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MUSICAL INSTRUMENT

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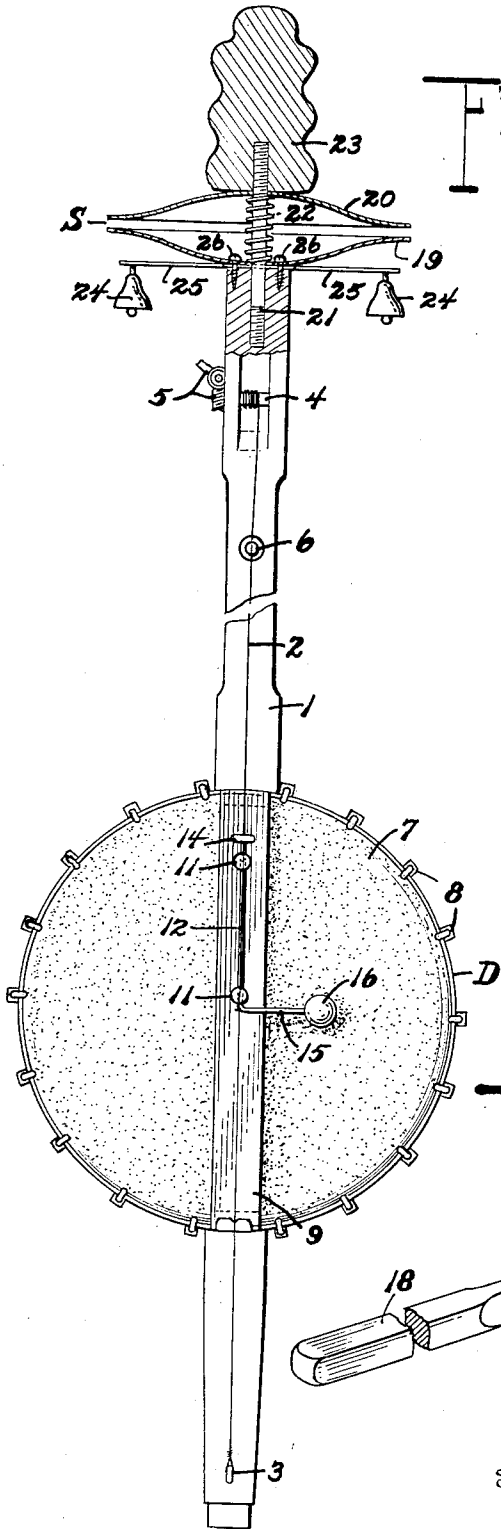


Fig. 1

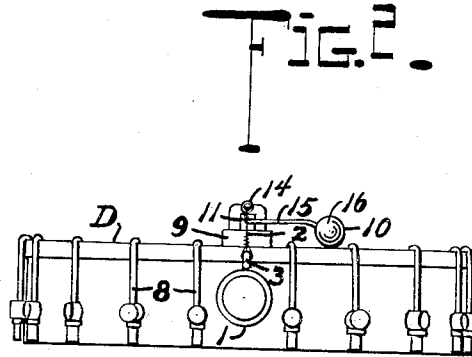


Fig. 2

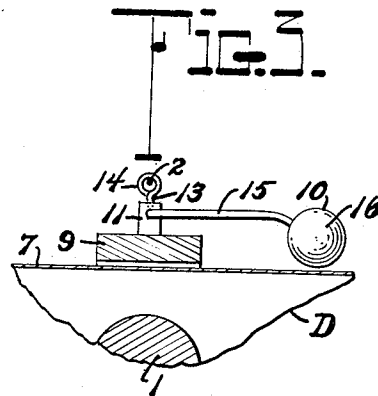
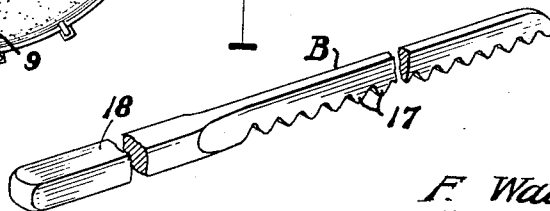


Fig. 3

Fig. 4



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MUSICAL INSTRUMENT

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8 Claims. (Cl. 84—411)

This invention appertains to musical instruments, and more especially, to a combined drum and cymbals instrument arranged to be actuated selectively or at about the same time, according to the sound effects desired. The instrument is particularly applicable for use in bands and is capable of producing unique and pleasing sound effects without requiring the usual high degree of skill normally essential in playing an ordinary drum and associated equipment.

One of the primary objects of the invention is to provide a bow-played stringed instrument which includes a drum sticker actuated responsive to vibrations of the string.

Another object of the invention is to provide a pair of normally spaced cymbal shells, at least one of which is yieldably movable towards the other and is adapted to produce the usual clashing sound responsive to impact of the cymbals support against the floor or other object.

In carrying out the aforementioned objects, we preferably combine the drum and cymbals in a single portable unit which is not only compact and light in weight, but also attractive and distinctive in design. In its preferred embodiment, the instrument includes an elongated standard or post which constitutes the support for the drum instrumentalities and the cymbals, and which is adapted to be held in a generally upright position, with its lower end resting upon the floor, when the instrument is in use. In other words, the vibratory string-actuated drum is played much on the order of a cello or base viola, whereas, the cymbals are actuated by an upward and downward bodily movement of the instrument in such manner as to impart a sudden jar to the movable cymbal shell. Thus, the operation of the instrument is quite simple and requires little skill and effort.

Other and further objects and advantages of the invention will be hereinafter described, and the novel features thereof defined in the appended claims.

In the drawing:

Figure 1 is a view, partly in front elevation and partly in vertical section, of an instrument constructed in accordance with the preferred form of the invention;

Figure 2 is a view of the instrument in end elevation, as viewed towards the lower end thereof;

Figure 3 is an enlarged fragmentary detail sectional view, taken through the drum instrumentalities, and particularly illustrating the drum

striker mounting, the striker being shown in elevation; and

Figure 4 is a perspective view of a preferred form of bow by means of which the instrument string is vibrated to actuate the drum striker.

Like reference characters designate corresponding parts in the several figures of the drawing, wherein 1 designates an elongated standard or post which serves as the support for the various parts of the drum and cymbal instrumentalities generally designated D and S, respectively. Mounted on the standard and extending lengthwise thereof at one side, is a string 2, preferably a steel wire string, having one end fixedly secured at 3 to the lower end of the standard 1, and its other end wound about a rotatable spindle 4 near the upper end of the standard. Suitable means, such as the thumb screw and pinion 5, is provided to rotate the spindle 4 so as to permit adjustment of the string tension. A post or peg 6, through which the string 2 loosely extends, serves to substantially space the string 2 from the standard 1 intermediate the opposite end of the string.

The drum head is preferably much on the order of a banjo head, and includes a flexible diaphragm 7 which constitutes the face of the drum. The diaphragm 7 is normally maintained in a tightly stretched condition by any suitable means such as the conventional tightening clamps 8. The drum is mounted on the standard 1 intermediate its opposite ends and preferably closer to the lower end of the standard than to the upper end, with the string 2 extending diametrically across the face of the drum in spaced relation thereto. 9 designates a flat bar extending diametrically across the face of the drum, this bar being preferably spaced from the drum diaphragm 7, as best seen in Figure 3, but being secured at its opposite extremities to the drum head so as to constitute a support for the drum striker, generally designated 10. Spaced posts or pegs 11, 11 are mounted on the outer face of the bar 9 with their axes disposed perpendicularly thereto. A shaft 12 is rotatably mounted in the pegs or posts 11, 11 with its axis arranged substantially parallel to the string 2. One end of the shaft 12 carries a radially outwardly extending arm 13, the free extremity of which forms an eye 14 through which the string 2 extends, thereby operatively connecting the arm 13 with the string. As will be best seen in the drawing, the arm 13 is normally disposed substantially perpendicularly to the face of the drum, so that when the string 2 is vibrated laterally,

the vibrations will be transmitted to the arm 13 on the end of the shaft 12, and the vibrations will be converted into an oscillating movement of the shaft 12.

5 The end of the shaft 12, opposite to the end which carries the arm 13, carries a laterally extended arm 15, which has mounted on its free extremity a head 16 which normally lies closely adjacent to the drum diaphragm, and is adapted to strike the drum diaphragm when the shaft 12 is oscillated responsive to vibrations of the string 2.

For convenience of imparting vibrations to the string 2, we preferably provide a specially constructed bow B. This bow has a series of serrations 17 along one edge. When the bow is grasped by its handle 18 and drawn across the string 2, the serrations 17 on the bow will cause the string to vibrate, and thereby actuate the drum striker in a manner which will be readily apparent in the drawing, taken together with the foregoing description. A short quick stroke of the bow will produce a sharp drum tapping sound, whereas a somewhat longer stroke of the bow will produce a sound effect comparable to a drum roll resulting from the usual manipulation of ordinary drum sticks. Variations in the drum action may be attained by suitable variations in the stroke of the bow B across the string 2, thereby producing unique and pleasing sound effects which we have found to be very useful and highly desirable in band music.

It will be understood that no fingering of the string 2 is required, since the string itself is not intended to produce any musical tone, but merely serves as a means for actuating the drum striker. Of course, the string must be maintained taut to the required degree in order to allow the same to vibrate when the bow B is stroked as in the well known manner of playing a cello or base viola.

Fixedly secured to the upper extremity of the standard 1, is a cymbal shell 19. A second movable cymbal shell 20 is loosely mounted on a rod 21, having one end mounted in the upper end of the standard 1, with its other end projecting substantially beyond the upper extremity of the standard. A coil spring 22, encircling the rod 21 and interposed between the cymbal shells 19, 20, normally maintains the cymbal shells in spaced relation to each other, while permitting yieldable movement of the movable cymbal shell 20 towards the fixed cymbal shell 19. An adjustable abutment head 23, threadedly mounted on the upper end of the rod 21, serves to limit the normal spacing of the cymbal shells 19, 20, and to adjust the tension of the coil spring 22 to the desired degree. Thus by screwing the abutment head 23 downwardly, the movable cymbal shell 20 can be adjusted closer to the stationary cymbal shell 19, and at the same time, the spring 22 will be compressed. Adjustment of the abutment head 23 in the opposite direction will increase the spacing between the cymbal shells and will reduce the tension in the spring 22.

In order to actuate the cymbals, the instrument is bodily lifted and then the lower end of the standard is thrust down against the floor or other object. The sudden impact of the lower end of the standard against the floor or other object, as the case may be, causes the movable cymbal shell 20 to move axially downward on the rod 21 until its downward momentum, which is normally sufficient to overcome the upward pressure of the spring 22, is limited by engagement of the

shell 20 with the shell 19. Engagement of the cymbal shells in the manner just described produces a sharp clashing sound, according to the well known action of a pair of cymbal shells. The movable cymbal shell 20 immediately returns to its normally upwardly spaced position, as shown in Figure 1 of the drawing, after striking the stationary cymbal shell 19 responsive to the sudden jar which causes its downward movement in the manner described, the return movement being caused by the upward pressure of the spring 22.

Thus the cymbals actuation is exceedingly simple, and it will be readily understood that the cymbals actuation can be effected in synchrony with the drum actuation, or otherwise as desired, and with a minimum of effort and skill, all of which is a distinct advantage over the old practice of playing conventional drums and cymbals.

If desired, one or more bells 24 may be mounted on the instrument so as to further enhance the sound effects. As shown in Figure 1 of the drawing, the bells are suspended from radially projecting supporting arms 25 which are preferably mounted on the upper extremity of the standard 1, adjacent to the stationary cymbal shell 19. Suitable fastening means, such as screws 26, may be used to secure both the stationary cymbal shell 19 and the bell supporting arms 25 to the standard 1. Obviously, the bells 24 may be actuated simultaneously with the cymbals, through the jarring of the instrument as previously described, or independently of the cymbals through a sudden lateral thrust of the upper end of the standard 1. Likewise, the cymbals may be actuated independently of the drum, or simultaneously therewith, as desired.

While the details have been herein shown and described, the invention is not confined thereto, as changes and alterations may be made without departing from the spirit thereof as defined by the appended claims.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is—

1. A device of the class described, comprising a standard, a string extending lengthwise of the standard at one side thereof, a drum mounted on the standard and having a membranous head disposed adjacent to the string, and a striker operatively connected with the string and so disposed as to strike the drum head responsive to vibrations of the string.

2. A device of the class described, comprising a standard, a string extending lengthwise of the standard at one side thereof, a drum mounted on and supported by the standard, and means having operative connection with and actuated by the string for striking the drum.

3. A device of the class described, comprising a standard, a string extending lengthwise of the standard at one side thereof, a drum mounted on and supported by the standard, and means actuated by the string for striking the drum, said last named means comprising a striker pivotally mounted on the drum so as to swing towards and away from the face of the drum, and means operatively connecting the striker with the string.

4. A device of the class described, comprising a standard, a string extending lengthwise of the standard at one side thereof, a drum mounted on the standard, and means actuated by the string for striking the drum, said last named means comprising a shaft rotatably mounted at one side of the drum and lying substantially

parallel with the string, one end of the shaft being provided with a laterally extended striker arm carrying a striker head at its free extremity adapted to strike the drum responsive to rocking movement of the shaft, and means operatively connecting the shaft with the string.

5. A device of the class described, comprising a standard, a string extending lengthwise of the standard at one side thereof, a drum mounted on the standard, and means actuated by the string for striking the drum, said last named means comprising a shaft rotatably mounted at one side of the drum and lying substantially parallel with the string, one end of the shaft being provided with a laterally extended striker arm carrying a striker head at its free extremity adapted to strike the drum responsive to rocking movement of the shaft, and means operatively connecting the shaft with the string, said last named means comprising an arm provided on the end of the shaft opposite to the striker arm and having its free extremity engaged with the string.

6. A device of the class described, comprising a standard, a string extending lengthwise of the standard at one side thereof, a drum mounted on the standard, and means actuated by the string for striking the drum, said last named means comprising a shaft rotatably mounted at one side of the drum and lying substantially parallel with the string, one end of the shaft being provided with a laterally extended striker arm carrying a striker head at its free extremity

which is so constructed and arranged as to strike the drum responsive to rocking movement of the shaft, and means operatively connecting the shaft with the string, said last named means comprising an arm provided on the end of the shaft opposite to the striker arm and having an opening at its free extremity through which the string passes.

7. A device of the class described, comprising a standard, a string extending lengthwise of the standard at one side thereof, a drum mounted on the standard with the string extended across the face thereof in spaced relation thereto, a support extending across the face of the drum and spaced therefrom, and a striker rockably mounted on said support and constituting a means for striking the drum, said striker being operatively connected with the string and so constructed and arranged as to cause the same to be actuated responsive to vibrations of the string.

8. An instrument of the class described, comprising a standard, a string stretched taut lengthwise of the standard at one side thereof and having a portion of its length spaced therefrom, a drum mounted on and supported by the standard adjacent to the lower end thereof, and a striker operatively connected with the string and so constructed and arranged to cause the striker to strike the drum responsive to vibration of the string.

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