

Jan. 24, 1950

W. D. GLADSTONE
TONE MODIFIER FOR DRUMS

2,495,451

Filed Sept. 27, 1946

2 Sheets-Sheet 1

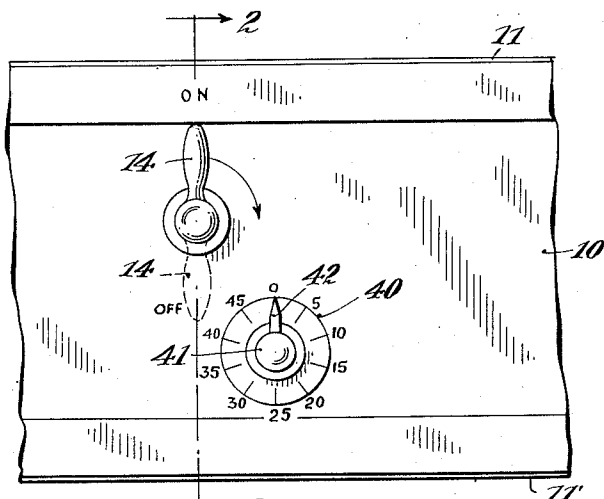


Fig. 1.

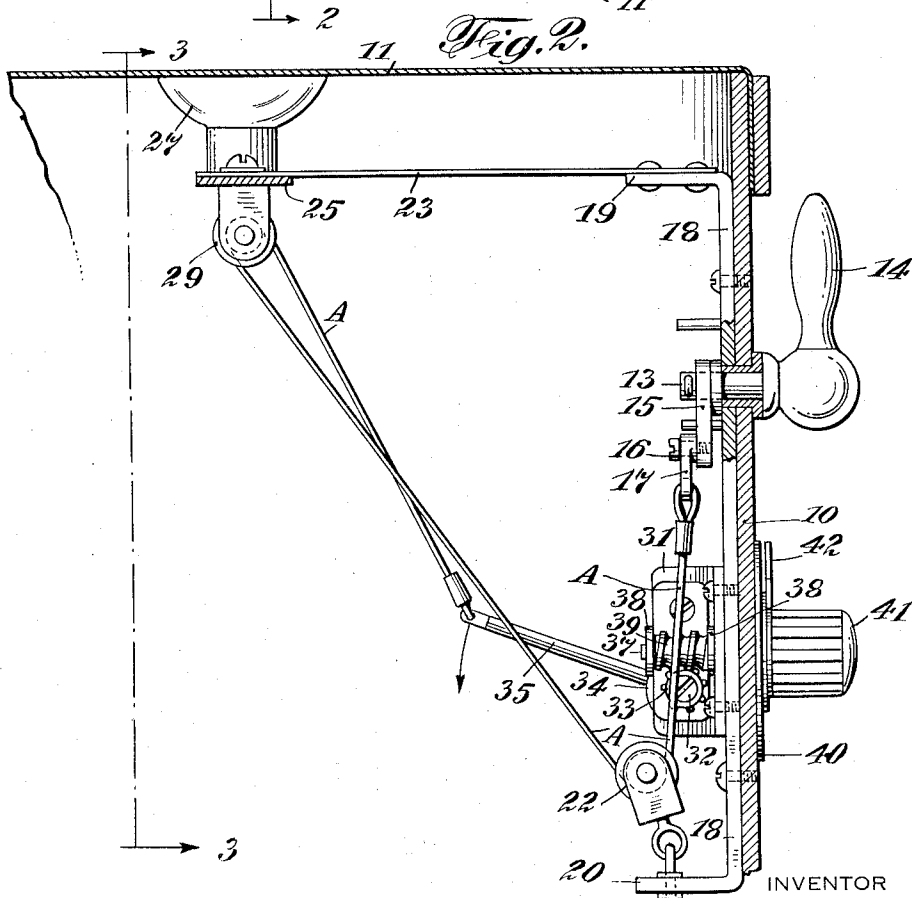


Fig. 2.

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Fig. 3.

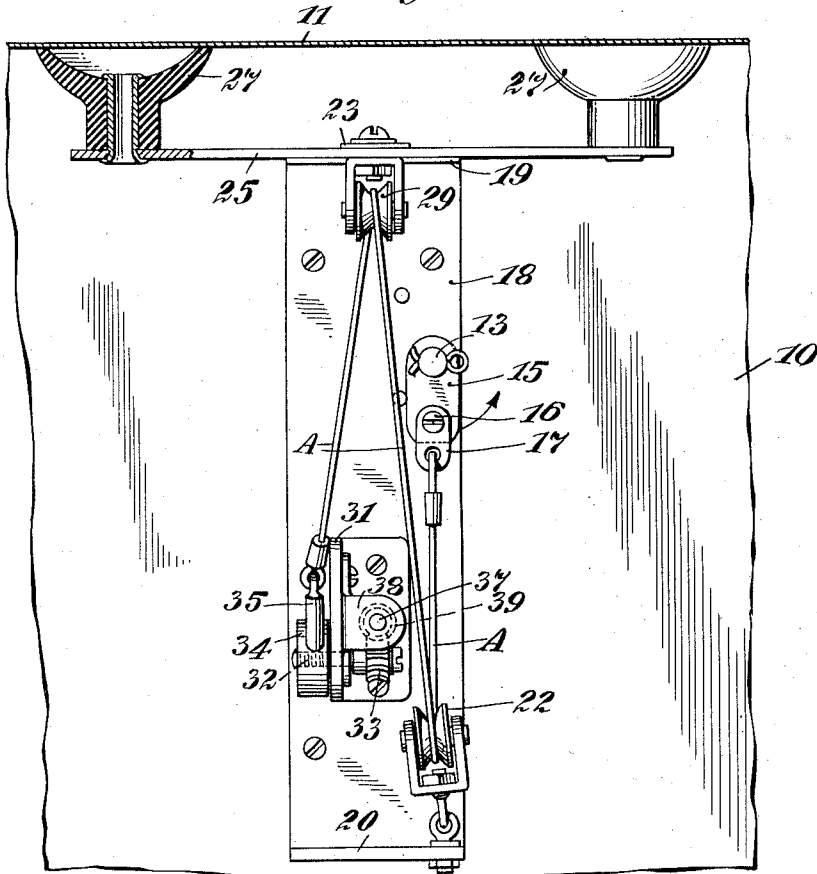
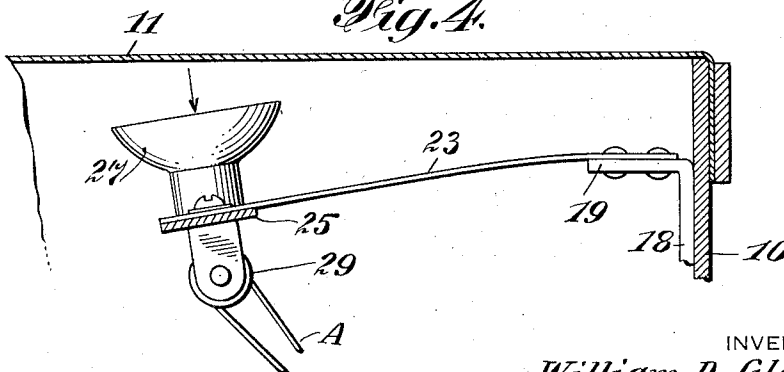


Fig. 4.



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2,495,451

TONE MODIFIER FOR DRUMS

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Application September 27, 1946, Serial No. 699,938

8 Claims. (Cl. 84-411)

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My invention relates to tone modifiers for drums, and refers particularly to tone modifiers adapted for modifying the tones of percussion musical instruments, such as snare drums having two vibratory heads in the absence of snares.

The necessity of accurate timing of snare drums, and similar percussion musical instruments, especially for use in orchestral arrangements, is well recognized.

In stretching a drum head over the body of a drum and affixing it thereto by the generally employed means, it is impossible to stretch it so as to obtain an accurate desired tonal effect, and the tonal effect thus produced is positive and cannot be changed except by some additional devices so constructed as to allow of a number of different tonal effects in order to produce the correct one as desired for different musical scores.

My invention, therefore, is directed to devices adapted to modify the tonal effect of such percussion instruments to produce a desired tonal effect and to maintain it during the continued use of the instrument.

The effectiveness and utility of the devices of my invention will be evident upon a consideration of my specification and its accompanying drawings.

Figure 1 is a fragmentary side view of a snare drum of one form of a device of my invention.

Figure 2 is a section through the line 2-2 of Figure 1, in an enlarged scale.

Figure 3 is a section through the line 3-3 of Figure 2.

Figure 4 is an enlarged fragmentary view of the device shown in Figure 2 with the tone modifiers removed from the drum head.

The particular form of a device of my invention shown in the accompanying drawings comprises a drum having the side 10, the vibratory batter head 11 and a lower vibratory head 11', said heads being attached to side members by any suitable means.

A revoluble shaft 13 passes through the side 10, and has a handle 14 fixedly attached to its outer end portion, a downwardly extended cord-attaching member 15 having the extended stud 16, is fixedly attached to the shaft 13 and revolves therewith, a downwardly extended member 17 is pivotally carried by the stud 16 of the member 15.

An elongated plate 18 is fixedly attached to the inner face of the drum side 10, and has the inwardly extended end portions 19 and 20. A lower grooved idler 22 is attached to the extended member 20.

An elongated resilient modifier-carrying mem-

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ber 23 is fixedly attached to the extended member 19. An elongated member 25 is fixedly attached to the member 23, the member 25 positioned at right angles to the member 23.

Each extreme portion of the member 25 carries a fixedly attached tone modifier 27 formed of rubber in a cup-shaped form. A grooved idler 29 is carried by the inner end portion of the member 23.

An inwardly extended plate 31 is fixedly attached to the member 18. A revoluble shaft 32 passes through an opening in the plate 31, and carries a fixedly attached worm wheel 33 upon one side of the plate 31. The other end portion of the shaft 32 carries the fixedly attached member 34 having the extended radialled arm 35. A revoluble shaft 37 passes through the side 10 and is supported by brackets 38-38, the inward portion of the shaft 37 carries a worm 39, meshing with the worm wheel 33. It will thus be noted that the revolution of the shaft 37 will revolve shaft 32, worm wheel 33 and the member 34.

The outer end portion of the shaft 37 passes through a plate 40 attached to the outer face of the side 10 and having graduating designations thereon, the extreme outer end of the shaft 37 carrying a fixedly attached finger piece 41 having an extended pointer portion 42.

One end of a cord or wire cable A is fixedly attached to the member 17, passes over the idler 22, and over the idler 29, and the end thereof fixedly attached to the arm 35.

It will thus be seen that when the device is in the condition shown in the drawings, with the handle 14 in an upright position, the wire modifiers 27, 27 will be firmly pressed against the batter head 11 due to the resiliency of the member 23. If the handle 14 is revolved to a lower position, the movement of the member 17 and its actuated cord A will pull the tone modifiers in the direction of the arrows inwardly and away from the head 11, until the handle 14 is in a perpendicular position when the resiliency of the member 23 will be overcome and the tone modifier will be at rest in spaced relation to drum head 11.

It will be noted that this described portion of my invention does not allow of any fixed pressure of the tone modifiers upon the drum head, other than that caused by the resiliency of the member 23.

It is frequently highly desirable that a drum should be so constructed that any tonal effect from heavy muffling, as indicated in the draw-

ings, to no muffings may be maintained during the use of the device and the devices described in my specification accomplish this desired result.

If the knob 41 is revolved the movement of the member 17 and its actuated cord A will pull the tone modifiers in the direction of the arrows inwardly and away from the head 11. It will be noted that this movement of the knob 41, and consequently the pressure of the tone modifier upon the head, may be stopped at any desired point and that the tone modifiers will remain in such fixed position, due to the worm gear mechanism.

In operation the heads of a drum are stretched and attached to the side of the drum by any satisfactory manner, during which operation the tone modifiers are completely spaced therefrom. The handle 14 is then turned to release the resiliency of the member 23, thus causing the tone modifiers to be pressed strongly upon the inner side of the head 11 and thus removing all overtones. The handle 41 is then turned slowly thus gradually decreasing the pressure of the tone modifiers upon the head until the thus allowed overtones produce the desired pitch, the device being of such construction that this desired pitch is maintained during the use of the drum.

By the word "cord," I mean thread, cord, wire, chain or any other suitable means.

By the words "tone modifiers," I mean devices which may be cup-shaped, flat or of other physical shape, which may be composed of rubber, felt or other suitable material.

It will thus be seen that my invention presents devices whereby a desired pitch of tone can be obtained in drums and other similar percussion musical instruments, by varying the pressure of the tone modifiers upon the vibratory head of such instruments, and that the thus desired tone will be retained during the use of the instrument, and further, that the indicia upon the external dial will indicate exactly how various tone effects can be repeated.

I do not limit myself to the particular size, shape, number and arrangement of parts set forth in my specification as these can be varied without going beyond the scope of my invention.

What I claim is:

1. A percussion musical instrument comprising a side member; a vibratory batter head; a vibratory bottom head; a plurality of physically spaced tone modifiers within said instrument in association with the inner face of said batter head; an externally operable means including a first control member adapted to simultaneously abut said tone modifiers upon the inner face of said batter head; and to remove said abutments; and means including a second externally located control member adapted to removably retain said tone modifiers in any one of several desired positions during the removal of said abutments from said batter head.

2. A percussion musical instrument comprising a side member; a vibratory batter head; a vibratory bottom head; a plurality of physically spaced tone modifiers within said instrument in association with the inner face of said batter head; an externally operable means adapted to abut said tone modifiers upon the inner face of said batter head and to remove said abutments; and worm gear means adapted in conjunction with said first means to removably retain said tone modifiers in any one of several desired positions during the removal of said abutments from said batter head.

3. A percussion musical instrument comprising

a side member; a vibratory batter head; a vibratory bottom head; a plurality of physically spaced tone modifiers within said instrument in association with said batter head; externally operable means adapted to resiliently abut said tone modifiers upon the inner face of said batter head and to remove them therefrom; and a second externally operable means adapted to move said tone modifiers to and from abutments upon the batter head after such abutments have been made by the first mentioned externally operable members, both of said externally operable means having in common therewith a pulley fixedly linked to said tone modifiers and a cord on said pulley having ends secured to control members attached to said side member.

4. A percussion musical instrument comprising a side member; a vibratory batter head; a vibratory bottom head; a plurality of physically spaced tone modifiers within said instrument in association with said batter head; externally operable means adapted to resiliently abut said tone modifiers upon the inner face of said batter head and to remove them therefrom; and a second externally operable worm gear means adapted to move said tone modifiers to and from abutments upon the batter head after such abutments have been made by the first mentioned externally operable member.

5. A percussion musical instrument comprising a side member, a vibratory batter head, a vibratory bottom head, a plurality of physically spaced tone modifiers within said instrument in association with said batter head, means including a pair of pulleys and a cord in operative association therewith located in the interior of said instrument and a handle located externally of said instrument and linked to said cord for controlling said tone modifiers to abut upon the inner face of said batter head and to remove said tone modifiers from said batter head, additional means located in the interior of said instrument linked to one end of said cord and controlled by a knob located externally of said instrument for effectively exerting a vernier control on said tone modifiers when in abutting relation to said batter head.

6. A percussion musical instrument comprising a side member, a vibratory batter head, a vibratory bottom head, a plurality of physically spaced tone modifiers within said instrument in association with the inner face of said batter head, a cross-piece connecting said spaced tone modifiers, a gear within said instrument linked to said cross-piece at a point intermediate its ends, another gear within said instrument engaging said first gear, and externally operable means secured to said last gear and adapted to adjust the pressure of said tone modifiers on said batter head over a range of no pressure to a maximum pressure.

7. A percussion musical instrument in accordance with claim 6, wherein the axes of said two gears are positioned perpendicularly to each other and adjacent said side member.

8. A percussion musical instrument comprising a side member, a vibratory batter head, a vibratory bottom head; a plurality of physically spaced tone modifiers within said instrument in association with the inner face of said batter head, a cross-piece connecting said spaced tone modifiers, a gear wheel within said instrument linked to said cross-piece at a point intermediate its ends, another gear wheel within said instrument engaging said first gear and secured to a shaft passing through said side member, an externally

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operable handle secured to said shaft and adapted over a range of positions to adjust the pressure of said tone modifiers on said batter head over a range extending from no pressure on said batter head to a maximum pressure, and dial markings adjacent said handle on the outside of said side member for indicating the effective position of said handle.

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