No. 873,730. PATENTED DEC. 17, 1907.

M. S. CUMNER.

TYPE WRITER SHIFT KEY MECHANISM.

APPLICATION FILED NOV. 1, 1906.

3 SHEETS—SHEET 1.

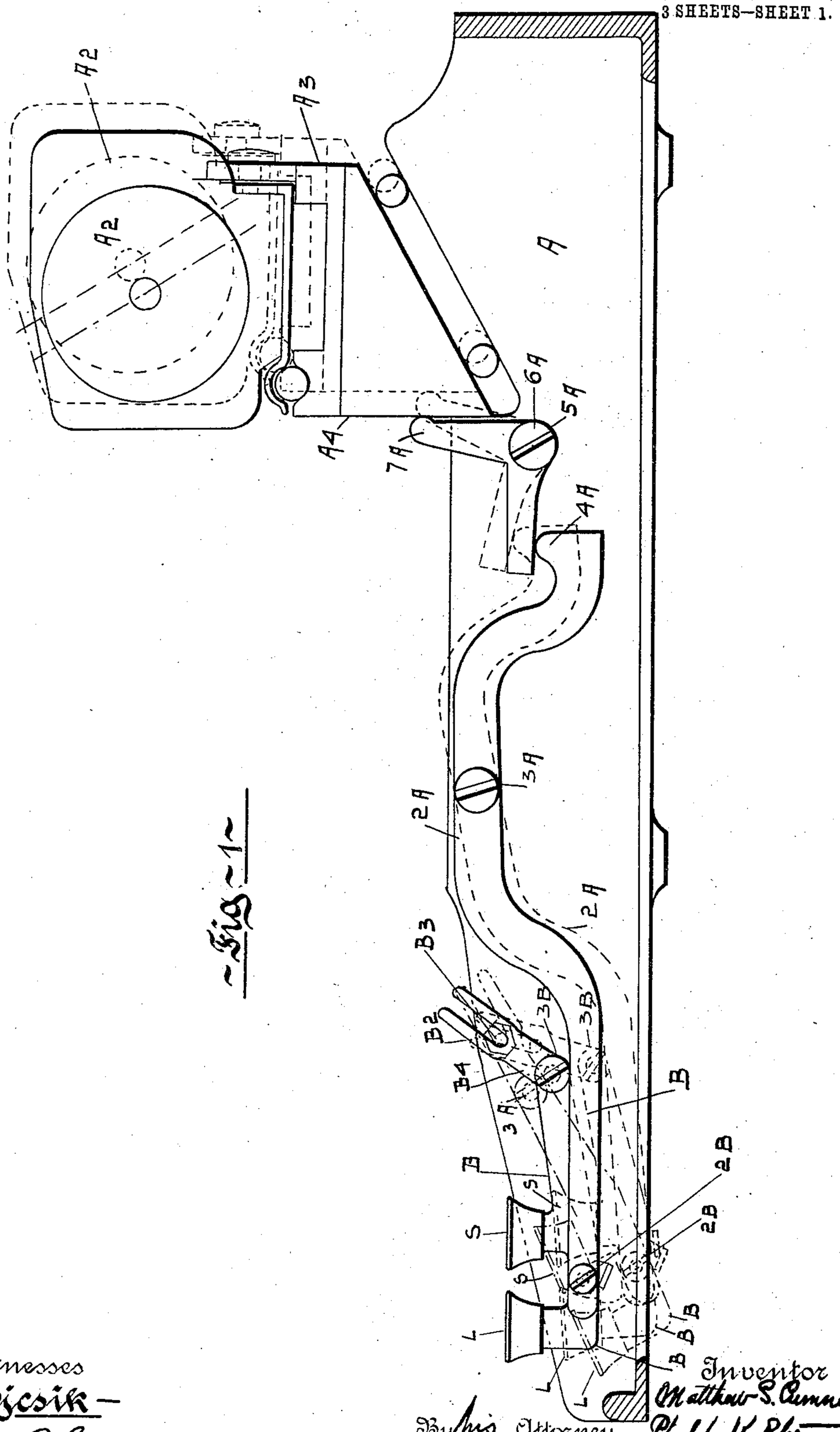

Fig. 1.

Witnesses
K. Vojcsik—
Lillie Stern

Inventor
Matthew S. Cumner
By his Attorney Philip K. Elwes

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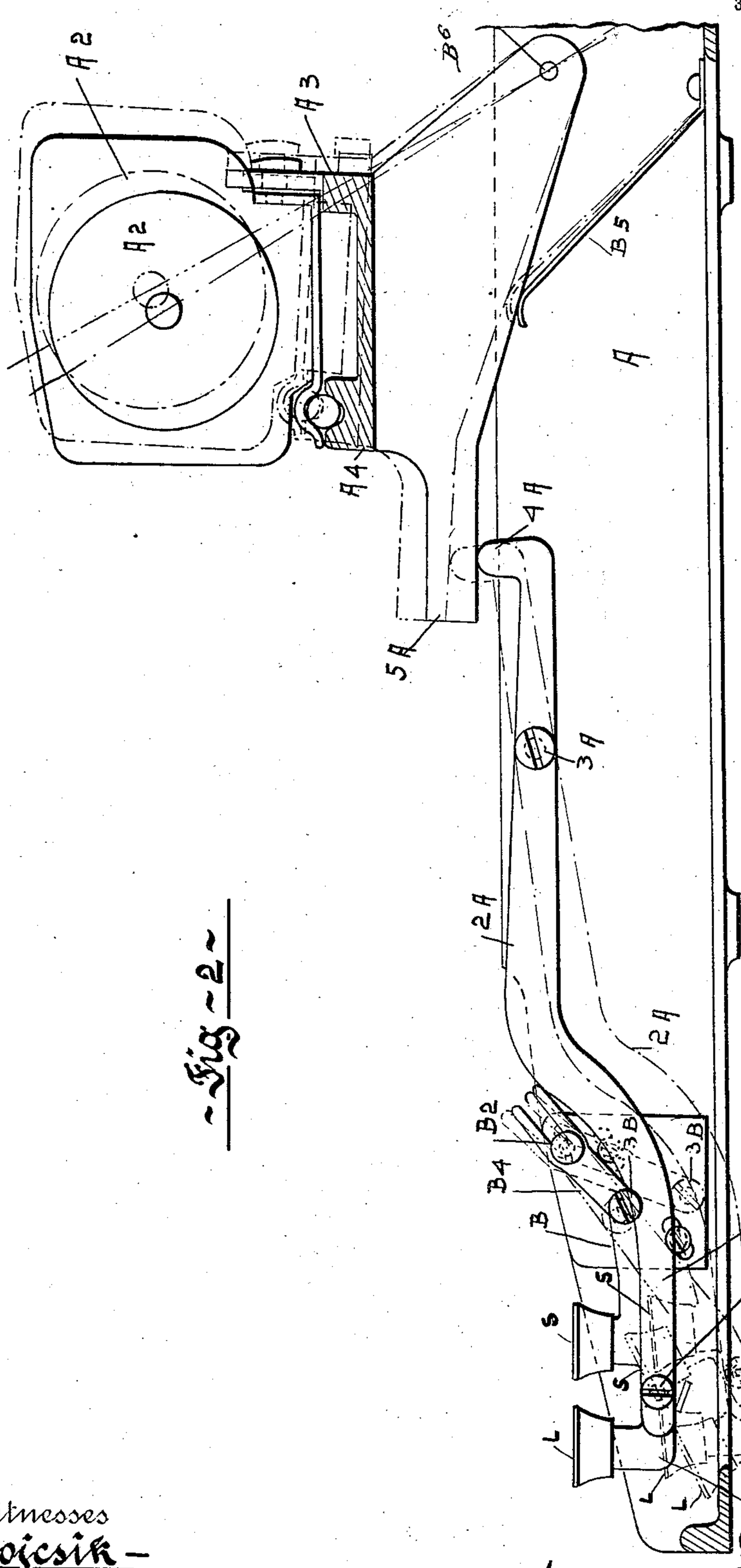

Fig. 2.

Witnesses
F. Vojcsik
Lillie Stern

Inventor
Matthew S. Cumner
By his Attorney Philip E Stern

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3 SHEETS—SHEET 3.

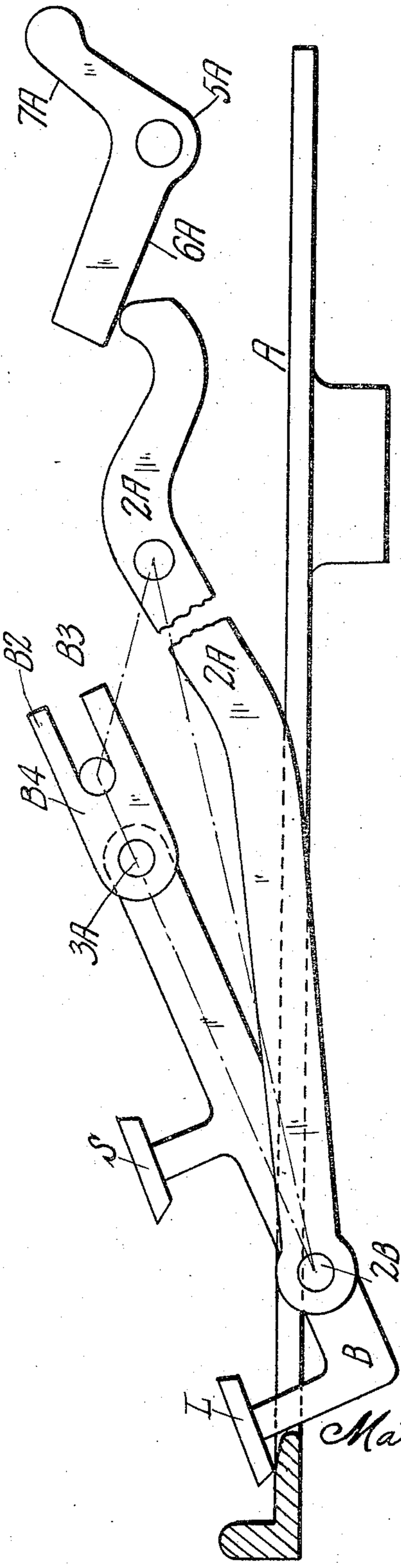

Fig. 3.

WITNESSES:

A Meyers

Lillie C Stern

INVENTOR

Matthew S. Cumner

BY Philip K. Stern

his ATTORNEY

UNITED STATES PATENT OFFICE.

MATTHEW S. CUMNER, OF NEW YORK, N. Y.

TYPE-WRITER SHIFT-KEY MECHANISM.

No. 873,730. Specification of Letters Patent. Patented Dec. 17, 1907.

Application filed November 1, 1906. Serial No. 341,514.

To all whom it may concern:

Be it known that I, MATTHEW S. CUMNER, residing in the city of Greater New York, in the county and State of New York, have invented certain new and useful Improvements in Type-Writer Shift-Key Mechanism, of which the following is a specification.

My invention in typewriter shift-key mechanism relates to a means for shifting the carriage, carrying the platen of typewriter machines and has particular reference to a means for locking the shifting device and its co-acting parts, whereby the platen will be fixed in a position given to it, by the operator.

It has also reference to an inter-locking device, co-acting with the shifting lever, whereby the platen, together with the shift lever may be released, whereupon the latter will resume its normal operating position.

The object of my invention is to provide a more simple and effective means of making a rapid change from the upper to the lower case letters by the shifting platen of typewriting machines, than by those in vogue and previous to my invention, in so far as I am at present aware.

The features characteristic of my invention, whereby I am enabled to attain the object thereof, are illustrated in the drawings hereto attached, which form part of this specification, and described in the appended specification, relative thereto and the distinct features of novelty are finally alluded to in the claims, all of which constitute the specification.

Hitherto and prior to my invention, a variety of devices for effecting the shift of the printing point or position of the platen has been in vogue, among which, levers of both the first and second order, pivoted to the frame-work of the writing machine were employed to move the carriage, either in a plane or in an arc, from a fixed radius, which usually effected the movement of the platen, by a single lever, which was under the control of the operator, but required to be locked into a fixed position, in order to retain the carriage, carrying the platen in its adjusted position, by a locking device, connected with the frame-work of the machine at some convenient point, within the range of the mechanism. Another class of shift-key devices, wherein two keys on the keyboard were connected with the shifting lever, whereby upon the depression of one of them the platen was shifted and locked and upon the depression of the other, the shifting mechanism was unlocked and the platen released, was also in vogue, and it is to this latter class that my invention has particular reference.

With reference to the drawings:—Figure 1, is a side elevational view of my invention, illustrating one form of my improved shift-key mechanism, as applied to a roller bearing platen carriage, adapted to move in a plane at an angle to the plane of the base of the machine. It also illustrates one of the means for adjusting certain portions of the locking mechanism; and Fig. 2, is a similar view, to that of Fig. 1, illustrating my invention as applied to a pivoted swinging platen and in this figure, I have illustrated another means of adjusting the position of the locking device. Fig. 3, is an enlarged, side elevational detailed view, of my invention, illustrating the shift-key and locking device and a portion of the frame-work of the typewriting machine to which the same is attached. In these figures similar characters of reference are employed to indicate identical parts, throughout, wherein,

A indicates a side frame of a typewriting machine, the view being taken in longitudinal section, to which is pivoted the shifting lever 2^A which lever is swung in bearing relation on a stud 3^A.

A^2 represents the platen, which as is customary, is mounted in bearings, depending from the carriage A^A in a well-known manner. The depression of the shift lever 2^A at one extremity, the same being of the first order, effects a movement of the free end 4^A of the lever in a reversed direction, which moves the carriage A^3 into a position indicated by the broken lines.

In Fig. 1, I have shown a modification in the construction of a carriage, which requires a somewhat different movement than that illustrated in Fig. 2, and in order to effect the movement of the carriage in this figure, into the position of that, as indicated by the broken lines, I introduce a second bell crank lever 5^A pivoted to the frame-work on a stud 6^A. The arms of this lever are so disposed, that one of them 7^A impinges against the face A^4 of the carriage, while the other arm $6^{A'}$ bears upon the free end 4^A of the shift lever. The position of the shift lever 2^A and its co-acting parts, when in their normal position are represented by the full lines of the drawing, while the broken lines indicate the change in position, when the shift lever 2^A is depressed.

The two different positions of the platen, namely, the full line and broken line positions, represent the change in the position of the printing point in making the shift. This feature is well-known to those who are skilled in the art, to which my invention appertains and therefore, requires no further description, and since my invention is directed to means for locking the shift lever 2^A when it is in the depressed position or that position indicated by the broken lines and also to the means for releasing the same, I have more particularly elucidated the locking mechanism.

The principal parts of the locking mechanism are the locking lever B, which is pivoted at 2^B to the operating extremity of the shift lever 2^A, the link B^2 and the adjustable fulcruming stud B^3. With regard to the lock lever B, the two keys or buttons L and S respectively, the lock and shift keys, are secured at substantially equal distances from pivot 2^B to the upper edge of the lever, so as to alternate in their action upon the lever B in a manner, whereby upon the depression of the key L, the lever B will operate as one of the first order and upon the depression of the key S, the action is reversed, whereupon the lever B will become one of the second order. The free and operating extremity 3^B of the lever B is pivoted to the shank B^4 of the link B^2. The fulcruming stud B^3 is secured to the side frame A of the writing machine, so as to have a sliding engagement in the link B^2. In the drawings, I have indicated, this link as being forked or open at the upper extremity for the convenience of assembling.

Upon the depression of the key S, the shift lever 2^A will be borne down into the position indicated by the broken line as aforesaid and will carry with it, the locking lever B by virtue of the pivotal action 2^B, thus the locking lever and link will be brought into a position as indicated by the broken lines and the link B^2 will have moved upon the fulcruming stud B^3 from the lower extremity to the upper extremity thereof and will assume a position more approximately perpendicular than when in the position as indicated by the full lines. Upon the release of the key S, the shift-lever 2^A will be returned to the normal position or that indicated by the full lines by the over counter-balancing weight of the carriage and therefore key S serves merely the purpose of a shift and not a lock. Upon the depression of the key L, the position of the lock lever will be reversed and the free end 3^B will be moved into the reversed position, which will swing the link B^2 likewise in the opposite direction to the former position, or that position which it assumed upon the depression of the key S. The position of the fulcruming stud B^3, has such relation with the link B^2 that the axis of centers will be in the same straight line. This alinement is indicated by the position of the key L as indicated by the broken lines. In this position, the lever B and the link B^2 will have their axis co-incident and will therefore be on dead centers and therefore the shift lever 2^A will be locked by the brace, thus presented by the alinement of the link B^2 and the lock lever B, which will resist the counter-balancing effect of the carriage A^3 in the manner aforesaid, and therefore the same will be permanently shifted into a position as indicated by the broken lines, until the key S is depressed and breaks the knuckle of the brace in a manner described and permits the counter-balancing effect of the carriage to once more return the shift key into its normal position.

To aline the lever B with the link B^2 so as to effect a brace on the depression of the key L, it is obvious that the location of the fulcruming stud B^3 should be accurately lined up with the two remaining bearing points, 3^A and 2^B, and for this purpose, I have shown this fulcruming stud B^3, mounted on an adjustable plate D^5, secured to the side frame A by screws, as illustrated in Fig. 2. It is obvious however, that this adjustment may be effected in many well-known manners.

I am aware that prior to my invention, typewriter shift-key mechanism, provided with inter-locking devices, operated by the shift lever, have been in vogue, and I therefore do not claim this broadly as my invention, the spirit of the invention lying rather in the lock itself and its co-relation with the keys and the shift-lever.

I do claim as new, however, and desire to secure by Letters Patent of the United States:

1. In an inter-locking device for shift-keys of the character described and in combination with the shift lever, a brace carried thereby and pivotally secured thereto, means for locking the brace at one extremity thereof, and remote from the pivot and means carried by the brace oppositely situated from the former, with respect to the pivot for collapsing the brace.

2. In an inter-locking device for shift keys of the character described and in combination with the shift lever, a brace, pivotally secured to the operating extremity of said lever, means for locking the brace at one extremity thereof, and remote from the pivot and means co-acting by the brace, oppositely situated from the former with respect to the pivot for collapsing the brace.

3. In a shift key mechanism of the character described, the combination with the shift lever of a lock, pivotally secured thereto, and a fixed point on the frame-work, comprising a brace, an operating key, co-acting with the brace, to move the same into a locking position, and a second operating

key, co-acting with the brace, to move the same into an unlocking position.

4. In a typewriter shift key mechanism of the character described, the combination with the frame-work and a stud carried thereby and a shift lever and a lock, pivotally secured thereto, and to a fixed point on the frame work, comprising a brace, having a knuckle and an operating key, carried by the brace to move the same into a locking position and a second operating key, carried by the brace to move the same into an unlocking position.

5. In a shift key mechanism of the character described, the combination with the frame work and the shift lever of a lock, co-acting between the frame work and the shift lever consisting of a pivoted lever secured to and carried by said shift key lever and a second lever carried by the frame work co-acting therewith, said lock constituting a brace between the said shift key lever and the said frame, an operating key carried by the said brace for erecting the same, and a second operating key carried by the said brace for collapsing the same, substantially as described.

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

MATTHEW S. CUMNER.

Witnesses:

PHILIP K. STERN,

F. W. GEISSENHAINER, Sr