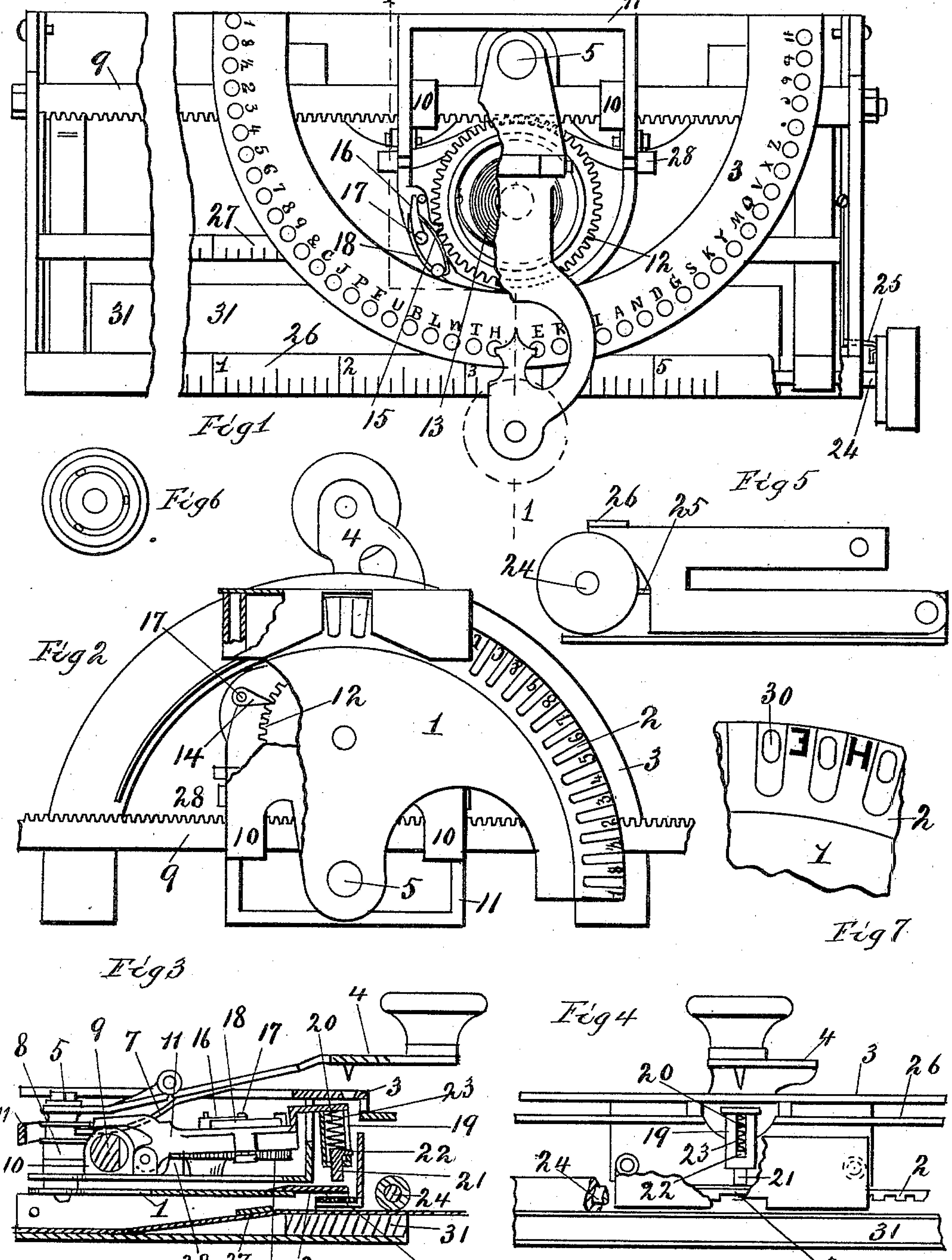
(No Model.)

S. SWEET, O. C. HOFFMANN & F. SANDERSON.

TYPE WRITING MACHINE.

No. 427,637. Patented May 13, 1890.



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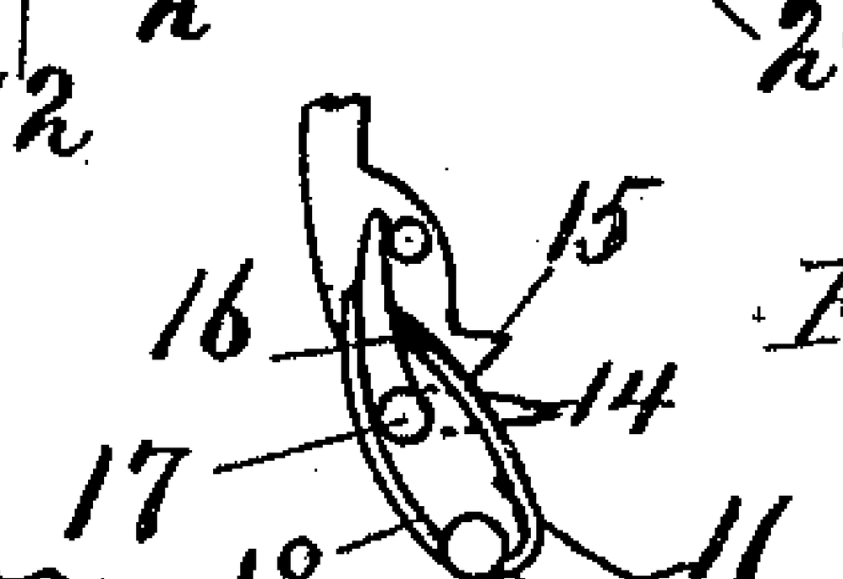

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STEPHEN SWEET AND OTTO C. HOFFMANN, OF CHICAGO, AND FREDERICK SANDERSON, OF PROSPECT PARK, ILLINOIS; SAID SWEET AND HOFFMANN ASSIGNORS TO SAID SANDERSON.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 427,637, dated May 13, 1890.

Application filed July 29, 1889. Serial No. 319,093. (No model.)

To all whom it may concern.

Be it known that we, STEPHEN SWEET and OTTO C. HOFFMANN, of Chicago, Cook county, Illinois, and FREDERICK SANDERSON, of Prospect Park, Du Page county, Illinois, have invented certain new and useful Improvements in Type-Writing Machines, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

In the drawings, Figure 1 is a top plan view of our improved type-writing machine. Fig. 2 is a bottom plan view of the movable carriage detached from the machine and partly broken away to show some of the operative parts. Fig. 3 is a cross-section taken on the broken line 1 1 of Fig. 1. Fig. 4 is a detail front elevation of the central part of the movable carriage and stationary frame, partly broken away. Fig. 5 is a view of the line-feed device. Fig. 6 is an elevation of the line-feed roller. Fig. 7 is a detail bottom plan view of a part of the rubber type-segment. Fig. 8 is a plan view of the pawl-lever and its spring.

The following is a description of the parts of the machine: 1 is the type-carrying segment; 2, a segmental piece of rubber secured to segment 1 and having letters, figures, and characters for printing formed on its under side; 3, an index-plate secured to the top of the movable carriage, and having marked upon its upper surface letters, &c., corresponding to those on the rubber above described. The lever 4 and the segment 1 are rigidly mounted on the post 5, which is journaled in a part of the frame on which the movable carriage is operated. This lever is made in two sections, which are hinged together. Rigidly secured to the lower side of the front section is the forked lever 7, which passes under a collar on the sleeve 8, loosely surrounding the post 5.

9 is a ratchet-bar rigidly secured lengthwise in the frame which supports the movable carriage. Two collars 10 10 encircle this, so as to slide upon it. A frame 11 is secured to these collars on their outer sides, and is rigidly secured to the sleeve 8 at its back. The ratchet-wheel 12 is pivoted on the frame supporting the movable carriage, so as to engage with the ratchet-bar. The coiled spring 13 is secured within this wheel to the wheel and its pivot. The pawl 14 is pivoted in one side of the frame 11, at the under side of the same, at such a point that it will engage with the wheel 12.

15 is a pawl rigid with the frame 11 on its inner and upper edge, placed at a point back of pawl 14 a distance equal to the width of one cog of wheel 12, so as to engage with wheel 12 whenever pawl 14 becomes disengaged.

17 is the pivot upon which pawl 14 is secured. A short lever 16 is rigidly secured to the top of said pivot and rests upon an arm of frame 11. A spring 18 is designed to actuate said lever. A tube 19 is rigidly secured to the center of the frame 11 on its lower side. It is formed with the slot 23 ending a little short of its lower end, and it contains the coiled spring 20. In its lower part the plunger 21 is inserted. This is retained by its pin 22, extending through the slot.

The thumb-piece of the line-feed 24 is formed with a groove running about its inner face and with holes made in this groove at a distance from each other equal to the desired space between lines. The spring-dog 25 is secured at one end to the frame, so that it will drop into these holes as the feed-roll is revolved, thus indicating when the proper space has been described for another line.

The parallel index-bars 26 and 27 are secured, the former to the frame supporting the movable carriage, the latter to the lowest part of the machine. A spring 28 acts upwardly upon the frame 11. The ink-pad 29 is formed with a slot in the middle to permit the plunger to force the types down upon the paper one at a time, and it is secured beneath the center of the index-plate to the carriage. Oval holes 30 are made between the letters in the rubber type-segment, to increase the facility of the downward movement of the types. A tablet 31 is secured upon the bottom of the machine to support the paper upon which printing is being done. The feed-roll is placed just above this.

The following is a description of the operation of the machine: The sheet of paper is

passed in beneath the line-feed roll till its edge is below the bar 27. It is then ready to receive impressions from the types. Now, placing the lever 4 above the desired letter on the index-plate, press down upon its front end. This action will depress the front end of frame 11, and with it the tube 19 and the plunger 21, the latter being thus pressed down upon the rubber type-segment over the desired letter which it will print upon the paper. The same action will also raise the rear end of the frame 11. As shown above, frame 11 is fast on collars 10 10, and is rigidly secured to sleeve 8. Forked lever 7 engages with the collar on sleeve 8, and is actuated by the movement of the front section of lever 4, the hinge in the latter being the common fulcrum of the two former; hence when the front end of the lever 4 is depressed the rear end of the frame 11 is raised and its front end depressed. Thus the pawl 14 will be disengaged from the wheel 12 and will be thrown backward by the action of the spring 18. The wheel will revolve by the action of the spring 13, but will be stopped by the pawl 15 as soon as it has turned through a space equal to the width of one cog. Thus a letter is printed and the carriage advanced a space and made ready for the printing of another letter by means of the single movement of the hand. Releasing the pressure on lever 4, frame 11 will be returned to its original position by the action of the spring 28, pawl 15 will be disengaged, and pawl 14 will engage with the next cog of wheel 12. When a line is finished, the line-feed roll is turned by hand until the spring-dog 25, leaving the hole in which it has been resting, drops into the next hole. The spring 20 is employed in the tube 19, so as to give elasticity to the pressure of the plunger 21. The bars 26 and 27 are marked in corresponding scales. Whenever a wrong letter is printed, the carriage and its frame are lifted to see where such letter is in its relation to the scale on bar 27. The carriage is then moved till its center line is above the corresponding point on the scale of bar 26, when, it is obvious, the desired letter can be printed in its proper place. A space is left blank on the type-segment equal to the proper space to be left between words, and the corresponding point is of course indicated on the index-plate, over which the lever 4 is to be brought and depressed whenever a word has been finished.

What we claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a type-writer, the combination of a printing-lever formed in two sections hinged to each other, a forked lever rigidly secured to the front section, the sleeve 8, formed with a collar and fitting loosely on the pivot 5, the frame 11, secured rigidly to said sleeve, the plunger 21, and the sleeves 10 10 on the bar 9, substantially as and for the purpose stated.

2. In a type-writer, the combination of the frame 11, rigidly secured to the sleeve 8 and having its arms secured to the sleeves 10 10, the pawl 14, pivoted in an arm of frame 11, the lever 16, rigidly secured to the top of such pivot above said arm, wheel 12, ratchet-bar 9, the spring 18, secured so as to actuate said lever, and the pawl 15, integral with said arm, substantially as and for the purposes stated.

3. In a type-writer, the ratchet-wheel 12, pivoted on the frame which supports the movable carriage, in combination with the ratchet-bar 9, the coiled spring 13, secured to said wheel within the same and to its pivot, the pawls 14 and 15, frame 11, and the flat spring 28, secured beneath said wheel, so as to act upon the arms of frame 11, substantially as and for the purposes stated.

4. In a type-writer, the combination of the printing-lever 4, the type-bearing segment 1, the index-plate 3, frame 11, the tube 19, secured to the lower side of the said frame at its center line and formed with a slot extending nearly to its lower end, the coiled spring contained in said tube, and the plunger 21, inserted in the lower end of said tube and secured therein by its pin extending through the said slot, substantially as and for the purposes stated.

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