July 12, 1932. J. A. B. SMITH 1,866,582

TYPEWRITING MACHINE

Filed June 23, 1928

FIG.1.

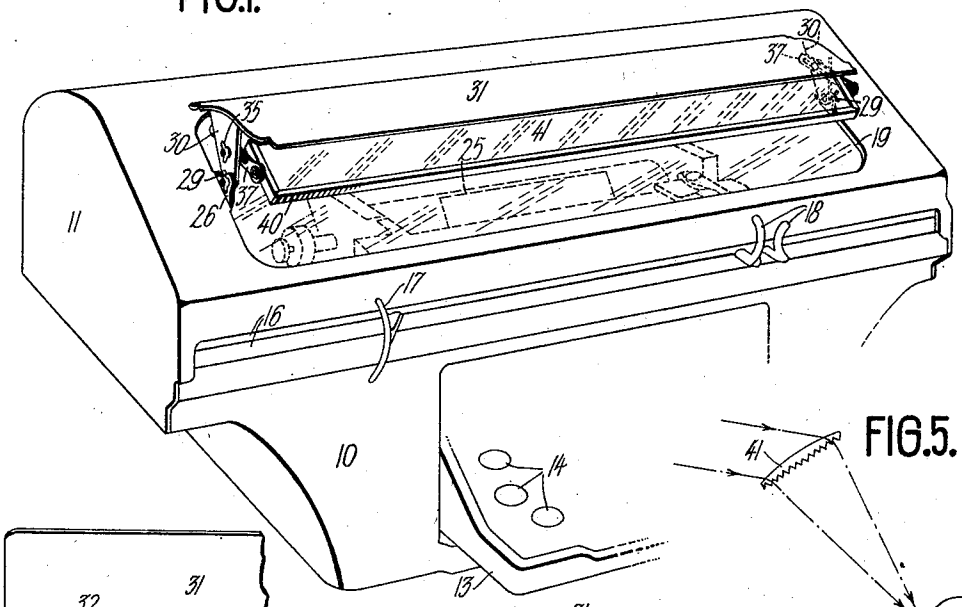


FIG.5.

FIG.4.

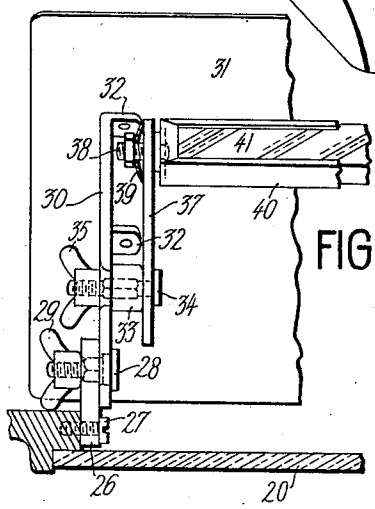


FIG.2.

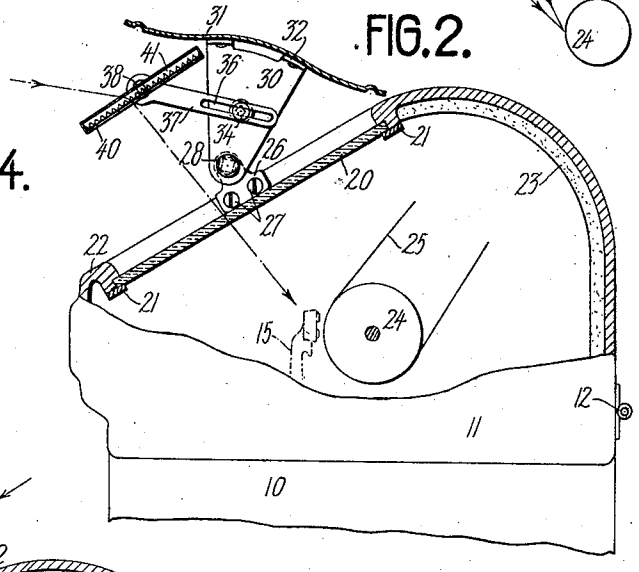
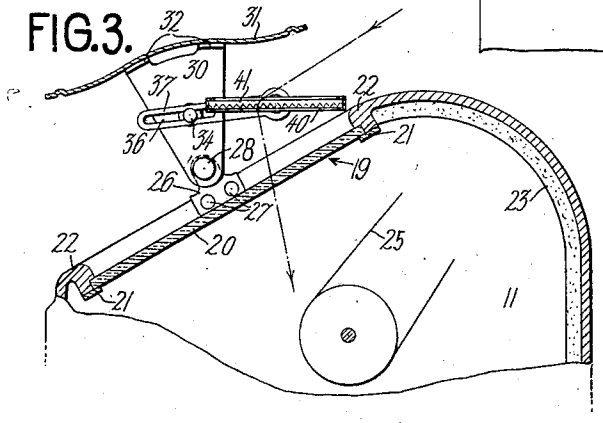


FIG.3.



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UNITED STATES PATENT OFFICE

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TYPEWRITING MACHINE

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This invention relates to means for rendering the work visible in encased typewriters.

It is recognized in the typewriting art that the illumination of the work being done upon a typewriter which is enclosed in a sound-proof casing, presents a problem. The sealing of the typewriter within the casing, to prevent emanation of sound, creates a difficulty which arises from the necessity of watching the work that is confined within the casing. This difficulty it has been attempted to reduce by providing a window-pane in the cover of the casing; but it is found that in many instances sufficient day-light cannot find its way into the casing for the purpose, and the further difficulty has arisen that in many places where it is desired to place the machine the glare of sun-light is thrown back from the window into the eyes of the operator. It has been proposed to shield the window from the glare of sun-light, but that has a tendency to darken the work still more.

This invention therefore relates to illuminating the work in sound-deadening casings for typewriting machines, and preventing undesirable deflection of light-rays from the glass-window of the casing.

In typewriter sound-deadening casings a top glass-window gives a view of the typed characters. The window is usually a fixed pane in the inclined front of the cover, and it often deflects the light-rays. This deflection results in a lessened amount of light penetrating to the platen. Some of the deflected light shines into the eyes of an operator.

A feature of the invention is in the nature of means for concentrating extraneous light-rays, and refracting them onto the front of the platen or the work thereon.

Another feature is the diffusion of the light within the casing.

Another feature is the use of means to prevent or minimize cross-shadows on the platen.

Another feature is a means to prevent damage to the light-transmitting members.

Other features and advantages will hereinafter appear.

In the accompanying drawing,

Figure 1 is a partial perspective view of a sound-deadening casing for a typewriter, with parts of a platen-carriage visible through the window, and showing a prism and shade thereover.

Figure 2 is a broken transverse section, showing the prism and shade as positioned for a front source of light.

Figure 3 is a similar view to Figure 2, but with the prism and shade positioned for a rear source of light.

Figure 4 is an enlarged detail showing the adjustable means for supporting the shade and the prism.

Figure 5 shows a prism with a convex surface to converge the light-rays on the platen.

Referring to the drawing, a sound-deadening casing has a body 10, and a liftable cover 11 which is hinged at 12. Within the body a typewriter is secured having a projecting frame 13, keys 14 and type-bars 15. Along the edges of the body and cover, respectively, are abutting resilient lips 16 to prevent the outward passage of sound-waves and to permit horizontal travel of the carriage-operating levers 17 and 18.

In the cover 11 is a window-opening 19 within which rests a glass-pane 20 which is held by strips 21 attached to a beading 22 of the opening 19. The glass also may have cushioning material (not shown) around its edges, while the whole casing is lined with sound-deadening material as at 23. Through the window-pane 20 may be seen parts of the typewriter including a platen 24. Also, there is shown a work-sheet 25.

At each end of the window-opening 19 a low centrally located ear 26 is attached by screws or studs 27. Each ear 26 is bored near its top for the insertion of a threaded stud 28 having a wing-nut 29. Each stud 28 constitutes a fulcrum for a pivotally supported and upwardly-extending arm 30. The edges of each arm 30 diverge from the lower to the upper end, forming a wider support thereat for a superposed rectangular shade and reflector 31. The latter is preferably of stamped metal having a curved and corrugated surface to increase its rigidity. The arms 30 may be integral with the shade, or may be attached at opposite ends through

bent portions 32. The arms 30 may be wider, and the shade 31 be longer, than shown. The ears 26 can also hold a cover-plate when the casing is in transit.

Each upwardly-extending arm 30 has a spacer 33 riveted thereto, having a square hole to fit the square shank of a threaded fulcrum-stud 34 having a wing-nut 35. This fulcrum-stud can slidably engage a slot 36 cut centrally and longitudinally in a narrow running bracket 37, and can hold the latter at various angles both forward and back of the arm 30. At one end of each running bracket 37 is a headed and rotatably mounted stud-bolt 38 projecting laterally. Each stud-bolt has a spring-washer 39, and is attached to, and near the center of, an opposite end section of a rectangular metal frame 40. The latter is U-shaped in cross-section, and confines within its channel the four sides of a prism-unit 41. This unit consists of a series of unified prisms lying side by side and forming a homogeneous mass. This mass is shaped into a rectangular plate having one even surface and an opposed furrowed surface. These furrows form interlying prisms which run parallel to the platen. The prism-plate as an entity may be flat, or it may be slightly convex as shown in Figure 5.

The aforementioned parts may be adjusted to the positions shown in Figure 2, where they can be set by tightening the wing-nuts. The prism-unit is directly held in angular position by its stud-bolts. In such relative positions, any light-rays projected from the rear or from above the machine will be stopped by the shade. Concurrently any rays emanating from an overadjacent side source will be stopped or minimized by an overhanging end of the shade. Such an estopping result is furthered by the wide area of an upwardly-extending arm. By such means objectionable cross-shadows and cross-lights are cut off from the window and the platen. The shade and the arms also protect both the prism and the window against any substance that might drop from above.

In Figure 2, also, the parts are positioned for utilization of a light-source originating from in front of the machine. So positioned, an incident beam of light is refracted by the prism into an emergent beam that illuminates the platen. Thus are shadows or darkness dispelled at the platen. This latter result obtains also if the light-source be diffused. In such a case the innumerable rays of light are first concentrated by the prism before their refraction onto the platen. Any front rays of light that may strike the glass-window are partly transmitted thereby to the platen, and partly deflected against the shade. The under surface of the latter may have a light-reflecting surface which will redeflect these rays through the window. These latter deflected rays, therefore, are not reflected back to the eyes of an operator.

In Figure 3 is shown another positioning of the prism-plate and shade, which illustrates a wider latitude in the utility of this invention. Such positioning includes the efficient use of a lighting source to the rear of the machine, which ordinarily would be detrimental. In this case the shade is swung forward and set, to leave a sufficient field of vision to the operator. The prism-plate is then adjusted and set, to refract the incident light-rays onto the front of the platen. Any rays not transmitted by the prism-plate are deflected against the shade, and not into the eyes of the operator. Any rays that might objectionably deflect from the top of the shade may be absorbed by coating the top with a light-absorbing material. Also there will be no glare from the window, on account of the intercepting and overlying prism-plate and shade. The prism-plate, therefore, also functions in some measure as a blind.

In both Figure 2 and Figure 3 the prism-plate is drawn as having its even surface above and its furrowed surface below. In such positions, the series of uniform prisms will function to concentrate numerous extraneous light-rays into fewer and more powerful emergent rays. The work-sheet therefore will be more powerfully illuminated for the greater visibility of typed characters. To further increase such illumination, the prism-plate may be convex as shown in Figure 5. Such curvature will function to converge the same amount of extraneous light into a smaller and brighter area on the platen. This latter result can also be accomplished in part by using a flat prism-plate which has each projecting prism set radially to a convergent point. Furthermore, any form of plate having dependent prism-ridges will, when properly formed and adjusted, project its emergent rays at nearly a right angle to the surface of the window-pane. The latter therefore will transmit more light, because objectionable deflections, with loss of light, have been prevented.

Still other advantages can be gained through the use of a prism-plate as embodied herein. When located as in Figure 2, the plate can be rotated to project the concentrated light-rays above and behind the platen. This possibility is useful when desirable to re-read a pre-typed line that may then be several line-spaces toward the rear of the machine. Furthermore, the prism-plate can be rotated to an upside-down position, and then be set in the locations shown in Figures 2 and 3. So positioned, a single beam of light would be caught by the upstanding prism-ridges, and be transmitted as diffused light to the interior of the casing. This is useful where a very bright light-

source would, if not diffused, cause too bright a glare on a platen-positioned work-sheet.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. Illuminating means for the work upon a typewriting machine enclosed in a sound-deadening casing and having a liftable cover provided with a window for viewing the work, including a plate of prism-ribbed glass extending along the window at the exterior of the casing in position to deflect the light received by said plate downwardly through said window, to fall upon and illuminate the work upon the platen of the typewriter, a sight opening being left between the prism and the lower edge of the window, whereby the operator may view the enclosed work, means supporting said plate by its ends in said position, and an opaque shade adjustably supported above the plate to screen the window from glare, said prism-plate being mounted between the shade and the window.

2. Illuminating means for the work upon a typewriting machine enclosed in a sound-deadening casing and having a liftable cover provided in its top with a window through which the work is visible, including a plate of prism-ribbed glass overlying and extending along the window in position to deflect the light received by said plate downwardly through said window to fall upon and illuminate the work upon the platen of the typewriter, said prism-plate being wholly above the line of sight, and a mount having means whereby said plate is hinged at its ends upon the casing to permit rocking of the prism-plate to enable the direction of the light to be adjusted.

3. Illuminating means for the work upon a typewriting machine enclosed in a sound-deadening casing and having a liftable cover provided in its top with a window through which the work is visible, including a plate of prism-ribbed glass overlying and extending along the window in position to deflect the light received by said plate downwardly through said window to fall upon and illuminate the work upon the platen of the typewriter, said prism-plate being wholly above the line of sight, a mount having means whereby said plate is hinged at its ends upon the casing to permit rocking of the prism-plate to enable the direction of the light to be adjusted, and an opaque shade mounted above the prism-plate to shade the window, means being provided for effecting adjustment of the shade and the prism-plate relatively to the casing, and also relatively to each other, to permit light passing at either the back or the front of the shade to fall upon and be deflected downwardly by the prism-plate.

4. Illuminating means for the work upon a typewriting machine enclosed in a sound-deadening casing and having a liftable cover provided in its top with a window through which the work is visible, including a plate of prism-ribbed glass overlying and extending along the window in position to deflect the light received by said plate downwardly through said window, said plate being wholly above the line of sight, and a mount for said prism-plate including arms jointed to each other, disposed at each end of the prism-plate and pivotally connected to the latter, and also pivotally connected to the cover at the ends of the window, to provide a universal adjustment of the prism-plate forwardly and backwardly over the window, and also rotatively with reference to the jointed arms.

5. Illuminating means for the work upon a typewriting machine enclosed in a sound-deadening casing and having a liftable cover provided in its top with a window through which the work is visible, including a plate of prism-ribbed glass overlying and extending along the window in position to deflect the light received by said plate downwardly through said window, said plate being wholly above the line of sight, and a mount for said prism-plate including arms jointed to each other, disposed at each end of the prism-plate and pivotally connected to the latter, and also pivotally connected to the cover at the ends of the window, to provide a universal adjustment of the prism-plate forwardly and backwardly over the window, and also rotatively with reference to the jointed arms, each pair of jointed arms including members having a shade mounted thereon for adjustment thereby, the prism-plate being located between the window and the shade, and being universally adjustable relatively to the window, from a position beyond the upper edge of the window down to a position just above the line of vision of the work.

6. Illuminating means for the work upon a typewriting machine enclosed in a sound-deadening casing and having a liftable cover provided in its top with a window through which the work is visible, including a plate of prism-ribbed glass overlying and extending along the window in position to deflect the light received by said plate downwardly through said window, said prism-plate being above the line of sight, said window being mounted in said cover, supports on the cover at the ends of the window, arms pivoted on the supports, a shade carried by the arms, other arms pivoted to said shade-arms and carrying by its ends said prism-plate, and means whereby the first arms, the second arms and the prism-plate may be adjusted and held in fixed relation with one another and with the supports.

7. Illuminating means for work upon a

typewriting machine enclosed in a sound-deadening casing and having a liftable cover provided with a window in its top for viewing the work, including a plate of prism-ribbed glass extending along the window at the exterior of the casing in position to deflect the light received by said plate downwardly through said window to fall upon and illuminate the work upon the platen of the typewriter, said prism-plate being above the line of sight, supports upon said cover, adjustable fulcrums upon the supports, a pair of arms carried by the fulcrums, a shade supported upon said arms, and another pair of arms jointed to the first pair and having longitudinal slots and also being adjustably connected to the first arms by means of pins in said slots, to afford various adjustments of the second arms upon the first arms; the prism-plate being pivoted by its ends upon the second arms, for adjustment relatively to the window to different positions above the line of vision of the work, to transmit light passing down by either the rear or front of said shade.

8. Illuminating means for the work upon a typewriting machine enclosed in a sound-deading casing and having a liftable cover provided with a window for viewing the work, including a plate of prism-ribbed glass extending along the window at the exterior of the casing in position to deflect the light received by said plate downwardly through said window to illuminate the work upon the platen of the typewriter, and means supporting said ribbed prism-plate for bodily adjustment forwardly and backwardly over said window, and for rotative adjustment at the different stations to which it is bodily adjusted forwardly and backwardly above the line of vision.

9. Illuminating means for the work upon a typewriting machine enclosed in a sound-deadening casing having a liftable cover provided with a window for viewing the work, including a plate of prism-ribbed glass extending along the window at the exterior of the casing in position to deflect the light received by said plate downwardly through said window to illuminate the work upon the platen of the typewriter, arms pivotally supported upon the cover at the ends of the window, a shade carried by the arms, said prism-plate being adjustably supported relatively to said arms, and means for holding said prism-plate where adjusted above the line of vision.

JESSE A. B. SMITH.