

APPLICATION FILED JAN. 31, 1907.

4 SHEETS—SHEET 1.



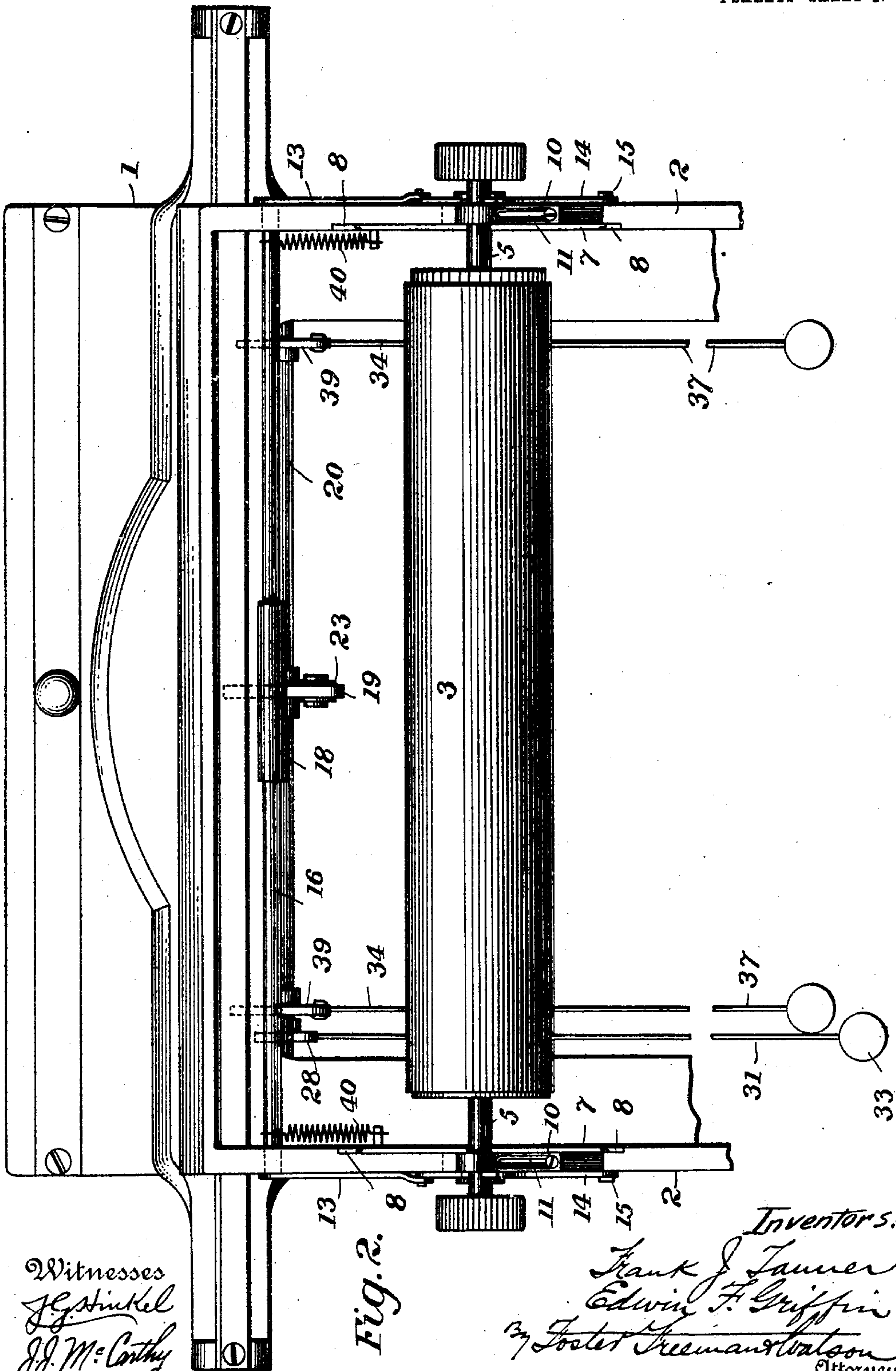
by *Frank J. Tanner* & *Inventors*  
*Edwin F. Griffin*  
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*Attorneys*

F. J. TANNER & E. F. GRIFFIN.  
TYPE WRITING MACHINE.  
APPLICATION FILED JAN. 31, 1907.

929,896.

Patented Aug. 3, 1909.

4 SHEETS—SHEET 2.



Witnesses  
J. G. Hinkel  
J. J. McConthy

Fig. 2.

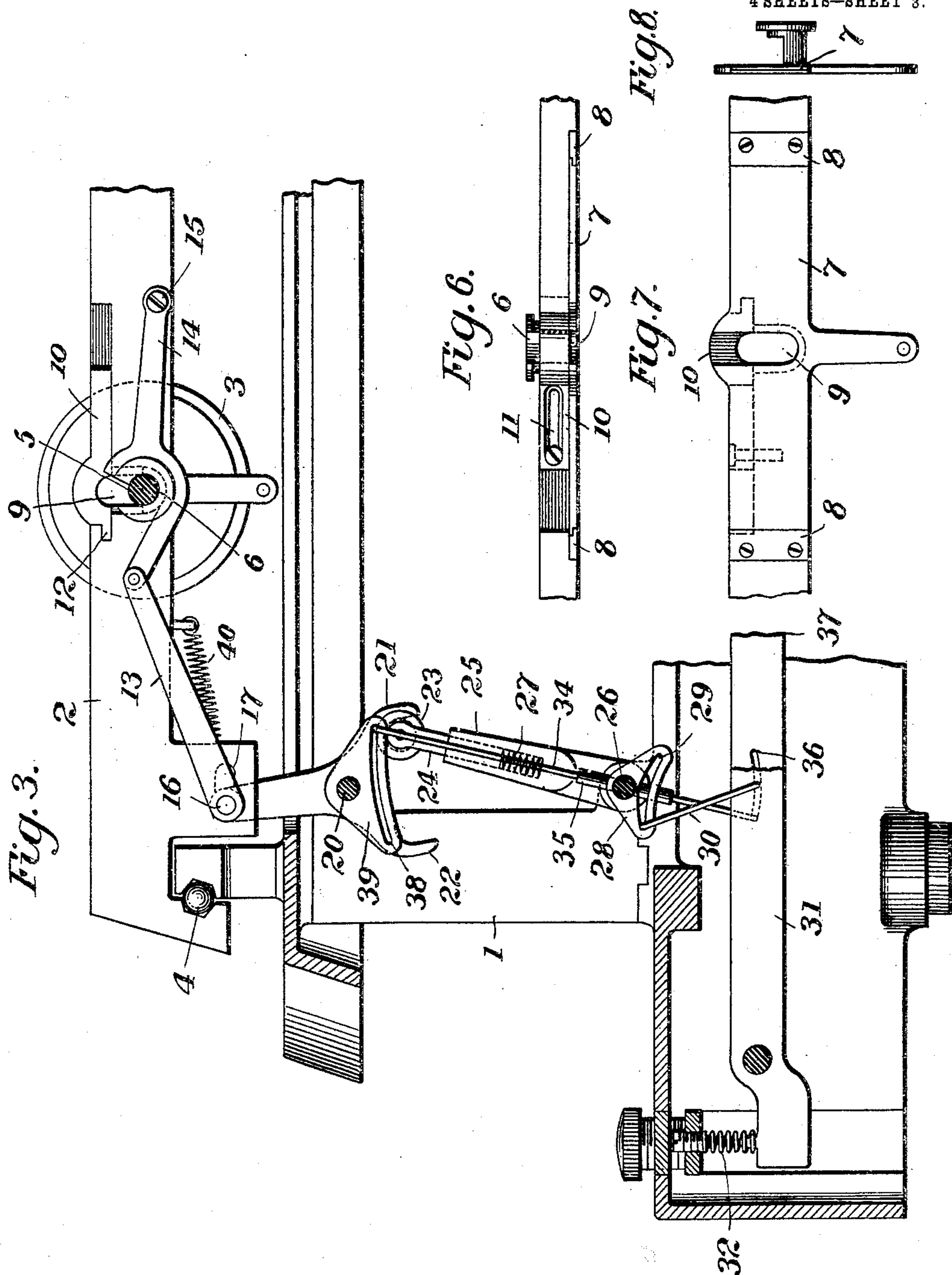
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4 SHEETS—SHEET 3.



Witnesses  
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F. J. TANNER & E. F. GRIFFIN.

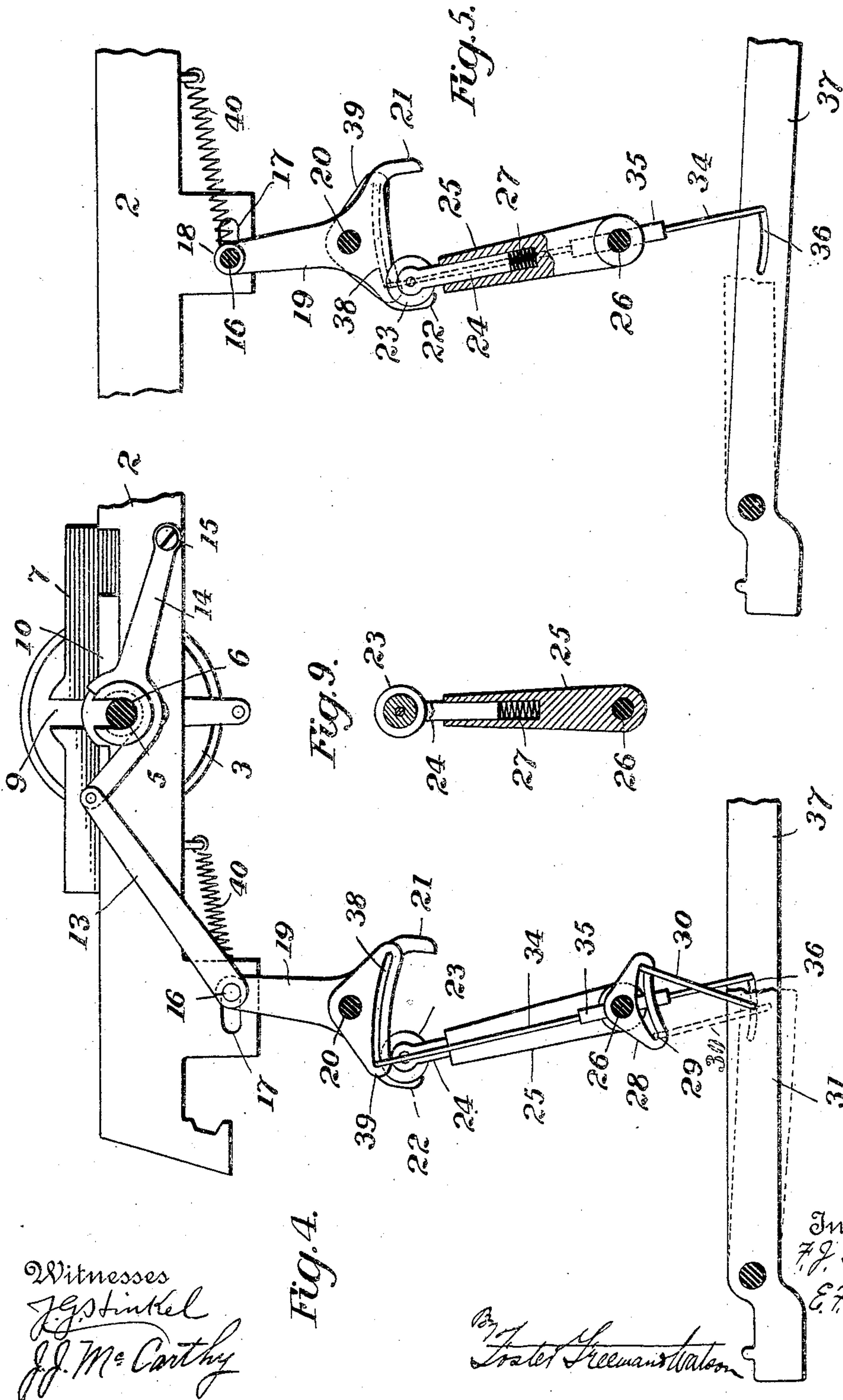
TYPE WRITING MACHINE.

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4 SHEETS—SHEET 4.



Witnesses  
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J. J. McCarthy

Inventors:  
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# UNITED STATES PATENT OFFICE.

FRANK J. TANNER AND EDWIN F. GRIFFIN, OF SCRANTON, PENNSYLVANIA, ASSIGNORS TO  
INTERNATIONAL TEXT BOOK COMPANY, OF SCRANTON, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

## TYPE-WRITING MACHINE.

No. 929,896.

Specification of Letters Patent.

Patented Aug. 3, 1909.

Application filed January 31, 1907. Serial No. 355,123.

*To all whom it may concern:*

Be it known that we, FRANK J. TANNER and EDWIN F. GRIFFIN, citizens of the United States, and residents of Scranton, Lackawanna county, State of Pennsylvania, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

The present invention relates more particularly to improvements in means for shifting the platen or its equivalent to print either upper or lower case letters in a type-writing machine of the class having two or more types on each type bar.

According to the invention, as illustrated, the platen may be set for normally printing upper case type or lower case type and when set for printing either case it may be temporarily set for printing the other case by means of a key and will be automatically returned when the key is released.

The invention will be described in connection with the accompanying drawing, in which,

Figure 1 is a rear elevation partly in section, of a typewriting machine, only so much of the mechanism being shown as is necessary to illustrate the present invention; Fig. 2 is a plan view of a machine illustrating the invention; Fig. 3 is a section about on the line 3—3 of Fig. 1 showing the platen in its lower position; Fig. 4 is a section similar to Fig. 3, but showing the platen in its uppermost position; Fig. 5 is a section on the line 5—5 of Fig. 1 showing the platen temporarily in its lower position; Figs. 6 and 7 are plan and side views of the device for locking the platen to the carriage and of the platen bearing; Fig. 8 is an end view of the platen bearing detached; Fig. 9 is a sectional view showing the spring for holding the platen yieldingly in either position.

Referring to the drawing, 1 indicates the frame of the machine, 2 the carriage and 3 the platen. The carriage is mounted to reciprocate on suitable bearings 4 on the machine frame, only one of the bearings being shown in the drawing. The platen 3 is provided as usual with a shaft 5. The ends of the platen shaft are mounted in bearings 6 which are connected to slides 7 adapted to slide vertically in guides 8 on the end bars of the carriage frame 2. The bearings 6 extend through openings 9 in the end bars of

the carriage frame and the upper ends of these openings are each closed by a slide or keeper 10 which is secured to the carriage frame by a screw passing through a slot 11 and by a lip 12 which enters a notch in the carriage frame. The keeper preferably has a round notch in its under surface which receives and limits the upward movement of the platen shaft.

The means for shifting the platen upward to print upper case letters comprises a pair of toggle levers 13, 14, which are pivotally connected at their adjacent ends. The lever 14 is also pivoted to the carriage frame at 15 and it is provided with a circular notch or depression to receive the bearing 6 of the platen shaft. The rear end of the lever 13 is connected with a rod 16 which is movable forward and backward in slots 17 in the carriage frame. The rod 16 together with the parts enumerated above are movable with the carriage as it travels in its bearings 4. The rod 16 passes through an eye or tube 18 in the upper end of an arm 19 carried by a rock shaft 20, the arrangement being such that the rod 16 is free to reciprocate in the eye of the arm 19, but is shifted forward and backward as the shaft 20 is rocked.

The shaft 20 has two additional arms 21, 22, which may be integral with the arm 19, as shown in the drawing. The arms 21, 22, extend forward and rearward from the shaft and form a track for a roller 23 carried on the end of a plunger 24, which slides in a socket in an arm 25 of a rock shaft 26. The plunger 24 is normally pressed upward and against the arms 21, 22, by a spring 27. The shafts 20 and 26 are mounted in suitable bearings in the frame 1 of the machine. The spring 27 is of sufficient strength to rock the shaft 20 when its pressure is exerted against one or other of the arms 21, 22. Thus, as shown in Fig. 3, the arm 21 is held in its uppermost position by the spring 27, thus holding the platen in its lowermost position. In Fig. 4 the arm 22 is held in its uppermost position and the platen is in its uppermost position. When the platen is in the lower position, shown in Fig. 3, it may be shifted to upper position by compressing the spring 27 without shifting the arm 25 and when it is in the upper position, shown in Fig. 4, it may be temporarily depressed to print lower case type by compressing the



spring 27 without shifting the arm 25, as will be presently explained.

On the shaft 26 is rigidly mounted a transverse plate 28 having a curved slot 29 extending across from front to rear beneath the shaft. A link 30 which is pivotally connected at its lower end to key lever 31 has its upper end in engagement with the slot 29 and free to move from end to end thereof. The key lever 31 is normally held in its uppermost position, as shown in Fig. 3, by a spring 32. The key lever 31 is provided at its forward end with a suitable finger key 33. As shown in Fig. 3, the link 30 is in position to rock the arm 25 to the rear when the key 31 is depressed, and as shown in Fig. 4, the link 30 is in position to rock the arm 25 forward when the key 31 is depressed. In Fig. 4, the parts 30 and 31 are shown in dotted lines in the position they occupied prior to the key lever 31 being pressed down to throw the arm 25 to the rear. As the key lever is returned by its spring to normal position, the link 30 encounters the upper wall of the slot 29 and is cammed over into position shown in full lines in Fig. 4, in which position it is adapted to rock the shaft 26 in the reverse direction. After the shaft 26 is rocked in the reverse direction, the link 30 will again be cammed to the rear, as shown in Fig. 3. The platen may be thus moved to upper or lower case position successively by a single key.

The means for effecting a temporary shift of the platen are as follows: The shaft 26 has one or more substantially vertical openings through which rods 34 may reciprocate. There are preferably two of these rods 34 and the shaft is provided with transverse tubes 35 which form guides for the rods. The lower ends of the rods 34 are provided with hooks or loops which engage with arc-shaped slots 36 in key levers 37. The upper ends of the rods 34 are provided with hooks or loops which engage with arc-shaped slots 38 in plates 39 mounted transversely on the shaft 20. The ends of the rods 34 move substantially from end to end of the slots 36 and 38 as the shaft 26 is rocked by the lever 31. The rods 34 therefore always aline with the arm 25 of the shaft 26. When one of the key levers 37 is depressed its connected rod 34 pulls down one end or arm of the plate 39 and rocks the shaft 20, moving the platen from upper to lower case, or from lower to upper case against the tension of the spring 27. When the lever 37 is released, the spring 27 returns the platen to normal position for printing either upper or lower case. We preferably provide two of the key levers 37, one at each side of the machine, the one being a duplicate of the other.

We prefer to use springs 40 to counterbalance the weight of the platen so that it may be moved as freely upward as down-

ward. These springs may be arranged at any suitable points between the platen and its shift key, although they are preferably arranged on the carriage as shown.

It will be seen that by the means heretofore described, the platen may be shifted normally into either its upper or lower position and held yieldingly in either position and that by depressing either of the keys 37 the platen can be shifted temporarily from its normal position and will return automatically when the key is released. A single key is adapted to shift the platen into either of its normal positions and a single additional key is adapted to shift it temporarily from either normal position when desired. The apparatus is thus very simple in construction and may if desired be operated by two keys although it is preferable for convenience to have a temporary shift key at each side of the machine. A permanent shift key 31 may also be arranged at each side of the machine if desired. While the case shifting mechanism above described is shown as adapted to shift the platen vertically in a front-strike typewriting machine, it will be obvious that the broader features of the invention may be employed to shift a platen horizontally or in other directions, or to shift a type bar segment or other printing mechanism relatively to the platen in a front-strike or other typewriter. The invention is therefore not limited to the particular construction and arrangement of parts illustrated and described herein.

Having described our invention what we claim and desire to secure by Letters-Patent is,

1. In a typewriting machine, the combination with the carriage and the platen, of a case shifting mechanism for shifting the platen, comprising toggle levers mounted on the carriage, and means for operating said toggle levers to shift the platen vertically, the said levers being connected with the platen.

2. In a typewriting machine, the combination with the carriage and the platen, of a case shifting mechanism for shifting the platen, comprising vertically movable bearings for the platen, toggle levers adapted to support and shift said bearings, and means for operating said toggle levers.

3. In a typewriting machine, the combination with the carriage and the platen, of a case shifting mechanism for shifting the platen, comprising vertically movable bearings for the platen, toggle levers adapted to support and shift said bearings, and means for operating said toggle levers, said toggle levers being mounted upon and movable with the carriage.

4. In a typewriting machine, the combination with the platen and platen shaft and with the carriage having slots in which the



platen shaft is movably mounted, of bearings for the platen shaft, toggle levers mounted on the carriage and engaging the said bearings, and key actuated means for shifting the toggle levers.

5. In a typewriting machine, the combination with the platen, of a case shifting mechanism for shifting the platen comprising toggle levers, a rock shaft having an arm connected to the toggle levers, and means for rocking said arm.

6. In a typewriting machine, the combination with the platen and the carriage, of a case shifting mechanism comprising toggle levers mounted on the carriage and engaging the platen shaft, a rock shaft mounted on the frame of the machine, and an arm on said rock shaft adapted to operate the toggle levers in any position of the carriage.

7. In a typewriting machine, the combination with the carriage and the platen mounted in the carriage, of a pair of toggle levers at each end of the carriage and arranged to engage the bearings of the platen shaft, a vibrating rod mounted in the carriage and connected to one member of each pair of toggle levers, and means mounted in the frame of the machine for vibrating said rod to operate the toggle levers and thereby shift the platen.

8. In a typewriting machine, the combination with a part shiftable to print upper and lower case characters, of case shifting mechanism for shifting said part comprising a rock shaft, a key lever and a connection between said rock shaft and key lever adapted to shift said shaft alternately in opposite directions, by successive depressions of the key lever, for the purpose set forth.

9. In a typewriting machine, the combination with a part shiftable to print upper and lower case characters, of case shifting mechanism for shifting said part comprising a rock shaft, a slotted plate on said rock shaft, a key lever, and a link connecting said key lever with the slotted plate and shiftable relatively to said plate to the opposite sides of said rock shaft.

10. In a typewriting machine, the combination with a part shiftable to print upper and lower case characters, of case shifting mechanism for shifting said part comprising a rock shaft, a plate fixed to said rock shaft and having an arc-shaped slot therein, a link engaging said plate and movable in said slot, and a key lever to which said link is pivotally connected.

11. In a typewriting machine, a case shifting mechanism comprising a rock shaft, a second rock shaft carrying means for shifting the first named rock shaft into either of two positions, and a key lever and connections for shifting the second rock shaft.

12. In a typewriting machine, a case shifting mechanism comprising a rock shaft

shiftable into either of two positions, a second rock shaft, means for shifting the second rock shaft into either of two positions, a yielding connection between said rock shafts, whereby the movement of the second rock shaft effects the movement of the first rock shaft, and independent means for moving the first named rock shaft without moving the second rock shaft.

13. In a typewriting machine, case shifting mechanism comprising a rock shaft shiftable into either of two positions, a second rock shaft having a yielding connection with the first named rock shaft and adapted to shift the same, and means for shifting the first named rock shaft without moving the second rock shaft, said means having a shiftable connection with the first named rock shaft, the point of connection being controlled by the movement of the second rock shaft.

14. In a typewriting machine, a case shifting mechanism comprising a rock shaft having oppositely extending arms, a second rock shaft having an arm adapted to yieldingly engage the arms of the first named rock shaft, a key and connections for shifting the second rock shaft, and a key and connections for shifting the first named rock shaft while the second rock shaft is stationary in either position.

15. In a typewriting machine, a case shifting mechanism comprising a rock shaft having oppositely extending arms, a yielding device adapted to cooperate with either of said arms to shift the rock shaft into either of two positions, a key having a shiftable connection with said rock shaft, and means operated by the key for simultaneously shifting the said connection and the said yielding device with respect to the said rock shaft, whereby the rock shaft is yieldingly held in either of two positions and adapted to be temporarily moved from either of said positions and automatically returned thereto.

16. In a typewriting machine, a case shifting mechanism comprising a rock shaft having mounted thereon oppositely extending arms, and a plate having an arc-shaped slot, a second rock shaft having a yielding arm adapted to engage the oppositely extending arms of the first rock shaft, a rod extending radially through said second rock shaft and adapted to engage the arc-shaped slot of the first rock shaft, a key and connections for rocking the second rock shaft, and a key connected with said rod and adapted to rock the first named rock shaft while the second shaft is stationary.

17. In a typewriting machine, the combination with the carriage, of a platen and platen shaft movable vertically in the carriage, two pairs of toggle levers mounted on the carriage and adapted to shift said platen



vertically, means for operating the toggle levers to shift the platen, and a spring for counterbalancing the platen.

18. In a typewriting machine, a case shifting mechanism comprising a rock shaft having oppositely extending arms, a second rock shaft having a rigidly connected arm, a spring plunger in said arm adapted to engage the oppositely extending arms of the first named rock shaft, means for operating the second rock shaft, and independent means for operating the first named rock shaft while the second rock shaft is stationary.

19. In a typewriting machine, a case shifting mechanism adapted to shift from lower to upper or upper to lower case, and a single key and connections adapted to effect said

shifting in either direction and to yieldingly hold the case shifting means in either of its extreme positions.

20. In a typewriting machine, a case shifting mechanism adapted to shift from lower to upper or upper to lower case, and a single key and connections adapted by successive operations to shift said mechanism in opposite directions and yieldingly hold said mechanism in either of its extreme positions.

In testimony whereof we affix our signatures in presence of two witnesses.

FRANK J. TANNER.  
EDWIN F. GRIFFIN.

Witnesses:

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I. ELVET JONES.