

(No Model.)

L. G. WOOLLEY
ELECTRO MAGNETIC MOTOR.

No. 256,784.

Patented Apr. 18, 1882.

Fig. 1.

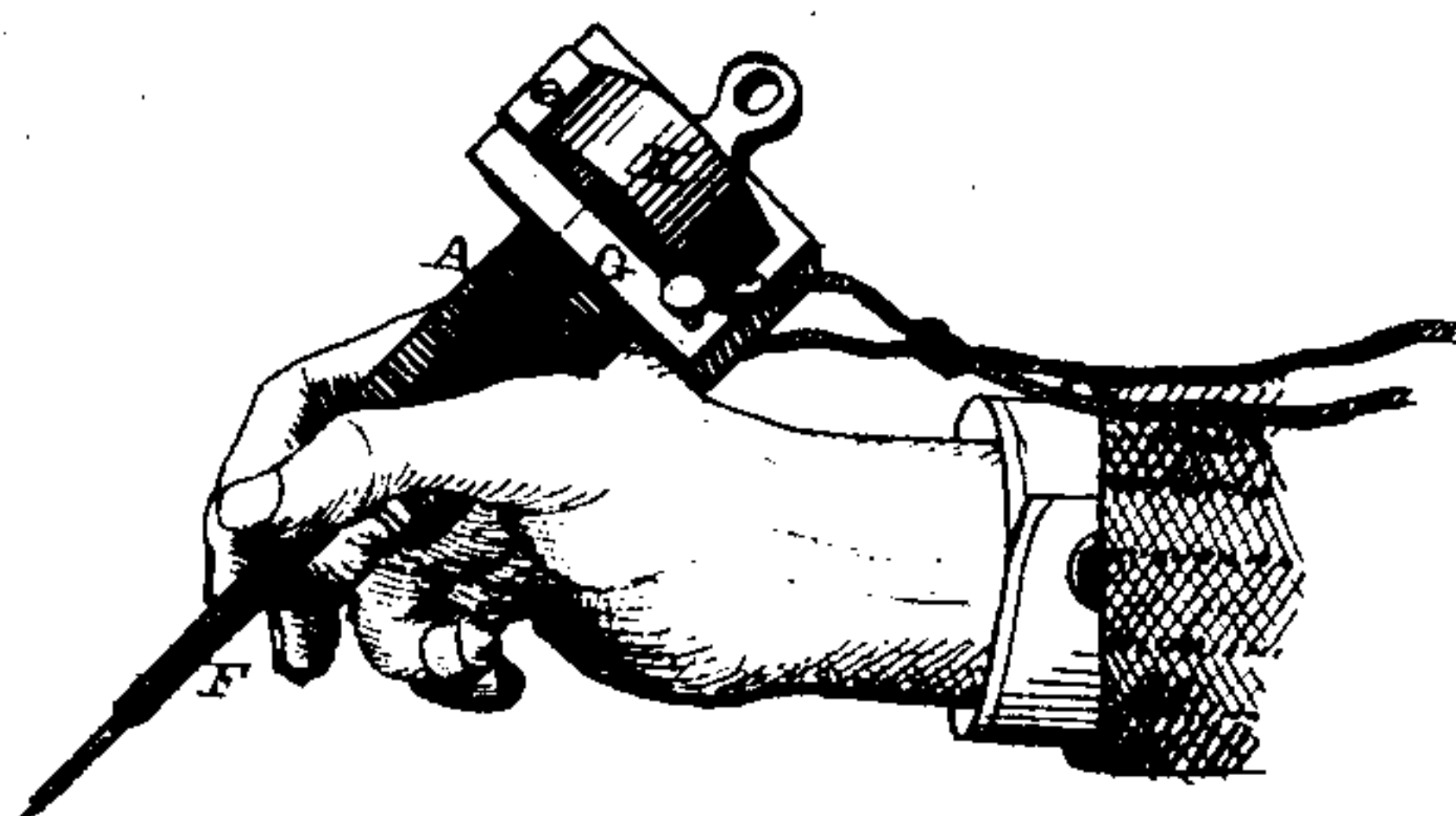


Fig. 2.

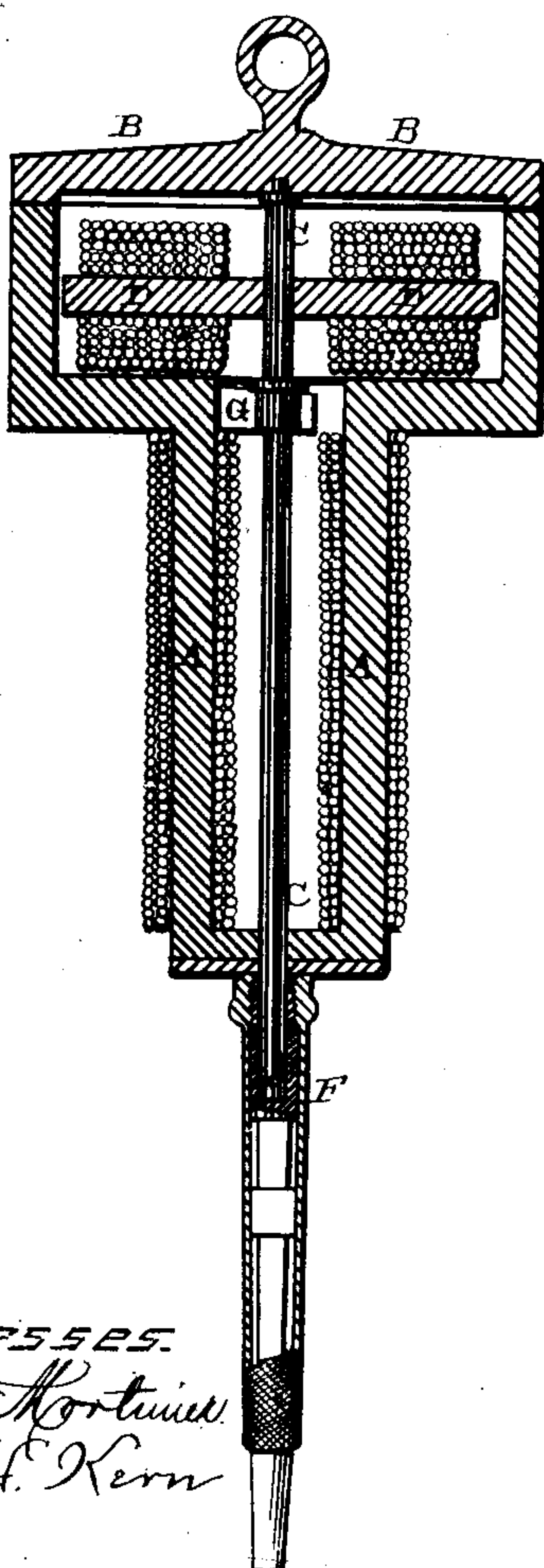
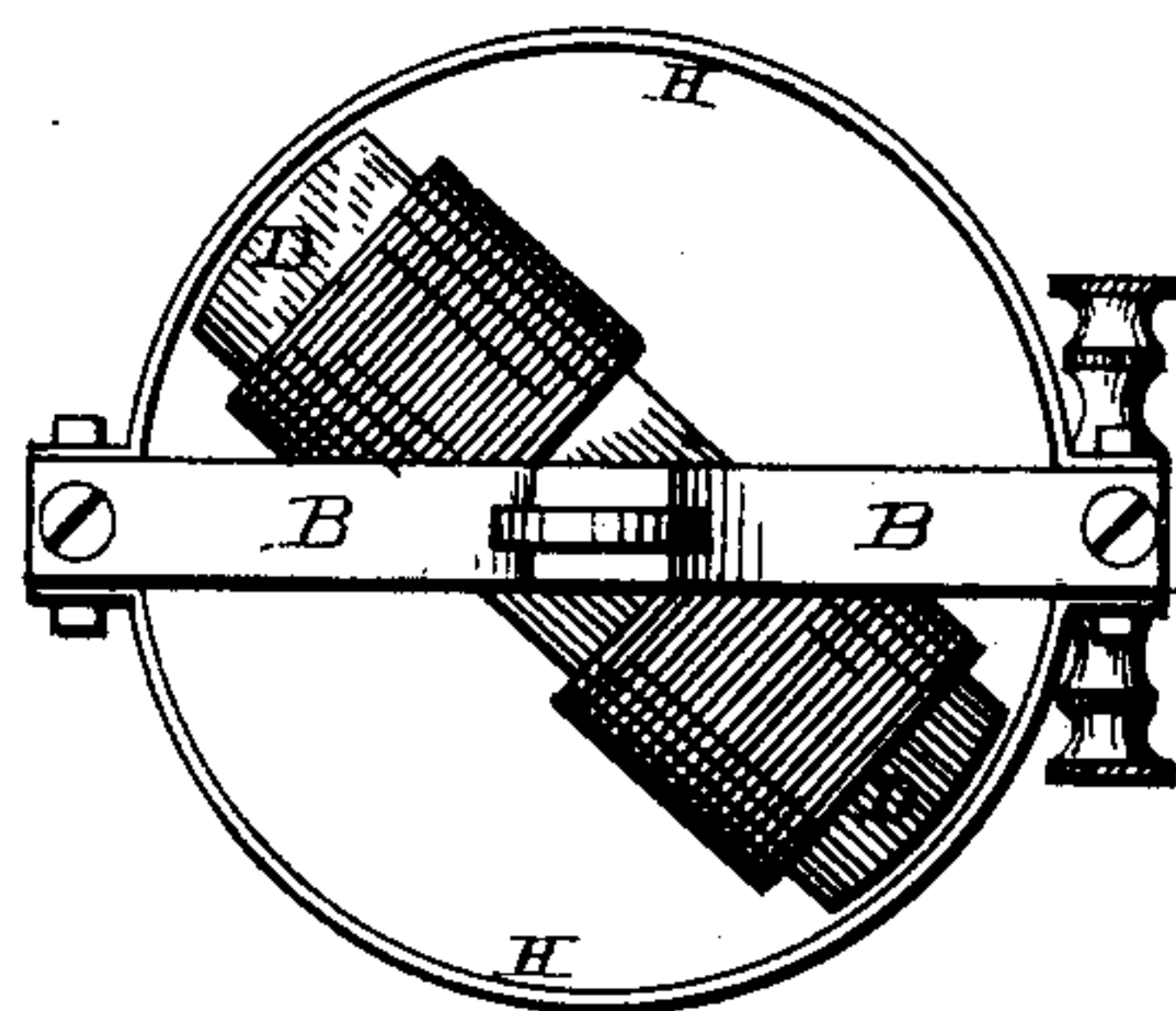


Fig. 3.



WITNESSES:
Wm. H. Kortum
Wm. H. Kern

Inventor
L. G. Woolley
per
F. A. Lehmann,
Atty.

UNITED STATES PATENT OFFICE.

LEONIDAS G. WOOLLEY, OF MENDON, MICHIGAN.

ELECTRO-MAGNETIC MOTOR.

SPECIFICATION forming part of Letters Patent No. 256,784, dated April 18, 1882.

Application filed October 24, 1881. (No model.)

To all whom it may concern:

Be it known that I, LEONIDAS G. WOOLLEY, of Mendon, in the county of St. Joseph and State of Michigan, have invented certain new and useful Improvements in Electro-Magnetic Motors; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in electro-magnetic motors, such as are intended especially for operating dental tools; and it consists, first, in the peculiar shape of the magnets, whereby the largest part of the machine is formed above the hand, thus enabling the machine to be held in the hand like a pen and used in any position; and, second, in surrounding the revolving armature by a suitable protecting-band, so that there is no danger of the armature striking anything in its revolutions.

The object of my invention is to provide a light motor which can be held in the hand and used in any position, like a pen, for drilling teeth in a person's mouth, and thus quicken and ease the work of dentists.

Figure 1 is a perspective of my invention. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a plan view, showing the surrounding band.

A represents a permanent or electro magnet, which, instead of being made simply U-shaped in the usual manner, has the upper end of each of its branches first turned outward horizontally, and then upward—or, in other words, made L-shaped—so as to receive a large armature between them. The poles are connected together by a non-magnetic bar, B, which forms the upper bearing of the shaft C, to which the revolving magnet D is secured. The lower bearing is secured to the bottom of the magnet, and has a screw-nipple formed upon it to receive the sleeve F, which incloses the tool-holder, which holder is fastened to the lower end of the shaft in any suitable manner.

Fastened to opposite sides of the outer end of the magnet, but insulated therefrom, are the two commutators G, by means of which the polarity is reversed in the usual manner, so as to cause the poles of the magnet to first attract and then repel the armature, and thus cause it to revolve and give motion to the tool, which is secured to the end of the shaft. These

commutators are of the usual construction, and no novelty is claimed for them. Secured to opposite sides of the poles of the magnet are the two non-magnetic semicircular parts of the band H, which inclose the armature as it revolves, and thus prevent the armature from striking the hand or any other object. Formed on the bar B is a ring, by means of which the motor can be hung up when not in use.

From the above construction of the motor it will be seen that the lower portion of the magnet, which is wrapped with wire, is made long and slender and serves as a handle, the larger and bulkier portion of the motor coming above the hand, and thereby enabling the motor to be held like a pen in the hand and used in any position.

Thus constructed the motor is specially adapted for use by dentists in working upon teeth in the head; but by enlarging the machine it is adapted for running drills for boring in rock or coal and running sewing-machines and other light machinery.

The electric force for running the motor may be derived from a battery or a machine for generating electricity.

The polar ends of the stationary magnet being L-shaped, as shown, brings the revolving armature more directly under each other's influence. These polar ends being L-shaped, also bring the limbs of the stationary magnet closely parallel together. Both of these advantages over the ordinary U-shaped magnet greatly increase the power of the motor.

Having thus described my invention, I claim—

In an electro-magnetic motor which is adapted to be held in the hand, the magnet A, having its lower portions wrapped with insulated wire for connection with a battery or generator, and having its upper ends turned outward and upward and connected by the non-magnetic piece B, the shaft C, the revolving magnets D, connected thereto, and commutator G, the parts being combined and arranged to operate substantially as shown and described.

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

LEONIDAS G. WOOLLEY.

Witnesses:

ANDREW B. FISHER,
HARRY C. ROBERTS.