Aug. 5, 1930. R. C. COLWELL 1,772,208

TOP

Filed Nov. 20, 1928 3 Sheets-Sheet 1

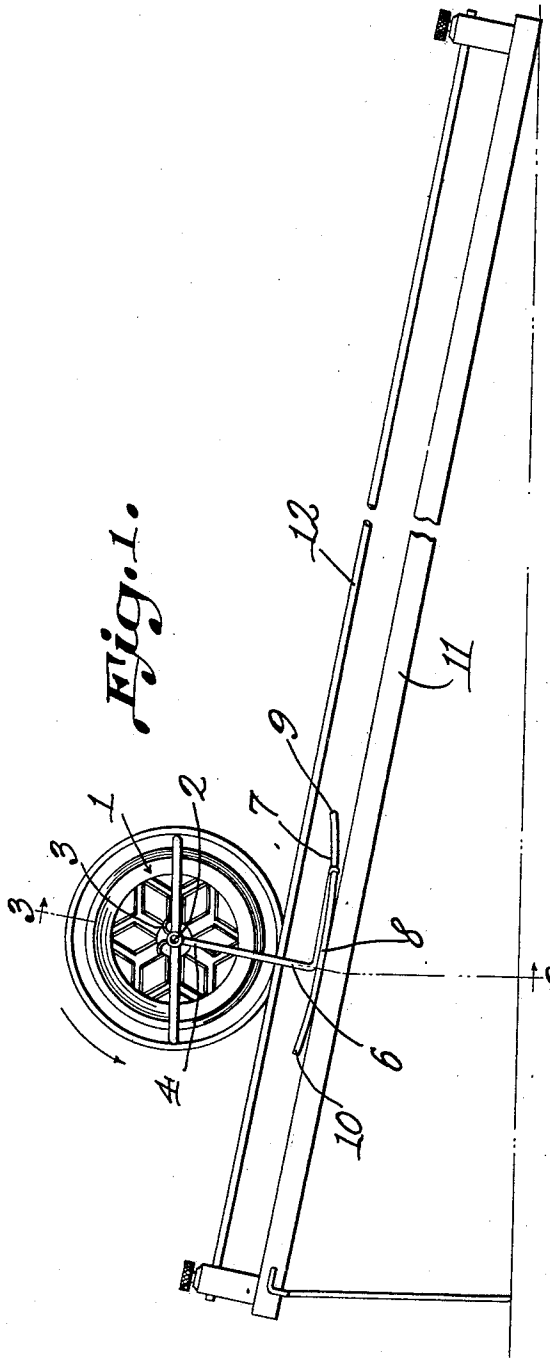


Fig. 1.

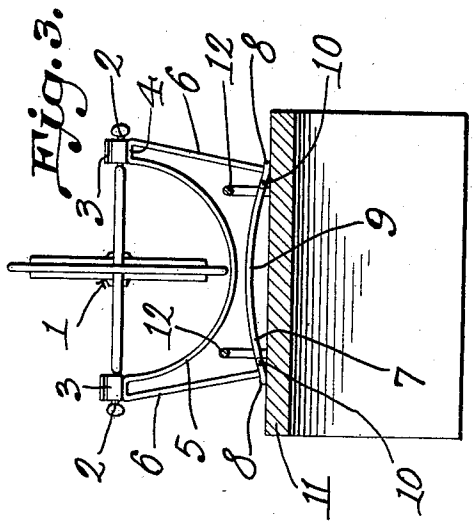


Fig. 3.

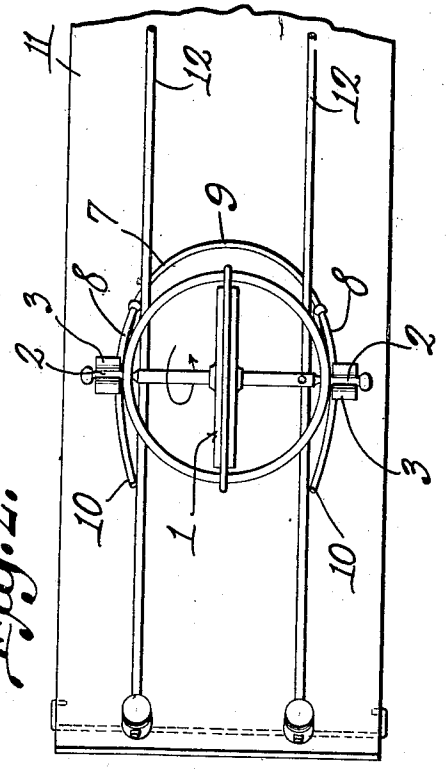


Fig. 2.

Robert C. Colwell Inventor

By C. A. Snow & Co.

Attorneys.

Aug. 5, 1930. R. C. COLWELL 1,772,208

TOP

Filed Nov. 20, 1928 3 Sheets-Sheet 2

Fig. 5.

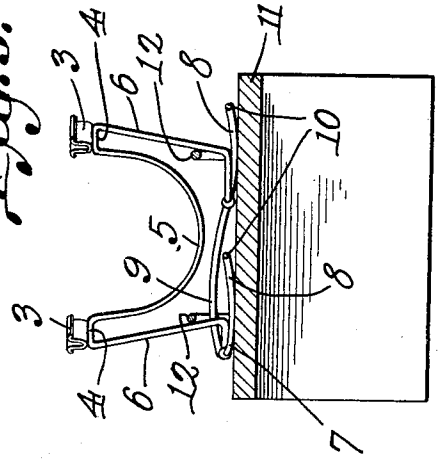


Fig. 7.

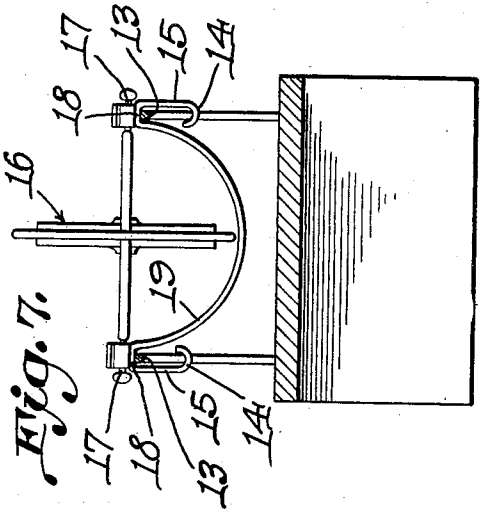


Fig. 4.

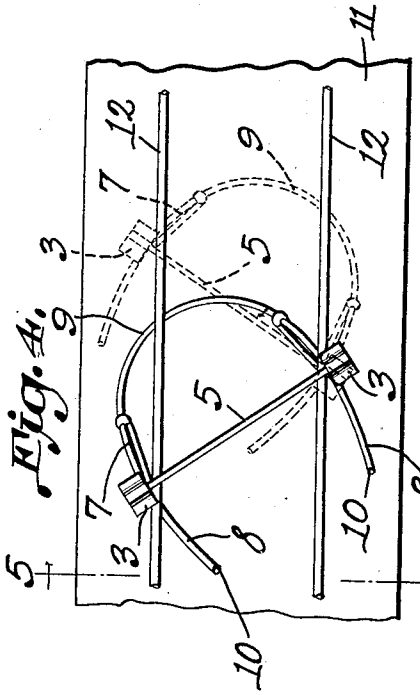
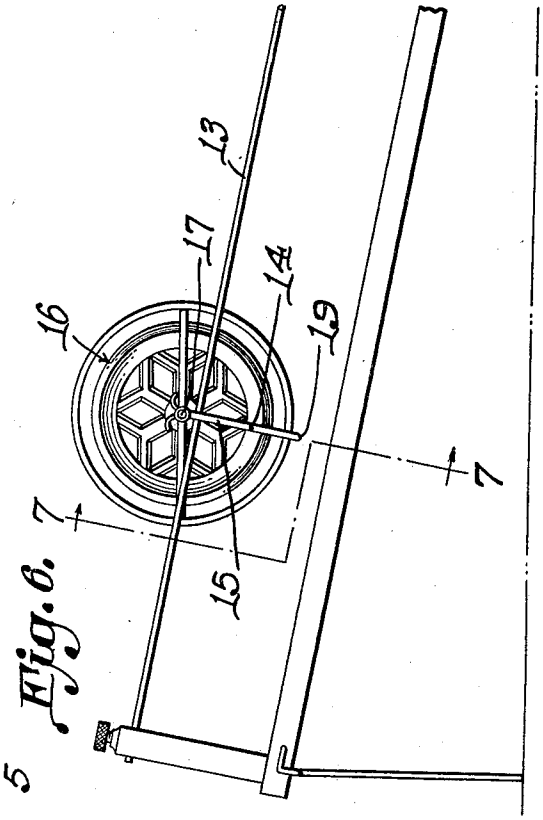


Fig. 6.



Robert C. Colwell Inventor

By Cachow & Co.

Attorneys.

Aug. 5, 1930. R. C. COLWELL 1,772,208

TOP

Filed Nov. 20, 1928 3 Sheets-Sheet 3

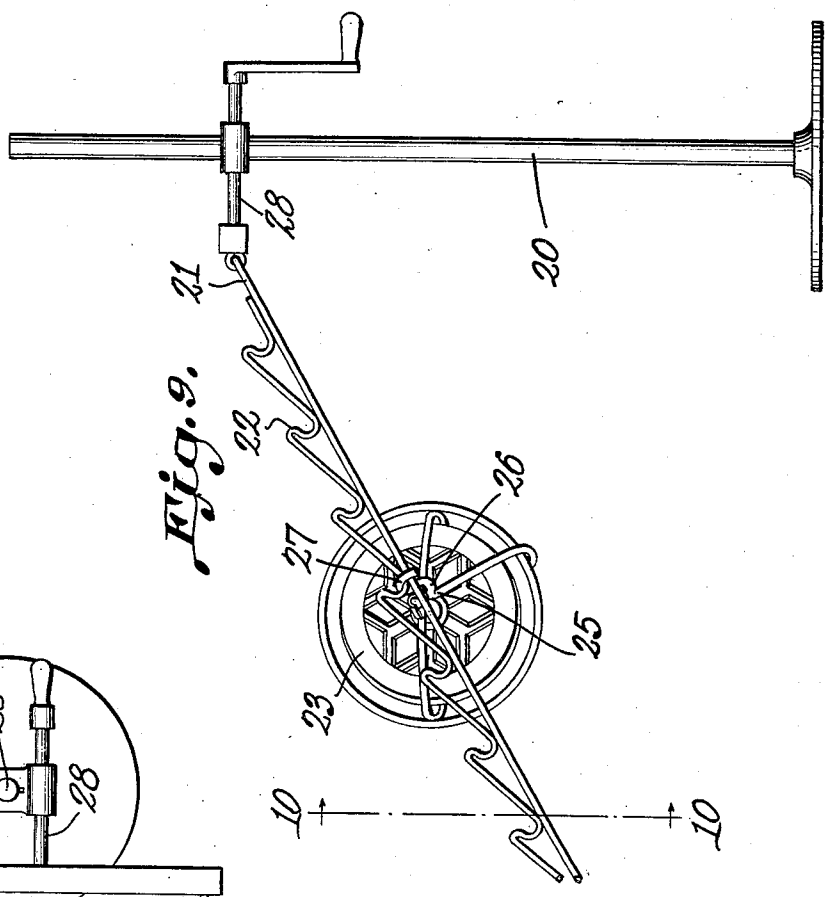


Fig. 9.

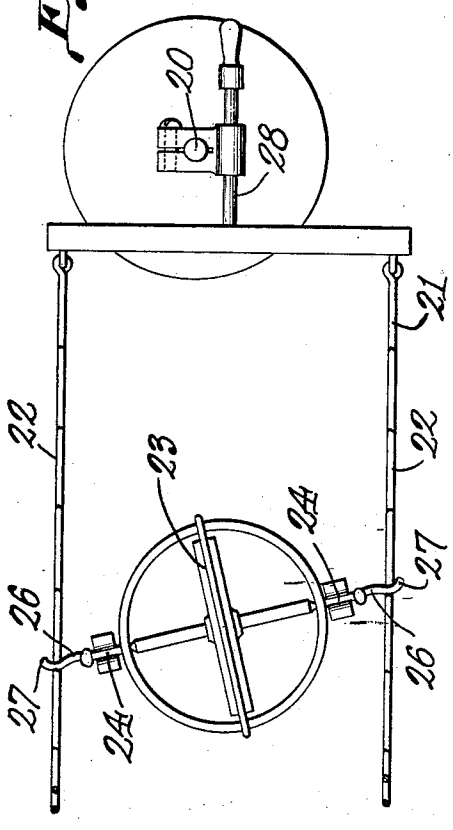


Fig. 8.

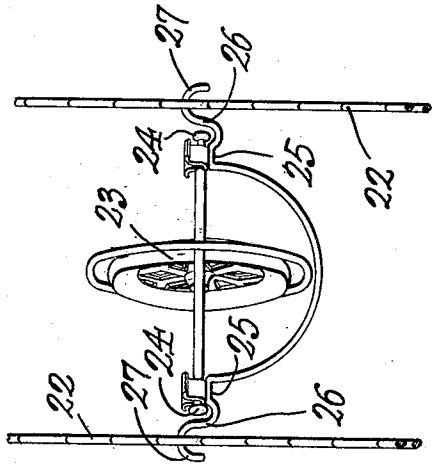


Fig. 10.

Robert C. Colwell Inventor

By Crow & Co.

Attorneys.

Patented Aug. 5, 1930 1,772,208

UNITED STATES PATENT OFFICE

ROBERT CAMERON COLWELL, OF MORGANTOWN, WEST VIRGINIA

TOP

Application filed November 20, 1928. Serial No. 320,638.

This invention relates to a spinning top, one of the objects being to provide a gyroscopic top so mounted that, when actuated, it will move forwardly with a walking action or, if placed on a specially constructed support, will be caused to climb with a step by step movement.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings the preferred forms of the invention have been shown.

In said drawings,

Figure 1 is a side elevation of the top and a support therefor whereby the top can be caused to walk down an inclined board.

Figure 2 is a top plan view of the top and one end portion of the supporting structure.

Figure 3 is a section on line 3—3, Figure 1.

Figure 4 is a plan view of the top frame and a portion of its supporting structure showing two positions during the walking operation, one extreme position being indicated by full lines and the other extreme position being indicated by broken lines.

Figure 5 is a section on line 5—5, Figure 4.

Figure 6 is a side elevation similar to Figure 1 but showing a modified structure whereby the top can be caused to walk along parallel wires.

Figure 7 is a section on line 7—7, Figure 6.

Figure 8 is a top plan view of another modified form of the device whereby the top can be caused to climb upwardly along a special ladder provided for that purpose.

Figure 9 is a side elevation of the structure shown in Figure 8.

Figure 10 is a section on line 10—10, Figure 9, the distant portions of the structure being removed.

Referring to the figures by characters of reference, 1 designates a gyroscope top the trunnions 2 of which can be detachably mounted in clips 3 or can be otherwise held for rotation on a frame 4 including an intermediate downwardly bowed portion 5 into which the gyroscope projects, and side standards 6. These standards are fixedly connected to opposite sides of an arcuate shoe 7 having its side portions oppositely bowed as at 8, this shoe with its side portions being formed preferably of a length of wire and being slightly curved from its front or toe portion 9 to its rear terminals 10 so as to form a rocker as shown particularly in Figure 1.

In the structure illustrated in Figures 1 to 5 inclusive the shoe 7 is adapted to rest upon an inclined board 11 above which are supported parallel wires or rods 12 that extend between the standards 6 and between the shoe 7 and the bowed or offset portion 5 of the frame 4.

The gyroscopic top is adapted to be spun by means of a cord in the usual way so as to rotate in the direction indicated by the arrows in Figures 1 and 2. As the top structure is supported on the inclined board 10, the rapidly spinning top will move forwardly and downwardly by precession. In other words one of the standards 6 will frictionally engage the outer side portion of one of the wires or rods 12 and while thus held by friction the other standard 6 will be swung forwardly and laterally, the curved toe 9 of the shoe at this time riding along the bottom faces of the rods until the advancing standard comes against one of the rods at which time the other standard 6 will be swung forwardly and laterally. Two of these extreme positions assumed successively by the top supporting structure have been indicated by full and dotted lines in Figure 4. As a result of this action the top will travel downwardly along the board 11 with a walking action.

Instead of mounting the top on an inclined board, it can be caused to travel along two parallel wires or rods such as indicated at 13 in Figures 6 and 7. In this modified structure the shoe 7 is dispensed with and in lieu thereof two separate shoes 14 in the form of hooks are provided at the lower ends of standards 15, these hooks being arranged

beneath the wires. Thus when one of the standards 15 frictionally engages the outer portion of one of the wires 13 the top will swing forwardly and laterally on account of precession until the other standard 13 or its shoe 14 comes into contact with the other wire or rod whereupon the swinging action of the top will be reversed. Obviously this will likewise produce a walking action of the top downwardly along the supporting wires or rods. In Figures 6 and 7 the gyroscopic top has been indicated at 16 and its trunnions 17 are shown mounted on a frame 18 including an arcuate intermediate portion 19 similar to that shown at 5.

As a gyroscopic top in its precession naturally moves forwardly and upwardly, it has been found that a modification of this device can be employed whereby the top will be caused to travel upwardly along a specially designed ladder. In Figures 8, 9, and 10 this modified arrangement has been illustrated. It includes a suitable standard 20 supporting one end of a frame 21 of wire or the like and on each side of this frame, which is supported in an inclined position, are formed hook-like steps 22 that can be made by bending a length of wire and fastening it to a side of the frame 21.

The gyroscopic top 23 has its trunnions 24 mounted on a frame 25 and extended in opposite directions from this frame are short standards 26 each of which has an inverted hook-like shoe 27 extending therefrom. Thus when the top is given a spinning action and the frame 25 is rocked laterally by the crank 28 or other means, the shoe 27 will be caused to move upwardly successively so as to engage the steps 22 provided therefor and in this way the top structure will move up the ladder-like support with a walking motion.

What is claimed is:

1. The combination with an inclined support including parallel spaced members, of a gyroscopic top therebetween having its axis of rotation extended across said members, support engaging means movable with the top by precession for engaging the spaced members of the support successively thereby to cause the top to travel along the support with a walking motion.

2. The combination with an inclined supporting structure including parallel members, of a gyroscopic top carried by said structure, and separate means movable by precession with the top for successively engaging the respective members of the supporting structure thereby to swing the top forwardly and laterally in opposite directions successively to impart a walking motion to the top.

3. The combination with a supporting structure including spaced parallel inclined members, of a gyroscopic top, a frame movable with the top, shoes connected to opposed portions of the frame for engagement with the respective members of the supporting structure, said shoes cooperating with the said members to move the top along the inclined members with a walking motion due to precession and to successive engagement of the shoes with the respective members.

4. The combination with an inclined supporting structure including parallel spaced members, of a gyroscopic top therebetween having its axis of rotation extended across said members, and means operated by the top and cooperating with said members for moving the top along the members with a walking motion.

5. The combination with a supporting structure including spaced parallel members inclined in the direction of their length, of a gyroscopic top, a frame movable with the top, shoes connected to opposed portions of the frame for engagement with the respective members of the supporting structure, said shoes cooperating with the said members to move the top along the inclined members with a walking motion due to precession and to successive engagement of the shoes with the respective members, the said spaced members including steps for engagement by the shoes.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

ROBERT CAMERON COLWELL.