H. H. DES ROCHES.

TOY.

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1,433,189. Patented Oct. 24, 1922.

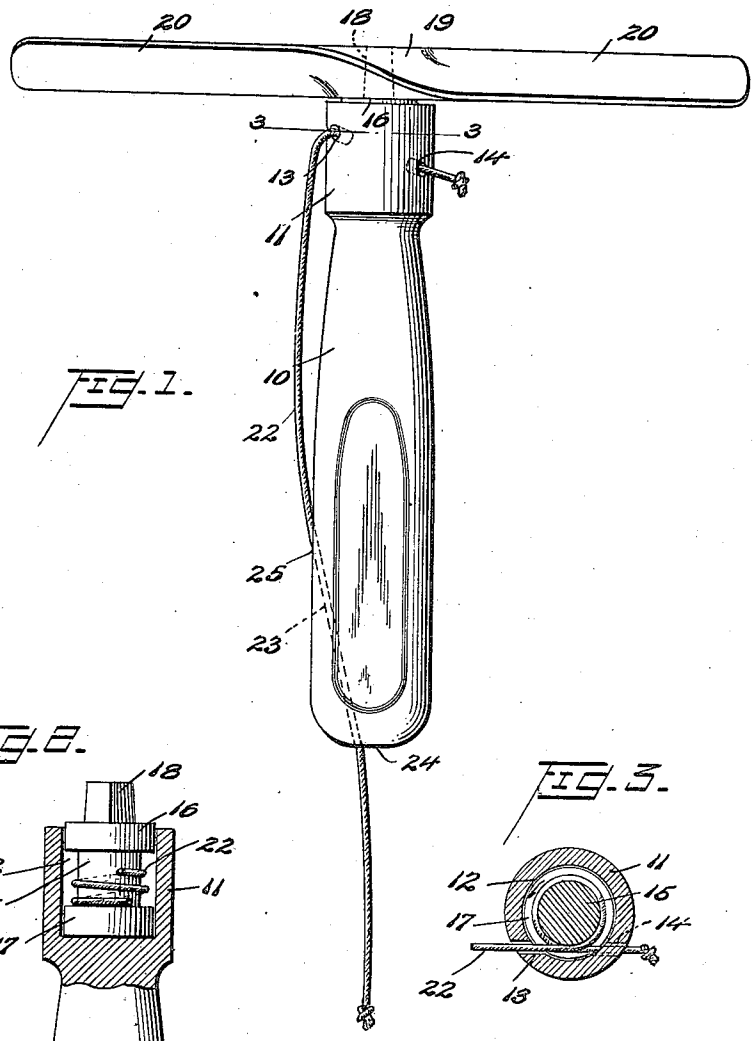
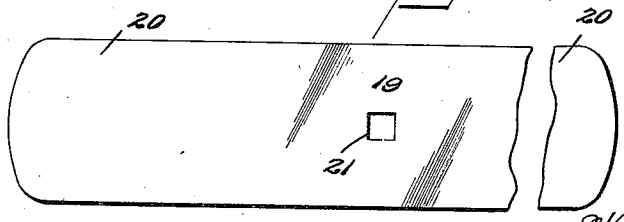


FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.



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Att'ys

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UNITED STATES PATENT OFFICE.

HILTON H. DES ROCHES, OF BUTTE, MONTANA.

TOY.

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To all whom it may concern:

Be it known that I, HILTON H. DES ROCHES, a citizen of the United States, and residing at Butte, in the county of Silver Bow, State of Montana, have invented certain new and useful Improvements in Toys, of which the following is a specification.

This invention relates to a device to furnish amusement and consists in an apparatus in the nature of a toy for causing a part in the shape or form of a propeller or rotary fan to rise from the part held in the hand and to rise for a considerable distance in the air and go in the direction desired. It embodies a structure which is very simple, and easy and inexpensive to make and which operates with certainty and ease and reduces the chances of getting out of order to a minimum. The novel features will be more fully understood from the following description and claims taken with the drawings. In the drawings:

Figure 1 is a side view of the complete device ready for operation;

Figure 2 is a vertical section through the chamber in the handle at the top showing the mechanism therein;

Figure 3 is a cross section on the line 3—3 of Fig. 1 and

Figure 4 is a top view partly broken away of the propeller or flying element.

As shown in the drawings the device includes a handle 10 which may be made of wood or any other suitable material and which is so shaped as to be easily grasped and held in one hand. The upper end 11 is preferably made cylindrical in form and has extending downwardly in it from the top an open top cylindrical chamber 12. Two side openings 13 and 14 are formed in the cylindrical wall of chamber 12 between its ends substantially equal distances above and below a horizontal central or midway plane through the chamber, the opening 13 being above and the opening 14 below. It will be noted that these openings are not formed radially of the chamber but are spaced apart circumferentially less than half of the circumference of the cylinder and that their longitudinal axes are substantially parallel.

A rotary member 15 which may be made of any suitable material has circular end flanges 16 and 17 easily fitting and turning in chamber 12 at its top and bottom and having a circumferential depression or groove between said flanges having a cylindrical connecting portion of less diameter than the chamber. When this rotary member is in place in the chamber the side opening 13 will enter below the upper flange 16 and the side opening 14 will enter above the lower flange 17 and thus enter the space formed by the groove in the rotary member. Formed integrally with or attached to the rotary member 15 centrally of its upper exposed end there is a vertical projection 18 which tapers upwardly and which has a cross section which is angular or some other form which is non-circular. It is shown square in section.

The propeller or flying element 19 has the usual curved wings 20 projecting radially from a central part and may be made of any suitable material. Two wings are sufficient and preferred but it will be understood that the invention is not limited to the use of two. The propeller has a central socket or opening 21 which flares downwardly at an angle corresponding to the taper of the projection 18 and has a corresponding cross section so that it fits closely on the projection 18 by gravity and rotates with it but is easily movable in an upward direction off said support.

A flexible cord or string 22 passes through the side opening 13 and is wound one or more times around the rotary member 15 between its flanges and in the groove therein and then passes out through the side opening 14. The cord thus frictionally engages the rotary member within the chamber and a pull on one end of the cord drawing it through the side openings and chamber will turn the rotary member. The cord is of course made sufficiently long to allow considerable longitudinal movement in one direction in causing the rotation before the other end will reach its limit of movement at its inlet opening. The cord is of course provided at its ends with means to prevent the ends from passing through the openings into the chamber. By reason of the fact that the operating cord leads in from opposite sides guided and positioned by the openings one coil around the rotary member will give all of the frictional engagement necessary. The cord of course causes rotation in opposite directions when pulled from opposite ends and thus in actual use the effective pull to operate the propeller must be always from one side or in one direction. It follows therefore that after each opera-

tion the cord must be given a reverse pull through the device before it is ready for the next operation. It will be understood that when the cord is in proper position the handle 10 is grasped in one hand and held in a substantially upright position. The propeller or flying element is placed in position and the cord is grasped with the other hand and given a quick pull while holding the handle steady and this acting through the rotary member causes the propeller to turn rapidly and by reason of the action of its wings on the air rise rapidly to a considerable height.

In order to place proper tension on cord 22 and secure sufficient frictional engagement with the rotary member, the operator may grasp the free end of that cord hanging down longitudinally of the handle 10 with the hand in which he holds that handle and squeeze or compress it against the handle with sufficient force to cause the amount of frictional resistance to longitudinal movement to get the desired tension. To insure that the free end of the cord is in the right position for this and to make the operation easy and certain, the handle 10 may have in its lower portion a longitudinal opening 23 extending diagonally from the bottom 24 to a point 25 on the side somewhat above the lower end and the cord may pass down through this opening with a part lying along the surface of the handle as shown in dotted lines in Fig. 1. This may also in itself aid in giving the necessary tension.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a device of the class described the combination with a longitudinally extending handle adapted to be grasped and held in one hand having a cylindrical chamber extending inwardly from one end and provided with two circumferentially spaced and longitudinally spaced side openings between its ends, of a rotary member having end flanges fitting in said chamber and being provided on its upper end with a central upwardly tapering projection having a non-circular cross section, a flexible cord passing successively through said side openings and around said rotary member between its flanges and a propeller having a central downwardly flaring socket or opening fitting said upwardly tapering projection on said rotary member.

2. In a device of the class described the combination with a longitudinally extending handle adapted to be grasped and held in one hand having a cylindrical chamber extending inwardly from one end and provided with two substantially parallel side holes spaced circumferentially less than half the circumference but in different horizontal planes spaced substantially equal distances above and below the central horizontal plane of said chamber, a rotary member having end flanges fitting in said chamber, said side holes being between said flanges and having on its upper exposed end a vertically tapering projection angular in cross section, a flexible cord passing successively through said side openings and wound around said rotary member between its end flanges and a propeller having radiating wings and a central downwardly flaring socket or opening angular in cross section fitting said tapering projection on said rotary member.

3. In a device of the class described the combination with a longitudinally extending handle adapted to be grasped and held in one hand having a cylindrical chamber extending inwardly from one end and provided with two circumferentially spaced and longitudinally spaced side openings between its ends, of a rotary member having end flanges fitting in said chamber and being provided on its upper end with a central upwardly tapering projection having a non-circular cross section, a flexible cord passing successively through said side openings and around said rotary member between its flanges and a propeller having a central downwardly flaring socket or opening fitting said upwardly tapering projection on said rotary member, the said handle having a hole or passageway for one end of the cord extending from its lower end upwardly at an angle and out at one side to hold the cord in position to be grasped by the hand which holds the handle.

In testimony whereof I affix my signature.

HILTON H. DES ROCHES.