A. J. BRIGGS.

TYPE WRITING MACHINE.

APPLICATION FILED DEC. 29, 1905.

962,616.

Patented June 28, 1910.

3 SHEETS—SHEET 1.

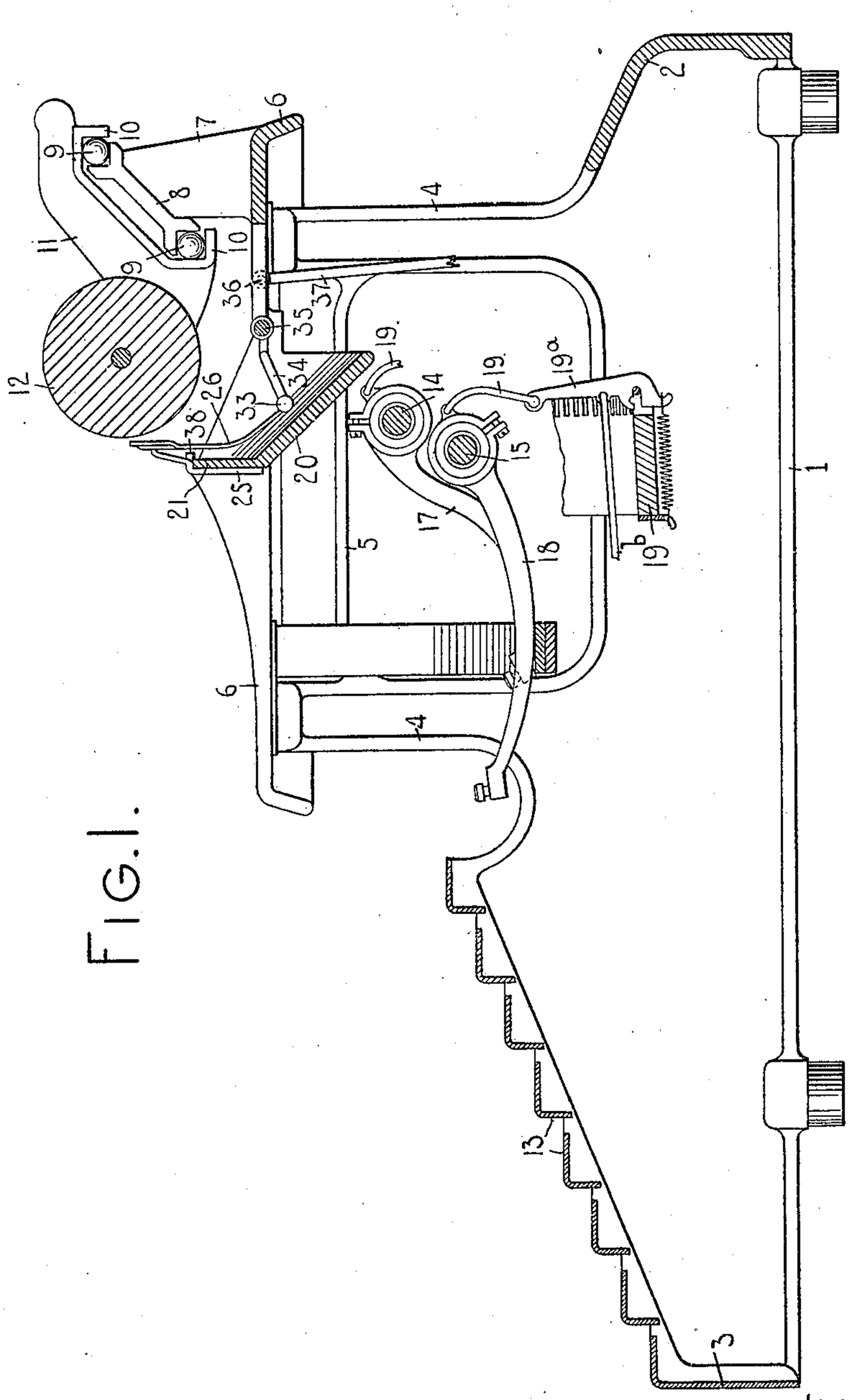

FIG. 1.

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R. H. Strother.

INVENTOR:

Arthur J. Briggs

By Jacob Felbel

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3 SHEETS—SHEET 2.

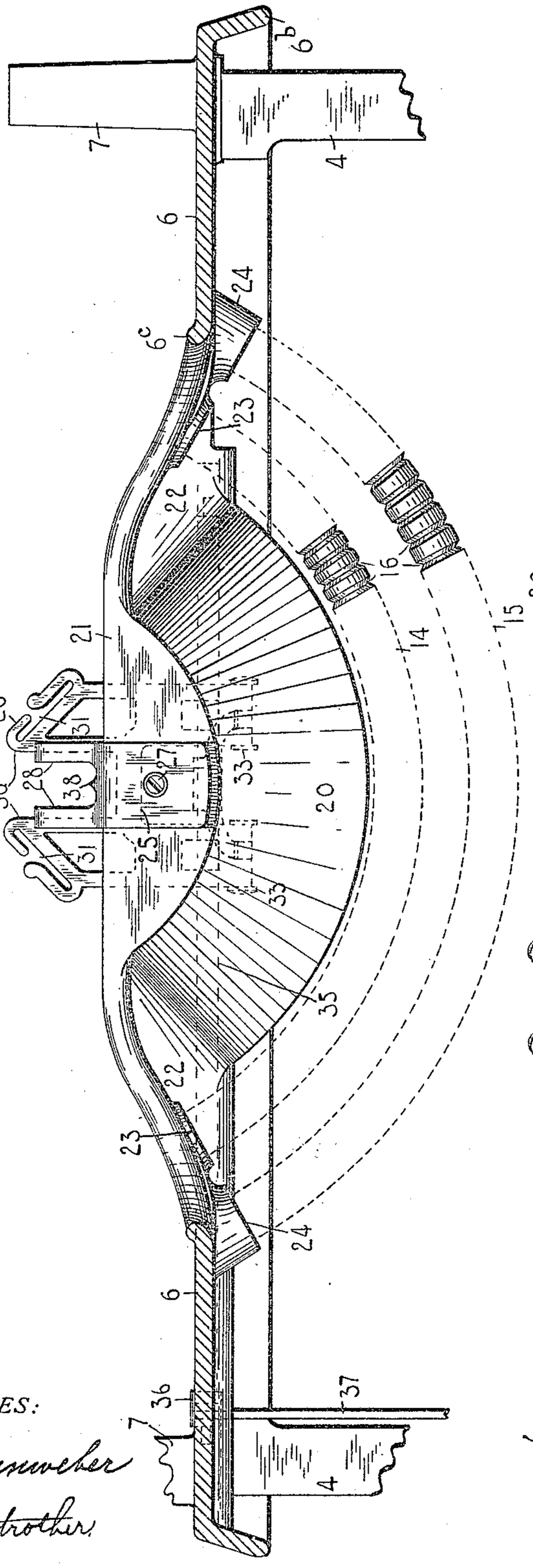

FIG. 2.

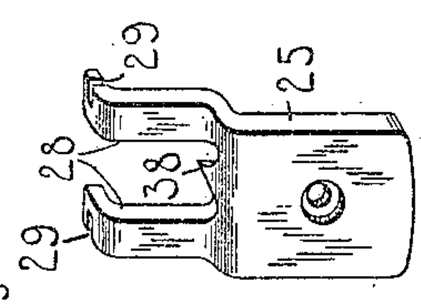

FIG. 4.

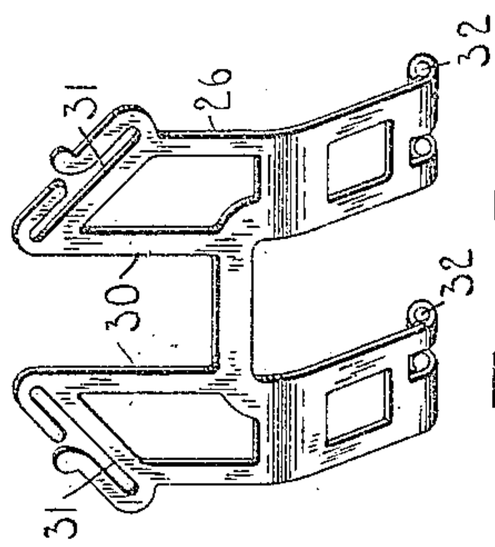

FIG. 3.

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3 SHEETS—SHEET 3.

FIG. 5

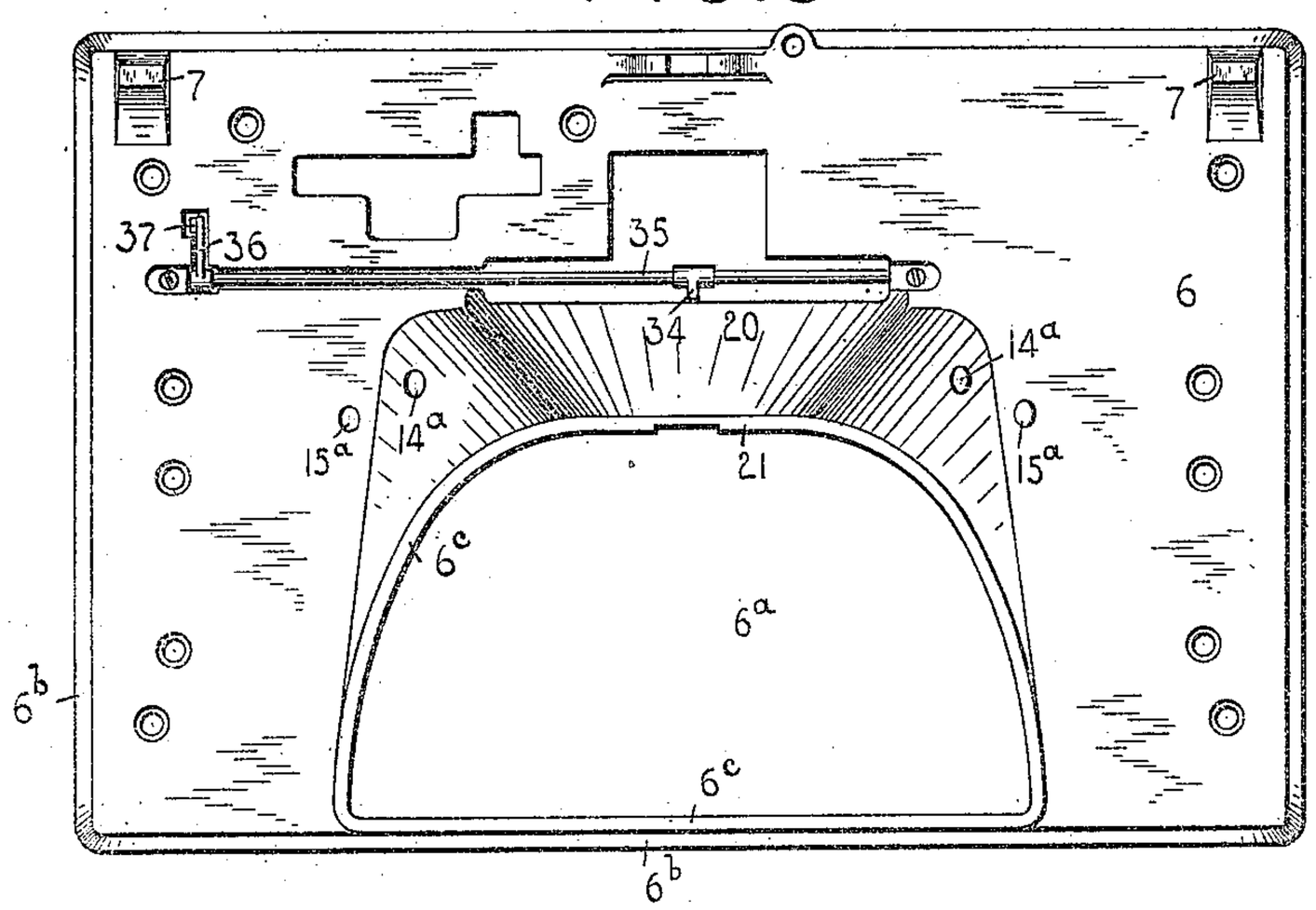


FIG. 6.

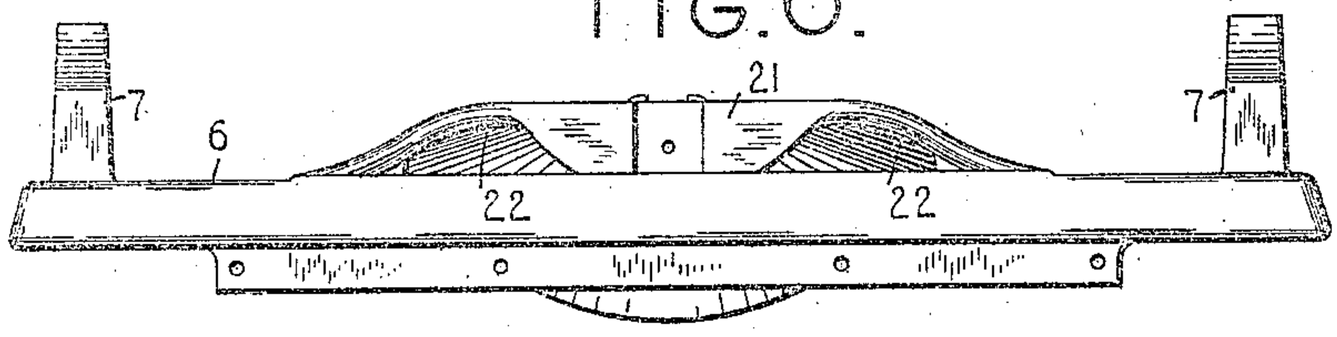
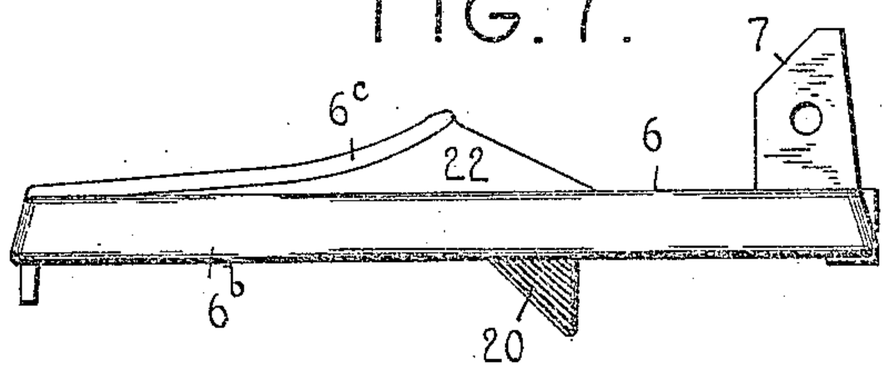


FIG. 7.



WITNESSES:

M. F. Hannweber.

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UNITED STATES PATENT OFFICE.

ARTHUR J. BRIGGS, OF SYRACUSE, NEW YORK, ASSIGNOR TO THE SMITH PREMIER TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

962,616. Specification of Letters Patent. Patented June 28, 1910.

Application filed December 29, 1905. Serial No. 293,791.

To all whom it may concern:

Be it known that I, ARTHUR J. BRIGGS, a citizen of the United States, and resident of Syracuse, in the county of Onondaga 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 it has for its principal object to provide a dust guard for the type bar bearings of a front-strike typewriter.

Another object of my invention is to so construct said dust guard as to provide a suitable and efficient support for the ribbon vibrator.

To these and other ends my invention consists in certain features of construction and combinations and arrangements of parts, all of which will be fully set forth herein and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a front to rear vertical sectional view of so much of a typewriting machine as is necessary to illustrate my invention. Fig. 2 is a front elevation partly in section of a portion of said machine. Fig. 3 is a perspective view of the ribbon vibrator. Fig. 4 is a perspective view of a combined vibrator guide and pointer used in my construction. Fig. 5 is a top plan view of the top plate of the machine. Fig. 6 is a front elevation of the same. Fig. 7 is a side elevation of the same.

My invention is applicable to front-strike typewriting machines generally.

The main frame of the machine shown in the drawings comprises side plates 1 which are connected together at their rear ends by a back plate 2 and at their forward ends by a front plate 3. Each of the side plates 1 is formed or provided with posts 4 which are connected together near their upper ends by a tie 5 and which support a top plate 6. Rising from the top plate are two posts or brackets 7 to which is secured a carriage rail 8 having in its edges grooves for anti-friction balls or rollers 9 which also coöperate with rails 10 forming parts of a carriage which also comprises end pieces 11 in which there is journaled the shaft of a platen 12. The rail 8 is a broad one and is inclined downward toward the front of the machine at an angle of about 45°, as shown in Fig. 1.

The machine is equipped with printing keys (not shown), each of which is mounted on the upper end of a stem that passes loosely through a suitable opening in a stepped keyboard 13.

As far as my invention is concerned, any suitable type bar mechanism and any suitable form of type bar pivotal bearing may be employed. The type bar construction and mounting herein shown are not of my invention, but are the invention of John H. Barr. The type bars are mounted on two segments 14 and 15, the latter of greater radius than the former. Each of said segments consists of a round rod having formed therein a series of peripheral grooves 16, each of which constitutes a ball race and the shorter type bars 17 which are mounted on the segment 14 and the longer type bars 18 which are mounted on the segment 15 are each formed at its pivot end with an eye that encircles the segment and said eye has an internal groove that serves as a ball race which coöperates with anti-friction balls running in one of the grooves 16. Links 19 are pivoted to the heels of the type bars 17 and 18 and also to sub-levers 19^a which latter are connected with the printing keys in any known or suitable manner. The sub-levers are pivoted in slots formed in a segment 19^b which lies beneath the type bar segments 14 and 15.

My invention has for its principal object to provide an improved means for protecting the type action and more especially the type bar pivotal portions from falling dust and dirt, more particularly that produced by making erasures on the front of the platen. The rubbings which are the product of such erasures consist of a mixture of paper, ink, grit and particles of rubber, and this dirt, if allowed to get into the bearings, forms a gum that has a very deleterious effect on the type action. My invention comprises a shield 20 that has the general form of a segment of a frustum of a cone. This conical shield lies below the platen and above the type bar segments and it is inclined from the front downward toward the back of the machine. Thus it has a free lower edge which is nearer to the rear of the machine than the type bar pivots, so that any rubbings from the paper on the platen that would otherwise fall into the type bar bearings or into the bearings of the sub-levers will be caught by this shield

and discharged out from the lower rear edge of the shield and will fall behind these movable parts instead of falling upon them. The curvature of the dust shield 20 is substantially concentric with the type bar segments, the rear edge of said shield substantially conforming to the outline of the upper segment 14, as shown in Fig. 2. At the forward edge of the conical part of the dust shield 20 said shield has a substantially vertical flat segmental portion 21, the straight upper edge of which is horizontal. For some of the purposes of my invention the shield may be secured to the top plate in any suitable manner but I prefer to make said shield integral with said top plate, the top plate, including the dust shield, consisting of a single casting. As shown in the drawings, the rear edge of the dust shield arches downward from the general level of the top plate 6 and the forward edge of said dust shield stands above said general level. The right-hand and left-hand ends of the conical part of the dust shield are connected with the flat part of the top plate by arches or webs 22. The type bars are curved in such fashion that they clear, or that their motion is not interfered with by the dust guard, as will be perceived by an inspection of Fig. 1. The rear part of the top plate 6, that is to say, the part of said top plate to the rear of the rear edge of the conical part 20 is, or may be, flat as usual. The top plate is formed with an opening 6^a through which the type bars strike. It also has about its edges the usual depending flange 6^b, for stiffening it. About the edges of the openings 6^a, the top plate is formed with a bead or lip 6^c which further stiffens said top plate and also tends to prevent dust from falling into the openings 6^a. Both the bead 6^c and the flange 6^b are continued across the front of the opening 6^a. All of these things as well as the arches or webs 22, combine to make a very stiff or rigid top plate. It will be perceived that the form of the dust guard is such that it covers up the type bar bearings quite completely and that there is ample room between said dust guard and the platen for the mounting of any suitable paper feeding devices and other mechanism.

The segment 14 is secured at its ends to bosses 23 formed on the under side of the arches 22 and the segment 15 is secured in a similar manner to bosses 24 projecting from the under surface of the top plate 6. These segments are preferably secured in position by headed screws passing through holes 14^a and 15^a in the top plate 6 and through the bosses 23 and 24, said screws being threaded into the ends of the segments.

I utilize the vertical portion 21 of the dust guard as a support for the guide 25 of a ribbon vibrator 26. The guide 25 is seated in a suitable depression in the front face of the dust guard and it is secured in position by a headed screw 27 passing through said guide and threaded into said dust guard. The guide 25 has two upwardly extending arms 28 which are spaced apart so that the types may strike between them. At its upper end each of said arms is bent toward the rear of the machine and is formed with a vertical slot 29 in which plays one of two arms 30 of the ribbon vibrator. Said vibrator has between its arms 30 an opening through which the type may strike against the paper and on either side of said opening said vibrator has two oblique guide edges 31 for guiding the ribbon across the printing point. As far as my invention is concerned the ribbon vibrator and the means for actuating it may be of any suitable construction. As shown in the present instance said vibrator is formed at its lower end with two arms, each having an eye 32 (Fig. 3), which receives a pivot rod 33, to which is pivoted the forward end of one fork of an arm 34 projecting toward the front of the machine from a rock shaft 35, shown in dotted lines in Fig. 2. The shaft 35 lies in a slot in the top plate 6, in which top plate the ends of the shaft are journaled. Near its left-hand end the shaft 35 has projecting therefrom toward the rear of the machine an arm 36 to which is pivoted the upper end of a link 37. Said link 37 may be connected in any suitable manner with any suitable actuating device, such as a universal bar operated by the printing keys, for the purpose of reciprocating the ribbon vibrator.

Between the arms 28 of the guide 25 an index or pointer 38 may be formed to cooperate with a suitable carriage scale mounted on the carriage.

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

Certain features of the construction of the top plate shown and described herein are not of my invention, but are the invention of Alexander T. Brown.

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

1. In a typewriting machine, the combination of a platen, a segmentally arranged series of front-strike type bars pivotally mounted below said platen, and a dust guard for the pivots of said type bars consisting of a downwardly curved portion of the top plate of the machine of a conical form lying above said type bar pivots and below said platen.

2. In a typewriting machine, the combination of a platen, a segmentally arranged series of front-strike type bars pivoted below said platen, and a main frame comprising a top plate having a part forming a dust guard of conical form downwardly curved

and sloping downward toward the back of the machine and lying above said type bar pivots and below said platen.

3. In a typewriting machine, the combination of a platen, a series of front strike type bars having pivots segmentally arranged below said platen, and a main frame comprising a top plate having a part forming a dust guard between said platen and the pivots of said type bars and curved to conform to the curvature of said segmentally arranged series of type bar pivots.

4. In a typewriting machine, the combination of a platen, a series of front-strike type bars, a dust guard lying between said platen and the pivots of said type bars, a ribbon vibrator mounted above and behind said dust guard and between said dust guard and said platen, and a guide for said vibrator, mounted on said dust guard.

5. In a front-strike typewriting machine, the combination of a platen, a series of front-strike pivoted type bars, a dust guard a part of which stands nearer the front of the machine than said platen and which extends downwardly and toward the back of the machine above the pivots of said type bars, and a ribbon vibrator and means for actuating the same mounted in part behind said dust guard.

6. In a front-strike typewriting machine, the combination of a platen, a series of front-strike pivoted type bars, a dust guard having its forward part nearer to the front of the machine than said platen and extending downwardly and toward the back of the machine, the rear of said dust guard being farther toward the back of the machine than the pivots of said type bars, and a ribbon vibrator, the upper part of which extends above said dust guard and the lower part of which is behind said dust guard.

7. In a front-strike typewriting machine, the combination of a platen, a series of front-strike pivoted type bars, a dust guard having its forward part nearer to the front of the machine than said platen and extending downwardly and toward the back of the machine, the rear of said dust guard being farther toward the back of the machine than the pivots of said type bars, a ribbon vibrator, the upper part of which extends above said dust guard and the lower part of which is behind said dust guard, and a guide for said ribbon vibrator mounted on said dust guard.

8. In a front-strike typewriting machine, the combination of a platen, a series of front-strike pivoted type bars and a main frame comprising a top plate having a portion thereof lying between said platen and the pivots of said type bars to serve as a dust guard, said dust guard being of conical form and sloping downwardly and toward the back of the machine, its curvature corresponding to the curvature of the type bar segment.

9. In a front-strike typewriting machine, the combination of a series of front-strike pivoted type bars, a series of sub-levers pivoted below said type bars, and a single downwardly curved dust guard forming part of the top plate of the machine and lying above the type bar pivots and the sub-lever pivots.

10. In a typewriting machine, a top plate comprising a part extending across the rear of the machine, and a part in front of said rear part curved to present a concaved side toward said rear part, and said top plate being formed with an opening between said rear part and said concaved part and the rear edge of said concaved part being lower than said rear part of the top plate.

11. In a typewriting machine, a top plate comprising a part extending across the rear of the machine, and a part in front of said rear part curved to present a concaved side toward said rear part, and said top plate being formed with an opening between said rear part and said concaved part, and ribbon vibrator mechanism arranged in said opening.

12. In a typewriting machine, a top plate formed with an open space or well for front strike type bars, upwardly inclined parts 22 at the sides of said opening, and a downwardly curved part 20 at the rear of said opening, the lowermost portion of the downwardly curved part 20 terminating in a free edge.

Signed at Syracuse, in the county of Onondaga, and State of New York, this 20 day of December A. D. 1905.

ARTHUR J. BRIGGS.

Witnesses:
H. C. FORD,
C. C. SHOENECK.