No. 710,561. Patented Oct. 7, 1902.

C. W. BOYD.

TYPE WRITING MACHINE SUPPORT.

(Application filed Mar. 29, 1900.)

(No Model.)

Fig. 1.

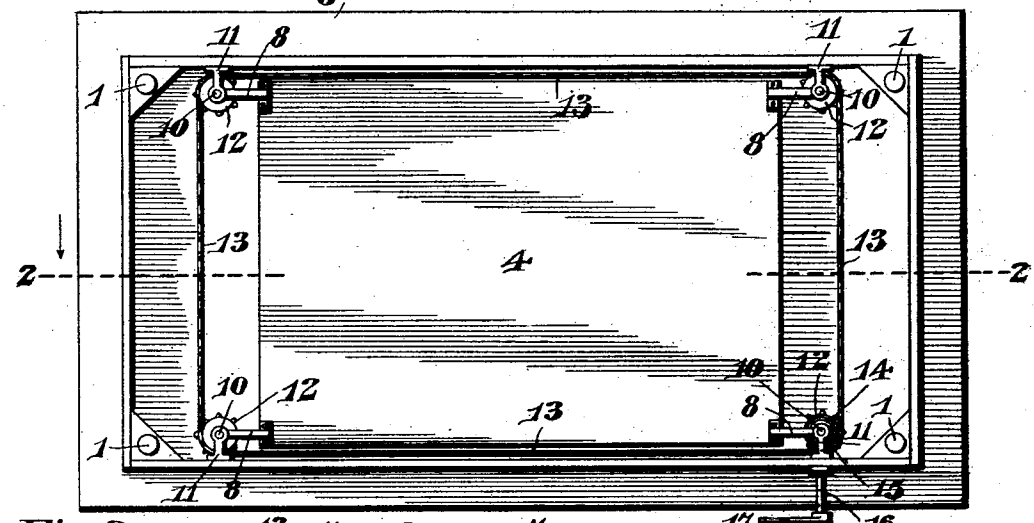


Fig. 2.

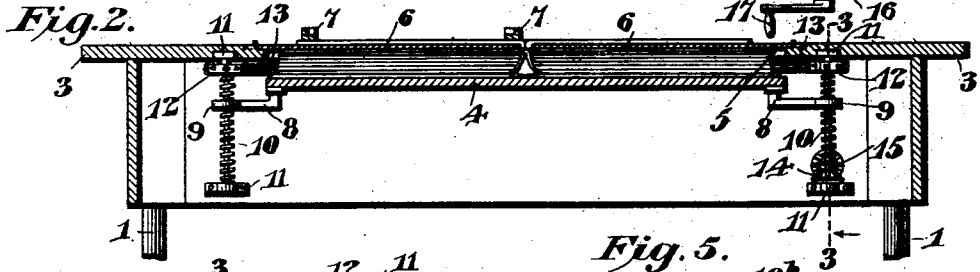


Fig. 3.

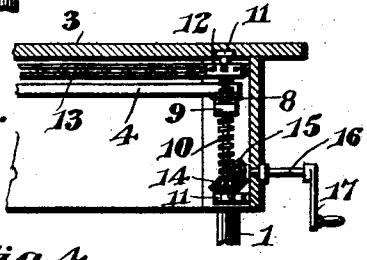


Fig. 5.

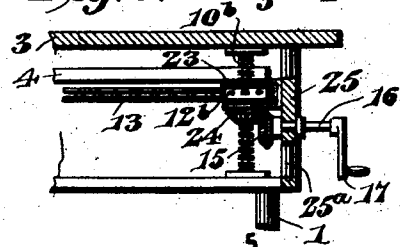
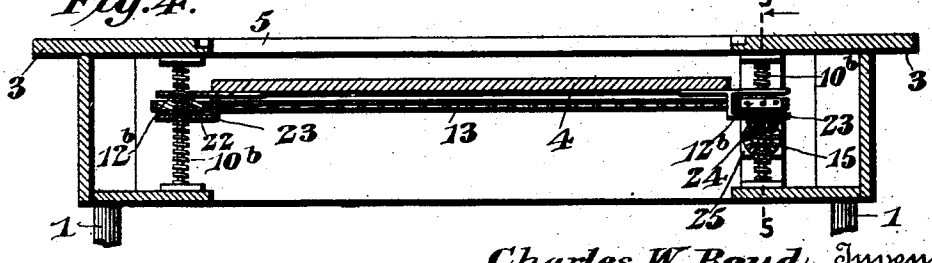


Fig. 4.



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UNITED STATES PATENT OFFICE.

CHARLES W. BOYD, OF RICEVILLE, TENNESSEE, ASSIGNOR TO THE FISHER TYPEWRITER COMPANY, OF NEW YORK, N. Y.

TYPE-WRITING-MACHINE SUPPORT.

SPECIFICATION forming part of Letters Patent No. 710,561, dated October 7, 1902.

Application filed March 29, 1900. Serial No. 10,666. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. BOYD, a citizen of the United States, residing at Riceville, in the county of McMinn and State of Tennessee, have invented a new and useful Type-Writing-Machine Support, of which the following is a specification.

This invention relates to type-writing-machine supports, and particularly to the type designed for supporting a book or other work in proper relation to a platen and a traveling printing mechanism.

To this end the invention primarily contemplates an improved construction of adjusting mechanism for the adjustable book or work support whereby such support may be quickly and uniformly adjusted to the desired position.

In carrying out the invention the same is specially designed as an improvement upon adjusting mechanism of the character disclosed in the patent to R. J. Fisher, No. 632,680, and is intended to provide an adjusting mechanism having a minimum number of parts and of a minimum size and weight, whereby the weight of the entire structure will be materially diminished, besides providing means for adjusting the supporting-platform for the book or other work with perfect uniformity.

With these and other objects in view the invention consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

The essential features of the invention are necessarily susceptible to a variety of modifications without departing from the spirit or scope thereof; but the preferred forms embodying the invention are shown in the accompanying drawings, in which—

Figure 1 is a bottom plan view of a type-writing-machine support or table, showing one embodiment or arrangement of the instrumentalities constituting the adjusting or raising and lowering mechanism. Fig. 2 is a vertical longitudinal sectional view on the line 2 2 of Fig. 1. Fig. 3 is a detail sectional view on the line 3 3 of Fig. 2, illustrating the single operating device for the actuating mechanism. Fig. 4 is a sectional view showing a modified arrangement of the elements of the mechanism wherein the sprocket-wheels are carried by the platform and are constructed to form nuts which work upon the screws. Fig. 5 is a sectional view on the line 5 5 of Fig. 4, showing the manner of connecting the operating device with the arrangement of parts illustrated in Fig. 4.

Like numerals of reference designate corresponding parts in the several figures of the drawings.

In adapting the invention for use the same may be associated with any form of type-writing-machine support involving a vertically-movable platform or holder for the work or book; but the preferable form of support in connection with which the improvements are specially useful is the one shown in the aforesaid patent to R. J. Fisher, No. 632,680, said support being usually in the form of a table having suitable supporting-legs 1 and essentially comprising a stationary base or table-top 3 and a vertically-movable work-supporting platform 4, which is of a size substantially coextensive with the opening 5 formed in the base or table-top 3 and is adapted to be adjustable toward and away from the opening 5 in the manipulation of the book or other work to be printed upon. In this form of type-writing-machine support there is usually employed a horizontal stationary platen 6, spanning the opening 5 in the base or table-top 3, and also the track-rails 7 for the traveling printing mechanism, which track-rails extend over the platen and in connection therewith provide for holding in a flat or spread-out condition over the platen the book, leaf, or sheet to be printed upon; but as these features constitute no part of the present invention further description or illustration thereof seems unnecessary.

As already explained, the present invention relates solely to the adjusting mechanism for raising and lowering the work-supporting platform, and in carrying out the same it is the purpose to dispense with heavy gearing, shafting, and boxing, such as disclosed in the aforesaid patent to Fisher, and to substitute in place thereof a mechanism involving a minimum number of parts and of a minimum size and weight, besides being so

arranged as to occupy a comparatively small space and capable of being operated in such a manner as to insure the adjustment of the work-supporting platform with perfect uniformity. In the accomplishment of this object the well-known sprocket-and-chain gearing is utilized in a novel way to provide for transmitting a synchronous movement to all of the duplicate movable parts of the mechanism. With this gearing is associated adjusting-nuts and screws having a relative movement, and these in connection with the sprocket-and-chain gearing constitute the entire raising and lowering or adjusting mechanism. These instrumentalities, however, are necessarily capable of use in a variety of ways and susceptible to divers arrangements without changing the principle of operation or otherwise affecting the purpose of the invention. Therefore the constructions shown in the drawings are only illustrative of the most obvious ways in which the invention can be carried into effect, and while some forms may be found preferable to others, still reference will be made in the first place to the combination and arrangement of parts illustrated in Figs. 1, 2, and 3 of the drawings.

Referring more particularly to the specific arrangement of instrumentalities illustrated in Figs. 1, 2, and 3 of the drawings, it will be observed that in this form of the invention there is associated with the vertically-movable platform 4 a plurality of carrying-brackets 8. There are preferably four of these brackets employed, which are usually arranged individually at or near the corners of the platform and are rigidly secured at one end to the under side thereof to provide for leaving the upper surface of the platform smooth and unobstructed throughout, while at the same time uniformly supporting the same to provide for the even or uniform adjustment of the platform. Each of the carrying-brackets 8, which is rigidly fastened to the under side of the platform 4, extends laterally beyond the contiguous edge of the platform and is provided at its outer end with a nut 9, which operatively receives therein a short upright adjusting-screw 10, mounted in suitable bearing at its extremities, as at 11, within the frame of the table structure. There is one of the short upright adjusting-screws 10 associated with each of the carrying-brackets 8 for the work-supporting platform, so there are the same number of said screws as carrying-brackets, although not necessarily arranged in the same relative positions; but said screws are necessarily located outside of the vertical plane of the platform in order to permit of the free vertical movement thereof. The upright adjusting-screws 10 are preferably mounted within the top portion of the support, so as to lie immediately beneath the stationary base or table-top 3, and each of the screws has fitted thereto a horizontally-arranged sprocket-wheel 12. The sprocket-wheels 12 on the screws or screw-shafts 10 are fast therewith and are preferably arranged near the upper ends of the said screws or screw-shafts, so as to be entirely out of the way, and the sprocket-wheels 12 of the entire series of screws or screw-shafts are encircled by a single endless drive-chain 13, which insures the synchronous or simultaneous movement of all of the screws. One of the screws or screw-shafts 10 has an operating connection therewith, said operating connection preferably consisting of a bevel gear-wheel 14, mounted fast thereon and meshing with a similar wheel 15, fitted to the inner end of a short operating-shaft 16, extending through the framework of the table and carrying at its outer end a hand-crank or equivalent device 17, which may be conveniently exposed at the front of the table within easy reach of the operator. It will be seen that by turning the shaft 16 in either direction a synchronous or simultaneous movement is transmitted to all of the screws or screw-shafts 10 to provide for the uniform raising and lowering of the platform 4, as the requirements of the work may demand.

In the construction just described it is to be noted that the essential instrumentalities of the adjusting or raising and lowering mechanism are the screws, nuts coöperating therewith, and the sprocket-and-chain gearing for transmitting a synchronous relative movement to the screws and nuts, and it is obvious that these elements could be readily changed and rearranged in a variety of ways. For instance, another aspect of the invention is represented in Figs. 4 and 5 of the drawings. In this arrangement of parts the entire series of adjusting-screws (designated by the reference character 10^b) are arranged in vertical positions and are mounted stationary within the front of the table structure outside of the vertical plane of the platform, so as to not interfere with the free vertical movement thereof. The location of the stationary adjusting-screws 10^b is substantially the same as the location of the rotatable screws, (shown in Figs. 1 and 2 of the drawings;) but in place of providing separate nuts coöperating with the screws there are employed nut sprocket-wheels 12^b. The said nut sprocket-wheels 12^b are provided with threaded openings 22, receiving the screws 10^b, and in the form of the invention being described are loosely mounted within the bifurcations of bifurcated bearing-brackets 23, secured fast to the under side of the platform 4 at or near the corners thereof, or, in other words, occupying approximately the positions of the carrying-brackets 8. (Shown in Figs. 1 and 2 of the drawings.)

In the form of the invention illustrated in Figs. 4 and 5 of the drawings the nut sprocket-wheels, through the medium of the brackets 23, are carried by the platform itself, and the entire series of such sprocket-wheels are encircled by the single endless drive-chain 13,

and to provide for transmitting motion to all of the nut sprocket-wheels one of the same carries at one side thereof a beveled gear-wheel 24, meshing with the similar gear-wheel 15 of the operating device already described. In this form of the invention, however, the operating-shaft 16 of said operating device is journaled in a slidable bearing-box 25, mounted to work in a suitable guideway 25^a, provided in the body of the table. The said slidable bearing-box 25 is preferably connected with the adjacent bearing-bracket 23 or to an adjacent portion of the platform itself, so as to be movable therewith and not interfere with the operation of the adjusting mechanism in any position of the platform.

In both forms of the invention it will be observed that the screw-and-nut connection for adjusting the work-holding platform constitutes a lock to prevent movement of the platform from its adjusted position.

It is thought that the essential features of the invention will be readily understood without further description, and it is obvious that various changes in the arrangement, form, proportion, and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a support of the class described, the combination of a stationary base or table-top having an opening, and the movable work-supporting platform substantially coextensive in size with said opening and carrying nuts, and a plurality of synchronously-operated adjusting-screws for operating said nuts, the operating means as well as the platform working below the base or table-top.

2. In a support of the class described, the combination of a stationary base or table-top having an opening, and the movable work-supporting platform substantially coextensive in size with said opening and carrying nuts, and a plurality of synchronously-operated upright adjusting-screws for operating said nuts, the operating means as well as the platform working below the base or table-top.

3. In a support of the class described, the combination of a stationary base or table-top having an opening, and the movable work-supporting platform substantially coextensive with said opening and carrying nuts, a plurality of adjusting-screws coöperating with said nuts, a common driving connection for all of said screws to secure the synchronous movement thereof, and an operating device associated with one of the screws, the operating means as well as the platform working below the base or table-top.

4. In a support of the class described, the combination of a stationary base or table-top having an opening, and the vertically-movable work-supporting platform, substantially coextensive with said opening, a plurality of carrying-brackets fitted at different points to the platform and provided with nuts, a series of upright revoluble adjusting-screws mounted in fixed positions, each of said screws engaging the nut of a carrying-bracket and carrying a sprocket-wheel, a single drive-chain encircling the sprocket-wheels of the entire series of screws, and an operating connection with one of said screws.

5. In a device of the character described, the combination with a stationary base or table-top having an opening, of a vertically-movable work-supporting platform, a series of upright revoluble adjusting-screws mounted independently of the platform and disposed beyond the edges thereof, means operatively connecting the screws with the platform, gearing connecting the screws to compel their synchronous movement, and operating means connected to one of the screws.

6. In a device of the character described, the combination with a table having an apertured top, and a vertically-movable work-supporting platform, of a series of vertical adjusting-screws revolubly supported by the table beyond the outer edges of the platform and retained against longitudinal movement, sprocket-wheels carried by the screws, an endless chain connecting the sprocket-wheels and located beyond the edges of the platform to permit free movement of the latter above and below the plane of the chain, brackets extending laterally from the platform and provided with terminal nuts engaging the screws, and an operating-shaft geared to one of the screws.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES W. BOYD.

Witnesses:
CHARLES F. LAGANKE,
JOHN A. SMITH.