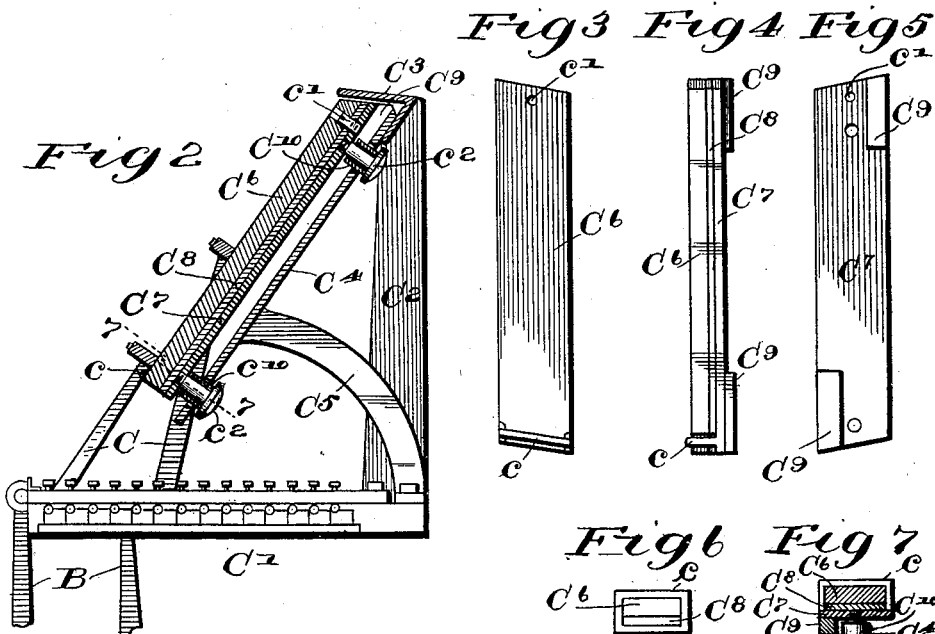
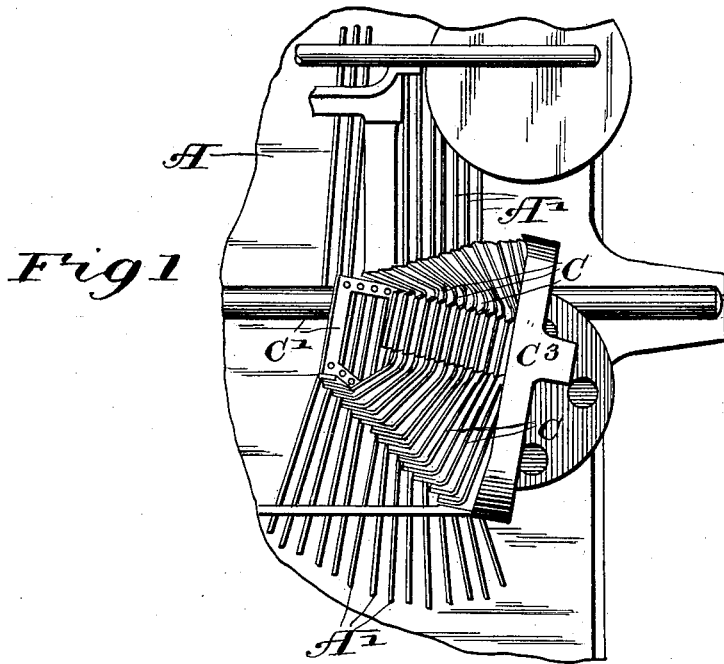


H. CROSS & G. J. GRIFFITHS.
TYPE WRITING MACHINE.
APPLICATION FILED MAY 26, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:
 Carl M. Crawford
 William Hall

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Fig 6 Fig 7
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 Harry Cross
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TYPE WRITING MACHINE.

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NO MODEL.

2 SHEETS—SHEET 2.

Fig 8

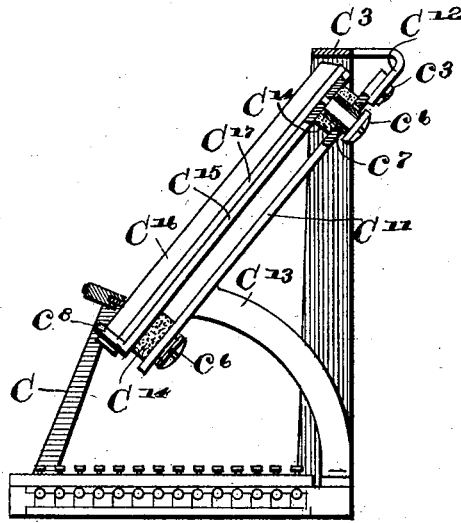


Fig 9

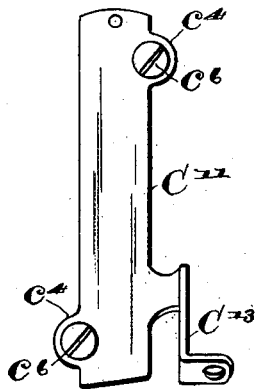


Fig 10

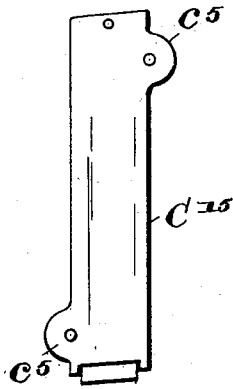


Fig 11

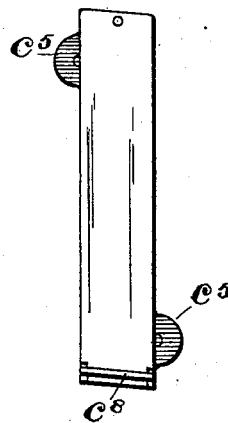
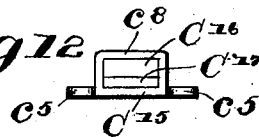


Fig 12



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UNITED STATES PATENT OFFICE.

HARRY CROSS AND GEORGE J. GRIFFITHS, OF WOODSTOCK, ILLINOIS,
ASSIGNORS TO THE OLIVER TYPEWRITER COMPANY, OF CHICAGO,
ILLINOIS, A CORPORATION OF ILLINOIS.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 732,340, dated June 30, 1903.

Application filed May 26, 1902. Serial No. 108,918. (No model.)

To all whom it may concern:

Be it known that we, HARRY CROSS and GEORGE J. GRIFFITHS, of Woodstock, in the county of McHenry and State of Illinois, have
5 invented certain new and useful Improvements in Type-Writing Machines; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and
10 to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in type-writing machines, and refers more specifically to an improved cushioning device
15 against which the type-bars rest when not in use and constructed to cushion the impact of the type-bars as they return to their positions of rest and to deaden the noise of the impact.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of one side of an Oliver type-writing machine, showing the supporting-frame for
25 one nest of the type-bars when in their positions of rest. Fig. 2 is a view, partly in central vertical section and partly in side elevation, of the type-bar-supporting frame and the cushioning device. Fig. 3 is a face view
30 of our improved cushioning device for the type-bars removed from the machine. Fig. 4 is a side elevation thereof. Fig. 5 is a rear view of said cushioning device. Fig. 6 is an end view thereof. Fig. 7 is a cross-section
35 taken on line 7 7 of Fig. 2. Fig. 8 is a view, partly in section and partly in elevation, of a modified form of the type-bar-supporting frame and cushioning device. Fig. 9 is a rear elevation of the part of the supporting-frame
40 to which the cushioning device is attached, said part being removed from the machine. Fig. 10 is a rear elevation of the cushioning device removed from the machine. Fig. 11 is a front elevation thereof. Fig. 12 is an end
45 elevation of said parts.

In said drawings only such parts of the type-writing machine are shown as are essential to an understanding of the application of our invention to a type-writing machine.

As shown in Fig. 1, A designates the base 50 of an Oliver type-writing machine and A', A' a plurality of pivoted key-levers which are loosely connected by links B with the U-shaped type-bars C of the machine. Said type-bars are pivotally mounted in a supporting-
55 frame, of which there are two in the completed machine, one located at each side of said machine. Said supporting-frame consists of an angular bottom frame C', upright members C², a transverse top member C³, and
60 a centrally-located inclined bar C⁴, connected at its upper end with the top member C³ and near its lower end with a curved brace C⁵, extending upwardly and inwardly from the bottom frame. Said inclined bar C⁴ supports
65 the type-bars when the latter are thrown backwardly from the platen or when in their positions of rest.

On the inner face of the bar C⁴ is located the cushioning device, which constitutes the
70 present invention. Said cushioning device consists of an outer strip C⁶ of leather or like non-resonant material and of durable character, which directly receives the impact of the type-bars, a metallic backing-piece C⁷, and
75 an intermediate cushioning-strip C⁸, made of felt or like cushioning material. Said backing-strip C⁷ is provided at its lower end with a loop c, which receives the lower ends of the impact-strip and the cushioning-strips C⁶ and
80 C⁸, respectively, and said impact and cushioning strips are secured at their upper ends to said backing-strip by means of a screw-threaded stud c', extending through said parts and into the backing-strip. Said cushioning
85 device, consisting of the parts described, is movably connected with the inclined frame-bar C⁴ by means of screws c², said screws extending loosely through apertures in the frame-bar and engaging screw-threaded ap-
90 ertures in the backing-strip of the cushioning device, as clearly shown in Fig. 2. Between said backing-strip and the frame-bar C⁴ are inserted two cushioning-blocks C⁹, one
95 located at each end of the plate and on opposite sides of the longitudinal center thereof. Said cushioning-blocks C⁹ aid to deaden the impact of the type-bars against the cushion-

ing device and also permit a limited rocking of the cushioning device as a whole to enable the same to adjust itself to the type-bars, the loose connection of the screws c^2 with the frame-bar C^4 permitting a rocking movement of the cushioning device for this purpose.

The impact-strip C^6 is made of durable material, such as leather, to enable it to withstand the wear brought thereon by the striking of the type-bars thereagainst, while the cushioning-strip placed between the same and the backing-strip and the cushioning-blocks between the backing-strip and the yoke-bar being made of elastic or yielding material serve to deaden the noise of the impact and also serve in a measure to relieve the strain on the pivotal connections of the type-bars with the machine caused by the sudden arrest of the movement of the type-bars when they strike the cushioning device.

C^{10} C^{10} indicate sleeves of hard rubber or other non-resonant material which are placed around the said screws c^2 and between the same and the holes in the frame-bar C^4 , through which said screws extend. The sleeves thus applied serve to prevent contact of the studs with the strip, and thus obviate the rattling noise which results from contact of metallic parts with each other, as would occur if the sleeves were absent.

In the form of the device shown in Figs. 8 to 12, inclusive, the inclined bar C^{11} , which supports the cushioning device, is detachably secured at its upper end by means of a screw c^3 to a lug C^{12} , extending rearwardly and downwardly from the upper transverse bar C^3 of the supporting-frame, and the curved brace C^{13} of said bar is offset therefrom, as shown in Fig. 9. In this construction the cushioning-blocks C^{14} , located between the bar C^{11} and the backing-strip C^{15} (and which correspond to the cushioning-blocks C^9 of the construction hereinbefore described) consist of flat washers, which are located partially between the bar C^{11} and the backing-strip C^{15} and partially between semicircular projections c^4 c^5 on the bar and strips, respectively, and are held in place by screw-bolts c^6 , extending through the washers and said projections. The screw-bolts c^6 correspond with the bolts c^2 , hereinbefore described, and serve not only to hold the cushioning-blocks C^{14} in place, but to secure the cushioning device as a whole to the strip or bar C^{11} . The bolts c^6 are surrounded by non-resonant sleeves c^7 to prevent rattling of the bolts against the bar C^{11} . The lower end of the backing-strip is provided with a loop c^8 , which receives the lower ends of the cushioning and impact strips C^{16} and C^{17} , respectively, in a manner similar to the construction hereinbefore described.

It is obvious that changes may be made in the details of construction above described without departing from the spirit of our in-

vention, and we do not wish to be limited to such details, excepting as hereinafter made the subject of specific claims.

We claim as our invention—

1. The combination with the type-bar-supporting frame of a type-writing machine, of a cushioning device which supports the type-heads when in their positions of rest, means for loosely connecting said cushioning device with said supporting-frame, and a cushioning-block interposed between the cushioning device and frame.

2. The combination with a type-bar-supporting frame, of a cushioning device, comprising a backing-strip, an impact-strip, a cushioning-strip between the impact-strip and the backing-strip, and cushioning-blocks interposed between the backing-strip and the frame at the ends of the said strip, one on each side of its longitudinal center.

3. The combination with a type-bar-supporting frame, of a cushioning device, comprising a backing-strip, an impact-strip, a cushioning-strip between the impact-strip and the backing-strip, cushioning-blocks interposed between the backing-strip and the frame at the ends of the said strip, one on each side of its longitudinal center, and screw-studs for connecting the backing-strip with the frame and loosely connected with the frame.

4. The combination with a type-bar-supporting frame, of a cushioning device comprising a backing-strip, an impact-strip, a cushioning-strip between the impact-strip and the backing-strip, and studs for connecting the backing-strip with the frame and extending through holes in the frame, said studs being provided with non-resonant sleeves.

5. The combination with a type-bar-supporting frame, of a cushioning device comprising a backing-strip, an impact-strip, a cushioning-strip between the backing and impact strips, cushion-blocks interposed between the ends of said backing-strip and the frame and screws extending through said cushioning-blocks and attaching the backing-strip to the machine-frame.

6. The combination with a type-bar-supporting frame, of a cushioning device comprising a backing-strip, an impact-strip, a cushioning-strip between the backing and impact strips, and cushioning-blocks interposed between lateral projections on the backing-strip and the frame.

In testimony that we claim the foregoing as our invention we affix our signatures, in presence of two witnesses, this 12th day of April, A. D. 1902.

HARRY CROSS.
GEORGE J. GRIFFITHS.

Witnesses:

S. A. GREENLEAF,
B. C. YOUNG.