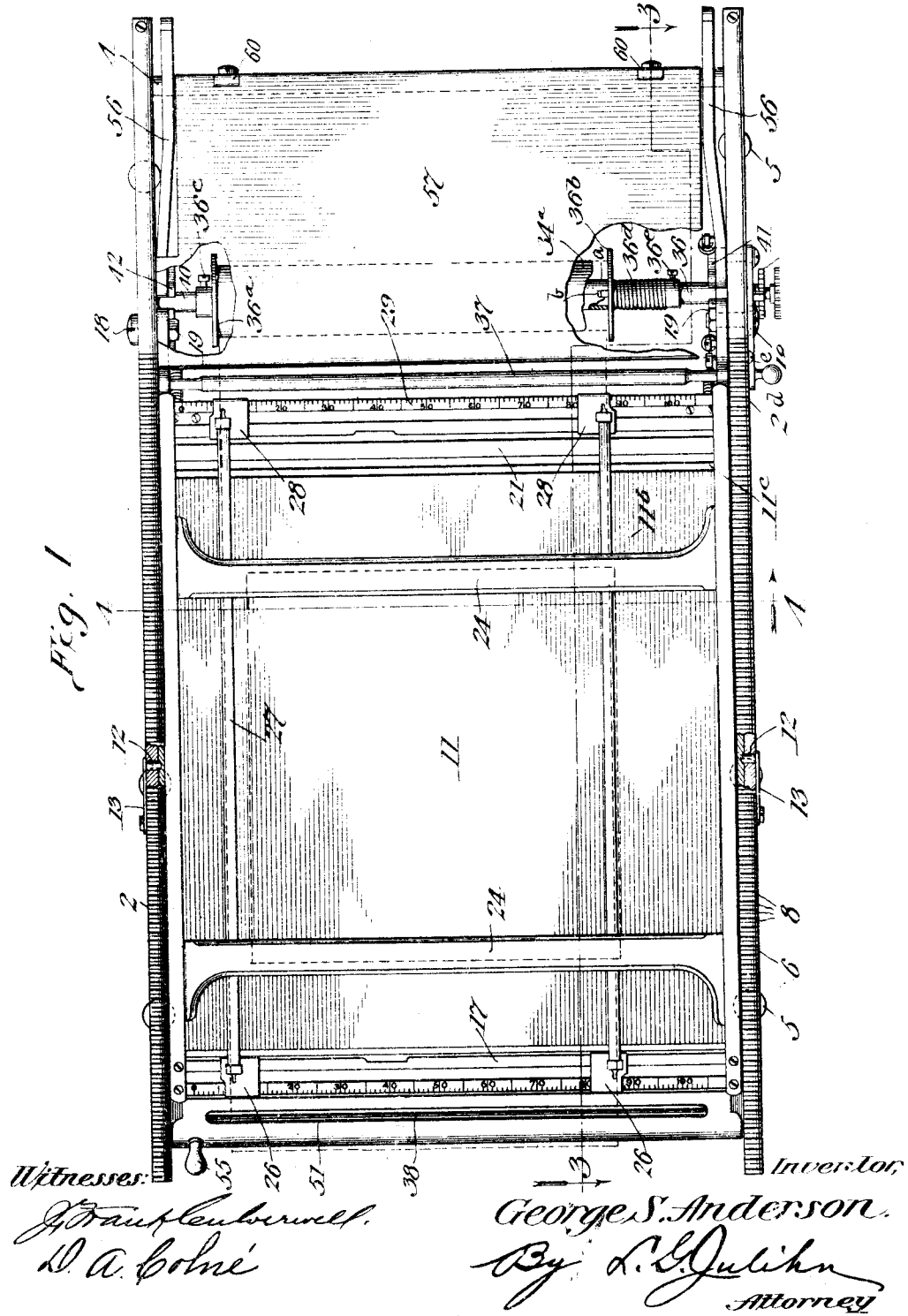


G. S. ANDERSON.
 PLATEN FOR TYPE WRITING MACHINES.
 APPLICATION FILED JUNE 20, 1908.

Patented May 20, 1913.

5 SHEETS—SHEET 1.

1,062,428.

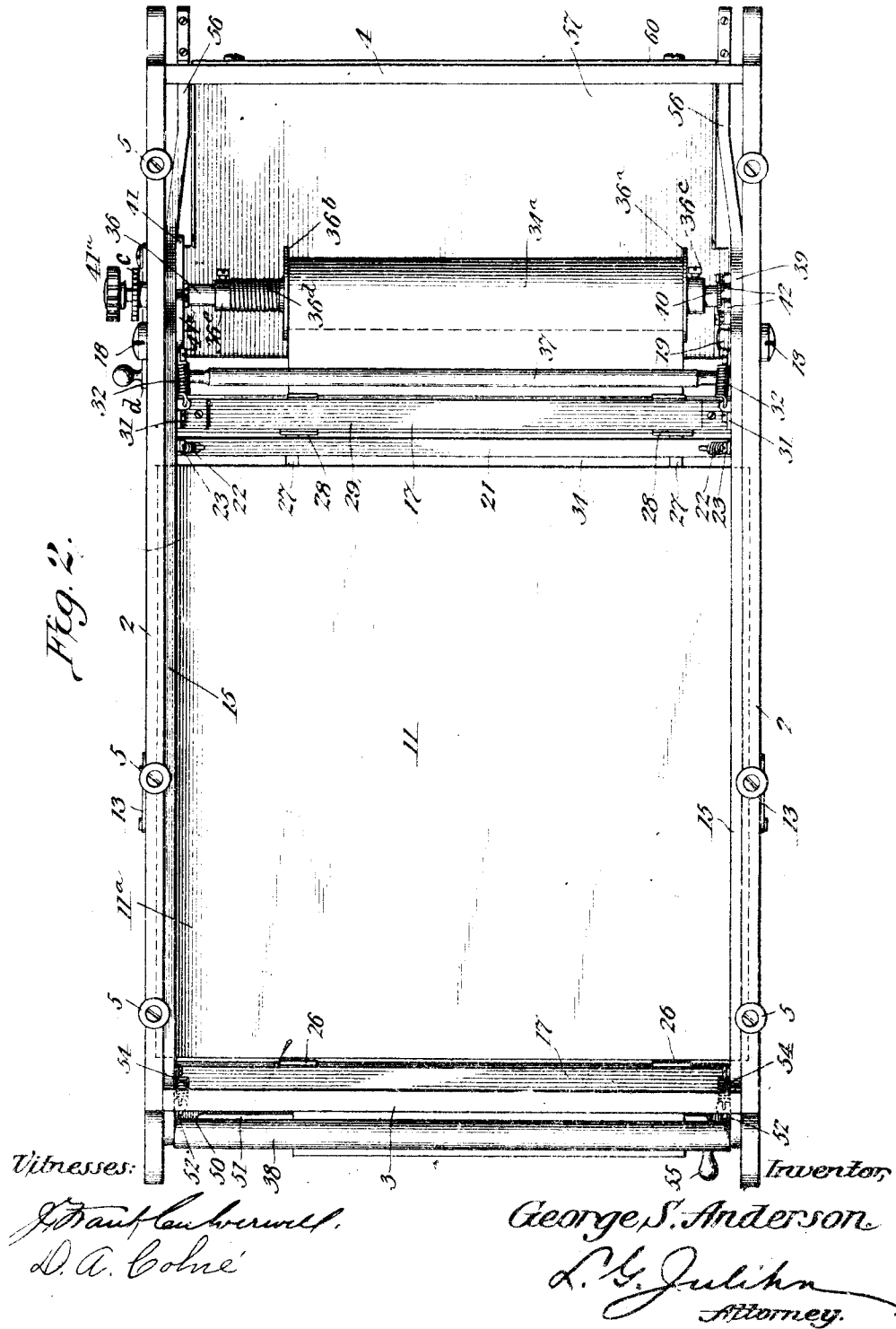


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5 SHEETS—SHEET 3.

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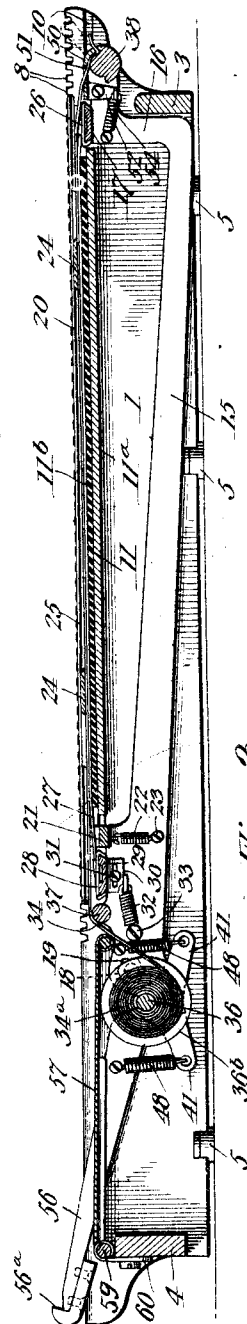


Fig. 3.

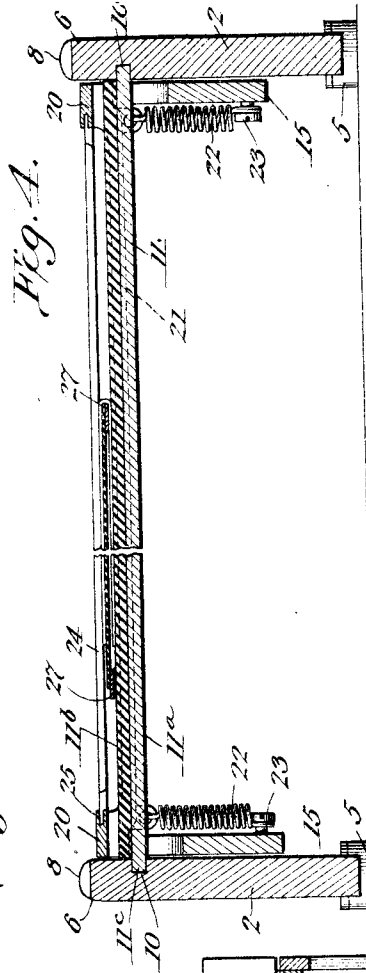


Fig. 4.

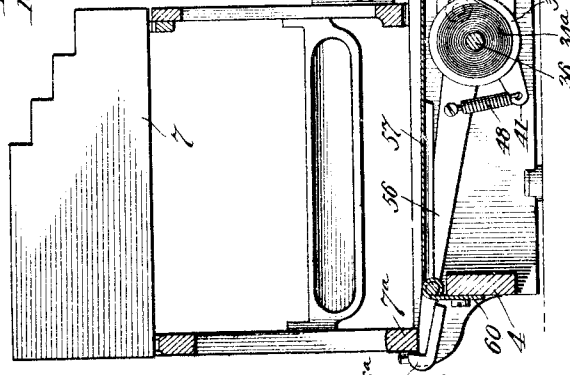


Fig. 5.

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 D. A. Colne

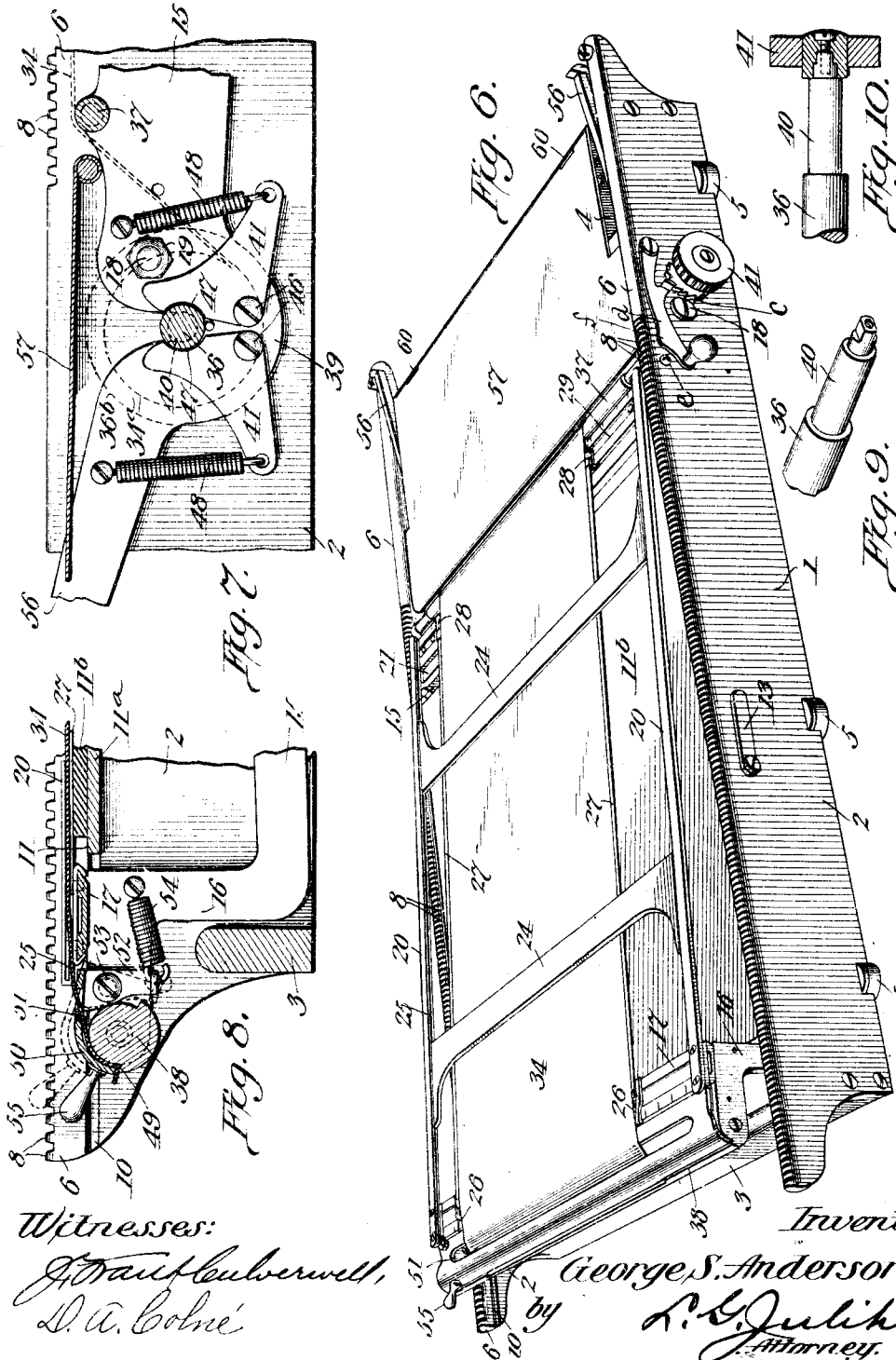
Inventor,
 George S. Anderson.
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 Attorney.

G. S. ANDERSON.
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6 SHEETS-SHEET 4.



Witnesses:

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APPLICATION FILED JUNE 20, 1968.

6 SHEETS—SHEET 5.

Fig. 13.

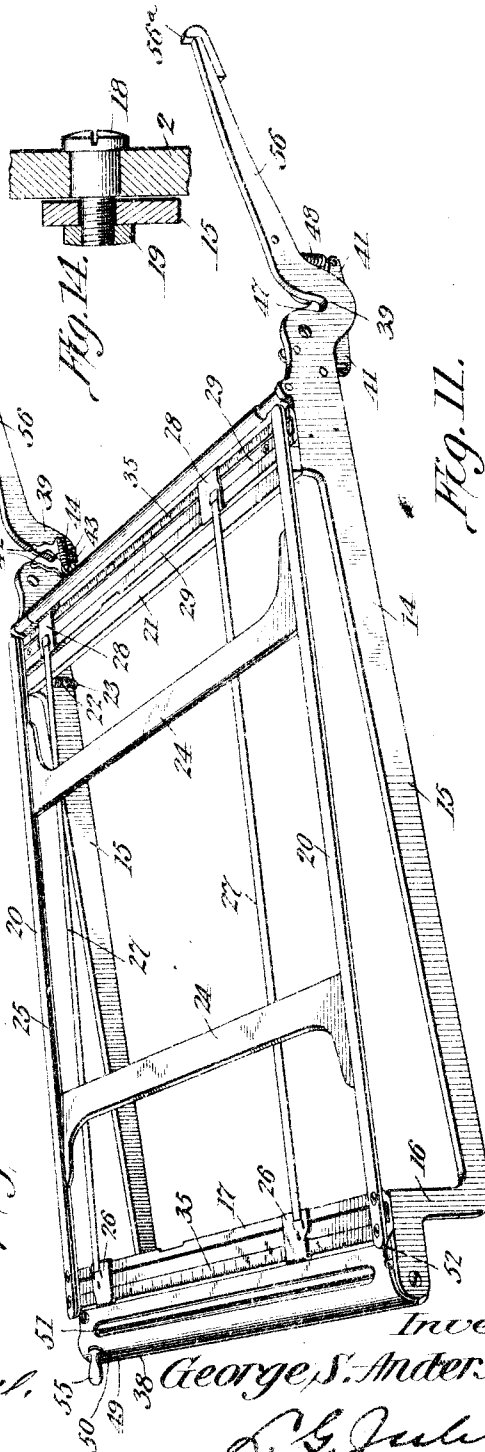


Fig. 11.

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UNITED STATES PATENT OFFICE.

GEORGE S. ANDERSON, OF HARRISBURG, PENNSYLVANIA, ASSIGNOR TO ELLIOTT-FISHER COMPANY, OF HARRISBURG, PENNSYLVANIA, A CORPORATION OF DELAWARE.

PLATEN FOR TYPE-WRITING MACHINES.

1,062,428.

Specification of Letters Patent.

Patented May 20, 1913.

Application filed June 20, 1908. Serial No. 439,567.

To all whom it may concern:

Be it known that I, GEORGE S. ANDERSON, a citizen of the United States of America, residing at Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented certain new and useful Improvements in Platens for Type-Writing Machines, of which the following is a specification.

10 My present invention relates to a novel platen and platen equipment adapted for use in connection with typewriting machines of that class which travel relative to the platen for letter and line spacing.

15 The primary object of the invention is to so construct and equip a flat platen that the widest possible variation will be permitted in the character of work to be done.

20 Other and subordinate objects will appear as the succeeding description is developed.

In the accompanying drawings, wherein I have illustrated a preferred embodiment of the invention, Figure 1 is a plan view of a platen constructed in accordance with my invention, certain of the parts being broken away to facilitate the illustration and the carbon and work sheets being indicated in dotted lines. Fig. 2 is a plan view of the same subject-matter inverted. Fig. 3 is a longitudinal section on the line 3—3 of Fig. 1. Fig. 4 is a transverse section on the line 4—4 of Fig. 1. Fig. 5 is a longitudinal section similar to Fig. 3 but showing the work-holding frame elevated by the typewriting machine, which is diagrammatically illustrated. Fig. 6 is a perspective view of the platen with the work frame elevated. Fig. 7 is a longitudinal sectional view through a portion of the structure designed more particularly to show the mounting of the carbon roll. Fig. 8 is a longitudinal section through the front end portion of the structure. Fig. 9 is a detail perspective view of one end of the rear carbon carrier. Fig. 10 is a detail section partly in elevation, showing the manner of attaching the thumb wheel to the carbon carrier or spindle. Fig. 11 is a perspective view of the work-holding frame detached. Fig. 12 is a longitudinal sectional view through a portion of the structure designed more particularly to show the arrangement of the tensioning devices of the tapes and the work clamping frame. Fig.

13 is a transverse section on the line *x—x* of Fig. 12, showing the yielding relation between the upper and lower sections of the work holding frame. Fig. 14 is a detail view of the pivotal mounting of the work holding frame in the platen frame.

In the drawings each part wherever shown is indicated by its proper reference character.

1 indicates a platen frame comprising side plates 2 and front and rear end plates 3 and 4 connecting the side plates rigidly in parallel relation. The platen frame is provided with rubber or other suitable cushioning feet 5 preferably set into the bottom of the side plates 2, as shown in Fig. 6, and designed to avoid marring the surface of the desk or other support upon which the platen is used. Any suitable number of feet 5 may be provided, and in the drawings I have shown a foot at each corner of the frame and an extra pair set back somewhat from the front end of the platen in order to allow the front edge of the platen to project beyond the edge of the table or desk if desired.

The upper edges of the side plates 2 of the frame 1 are rounded and serve as tracks or guides 6 upon which the typewriting machine shown in Fig. 5 travels longitudinally to letter space the writing, the tracks 6 being toothed, as indicated at 8, to engage the line space pinions 9 of the typewriter. The side plates 2 of the frame 1 are provided with their inner side faces adjacent to their upper edges with longitudinal grooves 10 for the reception of the offset edges of the platen proper 11. The platen 11 is square to enable the same to be withdrawn from the grooves 10 and then reinserted after having been given a quarter or half turn. This enables four different points of the platen to be presented at the point of greatest use. In other words, when the writing surface of the platen has been somewhat worn, the platen may be removed and then inserted in position to present another portion thereof at the point which receives the greatest wear, this arrangement serving to greatly extend the life of the platen. For the purpose of yieldingly retaining the platen in position in order that an inexperienced operator may properly effect its displacement from and replacement in the frame, I provide each edge of the platen with a depression or

socket 12, see Fig. 1, engaged by a spring catch 13, one of which is carried by each of the side plates 2.

The platen 11 may be constructed in any suitable manner, but preferably comprises a metal or other suitable plate 11^a upon which is imposed a hard rubber or other layer 11^b suitable for a writing surface. The layer 11^b is of slightly less dimensions than the plate 11 so that the projecting edge of the latter constitutes a marginal flange 11^c adapted to be received in the grooves 10. If desired, a layer 11^b may be imposed upon both sides of the plate 11 in order to provide for the reversal of the platen. The platen thus constructed and mounted is equipped with a number of devices which facilitate the handling of various kinds of work sheets or elements and thus make it possible to employ a single platen for all kinds of work ordinarily required of a machine of this character, as for instance single sheet or manifold billing, card and letter writing, folded form billing, etc. These various work-holding devices are mounted in an organization which is movable as a unit relative to the platen to facilitate the displacement, replacement and adjustment of the work elements and the various devices are susceptible of relative adjustment so that the work-holding unit may be adapted for the particular class of work in hand.

The work-holding frame is designated as a whole by 14. As best shown in Fig. 11, this frame comprises a pair of rigid side members 15 having angular front ends 16 rigidly connected by a transverse bar 17. The frame 14 is pivotally mounted in the platen frame 1 at a point in rear of and in a plane below that of the platen proper. The specific character of this pivotal mounting of the work-holding frame may be varied, but is preferably effected by means of headed stub shafts 18 passed through the side plates 2 from the outside and through the side bars 15 of the work-holding frame, nuts 19 being screwed upon the inner ends of the shafts 18 to retain the same in proper position.

Disposed over the platen and secured at their front ends to the extremities of the bar 17 are two longitudinal work-holding members 20 which lie closely adjacent to the inner sides of the machine tracks or guides and may be employed to clamp certain forms of work elements or sheets upon the writing surface of the platen. These longitudinal members or bars 20 are connected adjacent to their rear ends by a transverse bar 21 located beyond but adjacent to the rear edge of the platen and disposed in a plane slightly below the writing surface thereof. The connection of the members 20 by the bar 21 unites the former in a single work-holding

unit, which, by reason of the slight resiliency or flexibility of the bars 20 is adapted to yield relative to the frame 14, as indicated in dotted lines in Fig. 13, for the purpose of accommodating sheets of varying thickness or different numbers of sheets when the device is being used for manifold-ing.

The bar 21 lies loosely upon the upper edges of the arms 15, as shown in Figs. 11 and 12, and is normally held depressed by suitable tension mechanism which supplements the resiliency of the members 20 to insure the secure clamping of the work sheets by the latter. This tension mechanism may be of any desired form, but preferably includes a pair of spiral springs 22 each of which is connected to one end of the bar 21 and to a subjacent screw 23 projecting from the adjacent bar 15. The springs 22 constantly tend to draw the bar 21 down upon the upper edge of the frame 14 and thus serve to draw the longitudinal members 20 close against the writing surface of the platen. A distinct advantage of two tension devices located at opposite ends of the bar 21 is that both members 20 will be drawn close against the work sheets imposed upon the platen, even if a greater number of sheets is clamped by one of the members than by the other. In other words, while the two longitudinal members 20 may yield as a unit by reason of their connection by the bar 21, they are also capable of slight independent movement vertically.

In addition to the two longitudinal work-holding members 20 the platen equipment includes a pair of transversely disposed work-holding or guarding members 24. These members are in the form of flat metal plates having their opposite ends received within grooves or guideways 25 formed in the inner edges of the longitudinal members 20. The transverse members 24 are designed to hold or guard the top and bottom edges of the work sheet and are independently adjustable longitudinally of the platen. These members may either hold the sheet or merely serve to guard the edges thereof from contacting with a part of the traveling machine structure. They are also particularly useful for the retention of cards or similar work elements of small size. The grooves 25 in the members 20 are open-ended so that the transverse members 24 may be entirely withdrawn when their use is not desired.

In addition to the longitudinal and transverse work-holding members described, the platen is equipped with instrumentalities adapted to facilitate what is known as continuous billing, or billing in which folded forms are employed. To this end the bar 17 is provided with a pair of clips 26 to which are connected the front ends of a pair of

flexible tapes 27 of metal or other suitable material, connected at their rear ends to similar clips 28 mounted on a transverse bar 29 similar to the bar 17, but located beyond the rear end of the platen proper and resting loosely upon the upper edge of the side arms 15 of the main frame.

The opposite ends of the bar 29 are connected to slotted brackets 30 guided by headed screws 31 which engage the slots in said brackets and are screwed into the arms 15. This character of mounting for the bar 29 allows said bar to have more or less movement transversely for the purpose of taking up the slack in the tapes 27 and holding the same perfectly taut. The tapes 27 may be inherently elastic, but, as before stated, they are preferably thin ribbons of metal that are subjected to tension by tension mechanism which may be in the form of spiral springs 32 secured at their front ends to the brackets 30 and at their rear ends to screws 33 screwed into the arms 15. The springs 32 exert a backward pull upon the brackets 30 and the bar 29 and thus hold the tapes 27 taut, but allow the latter to yield more or less to facilitate the handling of the work. The tapes 27 are useful in connection with various classes of work, but are particularly designed to facilitate form billing, the right hand tape being received within the fold or bight of the folded form, and the two tapes constituting marginal supports for a carbon web 34 extending between carriers located beyond the front and rear ends respectively of the platen proper. The clips 26 and 28 to which the opposite ends of the tapes 27 are connected are adjustable along the bars 29 in order to separate the tapes by any desired interval, and the bars 17 and 29 are provided with scales or graduations 35 to facilitate transverse adjustment of the tapes. Attention is directed to the fact, see Figs. 8 and 12, that the upper surfaces of the bars 17 and 29 are dropped slightly below the plane of the writing surface so that normally the tapes lie close upon the platen and have a slight downward inclination from the edges of the platen to the tape retaining clips.

As has been stated, the carbon or other transfer web 34 extends between carriers located beyond the opposite ends of the platen proper. The rear carrier is in the form of a spindle 36 mounted in the frame 15 in rear of the pivotal mounting thereof and supporting a carbon roll 34^a from the under side of which the web 34 is led over a guide roller 37 and thence over the platen to the front carrier or carbon retaining device 38, see Figs. 8 and 12. The guide roller 37 is journaled in the side bars 15 of the frame 14 and said frame at a point just in rear of its pivotal mountings is provided

with drop bearings 39 which receive the reduced end portions 40 of the spindle 36, the right hand end of the spindle being extended through a side plate 2 of the platen frame and provided with a thumb wheel 41^a by means of which the spindle may be rotated.

The spindle is retained in the open drop bearings 39 by bearing clips 41 and 42 arranged in pairs, see Figs. 7 and 12. The clips 42 are pivotally connected at their lower ends, as indicated at 43, to the inner side of one of the drop bearings 39 and are yieldingly drawn toward each other by a spring 44 connected at its opposite ends to the respective clips. The opposed faces of the clips 42 are formed with recesses or sockets 45 and above these recesses the ends of the clips are flared. Thus the spindle may be dropped into the bearing 39 by the application of sufficient pressure to spread the clips 42 apart against the resistance of the spring 44, the spindle being securely but removably retained in the bearing by the clips. The clips 41 are functionally similar to the clips 42 and said clips 42 may be duplicated if desired. It will be seen in Fig. 7 of accompanying drawings, however, that the second pair of bearing clips 41 are of substantially right angular form, being pivotally mounted at their angles, as indicated at 46, to the adjacent drop bearing and having their upper recessed ends 47 urged into engagement with the spindle by separate springs 48 secured at their lower ends to the clips and at their upper ends to the frame 14. It will thus be seen that the rear carbon carrier is mounted in the swinging frame structure 14 just in rear of the axis of movement thereof and that said carrier while free to rotate, is retained against accidental displacement by spring urged bearing clips which yield sufficiently to permit the insertion of the spindle in or its removal from the drop bearings of the swinging frame. It will of course be understood that the right hand side plate 2 of the platen frame is slotted to accommodate the movement of the spindle 36 as the frame 14 is swung. If desired, the rear carbon carrier may be in the form of a spool, a construction of this character being produced in the present instance by equipping the spindle 36 with spool flanges 36^a and 36^b, the former being secured to the spindle by a set screw 36^c and the latter being preferably urged against the end of the carbon roll by a spring 36^d backed by a set collar 36^e secured to the spindle.

The front carbon carrier 38 is in the form of an approximately cylindrical bar extending between the angular front ends of the side bars 15. This transverse bar or carrier 38 is not truly cylindrical because its upper half is reduced in diameter to form a

crimping ledge 49, with which coacts a combined carbon clamping, crimping and cutting member 50 in the form of a metal plate extending lengthwise of the bar 38 and having its front edge curved to conform approximately to the curvature of the reduced portion of the bar. This plate or member 50 is provided with a longitudinal slot 51 through which the carbon is led and at its rear edge depend two arms 52 fulcrumed upon the side arms 15 at 53 and connected at their lower ends to spiral springs 54 which constantly urge the member 50 into clamping contact with the bar 38.

The plate 50 is provided at one end with a handle or finger piece 55 by means of which the plate may be swung against the resistance of the springs 54 to the position indicated in dotted lines in Fig. 8. In this position of the plate the front end of the carbon may be passed through the slot 51 and thence between the members 38 and 50. If now, the plate 50 is released, the springs 54 cause it to clamp the carbon securely against the bar 38, the coaction of the front edge of the clamp 50 and the ledge 49 of the bar 38 serving to crimp the carbon in a manner to insure its retention. Furthermore, the front edge of the plate 50 may serve as a cutter for the carbon as it is obvious that when that portion of the carbon web lying opposite the platen becomes worn, the plate 50 may be thrown up and the carbon web drawn forward until the worn portion is located in advance of the clamp 50. The latter may then be released to again clamp the carbon and the used portion of the latter may be torn off by the use of the front edge of the cutter 50 as a straight edge or shearing blade.

It has been premised that the entire platen equipment which has been described in detail is organized in a swinging structure and it has been stated that this structure swings from the stub shafts 18 located in a plane below and at a point in rear of the platen proper. In certain aspects of the invention it is immaterial how the swinging of this structure is accomplished. In the present instance, however, it is contemplated to extend the side arms 15 of the frame 14 in an upward and rearward direction from the drop bearings 39 to form what may be termed cam arms 56 located adjacent to opposite sides of the platen frame at the rear end thereof, see Fig. 1, and projecting upwardly into the path of one of the frame bars 7^a of the typewriting machine 7. By means of this arrangement the typewriting machine when moved back beyond the printing area will depress the cam arms 56 and thus automatically effect the elevation of the work-holding frame, as shown in Fig. 6. (Also compare Figs. 3 and 5). This movement of the frame

causes the longitudinal and transverse work-holding, guiding and guarding members to be raised clear of the platen and also elevates that portion of the carbon web which lies opposite the printing area, thus facilitating the removal, adjustment or replacement of the work sheets in use. It will be noted in this connection that this swinging of the work-holding frame results in no slackening or distortion of the carbon element, since the opposite edges of the latter are supported by the tapes 27. It will furthermore be noted that notwithstanding that relation of the parts which causes the tapes to lie flat against the plates when in use, said tapes will be carried entirely away from the writing surface in a manner to leave the latter entirely free and clear of obstruction when the work-holding frame is elevated.

At the rear ends of the cam arm 56 are located machine stops 56^a which contact with the frame of the type-writing machine and arrest the latter when it has been moved rearwardly to its proper position over the machine support. In order to protect the carbon roll and lend finish to the platen, a cover-plate 57 is hinged at its rear edge upon the end bar 4 through the medium of a bar 59 and brackets 60, it being noted that the bar 59 and the rear end of the plate are spaced from the plates 2 to provide clearance for the cam arm 56. The front edge of the cover-plate is stiffened by a bar 58 and rests upon the side bars of the work-holding frame.

If desired, the carbon web may be held under tension by means of tension mechanism, as shown in Figs. 1, 2 and 6. The rear end of the carbon is wound upon a sleeve *a* which extends between the spool flanges 36^a and 36^b, being coupled to the latter by a notch and pin connection *b*, as shown in Fig. 1. To the spindle 36 at a point outside of the platen frame and preferably adjacent to the thumb wheel 41, is secured a ratchet wheel *c* arranged to be engaged by a gravity pawl *d* above the free end of which is located a yielding stop *e*. As the sleeve *a* is loose on the spindle, it will be seen that by rotating said spindle in the proper direction the spring 36^a may be wound sufficiently to place the desired tension on the carbon, the spindle being held to maintain the tension by the pawl *d* which may be moved out of engagement with the ratchet to decrease or entirely eliminate the tension if desired. Should the pawl *d* be left in an elevated position, a projection *f* thereon will extend above the adjacent rail so as to be engaged and moved down by the frame of the typewriter. When it is desired to draw the carbon forward in order to displace a used portion thereof, it is merely necessary to move the flange 36^b laterally out of engagement with the sleeve *a*,

thus entirely releasing the carbon roll from the spindle and allowing the carbon to be drawn forward, after which the flange is allowed to reengage the sleeve and the carbon is again placed under tension.

It is thought that from the foregoing, the construction, operation and advantages of my platen will be apparent, but I wish to be understood as reserving the right to effect such changes, modifications and variations of the illustrated structure as may come fairly within the scope of the protection prayed.

What I claim is:—

1. The combination with a stationary platen and a traveling machine, of a swinging frame, work-holding means carried by the frame, a carbon carrier also mounted on the frame, and means for causing the frame to be swung by the machine to elevate the work-holding means from the platen.

2. The combination with a platen frame and platen, of a work-holding frame mounted to swing in the platen frame, work-holding means carried by the frame, carbon carriers mounted on the work-holding frame beyond opposite ends of the platen, a cam arm extended at one end of the work-holding frame, and a machine mounted to travel on the platen frame and arranged to engage the cam arm.

3. The combination with a flat platen, tracks or guides, and a traveling machine, of a swinging work-holding frame movable independently of the tracks or guides and including independently adjustable work-holding or guarding members disposed longitudinally and transversely of the platen respectively, and means for causing the machine, when moved back beyond the printing area, to automatically swing the work-holding frame.

4. The combination with a platen, of a work-holding structure including a supporting frame, and a pair of work holding members rigidly secured at their front ends to the supporting frame and having their rear ends yieldable with respect to said frame.

5. The combination with a platen, of stationary tracks or guides for a traveling machine, a work-holding structure including a swinging supporting frame and work-holding means mounted on said supporting frame and yieldable relative thereto to accommodate different thicknesses of paper.

6. The combination with a platen, of a swinging work-holding structure comprising a supporting frame, carbon carriers mounted in said supporting frame and located beyond the opposite ends of the platen, carbon guiding means located intermediate of the carriers and beyond the rear edge of the platen, a pair of flexible tapes extended over the platen and arranged to support the opposite edges of a carbon web led between

the carriers, a transverse work guard disposed over the platen and adjustable longitudinally thereof, and means carried by the supporting frame for supporting and guiding said work guard.

7. The combination with a platen frame, provided with grooves, of a platen having its edges received within said grooves, and platen retaining catches.

8. A carbon clamp of the character described, comprising a longitudinally shouldered member, a pivotally mounted clamping plate cooperating with said member and provided with a slot through which the carbon may be threaded, and a spring acting to urge the clamp to its engaging position.

9. The combination with a platen, of a spindle, a sleeve mounted thereon and constituting a carbon carrier, a spring tending to rotate the sleeve on the spindle, and pawl and ratchet mechanism coacting with the spindle to regulate the tension of the spring.

10. The combination with a platen, of a work holding structure including a supporting frame and a pair of work holding members disposed longitudinally of the platen and secured at one end to the frame and having their opposite ends yieldable relative to the frame.

11. The combination with a platen frame and platen, of a work holding frame carried by the platen frame and movable relative thereto, and work holding members carried by the work holding frame and yieldable relative thereto to accommodate different thicknesses of paper interposed between the work holding members and the platen, and tension mechanism acting to draw the work holding members toward the platen.

12. The combination with a platen frame and platen, of a supporting frame movably mounted in the platen frame and extended below the platen, and work holding members extended over the platen and supported at both ends by the supporting frame, said work holding members being yieldable relative to the supporting frame to accommodate different thicknesses of paper interposed between the work holding members and the platen.

13. The combination with a platen, of stationary tracks or guides for a traveling machine, a pair of transverse bars located beyond opposite ends of the platen, tapes extended between said bars and relatively adjustable transversely, a pair of longitudinal work-holding members extended between the bars and vertically movable independently of the tracks or guides, a transverse work-holding member adjustable along the longitudinal members and vertically movable therewith, and tension mechanism coacting with one of the transverse bars to hold the tapes taut.

14. The combination with a platen and

stationary tracks or guides for a traveling machine, of a work-holding frame movable independently of the tracks or guides and having work-holding members disposed longitudinally of the platen and yieldable vertically independently of each other and of the work-holding frame to accommodate variations in the thickness of the paper.

15 15. The combination with a platen and tracks or guides for a traveling machine, of a pair of longitudinal work-holding members extended over the platen between the tracks or guides, and separate tension devices coacting with the rear ends of said work-holding members.

16. The combination with a platen and tracks or guides, of a supporting frame

mounted to swing relative to the platen on an axis disposed transverse to said platen, work-holding members disposed over the platen and each secured at one end to the swinging frame and having its opposite end vertically movable relative to the frame whereby the angular motion of the swinging frame will not interfere with the proper positioning of the work-holding members upon paper of varying thickness.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE S. ANDERSON.

Witnesses:

H. L. MORRISSEY,
H. S. ZERBE.