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D. W. WOOD

2,627,698

TOY DRILL

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FIG. 1

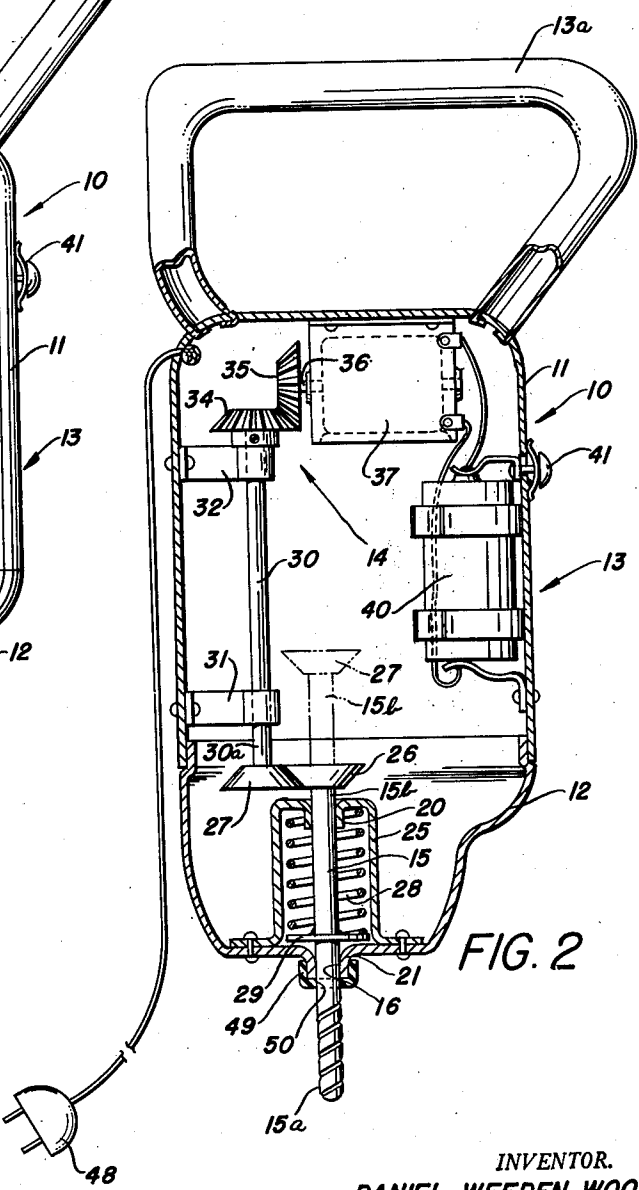
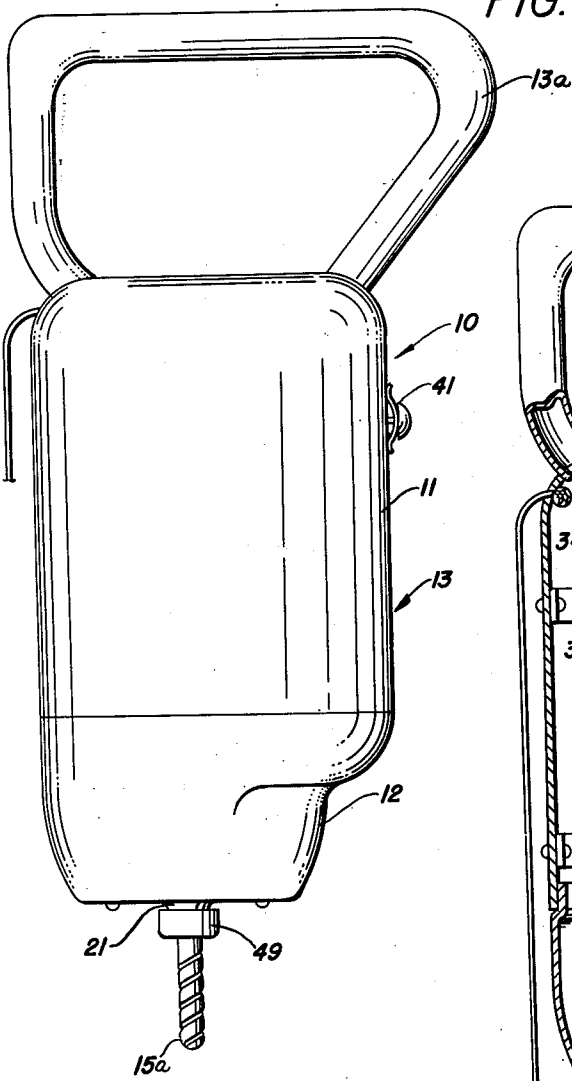


FIG. 2

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TOY DRILL

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4 Claims. (Cl. 46-39)

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This invention relates to toys and in particular relates to a toy rotary tool.

One object of this invention is to provide a toy rotary tool simulating in appearance an electric drill, but which will not, however, be injurious to surfaces on which the same is applied by a child.

Other objects of the invention will be self-evident from the following brief description and the accompanying drawing.

Of the drawing:

Figure 1 is a side elevation of one embodiment of the invention.

Figure 2 is a similar view partly broken away and in section showing the driving means in detail.

Referring to the drawing, there is shown a toy rotary drill 10, including housing members 11 and 12, complementally assembled to form a drill housing 13 having a handle 13a and enclosing driving means 14 for rotating an axially shiftable simulated drill 15, the same normally having one free end 15a thereof extending outwardly through an opening 16 in the housing member 12, while the drill 15 is retained in yieldingly, axially shiftable relationship to said housing by spring means to be described later.

Referring now to Figure 2 for a particular consideration of the driving means 14, the drill 15 is shown positioned between axially aligned, out-turned flanges 21 and 20, in housing 12 and a spring housing 25, respectively, the spring housing being affixed to the housing 12 in known manner. A bevelled friction wheel 26, affixed to the opposite end 15b of the drill 15, is maintained in axially disengageable driving engagement with a complementally bevelled friction wheel 27, mounted on one end 30a of a shaft 30, the same being journaled on spaced bearings 31 and 32 attached to housing member 11. For allowing said axial disengagement a compression spring 28 is positioned around the drill 15 and is operable between the inner face of the top portion of said housing 25, and a collar 29 fixed on the central portion of the drill to urge the friction wheels 26 and 27 out of driving engagement in a manner to be described. On the opposite end of shaft 30 may be provided a suitable bevel gear 34 in meshing engagement with a similar bevel gear 35, mounted on an outwardly extending shaft 36 of a motor 37 which is affixed to the housing member 11, as shown. The motor is provided with dry-cell battery energizing means 40, controlled in known manner by an "on-off" switch 41 provided on the exterior of the housing 11.

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In simulation of an electric cord for attachment to a wall outlet, a length of string attached to the housing member 11, may have a two pronged plug 48 on the free end thereof.

For preventing the flange 21 from scratching or marring table or other surfaces, when the toy is used in a manner to be described, a cup-shaped cap 49 of rubber or similar resilient material is tightly fitted over the same, the cap having a central aperture 50 therein for reception of the drill 15 therethrough.

In use or operation of the improved device, as for example by a small child in play, the child grips the handle 13a of the drill and operates the switch 41 to the "on" position as shown in Figure 2, whereupon motor 37 will be energized to rotate the motor shaft 36 and thereby through gears 34 and 35 rotate shaft 30. Rotation of shaft 30 through frictional engagement of the friction wheels 27 and 26 on the shaft 30 and on drill shaft 15, respectively, is effective to rotate the drill shaft. The child, by applying downward pressure on handle 13a, while the rounded outer end of rotating drill shaft 15 is held against a surface, will cause the drill shaft to be moved inwardly of the housing, against the action of spring 28, until the rubber cap 50 engages said surface. This inward movement of the drill shaft moves friction wheel 26 out of driving engagement with the friction wheel 27 as shown in chain-dotted lines in Figure 2, and hence rotation of the drill shaft is also stopped. This action provides an illusion that the drill shaft has bored a hole into the surface, but in reality no damage is done thereto. Upon lifting the rotary drill 10 from said surface the spring 28 is effective to move drill shaft 15 outwardly toward reengagement of wheel 26 with wheel 27, to start rotation of the drill shaft once more.

While the invention has been described as employing a battery-operated motor or driving means, it is clear that a spring-wound mechanism may be substituted without material changes in the inventive concept.

Other modifications of the invention may be resorted to without departing from the spirit thereof or the scope of the appended claims.

What is claimed is:

1. A toy simulated portable power tool, comprising a housing having an apertured portion, bearing means in said housing, a stem journaled in said bearing means and being axially shiftable with respect thereto, said stem having an extension simulating a rotary implement, spring means normally urging said stem to protruding position through said apertured portion, said ex-

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tension having a smoothly rounded non-cutting outer end, a driven member fixed on said stem within said housing, a driving member in said housing normally held in driving engagement with said driven member by action of said spring means, power means for driving said driving member to drive said driven member and thereby rotate said stem and extension, said driving and driven members being disengageable by pressing said stem extension against a surface yieldingly to shift the stem axially inwardly.

2. A toy simulated portable power tool, comprising a housing having an apertured neck portion, a cap of resilient material secured to said neck portion to protrude freely outwardly of the casing, bearing means in said housing, a stem journaled in said bearing means and being axially shiftable with respect thereto, said stem having an extension simulating a rotary implement received through said apertured neck portion, spring means normally urging said stem to protrude outwardly of said cap from an inward non-protruding position of the extension, said extension having a smoothly rounded non-cutting outer end, a driven member fixed on said stem within said housing, a driving member in said housing normally held in driving engagement with said driven member by action of said spring means, power means for driving said driving member to drive said driven member and thereby rotate said stem and extension, said driving and driven members being disengageable by pressing said stem extension against a surface yieldingly to shift the stem axially inwardly to said non-protruding position of the extension.

3. A toy simulated portable power tool, comprising a housing having an apertured portion, bearing means in said housing, a stem journaled in said bearing means and being axially shiftable with respect thereto, said stem having an extension simulating a rotary implement, spring means normally urging said stem to protruding position through said apertured portion, said extension having a smoothly rounded non-cutting outer end, a driven member fixed on said stem within said housing, a driving member in said

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housing normally held in driving engagement with said driven member by action of said spring means, power means for driving said driving member to drive said driven member and thereby rotate said stem and extension, said driving and driven members being disengageable by pressing said stem extension against a surface yieldingly to shift the stem axially inwardly, said driving member being a friction wheel, said driven member being a friction wheel on said stem and axially shiftable therewith from and toward frictional engagement of the friction wheels.

4. A toy simulated portable power tool, comprising a housing having an apertured portion, bearing means in said housing, a stem journaled in said bearing means and being axially shiftable with respect thereto, said stem having an extension simulating a rotary implement, spring means normally urging said stem to protruding position through said apertured portion, said extension having a smoothly rounded non-cutting outer end, a driven member fixed on said stem within said housing, a driving member in said housing normally held in driving engagement with said driven member by action of said spring means, power means for driving said driving member to drive said driven member and thereby rotate said stem and extension, said driving and driven members being disengageable by pressing said stem extension against a surface yieldingly to shift the stem axially inwardly, said driving member being a bevelled friction wheel and said driven member being a friction wheel complementary thereto keyed on said stem and axially shiftable therewith from and toward frictional engagement of the friction wheels.

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The following references are of record in the file of this patent:

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