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ADJUSTMENT DEVICE

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Fig. 1.

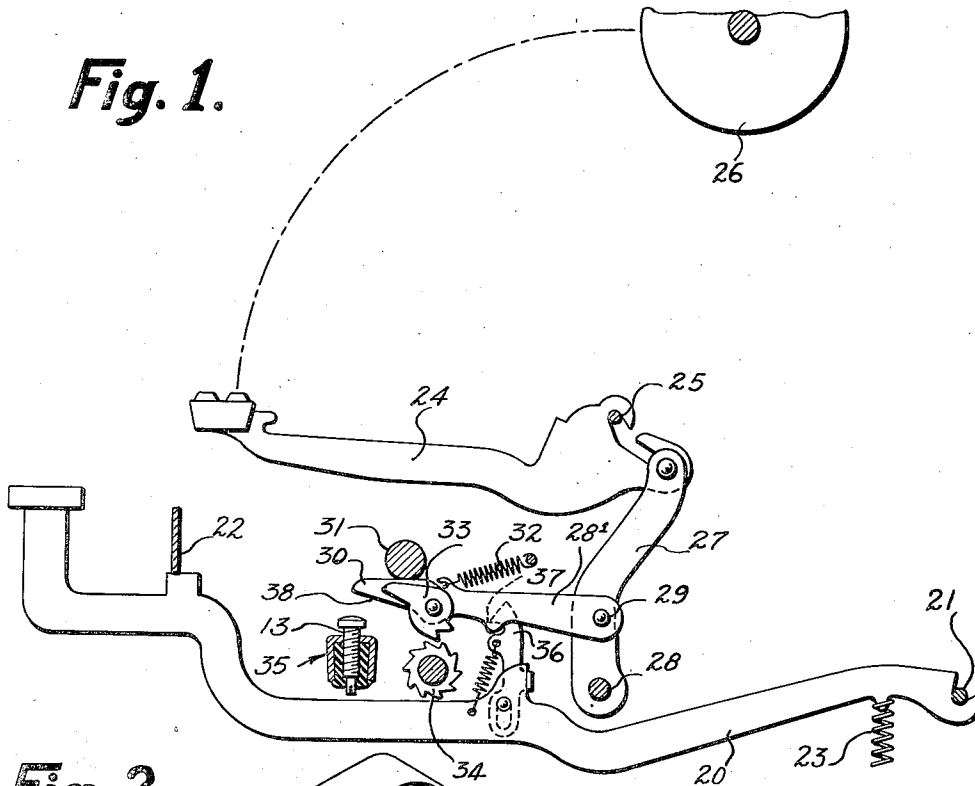


Fig. 2.

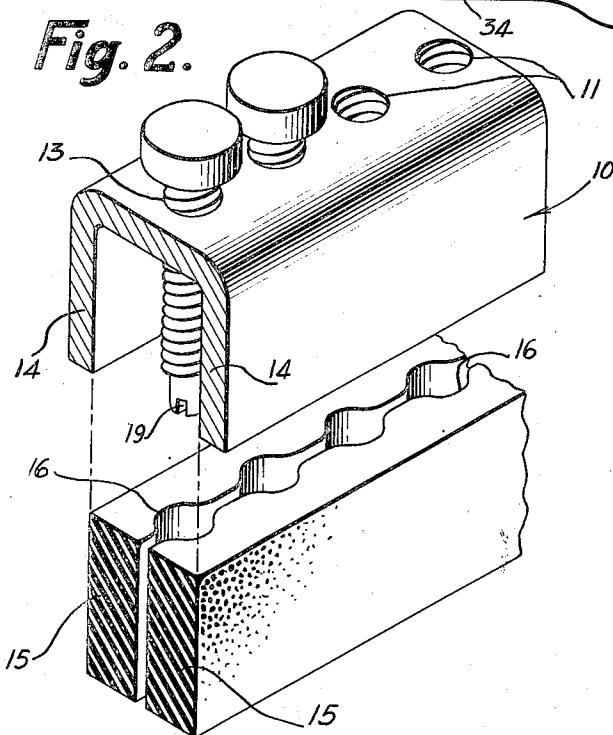
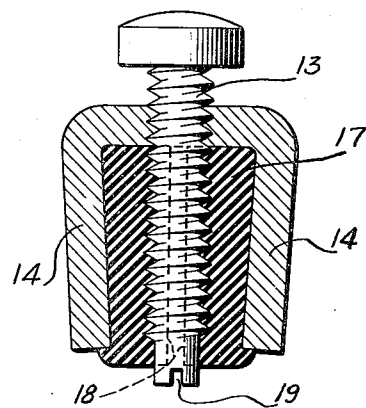


Fig. 3.



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ADJUSTMENT DEVICE

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6 Claims. (Cl. 74—526)

This invention relates to an adjustment device and more particularly to an adjustment device having provision for selective adjustment of a multiplicity of parts to govern the operation of a series of spaced independently movable mem-
bers. Although the invention may be of some-
what general application it has a particularly
important relation to typewriting mechanism
and more specifically therein to the adjustment
of the throw-off timing for the various type bar
actuators of a power-driven typewriter.

One reason for the special application of this
invention to typewriting mechanism is its inci-
dental or secondary advantage in reducing the
noise of impact when the power drive unit throws
an actuator into contact with the adjustment
device as the latter is serving to effect disconnec-
tion between the actuator and the power drive
unit.

In a power-driven typewriter it is highly de-
sirable that the mechanism controlling the throw
of the type bars be disconnected at a definite
time relative to the position of the type head in
its arc of travel to the platen. Owing to link
and lever connections conventionally employed in
typewriter type actions and the power operating
devices therefor, it is necessary to have individ-
ual adjustment for each type action whereby
the point of disconnection from the power unit
may be adjusted to suit, and it is also desirable
that when this adjustment has been made no
unintended change shall take place as might be
due to vibration or other causes.

The present invention has, therefore, as its
principal object the provision of an adjustment
device which shall be rigid, simple in construc-
tion, and inexpensive to manufacture, and in
which the adjustment may be quickly and con-
veniently made and is assuredly maintained.

The present invention further relates to a
simple and inexpensive method of making an
adjustment device for use in a typewriter or
other machine involving a series of spaced re-
lated operating parts.

In the drawing wherein is illustrated one of
various possible embodiments of the invention
and wherein the method of making such a device
is also indicated:

Fig. 1 is a diagrammatic view of the type
action and platen of a power-driven typewriter
in which the present invention is serving as a
throw-off stop for the power-driven actuator.

Fig. 2 is a view showing the component parts
of the invention in partial disassembly.

Fig. 3 is a view in cross section of the invention
as shown in Fig. 2 with the parts assembled and
the method completed. The section is taken
transversely through the median of one of the
adjusting screws.

Referring now more particularly to the draw-
ing, a channel member preferably of metal is
indicated at 10. At spaced points along the
center line of the base of the channel member
tapped holes 11 are provided. Into each of these
holes a screw 13 is threaded until a substantial
portion of its threaded shank lies between oppo-
site side walls 14 of the channel member. Relat-
ively soft resilient pieces 15 are provided prefer-
ably by molding a vulcanizable rubber compound
to the shape shown in Fig. 2, each piece 15 hav-
ing a series of spaced grooves 16 adapted to
match similar grooves in the other piece and to
fit around the threaded shanks of the screws 13
when the latter are in position between the chan-
nel side walls. Although the pieces 15 are de-
scribed herein as of relatively soft vulcanized
rubber it will be obvious that other materials
may be used and when reference is made herein
to rubber such reference is intended to embrace
any other material having similar characteristics
of plasticity and resilience so that it may be
pressed into frictional engagement with the sur-
faces of the threads of the screw and will serve
to retard the rotation thereof.

The molded rubber pieces 15 are fitted into the
spaces between the channel side walls and the
screw shanks with the groove 16 in position to
fit around the screw shanks. When in such po-
sition the side walls 14 are pressed toward each
other and set in that position as shown in Fig.
3. This forces the rubber into the thread
spaces as indicated at 17 in Fig. 3 except for a
slight distance along the screw shanks where
the pieces 15 do not meet as indicated at 18 in
Fig. 3. The rubber strips are held in the chan-
nel against displacement by the pressing in of
the side walls 14.

The screws 13 may be screw-slotted for appli-
cation of an instrument for rotation of the
screw, either at the top or bottom. In the pres-
ent preferred embodiment such slot is provided
in the bottom of the screw as indicated at 19.

In Fig. 1 of the drawing a typewriter key lever
is shown at 20 fulcrumed at 21 and held in its
upper position against a stop 22 by a return
spring 23. One type bar of a conventional series
is shown at 24 pivoted at 25 and adapted for

movement to a platen 26 under control of a sub-lever 27 pivoted at 28.

Each sublever has an actuator 28' pivoted on it at 29 and held upwardly with its forward end 30 against a stop bar 31 by a spring 32. Each actuator carries a pivoted pawl 33 adapted to be engaged by the teeth of a toothed roller 34 which latter extends transversely of the typewriter and is journaled in the frame thereof and ordinarily continuously driven by an electric motor.

The adjusting device heretofore described is indicated in its operative position in Fig. 1 at 35 and is used there to provide selectively variable points for the throw-off of the actuators 28'. As each key lever 20 is depressed a hook 36 overlying a lug 37 on the actuator 28' pulls the actuator down around the pivot 29 and engages the toothed pawl 33 with the drive roller 34. This advances the actuator forwardly until a cam face 38 contacts the head of screw 13 whereupon further continued forward movement of the actuator lifts it to disengage the pawl teeth and allow spring 32 to restore it upwardly.

The temporary engagement of an actuator with the drive roller causes a throw of a related type bar to the platen. Obviously the force of impact is variable in accordance with the length of time or distance that the actuator is maintained in engagement with the drive roller. Variation in these factors causes variation in the typing stroke and consequently one letter may appear sharp and another may appear weak just as is frequently noted in the operation of manually struck types.

If such condition is noted in a typewriter equipped with the present invention the duration of the engagement between the pawl 33 and the fluted roller may be varied at will by rotating the appropriate screw 13 in one direction or the other.

Having once made such an adjustment it is desirable to maintain it during subsequent operation of the machine. The friction grip of the rubber on opposite sides of the screw and over the area of the threads is sufficient to hold the screw against rotation under normal use conditions, and sound vibrations from impact of the actuator are absorbed to a large extent by the rubber between the screw shank and the channel member.

What is claimed is:

1. A row of spaced adjustment screws and a mounting therefor including a channel-shaped metal member through the base of which the screws are threaded with the screw shanks between the channel side walls, a rubber strip along each opposite wall of the channel and clamped by said walls into frictional engagement with the thread surface of the screws.

2. A row of spaced adjustment screws and a

mounting therefor including a channel member through the base of which the screws are threaded with the screw shank between the channel side walls, a rubber strip along each channel wall having spaced transverse grooves to fit the screws and being under pressure from the wall which forces the rubber into engagement with a substantial area of the thread surface.

3. An adjustment device for engagement by separately operable parts in a typewriting mechanism, comprising a channel member adapted to be fixed to a supporting frame, a row of spaced screws threaded into the base of the channel and having their threaded shanks lying between the channel side-walls, a soft-vulcanized rubber strip on each side of the row of screws, held by the side walls in pressure engagement with all the screws to the extent that the rubber of the strips is forced into the screw thread spaces.

4. In a power-driven typewriter having a type action system including a series of type bar actuators and a power roller cooperative therewith, an adjustable throw-off device adapted for engagement by the actuators and comprising an elongate channel fixedly mounted, a series of throw-off screws carried by said channel, and a body of resilient material compressed within said channel and embracing said screws to dampen impact of the actuators thereon and frictionally lock said screws in adjusted positions.

5. In a power-driven typewriter having a type action system including a series of type bar actuators and a power roller cooperative therewith, an adjustable throw-off device adapted for engagement by the actuators and comprising a fixedly mounted elongate channel having a base and side walls, a series of throw-off screws threadedly carried in said channel base and projecting substantially between the side walls thereof, and a pair of rubber strips, each disposed between a channel side wall and said screws, said strips frictionally engaging said screws to resist rotation thereof and dampen impact of the actuators thereon.

6. In a power-driven typewriter having a type action system including a series of type bar actuators and a power roller cooperative therewith, an adjustable throw-off device adapted for engagement by the actuators and comprising a fixedly mounted elongate channel having a base and side walls, a series of throw-off screws having threaded shanks threadedly carried in said channel base and projecting substantially between the side walls, and a pair of rubber strips having transverse grooves accommodating the screw shanks, said strips being disposed at opposite sides of said screw shanks and compressed within said channel to frictionally lock said screws against rotation and dampen impact of the actuators thereon.

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