N. LALLIÉ.

TYPEWRITER.

APPLICATION FILED JUNE 26, 1918.

1,329,087.

Patented Jan. 27, 1920.

2 SHEETS—SHEET 1.

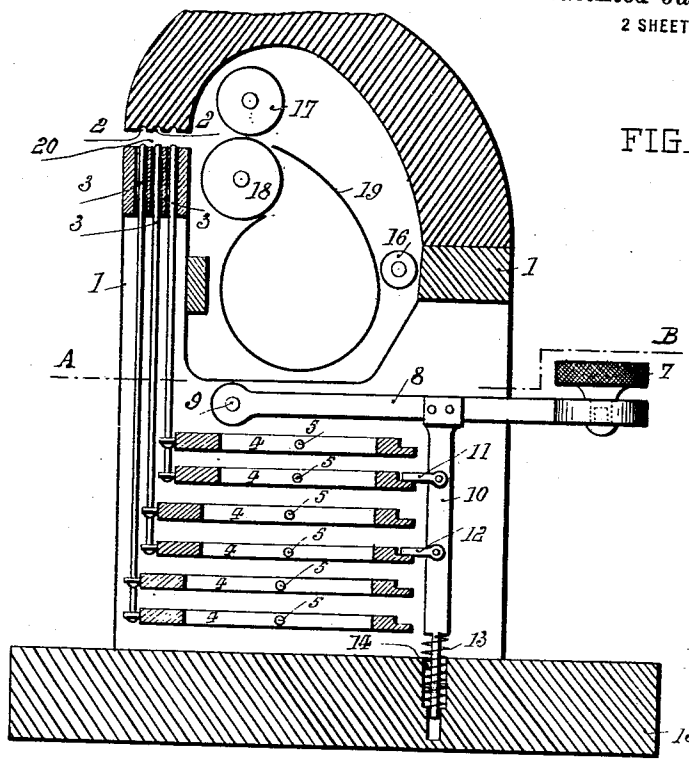



FIG. 1.

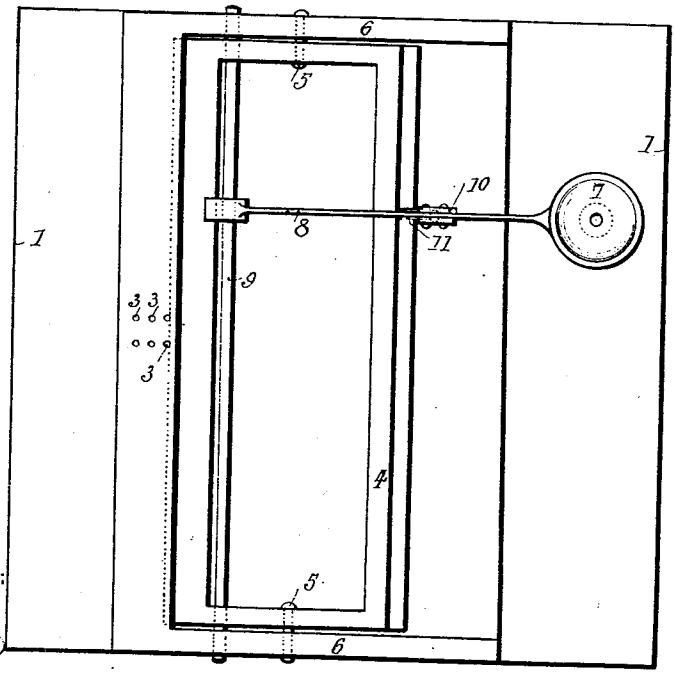



FIG. 2.

WITNESSES:

E. Fauge'

INVENTOR:

N. Lallié

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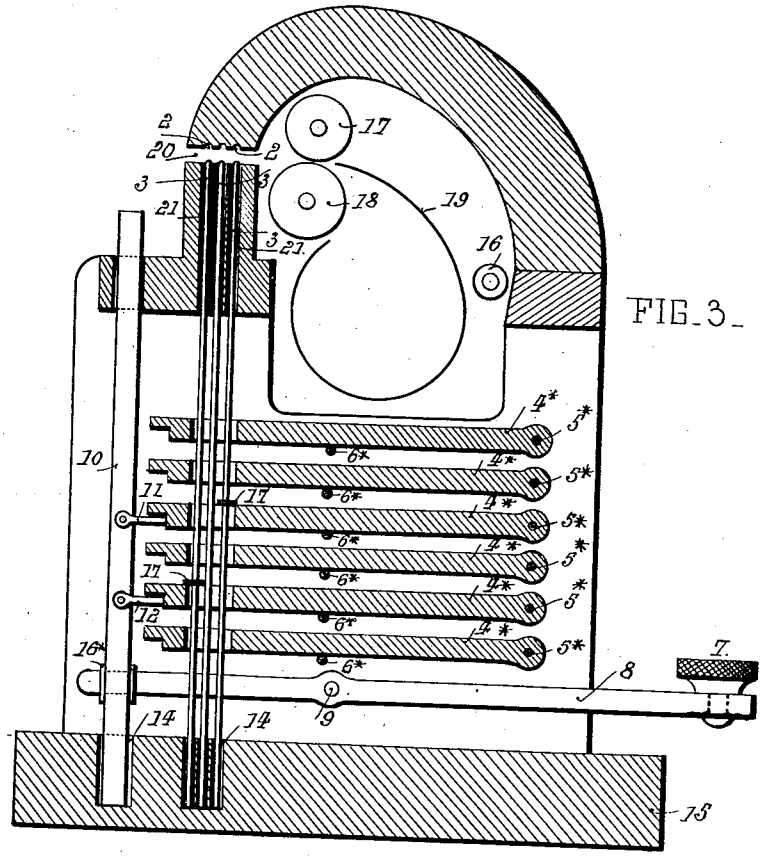



FIG. 3.

WITNESSES:

E. Fauge

INVENTOR:

N. Lallié

# UNITED STATES PATENT OFFICE.

NORBERT LALLIÉ, OF NANTES, FRANCE.

## TYPEWRITER.

1,329,087. Specification of Letters Patent. Patented Jan. 27, 1920.

Application filed June 26, 1918. Serial No. 242,092.

*To all whom it may concern:*

Be it known that I, NORBERT LALLIÉ, a citizen of the French Republic, residing at 12bis Rue du Baccage, Nantes, Loire-Inférieure, France, have invented new and useful Improvements in Typewriters, of which the following is a specification.

My invention relates to typewriters for printing "Braille" characters or analogous characters for the blind. Such machines sometimes have 6 keys to each letter which operate as many points or punches to produce a relief impression on the sheet.

The writing on such machines necessitates the simultaneous movement of from 1 to 6 fingers for an impression of a single letter. Other apparatus exist in which the depression of a single key produces the raised dots representing each letter.

The object of this invention consists in an improved and new construction of the latter kind of apparatus in which the known frame-levers, or plates, are superposed and operated by a comb connected with the type keys, said frame-levers forming the direct actuating elements of the points or punches, they being of uniform size and pivoted on separate pivots.

The machine therefore comprises:

(1) 6 movable points (1 point for each in the Braille writing).

(2) As many superposed movable frames or rectangular plates as points. Each frame or plate oscillates on a separate axis and each point is displaced at same time with the corresponding frame.

(3) Movable combs in equal number to the letters or signs to be printed, and serving to operate said frames or plates. Each of these combs is operated by a type lever provided with a key carrying the letter or sign to be impressed and distributes the necessary effort to the points to produce the relief impression. These combs carry from 1 to 6 teeth and each of the latter moves with the comb when the key is depressed, and presses on a blade of the frame or plate corresponding to each of the points required.

The comb can be made so as to act by means of its teeth in upward or downward direction on the frames which move the points or punches.

The diagrammatic figures of the annexed drawings show these different applications:

Figures 1 and 2 show a longitudinal section and plan on A—B of such a typewriter, in which the teeth of the comb press downwardly on the frames and in consequence move the points fixed thereto;

Fig. 3 shows in section a modification in which the frames are operated by a lifting motion.

In these drawings of Figs. 1 and 2, 1 is the cover of the machine which carries a metal piece provided with recesses or cups 2 against which the points 3, fixed to the frames 4 articulated on an axis 5 between the side plates 6 of the machine, abut or press onto the paper.

The key 7 on lever 8 articulated and oscillating around the shaft 9 fitted between the sides 6, actuates under pressure of the finger, the comb 10 attached to the lever 8 and carrying the teeth 11, 12 which depress the frames 4. It operates, by the pressure of one finger, the second and fourth frames as will be seen from the drawings.

The comb 10 carries at its base a plunger moving in a recess and raised by a spring 13 fitted in the recess 14 of the base 15 of the machine.

The cylinders 16, 17, 18 and the spring guide 19, for the carriage guide the paper which passes out at 20. The carriage and its controlling mechanism are well known and need not be described.

In the modification, the cylinders 16, 17, 18 and the spring-guide 19 again serve as guide for the carriage and the paper which passes to the opening 20 beneath the cups 2 which receive the points 3 passing through the guides 21 of the cover of the machine.

The frames 4* in Fig. 3 are pivoted on separate pivots 5* mounted in the sides of the machine and have supporting rods or shafts 6* on which they repose.

The key 7 on lever 8 which is pivoted to and oscillates about the shaft 9 actuates under the pressure of the finger, the comb 10 in engagement with lever 8 and carrying the teeth 11, 12 for lifting the frames 4*. It actuates by the pressure of one finger, the third and fifth frames, as shown in the drawings.

The points 3 and the comb 10, moving freely in the sockets or recesses 14 of the base 15 of the machine, are operated, so as to lift, by the key 7 through the lever 8 secured to the comb 10 at 16*, and the frames 4* acting against tappets 17 secured to the points 3.

In the several figures, a single touch and a single lever have been shown instead of the 63 levers necessary for a complete keyboard, for the sake of simplicity.

I claim:

In a typewriter for Braille or analogous characters, superposed pivoted frames, operating keys and type-levers, a comb controlled by these levers, teeth provided on said comb acting on said frames, and points, for producing the Braille characters, operated by the frames.

N. LALLIÉ.