

UNITED STATES PATENT OFFICE.

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DRUM.

1,412,016.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, OLIVER N. HOWERTON and ERNEST STARBUCK, citizens of the United States, residing at East Peoria, county of Tazewell, State of Illinois, and Peoria, county of Peoria, State of Illinois, respectively, have invented certain new and useful Improvements in Drums; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention pertains to drums particularly of the toy variety.

It has especial reference to a drum for producing rhythmic sounds through certain mechanism.

The prime object of the invention, therefore, is to provide for a drum mechanism by means of which, through the operation of a crank or equivalent device manually operated, certain rhythmic drumming sounds may be produced at will.

Another object is to provide mechanism as a complete unit for attachment to a drum that will not require auxiliary parts separate therefrom to aid in its operation.

Another object is the provision of very simple mechanism for automatically beating a drum that will be comparatively inexpensive yet thoroughly strong and rigid and of long life.

The accompanying drawing shows a preferred embodiment of the invention though it is to be understood that the mechanism is susceptible of changes of one kind or another since we do not limit ourselves to the particular arrangement shown.

Figure 1 shows the drum in perspective.

Figure 2 is a cross section of part of the drum showing the operating mechanism therein.

Figure 3 is a plan of said mechanism.

Figure 4 is an enlarged section of parts of the shell of the drum, and

Figure 5 is a side elevation of part of the mechanism showing portions thereof in section.

Our purpose is that of furnishing a drum with mechanism that upon being manually operated will produce a series of taps or beats upon the drum-head in such a way as to simulate well known drum beating, said

taps or beats being produced in perfect time either in simple rhythm or in more complicated form according to whether the construction of one of the removable operating parts is adapted for one or the other.

In order that this may be clearly understood, reference is had to the drawings wherein A indicates the body of the drum, and B and C the heads thereof, all being preferably of metal, the head B being that upon which the drumming sounds are produced.

The construction of the body of the drum shown herein is the preferred one though it may be otherwise produced. That is to say, the said body A is merely the usual curved or cylindrical shell, while each head B, C is provided at its edge with an annular portion which is first bent outwardly from the plane of said head, thence recurved substantially perpendicularly to the plane of said head as E, thence bent inwardly and back toward the head as at F. The terminal portion F is thus an annular flange the diameter of which, measured across the center of the head, is somewhat less than the greatest diameter of the shell so that to assemble the parts each head must be forced upon the shell with little chance of its becoming detached, requiring no other means for securing it in place. The flanged periphery of the heads when in place upon the shell give the drum a finished appearance, said flanges resembling the wooden tightening hoops of the larger types of drums.

The mechanism for producing sound is quite simple and may be changed in various ways.

It may consist, for example, as in the present instance, of a support G secured in any desired manner on some portion of the drum, preferably upon the head C.

In this support is suitably journaled a short shaft H which extends through the head C receiving at its end outside the head a crank J.

K is a pinion secured on the inner end of the shaft which is in mesh with the teeth L on the periphery of a disc or plate M mounted on said support G, or other convenient part, being adapted to rotate upon a pivot member such as a screw N, for example. Said disc or plate which we shall term for convenience, an "operating plate", or "oper-

ating member" is provided with a series of perforations M' arranged at proper intervals upon concentric circles whereby they will be brought beneath certain striking arms now to be described.

O is a member secured in position upon the support G, for example, so as to overhang the marginal portion of the said operating member or plate M as shown in Figure 2, but most clearly in Figure 3. It has a recess at P in its under side to receive a series of striker arms Q, R, S, T. The form of the several arms is best shown in Figure 5 and it is to be noted that they are mounted nearest one of their ends upon a pin U, as a pivot, which pin bridges said recess P. By means of a spring V connected between each arm and the member O the extremity of the long end of each said arm is made to strike the drum-head B.

The short ends of the arms are curved toward the operating plate M, and, due to the said springs, are made to bear thereupon with some little pressure, the holes or perforations M' being so disposed that in the movement of the plate the arms will be released as the perforations pass beneath them. That is to say, the perforations are arranged on circles as stated, those of each circle passing under one of the arms so that in the rotation of the plate the ends of the arms will be forced into them by the spring to the end that their long ends will be brought sharply and with force upon the head B.

In the present instance, four arms are provided though, of course, there may be more or less than that number. It is observed that the perforations in the operating plate are arranged some of them singly, and some in groups of four each in certain zones, corresponding to the four arms, and that the groups of apertures lie tangential to a circle the diameter of which is much less than that of the plate.

This arrangement is a matter of preference although thus laid out, as each group passes beneath the arms those members will be released one at a time; in the present instance from the innermost one T to the outermost one Q thereby producing a short "roll" instead of a single beat, were the arms all released at the same time.

The series of groups are spaced from one another so that the short roll is repeated the proper number of times in accord with march time as usually produced, being followed by the other conventional beats.

This has all been described merely to illustrate the manner in which the mechanism may be constructed to produce desired actions of the arms to realize a certain rhythm, any arrangement of the apertures being possible whereby to produce more complicated beating.

Other ways of obtaining the arm action

are also possible, the construction shown being merely a preferred one as stated earlier herein.

The rotation of the operating member or plate M is counter-clockwise as viewed in Figures 3 and 5 so that the arms will be lifted out of the apertures after each beat is sounded. The arms when thus lifted then drag upon the plate until the next series of apertures releases them. As they drop through the plate the ends of the arms may strike and rest upon a portion of the support G, Figure 5, if desired, so long as this does not interfere with the proper movement of the long ends in making their strokes upon the drum-head.

The number of teeth in the pinion K and in the plate M are so proportioned that the latter will take one full revolution to twelve of the former. Also, the groups of four apertures each are twelve in number as the principal beats and these are so spaced from one another that one rotation of the plate completes the full marching rhythm. Now, as a guide in operating the crank J, when marching, that member may be made to pass a given position simultaneously with the sounding of each principal beat and the march time, of say the left foot, since said crank completes one revolution with each of said principal beats.

We have described at some length the preferred construction of a drum having the automatic drumming idea for march time in perfect rhythm but do not confine ourselves to the exact construction thereof. Our operating mechanism as constructed can be attached to the drum head as a complete unit. Made in this way its attachment to the drum is quick and easy and no adjustments are required in placing it in position.

Again, the placing of the operating member or disc M between the support G and the part O steadies its rotation so that its positive engagement with the beater arms is assured without outside auxiliary parts of any kind.

We claim—

1. In combination with the head of a drum, of a support secured thereto, a shaft journaled in said support extending through said head and provided with a crank at its outer end outside the head and with a gear at its inner end, a revoluble operating member mounted on said support driven from said gear, a part secured on the support having an extension overhanging the operating member, and a series of beater-arms pivotally mounted on the said extension adapted at one of their ends to engage the operating member and at their other ends adapted to strike the opposite drum head.

2. In combination with the head of a drum, of a support secured upon the same,

a shaft journaled in said support and having a position perpendicular to said head, a gear carried by the end of the shaft inward from the head, a part secured on the support having a portion spaced from and overhanging the same, a series of beater-arms pivotally mounted on the said portion adapted at one of their ends to contact with the opposite drum head, and an operating member mounted upon the support extending between said support and the spaced portion adapted to engage and operate the beater-arms and rotated by said gear.

3. An attachment for a drum consisting of a support for attachment at one side to one of the heads of the drum and having a part extending from its other side terminating in an overhanging portion spaced from said support, a shaft journaled in the support and extending from the same at one side and having a gear disposed between the portion and said support, a disc mounted upon the support adapted to rotate between and in close proximity to the latter and the overhanging portion and having teeth to mesh with the gear, and a series

of beater arms pivoted on the overhanging portion engaging at one side of the said disc.

4. An attachment for a drum consisting of a support for attachment at one side to one of the heads of the drum and having a part extending from its other side terminating in an overhanging portion spaced from said support, a shaft journaled in the support and extending from the same at one side and having a gear disposed between the portion and said support, a disc mounted upon the support adapted to rotate between and in close proximity to the latter and the overhanging portion and having teeth to mesh with the gear, a series of beater-arms pivoted on the overhanging portion engaging at one side the said disc, an elastic member connected to and between each arm and part of the supporting structure.

In testimony whereof we affix our signatures in presence of two witnesses.

OLIVER N. HOWERTON.
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Witnesses:

L. M. THURLOW,
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