No. 740,680. PATENTED OCT. 6, 1903.

L. MYERS.

TABULATING DEVICE FOR TYPE WRITERS.

APPLICATION FILED MAR. 11, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

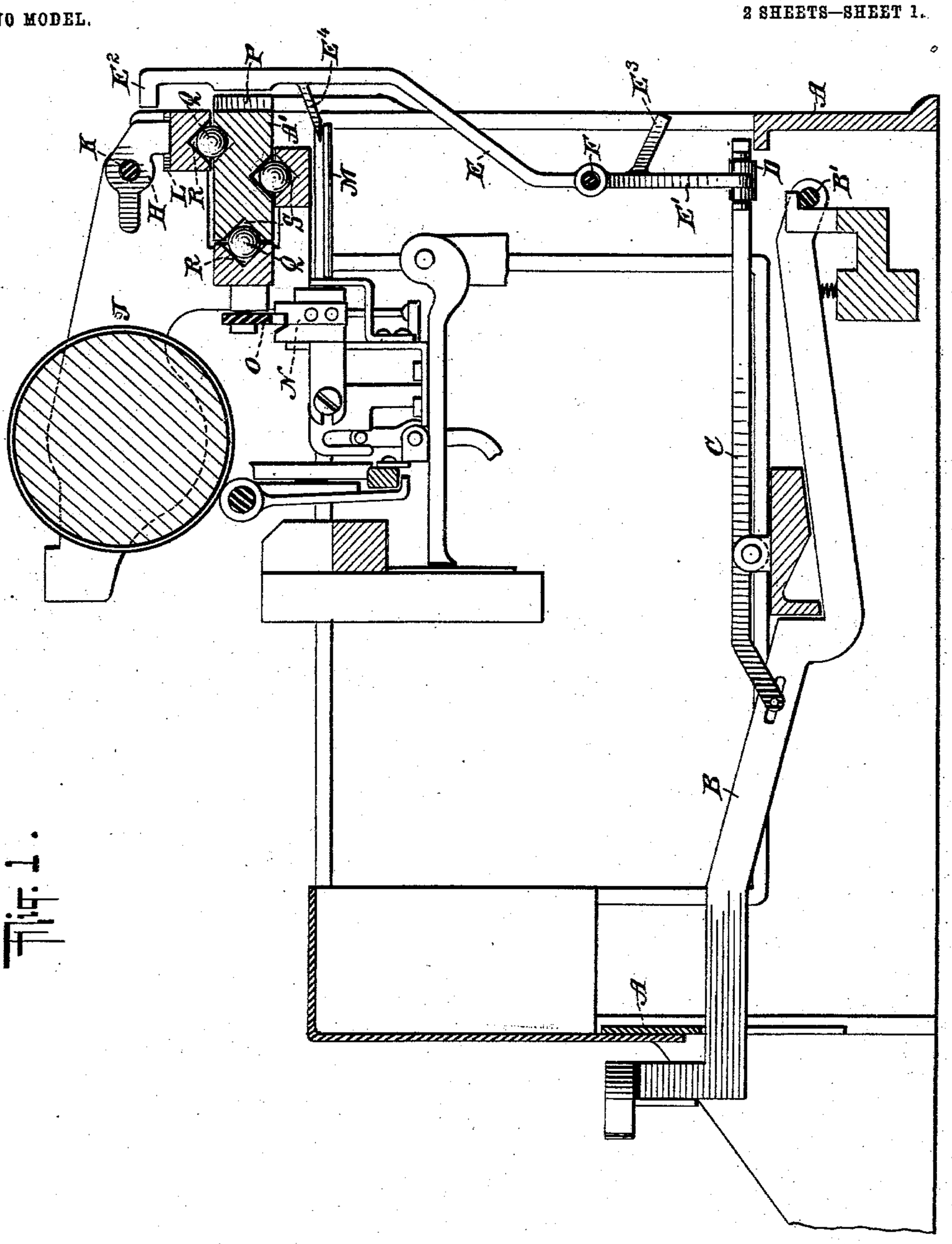

FIG. 1.

WITNESSES:

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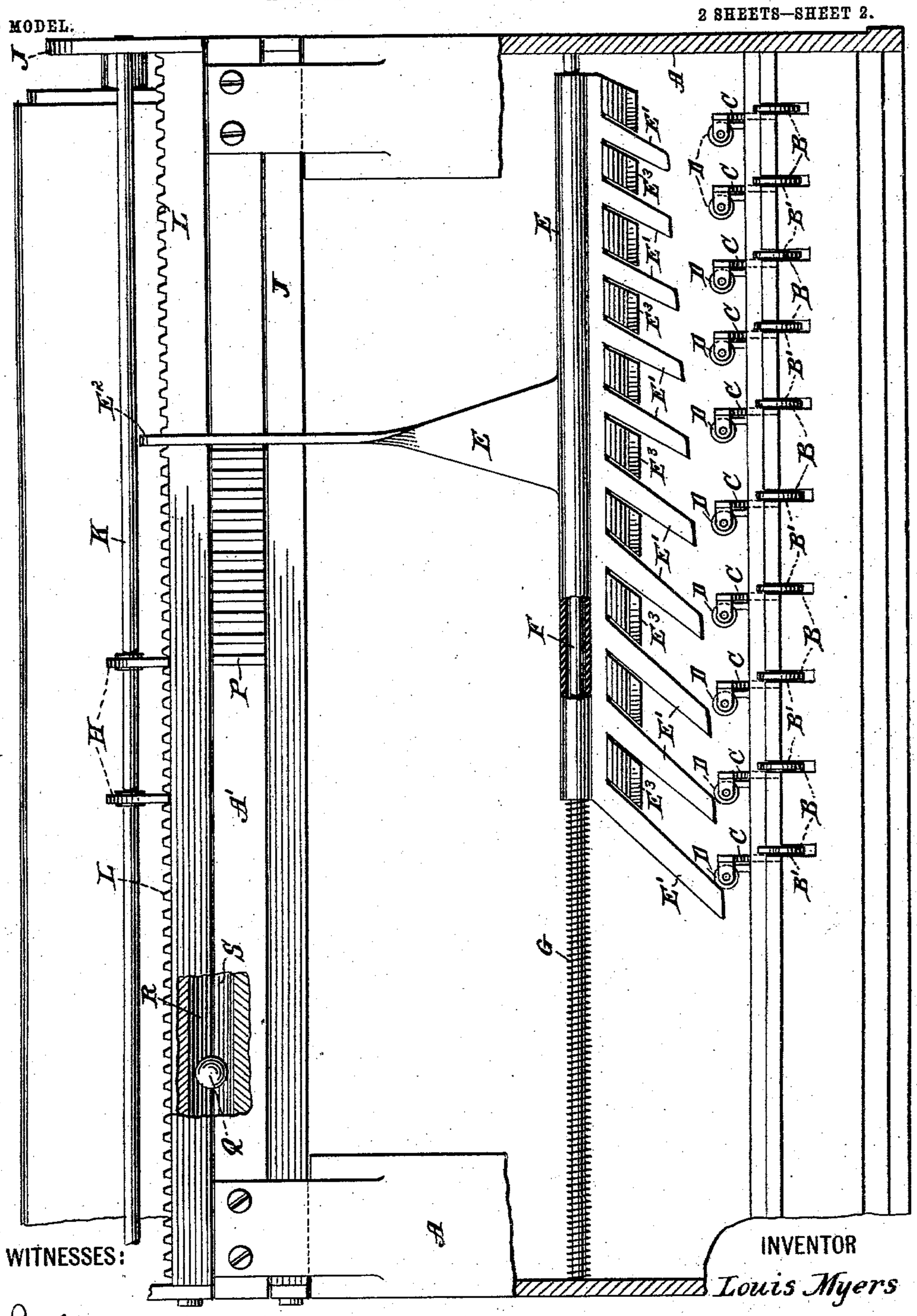
NO MODEL. 2 SHEETS—SHEET 2.

FIG. 2.



WITNESSES:

John A. Kehlenbeck.

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No. 740,680. Patented October 6, 1903.

UNITED STATES PATENT OFFICE.

LOUIS MYERS, OF HARTFORD, CONNECTICUT, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TABULATING DEVICE FOR TYPE-WRITERS.

SPECIFICATION forming part of Letters Patent No. 740,680, dated October 6, 1903.

Application filed March 11, 1903. Serial No. 147,301. (No model.)

To all whom it may concern:

Be it known that I, LOUIS MYERS, a citizen of the United States, and a resident of Hartford, Hartford county, State of Connecticut, have invented certain new and useful Improvements in Tabulating Devices for Type-Writers, of which the following is a specification.

My invention relates to devices used on type-writers and similar machines for the purpose of causing the carriage to jump to a predetermined point the position of which may be varied.

The object of my present invention is to provide a simple and efficient tabulating device.

One form of my invention will now be described in detail with reference to the accompanying drawings, and the features distinguishing my tabulator from prior ones will then be pointed out in the appended claims.

Figure 1 is a sectional elevation of a type-writing machine provided with my improvement, and Fig. 2 is a rear elevation with parts in section.

To facilitate a quick understanding of my tabulator, I will first briefly explain its principle. A series of tabulating-keys are employed by the actuation of which a tabulating-stop carried by the frame of the machine is moved to the proper position, (each key bringing the said stop to a different position.) The operation of the key also locks the tabulating-stop in its adjusted position, so that it may be rigid with the frame and able to receive without give the impact of the carriage jumping against said stop. Finally, the operation of any tabulating-key also releases the carriage from its feed mechanism or escapement.

In detail the device illustrated by the drawings is constructed as follows: Upon the frame A are suitably-arranged tabulating-keys B—for instance, keys pivoted at B′, ten of them, as shown. With each key is operatively connected, as by a lever C, a stop-actuating member D, movable vertically in the particular structure illustrated. The several keys and stop-actuating members are independent of one another, and each of said members is arranged to move against oblique arms E′, projected from the tabulating-stop E. This stop is mounted to move lengthwise of the carriage—that is, in the line of the carriage-feed—and for this purpose the stop E may be mounted to slide upon a stationary rod F, which it embraces or surrounds. A spring G tends to press the stop to one side, toward the right in Fig. 2. The stop is also capable of a movement transverse to the movement of the carriage—for instance, by being pivotally mounted on the rod F—for a purpose stated hereinafter.

The prongs or arms E′ are differently placed in relation to the corresponding members D, so that equal upward movements of the several actuating members D will produce different movements of the stop E lengthwise of the rod F. Thus the operation of the second key may shift the stop twice as much as the operation of the first key, while the other keys will shift the stop three, four, five, &c., times as far as the first. The unit of this displacement is equal to a letter-space. To reduce friction, the actuating members D may be formed as rollers.

The arms or prongs E′ may be called "positioning" members, inasmuch as (in conjunction with the keys B) they determine the position of the stop E lengthwise of the rod F. The upper portion of the stop E is provided with a projection E^2, which forms the tabulating-stop proper and is adapted to extend into the path of one or more stops H, secured on the carriage J in any suitable manner. I have shown a rod K extending lengthwise of the carriage and a carriage-rack L parallel with said rod, the stops H being pivotally mounted on said rod and engaged between the teeth of the rack L to lock the carriage-stops in their adjusted position.

Normally the tabulating-stop proper, E^2, is out of the path of the carriage. To throw the stop E^2 into an operative position, I provide at the upper portion of each positioning member E′ a stop-throwing member E^3, preferably extending downwardly and rearwardly. These members E^3 may conveniently be formed by bending up the metal between the positioning members E′. Thus the upward movement of any one of the ac-

tuating members D will first shift the stop E lengthwise or position it and then swing the stop transversely about the rod F, so as to bring the tabulating-stop proper into the path of the carriage-stops H. This transverse movement of the stop is also utilized to release the carriage. For this purpose the stop carries a releasing member E^4, arranged to engage a bar M on the frame, which bar is operatively connected with the feed-dogs N of the escapement to move them out of engagement with the feed-rack O of the carriage. Any other suitable mechanism may be employed for releasing the carriage by the transverse movement of the tabulating-stop.

As soon as the carriage is released it jumps under the influence of its propelling-spring and brings one of the stops H against the tabulating-stop proper, E^2. In order that the tabulating-stop may be braced against the impact of the carriage I have provided a rack P on the frame, adjacent to the carriage, and the stop E when thrown forward is engaged with this rack, so that the impact of the carriage is borne largely by said rack instead of being transmitted to the lower portion of the stop E. The rack P forms a device for holding or detaining the tabulating-stop against longitudinal movement when said stop is in its active position.

In the drawings I have also illustrated a peculiar construction of the carriage-bearings. Three bearings are employed, each in a different horizontal and vertical plane—that is, no two of them are at the same level or superposed. These bearings may comprise balls Q, mounted to roll in V-grooves R of the carriage and in corresponding grooves S of the frame portion A′.

It will be understood that by depressing one of the keys B the carriage is caused to jump to the proper position to write units, and another key causes the carriage to jump to the tens position, &c.

Various modifications may be made without departing from the nature of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writer or like machine, a tabulating-stop movable lengthwise of the carriage-path, and a plurality of separate, independent key mechanisms each arranged to shift said stop to a different position.

2. In a type-writer or like machine, a tabulating-stop movable lengthwise of the carriage-path and provided with a plurality of positioning members, and a plurality of keys each arranged to come into shifting contact with one of said positioning members, to move the same and the stop to different positions.

3. In a type-writer or like machine, a tabulating-stop movable lengthwise of the carriage-path and also movable transversely thereof, and a plurality of keys for shifting said stop to different positions lengthwise of the carriage-path.

4. In a type-writer or like machine, a tabulating-stop movable lengthwise of the carriage-path and also movable transversely thereof, and a plurality of keys arranged to first shift said stop to different positions lengthwise of the carriage and then move it transversely of the carriage-path into operative position.

5. In a type-writer or like machine, a tabulating-stop movable lengthwise of the carriage-path and also movable transversely thereof, said stop being provided with a plurality of positioning members and with stop-throwing members, and a plurality of keys arranged to work in conjunction with said positioning members to shift the stop to different positions, and also arranged to work in conjunction with said stop-throwing members to move the stop transversely of the carriage-path.

6. In a type-writer or like machine, a tabulating-stop movable lengthwise of the carriage-path and provided with a plurality of oblique positioning members, and a plurality of key mechanisms arranged to work in conjunction with said positioning members to shift the stop to different positions, lengthwise of the carriage-path.

7. In a type-writer or like machine, a tabulating-stop movable lengthwise of the carriage-path and also movable transversely thereof, said stop being provided with a plurality of oblique positioning members and with stop-throwing members at a distance from the free ends of said oblique members, and a plurality of key mechanisms arranged to work in conjunction with said positioning members and stop-throwing members to first shift the stop lengthwise of the carriage-path and then throw it transversely into operative position.

8. In a type-writer or like machine, a tabulating-stop mounted to slide lengthwise of the carriage-path and also mounted to swing about an axis parallel with the carriage-path, and a plurality of key mechanisms for first shifting said stop to different positions lengthwise of the carriage and then swinging said stop about its axis to an operative position.

9. In a type-writer or like machine, a tabulating-stop movable lengthwise of the carriage-path and also movable transversely thereof, a plurality of key mechanisms for first shifting said stop to different positions lengthwise of the carriage and then moving it transversely to an operative position, and a detaining device arranged to engage said stop when it is thrown transversely.

10. In a type-writer or like machine, a tabulating-stop movable lengthwise of the carriage-path and also movable transversely thereof, a plurality of key mechanisms for first shifting said stop to different positions lengthwise of the carriage and then moving

it transversely to an operative position, and a rack arranged to engage and detain said stop when it is thrown transversely.

11. In a type-writer or like machine, a tabulating-stop movable lengthwise of the carriage-path and also movable transversely thereof, a plurality of key mechanisms for first shifting said stop to different positions lengthwise of the carriage and then moving it transversely to an operative position, and a carriage-release mechanism arranged to operate when the stop is thrown transversely.

12. In a type-writer or like machine, a tabulating-stop movable lengthwise of the carriage-path and also movable transversely thereof, a plurality of key mechanisms for first shifting said stop to different positions lengthwise of the carriage and then moving it transversely to an operative position, a detaining device arranged to engage said stop when it is thrown transversely, and a carriage-release mechanism operated at the time the stop moves transversely.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LOUIS MYERS.

Witnesses:

JOHN LOTKA,

OTTO V. SCHRENK.