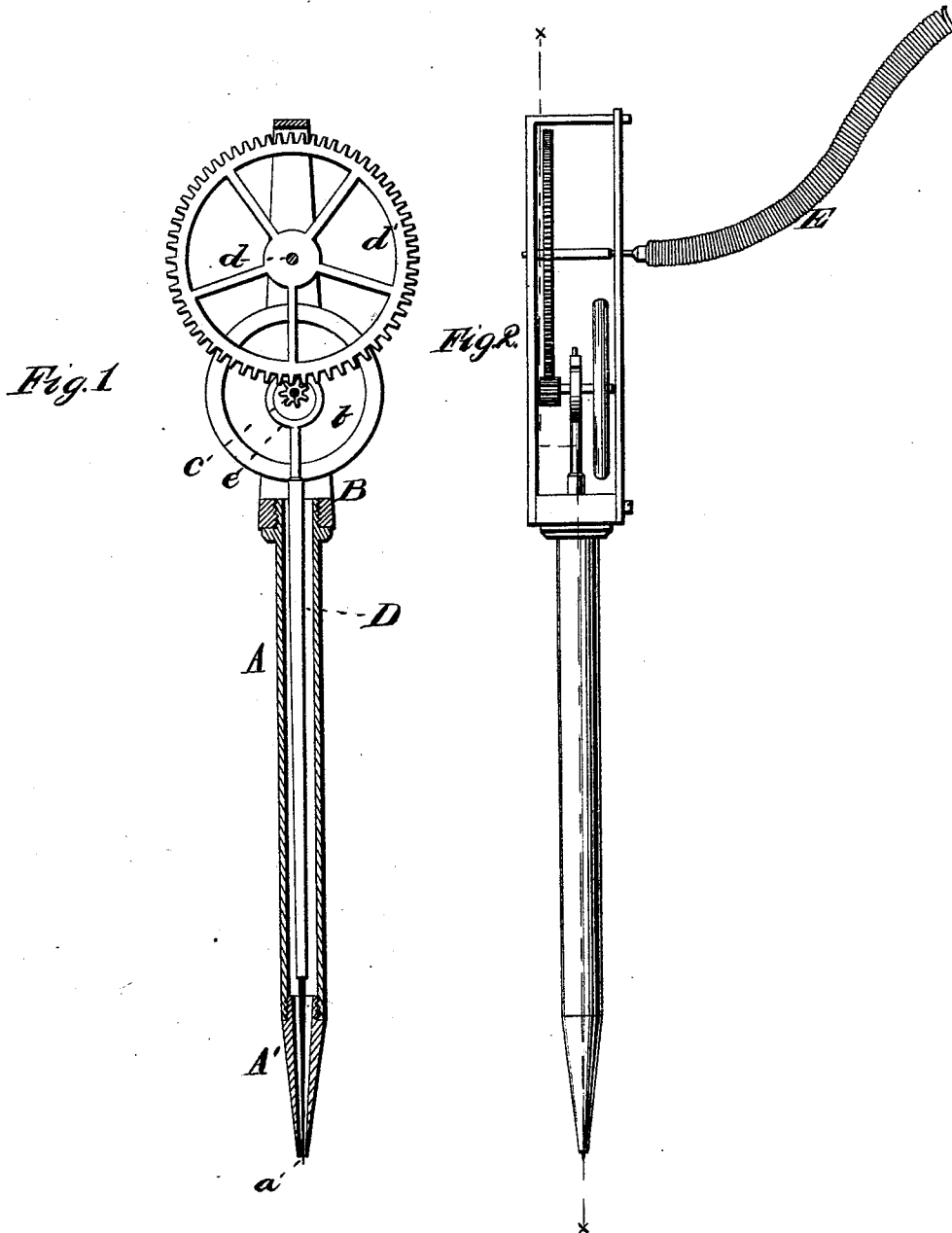


E. STEWART.
PUNCTURING WRITING IMPLEMENTS.
No. 183,720. Patented Oct. 24, 1876.

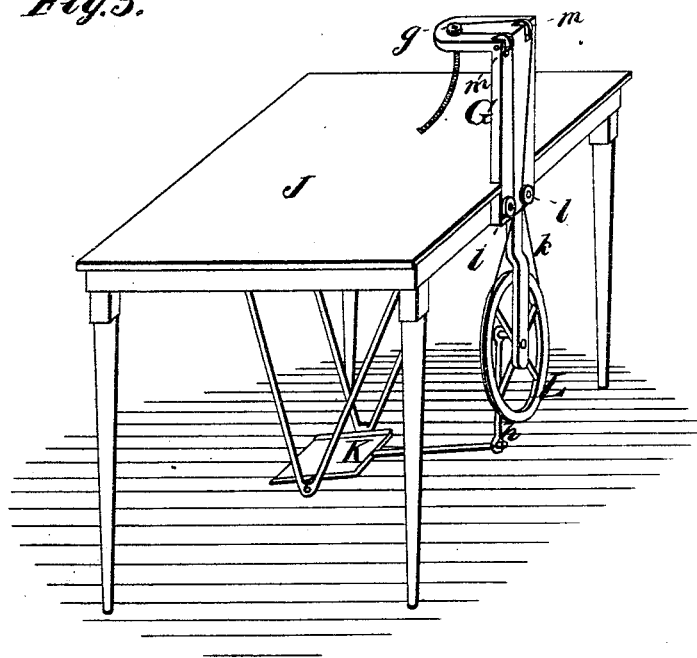


WITNESSES
Robert Everett
John D. Acker

INVENTOR
Edward Stewart
Gilmore Smith & Co.
ATTORNEYS

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Fig. 3.



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UNITED STATES PATENT OFFICE.

EDWARD STEWART, OF FORT MADISON, IOWA, ASSIGNOR TO HIMSELF,
JOSEPH ADDISON SMITH, AND GEORGE HENRY SCHAFER, OF SAME
PLACE.

IMPROVEMENT IN PUNCTURING WRITING IMPLEMENTS.

Specification forming part of Letters Patent No. 183,720, dated October 24, 1876; application filed
May 23, 1876.

To all whom it may concern:

Be it known that I, EDWARD STEWART, of Fort Madison, in the county of Lee and State of Iowa, have invented a new and valuable Improvement in Puncturing Writing Implement; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a longitudinal vertical section through line *x x*; and Fig. 2 is a side elevation of the same. Fig. 3 is a perspective view of the operating mechanism with pen detached.

This invention has relation to writing implements which are designed for puncturing a sheet of paper in such manner that a great number of transfers of the manuscript can be printed from the punctured sheet, being exact duplicates of the writing on this sheet.

The nature of my invention consists in the combination of a mechanical driving apparatus, a helical or a flexible rotating spring, and a puncturing writing implement, as will be fully understood from the following description.

In the annexed drawings, the letter A designates the hollow handle of the "pen" or writing implement, having a tapered end, terminating in an opening, through which the point of a needle, *a*, plays freely. The pen-handle A has a frame, B, suitably secured to its upper end, which affords bearings for the shafts of wheels *b c d*. On the shaft of wheel *b* is the pinion spur-wheel *c*, and also an eccentric, which latter is connected, by a yoke, *e*, to the needle-carrying rod D. (Shown in Fig. 1.) On the shaft *d* is secured the large spur-wheel *d'*, and a helical spring, E, which may be made of any suitable length, and of any suitable spring metal. This spring E is attached to the lower side of a horizontal pul-

ley, *g*, (shown in Fig. 3,) applied to a bracket, G, secured to, and overhanging, a writing table or desk, J. The bracket G may be adapted to be secured to any convenient object. K is a treadle pivoted to pendants fixed to the table or desk J, and connected to a crank on one side of a balance-wheel, L, by means of a pitman-rod, *h*. The periphery of the balance-wheel is grooved, and around this wheel is passed a belt, *k*, which is carried up between idlers *l l*, over pulleys *m m*, and around the pulley *g*.

By these means a person sitting at the table J can manipulate the pen at will, at the same time giving to the needle *a* great speed by vibrating the treadle K. When the pen is not in use the point of the needle *a* can be protected by slightly unscrewing the tapered end A'.

I have represented a prime mover which may be practically used for rotating the spring E, and thus transmitting endwise motion to the needle-carrying rod D and its needle *a*. I contemplate employing other prime movers for rotating spring E; therefore I do not limit my invention to the devices shown for said purpose.

It will be seen from the above description that the spring E can be flexed in direction, and that it is a simple and efficient medium through which the needle can be operated.

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

In a writing instrument, the combination of a mechanical driving apparatus, a flexible rotating spring, and a hollow handle with a puncturing writing-pen, substantially as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

EDWARD STEWART.

Witnesses:

JOHN F. ACKER,
C. H. McEWEN.