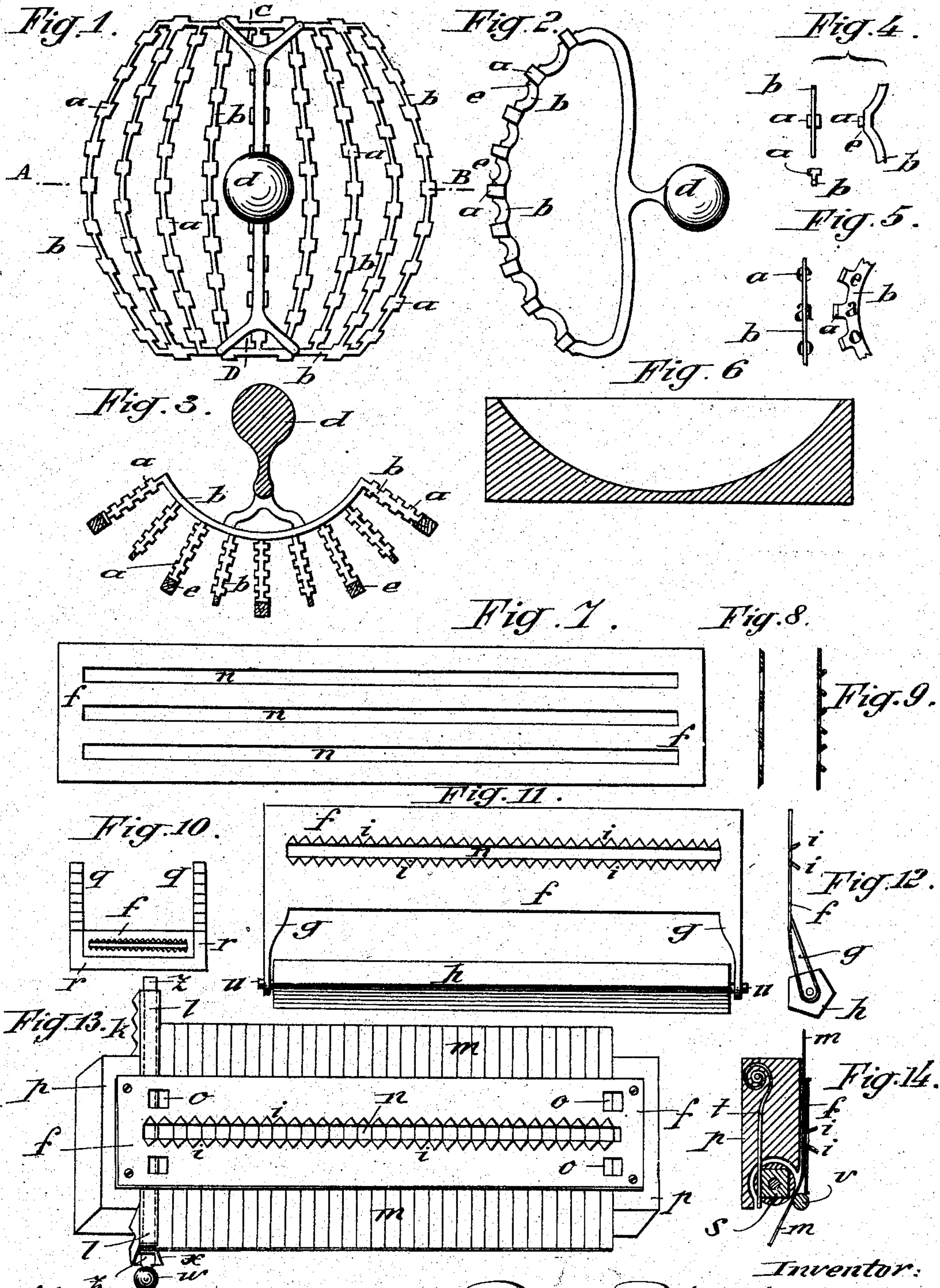


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J. JAAKSON.  
WRITING APPLIANCE.  
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# UNITED STATES PATENT OFFICE.

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## WRITING APPLIANCE.

SPECIFICATION forming part of Letters Patent No. 786,817, dated April 11, 1905.

Application filed May 8, 1903. Serial No. 156,186.

*To all whom it may concern:*

Be it known that I, JAAN JAAKSON, a subject of the Russian Emperor, and a resident of Riga, Russia, have invented a certain new and useful Writing Appliance, of which the following is a specification.

The object of the present invention is a small writing appliance which, owing to its simple and solid construction, cheapness, and easy manipulation, is within everybody's reach and can be used under any case which may present itself. It completely replaces writing with a pen, not only for "writing," properly called, but also when it is necessary to make calculations or solve mathematical problems. The difficult apprenticeship to writing by pen or machine can be therefore quite dispensed with.

In order that each of the characters of the present appliance may be printed separately, they form a curved surface—for instance, a segment, a part of a hollow sphere, a spheroid, an ellipsoid, &c. The arrangement of the characters is such that the absolute visibility of the group of characters and that the impression of each character may be easily controlled. This object is attained by fixing the characters upon a nest or collection of ribs, so that the intervals between the characters remain quite free and are consequently transparent. The same result may be obtained by fixing the characters upon a portion of a sphere of transparent material. The different characters are sufficiently separated one from the other that the impression of each separately and that the condition of visibility can be fulfilled. The inking-pad is concaved according to the curve of the characters. The inking can also be obtained automatically by means of small pads arranged on both sides of the opening for the lines.

The writing appliance is shown in the accompanying drawings, given by way of example, and in which—

Figure 1 shows a plan view of the appliance. Fig. 2 is a vertical section on C D of Fig. 1. Fig. 3 is a section on A B of Fig. 1 of the appliance. Figs. 4 and 5 show two forms of characters differing slightly from that shown in Figs. 1, 2, 3. Fig. 6 shows a

section of the inking-pad. Figs. 7, 10, 11, 13 show plan views of the guides or rules, Figs. 8, 9, 12, 14 showing cross-sections of the parts shown in Figs. 7, 10, 11, 13.

The characters *a a a*, furnished upon their backs with corresponding inscriptions, form, with their printing-surfaces directed radially and outwardly, a curved surface, generally a portion of a spherical surface or calotte. The distance between the characters, as well as the curve of the surface, must be sufficient to be able to print each character separately by hand. The fixing of the characters in this position can be performed in different manners. They may be either fixed to the ribs *b b b*, which unite all the various characters into a bunch, while leaving large interstices, or they are mounted upon a portion of a transparent surface or upon a segment of a sphere made of an appropriate material, such as glass, celluloid, &c. In the latter case it is advantageous to mark the place of the characters with cross-lines placed above and beneath the characters, these lines replacing the ribs upon the spherical segment and assisting the printing of the characters in a straight line. Under any circumstances whatsoever the wide interstices between the characters must be free or transparent, so that not only the different characters may be seen clearly and distinctly, but also that the paper already written upon may be seen through the interstices. In this manner each character may be printed correctly and at the desired spot. For greater facility the characters are arranged upon the appliance so that those which are used the most are placed toward the middle and that those which most frequently follow each other are placed as much as possible next each other. A handle having a rough surface is placed at the top and at the center of the curve of the surface and is connected at one or more points to the ribs *b* or to the transparent surface. The novel writing appliance is therefore only composed of the following parts: first, the characters the grouping whereof represents a portion of a spherical surface, or generally a surface having a regular curve; second, the group of ribs, arranged as desired and having an appropriate form, or of a transparent



surface suitably curved and serving like the ribs to maintain the characters in their respective positions; third, the handle.

The manner of using the appliance is as follows: The appliance is taken hold of by the handle, and after all the types or characters have been inked they are printed one after the other, as they are required, by bringing them into the position for printing—*i. e.*, the lowest position—by causing the appliance to turn or move round. Owing to the characters being arranged upon a surface curved in both directions, the neighboring characters cannot come in contact with the paper, and the reproduction of a single character only will be obtained. In this manner by printing one letter after another by hand a good and clear writing can be obtained with very little practice, especially if ruled paper or a transparent appliance is used.

To obtain either a very good and regular manner of writing or when the writer has no practice at the beginning of the apprenticeship, a guide or ruler, such as shown in Figs. 7 to 14, should be used. A guide *f* of that description, Fig. 7, is furnished with one or more straight slots *n n* (up to the number of lines on a page) for the lines. These slots are furnished either with beveled edges, Fig. 8, or edges projecting obliquely, Fig. 9. The length of these slots should be sufficient for the longest line to be written, and their width is such that the characters can be printed through the slots upon the paper placed beneath the same. As the characters have different heights, the type-body, as well as the width of the slot, is made according to the highest character, and the remaining types are arranged upon the lower surfaces of the squares according to their position upon the line, either higher, lower, or in the middle thereof. A guide or rule of the kind shown in Fig. 7 prevents the neighboring types dirtying the paper and secures perfectly straight lines with vertical letters, while allowing the distance between two neighboring types to be varied according to their width. In order to be able to regulate the distance between the letters when they are of the same width, as in most type-writing machines of the present day, the projecting edges of the slots *n* are bent up and are furnished with a regular set of teeth *i i*, Figs. 11, 12, 13, 14. In the present case all the types are laterally furnished with corresponding projections *e e*, Figs. 2, 3, 4. When the printing is being performed, the latter engage the teeth *i i* and only allow the different types to be printed at a regular distance corresponding to the width of the teeth, (equal to the general width of the types.) In this manner a perfectly even writing is obtained. At the same time the ordinary regular form of the large letters, such as "M" and "W," may be retained. Instead of cramping them for this purpose it will only be necessary to give them a double or triple width

in the line and to place by their side the projections *e e*—in this case placed exactly in the middle of the double or triple width reserved for them—only care must be taken before or after printing to leave one or two teeth of the set *i i* free. Instead of furnishing both edges of the slots *n* with a set of teeth *i* one need only be used, and preferably the lower one, along which the letters will be printed one after the other, as it were along a ruler. In this case the upper part of the guide may be left clear. The advantage obtained is that the lines already written remain completely visible. To use the guide of Fig. 7, it is simply placed upon the book, register, sheet of paper, &c., upon which it is desired to write, and it is moved on each time that the series of lines for which it is intended is finished. This guide is particularly adaptable to the kinds of writing having differently-sized types or characters and the distances between the letters whereof has to be guessed at, which anyhow is not at all difficult. Made to the size of a whole page, this guide is very practical, inasmuch as a special device is not needed to produce the white interlines and that the guide can be used everywhere. Guides of this kind may also be used the edges of the slots whereof are provided with teeth but a trifle shorter than the preceding models. In order that the too light guide be not shifted while in use, it can be fixed to a heavy frame *r r*, Fig. 10. In this case the guide, if it only comprises one line, is moved line by line along the sides *g g*, extended and bent to right angles and furnished with a scale, or the guide and frame *r r* are moved after each line the space between two lines in order that each time a division coincides either with the upper edge of the book, sheet of paper, a line already written, or with a mark made for that purpose, the extended ends *g g* of the frame *r r* can be pivoted to the latter and in this case can be folded back when not required. Another device for producing the spacings is shown in plan view in Fig. 11 and in section at Fig. 12. In this device the guide *f* is fixed by means of two arms *g g* to the spindle *u* of a rotary regular prism *h*, having four to eight sides. The width of the lateral sides of the prism should correspond to the spacing between the lines which it is desirable to obtain. If this prism be rolled without being lifted off the paper upon one of its sides, so as to cause the next side to bear upon the paper, the guide *f* will be at the time advanced the space between two lines. To prevent the prism slipping, it is made of a heavy metal either having a rough surface or provided with a coating of india-rubber either totally or at both ends only. Short needle-points may also be arranged radially at the ends of the prism and which will be slightly pressed into the paper by the weight of the prism and will quite prevent any accidental shifting



of the prism or guide. When it is required to write the bottom lines, the whole device may be turned round, so that the prism is at the top and the guide at the bottom. Another device for producing the spacings particularly advantageous when writing upon a sheet of paper consists in fixing the guide upon a special base-block *pp*, Fig. 13. The sheet of paper is then placed between the guide *f* and the base *pp*, and its left-hand edge is fastened in a rod *l*, having a trapezoidal form, which, sliding in a guide of the base, serves to guide the paper in a straight line. This rod is furnished with a scale (not shown in Fig. 13) and is moved on from division to division in front of a fixed point marked upon the base. The tightening of the paper can also be effected by lifting up an inner plate *x* by the rotation of an eccentric spindle *z* by the button *w* and which plate tightens the paper against the cover of the rod *l*. This latter may be provided with teeth according to the spaces between the lines and be stopped at each division by a spring. To facilitate the introduction of paper, the outer edges of the guide are bent upwardly and the edges of the base are chamfered. In order that the position of the paper may be better controlled when the first and last lines are written, the wide guides are furnished with square openings *o*. With a guide fixed upon a special base *pp*, Fig. 13, the forward motion of the paper to produce the spacing can also be obtained, as in a great many type-writing machines of simple construction, by means of two india-rubber rollers *s* and *v*, as shown in section by Fig. 14. A spring *t* stops the paper at each line and regulates its forward motion of one space at each operation.

As hereinbefore stated, the writing appliance can be used in some cases entirely without guides, such as for calculating, rough copies, and quick writing. Anyhow in this case the distance between the types or the

curve of the surface for types must be larger. It is very possible that after long practice the guides may be quite dispensed with. Their use is necessary at the beginning to obtain writing which is clear and quite regular.

Figs. 4 and 5 of the annexed drawings show two means of fixing the types to the ribs slightly differing from that shown in Figs. 1, 2, 3. Of these two means that like Fig. 5 is particularly advantageous for writing without guides. In these cases the inscriptions for the letters can be placed upon the sides of the ribs, as in Fig. 5.

The types are inked by pressing the appliance upon a concaved inking-pad, a section of which is shown in Fig. 6. The curve of this pad should correspond to that of the type-surface of the appliance, and its size should be such that all the types are inked at a single pressure. Long and narrow pads may be arranged upon both sides of the slot *n* of a single-line guide. In this case at the impression through the slot of each type six neighboring types come in contact with the inking-pads and are inked—*i.e.*, if the types are properly arranged, (in zigzag fashion.)

Having now fully described my said invention, what I claim, and desire to secure by Letters Patent, is—

A writing appliance comprising a calotte with the types arranged in curves thereon at sufficient intervals so that each type may be printed separately and independently from the others, said calotte being formed so that the types are readily visible, and a handle in the center of curvature of said calotte, substantially as shown and described.

In testimony whereof I have hereunto set my hand in presence of two witnesses.

JAAN JAAKSON.

Witnesses:

V. MELICHMANN,  
F. WEISS.