Oct. 14, 1924. 1,512,001

J. ČERNÝ

SHORTHAND TYPEWRITING

Filed March 1, 1921

Fig. 1.

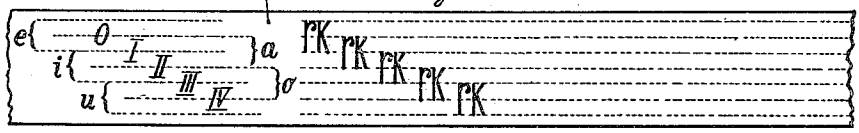

Fig. 2.

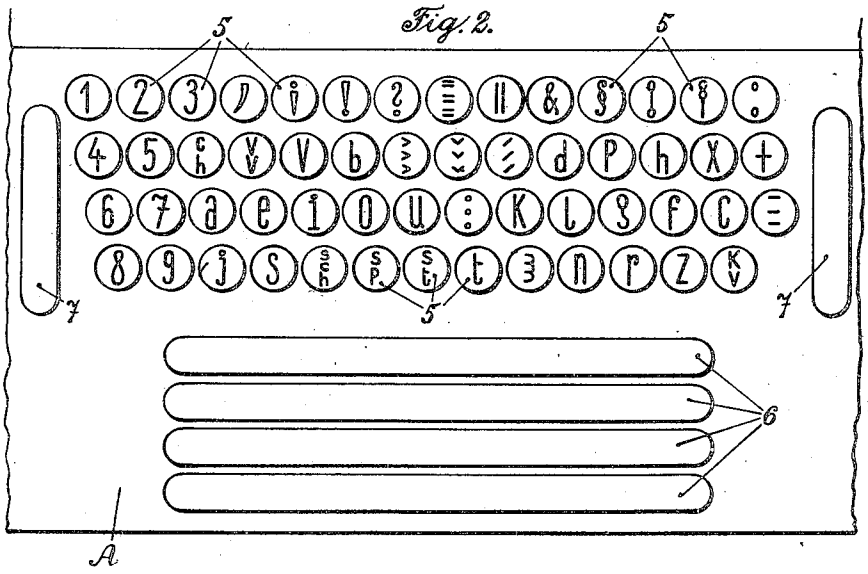

Fig. 3.

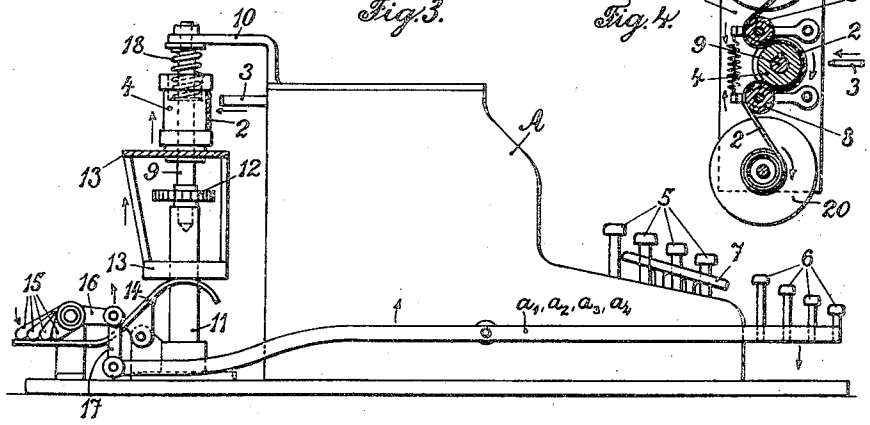

Fig. 4.

Witnesses:
Miloslav Hruby
Josef Novák

Inventor
Jan Černý

Patented Oct. 14, 1924. 1,512,001

UNITED STATES PATENT OFFICE.

JAN ČERNÝ, OF PRAGUE, CZECHOSLOVAKIA.

SHORTHAND TYPEWRITING.

Application filed March 1, 1921. Serial No. 448,892.

To all whom it may concern:

Be it known that I, JAN ČERNÝ, a citizen of the Czechoslovak Republic, residing at Prague, Czechoslovakia, have invented certain new and useful Improvements in Shorthand Typewriting, of which the following is a specification.

My invention refers to the art of typewriting and more particularly to a method of shortened and consequently more-rapid typewriting and to a typewriting machine suitable therefor, which by means of abbreviations will enable typewriting to be effected with the same speed as shorthand writing, while at the same time words and sentences so written will be perfectly clear and legible to everybody.

In the drawings affixed to this specification and forming part thereof a typewriter embodying my invention is illustrated by way of example.

In the drawings:

Fig. 1 is a diagram disclosing the novel method of writing, while

Fig. 2 is a plan view of the keyboard of the typewriting machine,

Fig. 3 a pertinent side elevation, and

Fig. 4 a plan view of the paper feed mechanism.

Referring to the drawings, the improved method of abbreviated or shorthand typewriting consists in the vowels being omitted from the syllables and being graphically expressed by the peculiar position of the consonants belonging thereto. The machine writes on five lines, of which the first (indicated by O in Fig. 1) forms the base, while the remainder (I–IV in Fig. 1) are staggered relatively to the base line by one-half the height of each type. As will be observed by reference to Fig. 1, the base line O in the example illustrated appertains to the vowel "*e*", line I to "*a*", line II to "*i*" or "*y*" respectively, line III to "*o*" and line IV to "*u*". The writing is effected on a narrow paper strip 2 which is only slightly broader than the five-line system above explained. The strip 2 is guided by suitable means straight in front of the types 3 of the machine and is fed forward when writing by an appropriate feed mechanism.

In order to enable the vowels to be graphically expressed by the staggered consonants, the paper strip 2 along with the guide and feed mechanism appertaining thereto must be shifted according to requirement relatively to the types 3. This is accomplished by the paper strip together with the guide and feed mechanism being arranged to be adjustable in a perpendicular sense, the adjusting being effected by aid of four levers a_1, a_2, a_3, a_4, each of which corresponds to one of the lines I to IV.

The keyboard of the machine (Fig. 2) comprises fifty-five keys 5, representing Roman letters. Arabic numerals and the customary marks of accent and punctuation. All the type 3 are of equal height and breadth, say, for example 6 × 2 mm.; to carry this through, certain broad characters are given a suitable shape, such, for example as the letter *m* which is positioned endwise whereas the diphthongs are placed the one underneath the other. No difference is here made between capital and small letters.

If a certain letter is to be read as a vowel, then the said letter is written on the base line. The same likewise applies to numerals and other symbols or characters. However, it always wants to be remembered that the base line of the system at the same time graphically represents the vowel *e* and the remaining lines in their turn the vowels *a*, *i* (*y*) *o* and *u*, respectively. All the letters may obtain on all the lines the special value of a vowel. Full stops, semicolons, commas, and the like symbols, are represented on the type so many times until they correspond to the entire height of the type. In such cases, where writing by aid of a graphical representation would not prove sufficiently clear and reliable for example, when writing proper names and foreign words, then the respective word or sentence may be written out in full on the base line in the usual manner, so that the typewriting machine constructed in accordance with my invention may, in case of requirement, also be employed as an ordinary typewriting machine.

On the paper strip 2 illustrated in Fig. 1, the abbreviation shown by way of example is "rk" which when read on the base line O may either be "rk" or "rek", while when read on line I it is "rak", on line II: "rik" or "ryk", on line III: "rok" and on line IV: "ruk". Commas and semicolons are only employed in exceptional cases, where a mistake might otherwise be apt to arise.

For the purpose of effecting the transverse displacement of the paper strip 2, there are

provided four lifting levers a_1, a_2, a_3, a_4, for each of which there is arranged below the keys 5 an elongated key 6, the said keys 6 being disposed in juxtaposition at the place where in the existing type of machines there is provided only a single long key for the longitudinal displacement of the horizontal paper cylinder for the purpose of spacing the words or symbols.

For this particular purpose of spacing there are provided in accordance with my invention two keys 7 serving to longitudinally displace the paper tape 2. These keys 7 are likewise elongated, and arranged transversely at either side of the keyboard 5.

The spacing keys 7, as also the shifting keys 6 (Fig. 2) are arranged relatively to the keyboard 5 in such a manner that the shifting keys 6 may be readily manipulated by the thumbs of both hands, and the spacing keys 7 by the two little fingers, so that the remaining six fingers may be employed for purely writing purposes, i. e. to operate the type-keys 5.

In the machine disclosed in Figs. 3 and 4, the paper strip 2 is conducted across a feed cylinder 4, adapted to rotate about a perpendicular axis, and pressed against the periphery of said cylinder by aid of two laterally disposed, spring-actuated rollers 8. The feed roller 4 is keyed so as to be perpendicularly displaceable, on to a revoluble shaft 9 secured against axial displacement by the frame 10 and the support 11. Shaft 9 is rotated by means of a ratchet device 12 actuated by the type-carrying and spacing levers. The support 11 and shaft 9 are embraced by two supporting plates 13, spaced apart by suitable struts and displaceable in the perpendicular direction by the curved end of a double armed lever 14 acted upon by a plurality of tappets 15 of different size which are connected to the four shifting levers a_1, a_2, a_3, a_4 by means of arms 16 and connecting rods 17. The arrangement being such that one of said tappets 15 is connected to always one of the said feed levers, and causes a predetermined oscillation of the lever 14 and a corresponding perpendicular displacement of the supporting plates 13. These latter carry the displaceable cylinder 4 which is forced down upon them by a spring 18 serving to press both the cylinder 4 and the supports 13 down again after they have been raised by the lever 14.

The system of levers employed in connection with the printing types 3 is of the customary construction and arrangement and is preferably provided with an inking pad for the types, the use of an inking ribbon not being advisable in connection with this machine owing to the loss of time thereby entailed. However, the arrangement may also be so modified as to allow of an inking ribbon being disposed in front of the paper strip and fed forward conjointly therewith.

The paper strip 2 slowly rolls off from a cylinder 19 and on to a cylinder 20 operated simultaneously with the feed cylinder 4. Both cylinders 19, 20 are arranged to rotate on the support 13 and are adapted to be displaced perpendicularly conjointly with the cylinder 4.

Instead of keys a_1 to a_4 serving to displace the feed roller 4 by means of the thumbs, use may also be made of pedals actuated by the feet of the operator and suitably connected to the machine. In the like manner, in the place of the mechanism serving to displace and feed forward the paper strip, any other suitable device may be employed.

The keyboard illustrated in Fig. 2 is adapted for writing in Czech and in German. If the machine is to be used for writing in any other language, then the keyboard will have to be suitably changed; thus for French the types carrying the letters *sch*, *sp*, *st* will be replaced by the letter *y* and the sound combinations *gn* and *ll*; for English again the said letters will be substituted by *y*, *sh*, and *th*. Similarly, the rules governing the abbreviations to be effected will have to be specially devised for each particular language.

By employing the method and machine hereinbefore explained it will be found that the operation of typewriting is considerably simplified and its speed vastly accelerated, while at the same time the writing will be readily legible, after a short explanation even to persons not skilled in the art, so that this improved method of abbreviated writing may be advantageously employed in the place of shorthand writing as now customary.

I claim:

1. In a typewriter in combination, a plurality of types adapted to be alternately carried forward, a cylinder in front of said types adapted to rotate about a vertical axis and to support and shift longitudinally, a paper strip extending between said types and said cylinder and means for axially displacing said cylinder together with said strip to four different levels.

2. In a typewriter in combination, a plurality of types adapted to be alternately carried forward, a cylinder in front of said types adapted to rotate about a vertical axis and to support and shift longitudinally, a paper strip extending between said cylinder and said types, means for pressing said strip onto the circumference of said cylinder and means for axially displacing said cylinder together with said strip to four different levels.

3. In a typewriter in combination, a plurality of types adapted to be alternately carried forward, a cylinder in front of said

types adapted to rotate about a vertical axis and to support and shift longitudinally, a paper strip extending between said cylinder and said types, lateral rollers serving to press said strip onto the circumference of said cylinder, four levers for causing said strip to move longitudinally and a plurality of keys, each being adapted to axially displace said cylinder and strip to a different level.

4. In a typewriter in combination, a plurality of types adapted to be alternately carried forward, a cylinder in front of said types adapted to rotate about a vertical axis and to support and shift longitudinally, a paper strip extending between said types, lateral rollers serving to press said strip onto the circumference of said cylinder, means for causing said strip to move longitudinally, a plurality of keys disposed in front of the machine, each key being adapted to axially displace said cylinder and strip to a different level and transverse keys, one on each side of the machine, for influencing the longitudinal movement of said strip.

5. In a typewriter in combination, a plurality of types adapted to be alternately carried forward and a plurality of keys for moving said types into printing position, means for displacing a strip of paper longitudinally in front of said types, means for alternately shifting the strip in transverse direction into one of four different positions, a paper feeding key on each side and four paper shifting keys disposed in front of said type moving keys.

6. In a typewriter in combination, a plurality of types adapted to be alternately carried forward and a plurality of keys for moving said types into printing position, means for displacing a strip of paper longitudinally in front of said types, means for alternately shifting the strip in transverse direction into one of four different positions, a paper feeding key on each side and four paper shifting keys disposed one behind the other in front of said type moving keys.

In testimony whereof I affix my signature.

DR. JAN ČERNÝ.

Witnesses:

MILOSLAV HRUBY,

RUDAZ SOUSEK.