Feb. 8, 1966 W. U. CONAGHAN 3,233,361

SOUND PRODUCING TOY WHEEL

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Fig. 4

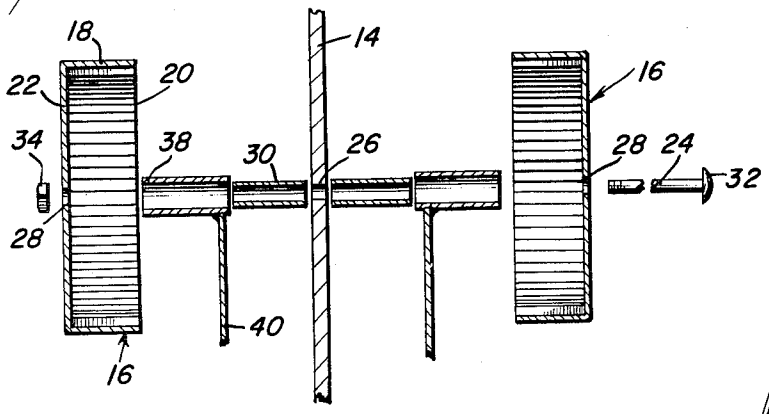


Fig. 1

Fig. 5

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Fig. 2

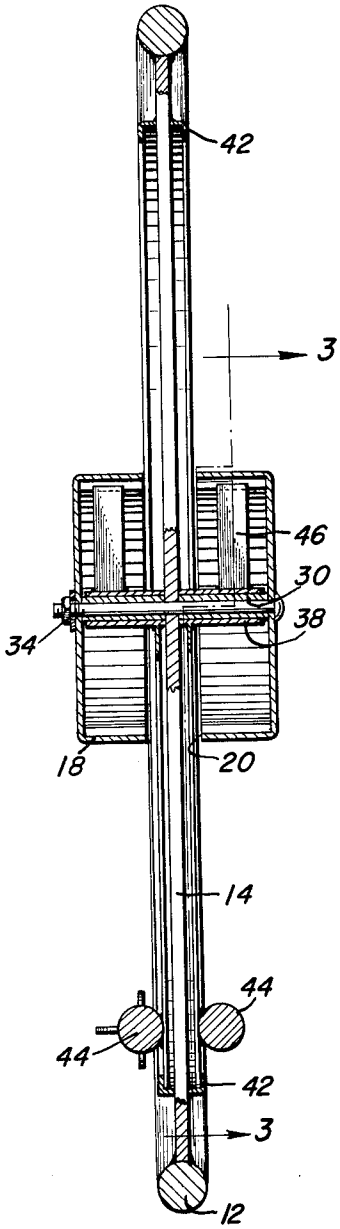
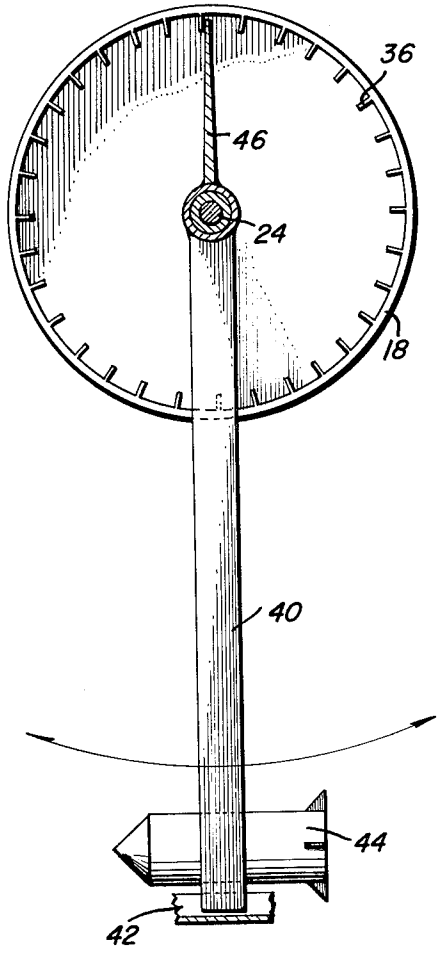


Fig. 3



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Fig. 7

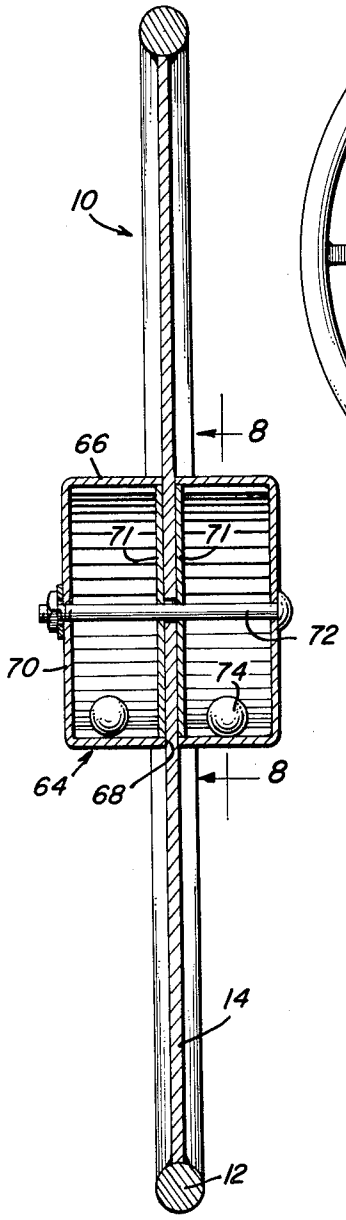


Fig. 6

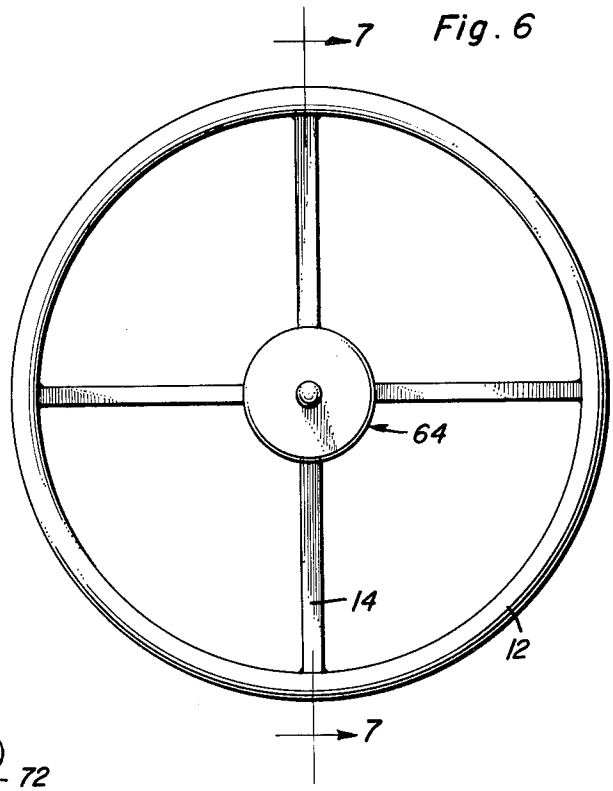
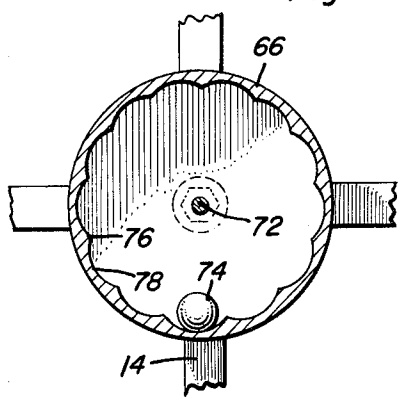


Fig. 8



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SOUND PRODUCING TOY WHEEL

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2 Claims. (Cl. 46—114)

The present invention generally relates to toys of the type rolled or pushed along the ground in the manner of a hoop, and more particularly relates to such a rolling toy incorporating means for producing a noise in response to the rolling movement.

It is a particularly important object of the instant invention to provide a rolling toy for use by children, this toy being in the form of a wheel, and incorporating a noise producing means, in the form of a pair of sound boxes attached to opposite sides of the wheel, for increasing its attractiveness to children.

Another significant object of the instant invention is to provide a combined wheel and control stick or handle therefor.

Another object of the instant invention is to provide a sound or noise producing toy wheel wherein the sound boxes can be removed if desired.

Likewise, it is an object of the instant invention to provide a toy, which while highly attractive in appearance and manner of use, is of simple construction and capable of economical manufacture, and at the same time incorporates a sturdiness of construction deemed highly desirable in children's toys.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view illustrating both the sound producing wheel and the control stick or handle therefor;

FIGURE 2 is an enlarged transverse cross-sectional view taken substantially along the plane passing along line 2—2 of FIGURE 1;

FIGURE 3 is an enlarged cross-sectional view taken substantially on the plane passing along line 3—3 in FIGURE 2;

FIGURE 4 is an exploded perspective view illustrating the manner in which the sound boxes are mounted;

FIGURE 5 is a partial perspective view illustrating a modified form of control stick;

FIGURE 6 is an illustration of a rolling wheel having a modified form of sound box mounted thereon;

FIGURE 7 is an enlarged transverse cross-sectional view taken substantially on the plane passing along line 7—7 in FIGURE 6; and

FIGURE 8 is a cross-sectional view taken substantially on a plane passing along line 8—8 in FIGURE 7.

Referring now more specifically to the drawings, reference numeral 10 is used to generally designate the wheel, this wheel consisting of an enlarged annular rim 12 and a plurality, generally four, of flat bar-like spokes 14 secured to the annular rim 12 and radiating from a common center point concentric with or at the center of rotation of the annular rim 12. The annular rim 12 is preferably circular in cross-section, and includes a smooth outer periphery.

The actual noise is produced by a pair of cylindrical sound boxes 16, each having, in addition to the cylindrical wall 18, an open end 20 and a closed end 22. The sound boxes 16 are positioned on opposite sides of the wheel 10, concentric therewith, and are mounted thereon by an elongated bolt 24 extending through a suitable aperture 26 at the center point of the spokes 14, and through central apertures 28 in the closed end walls 22 of the sound

boxes 16. The ends 20 of the boxes 16, as will be appreciated from the drawings, open inwardly toward each other and are spaced outwardly from the spokes 14 by a pair of elongated cylindrical spacers or bushings 30 received over the bolt 24 and having one end engaged against the spokes 14 about the aperture 26, and the other or outer end thereof engaged with the inner face of the box end wall 22 about the aperture 28. The bolt 24 has an enlarged head 32 on one end thereof and a nut 34 releasably threaded on the other end thereof whereby the two boxes 16 can be firmly locked, in slightly spaced relation through the spacers 30, to the spokes 14 for rotation with the wheel 10. Finally, the cylindrical wall 18 of each box 16 has a plurality of rigid equally spaced inwardly projecting bar-like ribs or abutments 36 which, as will be explained presently, are of significance in producing the desired noise.

Rotatably mounted on each of the bushing spacers 30 is an elongated cylindrical sleeve 38. These sleeves 38 are each of a length slightly less than the length of the corresponding spacer 30 so as to allow a free rotation of the sleeve 38 even upon a tight clamping of the spacer 30 between the wall 22 and the spokes 14. As noted supra, the open ends 20 of the boxes 16 are spaced slightly outward from the spokes 14. An elongated flat bar-like arm 40, having its inner end rigidly fixed to the rotatable sleeve 38, extends radially outward through this space parallel to the plane of the spokes 14. Each arm 40, as will be best appreciated from FIGURE 4, is fixed to the sleeve 38 slightly inwardly of the inner end of the sleeve 38 in order to space the corresponding arm 40 slightly outward from the spokes 14 so as to allow free relative rotation therebetween, each arm 40 also being spaced slightly inward from the open inner end of the corresponding box 16. The outer end of each of the arms 40 terminates inward of the annular rim 12 and is received within an annular channel guide 42 whereby each arm 40 is allowed to rotate freely relative to the wheel 10 along a predetermined parallel path. Fixed to each arm 40, inward of the guided end thereof, is an enlarged counterweight 44, generally in the form of a rocket as illustrated. This weight or counterweight 44 will tend to stabilize the arm 40 and sleeve 38 as the wheel 10 is being rolled.

Fixed to the sleeve 38, within each box 16, is an elongated flexible resilient finger 46 extending in a direction diametrically opposite from the direction of the corresponding arm 40. The outer end of each of the fingers 46 extends slightly beyond the inner ends of the ribs 36 on the corresponding cylindrical wall 18 whereby a relative rotation between the sound box 16 and the corresponding sleeve 38 will cause a snapping of the fingers 46 over each of the ribs or abutments 36, thus producing a noise, the intensity of which will vary with the rate of rotation. This relative rotation between each sound box 16 and its corresponding finger 46 is achieved by merely rolling the wheel 10, the counterweights 44 tending to retain the fingers 46 in a generally vertical position while the rigid ribs 36 are progressively brought past the fingers 46.

The wheel 10 is to be preferably rolled and controlled by an elongated runner or control stick 48. This control stick 48 includes an elongated rigid shaft 50 having a hand grip 52 at one end thereof and a wheel engaging head 54 at the other end thereof. The wheel engaging head is generally U-shaped and orientated at right angles to the shaft 50. The head 54 includes two parallel legs 56 and 58, and an interconnecting flat bight portion 60, the leg 56 forming an integral continuation of the shaft 50. With particular reference to FIGURE 1, it will be noted that the bight portion 60 is engaged with the periphery of the rim 12 with the legs 56 and 58 engaged with

opposite sides of the rim 12. In this manner, the wheel 10 can be easily driven or rolled forwardly while at the same time being conveniently controlled, as to both direction and speed, by the bringing of either leg 56 or 58 into engagement with the corresponding side of the rim 12. By the same token, if so desired, the wheel 10 can be brought to a complete halt by extending the free end of the outer leg 58 across the inner portion of the annular rim 12 so as to engage one of the spokes 14.

FIGURE 5 illustrates a slightly modified form of runner 48', this runer 48' differing by the provision of a freely rotating roller 62 between the parallel legs 56' and 58'. As will be appreciated, this freely rotating roller 62 reduces friction between the runner 48' and the rim 12.

Referring now specifically to FIGURES 6, 7 and 8, it will be noted that a modified form of sound box 64 has been illustrated mounted on the wheel 10. The sound box 64, one being provided concentrically on each side of the wheel 10, includes a cylindrical wall 66, an open end 68 and a closed end 70. Fixed to each side of the spokes 14 at the center thereof is a circular disk 71 of a size so as to be received within and close the open end 68 of the corresponding sound box 64 so as to provide for a pair of completely closed sound boxes upon a bolting of the open ended boxes 64 to opposite sides of the spokes 14 by the elongated bolt 72. As will be appreciated, the open ends 68 of the two boxes 64 engage directly against the spokes 14 peripherally about the corresponding flat disks 71. Located within each of the sound boxes 64 is a hard freely movable ball 74, while the inner surface of each of the cylindrical walls 66 is provided with alternating ribs 76 and grooves 78 completely thereabout so as to form, in effect, a series of abutments against which the corresponding hard freely movable ball 74 will strike upon a rolling of the wheel 10, thereby producing a rattling noise, the intensity of which will vary with the rate of rotation of the wheel 10. As will be appreciated from FIGURE 8, the grooves are rounded while the ribs are sharply peaked so as to form distinct abutments for the balls 74. The bolt 72, incidentally, includes, in addition to an enlarged head at one end thereof, a nut releasably threaded on the other end thereof so as to allow a removal of the sound boxes 64 as desired. Further, it will of course be appreciated that the control sticks 48 and 48' are equally usable with the last described sound producing wheel.

From the foregoing, it will be appreciated that two slightly modified forms of sound producing toy wheels have been described, each incorporating novel sound box means capable of producing variable intensity noise in response to a rolling of the wheel. In addition, it will be appreciated that a unique runner or control stick, particularly adapted for use with the rolling wheel which mounts the sound box, has been defined for use in combination with the sound producing wheel.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A noise producing rolling toy comprising an enlarged circular wheel, said wheel having a smooth outer periphery, at least one cylindrical sound box fixed to one side of the circular wheel concentric therewith, said sound box having a diameter substantially less than the diameter of the wheel, and means located within the box and responsive to a rolling of the wheel for producing a noise, said means comprising a plurality of fixed inwardly projecting abutments on the inner side of the cylindrical wall of the sound box, and a movable object located within said box and selectively engageable with the fixed abutments in response to a rolling of the wheel, said movable object comprising an elongated resilient finger, said finger being rotatably mounted centrally within said box and counterweight means connected to said finger for generally stabilizing said finger during a rolling of the wheel whereby the abutments are consecutively brought into engagement with the finger, said counterweight means consisting of an elongated arm projecting radially outward from the sound box, an annular guide fixed to the wheel and receiving the outer end of the arm, and a weight fixed to said arm inward of its outer end.

2. A noise producing rolling wheel consisting of an annular rim, a plurality of spokes secured to the rim and radiating from the center thereof, an elongated bolt extending transversely through the center of the wheel and beyond both sides thereof, a cylindrical sleeve rotatably mounted on the bolt on each side of the wheel, a pair of elongated arms each having one end fixed to one of the sleeves adjacent the inner end thereof, said arms projecting radially outward to a point inward of the annular rim, a pair of annular guides, one mounted on each side of the wheel, each guide receiving the outer end of one of the arms for guiding the arms during rotational movement relative to the wheel, a pair of cylindrical sound boxes, each box having an open end and a closed end, said boxes being positioned concentrically on opposite sides of the wheel opening inward toward each other, said bolt extending through the closed outer ends of the boxes, means on the bolt for fixing the boxes to the wheel for rotation therewith, means spacing the open inner end of each box outward from the spokes a sufficient distance so as to allow free passage of the corresponding arm therebetween, the cylindrical wall of each box having a series of inwardly projecting ribs, an elongated resilient finger fixed to each rotatably mounted sleeve and projecting radially therefrom into engagement with said ribs whereby relative movement of the ribs past the finger will produce a noise, and a counterweight on each arm tending to prevent rotation of the rotatably mounted sleeves during a rolling of the wheel.

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