

No. 704,183.

Patented July 8, 1902.

D. W. FRATCHER.

ATTACHMENT FOR KEYBOARDS OF COMPOSING MACHINES.

(Application filed June 11, 1900. Renewed May 17, 1902.)

(No Model.)

2 Sheets—Sheet 1.

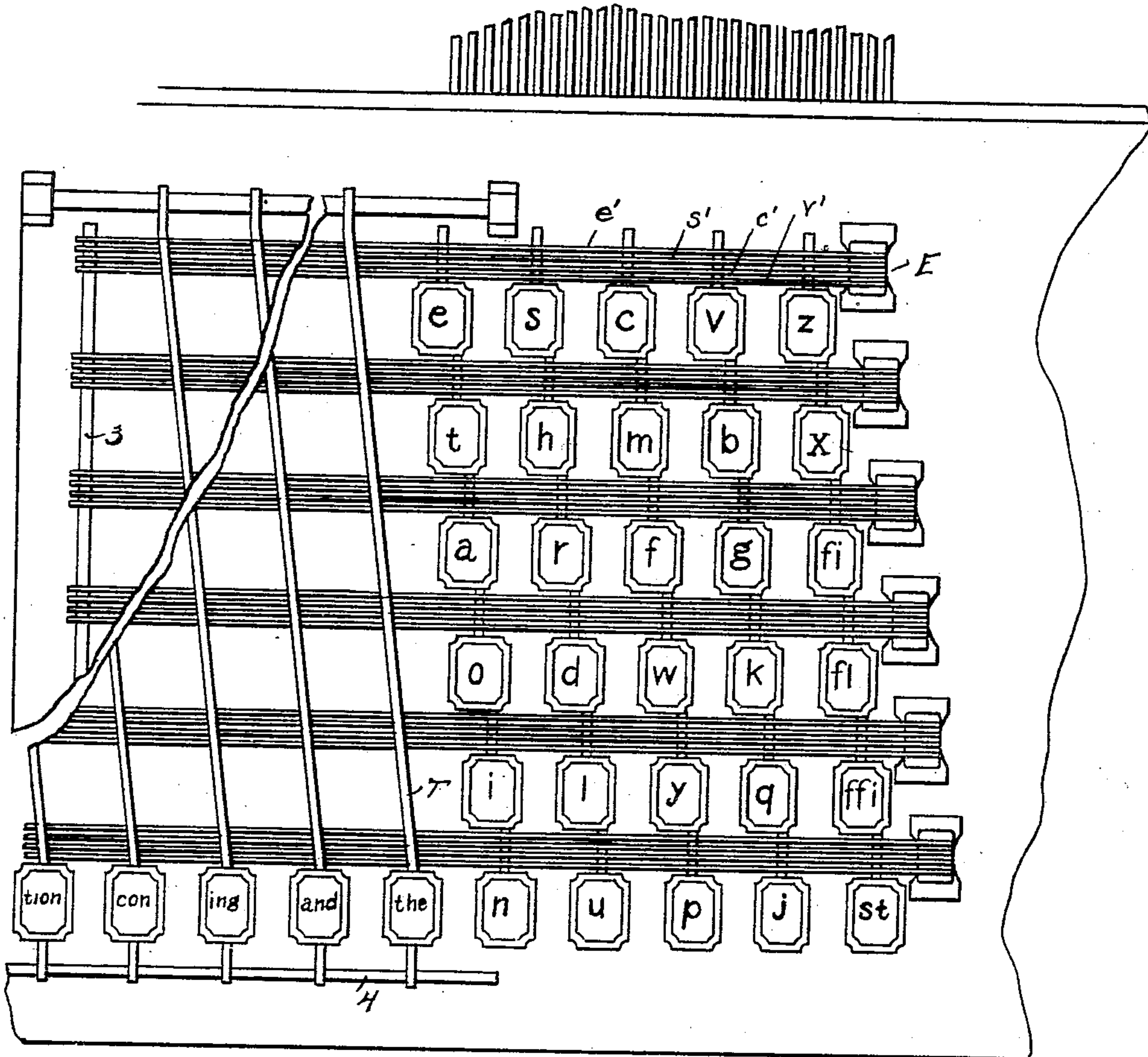


Fig. 1.

WITNESSES

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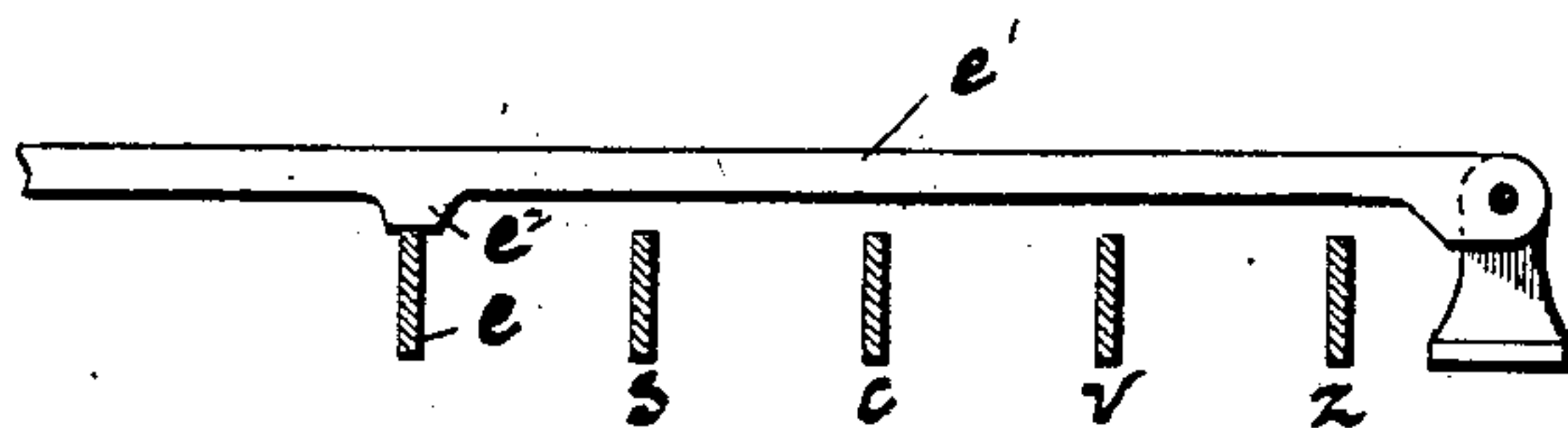


Fig. 2.

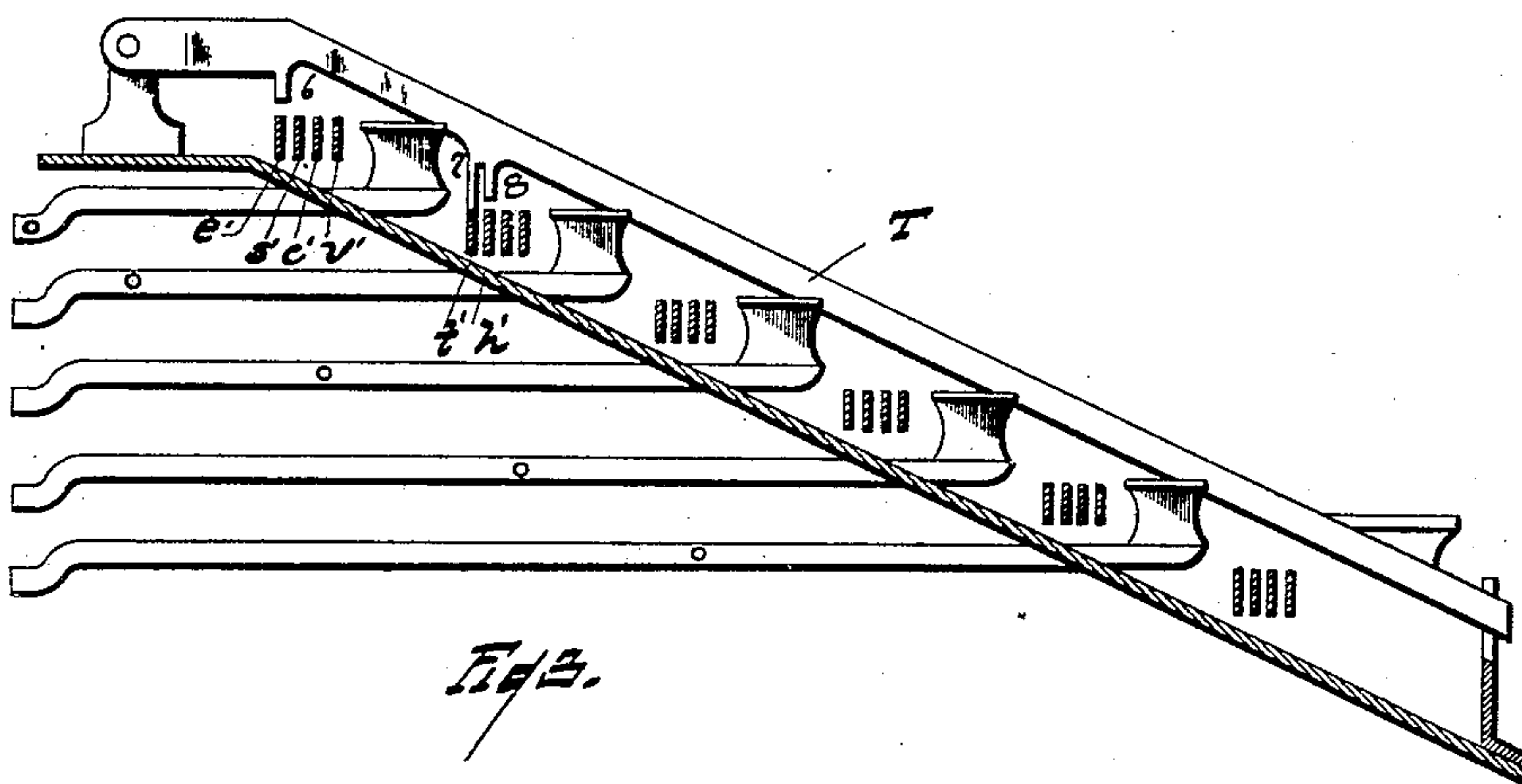


Fig. 3.

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DAVID W. FRATCHER, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-THIRD
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ATTACHMENT FOR KEYBOARDS OF COMPOSING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 704,183, dated July 8, 1902.

Application filed June 11, 1900. Renewed May 17, 1902. Serial No. 107,828. (No model.)

To all whom it may concern:

Be it known that I, DAVID W. FRATCHER, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have made a certain new and useful Improvement in Attachments to the Keyboards of Composing-Machines; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to composing-machines, and has for its object improvements in that class of machines in which either type or matrices are arranged in order by the use of a machine which is primarily operated by key-levers.

The particular object of the invention is to produce such an arrangement of levers that the operator may by the use of a single one actuate in proper order several of the actuating-levers which determine the composition of the type or matrices.

In the drawings, Figure 1 is a plan view of a part of the keyboard of a machine of the character to which this invention is to be applied, and the figure shows in plan the attachment which incorporates the invention. Fig. 2 is a side elevation of one of the auxiliary cross-levers of the invention. It shows in section four of the ordinary key-levers. Fig. 3 is a side elevation of the secondary auxiliary lever or secondary key, hereinafter called "word-lever," and it shows in section the several auxiliary levers shown in Fig. 1.

In order to distinguish between the several characters of levers used in the device, I will call the ordinary key-levers of the machine simply "key-levers" or "letter-levers," and the cross-levers I will call "intermediate" levers, and the secondary set of key-levers, which cross the intermediate lever, I will call "word-levers."

The word-levers may at each depression actuate such of the letter-levers as to set either a complete short word or a part of a long word.

In Fig. 1 there are shown only the lower-case key-levers (and the four compound-let-

ters "fi" "fl" "ffi" "st") and intermediate levers for the key-levers shown and word-levers for five words. The word-levers, however, may be multiplied indefinitely.

The ordinary key-levers I will indicate by the characters on the keys themselves, as key-levers *et*, &c. These key-levers are arranged in ranks, the five key-levers *e s c v z* being in one rank considerably higher on the machine than the next lower succeeding rank composed of the key-levers *t h m b x*. Across each rank and above the levers are placed four intermediate levers, (no intermediate lever for the compound type is shown, though such lever may be used, if desired,) and each of these levers is arranged to bear on one of the key-levers—as, for example, intermediate lever *e'* is provided with a depending leg or projection *e''*, that bears on the key-lever *e*—and the intermediate lever does not bear on either of the other key-levers of the rank to which it belongs. The leg *e''* is long enough to allow the intermediate lever *e'* to press down and actuate the key-lever *e* and actuate the discharging apparatus without actuating any of the other key-levers of the rank to which it belongs. The intermediate lever *s'* is provided with a leg which engages with the key-lever *s*, and in other respects it is entirely similar to the already-described intermediate lever *e'*. The levers *e'*, *s'*, *c'*, and *v'* are all hung on a fulcrum-bearing journal *E* and are all engaged at their free ends to a notched guide-bar 3. The notched guide-bar 3 holds the free ends from side motion, but allows the necessary vertical motion of the lever.

Across and above the intermediate levers are placed a number of word-levers. These word-levers may be hung at either end and are shown in the drawings as hung at the upper end, from which they reach diagonally downward to the front of the machine, and the free ends engage in a notched guide-bar 4. Each word-lever is provided on its under side with a number of downward projecting or hanging legs. These legs are shown at 6 7 8 hanging from the lever *T* and are arranged to bring the legs consecutively into engagement with the intermediate levers in the order in which the type or matrices are

to be assembled, and they leave or disengage from the key-levers consecutively in the reverse order. Thus the leg 7, which engages the intermediate lever t' , engages first and is followed by the leg 8, which engages the intermediate lever h' , and this is followed in order by engagement between the leg 6 and the intermediate lever e' .

The word-levers may be added to indefinitely, and enough word-levers may be readily applied to enable the workman to compose at a single stroke any one of the common words of the language, such as "the," "and," "but," &c., or the common prefixes or suffixes "con," "ing," &c.

What I claim is—

1. In a machine of the kind described, the combination of the key-levers lying parallel to each other, intermediate levers pivoted at one side of and extending across said key-levers, and word-levers pivoted at one side of the key-levers and of the intermediate levers, and extending across the free end of said intermediate levers beyond the key-levers, each of the word-levers being adapted to actuate a certain number of the intermediate levers, and each of the intermediate levers being adapted to actuate a certain number of the key-levers, substantially as described.

2. In combination with the keyboard of a composing-machine, the key-levers thereof, a word-lever, and intermediate levers interposed between the key-levers and the word-lever, the said word-lever being arranged to actuate the intermediate levers successively,

and the intermediate levers being arranged to actuate the key-levers in the order of their own actuation, substantially as described.

3. In combination with a keyboard of a composing-machine, key-levers, word-levers arranged at the side of the keyboard, and intermediate levers interposed between the key-levers and the word-levers, each intermediate lever being adapted to actuate a single key-lever, and each word-lever being adapted to actuate a plurality of intermediate levers, substantially as described.

4. In combination with the key-levers of a composing-machine, a plurality of word-levers, and a plurality of intermediate levers, each intermediate lever being arranged to engage with and actuate a single key-lever, and each word-lever being adapted to engage with and actuate a plurality of intermediate levers, substantially as described.

5. In combination with the keyboard of a composing-machine, a plurality of word-levers arranged in approximate parallelism with the key-levers, a plurality of intermediate levers arranged at approximate right angles to the key-levers and above the same and engaging under the word-levers, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

DAVID W. FRATCHER.

Witnesses:

CHARLES F. BURTON,
M. C. JENNINGS.