

(No Model.)

2 Sheets—Sheet 1.

J. GALLOWAY.
STENOGRAPHIC MACHINE.

No. 288,419.

Patented Nov. 13, 1883.

Fig. 2.

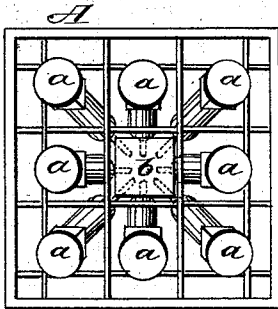


Fig. 1.

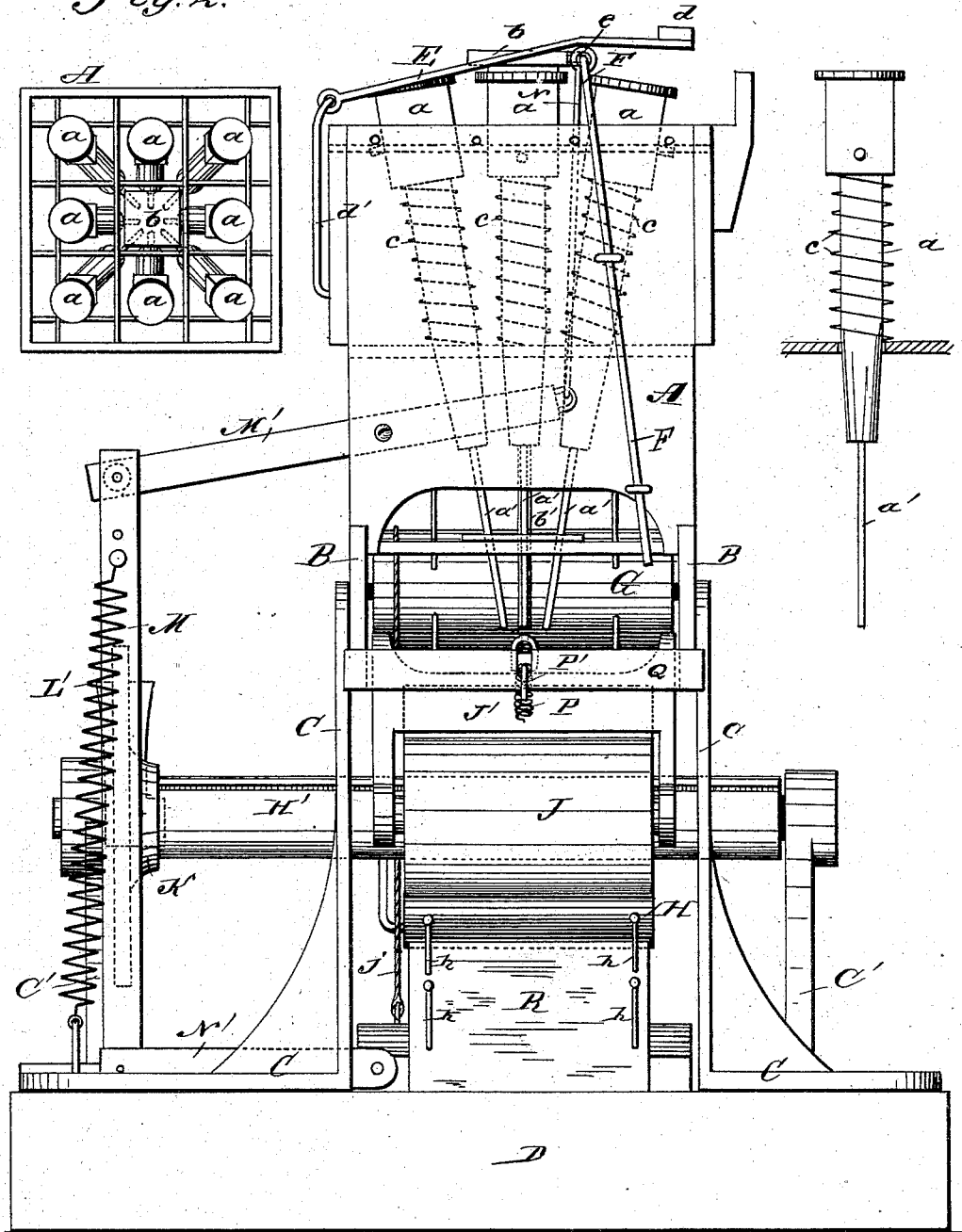
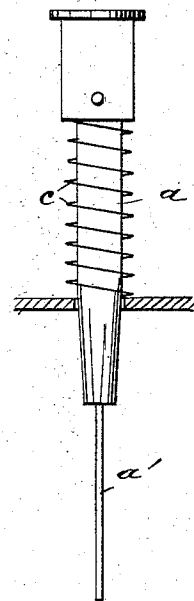


Fig. 3.



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(No Model.)

2 Sheets—Sheet 2.

J. GALLOWAY.
STENOGRAPHIC MACHINE.

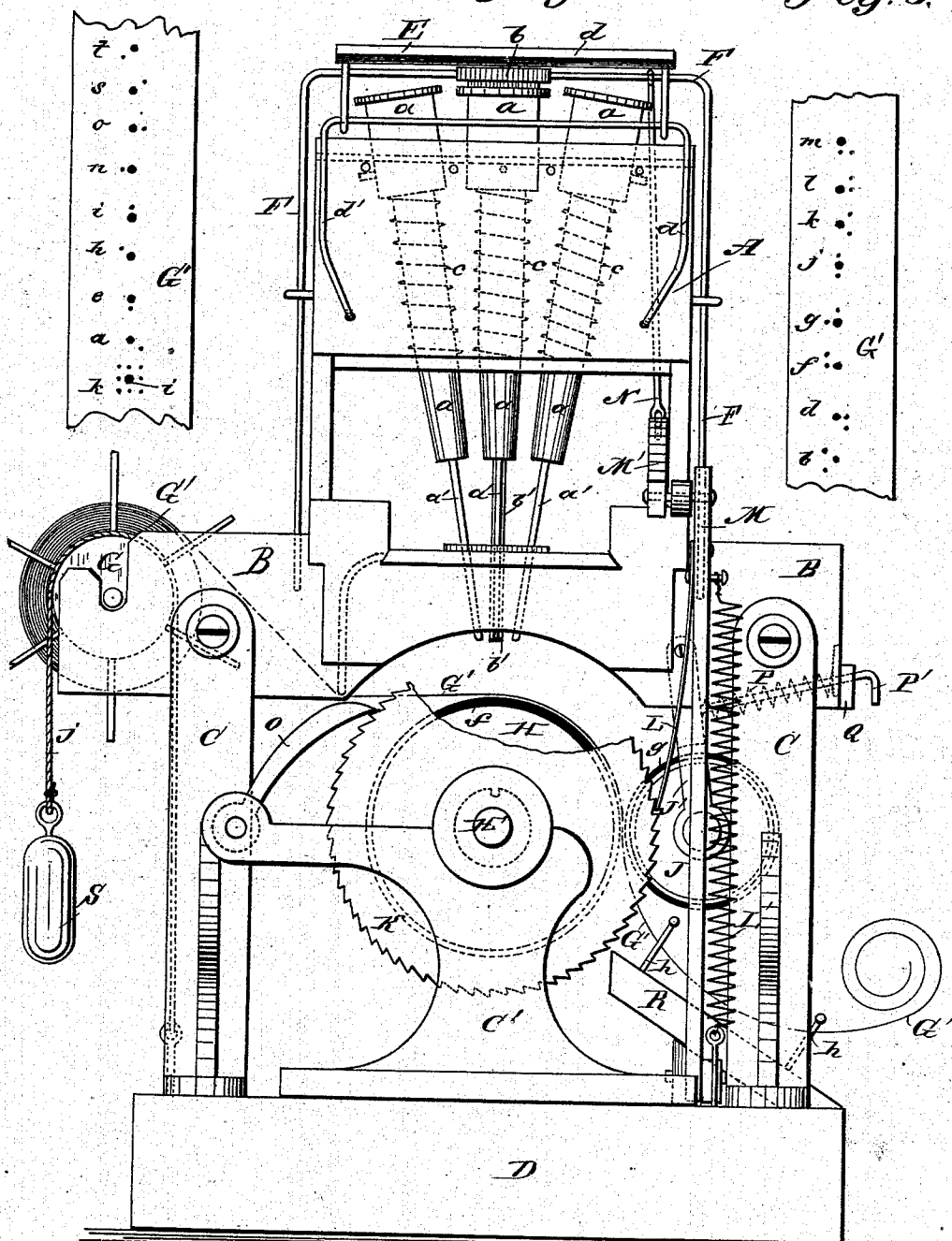
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Fig. 5.

Fig. 4.

Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN GALLOWAY, OF NEW YORK, N. Y.

STENOGRAPHIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 288,419, dated November 13, 1883.

Application filed September 8, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN GALLOWAY, of the city, county, and State of New York, have invented a new and Improved Stenographic Machine, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my invention. Fig. 2 is a detailed plan view, showing the system of headed rods or keys for making the impressions. Fig. 3 is a detailed elevation of one of the impression keys or rods removed from the machine. Fig. 4 is a rear elevation of my invention, and Figs. 5 and 6 show the characters of the alphabet.

This machine, though well adapted for rapid writing by persons who can see, is more especially intended for the use of the blind.

The alphabet employed is composed of different combinations of eight dots, with a central or index dot, around which the eight dots are arranged in the form of a hollow square, which dots are impressed into the paper, resting on a yielding support, by as many small impression rods or keys, forming the characters in relief on the back of the paper, so that the matter written may be read by the sense of touch or by the sense of sight, as the case may be.

Referring to the drawings, the elevated frame A, which is supported by the two side bars, B B, which are supported by the four uprights C, rising from the base D, carries the headed impression rods or keys *a b*, the rods *a*, eight in number, being arranged in the form of a hollow square, as shown in Fig. 2, the single rod *b* being placed in the center of the square, as shown clearly in said figure. This central rod or key, *b*, is perpendicular in the frame A, while all of the other rods, *a*, are arranged to slant downward toward a central point, so that the pin-points *a' a'* of the rods *a* will stand near the larger pin-point *b'* of the central rod, *b*, as indicated in Figs. 1 and 4; and each impression-rod is provided with a spiral spring, *c*, which holds it normally in an elevated position. The central rod, *b*, is held higher than the other impression-rods, and is adapted to be operated by one hand of

the writer applied to the cross-bar *d* of the horizontal frame E, this frame being fulcrumed by the bail *d'* to the frame A, and resting upon the vertically-sliding frame F, to which the rod *b* is attached, as shown at *e* in Fig. 1. Simultaneously with the operation of the central impression-rod, *b*, by pressing down and releasing the frame E one or more of the rods *a*, according to the combination of dots to be formed, are to be operated by the application to the heads thereof of the fingers of the hand of the writer not applied to the frame E.

The paper in which the impressions are to be formed by the impression-rods is cut in a long narrow strip and wound on the reel G, as shown at G', and from this reel the strip of paper passes over the roller H, immediately under the pin-points of the impression-rods, and thence down between the wheel H and the clamping-wheel J, as shown in Fig. 4. The roller H is provided with a jacket, *f*, of rubber or other similar material, for furnishing a yielding support for the paper, and the roller is secured upon the shaft H', which is journaled in the uprights C' C'. This shaft is revolved intermittently at each downward movement of the frame E for turning the roller H, for feeding the paper along after each impression, and this is accomplished through and by means of the ratchet-wheel K, secured to the shaft, and the spring-pawl L and spring L', attached to the vertical bar M, which bar is attached at its upper end to the outer end of the lever M', which is connected at its inner end, by the connecting-rod N, to the vertically-sliding frame F. The lower end of the bar M is held in line with the plane of the ratchet-wheel K by means of the pivoted arm N', (shown in Fig. 1,) and the ratchet-wheel is kept from backward movement by means of the pawl O. (Shown in Fig. 4.) The clamping-wheel J is journaled in the swinging frame J', is jacketed with rubber, as shown at *g*, and is held pressed against the roller H for clamping the paper, so that it will be fed along by the revolution of the roller H by means of the spring P, placed on the rod P', the spring impinging against the center of the frame J' at one end and against the cross-piece Q at the other, as shown in Figs. 1 and 4.

R is an inclined board provided with the

guide-pins *h h* for guiding the paper as it issues from between the rollers *H* and *J*, as illustrated in Fig. 4; and *S* is a weight attached to the cord *j*, which is attached to the base *D*, which cord and weight are adapted to be passed over the reel *G*, as shown clearly in Fig. 4, to serve as a brake to the reel to prevent the paper from unwinding too rapidly.

The alphabet, as above mentioned, is composed of different combinations of eight dots, with a central or index dot, around which the eight dots are arranged in the form of a square, as shown at *k*, Fig. 5, and it is in accordance with the relative positions of two or more of these dots that the different letters are indicated. The central dot, *i*, is formed by the central rod, *b*, and thus always holds relatively a central position, and is the index-dot, and is used in the formation of each letter, and serves to indicate the positions of the other dot or dots used with it.

The eight letters of the alphabet, *a e i o t s n h*, which occur most frequently in ordinary composition, I propose to represent by a single dot, along with the index-dot, as illustrated in Fig. 5, and the eight next in point of frequency I form each with two dots, along with the index-dot, as shown in Fig. 6, the two outside dots being formed by two rods or keys most convenient to each other. The other ten letters of the alphabet and the numerals may all be represented by varying the dots according to the letters required, and without using more than two together with the index-dot. It will thus be seen that the whole alphabet requires not more than seventy impressions, and that the eight rods or keys used in producing them are so closely connected that one hand of the writer may cover them all; so that it will be about as easy to press down two keys at a time as one, and in case four dot characters are used but little more effort will be required to form them.

When my invention is to be used by persons who can see, a receiving or paying-off roller will be properly journaled in the frame of the machine, to which will be attached an inking-ribbon which will run in close contact with the paper, and between it and the pin-point of the keys or rods, so that the dots will be printed upon the upper surface of the paper, and the movement of the paper will be reversed—that is, it will move from left to right.

When used by the blind, the machine will be arranged to cause the paper to move from right to left, and the writer will reverse the combination of each group of dots which form

the letters of the alphabet, so that upon reading the raised characters from the back of the paper the combinations will come in the proper shape.

It will be seen from the above description that about one-third of the letters used in ordinary composition will be represented by two dots—the index-dot and one other—and that not over two-thirds will require three dots—two with the index-dot—and it will be understood that four dot characters may be used, if desired, for indicating punctuation-marks, and that various combinations may be used to indicate whole words, if desired.

Instead of using a long narrow strip of paper to receive the writing, the machine might be provided with a revolving and longitudinally-moving roller, so that the writing might be done on sheets of paper, if desired.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a stenographic machine, the impression-rods *a b*, the rods *a* being arranged in the form of a square around the rod *b*, and all of the rods being of the same length, and each having an independent printing-point, in combination with the paper-supporting roller *H*, and means for imparting an intermittent movement to said roller, substantially as herein shown and described.

2. A stenographic machine having its impression-rods *a* inclined and arranged in the form of a hollow square around a central vertical impression-rod, *b*, the said rods all being of the same length, and each having an independent printing-point, substantially as herein shown and described.

3. In a stenographic machine, the combination, with a central impression-rod, *b*, and the sliding frame *F*, of the bail *d'*, and the frame *E*, hinged thereto, substantially as herein shown and described.

4. In a stenographic machine, the combination, with the central impression-rod, *b*, and the supporting-roller *H*, of the frame *E*, and means, substantially as herein shown and described, for imparting intermittent motion to the said supporting-roller, as set forth.

5. The combination, with the frame *E*, roller *H*, carrying a ratchet, and key or rod *b*, of the frame *F*, rod *N*, lever *N'*, lever *M'*, bar *M*, pawl *L*, spring *L'*, and pawl *O*, substantially as and for the purposes set forth.

JOHN GALLOWAY.

Witnesses:

C. SEDGWICK,
E. M. CLARK.