No. 726,560. PATENTED APR. 28, 1903.

J. E. NEAHR.

TYPE WRITING MACHINE.

APPLICATION FILED APR. 23, 1901.

NO MODEL. 3 SHEETS—SHEET 1.

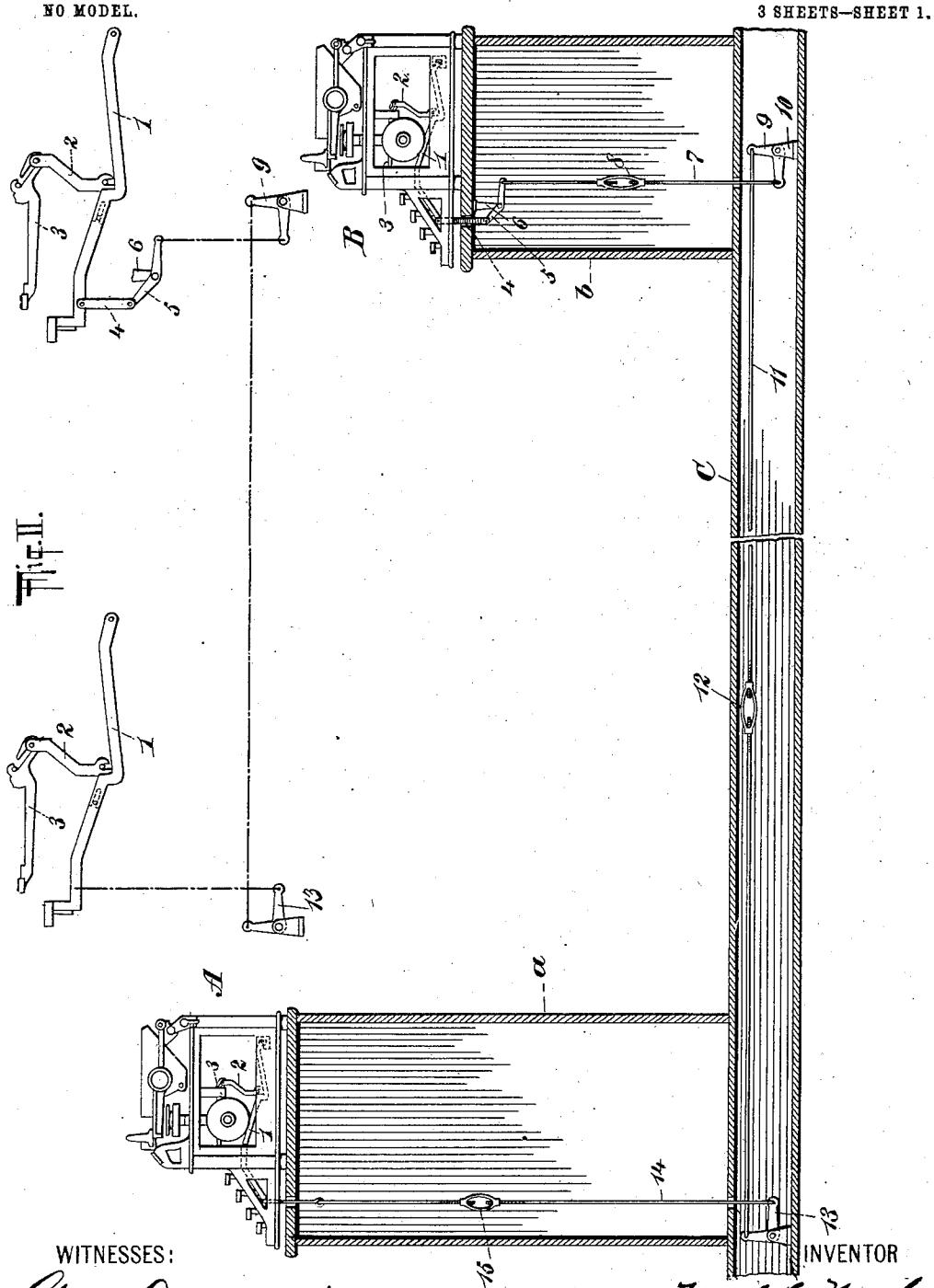


Fig. II.

Fig. I.

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BY Bowen & Mantle

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NO MODEL. 3 SHEETS—SHEET 2.

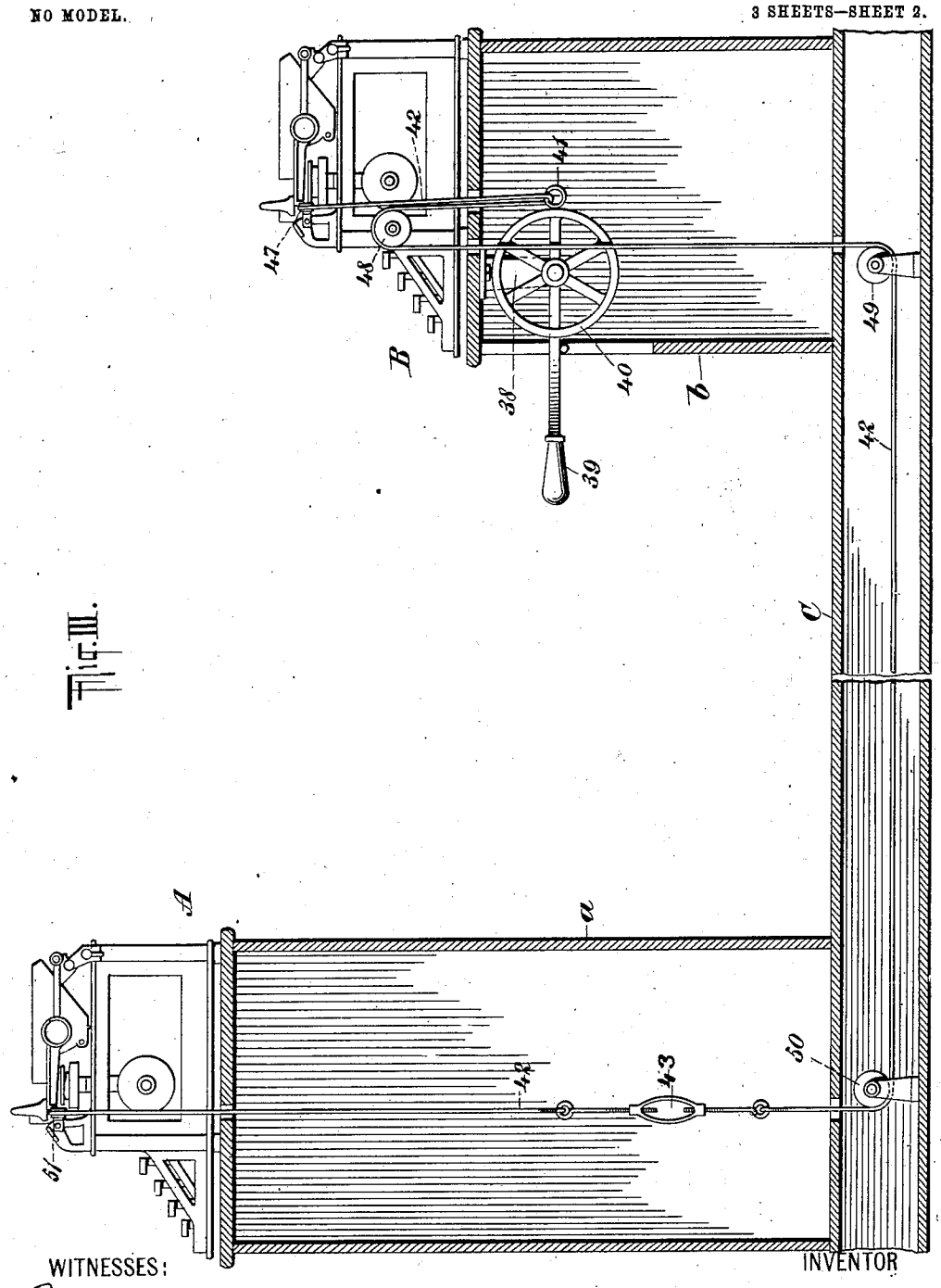


Fig. III.

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NO MODEL. 3 SHEETS—SHEET 3.

Fig. IV.

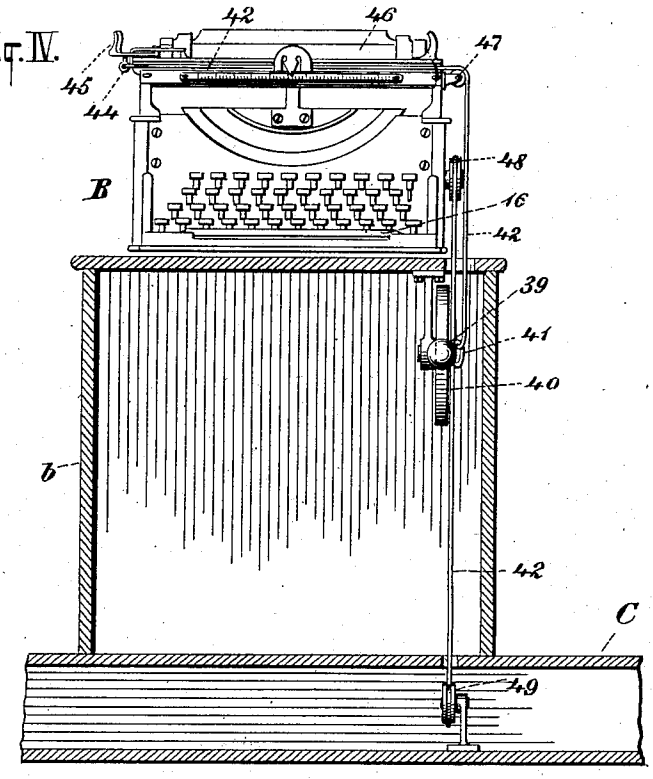
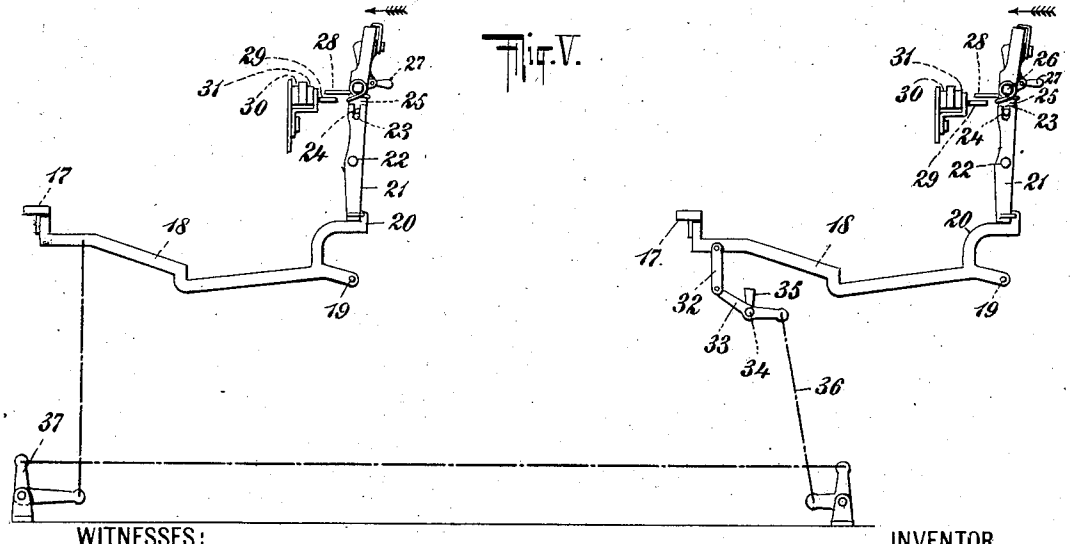


Fig. V.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JACOB E. NEAHR, OF BUFFALO, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 726,560, dated April 28, 1903.

Application filed April 23, 1901. Serial No. 57,051. (No model.)

To all whom it may concern:

Be it known that I, JACOB E. NEAHR, a citizen of the United States, residing at Buffalo, Erie county, New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to type-writing machines; and the object of the said invention is to provide a simple and efficient multiple type-writing machine wherein the separate machines are located at remote points and the movement imparted to the parts of one writing-machine will be transmitted through mechanical means to the corresponding parts of another or of other writing-machines.

In the accompanying drawings, wherein like reference characters indicate corresponding parts in the various views, Figure I is a side view showing two type-writing machines with intermediate connections constructed in accordance with my invention. In this view certain parts are shown in section and other parts are omitted for the purpose of clearer illustration. Fig. II is a diagrammatic side view of the type movements and the intermediate connections between the same. Fig. III is a view which corresponds to Fig. I, the view showing the mechanism for returning the carriage and operating the line-spacing feed. The connections between the other parts are omitted to avoid confusion in the illustration. Fig. IV is a front view, partly in section, of the so-called "operator's" machine. Fig. V is a diagrammatic side view of the tabulating devices and the connections between the same.

I have illustrated my invention applied to the well-known "Underwood" type-writing machine, though it should be understood that the purpose of the invention may be carried out with the aid of other type-writing machines.

Referring particularly to Figs. I and II of the drawings, it will be observed two Underwood type-writing machines A and B are located at points remote one from another. The type-writing machine A, I will refer to as an "exhibit" machine and the machine B as an "operator's" machine. The exhibit machine is placed upon a suitable support or pedestal *a*, which is preferably hollow, so as to hide from view the various mechanical connections which pass through the pedestal and which are intended to operate the working parts. The operator's machine may be supported upon a suitable desk *b*, which is likewise preferably inclosed at the lower portion, so as to hide from view the connections between the machines.

While I have illustrated in Figs. I and II but a single type-bar movement for each machine and the connections between the movements, it will be understood that the usual number of type-bar movements are employed in each machine and that the corresponding movements in the various machines employed are connected in the manner illustrated. Thus each of the key-levers 1 of the operator's machine is operatively connected to a link 2, which cooperates with a type-bar 3. Each of the type-bar movements in the exhibit machine or machines is constructed in the same manner. To each key-lever of the operator's machine is connected a depending link 4, which has its opposite end pivoted to an angle-lever 5, which in turn is pivoted to a fixed bracket 6. The opposite end of the angle-lever 5 is connected to a wire or ligament 7, which, as indicated in Fig. I, may be made in two parts and provided with turnbuckle 8. The opposite end of this wire is connected to one arm of an angle-lever 9, pivoted to a fixed bracket 10, preferably secured beneath the flooring C. The other arm of the angle-lever 9 is connected to a wire 11, which may likewise be made in two parts and provided with a turnbuckle 12. The opposite end of the wire 11 is connected to one arm of an angle-lever 13, which corresponds to the angle-lever 9, except that it is positioned oppositely from the lever 9, so as to effect a downward pull upon the wire 14, which is connected to the second arm of said lever 13. The wire 14 may likewise be made up of separate pieces united by a turnbuckle 15, and it has its opposite end connected to the key-lever of the exhibit machine which corresponds to that of the operator's machine, which is operatively connected therewith—that is to say, the key-levers in the various machines which are operative to print the same characters are united.

From the foregoing it will be seen that a

depression of any key-lever upon the operator's machine will cause a like movement to be transmitted to the corresponding key-lever of the exhibit machine or exhibit machines, if several are employed.

The space-bars 16 of the different machines (see Fig. IV) may be connected in the same manner as the key-levers, except the angular lever, which corresponds to the lever 13 of the connections between the key-levers, has one long arm and one short arm, as suggested at the left-hand side of Fig. V. The purpose of this specific construction is to increase the throw of the operating-lever on the exhibit machine in order to insure a correct operation of the spacing mechanism.

The tabulating device illustrated diagrammatically in Fig. V is the same as that shown in the Manning patent, No. 609,517, dated August 23, 1898, and is sufficiently illustrated in the drawings to arrive at an understanding thereof.

It will be understood that the various portions of each tabulating mechanism proper shown in Fig. V are carried by the framing of the coöperating machine and that an operation of the tabulating mechanism will cause the feed mechanism of each machine to be disengaged to permit the carriage to move freely to the point where the carriage is to be arrested and that the same movement which accomplishes this result interposes tabulating-stops carried by the framing of the machines in the path of the coöperating tabulating-stops on the carriages. Thus upon reference to Fig. V it will be seen that the tabulating-key 17 of each device is carried at the free end of the key-lever 18, which is pivoted at its inner end, as indicated at 19. Each key-lever 18 has an upwardly-projecting arm 20, which coöperates with the lower end of a lever 21, that is pivoted to the framing of the machine or to a fixed point, as indicated at 22. The upper end of the lever 21 is slotted at 23 to receive a pin 24, carried by a depending arm 25, that is secured to a horizontally-disposed rock-shaft 26. This rock-shaft 26 carries one or more tabulating-stops 27, that are preferably adjustable in the direction of the length of the rock-shaft. The rock-shaft likewise carries an arm 28, which projects inwardly therefrom and is adapted to coöperate with a pin 29, secured to one of the feed-dogs 30 31. The tabulating-key 17 of the operator's machine is connected to a depending link 32, which in turn is pivoted to one arm of an angular lever 33. This angle-lever is pivoted at 34 to a fixed point—such, for instance, as a bracket 35, which corresponds to the bracket 6 shown in Fig. I. The opposite end of this lever 33 is connected to a wire 36, that corresponds to the wire 7 shown in Fig. I. In fact, the entire connection between one tabulating-key and another is the same as the connection between the key-levers 1, except that one arm of the angle-lever 37 is longer than the other and is different in this respect from the corresponding lever 13 of the key-lever connections. The purpose in elongating one arm of the lever 37 is to increase the throw of the tabulating-lever on the exhibit machine in order to assure a correct operation of the tabulator.

From the foregoing description it will be seen that a depression of the operator's tabulating-key will cause the tabulating-stop 27 on the operator's machine to be rocked in the direction of the arrow in Fig. V to interpose it in the path of a coöperating stop on the carriage of the machine. This same movement will cause the arm 28 to bear upon the pin 29, thus disengaging the feed-dogs from the rack on the carriage in order to release the carriage. The motion imparted to the tabulating-key of the operator's machine will be effective through the intermediate connections to bring about the same movement of the corresponding parts in the exhibit machine.

I will next refer to the mechanism for restoring the carriages and effecting a line-spacing of the platens. Referring particularly to Figs. III and IV, it will be noted that a bracket 38 pivotally supports an operating-handle 39, which is connected to a wheel 40, that is provided with an eye 41. A flexible connection 42 passes loosely through this eye and the connection may be made in two or more parts which are united by turnbuckles, as indicated at 43. Reference being had to Fig. IV, it will be seen that one end of the flexible connection is connected, as indicated at 44, to the lever 45, which turns the platen 46 for line-spacing. The flexible connection 42 passes along the front of the carriage-frame and under the front bar thereof and ordinarily cannot be seen. On the right-hand side of the framing of the machine is supported a small pulley 47, over which the connection passes. The connection 42 next passes freely through the eye 41 and thence over the pulley 48. From the pulley 48 the connection 42 passes down through the inside of the desk and over pulleys 49 and 50, up through the pedestal *a*, over the pulley 51 on the exhibit machine, and over to the left-hand side of the carriage, where connection is made with the lever which turns the platen in the same manner as in the operator's machine. Thus one end of the connection 42 is secured to the platen-turning lever 45 on the operator's machine, whereas the other end is connected in a like manner to a corresponding lever on the exhibit machine. When pressure is exerted upon the connection 42 intermediate of the ends thereof, it not only tends to turn the platens of both the machines, but after the levers 45 reach the limit of their movement and the platens have been turned the carriages will be moved from left to right, so as to restore both carriages to their positions, each to begin a new line. A single upward pull upon the handle 39 on the operator's machine will effect this turning of the platens and the

restoration of the carriage in both machines. By reason of the fact that the connection 42 passes loosely through the eye 41 no harm can result from moving the carriage of either machine by hand without resorting to the handle 39. Thus, for instance, if we suppose that the carriage of one machine is farther toward the left than the other then an upward movement of the handle will first take up the slack in the connection 42. When the slack is taken up, the pressure on both carriages through the connection 42 will be substantially the same. If one carriage reaches the margin-stop before the other, then it will be stopped and the connection will slip through the eye 41 as the other carriage continues to move back to the right and both carriages will again be in a position to start a new line. It will be observed that by constructing the parts in the manner described the weight of the handle 39 and the parts connected thereto will not be opposed to the feed of the carriage.

The multiple type-writing organism forming the subject-matter of my present invention may be used for a variety of purposes. Thus, for instance, aside from the fact that the machine multiplies the capacity of a single machine as to the number of copies produced, the so-called "exhibit" machine may be placed in a window or other public place and will form an attractive advertisement, inasmuch as the machine will write within sight without any visible means for moving the parts. Additional interest is presented when something is written upon the machine within the view of those examining it that is applicable to them. Heretofore it has been customary to place an operator at the machine in the window or other public place; but this method of showing the working qualities of the machine is in no sense so attractive as a machine which is writing intelligent sentences apparently of its own accord. It will be understood that the operator's machine may be placed at a sufficiently-remote distance from the exhibit machine so as not to draw suspicion to the fact that one operator moves both machines. Again, the operator's machine may be kept out of view of those examining the exhibit-machine, though there is little exposed on either machine which would lead the ordinary observer to believe that the operation of one machine controlled the other.

While I have described with some detail one form of mechanism embodying my invention, it should be understood that various changes may be made without departing from the spirit of my invention and in order to adapt the invention to different type-writing machines.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of a plurality of type-writing machines with transmitting or connecting mechanism extending from a movable part of one machine to the corresponding part of the other machine, said connecting mechanism comprising two main bell-crank levers each arranged adjacent to one of the machines and mounted to turn about axes transverse to the connecting-line of the machines, each of said bell-crank levers having one of its members projected inwardly toward the other bell-crank lever, a tension member connecting the other members of said bell-crank levers, another tension member connecting the inwardly-projecting member of one of said bell-crank levers with the said part of the adjacent machine, a third, auxiliary, bell-crank lever located at the other machine and connected at one side of its fulcrum with the said part of said other machine, and a tension member extending from said third lever at the opposite side of its fulcrum, to the inwardly-projected member of the other main bell-crank lever located adjacent to the same machine.

2. The combination of a plurality of type-writing machines having spacing-levers for turning their platens, with a connection from the spacing-lever of one machine to that of the other machine, and an operating device connected with said connection to first turn the platens and then shift the carriages in the same direction.

3. The combination of a plurality of type-writing machines provided with tabulating devices, with a series of connections extending from an operative part of the tabulating device of one machine to the tabulating device of the other machine, said connections comprising parts along which the motive power is transmitted longitudinally, and parts adapted to transmit the motive power through an angle, all of said connecting parts moving in substantially the same plane and operated by the tabulating-key of one machine.

4. The combination of a plurality of type-writing machines with longitudinally-movable ligaments connecting like movable parts of said machines, and two bell-crank levers forming connecting members for the portions of the ligaments, the bell-crank lever at the repeating machine having two arms of unequal length of which the longer arm is connected with the repeating machine.

5. The combination of a plurality of type-writing machines located at remote points one with relation to another, and each of said machines having a movable carriage, a flexible ligament connected to the platen-shifting lever of each machine and a movable handle carrying an eye through which the ligament passes.

JACOB E. NEAHR.

Witnesses:
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