

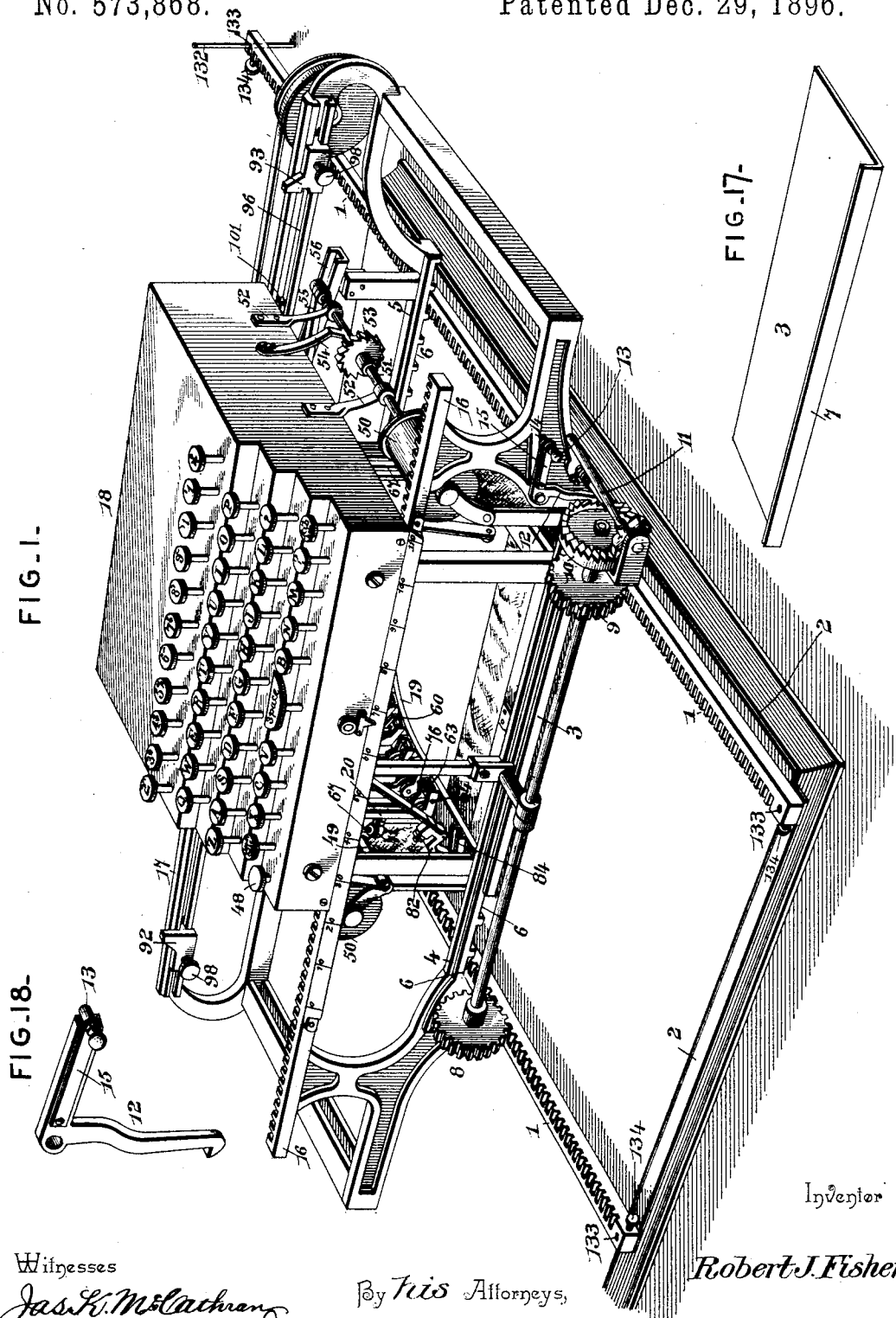
(No Model.)

5 Sheets—Sheet 1.

R. J. FISHER.
TYPE WRITING MACHINE.

No. 573,868.

Patented Dec. 29, 1896.



Witnesses

Jas. K. McLachlan
C. E. Taylor

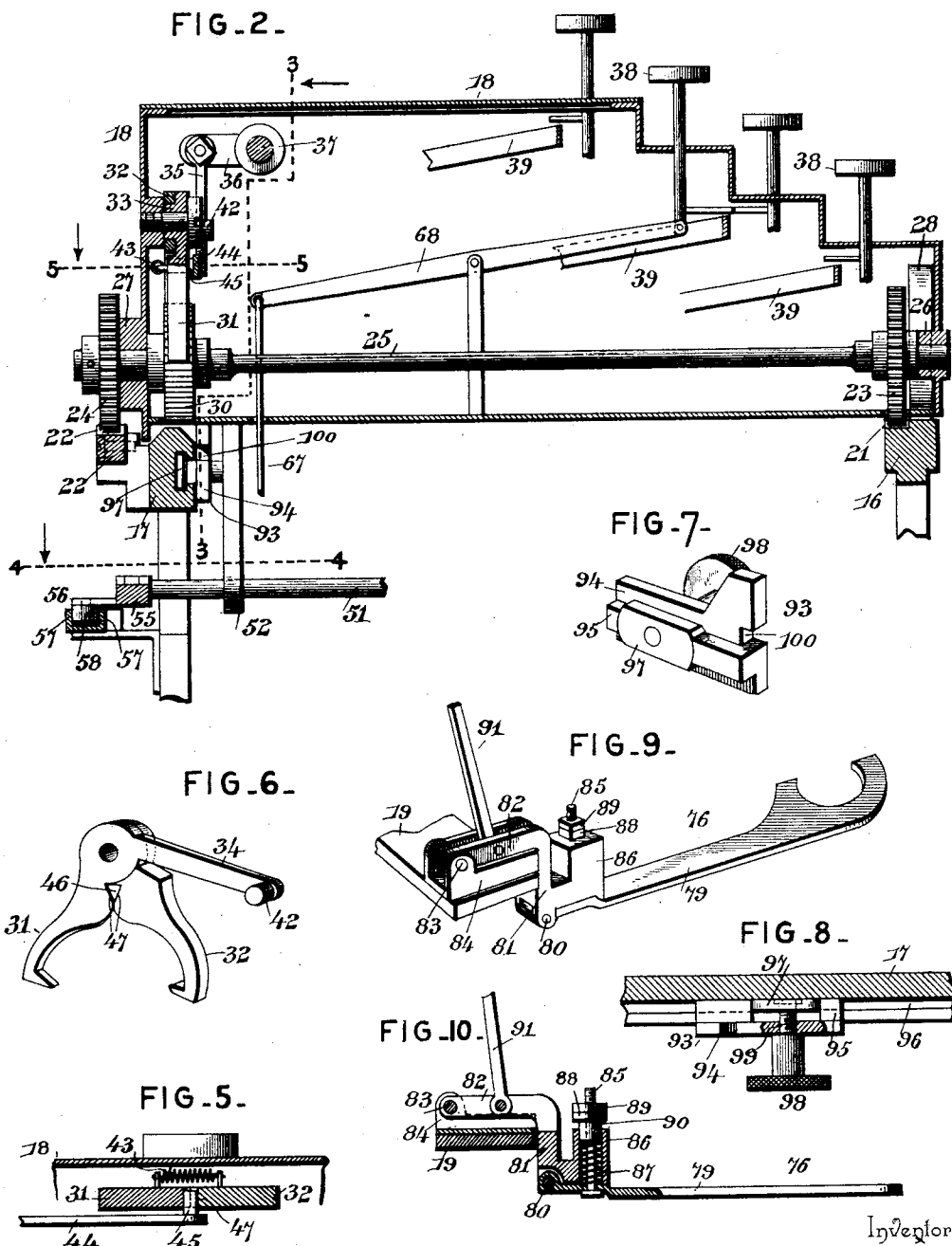
(No Model.)

5 Sheets—Sheet 2.

R. J. FISHER.
TYPE WRITING MACHINE.

No. 573,868.

Patented Dec. 29, 1896.



Inventor

Witnesses

Jas. H. McLaughlin
[Signature]

Robert J. Fisher
By his Attorneys,

C. A. Snow & Co.

(No Model.)

5 Sheets—Sheet 3.

R. J. FISHER.
TYPE WRITING MACHINE.

No. 573,868.

Patented Dec. 29, 1896.

FIG. 3.

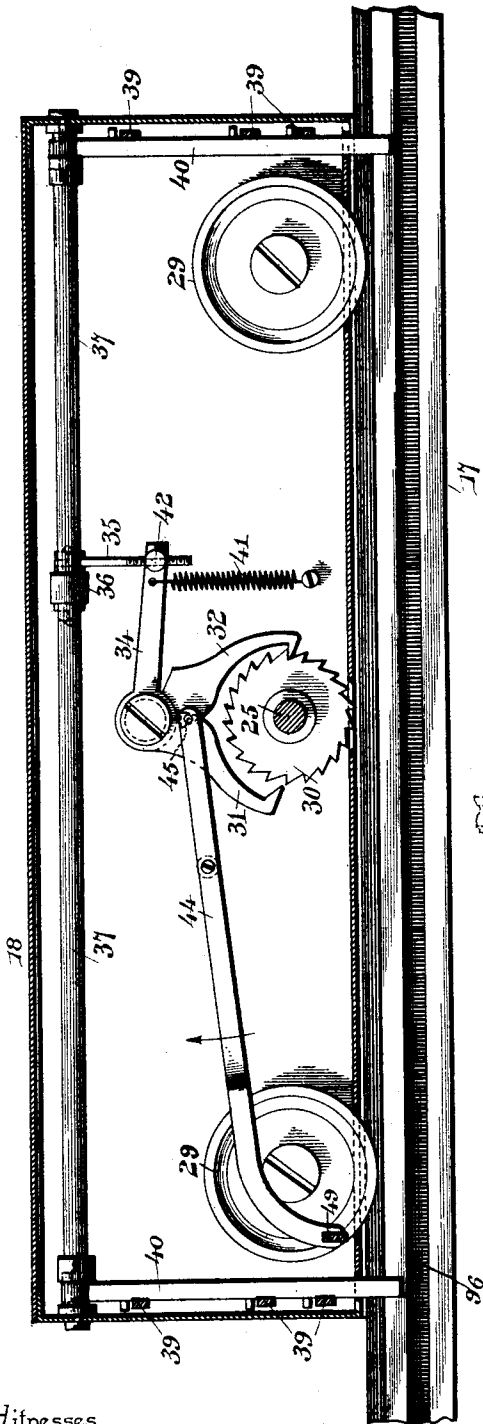
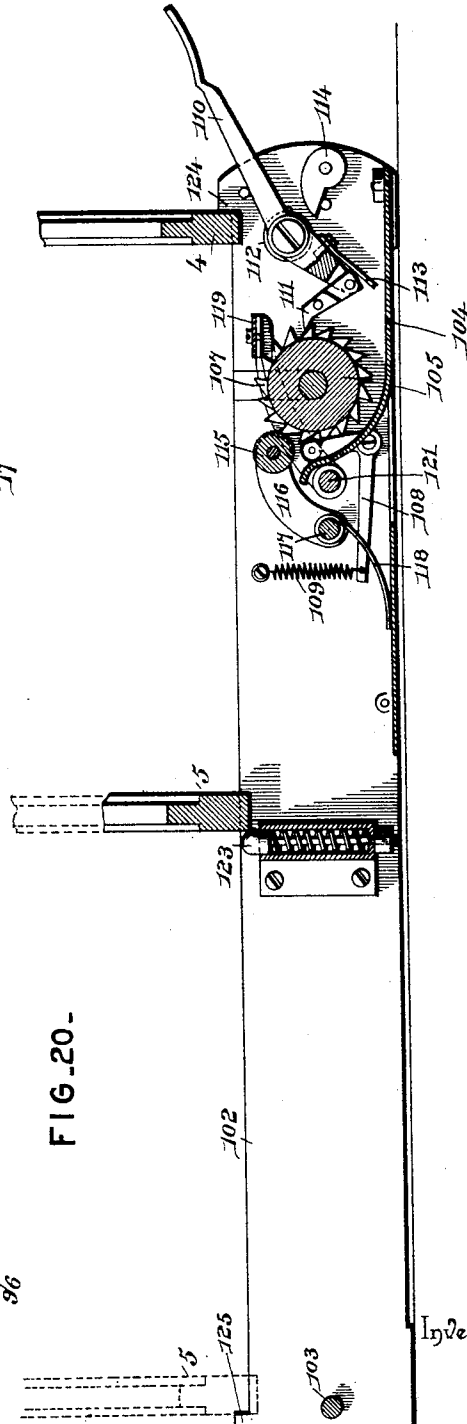


FIG. 20.



Witnesses

Jas. H. McLaughlin
[Signature]

By *his* Attorneys,

Robert J. Fisher
Chas. Snow & Co.

Inventor

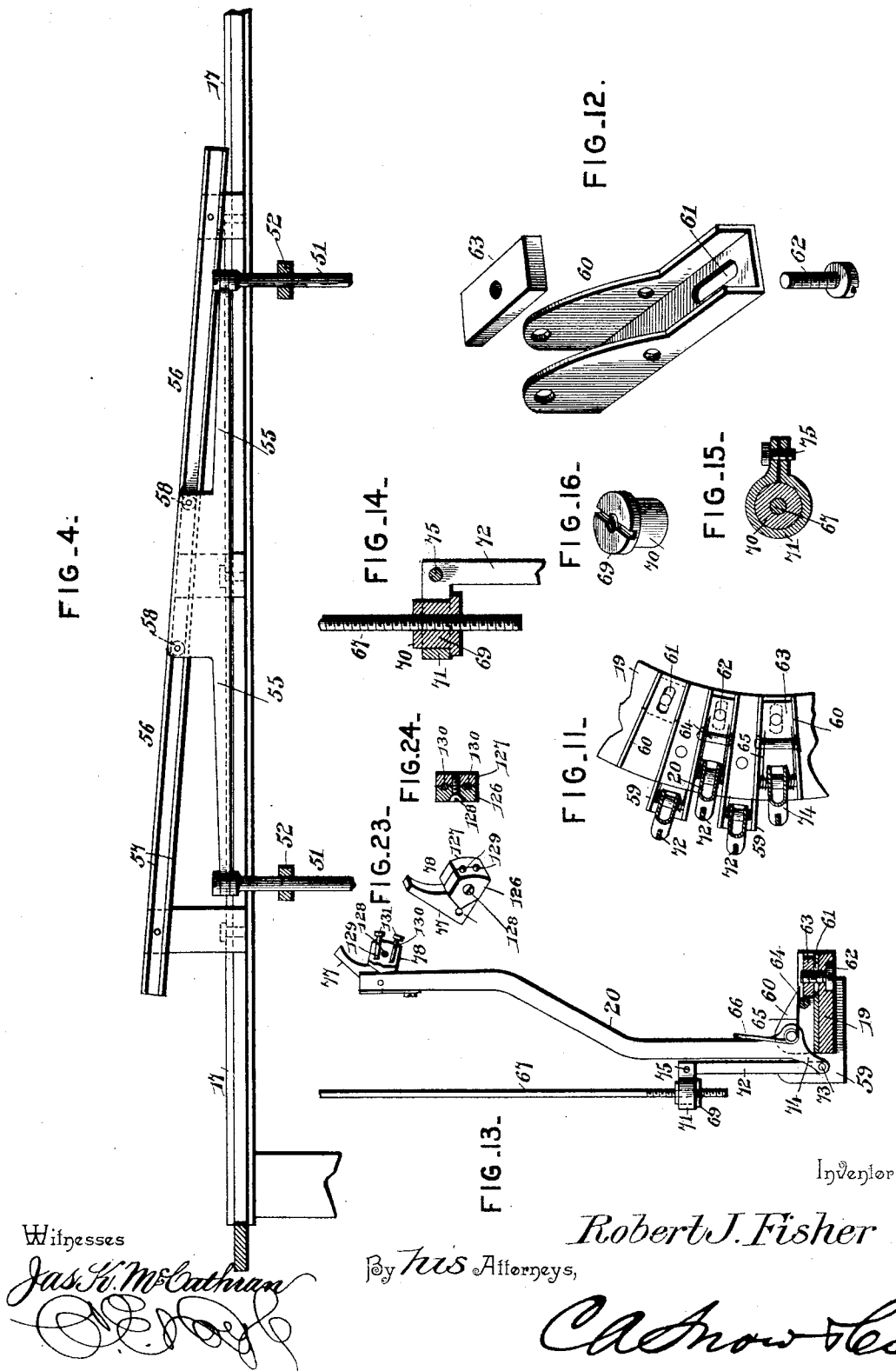
(No Model.)

5 Sheets—Sheet 4.

R. J. FISHER.
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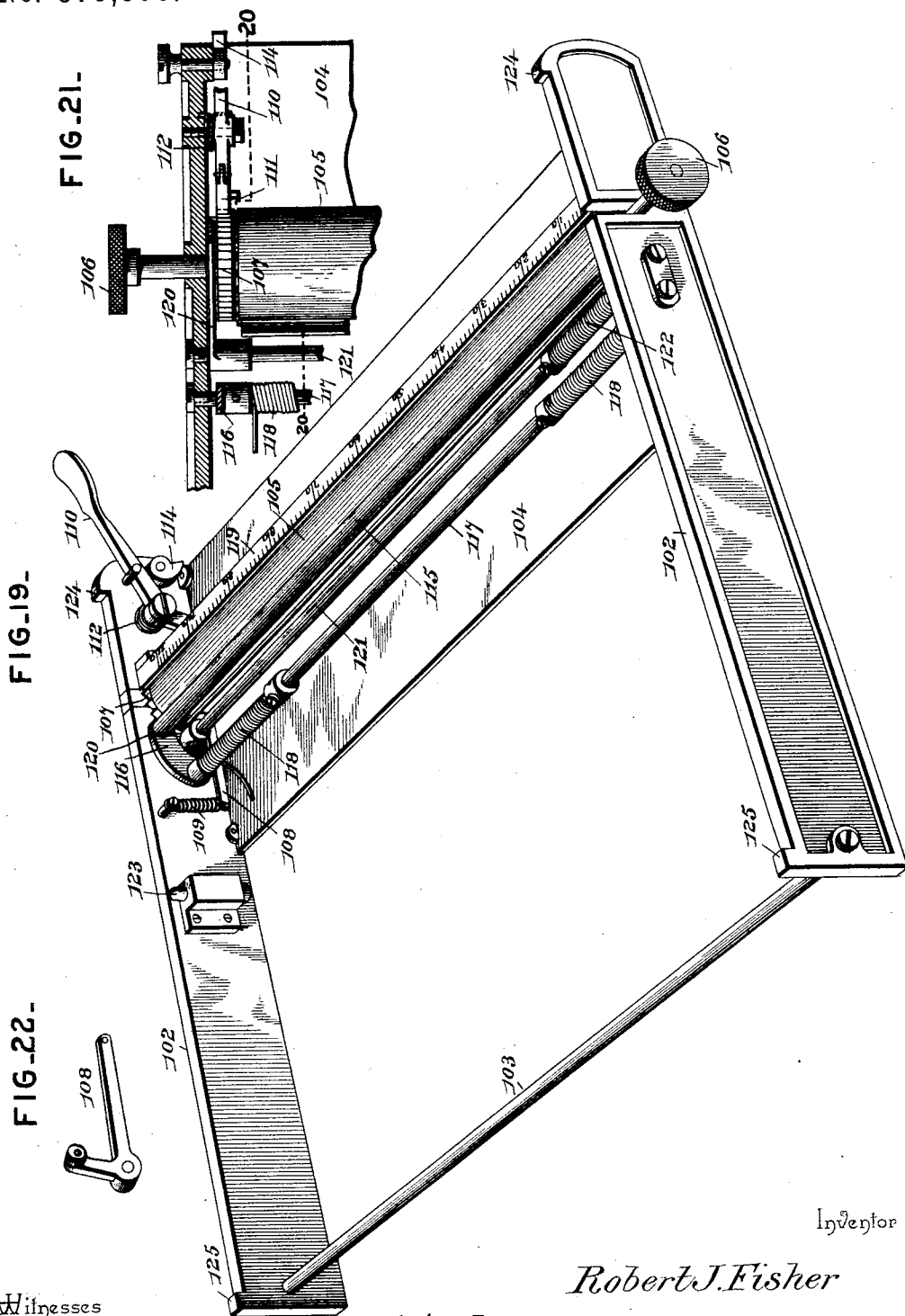


THE MORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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TYPE WRITING MACHINE.

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Inventor

Robert J. Fisher

Witnesses

Jas. K. McLaughlin
J. E. Taylor

By His Attorneys,

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

ROBERT JOSEPH FISHER, OF ATHENS, TENNESSEE.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 573,868, dated December 29, 1896.

Application filed April 30, 1896. Serial No. 589,696. (No model.)

To all whom it may concern:

Be it known that I, ROBERT JOSEPH FISHER, a citizen of the United States, residing at Athens, in the county of McMinn and State of Tennessee, have invented a new and useful Type-Writing Machine, of which the following is a specification.

My invention relates to type-writing machines, and particularly to improvements upon the constructions shown and described in my former applications, Serial No. 489,634, filed October 31, 1893; Serial No. 517,324, filed July 12, 1894; Serial No. 530,400, filed November 30, 1894; Serial No. 545,508, filed April 12, 1895, and Serial No. 557,696, filed July 31, 1895; and the objects in view are to improve the construction of the means for adjusting the tension of the draw-rods whereby motion is communicated from the key-levers to the type-bars; to improve the construction of the type-head-shifting arm; to provide simple and efficient feeding mechanism for the carriage whereby the friction in operation is reduced to the minimum; to provide an improved line-stop adapted to be adjusted with facility to regulate the length of lines; to provide a follower-plate for maintaining the leaf or sheet in a smooth condition contiguous to the printing-point, and to provide a simple and efficient construction of letter or sheet holding attachment.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a type-writing machine constructed in accordance with my invention. Fig. 2 is a transverse vertical section of the body portion of the carriage and guides to illustrate the relative arrangement of the feeding mechanism. Fig. 3 is a longitudinal vertical section of the same on the line 3 3 of Fig. 2. Fig. 4 is a horizontal sectional view on the line 4 4 of Fig. 2 to show the ribbon-spool-feeding devices. Fig. 5 is a detail horizontal section on the line 5 5 of Fig. 2 to show the means for holding the pawls of the feeding mechanism in operative relation. Fig. 6 is a detail view in perspective of the feeding-pawls detached.

Fig. 7 is a detail view in perspective of one of the line-stops. Fig. 8 is a detail horizontal section of the same. Fig. 9 is a detail view in perspective of the shifting-arm and the contiguous portion of the type-bar-supporting ring. Fig. 10 is a detail longitudinal section of the shifting-arm. Fig. 11 is a detail plan view of a portion of the type-bar-supporting ring, showing the connected type-bars in section. Fig. 12 is an enlarged detail view of one of the upper clips for securing the alternate type-bars to the supporting-ring. Fig. 13 is a detail view of one of the type-bars and contiguous parts, showing the supporting-ring and one of the upper clips in cross-section. Fig. 14 is a detail vertical section of one of the draw-rod tension devices. Fig. 15 is a detail horizontal section of the same. Fig. 16 is a detail view in perspective of the nut forming one member of the draw-rod tension device. Fig. 17 is a detail view in perspective of the follower-plate. Fig. 18 is a detail view in perspective of the pawl for holding the line-spacing mechanism from backward movement and illustrating the locking-pin for said pawl. Fig. 19 is a perspective view of the letter-writing attachment. Fig. 20 is a vertical transverse section of the same on the line 20 20 of Fig. 21, showing the contiguous portions of the frame and illustrating in full lines the operative and in dotted lines the repressed or shifted position of said frame. Fig. 21 is a detail horizontal section of a portion of the letter-writing attachment to show the line-spacing mechanism for the platen. Fig. 22 is a detail view in perspective of the holding-pawl for the platen. Fig. 23 is a detail view in perspective of one of the type-heads. Fig. 24 is a detail transverse section of the same to show the adjustable cheeks whereby the stems of the type are secured to the type-head.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The machine embodying my invention is mounted for movement transverse to the line of writing upon tracks 1, similar to those shown and described in my former applications above noted, said tracks being adapted to rest upon the sheet or page to receive the

impression and serving to hold said sheet or page in proper position for receiving the impact of the type-heads. I have found in practice, however, that the leaf of a book is liable, under certain circumstances, to warp or twist, and thus bulge away from the platen 2, which is introduced below the leaf to receive the impression. In order to hold the portion of the leaf contiguous to the printing-point in contact with the surface of the platen, I employ a follower-plate 3, (shown in detail in Fig. 17,) which is adapted to rest upon the upper surface of the leaf and to be engaged by a contiguous portion of the frame of the machine, whereby it follows the movements thereof. In the construction illustrated the frame is provided with front and rear base-bars 4 and 5, provided with alined seats 6 to engage the tracks, and, as said base-bars operate close to the surface of the page, the follower-plate is provided with a front upstanding flange 7 to be caught thereby. The follower-plate is of such a width (measured transversely to the lines of writing) as to bring its rear edge contiguous to the printing-point, and the weight of this plate, the same being preferably constructed of steel, is sufficient to accomplish the purpose desired.

The line-spacing mechanism for the carriage includes, as in my former applications, pinions 8 and 9, to engage the racks on the tracks 1, and ratchet mechanism including a wheel 10 and operating-lever 11, and it will be seen that as the frame is advanced by the operation of this line-spacing mechanism the follower-plate will be correspondingly advanced and will maintain a uniform pressure upon the page irrespective of inequalities of thickness in the paper. In connection with the line-spacing mechanism I employ a locking-pawl 12 for engaging the teeth of the ratchet-wheel 10, the same being provided with a locking-pin 13, which is held in operative relation with a projection 14 on the frame by means of a spring 15. By arranging the locking-pin above said projection the pawl is held out of engagement with the ratchet-wheel to allow backward movement of the frame upon the tracks, and when the locking-pin is below said projection the pawl is held by gravity in engagement with the teeth of said wheel and is allowed to recede sufficiently to allow the teeth thereof to pass as the wheel is turned in the operation of advancing the frame.

The frame supports the elevated front and rear carriage-guides 16 and 17, traversed by the carriage 18, and depending from the carriage between said guides is the type-bar-supporting ring 19, upon which are mounted the type-bars 20. Formed in or let into the front carriage-guide is a front rack 21, and arranged contiguous to the rear guide is a similar rack 22, which are respectively engaged by front and rear carriage-feeding pinions 23 and 24, secured to a common transverse spindle 25, mounted in front and rear bearings 26 and 27

in the carriage. The carriage is also provided with bearing-rollers 28 and 29 to relieve said pinions of the weight of the carriage.

The carriage-feeding mechanism further includes a ratchet-wheel 30, fixed to the shaft 25, and operating and holding dogs 31 and 32. The operating-dog is provided with a reduced hub or sleeve 33, upon which the holding-dog is mounted, and an operating-arm 34, rigid with the operating-dog, is connected by means of a link 35 with a crank-arm 36 on the rock-shaft 37. This rock-shaft is mounted longitudinally in the carriage to receive motion from the keys 38 by means of yokes 39 and slides 40, as fully shown and described in my former applications above noted, whereby at each depression of a key the rock-shaft is operated to elevate the arm 34 and throw the detent of the operating-dog 31 into engagement with the teeth of the feeding-ratchet 30, the detent of the holding-dog 32 being simultaneously disengaged from the teeth of the feeding-ratchet. The operating-dog is normally held out of engagement with the feeding-ratchet by means of a spring 41, (shown clearly in Fig. 3,) which holds the operating-arm depressed. A swivel 42 forms the connection between the link 35 and the arm 34, said link being threaded in the swivel, whereby adjustment between the link and the operating-arm is possible after detaching the upper end of said link from the arm 36, in order to bring the operating and holding dogs into the proper relative position with relation to the ratchet-wheel.

As above described, the holding-dog is mounted upon the hub or sleeve 33 of the operating-dog and receives motion simultaneously with the operating-dog from the arm 34, said holding-dog being normally held in a given position (shown in Figs. 3 and 6) with relation to the operating-dog by means of a spring 43, (shown in Fig. 5,) and in order to provide for disengaging the holding-dog from the ratchet-wheel to allow movement in either direction of the carriage independently of the feeding mechanism I employ a trip-lever 44, provided at one extremity with a trip-pin 45, which is arranged in engagement with a downwardly-tapered or V-shaped notch 46, formed in the meeting edges of the operating and holding dogs. (Shown clearly in Figs. 5 and 6.) The portion of said notch which is formed in the holding-dog constitutes a cam-face 47, and when the trip-arm is operated in the direction indicated by the arrow in Fig. 3 the trip-pin descends upon said cam-face and swings the holding-dog outwardly or from the ratchet-wheel against the tension of the spring 43. Any suitable means may be employed for operating the trip-lever, such as a release-key 48 and a connecting-lever 49, arranged transversely of the carriage and illustrated in Figs. 1 and 3.

The advantage derived from the use of front and rear racks coöperating with pinions 23 and 24, arranged, respectively, at the front

and rear sides of the carriage and fixed to a common shaft, resides in the fact that the carriage is fed uniformly at its front and rear sides, and hence binding and vibration, particularly in rapid operation, are prevented, and hence the alinement of the printing-characters is not destroyed or affected.

The ribbon-feeding mechanism, including the spools 50, the spool-spindles 51, mounted in hangers 52, the ratchets 53 and swinging pawls 54, and the traveler-bar 55, connecting the rear ends of the spool-spindles, is the same as that shown and described in my former applications above noted; but in the present construction the diagonally-disposed guide 56 is channeled to form parallel flanges 57, between which antifriction-rollers 58 on the center of the traveler-bar operate. This arrangement obviates the use of a greater number of rolls than two, as illustrated in Fig. 4, without detracting from the efficiency and accuracy of this portion of the mechanism. The type-bars 20 are mounted in clips 59 and 60, located, respectively, below and above the plane of the supporting-ring, the lower clips being constructed substantially as shown and described in my former application, Serial No. 557,696, above noted. The upper clips, however, instead of being attached to the supporting-ring, as described in said application, are slotted, as shown at 61, to receive the bolt 62, which engages a nut 63, arranged between the flanges of said clips and held thereby from turning. A transverse adjusting-screw 64 connects the sides of the clip to serve as a brace and take up lost motion between the pivot of the type-bar and its journals, said adjusting-screw also serving as a rest for the approximately horizontal arms 65 of the looped type-bar-returning spring 66.

The draw-rod 67, which is used in connection with each type-bar for communicating motion thereto from the key-lever 68, is threaded for engagement by a nut 69, forming one member of a tension device, said nut having a reduced barrel 70, which fits in a clamp 71 at the upper end of a connecting-link 72, said link being pivotally connected, as at 73, to the extension 74 of the type-bar. In the construction illustrated this clamp, which consists of a band encircling the reduced portion of the adjusting-nut, is formed integral with the link 72 and is engaged at its free end by a set-screw 75, whereby after the adjustment of the draw-rod to the desired tension the nut may be securely clamped by tightening said screw to prevent accidental change of adjustment. The set-screw 75 must be loosened in order to allow the adjustment of the tension of the draw-rod. This construction is clearly illustrated in Figs. 13, 14, 15, and 16.

The shifting-arm 76, which is employed to engage the trip-arms 77 on the pivotal type-heads 78, consists of a shank 79, pivoted, as at 80, to a swinging block 81, said block having an arm 82, which is pivoted, as at 83, to a

clip 84, secured to the type-bar-supporting ring 19. The arm is yieldingly supported in a given position with relation to the swinging block by means of a stem 85, extending through a barrel 86, in which is arranged a tension-spring 87, a tension-nut 88 being threaded upon said stem to bear upon the upper end of the spring. The downward movement of the shank 79 independently of the block 81 is limited by the contact of said nut with the upper end of the sleeve 86, and by tightening the nut the tension of the spring may be increased to offer greater or less resistance to the deflection of the arm. In the construction illustrated a jam-nut 89 is employed in connection with the adjusting-nut 88, said adjusting-nut having a reduced guide 90, which fits to slide in the barrel. The yielding quality of the shifting-arm is designed to break the jar incident to the contact therewith of the trip-arm on the type-head and cause the reversal or shifting of the type-head without injury to the parts of the mechanism, and the tension device which I have shown in connection therewith provides for varying the resistance to insure an efficient coöperation of the parts. Any suitable means for depressing the shifting-arm to its operative position may be employed, such means including a push-rod 91, pivotally connected to the arm 82.

The line-stops 92 and 93 (illustrated in the drawings for use contiguous to opposite ends of the carriage-guides) consist of a plate 94 to bear against the front surface of the rear carriage-guide, a rib 95 to fit in the throat of a cross-sectionally T-shaped channel or groove 96 in said guide, a clamping-block 97, fitting in the enlarged portion of said channel, and a thumb-screw 98, which is threaded in an opening 99 in the face-plate 94 and is headed at its rear end in said clamping-block. By tightening the thumb-screw said block is brought into frictional contact with the wall of the channel, as will be understood by reference to Figs. 7 and 8. These line-stops are adapted to be engaged with the carriage-guides at the extremities thereof by inserting the clamping-blocks longitudinally in the enlarged portion of the channel, and the stop 93 is provided with a terminal notch 100 for engagement with a key-locking lever 101, the extremity of which is illustrated in Fig. 1 and the construction of which forms no part of my present invention. An efficient construction of key-locking device is illustrated in my former application, Serial No. 489,634, above mentioned.

In connection with the above-described construction I employ a letter or sheet holding attachment (illustrated in Figs. 19, 20, and 21) having a frame comprising parallel transverse tracks or guides 102, connected at their rear ends by a longitudinal rod 103 and at their front ends by a sheet-metal guard 104, said tracks or guides being adapted to fit in the seats 6 in the front and rear base-

bars of the frame to guide the frame in forward or rearward movement. Mounted longitudinally in suitable bearings in the tracks or guides is a platen 105, provided with terminal thumb-wheels 106 and adapted to carry a sheet of letter or similar paper to receive impressions from the type when the frame is in the operative position illustrated in full lines in Fig. 20. This roller-platen is provided with a terminal ratchet 107, engaged by a holding-pawl 108 (illustrated in detail in Fig. 22) and provided with an actuating-spring 109, and forward motion is communicated to the platen by means of a line-spacing lever 110, fulcrumed upon one of the tracks or guides 102 and having a pivotal operating-pawl 111 to engage the teeth of the ratchet 107. The line-spacing lever is provided with a return-spring 112, and the pawl is held in operative position by means of a spring 113. The interval between lines, as established by the operation of the line-spacing mechanism, is regulated by an adjustable stop 114, arranged in the path of the line-spacing lever to limit its throw, said stop being cam-shaped to allow greater or less throw of the line-spacing lever, as required.

The paper is held in frictional contact with the roller-platen by means of a pressure-roll 115, mounted terminally in swinging arms 116, which are fulcrumed by means of a longitudinal rod 117, and an actuating-spring 118 is coiled upon said rod to normally hold the pressure-roll in contact with the surface of the roller-platen. In connection with the pressure-roll I also preferably employ a longitudinal guide 119, consisting of a bar arranged parallel with and contiguous to the roller-platen and adapted to be provided with a scale indicating letter-spaces, as illustrated clearly in Fig. 19. This guide is provided with terminal arms 120, fulcrumed by means of a longitudinal rod 121, and the guide is normally held in operative position by means of a spring 122. The terminals of the pressure-roll, or the arms 116, by which said roll is supported, are arranged in the paths of the arms 120 of the guide, whereby when the guide is elevated to allow the introduction of a sheet the pressure-roll is also elevated to release the sheet.

When it is desired to expose the platen to insert a sheet or for an analogous purpose, the frame may be moved rearwardly, in a direction transverse to the lines of writing, upon the guides or tracks to the position indicated in dotted lines in Fig. 20, said frame being normally held in the operative position indicated in full lines in said figure by means of a yielding stop 123, having a rounded upper extremity for engagement with the rear base-bar of the frame. This stop allows movement of the base-bar in either direction thereover, but prevents displacement of the frame by jarring. Front and rear stops 124 and 125 are provided for limiting the forward and rearward movements of the frame.

In order to facilitate the adjustment and replacement of worn type and the change of the style of type, I employ a split or divided type-head having cheeks 126 and 127, connected by a transverse set-screw 128, the contiguous faces of said cheeks being provided with complementary grooves 129, which combine to form sockets for the reception of the stems 130 of the type-faces 131. The stems are preferably round to facilitate adjustment to secure alinement and the proper position of the faces, and they are of even thickness throughout to provide for the desired extension of the type-faces beyond the contiguous edge of the type-head. This construction is illustrated in Figs. 23 and 24.

When the machine is used in connection with the tracks 1 for bookwork, it must be arranged, mainly, beyond the top of the book when writing contiguous to the top of the page, inasmuch as the printing-point of the machine is contiguous to the front of the frame, and in order to prevent sagging of the upper extremities of the track I employ adjustable supporting-pins 132, fitted in vertical guide-openings 133 near the extremities of the tracks and adapted to be locked at the desired adjustment by means of set-screws 134. Hence when the tracks are arranged upon the page to receive the impression the set-screws may be loosened to allow the lower extremities of the supporting-pins to rest upon the surface of the table or stand, after which the set-screws should be tightened to lock the pins in place. These pins also serve as stops to limit the backward or upward movement of the frame upon the tracks.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. In a type-writing machine, the combination with tracks, a frame mounted for movement upon said tracks transverse to the line of writing, and printing mechanism, of a follower-plate adapted to rest upon the page or sheet to receive the impression and engaged by a contiguous portion of the frame to cause the plate to follow the transverse movements thereof, substantially as specified.

2. In a type-writing machine, the combination with a frame mounted for movement transverse to the line of writing and having a front base-bar arranged contiguous to the printing-plane, of a follower-plate adapted to rest upon the page or sheet to receive the impression and provided with a flange for engagement by said base-bar, substantially as specified.

3. In a type-writing machine, the combination of tracks arranged transversely to the line of writing and adapted to rest upon the page of a book to receive the impression, a movable frame mounted upon the tracks and

carrying printing mechanism arranged wholly above the plane of the tracks, supporting-pins adjustably fitted in openings in the extremities of said tracks and depending therefrom, and means for securing the pins at the desired adjustment, substantially as specified.

4. In a type-writing machine, the combination with tracks, a frame mounted upon the tracks, line-spacing mechanism including pinions engaging racks on said tracks, a ratchet-wheel, and an operating-lever having a pawl to engage the teeth of said ratchet-wheel and communicate motion to the pinions, of a locking-pawl normally held by gravity in engagement with the teeth of said ratchet-wheel to prevent backward rotation thereof, a fixed projection on the frame, and a spring-pressed locking-pin carried by an arm of said pawl for engagement with the projection, substantially as specified.

5. In a type-writing machine, the combination with parallel longitudinal carriage-guides, and a carriage mounted thereon, of fixed racks contiguous, respectively, to the guides, pinions carried by and fixed to a common transverse shaft mounted upon the carriage and respectively engaging the racks to prevent irregularity of movement in the carriage, and feeding mechanism operatively connected with the shaft of said pinions, substantially as specified.

6. In a type-writing machine, the combination with parallel longitudinal carriage-guides, and a carriage mounted thereon, of feed-pinions fixed to a common shaft mounted transversely on the carriage, fixed racks arranged respectively contiguous to and parallel with said guides and simultaneously engaged by the pinions, a ratchet-wheel fixed to the shaft of the pinions, and means for communicating a step-by-step rotary movement to the ratchet-wheel, substantially as specified.

7. In a type-writing machine, a carriage-feeding mechanism having a ratchet-wheel, coaxial operating and holding dogs arranged in operative relation with the ratchet-wheel, the holding-dog being capable of movement independently of the operating-dog and held in its normal position by spring-tension, means connected with an arm of the operating-pawl for communicating simultaneous oscillatory movement to the dogs, and a trip-lever having a pin arranged in operative relation with a cam on the holding-dog for communicating motion to the latter, substantially as specified.

8. In a type-writing machine, a carriage-feeding mechanism having a ratchet-wheel, coaxial operating and holding dogs, the latter being mounted upon the hub of the former, resilient means for maintaining said dogs normally in operative relation with each other, an actuating-spring connected with the operating-dog for normally holding it out of engagement with the ratchet-wheel, means for communicating oscillatory movement simul-

taneously to the dogs, and a trip-lever having a pin arranged in engagement with a cam on the holding-dog, said cam consisting of one side of a V-shaped notch cut in the contiguous edges of the operating and holding dogs, substantially as specified.

9. In a type-writing machine, the combination with a type-bar-supporting ring, of upper and lower clips arranged alternately above and below the plane of writing, the upper clips being provided with parallel side flanges or walls and intermediate longitudinal slots, bolts extending upwardly through perforations in the supporting-ring and said slots in the upper clips, and nuts seated between the flanges of the clips and engaging said bolts, substantially as specified.

10. In a type-writing machine, the combination with pivotal type-bars and key-levers, of rods connecting said parts and provided with tension devices including an adjusting-nut threaded upon one member and swiveled upon the other member of the connection, and a clamp for engaging said nut and securing it at the desired adjustment, substantially as specified.

11. In a type-writing machine, the combination with a type-bar, a key-lever and a draw-rod connecting said parts, of a tension device including a nut threaded upon said rod and provided with a reduced portion, and a clamp including a band encircling said reduced portion of the nut, and a set-screw for tightening the band upon the nut to prevent rotation of the latter, substantially as specified.

12. In a type-writing machine, the combination with a type-bar, a key-lever and a draw-rod, of a nut threaded upon said draw-rod, a link pivotally connected to the type-bar, a clamp fixed to the link and encircling the reduced portion of the nut, and a set-screw for tightening the clamp upon the nut, substantially as specified.

13. In a type-writing machine, the combination with type-bars having pivotal heads, of a shifting-arm adapted to be arranged in the path of trip-arms on said type-heads, said shifting-arm being provided at an intermediate point with a yielding joint, and tension devices for varying the resistance of the joint, substantially as specified.

14. In a type-writing machine, the combination with type-bars having pivotal heads, of a shifting-arm having a pivotal block, a shank pivotally connected to the block, a cam transversely connecting the shank and block, a tension-spring, and an adjusting-nut for varying the tension of said spring, substantially as specified.

15. In a type-writing machine, the combination with carriage-guides, and a carriage mounted thereon, of a line-stop having a face-plate, a guiding-web fitting in the throat of a cross-sectionally T-shaped channel in one of the carriage-guides, a clamping-block fitting in the enlarged portion of the channel in said

guide, and a thumb-screw for adjusting the clamping-block with relation to the face-plate, substantially as specified.

16. In a type-writing machine, a sectional
5 type-head divided to form parallel cheeks having registering grooves forming a socket, a type-face having a stem fitting in said socket, and means for relatively adjusting the cheeks to clamp the stem of the type-face, substan-
10 tially as specified.

17. A sectional type-head having relatively adjustable cheeks, type-faces having stems arranged between the planes of said cheeks, and means for adjusting the cheeks to clamp
15 said stems therebetween, substantially as specified.

18. A sectional type-head having relatively adjustable cheeks provided in their contiguous faces with registering grooves combining
20 to form sockets, type-faces having round stems fitting for rotary adjustment in said sockets, and means for adjusting the cheeks to clamp the stems therebetween, substantially as specified.

25 19. A sectional type-head having relatively adjustable cheeks provided in their contiguous faces with registering grooves combining to form sockets, type-faces having round stems of even thickness throughout fitting in
30 said sockets, and means for adjusting the cheeks to clamp the stems therebetween, substantially as specified.

20. In a type-writing machine, the combination with a frame carrying printing mechanism and adapted for movement transverse
35 to the line of writing, of a sheet-holding attachment having parallel transverse guides or tracks upon which said frame is mounted,

a roller-platen terminally mounted in said guides or tracks, line-spacing mechanism for
40 operating said platen, and means for holding the machine in its operative position with relation to the platen, and adapted to yield to allow the frame to be moved to expose the platen, substantially as specified.

21. In a type-writing machine, the combination with a frame carrying printing mechanism, of a sheet-holding attachment having
45 a roller-platen, a spring-actuated pressure-roll in operative relation with the platen, a longitudinal guide have spring-actuated piv-
50 otal arms adapted to engage and repress said roll, and line-spacing mechanism operatively connected with the platen, substantially as specified.

22. In a type-writing machine, the combination with a frame carrying printing mechanism, of a sheet-holding attachment having
55 a roller-platen, a spring-actuated pressure-roll having terminal supporting-arms, a longitudinal guide-bar arranged parallel with and
60 contiguous to the platen and graduated to indicate letter-spaces, said guide-bar having terminal spring-actuated supporting-arms adapted when the bar is elevated to engage
65 the extremities of the pressure-roll, and line-spacing mechanism operatively connected with the platen, substantially as specified.

In testimony that I claim the foregoing as
my own I have hereto affixed my signature in
70 the presence of two witnesses.

ROBERT JOSEPH FISHER.

Witnesses:

WILLIAM A. CUNNINGHAM,
JAMES A. PARSONS.