Feb. 16, 1926. 1,573,751

M. SCHULZE

POWER OPERATED TYPEWRITER

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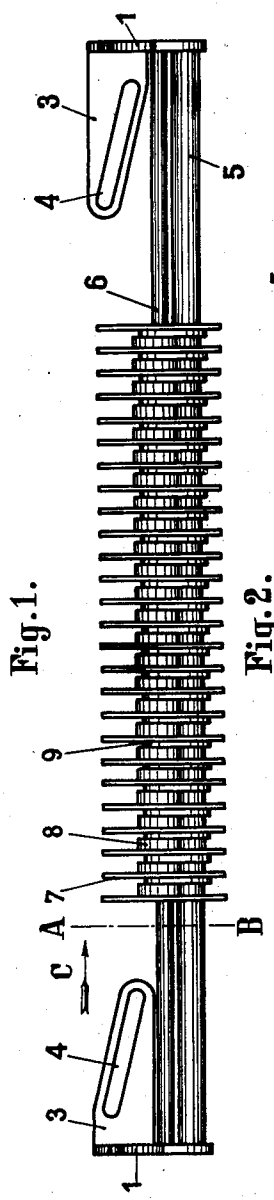


Fig.1.

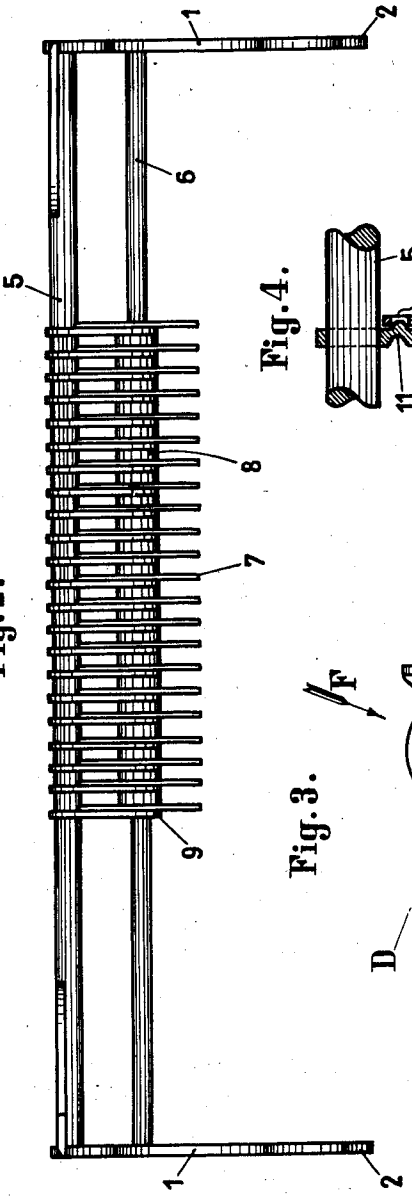


Fig.2.

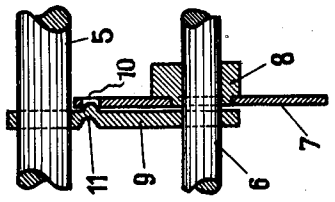


Fig.4.

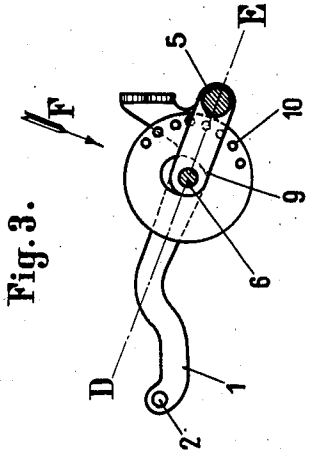


Fig.3.

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Fig. 5.

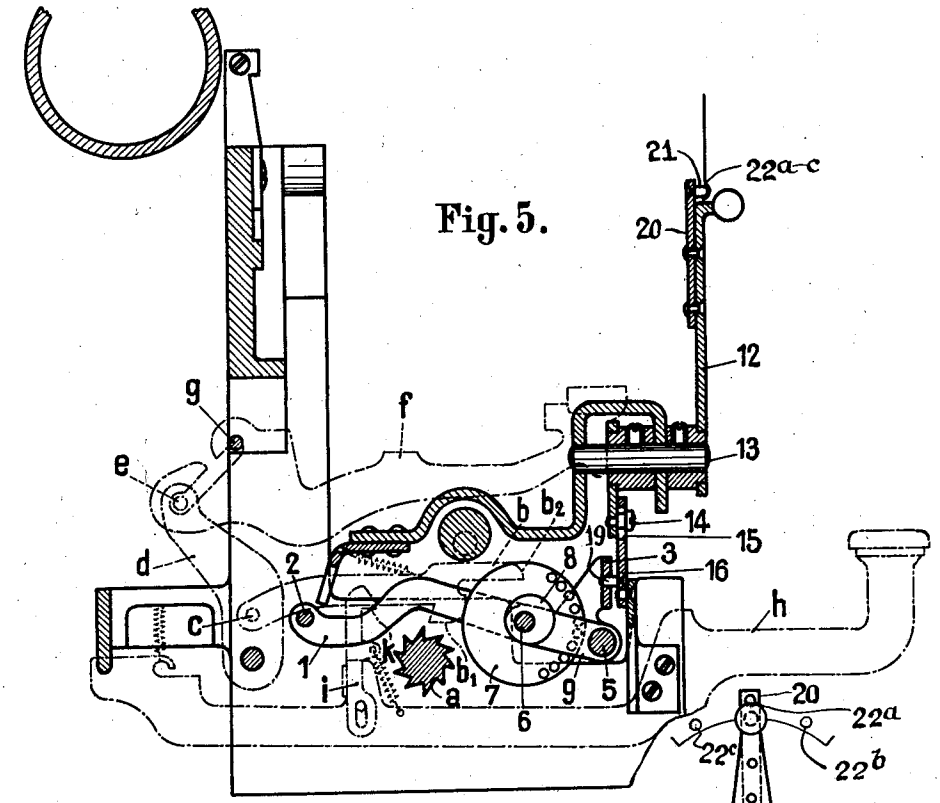
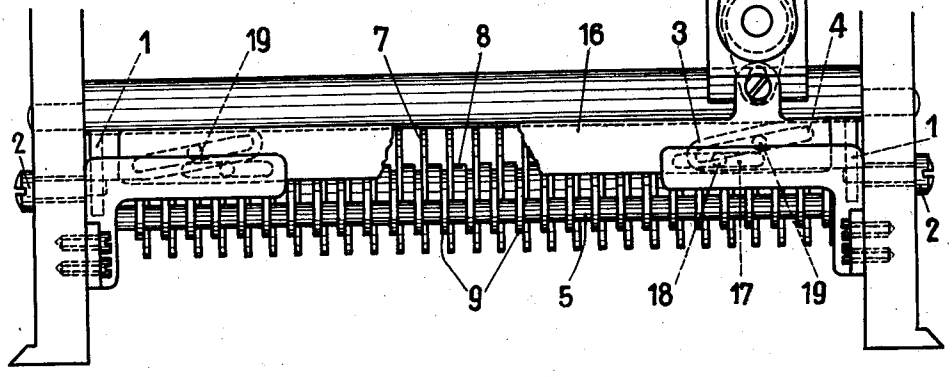


Fig. 6.



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Patented Feb. 16, 1926. 1,573,751

UNITED STATES PATENT OFFICE.

MAX SCHULZE, OF THURINGEN, GERMANY, ASSIGNOR TO MERCEDES BÜRO-MASCHINEN- UND WAFFEN-WERKE, OF BENSHAUSEN, THURINGIA, GERMANY.

POWER-OPERATED TYPEWRITER.

Application filed January 23, 1925. Serial No. 4,311.

To all whom it may concern:

Be it known that I, MAX SCHULZE, a citizen of the German Republic, residing at Zella Mehlis 2, Thuringen, Germany, have invented certain new and useful Improvements in a Power-Operated Typewriter (for which I have filed application in Germany, on May 11, 1922, and Dec. 7, 1923), of which the following is a specification.

This invention has reference to means of adjusting the force of the stroke in the operation of the type levers in writing machines or typewriters and the like, and it is the object of the invention to produce a regulation of the stroke by simple and efficient means, and to generally improve and facilitate the manufacture of devices of the kind referred to. The invention refers in particular to the type bars or typewriters which are operated by a cam shaft or the like operatively connected to a pulling member adapted to produce the striking of the type bars. In accordance with this invention the force and duration of the stroke are regulated by so-called "stripping" or setting members adapted to be adjustable both independently of each other as well as in common by a common adjusting member, these stripping members being so arranged as to regulate the duration of engagement of the pulling member of each of the type levers with the operating cam shaft, ratchet shaft or the like. Every "stripping member" is adapted to cooperate with a special adjusting member, and by the means referred to it is possible to obtain a satisfactory adjustment of the striking force in type writing machines of the kind referred to with very simple means and without necessitating an exchange of parts. The invention will be further described with reference to the accompanying drawing, showing by way of example a form of embodiment of the principles of the invention, Figure 1 showing an elevation of the device. Figure 2 is a plan view in accordance with Figure 1. Figure 3 is a sectional view in front of a setting member on the line A—B of Figure 1, seen in the direction of the arrow C. Figure 4 is a section on an enlarged scale through a setting and adjusting member on the line D—E of Figure 3 in the direction of the arrow F. Figure 5 is a cross sectional view through a type writing machine provided with the device according to this invention with the less important parts removed. Figure 6 is a front view according to Figure 5.

In the type writers with power operation for which the invention is particularly intended a continuously driven cam shaft or ratchet shaft a is adapted to operate pulling members b which are linked at c to levers d which latter are pivotally secured at e to the type bars f mounted at g in the frame of the machine. To every pulling member b corresponds a key h to which is linked a hook i. This hook i engages over a projection k of the pulling member b. Upon depressing the key h the pulling member b with its hook shaped projection or shoulder b^1 becomes engaged with the driving shaft a, whereby the pulling member is moved towards the right in Figure 5, so as to cause the type bar f to strike against the platen. The duration of engagement of the pulling member b with the ratchet shaft or the like a, and consequently the force of the stroke is controlled by the position of a so-called "stripping" or setting member upon which during the movement of the said pulling member b its extension b^2 is adapted to move. The particular construction and arrangement of this so-called "stripping" or setting member and its means of adjustment constitute the main subject of this invention.

The said "stripping" or setting means are carried by two arms 1 which are rockably mounted at the point 2 underneath the pulling levers. Ears 3 provided with inclined guide slots 4 are secured to the arms 1 at an angle thereto, the said ears serving for the central adjustment, that is to say for the simultaneous adjustment of all the stripping faces of the type writer. The two arms 1 are connected to each other by a comparatively thicker shaft 5 and a comparatively thinner shaft 6, so as to constitute a rigid unit, after the "stripping" or setting members 7, 8 and the setting means 9 have been previously mounted on said shafts.

The said "stripping" or setting members comprise a cam or eccentric 8 and a spring acting disc 7 rigidly connected thereto. Said disc is arranged concentrically on the shaft 6 and with the cam or eccentric 8 it is

rotatable on the shaft 6. The disc 7 is provided with a plurality of holes 10 which serve both for adjustment as well as for the locking of the parts in position. In front of every spring actuating disc 7 an adjusting member 9 is arranged which is slid into position on the shaft 5 with a broad seating face, while it surrounds the shaft 6 with a narrow, lightly pressing seating face. Opposite to the series of holes 10 a boss 11 is provided in the adjusting member 9, which boss by means of the springiness of the disc 7 and the broad seating face of the adjusting member 9 on the shaft 5 is adapted to become snappingly engaged with the holes of the series of holes 10 and to be removed therefrom.

The adjustment of the force of the stroke of a type lever is effected in the following manner. By means of a hook the operator engages a hole of the series 10 and then pulls in the tangential direction of the disc 7 which, on account of its springiness yields to the force exerted and becomes disengaged from the boss 11, until after a corresponding rotation of the disc 7 the boss 11 becomes engaged with the next hole, so as to automatically lock the disc 7 in position. With the spring acting disc 7 the cam or eccentric 8 is rotated, which controls the longer or shorter period of engagement of the pulling hook or member *b* with the operating shaft *a*, inasmuch as the end of the pulling hook b^2, as stated above, slides along the eccentric 8.

The adjustment of all the "stripping" or setting members 8 at a time may be effected by the rocking of the lever 12 which is pivoted at 13 to the frame of the machine. The lever carries a pin 14 adapted for engagement with the lengthened hole 15 of the plate 16 which plate is mounted for horizontal displacement on the frame of the machine by means of slots 17 in the plate accommodating a pin 18 rigidly secured to the frame of the machine. The plate 16 carries pins or studs 19, engageable with the inclined slots 4 of the projections 3 of the bearing arms 1. A flat spring 20 is fixed to the lever 12, Figs. 5 and 6, this spring carrying a pin 21. Depressions 22^a, 22^b, and 22^c are formed in the front cover of the machine on an arc concentric with the pivot of lever 12 so that the pin 21 may be selectively engaged with these depressions whereby lever 12 is retained in the desired position. If the lever 12 is in the position shown in Fig. 6, the type bars will strike the platen with medium force. If, on the other hand, the lever is moved in a clockwise direction so that pin 21 engages in the depression 22^b, the arms 1 will be lifted by means of the pin 19 gliding in slots 4 and thus the rod 6 which carries the eccentrics 8 will be lifted so that a weaker stroke of the type bars will be obtained. If the lever 12 is swung to the left until pin 21 engages in depression 22^c, the bar 6 with the cams 8 will be correspondingly lower so that a stronger stroke of the type bars will result.

It should be understood that the invention has been described in its broad aspects only, and without restricting it to the particular form and arrangement of parts, the invention being susceptible of modifications and changes, to adapt it to varying condition of application and to the convenience of the operator and within the scope of the claims as hereunto appended.

I claim:—

1. In a typewriter, a type bar, a key lever, a rotatable drive shaft, a pull hook linked to said type bar, an operative connection between said key lever and said pull hook, means on said pull hook for engaging said drive shaft upon the actuation of said key lever, a rotatable abutment cam for said pull hook, means engaging said cam for retaining it in selective positions, said cam and said engaging means being held in operative relation by spring pressure.

2. In a typewriter, a type bar, a rotatable drive shaft, a pull hook linked to said type bar, a key lever, an operative connection between said pull hook and said key lever, means on said pull hook for engaging said shaft upon the actuation of said key lever, a rod disposed transversely to the path of said pull hook, an abutment cam for said pull hook rotatably disposed on said rod, a resilient disk in rigid connection with said cam, a member fixed adjacent said disk, and cooperative selective locking means on said disk and said member.

3. In a typewriter, a type bar, a rotatable drive shaft, a key lever, a pull hook linked to said type bar, an operative connection between said key lever and said pull hook, means on said pull hook for engaging said shaft upon the actuation of said key lever, a rod disposed transversely to the path of said pull hook, an abutment cam for said pull hook rotatably mounted on said rod, a resilient disk in rigid connection with said cam, a member fixed adjacent said disk, cooperative selective locking means on said disk and said member, a pivotal supporting point for said rod laterally spaced from the latter, and means for rocking said rod about said pivotal supporting point.

4. In a typewriting machine in combination, a type bar, a continuously driven operating shaft, a pulling member linked to the type bar, a key lever operatively connected to the pulling member, means on the pulling member for engagement with the operating shaft upon the actuation of the key lever, a rotatably mounted adjusting cam slidingly engageable with the pulling member, partly resiliently mounted

locking means engageable with the adjusting cam, and shafting on which the cam and the locking means are mounted.

5. In a typewriting machine in combination, a continuously driven operating shaft, type bars, rockable pulling means linked to said type bars, key levers, means operatively connecting the key levers to the pulling means, two spacedly connected parallel rods transversely disposed with relation to the key bars and the type levers, a plurality of cams, spacedly and rotatably mounted on one of said rods and adapted for sliding engagement with the pulling means, a plurality of locking means mounted on and extending between said rods and disposed adjacent to said cams and engageable therewith, means on the pulling means for engagement with the operating shaft on the operation of the key levers, and adjusting means for the rods.

6. In a typewriting machine, type bars, a continuously driven operating shaft transverse thereto, operating means engageable with said shaft and linked to the type bars, two parallelly and spacedly connected rods of different diameters transversely and rockably disposed with relation to the type bars and constituting a swinging frame, a plurality of parallelly disposed spacedly arranged setting cams on the thinner rod, a plurality of locking members adjacent each of the cams and mounted on the rods, said locking members being bindingly secured on the comparatively thinner rod and seated with lateral play on the other rod, locking means on said members engageable with the cams, and means for swinging and adjusting the position of said frame.

7. In a type writing machine in combination, type bars, an operating shaft transverse thereto, operating means engageable with said shaft and linked to the type bars, two parallel and spacedly connected rods of different diameters transversely and rockably disposed with relation to the type bars and constituting a swinging frame, a plurality of parallelly and rotatably disposed setting cams on the thinner rod adapted for sliding engagement with the operating means, a springy annular disc on each of said cams, a plurality of locking members mounted on and surrounding said rods adjacent of said discs, and bindingly secured on the thinner rod and secured with broad seating face on the other rod and interengageable recesses and projections, respectively disposed on the locking members and the discs.

8. In a type writing machine, comprising a plurality of type bars, and operating means therefor and connected thereto, the combination of stroke regulating means for said type bars comprising a rockable frame transversely disposed with relation to the type bars, rotatable substantially cam shaped members on said frame adapted for sliding engagement with the operating means, guiding means on said frame, and means engageable with said guiding means and causing the upward and downward swinging movement of said frame.

9. In a type writing machine comprising a plurality of type bars, and operating means therefor and linked thereto, the combination of stroke regulating means for said type bars comprising a rockable frame transversely disposed with relation to the type bars, rotatable substantially cam shaped members on said frame adapted for sliding engagement with the operating means, locking means engageable with the cam shaped members, inclined guiding means on said frame, an adjusting lever in operative engagement with said guiding means, and adapted to lift and lower said frame and to modify and vary the engagement of the cam shaped members with the operating means.

The foregoing specification signed at Zella-Mehlis 2 this 20th day of December, 1924.

MAX SCHULZE.