

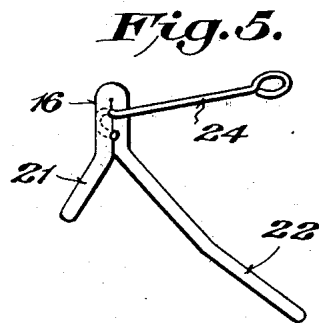
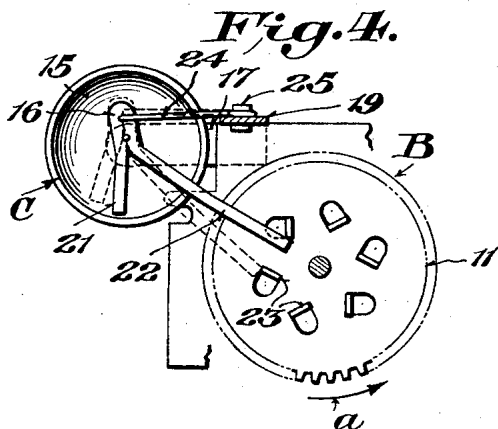
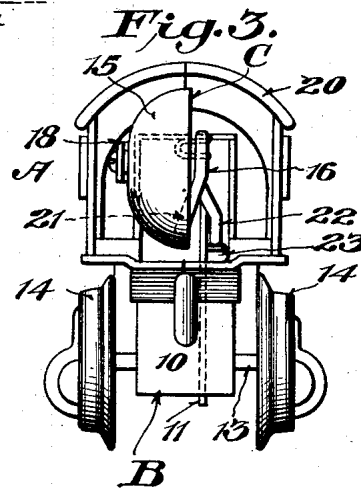
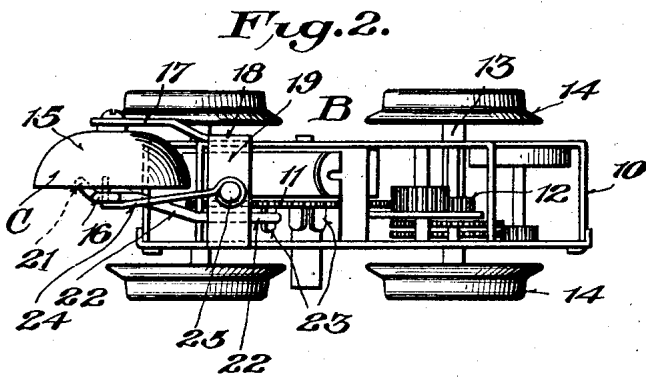
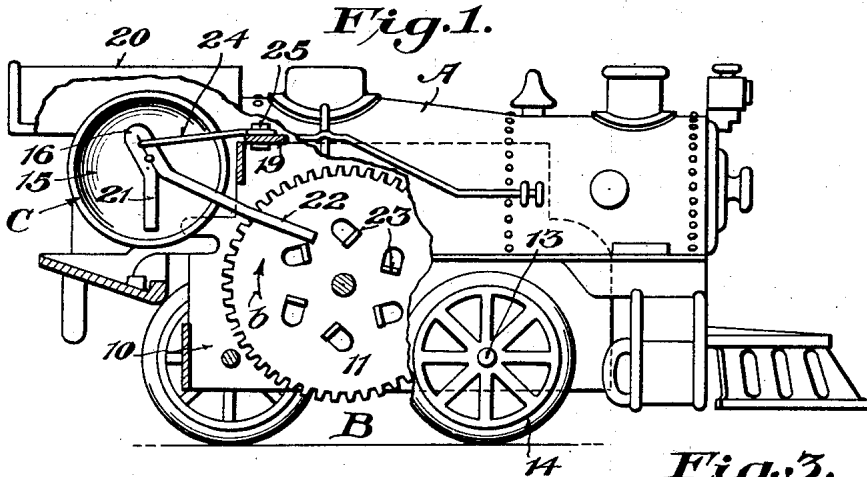
July 19, 1932.

J. E. CUFF

1,868,194

BELL RINGING DEVICE FOR TOY LOCOMOTIVES

Filed June 29, 1931



Inventor

James E. Cuff,

By *D. P. Wehauer*
Attorney

UNITED STATES PATENT OFFICE

JAMES E. CUFF, OF HINSDALE, ILLINOIS, ASSIGNOR TO AMERICAN FLYER MFG. CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS

BELL RINGING DEVICE FOR TOY LOCOMOTIVES

Application filed June 29, 1931. Serial No. 547,744.

This invention relates to a bell ringing unit for embodiment in toy locomotives of either the mechanically or electrically driven type to simulate the sound of the bells on large passenger and freight service locomotives now in general use, and has for its general object to provide a practical unit of this character which is of relatively simple, inexpensive construction, which may readily be installed on existing types of toy locomotives substantially without alterations thereto, and which is thoroughly reliable, positive and efficient in operation.

Another object of the invention is to provide a bell ringing unit which is strong and durable, which is readily capable of being mounted in a concealed and protected position within the usual cab or at another convenient point on a toy locomotive, which derives its actuating power from the propulsion motor of the locomotive, and which requires only a negligible amount of power for its actuation.

With the foregoing and other objects in view, which will become more fully apparent as the nature of the invention is better understood, the same consists in the novel features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawing and defined in the appended claims.

In the drawing, wherein like characters of reference denote corresponding parts in the different views:—

Figure 1 is a side elevation of a toy locomotive equipped with a bell ringing unit constructed and installed in the locomotive in accordance with one practicable embodiment of the invention, parts being broken away to more clearly disclose the underlying structure.

Figure 2 is a plan view of the motor unit of the locomotive showing the bell ringing unit operatively mounted thereon.

Figure 3 is a rear elevation of the locomotive showing the bell ringing unit operatively mounted thereon.

Figure 4 is a detail view illustrating by full and dotted lines, respectively, striking and

energized position of the bell clapper; and Figure 5 is a detail perspective view of the clapper and spring assembly.

Referring to the drawing in detail, A designates, generally, a toy locomotive which may be of any known or desired design, B designates, generally, the power unit of the locomotive which may be either an electric or a spring motor in accordance with common practice, and C designates, generally, the present bell ringing unit according to one practicable embodiment thereof.

In the present instance the power unit B is illustrated as a spring motor mounted in a frame 10 and inclusive of a drive gear 11 operatively connected through gearing; designated generally as 12, with the axle 13 of one pair of the locomotive drive wheels 14.

The bell ringing unit C comprises essentially a bell 15 and a cooperating clapper 16. In the present instance the bell is mounted on the supporting arm 17 of a substantially L-shaped bracket 18, whose attaching arm 19 is suitably secured to the power unit frame 10, or to some other convenient part of the locomotive structure, to dispose the bell in a suitable operative position. For example, as shown, the arm 19 of the bracket 18 is secured across the top of the frame 10 at the rear end thereof to support the bell 15 in a protected and substantially concealed position within the cab 20 of the locomotive.

The clapper 16 may conveniently be formed from a length of heavy wire bent as shown into substantially Y shape, one arm 21 thereof constituting a striker for contact with the bell 15, and the other arm 22 thereof being of relatively greater length and constituting a finger for cooperation with lugs 23 carried by the gear wheel 11 whereby striking movements of the arm 21 against the bell 15 are effected.

The clapper 16 is resiliently supported from the arm 19 of the bracket 18 through the instrumentality of a spring arm 24, said arm being secured at its forward end by a rivet 25 or in other suitable manner to said bracket arm and at its rear end being bent into U-shape and clamped between the arms 21, 22 of the clapper, whereby the latter is resiliently

suspended and held normally in a position as shown by full lines in Fig. 4 with the end of the striker arm 21 in contact or substantially in contact with the bell 15 and with the arm 22 extending forwardly for cooperation with the lugs 23.

While the lugs 23 may be provided on the gear wheel 11 in any suitable manner, they preferably are provided by stamping out ears from said gear wheel, and, as shown, they preferably are disposed adjacent to the center of the gear whereby their cooperation with the clapper arm 22 utilizes only a negligible amount of the available power of the power unit of the locomotive. They are disposed concentrically about the axis of the gear and in circumferential spaced relation such that as the gear rotates they successively engage and swing the arm 22 to actuate the clapper. That is to say, when the clapper is in its normal position as illustrated by full lines in Fig. 4, the free end of the clapper arm is disposed in the path of movement of the lugs 26, and the length of the clapper arm 22 and the spacing of the lugs 23 is such that the arm 22 will be moved a limited amount by each lug and then will spring by said lug to its normal or substantially its normal position to be picked up and again moved in the same manner by each succeeding lug. In this connection it will be observed by reference to Fig. 3 that the arms 21, 22 of the clapper are bent to extend laterally outward relative to each other whereby the striker arm 21 extends within the bell for cooperation therewith and the arm 22 extends across the edge of the bell into cooperative relationship with the lugs 23.

The operation of the device is apparent and as follows: Assuming the clapper to be in its normal position as shown in full lines in Fig. 4 and the gear wheel 11 to be rotating in the direction of the arrow *a*, which is the direction of rotation of said gear wheel when the locomotive is moving forward, it will be observed that the free end of the arm 22 will be engaged and moved by one of the lugs 23 to the dotted line position as permitted by upward flexing of the spring arm 24 with consequent movement of the free end of the striker arm 21 to a position spaced from the bell 15. Upon slight continued movement of the gear wheel 11 the lug in engagement with the arm 22 moves across the free end of said arm and releases the same, whereupon the energized spring 24 in returning the clapper to its normal position causes the free end of the striker arm 21 to strike the bell and produce a ringing sound simulating the sound of the bell of a large locomotive. At the same time the spring arm 24 acts to cause the arm 21 to strike the bell it returns the arm 22 to its normal full line position where it is picked up by the next lug 23 and the operation is repeated, so that during travel of the

locomotive the bell is repeatedly rung as is manifest. In this connection it is to be noted that the lugs 23 are so spaced apart that as the arm 22 returns to its normal position during normal travel of the locomotive and rotation of the gear wheel 11 at a normal rate of speed, each successive lug 23 engages the arm 22 substantially simultaneously with or immediately following striking of the bell by the arm 21. Consequently, any chattering of the striker arm against the bell and any dulling of the ringing sound due to the striker arm remaining in contact with the bell is effectively avoided. In other words, each lug 23 operates to produce only a single blow of the striker arm against the bell and as a consequence the ringing sounds are sharp and clear and entirely separate and distinct from one another.

If the locomotive is travelling backward substantially the same operation takes place as has just been recounted: The gear wheel 11 rotates in the direction of the arrow *b* in Fig. 1 and the arm 22 is picked up by each successive lug 23, being elevated by each lug to flex the spring 24 upwardly and move the striker arm into a position spaced from the bell, and being subsequently released by each lug to permit the spring 24 to act to return the clapper to its normal position with consequent striking of the bell by the arm 21.

Without further description it is thought that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will of course be understood that changes in the form, proportion and minor details of construction may be resorted to, without departing from the spirit of the invention and scope of the appended claims.

I claim:—

1. In a toy locomotive, a power unit for driving the same inclusive of a frame, a bracket having angularly disposed attaching and supporting arms, the former being secured to said frame, a bell carried by the supporting arm of said bracket, a spring arm secured to the attaching arm of said bracket, a clapper mounted on said spring arm, said clapper including a pair of arms one constituting a striker for cooperation with the bell, said spring arm tending to maintain said striker arm in normal position, and a member rotatable by the power unit and provided with a plurality of lugs for cooperation with the other arm of the clapper to successively move the striker arm thereof to a position spaced from the bell and to release the clapper each time the striker arm thereof reaches said position.

2. A bell ringing unit for toy locomotives comprising a bracket inclusive of angularly disposed attaching and supporting arms, said attaching arms being adapted to be fastened to a part of the locomotive, a bell mounted on

the said supporting arm, a spring arm fastened to the attaching arm of the bracket, and a clapper resiliently supported by said spring arm for cooperation with said bell and with a movable part of the locomotive structure when the bell ringing unit is operatively mounted thereon to produce bell ringing movements of the clapper.

3. In a bell ringing device for toy locomotives, a bell, a cooperating clapper and a spring arm supporting said clapper for cooperation with said bell, said clapper including a portion bent upon itself, and said spring arm including a portion bent upon itself and clamped between the bent portions of the clapper whereby the latter is held in normal position in operative relation to the bell.

4. A bell ringing device for toy locomotives adapted to be mounted on the locomotive frame and operated by the power unit of the locomotive comprising a bracket including an attaching arm and a rearwardly offset bell supporting arm, said attaching arm being secured to the locomotive frame above the power unit, a bell carried by said supporting arm, a clapper including a pair of arms one of which constitutes a striker for the bell, a spring arm carrying the clapper, and a plurality of lugs on a rotary member of the power unit adapted to successively engage the other of the arms of the clapper thereby to actuate the same.

In testimony whereof I hereunto affix my signature.

JAMES E. CUFF.