S. W. WATERHOUSE.

TYPE WRITER SILENCER.

APPLICATION FILED DEC. 7, 1914.

1,187,576.

Patented June 20, 1916.

3 SHEETS—SHEET 1.

Fig. 1.

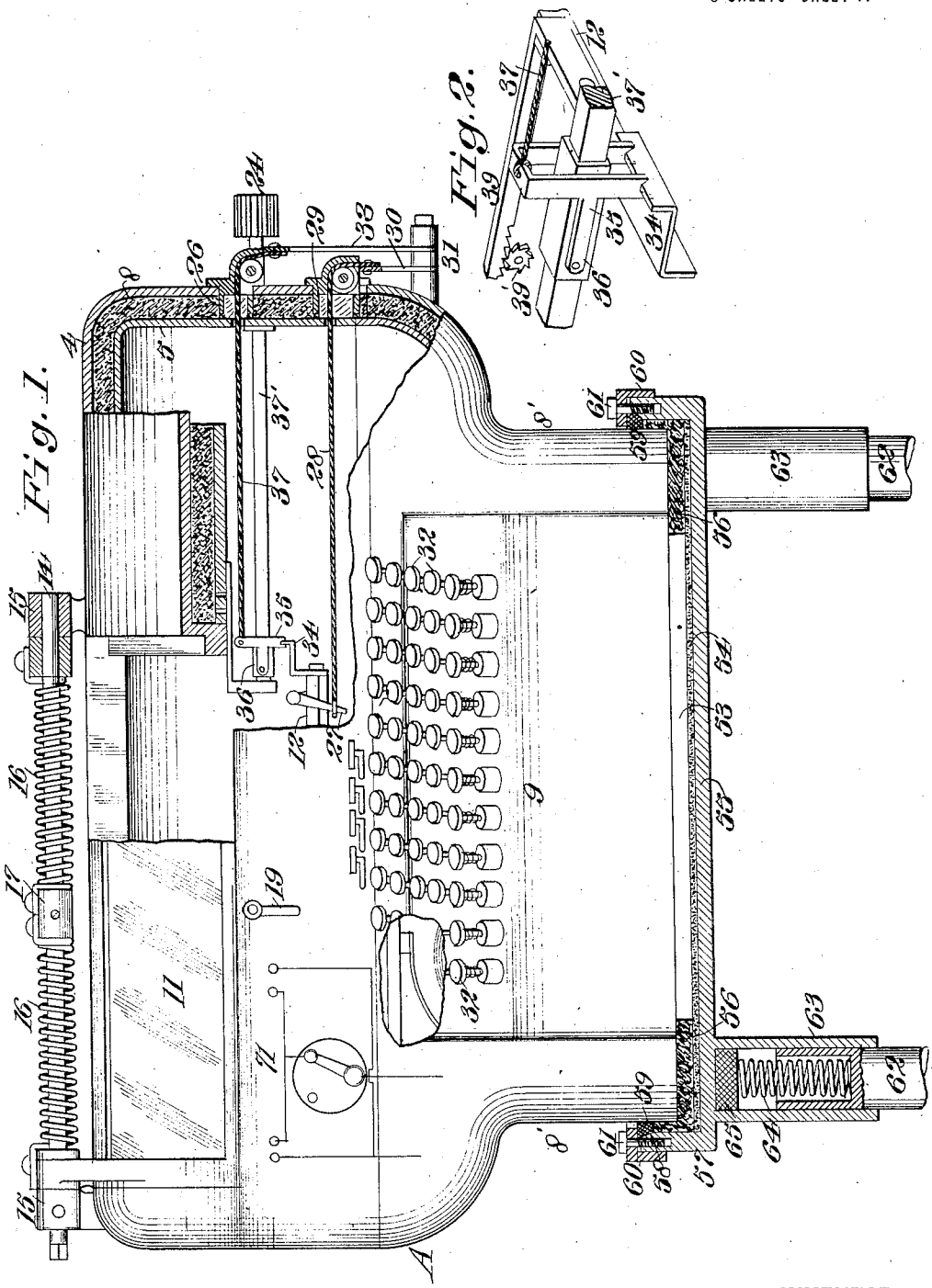


Fig. 2.

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3 SHEETS—SHEET 2.

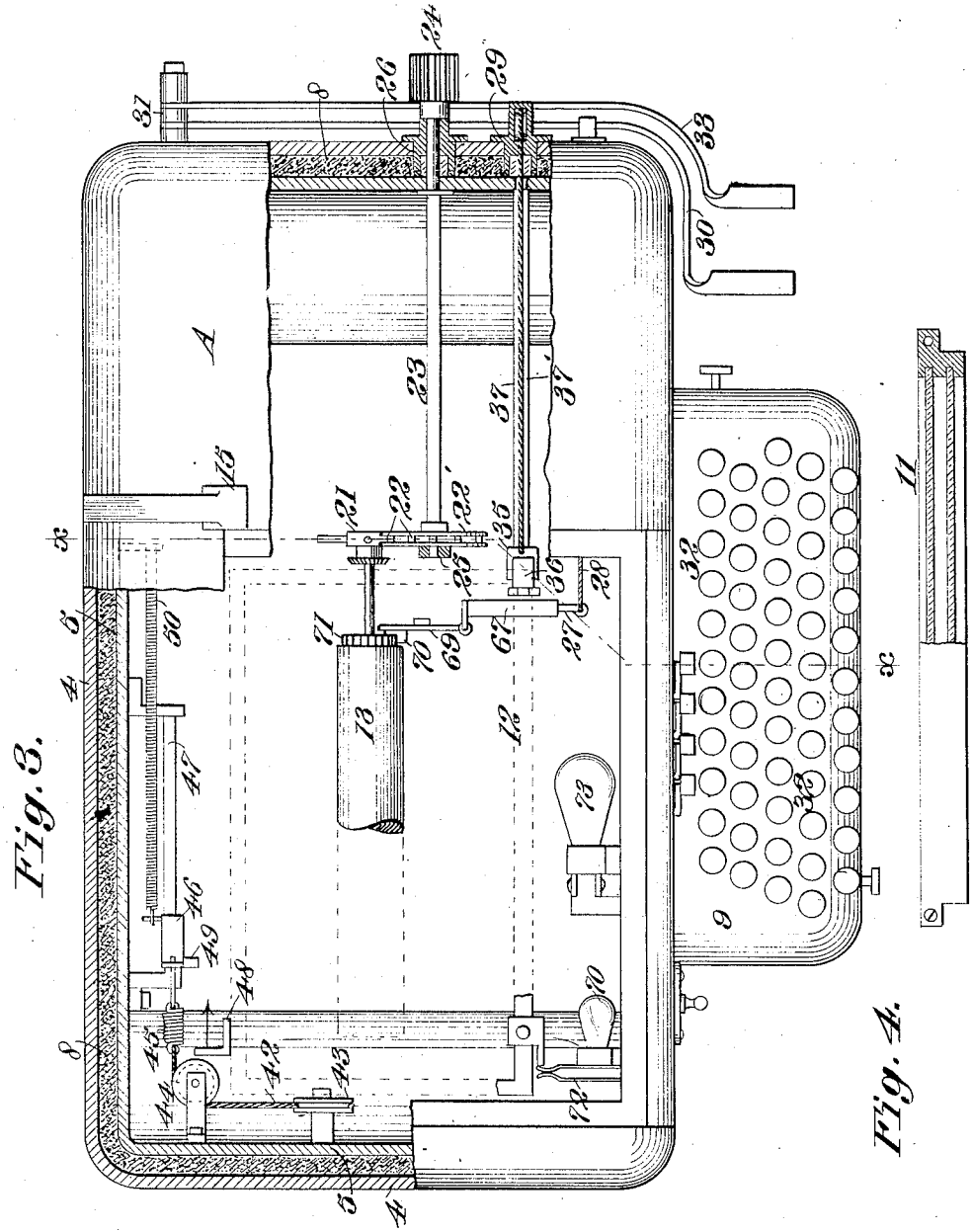


Fig. 3.

Fig. 4.

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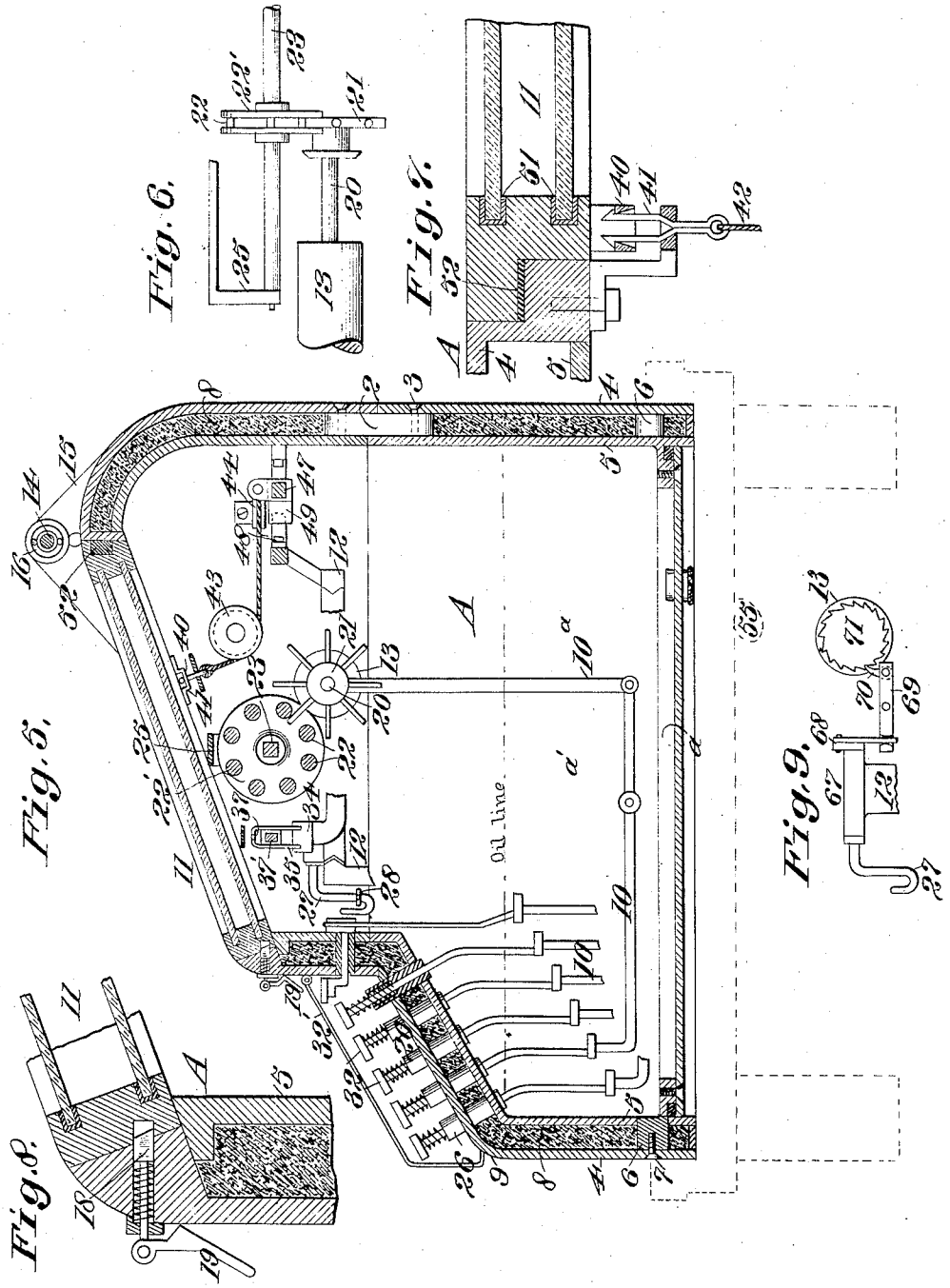
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3 SHEETS—SHEET 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

SEYMOUR W. WATERHOUSE, OF SAN JOSE, CALIFORNIA.

TYPE-WRITER SILENCER.

1,187,576. Specification of Letters Patent. Patented June 20, 1916.

Continuation in part of application Serial No. 543,994, filed February 15, 1910. This application filed December 7, 1914. Serial No. 875,789.

To all whom it may concern:

Be it known that I, SEYMOUR W. WATERHOUSE, a citizen of the United States, residing at San Jose, in the county of Santa Clara and State of California, have invented new and useful Improvements in Type-Writer Silencers, of which the following is a specification.

This invention relates to improvements in typewriters, and especially pertains to a frame or cover adaptable to incase the keyboard, platen, type-bars and operative parts of the typewriter.

My invention has for its purposes the provision of an incasing frame or cover embodying a combination of elements whereby the inclosed machine may be operated without inconvenience, and is at all times accessible, is protected from dampness, dust and fire; and to provide a case so designed and constructed as to be readily mounted and dismounted without altering a machine to any material degree.

A primary object is to devise a casing so designed as to prevent the transmission of sounds with the aim of rendering a typewriter so inaudible when in operation as to be capable of use in courts, lecture halls or crowded offices without disturbing speakers or auditors.

The invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a front elevation in partial section of the invention. Fig. 2 is a perspective detail of the carriage release lever. Fig. 3 is a plan of the invention with parts broken away to show the underneath mechanism. Fig. 4 is an edge view of the automatically opening window. Fig. 5 is a vertical transverse section on X—X, Fig. 3. Fig. 6 is a detail of the platen connection. Fig. 7 is a detail of the window-cord hook. Fig. 8 is a detail of the window latch. Fig. 9 is a detail of the line spacing mechanism.

Many attempts have been made to overcome the monotonous, frequently annoying sounds emanating from typewriting machines when in operation, and such attempts have included modifications in the structure of the platen, padding various parts of the machine, and mounting it upon mats. None of these expedients has successfully eliminated the sounds, and where in some offices a large number of the machines are all operated at the same time, it is very confusing and difficult to carry on an ordinary conversation, besides being generally very annoying.

My invention comprehends a frame, cover or case A having its walls made as thick as will be necessary to have sufficient strength and required to most effectually prevent the transmission of sounds. This case may be made of any material having sufficient rigidity, and preferably a material normally a non-conductor of sounds. For purposes of manufacturing and transportation the casing A may be divided into separable upper and lower sections united together by suitable means as blocks 2 and screws 3, Fig. 5. I have shown the casing as comprising exterior and interior walls 4 and 5 which may be integrally united, or secured and properly spaced by spacers 6 of sound-resisting material adapted to receive screws 7, Fig. 5. The space between walls 4—5 is utilized for sound insulation. It may, if desired, be filled with suitable sound insulating material 8, such as asbestos, raw cotton, felt, etc., although preferably I employ cotton saturated with petroleum jelly, or some other similar petroleum product, as I have discovered that this forms a very satisfactory sound insulating medium.

Referring to Fig. 1, the casing A has a reduced base portion or foot 8′ of such proportions that an opening is formed of such area that the entire case A may be dropped down over a typewriter so as to completely inclose it; and an extension or apron portion 9 of the case A projects forwardly and covers all the keys 10 of the keyboard of the typewriter.

It is essential in preventing the issuance of any sounds from the typewriter to inclose the entire machine and its appurtenances, as my case does, for if any unguarded openings be left in the case for operating the parts, some sound will invariably be noticeable. Means must also be embodied therewith arranging for accessibility and operation of the machine, still preserving and furthering the essential principle of my invention, which is to provide a practical, commercial, noiseless typewriting machine. To this end the upper portion of the case is provided with a transparent movable sec-

tion or window 11, Figs. 1 and 5, so disposed that when the reciprocating carriage 12 is shifted to its extreme left-hand position, and the window open, paper may be readily placed upon the rotary platen 13, or removed therefrom. Preferably the window is of sufficient length and width to permit, when the window is open, of easy manual adjustment of all the marginal stops, etc., adjacent or appurtenant to the carriage and the upper portion of the machine, and when the window is closed the operator has an unobstructed view of the matter being printed.

In order to relieve the operator of the task of manually lifting the window, when removing or inserting the paper, the window-frame is pivoted upon a rod 14 held in bearings 15, and is connected to the outer ends of lifting torsion springs 16. A collar 17 carries the opposite ends of the springs, which springs are adjustable on fixed rod 14 of the case. The tension of the springs 16 is sufficient to sustain the window in normally open position. The window is maintained closed against the action of springs 16 by suitable means, as the spring latch 18 operated by the trigger 19. To open the window to get at the paper or platen, all the operator has to do is to trip the trigger 19. The window may be closed either by hand or by means to be hereinafter described.

To permit the operator to turn the platen conveniently from outside the case, without regard to the location of the carriage 12 within the same, suitable connections are made to the platen spindle 20 and extended to the outside of the case within easy reach of the operator, these connections, as here shown, comprising a suitable wheel 21 consisting of a hub secured to the spindle 20 and having radial spokes which engage connecting pins 22 between two spaced disks 22′, which latter are slidable lengthwise on, and turnable with, a suitable countershaft 23, which latter is suitably mounted in a hanger 25 and a packed bearing 26 in the right-hand end of case A, as seen in Fig. 3. Shaft 23 extends outside the case A and is turnable by a suitable knob 24. The wheel 21 is always in mesh with the hollow wheel 22′—22, which latter travels back and forth on its square shaft 23, so that the operator may, by simply taking hold of the non-shifting knob 24 and turning it, revolve the shaft 23, transmitting a rotary motion in either direction to the platen 13. In addition to this means for turning the platen from outside the casing, I provide connections or extensions from the shiftable carriage 12 also arranged so as to enable the operator to positively shift the carriage from without the casing A, rendering it unnecessary to open the window 11 after the paper has been inserted, or until the letter or other document has been written.

In most standard typewriters the carriage is provided with a lever, as 27, which has the dual function of providing a hand- or finger-hold to pull the carriage to the right, and of giving a step by step rotary motion to the platen to give a proper line-feed. I propose to adapt my case A to suit the various makes of machines, and provide convenient connection to the shift lever 27 by suitable means, as the following: A cord 28, Fig. 1, extends through a suitable guard 29 of sound-resisting properties in the end of the casing adjacent to button 24, and is connected to a convenient handle or lever 30 which is pivoted at 31 on the end of the case and is brought around to the front, as shown in Fig. 3. This arrangement of the cord 28 or equivalent and its connections affords a protected means to effect line spacing of the platen and shifting lengthwise of the carriage; and it is also found to be more convenient to the operator to vertically depress a shift-lever, as 30, with a motion similar to that given the keys on the keyboard, than it is to wing the hand in a horizontal plane, as required by the usual carriage shift lever 27.

The carriage is shifted to the right by depressing the lever 30; and to the left by means of a releasing lever 33 disposed alongside of lever 30 outside the case, and which lever 33 is connected by a cord 37 with a sliding clutch 35, which latter pivots on a sleeve 36 which slides on a fixed guide bar 37′ in the case, clutch 35 being notched to engage the usual release lever 34 on the carriage. Exercising a downward pressure on lever 33 operates lever 34 (which carries rack 39) to disengage the rack 39, Fig. 2, from the escapement 39′ on the frame; then by slacking up on lever 33 a little so as not to let the rack 39 catch the gear of the escapement, the carriage 12 will automatically shift to the left under tension of the usual spring devices 12′. That is to say, an initial downward pressure on lever 33 disengages the rack so that the carriage, if otherwise unobstructed, will run free to the left. But if the operator so elects he may increase the down pressure upon the lever 33, overcome the automatic shift of the carriage and pull the carriage to any desired position to the right, where it will stop just as soon as the handle 33 is released by a quick upward movement to allow rack 39 once more to catch. Thus a perfect control is had over the paper feed, by means of the button 24 and by the lever 30; over the carriage shift to the right, by levers 30 and 33; and over its release, or shift to the left, by lever 33; all conveniently located and outside of the case A.

Since the primary object of this invention

is to eliminate, as completely as possible, the escape of sound through the casing, the several extensions or mechanisms which project through the case are all carefully provided with suitable non-sound conducting bearings, bushings and packings, as shown at 26.

The secondary bank of keys 32 on the case is adaptable to operate the usual character keys, space-bar, shift-key and tabulator keys of the typewriter keyboard 10; the keys 32 being spring-actuated and pressing on the keys 10. If desired, a cover 32′ may be provided for the keys 32.

The transmission members 21—22—22′ are so designed as to allow for whatever individual movement, vertical, horizontal, or angular, the platen may have, according to the machine used. The spokes of the wheel 21 always stay in mesh with the cross pins 22 whether the platen is raised or not under the action of its shift-key 10′ and connections 10^a, Fig. 5. Whichever way the carriage 12 travels, the wheel 22′ slides back and forth along its shaft 23.

The window 11 is automatically closed by the movement of the carriage to the right as follows: On the underside of the window-frame is a keeper 40, Figs. 5 and 7, adapted to receive an easily detachable snap-hook 41, Fig. 7, attached to a cord 42 which passes over guide pulleys 43—44 suitably mounted inside the case A, the cord being secured by a flexible link 45 to a traveler 46, Figs. 3 and 5, which traveler is slidable along a fixed guide rail 47, Fig. 3. 48 is a lug or projection on carriage 12 arranged in the path of a stop projection 49 on the traveler 46. If the window is open and the carriage is at its limit of movement to the left, the parts 48—49 will be in the position shown in Fig. 3. Shifting the carriage to the right under such circumstances, either by levers 30—33, or otherwise, will carry lug 48 against projection 49 and force the traveler 46 along its trackway 47, pull down on cord 42 and close the window automatically.

During the time the window remains closed the traveler 46 is maintained at the right-hand end of the rail 47 by means of a spring or like tightener 50, whereby the slack is always taken up in the cord 42. When the window is opened the traveler is drawn along its rail by the cord 42, placing the light spring 50 under tension. At no time is the cord 42 slack. The flexible link or spring 45 is introduced for the purpose of insuring a tight closing of the window, so that the carriage is allowed to have a slight motion after the window has been seated and latched.

Manifestly I may vary the construction of the window 11, as to best accomplish sound-resistance, and I have shown the transparencies suitably packed, as at 51, and pads 52 are also utilized upon which the window may rest.

A suitable stand or table 55 is shown having a plate 53 upon which the typewriter may rest; the plate 53 being supported upon a granular, fibrous or flexible layer 54 which intercepts vibrations and prevents the transmission of sound to and through the table 55.

As an additional safeguard against the escape of sound, I propose to make the case in such a manner as to form a receptacle *a* to enable the entire lower portion of the case to be filled with some form of odorless oil *a′*; that portion of the stems of keys 32 being so devised as to engage keys 10 submerged in the oil. By this method the case is entirely closed in around the keyboard and whatever sound is transmitted must be transmitted through the liquid medium in the bottom of the case.

The case A is placed over the machine and rests upon a non-sound conducting pad 56 having a form substantially similar to the foot 8′ of the case. To prevent the case being accidentally displaced relative to the machine, flanges 57 are formed on the stand 55 and have a beveled edge 58 upon which is seated a packing 59 adapted to be pressed into snug engagement with the wall of case A by means of suitable clamp angle-bars 60 and screws 61, Fig. 1.

The stand 55 may be either placed directly upon a table or desk or may be provided with legs 62 slidable into sockets 63 of the stand 55, in which are placed shock-absorbing mediums, as springs 64 and pads 65.

As a substitute for the ordinary warning bell of a typewriter I purpose using a small electric light 70 which is intermittently illuminated by the carriage through the medium of a suitable circuit 71 and a spring switch 72 lying in the path of the carriage. This light is intermittent and is preferably red, and, if desired, a second light 73 may be employed to illuminate the interior workings of the case.

Since an important object of this invention is to provide a case for inclosing typewriters already in use, the case has been so designed that the operator only has to shift the carriage 12 to a central position on the machine and drop the entire assembled case down over it, having previously placed the driven platen wheel 21 on the spindle 20, this being the only change requisite.

The operation of the device is briefly as follows: The typewriting machine is placed on the padded table 55 and the case A set over the machine and clamped down on the table by the clamps 60—61; the machine first having applied to its platen the star-wheel 21, or its equivalent, and a suitable stop 48 attached to the typewriter carriage 12. When the case A is put on the machine, care is taken to see that the pivot yoke 35, Fig. 2,

properly engages with the releasing lever 34 and that the star-wheel 21 intermeshes with the wheel 22—22′. Placing the case on the typewriter brings the secondary bank of keys 32 into alinement with the keys 10 of the typewriter keyboard, so that the typewriter thereafter is manipulated by striking the keys 32.

To put the paper in the machine the platen is run to the left-hand end of the case and the window 11 opened by depressing the trigger 19, the springs 16 opening and holding open the window until closed again either by hand or by running the carriage back to the right, in which latter case the stop 48 on the carriage hits the projection 49 on the traveler 46, and through cord 42 pulls the window closed; the spring connector 45 allowing for a little extra travel of the carriage to the right to insure the closing of the window 11. The typewriter is then manipulated in the usual way.

The platen can be turned while the door is closed by manipulating the button 24 and the platen can be line-spaced and retracted toward the right by means of the lever 30, or the carriage can be released and run to the left by an initial downward pressure on lever 33 and then slacking up slightly on the lever to let the carriage be pulled to the left by the tension of its spring; or by pushing down hard on lever 33 the carriage can be pulled to the right without line spacing or turning the platen.

It is understood that the illustration is only typical of one embodiment of my invention, and that changes of material, form, arrangement, proportion and degree may be made in application of the principle to suit a variety of conditions, or makes of machines; and that wherein here used, the term "case" means frame, cover or casing.

As previously stated, the shift-lever 27 on most machines operates, when pulled on, to give a step by step movement to the platen 13. This means is well known in the art. I have represented, however, diagrammatically in Fig. 3, and in detail in Fig. 9, the general idea.

The lever 27 which is shown in end elevation in Fig. 1, has a horizontal stem portion journaled and rocking in a stationary sleeve 67. The inner end of this stem has a crank 68 operating on a rocking lever 69, which latter has a pawl 70 to engage the ratchet 71 on the platen 13. The spring 12′, Fig. 1, acts constantly to tend to pull the carriage 12 to the left; while the lever 30, through its connections 28 with lever 27, provides a single means outside the case for effecting a step by step movement of the platen, and also for reciprocating the carriage.

This application is in substitution and continuation of my prior application filed May 25, 1914, Ser. No. 840,961.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. The combination with a typewriter having a keyboard, of a sound-proof case therefor completely housing in the typewriter and keyboard, and means operative from the exterior of the casing for manipulating the keys and for turning the platen and releasing the carriage.

2. The combination with a typewriter having a keyboard, carriage and platen, of a sound-proof case therefor completely housing in the keyboard and the operative parts of the typewriter, with means operative from the exterior of the case for manipulating the keys, the platen and the carriage, said means including keys, a lever connected to move the carriage and a turnable knob connected to the platen.

3. The combination with a typewriter having a keyboard, carriage and platen, of a sound-proof case therefor completely housing in the keyboard and the operative parts of the typewriter, with means operative from the exterior of the case for manipulating the keys, the platen and the carriage, and a closure for the case operative by the movement of the carriage.

4. The combination with a typewriter having a keyboard, carriage and platen, of a sound-proof case therefor completely housing in the keyboard and the operative parts of the typewriter, with means operative from the exterior of the case for manipulating the keys, the platen and the carriage, a transparent closure for the case, means for maintaining the closure normally open, detent means for holding it closed, and means operative by the typewriter for automatically closing the closure.

5. The combination with a typewriter having a keyboard, a reciprocating carriage and a rotary platen, of a sound-proof case therefor entirely housing in the machine including the key-board, and means at one end of the case for manipulating the carriage and platen at will, said means including levers connected to the carriage and a knob whereby the platen may be turned.

6. The combination with a typewriter having a keyboard, a reciprocating carriage and a rotary platen, of a sound-proof case therefor completely housing in the machine including the key-board, said case having a supplemental bank of keys registrable with the keys on the typewriter keyboard, and means extending outside the case and carried thereby for manipulating the carriage and platen, said means including levers connected to the carriage and a knob whereby the platen may be turned.

7. The combination with a typewriter having a rotary platen, of a sound-proof case therefor, and temporarily connectible

means including a rotary member on the outside of the case for manipulating the platen.

8. The combination with a typewriter having a rotary platen, of a sound-proof case therefor, and means including a rotary member on the outside of the case for manipulating the platen, said means being connectible and disconnectible from the platen.

9. The combination with a typewriter having a rotary platen, of a sound-proof case for the machine, and means carried by the case and operative from outside the case for turning the platen.

10. The combination with a typewriter having a rotary platen capable of a lengthwise movement and of a vertical movement, of a sound-proof case for the machine, and means carried by the case and operative from outside the case for turning the platen irrespective of the longitudinal position and irrespective of the level of the platen.

11. The combination with a typewriter having a rotary platen, of a case therefor, said case having a shaft parallel with the axis of the platen, and inter-engaging driving connections between the shaft and platen by which on the turning of the shaft the platen will correspondingly be turned.

12. The combination with a typewriter having a rotary platen, of a case therefor, said case having a shaft parallel with the axis of the platen, and inter-engaging driving connections between the shaft and platen by which on the turning of the shaft the platen will correspondingly be turned, said last-named connections including a star-wheel on one member and a complementary inter-engaging wheel on the other member.

13. The combination with a typewriter having a rotary platen, of a case for the typewriter, said case having a rotary shaft, a star-wheel on the platen, and a sliding wheel on the shaft in constant engagement with the star-wheel, said sliding wheel slidable on and turnable with its shaft, and said shaft turnable from without the casing.

14. The combination of a typewriter having a sliding carriage, a sound-proof case for the typewriter, a pivoted lever on the outside of the case, connections between the lever and the carriage for reciprocating the latter, and means projecting through the case for manipulating a platen on the carriage.

15. The combination with a typewriter having a sliding carriage, of a sound-proof case for the typewriter, a pivoted lever on the outside of the case, means operative on the carriage tending to move it constantly in one direction, connections between the carriage and said lever outside the case to move the carriage in the opposite direction, and means projecting through the case for manipulating a platen on the carriage.

16. The combination with a typewriter having a sliding carriage, of a case for the typewriter, a lever on the outside of the case, means operative on the carriage tending to move it constantly in one direction, said carriage having a releasing lever, and connections between said releasing lever and said lever outside the case for reciprocating the carriage in either direction.

17. The combination with a typewriter having a sliding carriage and a rotary platen, of a case for the typewriter, means operative on the carriage tending to cause it to move always in one direction, and a single means outside the case and connected with the carriage for effecting a step by step movement of the platen and also for reciprocating the carriage.

18. The combination with a typewriter having a sliding carriage, of a case therefor, a lever outside the case, means acting on the carriage tending to move it always in one direction, and said carriage having a release lever, and connections between said release lever and said lever outside the case for moving the carriage.

19. The combination with a typewriter having a sliding carriage, of a case therefor, a lever outside the case, means acting on the carriage tending to move it always in one direction, and said carriage having a release lever, and flexible connections between said release lever and said lever outside the case for moving the carriage.

20. The combination with a typewriter having a sliding carriage, of a case inclosing the typewriter, the carriage having a releasing lever, and means operative from the outside of the case engageable with the releasing lever to reciprocate the carriage.

21. The combination with a typewriter having a sliding carriage, of a case inclosing the typewriter, the carriage having a releasing lever, and means operative from the outside of the case engageable with the releasing lever to reciprocate the carriage, said last-named means including an outside operating lever, and a sliding clutch member inside of and carried by the casing and engageable with the releasing lever.

22. The combination with a typewriter, of a case therefor, a hinged door, means tending normally to hold the door open, said typewriter having a sliding carriage, and means operative by the movement of the carriage to close the door.

23. The combination with a typewriter, of a case therefor, a hinged door, means tending normally to hold the door open, said typewriter having a sliding carriage, and means operative by the movement of the carriage to close the door, said last-named means including a traveler mounted for reciprocating on the case in a direction parallel with the movement of the carriage,

connections between the traveler and door, and stop means on the carriage engageable by the traveler.

24. The combination with a typewriter, of a sound-proof case therefor completely housing in the typewriter, a sound-deadening table on which the typewriter rests, and means for clamping the case on said table.

25. The combination with a typewriter, of a sound-proof case therefor completely housing in the typewriter, a sound-deadening table on which the typewriter rests, means for clamping the case on said table, and mechanism carried by the case for manipulating the typewriter from the outside.

26. In typewriting apparatus, a sound corralling case for inclosing a typewriting machine and having keys and levers coördinate with those of the machine, said casing having a receptacle for containing a bath of oil in which some of the mechanism is immersed to deaden sound.

27. In a typewriter silencer, a case with hollow walls filled with cotton saturated with a petroleum product.

28. The combination of a sound deadening casing, a typewriter therein having a traveling carriage, means operable to return the carriage of the typewriter and means in part exterior to the casing to control said operable means.

29. The combination of a sound deadening casing, a typewriter therein having a carriage to travel wholly within the casing, and operable means to return the carriage.

30. The combination of a sound deadening casing, a typewriter therein having a carriage to travel wholly within the casing, means to return the carriage, and means extending through the casing to actuate the carriage return means.

31. The combination of a sound deadening casing for typewriters, a typewriter therein provided with a movable carriage, said casing having a transparent portion in front of the carriage of said typewriter and illuminating means for said carriage within the casing.

32. The combination of a sound deadening casing for typewriters, a typewriter therein having a movable carriage, a visible signaling device in conjunction with the typewriter casing, the carriage of said typewriter operating said visible signal device toward the end of its movement to the left.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

SEYMOUR W. WATERHOUSE.

Witnesses:

JOHN H. HERRING,

W. W. HEALEY.