Sept. 29, 1931. F. E. WALTERS 1,825,491

KEY PRESSURE GAUGE

Filed May 27, 1929

Fig. 1.

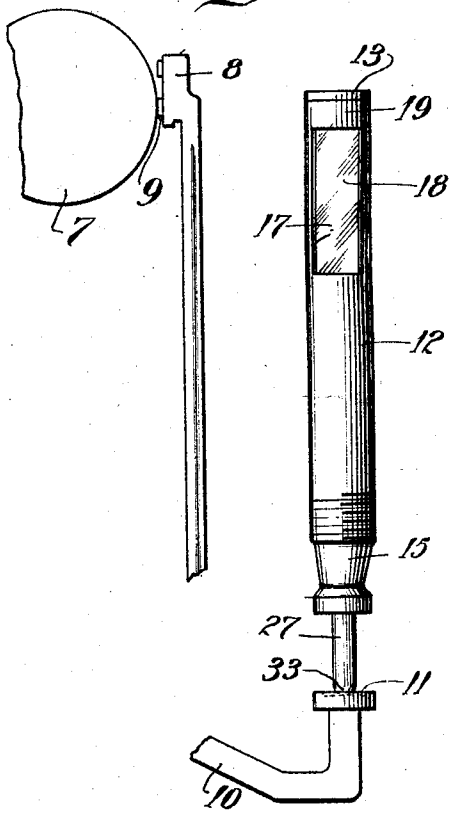


Fig. 2.

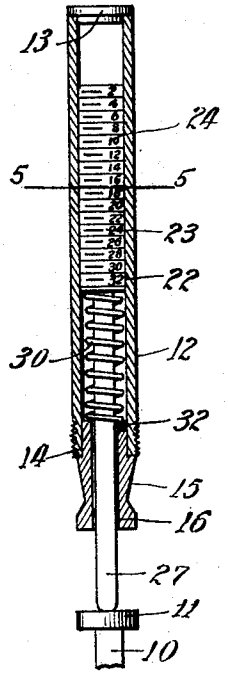


Fig. 3.

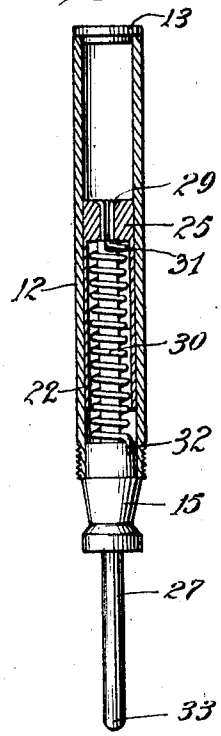


Fig. 4.

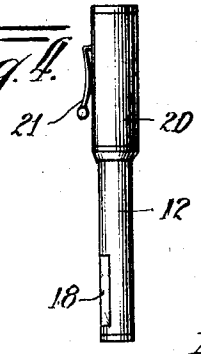


Fig. 5.

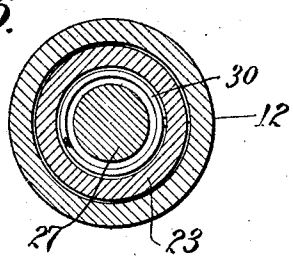
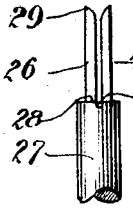


Fig. 6



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UNITED STATES PATENT OFFICE

FRANK E. WALTERS, OF CHICAGO, ILLINOIS

KEY PRESSURE GAUGE

Application filed May 27, 1929. Serial No. 366,316.

This invention relates to a key pressure gauge for typewriters, adding machines, comptometers, or any manual or automatic controlled key pressure instruments, that is, an instrument for measuring in ounces or other standard scale the pressure necessary to use on typewriter keys or other classification of keys to carry the type-head to the printing point, or other pressure terminal.

The object of the invention is to provide a novel instrument or gauge of this character which in appearance resembles a modern fountain pen and which by removal of the cap permits use of the device by application to the typewriter or other key to determine the pressure required to carry the type-head to the printing point of a typewriting or other similar machine and to permit regulation or adjustment of the key pressure at the factory, by repairmen, rebuilders or in the testing rooms of typewriter or like factories where the equalization of key resistance is a factor in the testing of a machine as well as by salesmen and which where a varied pressure is required on certain keys, may be used to advantage so that a machine can be adjusted properly especially in connection with a special chart showing the pressures required for the type to reach the printing point on different makes of machines.

Another object of the invention is to provide a device which is attractive in appearance, simple in construction and not likely to get out of working order.

With the above and other objects in view, the invention consists in certain novel combinations and arrangements of parts to be hereinafter more particularly set forth and described.

In the accompanying drawings, Figure 1 is an elevation of the novel key pressure gauge shown applied to a typewriter as in use.

Figure 2 is a longitudinal sectional view of the device.

Figure 3 is a sectional elevation showing the device in its normal position.

Figure 4 is an elevation showing the device closed for carrying in the pocket when not in use.

Figure 5 is an enlarged sectional view taken on the line 5—5 of Figure 2 and

Figure 6 is a fragmentary view showing the manner of attaching the plunger.

Referring to the drawings in detail, in which like reference characters designate corresponding parts throughout the several views, the device is shown applied in Figure 1 and use of which 7 designates the cylinder or platen of the machine such as a typewriter or the like, 8 the type bar and 9 the printing point. One of the key bars is designated at 10 having the key head or finger engaging portion 11.

The gauge comprises a barrel 12 like used in connection with an ordinary fountain pen with the top 13 closed, the barrel being preferably cylindrical and having an open end 14 closed by a cylindrical plug 15 with a smooth bore 16, opening entirely through the same. The reduced end of this plug is frictionally or otherwise held in the open end 14 of the barrel or cylinder 12.

Near the closed end 13, the barrel is provided with a window opening 17 closed with a suitable transparent covering or window 18 of mica, glass, celluloid or other transparency held in tight connection therewith at the inside by adhesive or otherwise and retained beneath the end flange or portion 19 spaced from the end 13. The barrel is provided with the usual removable cap 20 adapted to be threaded or otherwise secured in position removably and provided with a clip 21 by which it may be retained in the pocket in the manner of a fountain pen or pencil.

Within the barrel is a hollow cylindrical plunger 22 of metal or the like graduated as indicated at 23 and marked off with calibrations as indicated at 24 in some standard scale such as ounces representing pressure as shown marked from 2 to 32 with intermediate divisions of one although I do not desire to be restricted to this particular measurement or calibration. This plunger is preferably in the form of a hollow tube or sleeve within one end of which is disposed

an end sleeve 25 and this end receives the reduced end portion 26 of a plunger rod 27 which extends loosely through the part 22 and the reduced portion 26 produces a shoulder 28 which abuts the ring 25 so that the reduced portion projects through and may be anchored frictionally or otherwise, as by splitting or bifurcating the ends as indicated at 29 in the manner of a rivet with the ends turned over and headed or otherwise shouldered and firmly anchored within the ring 25 which is anchored in the sleeve or plunger proper 22.

A coil spring 30 is anchored to the plunger rod 27 preferably above the shoulder 28 as indicated at 31 and surrounds the rod 27, within and below the part 22 and the opposite end thereof is anchored to the plug 15 at its reduced portion within the open end 14, as indicated at 32. This spring, therefore, surrounds the upper portion of the rod 27 and the lower end of the rod projects through the hollow plug 15 a considerable distance and preferably has the lower end thereof rounded convexly as indicated at 33. When the device is not in use, the cap 20 is placed over the projecting edge of the rod 27 permitting the cap to be screwed in position.

When capped, the instrument is not distinguishable in appearance from an ordinary fountain pen generally, except for the transparent window and removing of the cap discloses the metal plunger or rod mounted on its exterior end as described. In the use of the device the rounded end of the plunger is rested on the typewriter or the key to be tested and pressure is applied downward until the type is carried to the printing point. The pressure against the action of the spring, expands the latter and causes the calibrated plunger to move upwardly in the cylinder or barrel to be exposed through the window 18 and as the barrel is normally precluded from view below the window, with the top of the plunger at the bottom edge of the opening, the highest number of ounces recorded at the bottom of the window represents the pressure which has to be exerted by the operator to produce a type impression.

The same typewriting machine or other devices may be found to require more pressure on some of its keys than others, and there are differences between the different makes of machines, but as in practically all standard typewriters, and other machines, key pressure is adjustable. The device is used by holding the gauge in one hand only resting the plunger lightly on the typewriter or other key as disclosed in Figure 1 in the drawings, holding the gauge at the top between the thumb and index finger. The pressure is slowly but firmly applied downward and the scale begins to rise, continuing the pressure beyond the universal bar resistance, until the printing point has been reached; that is, until the letter on the type bar touches the paper or cylinder, where the pressure on the gauge is noted. In many cases it is sufficient to indicate the pressure just beyond the universal bar resistance, that is until the carriage has moved forward one space. The exact pressure required is now indicated on the gauge in ounces and through this device, the pressure of the different keys may be accurately adjusted according to requirements or a scale provided for this purpose according to a standard chart for the different typewriters or other machines of this character or the general character operated by keys or key pressure. It will be found that different pressures will be required on the key board of the average typewriter or other machines but the repair man need no longer guess as to the action of the key lever and type bar to the printing point and it will be found as a great time saver for inspection and repair men. This may also be used by salesmen in preparing and demonstrating touch of the different typewriters or other machines so as to make actual comparison and accurately register the actual force applied to reach the pressure required up to the printing or terminal point. This will be especially helpful in connection with a special chart showing the average pressure required to reach the printing point on different makes of machines.

While I have shown my invention in a preferred form, it is to be understood that various changes may be made in the construction, proportion and arrangement of the parts and also in the materials used, without departing from the spirit and scope of the invention.

I claim:

In a key pressure gauge, the combination of a barrel having a window of transparent material in its wall near one end; a bushing in the other end, having a guide hole; a cylinder slidably fitting the inside of the barrel having a head with an attachment hole and bearing calibration marks visible through the window; a stem extending from the outside through the guide hole into the barrel, having a reduced end in the attachment hole split by a notch and bent over to secure it to the cylinder head; and a coil spring inside the cylinder and surrounding the stem, having one end in the notch and the other end secured to the bushing.

In testimony whereof I affix my signature.

FRANK E. WALTERS.