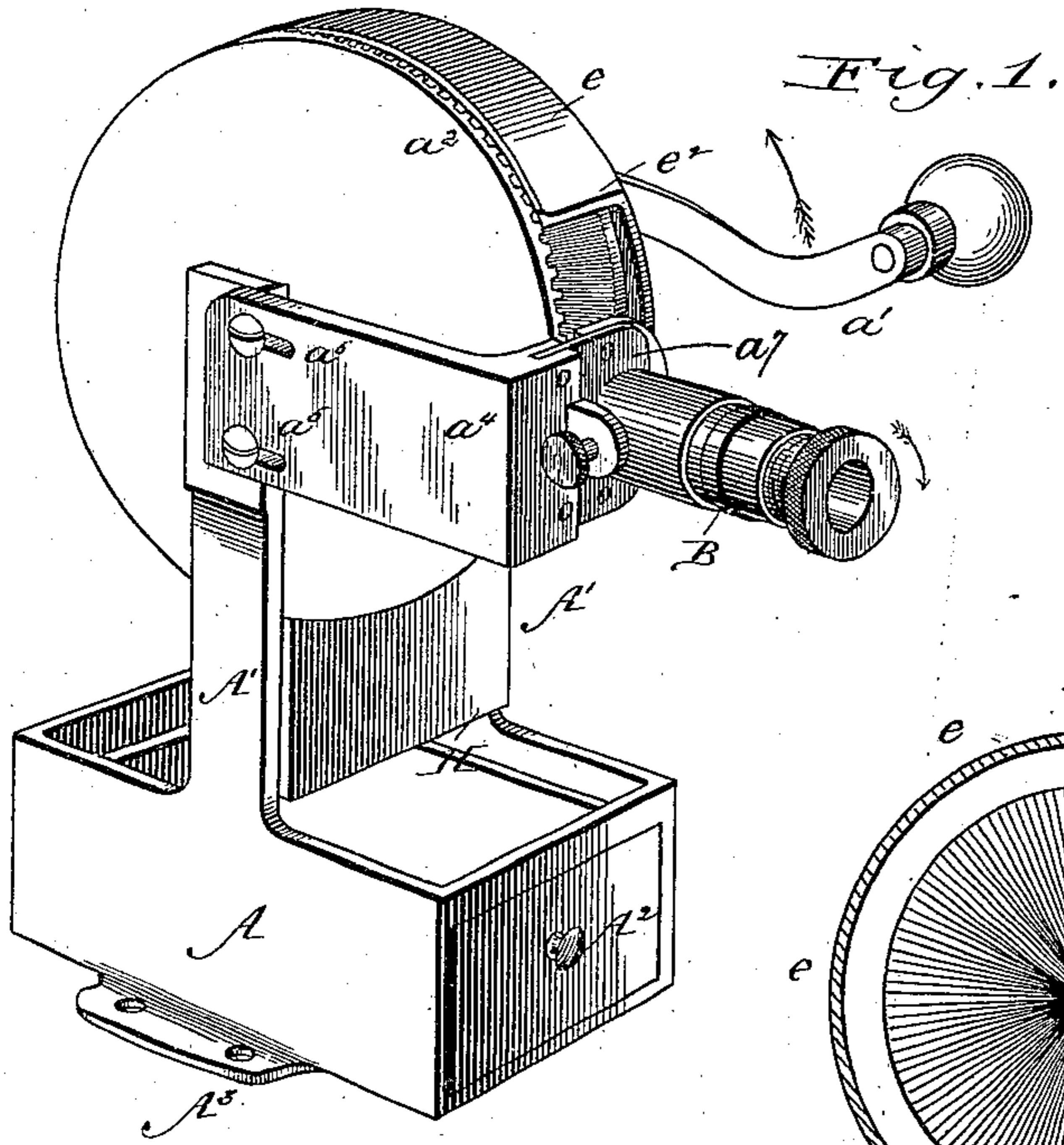


(No Model.)

S. E. NUTTING.
PENCIL SHARPENER.

No. 354,804.

Patented Dec. 21, 1886.



Witnesses,
W. Rossiter
J. M' s.

Inventor
E. Nutting

UNITED STATES PATENT OFFICE.

SAMUEL E. NUTTING, OF CHICAGO, ILLINOIS, ASSIGNOR OF THREE-FOURTHS
TO THOMAS CHARLES, OF SAME PLACE.

PENCIL-SHARPENER.

SPECIFICATION forming part of Letters Patent No. 354,804, dated December 21, 1886.

Application filed March 24, 1886. Serial No. 196,393. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL E. NUTTING, of the city of Chicago, county of Cook, and State of Illinois, have invented new and useful Improvements in Pencil-Sharpeners, of which the following is a full and complete description, reference being had to the accompanying drawings.

My invention relates to mechanism for rapidly sharpening lead or slate pencils, in which the prime object is the least expense of construction consistent with efficiency.

With reference to the drawings, Figure 1 is a perspective view. Fig. 2 is a vertical section, and Fig. 3 is a horizontal section with parts in perspective.

Corresponding letters indicate the same parts in the several figures.

A and A' represent a cast-metal supporting structure, of which the lower portions, A, form the sides of an inclosure, which, with a drawer, A², that can be conveniently slid in or withdrawn from said inclosure, inserted, forms a receptacle for the purpose of catching and removing the dust produced by the process of sharpening. H is a transverse plate securing the sides together.

A³ represent flanges provided with screw-holes for the purpose of firmly securing the structure in position.

Near the upper ends of the supports A' is a shaft, a, Fig. 3, which has suitable journal-bearings in said supports, and is provided with a crank, a'.

On one side of the structure, and secured on shaft a, is a bevel-gear, a². Opposite gear a², and secured on shaft a, is a metallic disk, a³, cut or furrowed radially, as shown in Fig. 2, whereby it operates as a file, as hereinafter set forth.

A rigid plate, A⁴, extends horizontally from one of the supports, A', on which it is secured in an adjustable manner by means of slots and set-screws a⁵ and a⁶. To the angular outer end of plate a⁴ is secured a flexible plate or spring, a⁷. The latter in turn supports a rotatable chuck, B. Said flexible plate a⁷ has attached to it a sleeve, d, in which said chuck has its bearing.

On the inner end of chuck B is secured a pin-

ion, D, gearing with wheel a². As shown in Fig. 3, B' represents a pencil. The construction of the parts is such that the pencil may be inserted centrally through the chuck, which is tubular, and through the annular pinion D, with its end brought at a desired angle against the inner or cutting face of disk a³. This angle, and the required pressure with which the pencil bears against said disk, depend in a measure upon the shape and elastic properties of the flexible plate a⁷.

The two principal parts c and c' of chuck B are secured to each other adjustably—that is, in this example the former is screw-threaded on the inner surface, and the latter, as shown, is threaded and adapted to be inserted therein. At the end of part c' is shown a milled piece, c², for convenience in tightening up or withdrawing said part c'. In the bore of said tubes c and c', and fitting said bore, is placed a flexible tube, c³, (shown in Fig. 2,) which in the present example is rubber. The object of said rubber tube is to provide for adapting the bore to varying sizes of pencils. To readily admit of the insertion of a blunt pencil into tube c³, the outer end thereof is slitted at several places in its circumference, whereby greater expansion is permitted. When pencil B' is inserted in a position to bring its end properly against the file, part c' is screwed in, thus compressing tube c³ and causing its slitted end to enter a contraction in the bore of part c', thereby firmly clamping said pencil. An opposite movement of the parts readily admits of the withdrawal of the pencil.

To limit the lateral movement of the chuck as acted upon by spring-plate a⁷, a projection from plate a⁴ is provided, and a set-screw, d', inserted therein in such manner as to act as a stop for said chuck. By this means the taper of the sharpened ends of the pencils may be made uniform or changed at pleasure.

The operation of the sharpener is as follows: By means of the crank a' the shaft a is rotated, carrying with it wheel a² and file-disk a³. By means of pinion D, which is geared with wheel a², rotary motion is transmitted to the chuck, carrying with it pencil B'. The latter moves in a direction opposite to that of disk a³, thus causing an abrasion that rapidly reduces the

end of said pencil. A thin covering, e , of metal or other suitable material, is secured at e' beneath the wheel and disk, as shown in Fig. 2, and is curved upward and around in an opposite direction to the intended movement of said wheel and disk to a point, e^2 , where it terminates, thus leaving space from that point downward to permit observation of the operation of sharpening. Covering e incloses the space between wheel a^2 and disk a^3 throughout its scope, and thus aids in preventing the escape of dust.

An advantageous feature of the rotary circular file lies in the fact that when the pencil is brought in contact therewith, as shown in the present example—that is, on a radial line with the end of said pencil near the axis of the file—the movement at this point is much less rapid than nearer the periphery, and consequently admits of a reduction of said pencil to a very pointed tip without danger of breaking in the operation.

Having thus fully described my said inven-

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

1. In a pencil-sharpener, the combination of a facial or radially-furrowed disk with a chuck, B, the latter supported by a flexible plate, a' , so as to present the pencil regularly against the cutting-disk or file, and uniformly as to pressure, substantially as and for the purpose set forth.

2. In combination with a file and rotating mechanism, the chuck B, said chuck consisting of the relatively-adjustable tubular parts c and c' , which latter are supplemented by the flexible tube c^3 , and the whole attached to the other portions of the structure, so as to admit of lateral play by means of the flexible plate a' or its equivalent, substantially as and for the purpose described.

SAMUEL E. NUTTING.

Witnesses:

A. L. FLANINGHAM,
THOS. CHARLES.