Oct. 5, 1937. J. F. KOCA 2,095,068

IMPRESSION REGULATOR

Filed Feb. 27, 1933 2 Sheets-Sheet 1

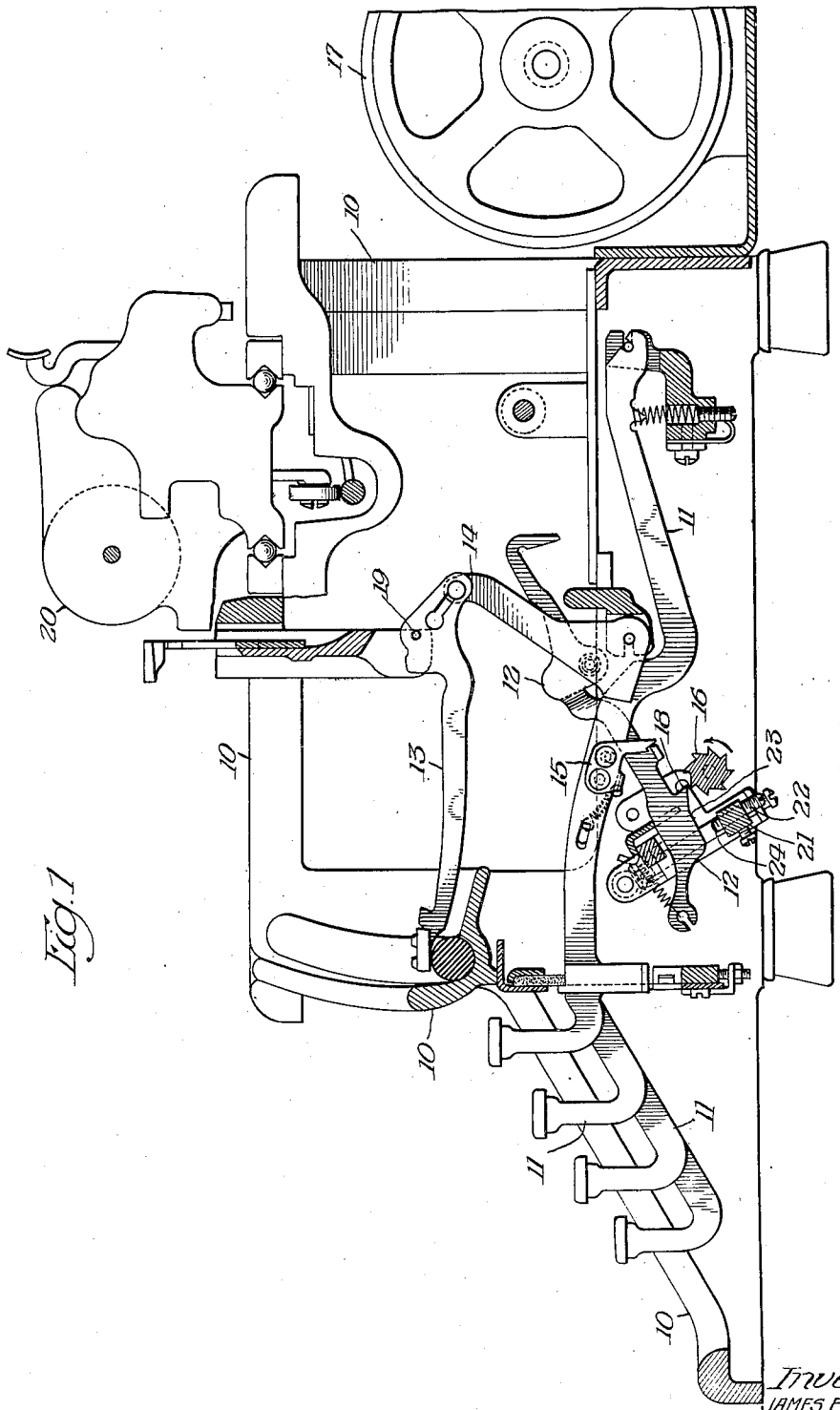


Fig. 1

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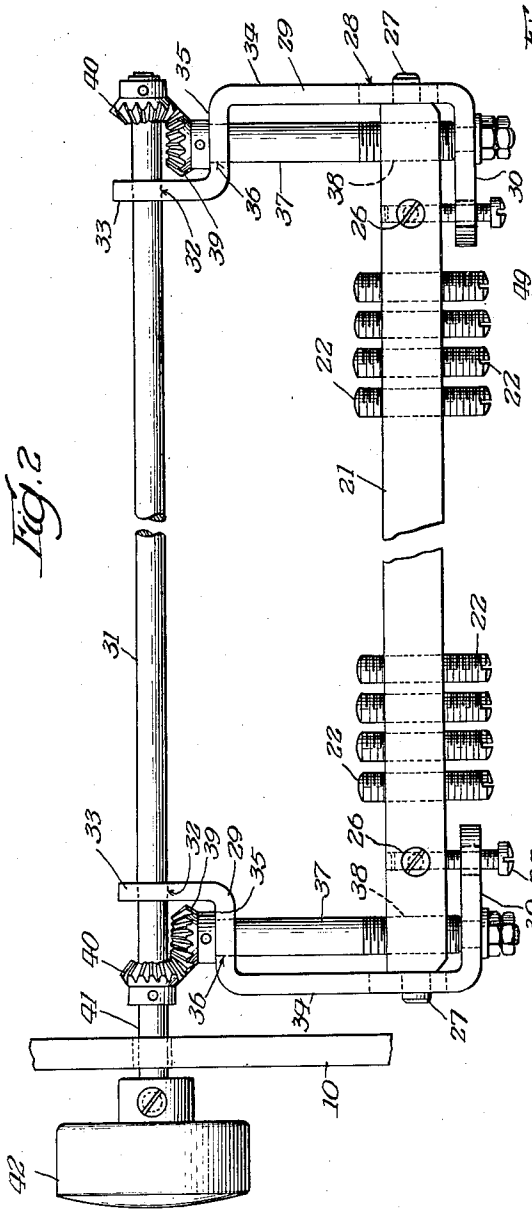


Fig. 2

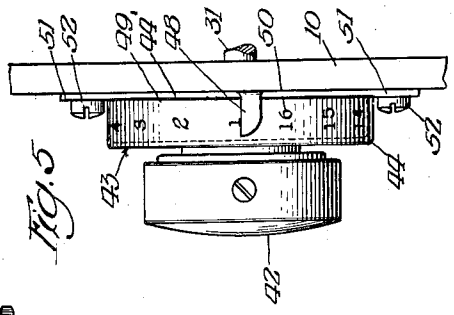


Fig. 5

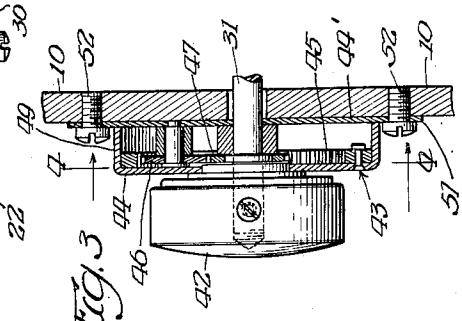


Fig. 3

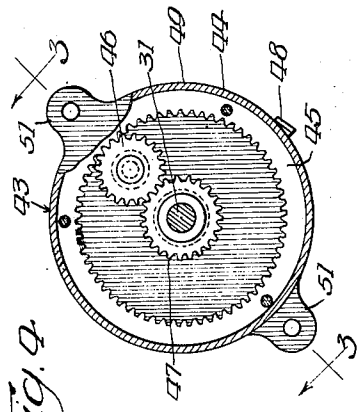


Fig. 4

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UNITED STATES PATENT OFFICE

2,095,068

IMPRESSION REGULATOR

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Application February 27, 1933, Serial No. 658,798

13 Claims. (Cl. 197—17)

This invention relates to an impression regulator for typewriters, and particularly to impression regulating means for electrically operated typewriters. More specifically the invention relates to adjustable means for determining the duration or length of time the type bar actuator is maintained in operative contact or driving relationship with an actuator drive shaft of an electric typewriter.

The primary object of the invention is to provide new and improved means to adjust the duration or length of time the type bar actuator is maintained in operative contact or driving relationship with an actuator drive shaft of an electric typewriter.

Another object is to provide an actuator release bar having a plurality of individual actuator release screws for individually adjusting the type bar actuator, and means for collectively adjusting the actuator release bar to collectively adjust all the type bar actuators.

A further object of the invention is to provide simple and improved means for individually or collectively adjusting the type bar actuators whereby the driving relationship of the type bar actuators with the actuator drive shaft is adjusted to regulate the impression of the type bar.

A still further object of the invention is to provide new and improved impression regulator means with visible indicating means so that the operator or typist can make the necessary adjustments depending upon the number of copies to be made and readily determine the position to which the impression regulator means should be set according to the number of copies to be made.

Still another object of the invention is to provide a visible exteriorly positioned manually operated device for collectively raising or lowering the actuator release bar to regulate the impression of the type bar.

Numerous other objects and advantages will be apparent throughout the progress of the following specification.

The accompanying drawings illustrate a selected embodiment of the invention and the views therein are as follows:

Fig. 1 is a detail sectional view through a typewriter and embodying the invention.

Fig. 2 is a detail elevation of the improved actuator release bar having the actuator release screws mounted thereon and means for adjusting the actuator release bar.

Fig. 3 is a detail sectional view of the indicating means for determining the amount of adjustment required in accordance with the number of copies to be made, the figure being taken on the line 3—3 of Fig. 4.

Fig. 4 is a detail plan section on the line 4—4 of Fig. 3.

Fig. 5 is a detail elevation of the indicating means shown in Figs. 3 and 4.

Referring to the drawings, 10 designates a typewriter frame upon which key levers 11 are arranged in the usual manner. Type bar actuators 12 are controlled by the key levers and operate type bars 13 through the intermediary of sub-levers 14. Key lever latches 15 are carried by the key levers and shift the type bar actuators downwardly into engagement with the actuator drive shaft 16 upon depression of a key lever.

The actuator drive shaft 16 may be driven by a belt, not shown, from a pulley 17 driven by a motor, not shown. The actuator drive shaft rotates in the direction shown by the arrow, Fig. 1, and pulls a type bar actuator to the left when the hook or tooth 18 of the type bar actuator is moved into engagement by the latch 15 upon operation of a key lever 11. This pulling force causes the type bar actuator 12 to move to the left and operate the sub-lever 14 which swings the type bar 13 on its pivot 19 to impression engagement with the platen 20.

An actuator release bar 21 having actuator release screws 22 is provided to remove or "kick off" the type bar actuator 12 from the actuator drive shaft 16. The type bar actuator 12 is provided with a cam surface 23 which, during movement of the type bar actuator 12, will become engaged with its corresponding actuator release screw 22 and raise the left end of the type bar actuator from engagement with the actuator drive shaft 16.

If the actuator screw 22 is operated to lower its engaging end 24, the end 18 of the type bar actuator will remain in engagement with the actuator drive shaft for a longer period of time and consequently cause a greater pull or drive to be exerted on the type bar actuator and consequently the type bar 13 will be driven with greater force. If, however, the actuator release screw 22 is turned to have its end 24 projecting further outwardly from the actuator release bar, the disengagement of the tooth 18 will be advanced, that is, the type bar actuator will be "kicked off" from the actuator drive shaft quicker, causing less driving force to be given to the type bar actuator and consequently less printing force to the type bar 13. Thus, when

a number of copies are to be made, it is advantageous that the type bar actuator be kept into longer engagement with the actuator drive shaft, while when a less number of copies are to be made, it is advantageous that the type bar actuator 12 be "kicked off" from the actuator drive shaft quicker so as to reduce the driving force of the type bar 13. However, it would be inconvenient to operate every one of the actuator release screws every time additional or less copies are to be made. Therefore, means are provided to move the entire actuator release bar by the manipulation or operation of a single member to collectively regulate the driving force of all the type bars. The principal function, therefore, of the actuator release screws is to provide individual regulation of each type bar actuator so that each type bar 13 will give the same or practically the same impression. Actuator release bar adjusting screws 25, Fig. 2, are provided for originally adjusting the maximum upper position of the actuator release bar 21 during the assembly of the typewriter. Actuator release lock screws 26 may be provided for preventing movement or rotation of actuator release bar adjusting screws 25. The actuator release bar 21 is provided with end bearings 27 which operate in slots 28 provided in the hangers 29. The hangers 29 have inwardly extending end portions 30 through which the actuator release bar adjusting screws 25 freely pass and limit the vertical slidable movement of the actuator release bar.

The means for effecting the collective adjustment of the type bar actuators comprises a horizontal shaft 31 which passes through alined holes 32 in the upwardly extending offset ends 33 of the hangers 29. The ends 33 of the hangers are offset from their sides 34 to provide a horizontal bearing surface 35 through which holes 36 are formed. Rods or shafts 37 pass through the holes 36 and have threaded engagement with the actuator release bar as indicated at 38, and extend through the ends 30 of the hangers, and have free revoluble movement with respect to the ends 30 beyond which they may be threaded and provided with locking nuts. The tightening of the nuts will thereby tend to lock members 37 in adjusted position. Beveled gears 39 are fixed to the rods or shafts 37 and are supported by the surfaces 35. These beveled gears 39 have meshing relationship with other beveled gears 40 fixed to the shaft 31. The shaft 31 is elongated as indicated at 41 and projects exteriorly of the frame 10. A handle or knob 42 is fixed to the end 41 of the shaft 31 for giving revoluble movement thereto. Therefore, when the knob 42 is turned, the shaft 31 will turn causing turning or revoluble movement of the beveled gears 40 which are fixed to the shaft. This rotary movement of the gears 40 will cause rotary movement of the gears 39, and inasmuch as these gears are fixed to the rods or shafts 37, the rods or shafts 37 will be given rotary movement. Rotary movement of the rods or shafts 37 will cause the actuator release bar 21 to be raised or lowered due to the threaded engagement of the rods or shafts 37 with the actuator release bar. Therefore, if a number of copies are to be made on the typewriter, the knob 42 may be turned to lower the actuator release bar, but if a less number of copies are desired, the knob 42 is rotated in an opposite direction to raise the actuator release bar. In order for the operator or typist to set the actuator release bar to the proper position for making a predetermined number of copies, indicating means 43 may be arranged between the knob 42 and the exterior surface of the casing 10 in the manner shown in Fig. 3.

The indicating means 43 may comprise a casing 44 having a ring gear 45 fixed thereto. A revolubly mounted gear 46 is arranged inside of the casing and is fixed to the bottom plate 44' and has meshing relationship with the ring gear 45 and with a gear 47 fixed to the shaft 31. Thus, when the shaft 31 is rotated, the gear 46 which is fixed will rotate the casing 44. An indicator or pointer 48 is integrally fixed to the bottom plate 44' and extends outwardly therefrom and overlaps the outer edge 49 of the casing 44 as shown in Fig. 5. This pointer is stationary while the casing 44 is revolubly mounted. The outer edge of the casing acts as a micrometer, being provided with indicating means, such as numerals 50. The numerals 50 cooperate with the pointer 48 to indicate to the operator or typist the number of copies for which the machine is set. The numerals 50 being on the edge of the casing, face toward the operator. Therefore, the operator can see, at a glance, the position to which the device is set. If only one copy is to be made, the operator turns the knob 42 until the proper numeral on the casing (numeral 1) comes in registering position in respect to the indicator or pointer 48. If several copies are to be made, the knob is turned until the proper numeral on the casing coincides with the edge of the pointer and indicates the number of copies.

The bottom plate 44 may be provided with extending ears 51 through which screws 52 pass for fastening the plate to the machine.

Where the indicating means 43 is provided, the knob 42 may be constructed as shown in Fig. 3 instead of constructing it as shown in Fig. 2.

The invention provides simple and improved means for regulating the actuator release bar to regulate the impression stroke of the type bar. The invention further provides regulating means located in a convenient position and readily visible to indicate to the operator or typist the number of copies for which the machine is set or may be set.

Changes may be made in the form, construction, and arrangement of the parts without departing from the spirit of the invention or sacrificing any of its advantages, and the right is hereby reserved to make all such changes as fairly fall within the scope of the following claims.

The invention is hereby claimed as follows:

1. In a typewriter, a type bar actuator, an actuator release bar for said actuator, means carried by the release bar for regulating the engagement of each actuator individually, means for adjusting the release bar, means for locking said adjusting means in adjusted position, and additional means for limiting the movement in one direction of the actuator release bar.

2. Impression regulator means for typewriters comprising an actuator release bar, said release bar being provided with an actuator release screw for each typewriter key, a support for the actuator release bar, means for adjusting the actuator release far relative to the support, said support having a slot therein, and an extension on the release bar engaging the slot for limiting

the adjustment of the release bar relative to the support.

3. Impression regulator means for typewriters comprising an actuator release bar, said release bar being provided with an actuator release screw for each typewriter key, a support for the actuator release bar, means for adjusting the actuator release bar relative to the support, means for limiting the adjustment of the release bar relative to the support, said last named means including an element on the actuator release bar slidingly engaging a part of the support.

4. An impression regulator for electric typewriters comprising a type bar actuator, an actuator release bar beneath the type bar actuator, a rotary drive shaft adapted for engagement with the actuator, a member carried by the release bar to regulate the engagement of the actuator with the drive shaft, a support for the release bar, means for regulating the release bar relative to the support, said last named means including interengaging means on the release bar and support, and means for limiting the movement of the release bar relative to the support.

5. An impression regulator for electric typewriters comprising a type bar actuator, a longitudinal actuator release bar beneath the type bar actuator, a longitudinal rotary drive shaft adapted for engagement with the actuator, a member carried by the release bar to regulate the engagement of the actuator with the drive shaft, and means for regulating the position of the release bar said last named means including a manually operated longitudinal member parallel to the release bar and having a portion thereof located outside of the typewriter.

6. An impression regulator for electric typewriters comprising a type bar actuator, an actuator release bar beneath the type bar actuator, a rotary drive shaft adapted for engagement with the actuator, a member carried by the release bar to regulate the engagement of the actuator with the drive shaft, a support for the release bar, vertical means revolubly mounted for regulating the release bar relative to the support, and horizontal manually rotatable means cooperating with the support and said vertical means to move the release bar to change the position of the release bar.

7. An impression regulator for type bars comprising a support, a release bar carried by the support, members carried by the support and threadedly engaging the release bar, gears carried by said members, and rotatable means engaging said gears to rotate the gears and regulate the position of the release bar.

8. An impression regulator for type bars comprising a support, a release bar carried by the support, members carried by the support and threadedly engaging the release bar, gears carried by said members, a transverse shaft, gears on the shaft and meshing with the first named beveled gears, and means located exteriorly of the typewriter for rotating said shaft.

9. An impression regulator for electric typewriters comprising a type bar actuator, an actuator release bar beneath the type bar actuator, a rotary drive shaft adapted for engagement with the actuator, a member carried by the release bar to regulate the engagement of the actuator with the drive shaft, a support for the release bar, rods having threaded engagement with the release bar and free rotary movement relative to the support, gears supported by the support and carried by the rods, and means for rotating said gears simultaneously.

10. An impression regulator for electric typewriters comprising a type bar actuator, an actuator release bar beneath the type bar actuator, a rotary drive shaft adapted for engagement with the actuator, a member carried by the release bar to regulate the engagement of the actuator with the drive shaft, a support for the release bar, rods having threaded engagement with the release bar and free rotary movement relative to the support, gears supported by the support and carried by the rods, a transverse shaft supported by the typewriter, gears on said shaft and meshing with the first named gears, and a knob positioned exteriorly of the typewriter and fastened to the shaft to rotate said shaft.

11. An impression regulator for electric typewriters comprising a type bar actuator, an actuator release bar beneath the type bar actuator, a rotary drive shaft adapted for engagement with the actuator, a member carried by the release bar to regulate the engagement of the actuator with the drive shaft, manually operated means, vertically extending rotatably mounted members operated by the rotation of the said manually operated means for regulating the position of the release bar to regulate the engagement of the actuator with the drive shaft, and indicating means carried by the said manually operated means for indicating the adjusted position of the release bar, said manually operated means including horizontally extending, revolubly mounted manually operated means partly located exteriorly of the typewriter and remotely situated relative to the type bar actuator.

12. An impression regulator for electric typewriters comprising a type bar actuator, an actuator release bar beneath the type bar actuator, a rotary drive shaft adapted for engagement with the actuator, a member carried by the release bar to regulate the engagement of the actuator with the drive shaft, a support for the release bar, rods having threaded engagement with the release bar and free rotary movement relative to the support, gears supported by the support and carried by the rods, a transverse shaft supported by the typewriter, gears on said shaft and meshing with the first named gears, a knob positioned exteriorly of the typewriter and fastened to the shaft to rotate said shaft, and indicating means operated by the shaft for indicating the adjusted position of the release bar.

13. In a typewriter, a type bar actuator, an actuator release bar for said actuator, means carried by the release bar for regulating the engagement of each actuator, means for adjusting the actuator release bar bodily to any of a series of positions for regulating the engagement of all the actuators simultaneously, and means independent of the above means to adjustably limit the path of movement of the actuator release bar.

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