A. G. SNYDER.

TYPE WRITING MACHINE.

APPLICATION FILED SEPT. 16, 1907.

983,651.

Patented Feb. 7, 1911.

2 SHEETS—SHEET 1.

FIG. 1.

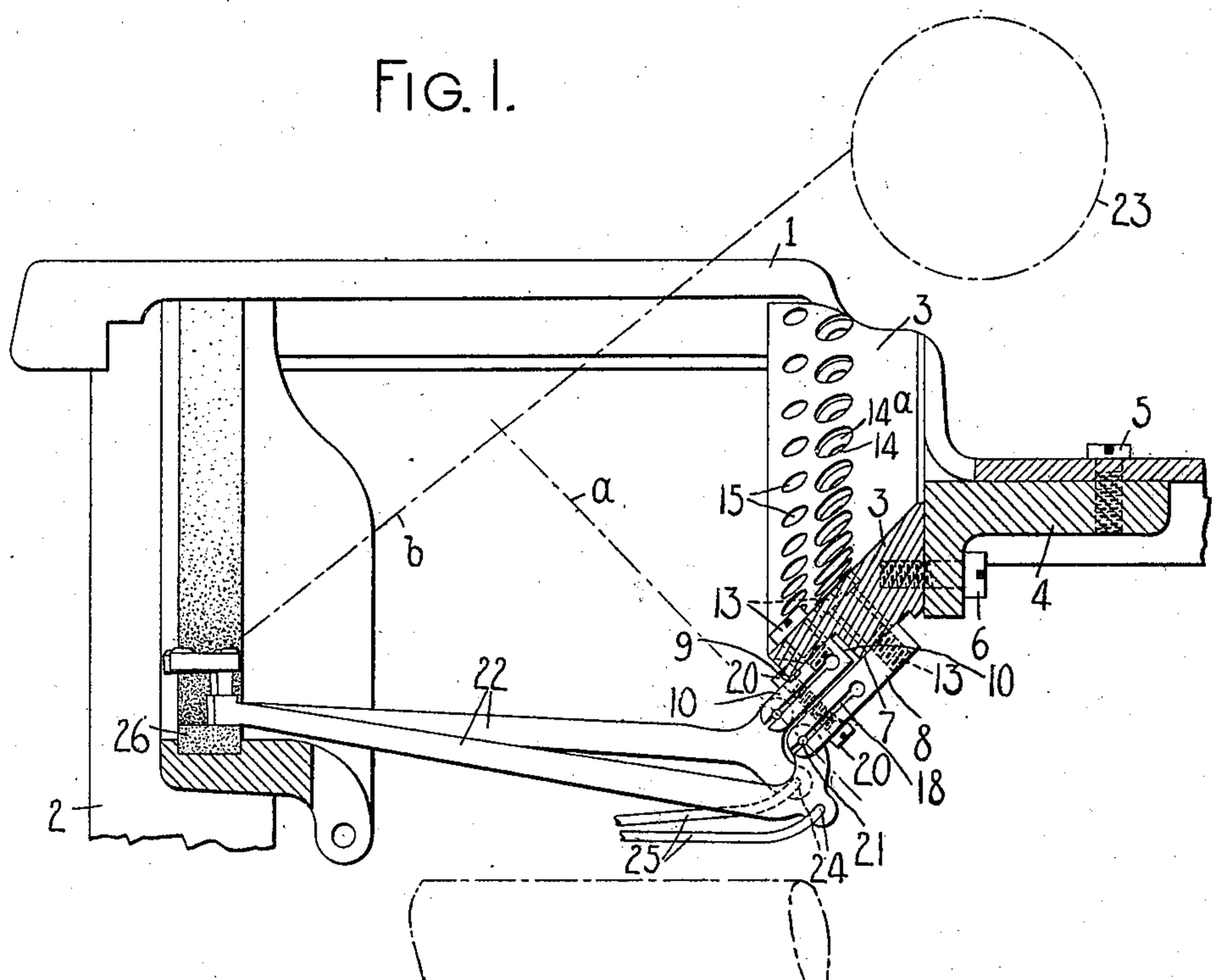
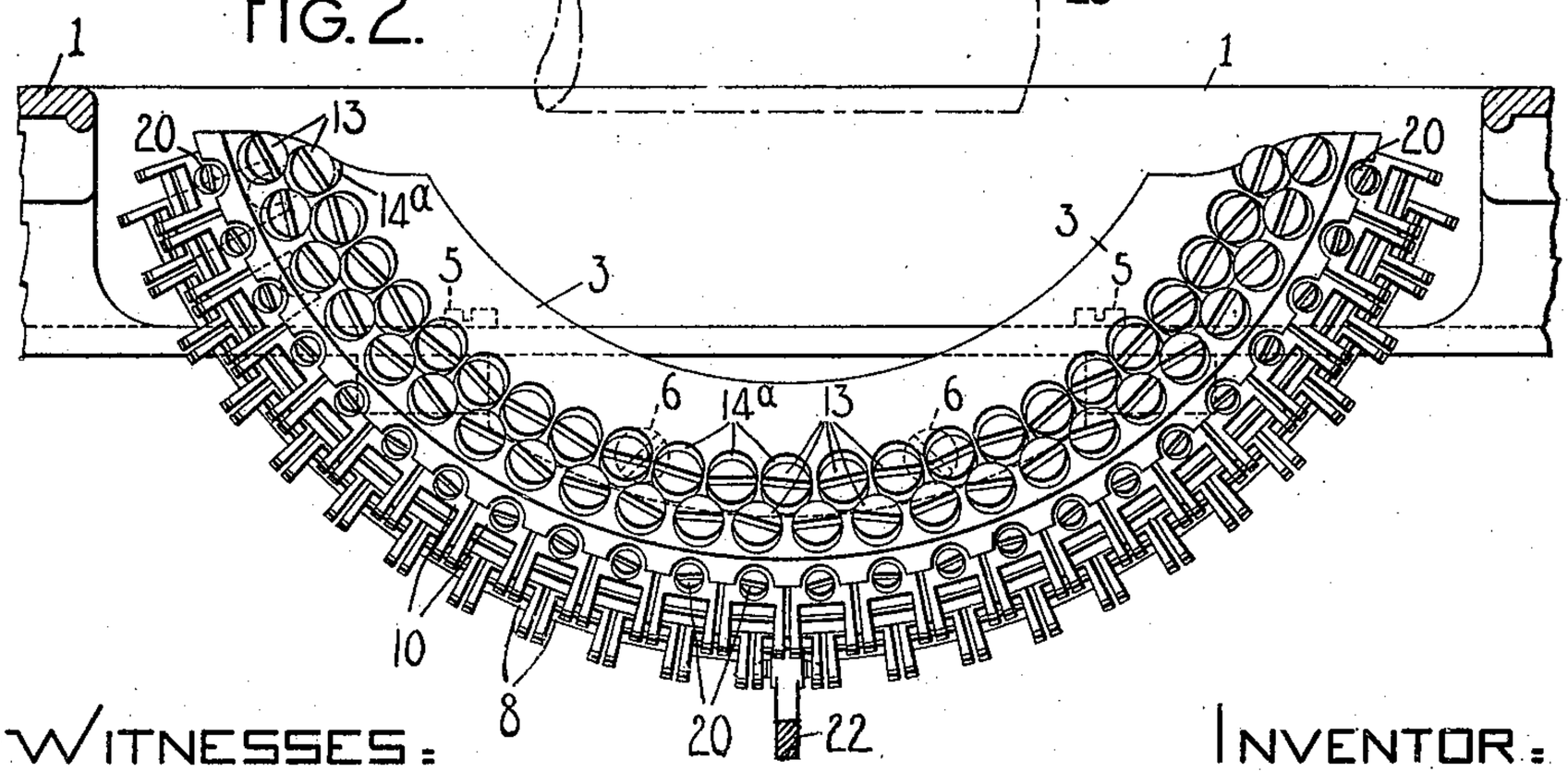


FIG. 2.



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2 SHEETS—SHEET 2.

FIG. 3.

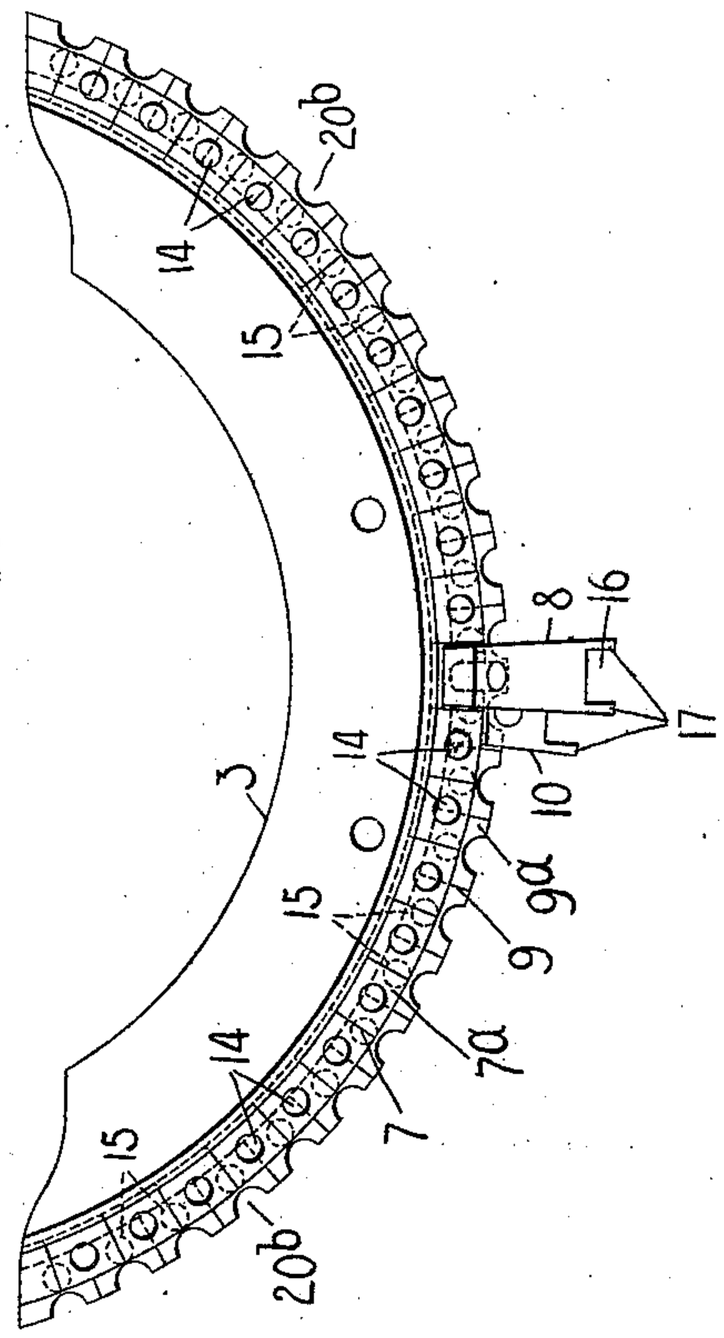


FIG. 7.

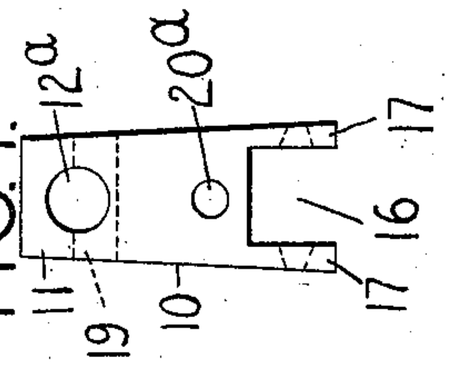


FIG. 6.

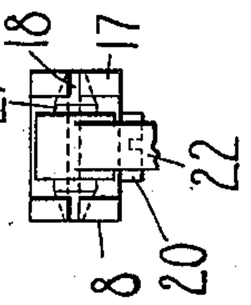


FIG. 5.

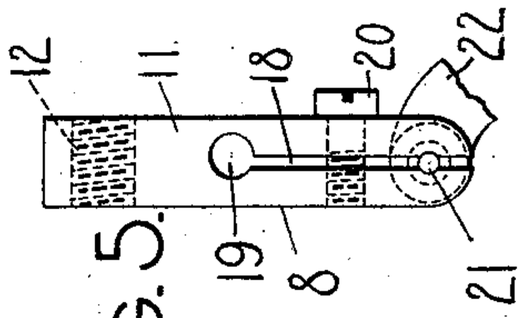
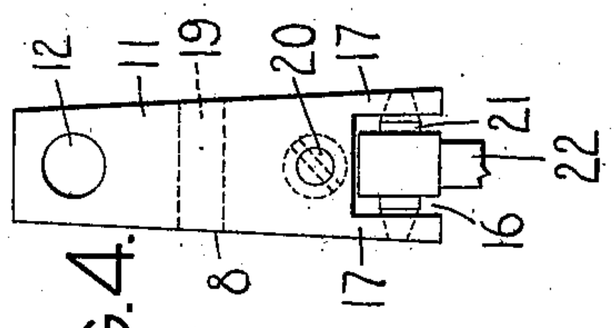


FIG. 4.



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UNITED STATES PATENT OFFICE.

AUGUSTUS G. SNYDER, OF ILION, NEW YORK, ASSIGNOR TO UNION TYPEWRITER COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

983,651. Specification of Letters Patent. Patented Feb. 7, 1911.

Application filed September 16, 1907. Serial No. 393,152.

To all whom it may concern:

Be it known that I, AUGUSTUS G. SNYDER, a citizen of the United States, and resident of Ilion, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to typewriting machines, and more particularly to type bar and hanger constructions for use in "visible" or front-strike machines and to the manner of mounting the hangers in the machine.

One object of my invention is to provide a comparatively simple and efficient construction in which wide bearings may be provided for the type bars and yet a large number of type bars may be assembled in a "visible" machine without liability of conflict and without unduly crowding the type bars.

Another object of my invention is to provide comparatively simple and efficient means for adjusting the bearings of each type bar and to arrange the adjusting means so that access may be readily gained thereto without dismounting parts of the construction.

A further object of my invention is to arrange the securing means for the hangers in such a manner that access may be readily gained thereto from the front of the machine at any time without disconnecting any of the parts so that one or more of the individual hangers may be removed when desired.

Another object of the invention is to provide constructions such as those referred to with means whereby a ready adjustment of the hangers is afforded.

A still further object of the invention is to so construct and arrange the parts that the segment constitutes a dust guard or shield for the type bar bearings.

To the above and other ends which will hereinafter appear my invention consists of the features of construction, arrangements of parts and combinations of devices to be hereinafter described and claimed.

In the drawings, wherein like reference characters indicate corresponding parts in the various views, Figure 1 is a fragmentary vertical sectional view, taken centrally through the segment and showing the segment and some of the associated parts with two type bars and hangers mounted in place; the platen being shown diagrammatically. Fig. 2 is a front view showing most of the parts illustrated in Fig. 1 with the entire system of hangers and a single type bar in place, said type bar and the top plate being shown in section. Fig. 3 is a detail rear view of the segment with two hangers in place thereon. Figs. 4 and 5 are detail views showing a hanger of one set and the pivotal end of the corresponding type bar, and Figs. 6 and 7 are detail views showing a hanger of the other set, the pivotal end of the corresponding type bar being shown in Fig. 6.

My invention relates more particularly to a "visible" typewriting machine, and in the present instance I have illustrated it in connection with a front-strike machine. The top plate 1 of the machine is mounted on corner posts 2 and a type bar segment 3 is connected to the top plate by an angle iron or bracket 4 situated centrally of the machine and secured to the top plate by screws 5 and connected to the segment by screws 6. This angle bracket constitutes the sole support for the segment and it will be seen that the segment is detachably supported so that the type bars and hangers may be mounted in place on the segment outside of the machine and introduced as a whole into the machine. The type bar segment which opens upwardly and has the general form of the section of a cone, its inclination being downward toward the front of the machine, and it is stepped on its rear or under side, one step 7 constituting a bearing for the hangers 8 of the rear series, whereas the step 9 constitutes a bearing for the forward series of hangers 10. From an inspection of Fig. 1 it will be observed that the hangers are disposed in inclined planes. the hangers extending downwardly and forwardly from the upper ends thereof, and that each fore and aft pair or set of hangers are arranged nearly in parallel planes, as indicated in Fig. 1.

The bearing surface for each hanger is preferably formed as a facet so as to provide a flat bearing for the associated hanger, each facet of the step 7 being indicated at 7^a, whereas each facet of the step 9 is indi-

cated at 9ª in Fig. 3. The hangers of the rear set are constructed as shown in Figs. 1, 4 and 5 of a block-like hanger body 11 having a tapped opening 12 therein for coöperation with the threaded end of a securing screw 13 which passes downwardly from the top of the segment through an elongated opening 14 therein, the head of the screw extending at an inclination toward the front of the machine as shown in Figs. 1 and 2 where access may be readily had to the screws from above while standing in front of the machine. The opening 14 is of such dimensions as to afford an adjustment of the screw 13 and hanger 8 along an element of the cone of which the segment is a part, whereby the distance of the type bar pivot from the printing point may be regulated. A countersunk opening 14ª is preferably provided in the front face of the segment at each opening 14 for the reception of the head of the securing screw 13 and this countersunk opening is also elongated to afford a bodily adjustment of the screw. A second series of openings 15 extend through the segment forward of the openings 14 and are staggered relatively thereto. The openings 15 are like the openings 14 except that the former are not countersunk but they are elongated radially to afford a bodily radial adjustment of the screws and the forward set of hangers 10 which they secure in place. Each hanger 8 and each hanger 10 is bifurcated at 16 to provide bearing arms 17, and each hanger also has a longitudinal slot 18, the plane of which includes the type bar pivot. Said slot 18 cuts lengthwise through each of the arms 17 and back into the body portion of the hanger, terminating in an enlarged opening 19.

An adjusting rivet or screw 20 takes into the body of the hanger at the divided portion thereof but back of the bearing arms so as to effect an adjustment of the bearing type bars 22. Thus the screw 20 of each hanger passes freely through a hole 20ª (see Fig. 7) in the hanger at one side of the slot 18 and is threaded into the tapped portion of this hole at the other side of the slot as shown in Fig. 5; so that a tightening of the screw compresses the hanger arms 17 and a loosening of the screw affords a separation of said arms. The adjusting screw 20 of each hanger is in the median line of the hanger arm 17 as shown in Fig. 4 so that the pressure exerted by this screw may be equally distributed on the four sections constituting the hanger arms. As shown in the present case, all of the hangers 8 of the rear set are alike and all the hangers 10 of the forward set are alike. A hanger of the forward set is shown in detail in Figs. 6 and 7 and is constructed the same as the hangers 8, except that it is shorter and the securing screw passes through an opening 12ª, a part only of which is in the unsplit or solid portion of the body of the hanger. The securing screws for the short hangers are not long enough to extend past the slot 18, so that the pressure applied to the securing screws does not interfere with the adjustment of the hanger or bearing arms effected through an adjustment of the screw 20, no matter how hard the securing screw 13 may be tightened.

It will be observed that the hangers are secured in place on the segment by means which are entirely independent of the screws 20 which effect the relative adjustment of the hanger arms and that therefore the adjustment of the hanger arms is in no manner affected by the securing means. The pivots of the type bars are preferably made conical at their ends, and suitable recesses are formed in the hangers to receive said pivots. The construction is such that the screws 20 are adapted to tighten the bearings about the pivots. The enlarged openings 19 add to the flexibility of the hanger at the end of the slot 18; and said slots divide the arms 17 from and through the free ends thereof, back into the body portion of the hanger.

From an inspection of Figs. 1 and 2 it will be seen that the adjusting screws 20 for the forward set of hangers are arranged with their heads extending forwardly into recesses 20ᵇ formed in the type bar segment and are situated in a position where access thereto may be readily obtained from the front of the machine in order to effect an adjustment of the bearing arms of the front set of hangers when desired. The heads of the screws 20 of the rear set of hangers 8 are at the rear or under side of the segment, yet these screws are so situated that access thereto may be had with little difficulty. Fig. 1 shows two adjacent type bars, one of each set, and from an inspection of said figure it will be observed that the pivots 21 of these two type bars are arranged in a plane indicated by the dotted line *a* which is nearly at right angles to the line *b* drawn from a type on one of the associated type bars to the printing point. By this arrangement of the pivots the forward ends of the type bars are arranged in their normal positions substantially in transverse alinement, notwithstanding the fact that the type bars connected to the forward set of hangers are shorter than those connected to the rear set of hangers.

From an inspection of Figs. 1 and 2 it will be seen that the openings 14 and 15 in the segment through which the securing screws pass from the front of the machine, and the securing screws themselves have a staggered arrangement and that the type bar hangers are likewise arranged in staggered relation, the type bar hangers of the

two sets overlapping in fore and aft radial planes. Each of the type bars is mounted to swing upwardly and rearwardly to strike against the front face of a platen 23 and each type bar has connected thereto at 24 a pull link 25 which is connected to any suitable actuating means by which the type bar is swung to the printing point. The forward ends of the type bars normally rest on a segmental pad or type rest 26. It will also be observed from an inspection of Fig. 1 that the type bar segment of this construction is interposed between the pivot bearings of the type bars and the printing point or line and that it therefore constitutes a dust guard or shield to prevent any dust or grit which drops from the front face to the segment from entering the pivot bearings of the type bars.

Various changes may be made in the details of construction and arrangement without departing from my invention.

What I claim as new and desire to secure by Letters Patent, is:—

1. A type bar having trunnion-like pivots, a bifurcated single piece hanger therefor, said hanger having the arms formed by the bifurcation, each arm being divided at the free end thereof and integral with the solid hanger body at the rear or attached end and having oppositely disposed bearings in each of the divided arms for the reception of the trunnion-like pivots on the type bar, and a screw independent of the means for securing the hanger in place, for adjusting the divided arms of the hanger.

2. A type bar having trunnion-like pivots, a solid block-like single piece hanger bifurcated at one end to provide integral bearing arms each provided with oppositely disposed bearings for the type bar, the hanger being divided from and through the outer ends of said hanger arms and through a portion of the body of the hanger back of the bifurcated portion thereof, and a screw independent of the attaching means for the hanger, which screw passes into the body of the hanger at that portion thereof which is divided to draw the divided members of the integral bearing arms together or to afford a separation thereof as may be desired, in order to adjust the bearings relatively to the trunnion-like pivots.

3. In a front strike typewriting machine, the combination of a segment, a system of type bars, the entire system of type bars being divided into two sets and having their free ends arranged side by side, two sets of individually adjustable hangers for said type bars, said hangers being arranged on the rear side of the segment and having the pivot bearing portions thereof extending beyond an edge of the segment and the hangers of one set being staggered relatively to the hangers of the other set, and screws which are arranged in two rows and pass through the segment from the front and secure said hangers in place.

4. In a front strike typewriting machine, the combination of a segment, a system of type bars, the entire system of type bars being divided into two sets and having their free ends arranged side by side, two sets of radiating individually adjustable inclined hangers for said type bars, said hangers being arranged on the rear side of the segment, the hangers of one set being staggered relatively to the hangers of the other set, and staggered screws which are arranged in two rows and pass through the segment from the front and secure said hangers in place.

5. In a front-strike typewriting machine, the combination of a segment that is formed as a section of a cone, two sets of hangers arranged on the rear side of said segment, the hangers of one set being staggered relatively to the hangers of the other set, and screws which pass through the segment from the front and secure said hangers in place, the heads of the securing screws being presented toward and readily accessible to the operator.

6. In a front-strike typewriting machine, the combination of a segment having a stepped face on the rear side thereof, two sets of hangers arranged on the steps on the rear side of said segment, the hangers of one set being staggered relatively to the hangers of the other set, and screws for the two sets of hangers, said screws being arranged above the type bars and passing through the segment from the front and securing said hangers in place.

7. In a front-strike typewriting machine, the combination of a segment that is formed as a section of a cone and has a stepped face, each step having a downwardly and forwardly inclined bearing face, two sets of inclined hangers arranged on the inclined bearing faces of the steps on said segment, the hangers of one set being staggered relatively to the hangers of the other set, and staggered screws which secure said hangers in place.

8. In a front-strike typewriting machine, the combination of a segment that is formed as a section of a cone and has a rear stepped face, two sets of inclined hangers arranged on the steps on the rear side of the segment, the hangers of one set being staggered relatively to the hangers of the other set, and staggered screws which pass through the segment from the front of the machine and secure said hangers in place, the heads of the securing screws being presented toward and readily accessible to the operator.

9. In a front-strike typewriting machine, the combination of a type bar segment provided with segmentally arranged bearing faces that are in the nature of facets, and

type bar hangers secured to said bearing faces.

10. In a front-strike typewriting machine, the combination of a segment, two sets of radiating inclined hangers arranged on the rear side of said segment, the hangers of both sets projecting in the same direction and the hangers of one set being staggered relatively to the hangers of the other set, and secured at different points fore and aft on the segment, the pivot bearings on each fore and aft set of hangers being situated in a plane that is approximately at right angles to a line drawn between a type on one of the associated type bars and the printing point.

11. In a front-strike typewriting machine, the combination of a type bar segment, staggered type bar hangers, screws for securing said hangers in place, and an adjusting screw for each type bar bearing, heads of securing and adjusting screws being presented toward the front of the machine where access may be readily gained to the screws for adjustment or removal.

12. In a front-strike typewriting machine, the combination of a segment, two sets of inclined hangers arranged on the rear side of said segment, the hangers of one set being staggered relatively to the hangers of the other set, screws which pass through the segment from the front and secure said hangers in place, and means for affording a radial adjustment of said hangers.

13. In a front-strike typewriting machine, the combination of a segment that is formed as a section of a cone, two sets of hangers arranged on the rear side of said segment, the hangers of one set being staggered relatively to the hangers of the other set, screws which pass through the segment from the front and secure said hangers in place, and means for affording a radial adjustment of said hangers.

14. In a front-strike typewriting machine, the combination of a segment having a rear stepped face, one step being arranged above the other, two sets of individual hangers arranged on the steps on the rear side of said segment, the hangers of one set being staggered relatively to the hangers of the other set, staggered screws which pass through the segment from the front and secure said hangers in place and means for affording an individual radial adjustment of said hangers when their securing screws are loosened.

15. In a front-strike typewriting machine, the combination of a segment that is formed as a section of the cone and has a rear stepped face, two sets of inclined hangers arranged on the steps on the rear side of the segment, the hangers of one set being staggered relatively to the hangers of the other set, staggered screws which pass through the segment from the front and secure said hangers in place, the heads of the securing screws being presented toward and readily accessible to the operator, and means for affording a radial adjustment of said hangers when their securing screws are loosened.

16. In a front-strike typewriting machine, the combination of a type bar segment, staggered type bar hangers, screws for securing said hangers in place, an adjusting screw for each type bar bearing, the heads of securing and adjusting screws being presented toward the front of the machine where access may be readily gained thereto for adjustment or removal, and means for affording a radial adjustment of said hangers when their securing screws are loosened.

17. In a front-strike typewriting machine, the combination of a type bar segment, and two series of staggered type bars arranged with their pivots beneath the body of the segment, so that the segment is interposed between the pivots of the type bars and the printing point and said pivots are protected from particles falling from the front face of the platen.

18. In a front-strike typewriting machine, the combination of a type bar segment, individual type bar hangers secured to the segment at the under side thereof, type bars pivoted to said hangers, the pivots of the type bars being arranged beneath the body portion of the segment so that the segment is interposed between the printing point and the pivots of the type bars and said pivots are protected from particles falling from the front face of the platen, the type bars being formed so that they may move to the printing point without interference from the segment, and means for detachably securing said hangers in place, said securing means being unobstructed and readily accessible from above the segment and from the front of the machine.

19. In a front-strike typewriting machine, the combination of a type bar segment, two sets of individual type bar hangers secured to the segment at the under side thereof, the hangers of one set being staggered relatively to the hangers of the other set, and type bars pivoted to said hangers, the pivots of the type bars being arranged beneath the segment so that the segment is interposed between said pivots and the printing point and the pivots are protected from particles falling from the front face of the platen, the type bars being formed so that they may move to the printing point without interference from the segment.

20. In a front-strike typewriting machine, the combination of a type bar segment the body portion of which is in the form of a section of a cone and slopes downwardly and forwardly, and type bars pivoted to said

segment, the pivots of the type bars being arranged beneath the body portion of the segment so that said body portion is arranged between the printing point and the type bar pivots and they are protected from particles falling from the front face of the platen, the type bars being formed so that they may move to the printing point without interference from the segment.

21. In a front strike typewriting machine, the combination of a segment stepped on the rear side thereof, each step extending throughout the length of the segment, a plurality of sets of hangers one set on each step, and screws arranged above the type bars and passing from the front through said segment and securing said hangers in place.

22. In a front strike typewriting machine, the combination of segmentally arranged upwardly and rearwardly striking type bars, connections for actuating said type bars, individual hangers one for each of said type bars, and staggered screws which coact directly with tapped openings in the hangers for securing said hangers in place, said screws passing into the segment from the front of the machine and above said type bars and their actuating connections, whereby an unobstructed approach is provided to said screws and access may be readily gained thereto from the front of the machine.

23. In a typewriting machine, the combination of a block-like hanger bifurcated to receive a type bar and to provide integral hanger arms, each of the integral arms formed by the bifurcation in the hanger being divided for adjustment on the pivots of the type bar, and a securing screw passing through a hole in the block-like body of the hanger.

24. In a front-strike typewriting machine, the combination of a complete system of segmentally arranged upwardly and rearwardly striking type bars, connections for actuating said type bars, individual hangers for said system of type bars, a segment that opens upwardly, and individual screws for securing said hangers of the entire system of type bars in place, said screws for the hangers of the entire system passing downwardly into said open segment with their heads uppermost and above the type bars.

25. In a front-strike typewriting machine, the combination of a system of segmentally arranged upwardly and rearwardly striking type bars, connections for actuating said type bars, individual hangers for said type bars, a segment, and screws for the hangers of the entire system of type bars, all of said screws passing down into holes in said segment from the top thereof and co-acting with the hangers to secure them in place, the screws being arranged in two rows and in staggered arrangement and having their heads uppermost and above the type bars.

26. In a front strike typewriting machine, the combination of a system of upwardly and rearwardly striking type bars arranged in two sets, actuating connections therefor, a type bar segment having an inclined forward face, two sets of individual type bar hangers, the hangers of one set being staggered relatively to the hangers of the other set, and two sets of screws for securing said hangers to the segment, the screws of one set being staggered relatively to the screws of the other set and all of said screws passing downwardly and rearwardly into holes in the forward inclined face of the segment and being arranged above the type bars and said actuating connections, so that unobstructed access may be had to the heads of all of said screws from the front of the machine.

Signed at Ilion, in the county of Herkimer, and State of New York this 11th day of September, A. D. 1907.

AUGUSTUS G. SNYDER.

Witnesses:
I. E. RICHARDSON,
GRACE WILLIAMSON.