2 Sheets—Sheet 1.

H. R. M. J. HANSEN.
Type-Writing Machine.

No. 211,010. **Patented Dec. 17, 1878.**

Fig. 1.

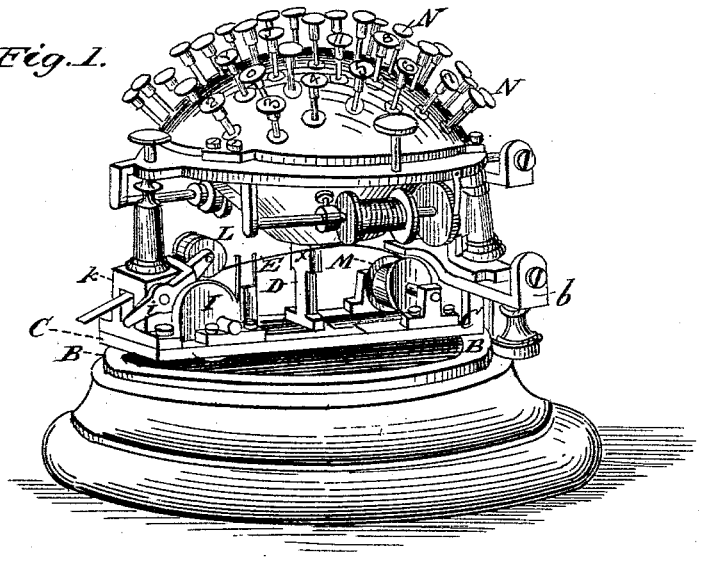
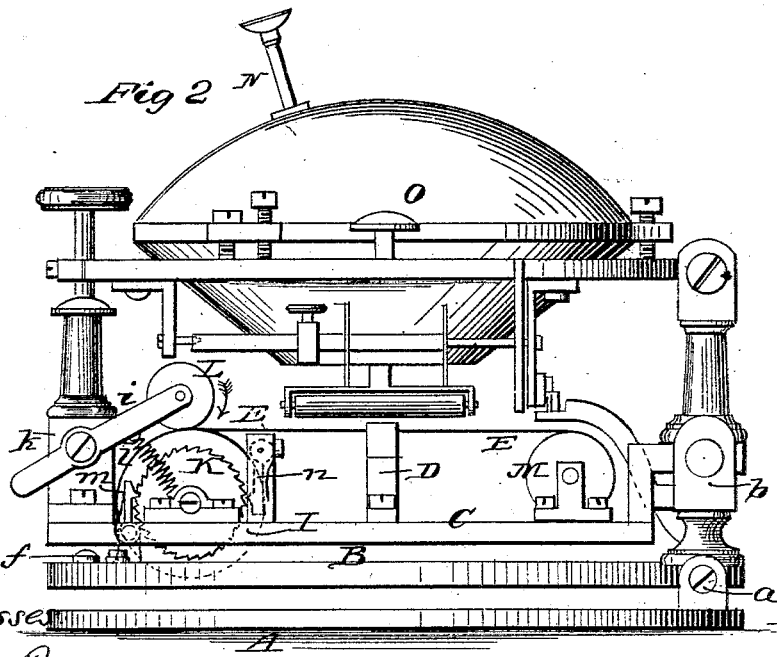


Fig 2



Witnesses
George Binkenburg
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Inventor
Hans Rasmus Malling Johan Hansen
by A. Peterson & Co. his attorneys

2 Sheets—Sheet 2.

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Fig. 3.

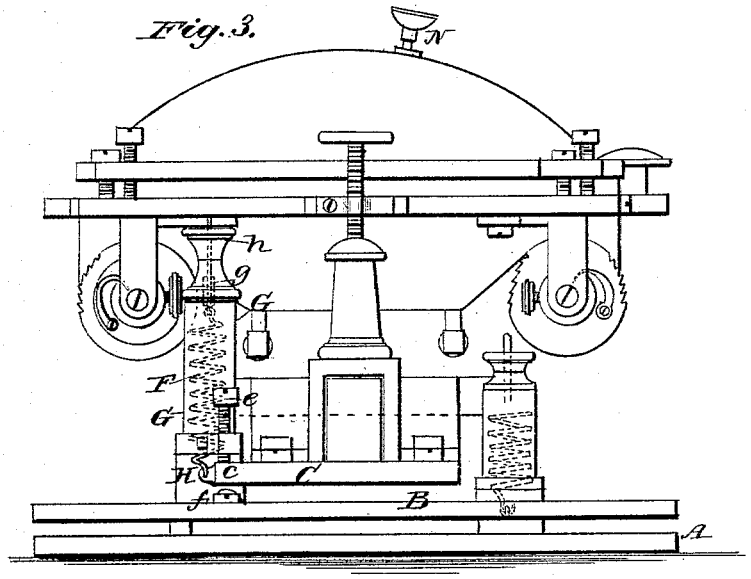
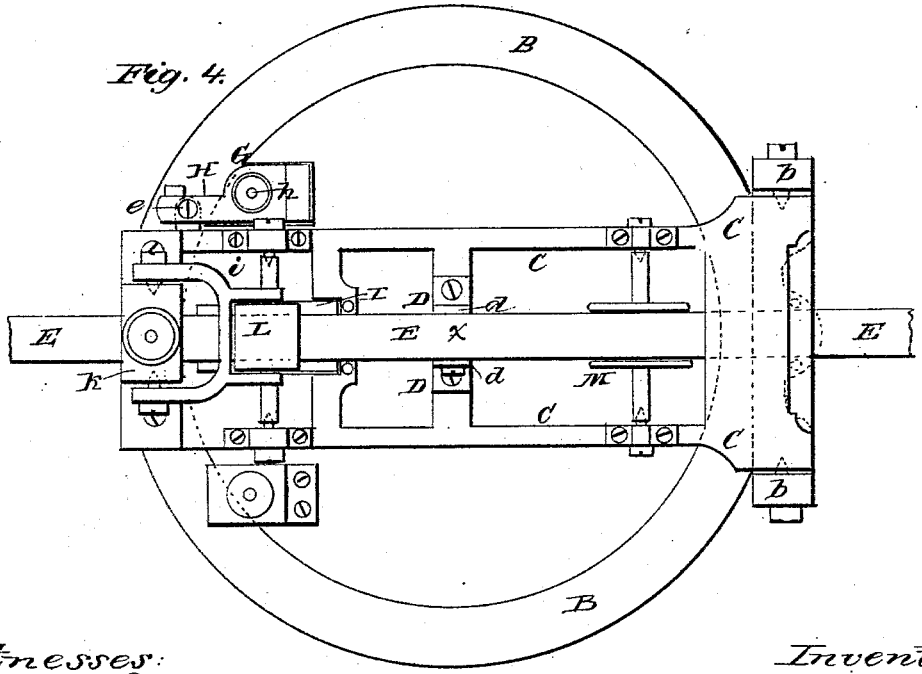


Fig. 4.



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his Attorneys

UNITED STATES PATENT OFFICE.

HANS R. M. J. HANSEN, OF COPENHAGEN, DENMARK.

IMPROVEMENT IN TYPE-WRITING MACHINES.

Specification forming part of Letters Patent No. **211,010**, dated December 17, 1878; application filed November 27, 1878.

To all whom it may concern:

Be it known that I, HANS RASMUS MALLING JOHAN HANSEN, of the city of Copenhagen, in the Kingdom of Denmark, have invented certain new and useful Improvements in Writing-Machines or Type-Writers; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of one of my improved type-writers embodying this improvement. Fig. 2 is a side elevation. Fig. 3 is a front elevation; and Fig. 4 is a top or plan view, the spherical type-supporting shell or ball having been removed to show more clearly the operating parts which constitute my present improvement.

Similar letters of reference indicate corresponding parts in all the figures.

This invention relates to that class of writing-machines or type-writers which have been fully described and explained in the several Letters Patent granted to me heretofore in the United States; and it consists in the construction, arrangement of parts, and combination, with this class of type-writers, of certain devices whereby they are adapted to be used with a narrow strip or band of paper, similar to that used in the Morse telegraphic instruments, for receiving the imprints or impressions of the converging types, substantially as I shall now proceed to describe more fully.

In the drawing, A is the base-plate or support of the machine, hinged to one side of which, at *a*, is a movable plate or support, B, preferably of like size and shape. Plate B is provided at one end with bearings *b* for a swinging or oscillating plate or frame, C, upon the middle of which is secured the anvil D, which receives and supports the paper strip or band E between its guide-flanges *d d*, the anvil D being so placed upon frame or plate C that its face shall be just below the point where the types converge, so that it will present that part or portion of the paper band E which rests upon and is supported by it to the action of the types when these are depressed in operating the machine.

The free end of the oscillating frame or plate C has a projection, *c*, on one side, to which is secured the lower end of a coiled spring, F, inclosed within a vertical tubular standard, G, which is affixed upon an angular piece or bracket, H, projecting upward from the hinged base-plate B. Bracket H has a vertical screw-threaded perforation, through which is inserted a vertical set-screw, *e*, the point of which will limit the upward play or motion of the vertically-oscillating frame or plate C, which may be increased or decreased by adjusting screw *e*. On plate B is secured a similar set-screw, *f*, which limits the downward play or movement of plate C, so that the free end of this frame or plate will play between the two set-screws *e* and *f*, and may be adjusted accordingly.

The upper end of coiled spring F is secured in a pin, the lower end of which, *g*, is square in section, and passes through a square perforation in the cap of standard G, while its upper end is screw-threaded and screwed into the adjusting-button *h*. Thus it will be observed that by turning this button spring F may be extended within its tubular case or standard G and its tension increased; or, by turning button *h* in the opposite direction, a reverse result is effected and the spring is slackened.

I is a roller or cylinder having a roughened periphery, and having secured upon one of its sides the concentric ratchet-wheel K. L is another smaller cylinder or roller, hung in bearings in a lever, *i*, which has its fulcrum in an upright, *k*, secured upon the tilting or oscillating frame or plate C. Roller L is kept in contact with roller I by means of a coiled spring, *l*, as will be readily understood by reference to Fig. 2 of the drawings. On the opposite side of the anvil D is secured, upon plate C, the flanged guide-roller M for the paper strip or band E. *m* is a spring-pawl secured upon and projecting upward from plate B through a perforation in the plate or frame C, and *n* is another spring-pawl, which is hung in a standard secured upon the tilting plate or frame C, the pawls *m* and *n* being arranged, one on each side of the ratchet-wheel K, as shown in Fig. 2.

From the foregoing description, taken in

connection with the drawings, the operation of this invention will be readily understood. At each depression of one of the types N its point will strike the paper strip at the place marked *x* in Fig. 4 and depress the anvil D, which carries and supports the strip at this point, and plate C, upon which the anvil is secured. Plate or frame C is thus tilted downward with its rollers I L and pawl *n*, which, as it engages with the teeth in ratchet-wheel K, will prevent this and roller I, to which it is secured, from turning while pawl *m* passes over the teeth on the opposite side during this downward motion of plate C. When the pressure is released in the interval between imprinting two successive letters or signs upon the paper strip, the tension of spring F will raise or elevate plate C up into its original position, during which motion pawl *m* will engage with the teeth in the ratchet-wheel K and turn this one tooth, thereby moving the paper strip, which is inserted between and fed forward by rollers I L, the distance of one letter. At each depression of the type-heads this operation is repeated, so that the paper strip or band will be fed forward by the direct contact of the types with the paper-supporting anvil or cushion D and tilting plate or frame C without the aid of any intermediate mechanism. To move the paper strip the space of one or more letters, to form blank spaces between words, a blind type or key, O, is employed, which simply strikes against and depresses plate C without marking the paper.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. As an improvement in writing-machines or type-writers, the paper-feeding mechanism herein described, adapted for feeding paper in the form of a narrow strip or band, and consisting, essentially, of an oscillating plate or frame, C, carrying the feed-rollers I L, anvil D, and guide-roller M, and adapted to receive its tilting or oscillating motion from direct contact of the face of said anvil with the type-heads when these are depressed, substantially as and for the purpose herein shown and specified.

2. The oscillating plate or frame C, having anvil D and rollers M I L, arranged as described, in combination with base-plate B, adjustable coiled spring F, and the set-screws *e f*, substantially as and for the purpose herein shown and specified.

3. The paper-feeding device herein shown and described, consisting, essentially, of the plates B C, hinged together at one end, the contact-plate or anvil D, rollers M I L, ratchet-wheel K, spring-pawls *m n*, adjustable spring F, and set-screws *e f*, all constructed and combined to operate substantially in the manner and for the purpose herein shown and described.

In testimony whereof I have signed my name to the foregoing specification in the presence of two subscribing witnesses.

HANS RASMUS MALLING JOHAN HANSEN.

Witnesses:
RUD. PETERSEN,
H. DUCH.