

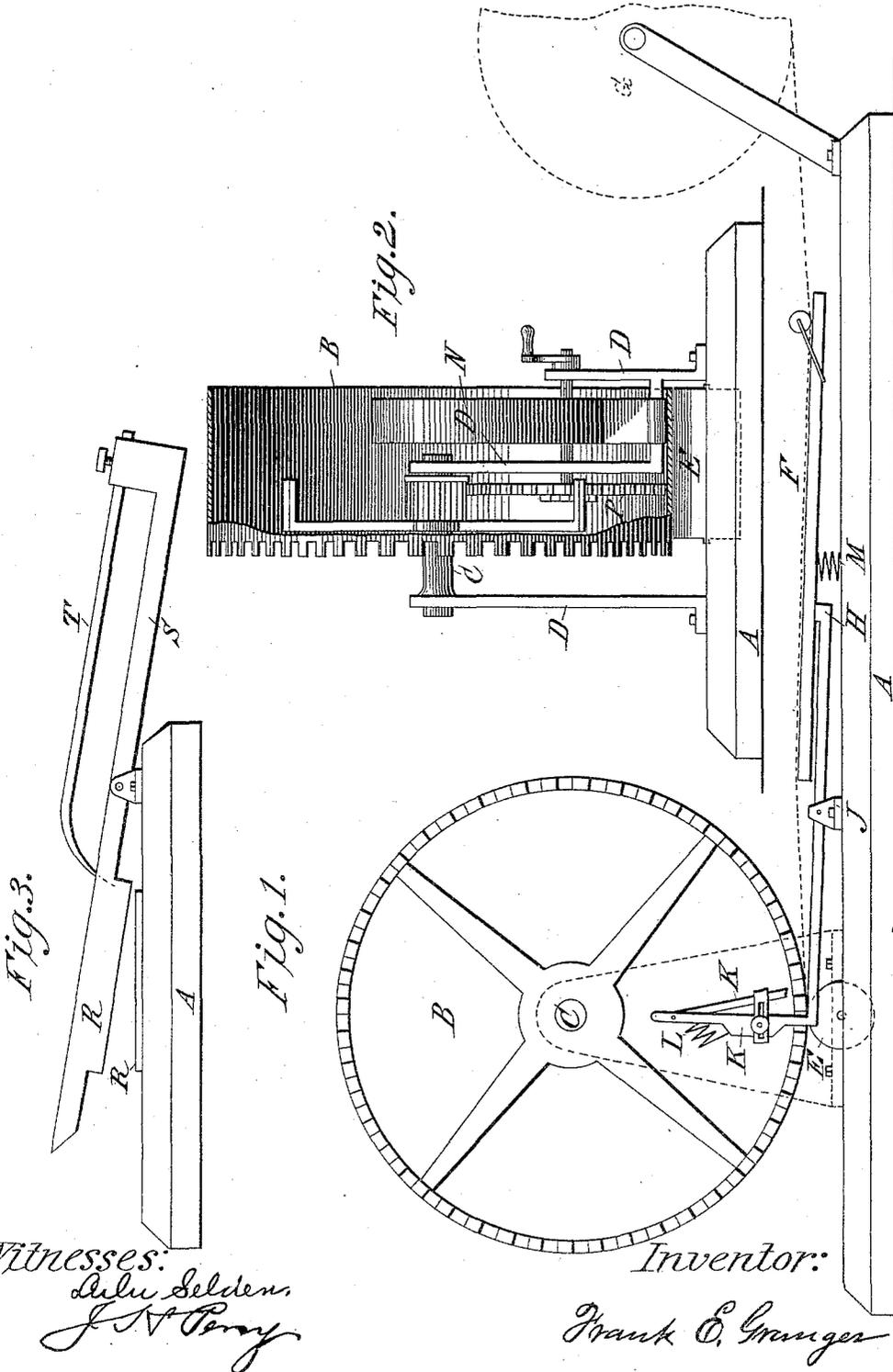
(No Model.)

F. E. GRANGER.

MACHINE FOR USE BY STENOGRAPHERS AND SHORTHAND WRITERS.

No. 444,953.

Patented Jan. 20, 1891.



Witnesses:
Lulu Selden
J. N. Perry

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UNITED STATES PATENT OFFICE.

FRANK E. GRANGER, OF ABERDEEN, (DAKOTA TERRITORY,) SOUTH DAKOTA.

MACHINE FOR USE BY STENOGRAPHERS AND SHORTHAND-WRITERS.

SPECIFICATION forming part of Letters Patent No. 444,953, dated January 20, 1891.

Application filed May 23, 1887. Serial No. 239,165. (No model.)

To all whom it may concern:

Be it known that I, FRANK E. GRANGER, a citizen of the United States, residing at the city of Aberdeen, in the county of Brown and Territory of Dakota, have invented a new and useful Machine for Use by Stenographers and Shorthand-Writers, which I call a "Steno-Aid," of which the following is a specification.

My invention is designed to carry an endless strip of paper from right to left while the same is being written upon, the movement thereof being of equal distances at each lifting of the writer's pen or pencil.

The objects of my invention are, first, to save all motion of the hand and arm from left to right while writing and from right to left in carrying the hand back to the beginning of a line as when writing in an ordinary stenographic note-book; second, to save the turning of leaves; third, the writer has at all times a uniformly smooth surface upon which to write; fourth, the hand and arm being always in the one position the following of the line of writing is dispensed with and leaves to the writer the use of his eyes to distinguish speakers or assist him in understanding indistinct utterances; fifth, all of which gives opportunity for increase of speed and greater accuracy in stenographic writing. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of a part of the machine representing its position while in use. Fig. 2 is a vertical section of the drive-wheel with all of its outer rim or circumference removed, excepting the toothed edge. Fig. 3 is the cutter and threader, all representing the full size of the respective parts.

The base A supports the entire machine. In the left and center standards D D turns the shaft C, carrying the drive-wheel B, which is propelled by the coil-spring N, turning shaft in right and center standards D D, driving the gear-wheel P, which in turn drives a pinion on the shaft C. One edge of the outer rim of B is cut into numerous teeth, the same being banded with rubber, (excepting

the toothed edge,) as is also the friction-roller E, and between the two surfaces of B and E the strip of paper is drawn over the table F and unwinds from the reel G. To the table F is fastened the lever and elbow H H, all of which oscillates upon the fulcrum J. Table F is shown in its position as the pen or pencil while writing bears it downward, which throws the opposite end of the lever upward, and the loose dog K, being freed from its bearing against one of the teeth, is thrown outward by means of the small spring L a distance equal to one or more teeth, as may be desired, by an adjustment of the sliding stop on the upright arm of H H. Upon the lifting of the pen or pencil from the table F the same is thrown upward by the small spring M, and the loose dog K drops down before one of the forward teeth and the preceding tooth is freed from its bearing against an inner stationary lip on the upright arm of H H, so that the drive-wheel B is allowed to revolve and the paper is drawn across the table F the required distance, and so on in succession.

To obviate the inconvenience of a long strip of paper hanging from the machine while in use, there is fastened at the left side thereof a cutter and threader, by means of which the writer, using his left hand, can cut and thread the strip of paper as often as desired. The paper passes between the two knives R R, the upper knife being part of the lever-arm S. The hooked needle T is fastened into a block at the further end of S with a small thumb-screw, so that its motion is similar with the lever S, and upon a single pressure on the lever the cutting and threading are both accomplished. The point of the needle is made to pass through the upper edge of the paper, so as not to mutilate the written characters thereon.

What I claim, and desire to secure by Letters Patent from the United States, is—

1. The combination of the table F, the lever and elbow H H, the loose dog K, the drive-wheel B, with its toothed edge, and the mechanism for propelling the same, whereby the strip of paper is carried from right to left at equal distances upon each lifting of

the writer's pen or pencil while writing thereon, substantially as and for the purposes set forth.

2. The combination of the knives R R, the lever-arm S, and the hooked needle T, whereby the strip of paper is cut off at such distances as may be desired and threaded

upon the needle T by a single pressure upon the lever-arm S, substantially as and for the purposes set forth.

FRANK E. GRANGER.

Witnesses:

MAJOR F. HOWE,
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