April 23, 1940. W. J. FLETCHER 2,197,976

EDUCATIONAL TOY

Filed March 17, 1939

Fig. 1

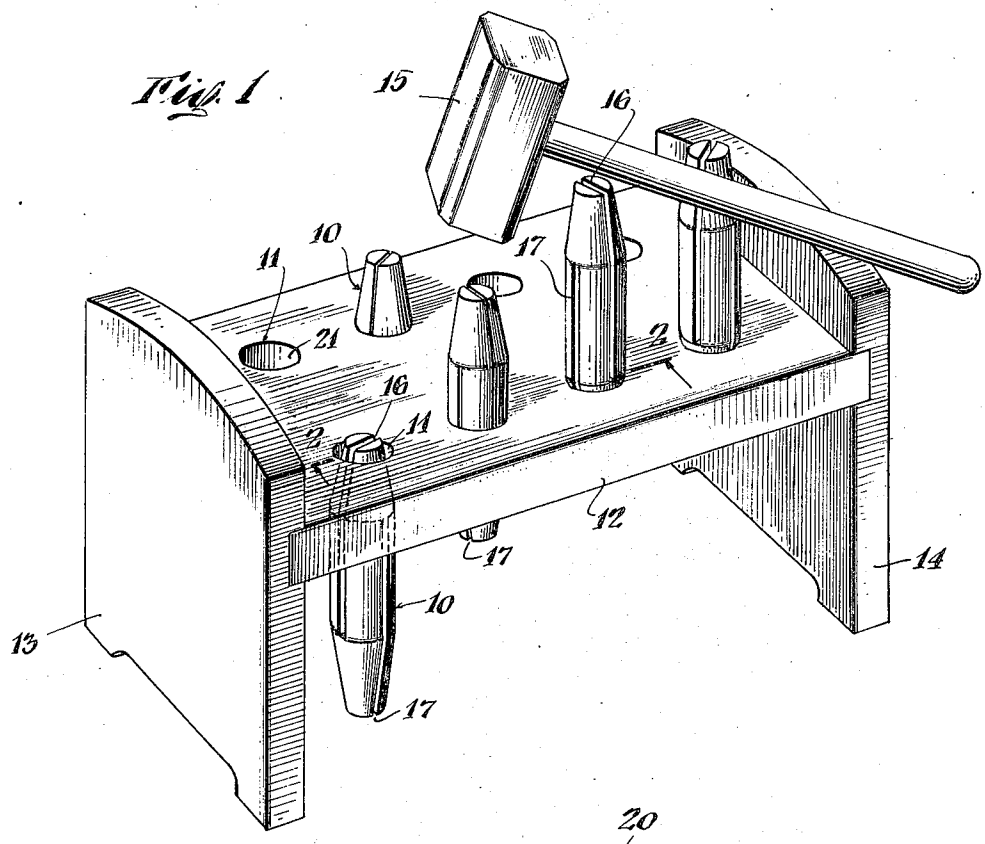
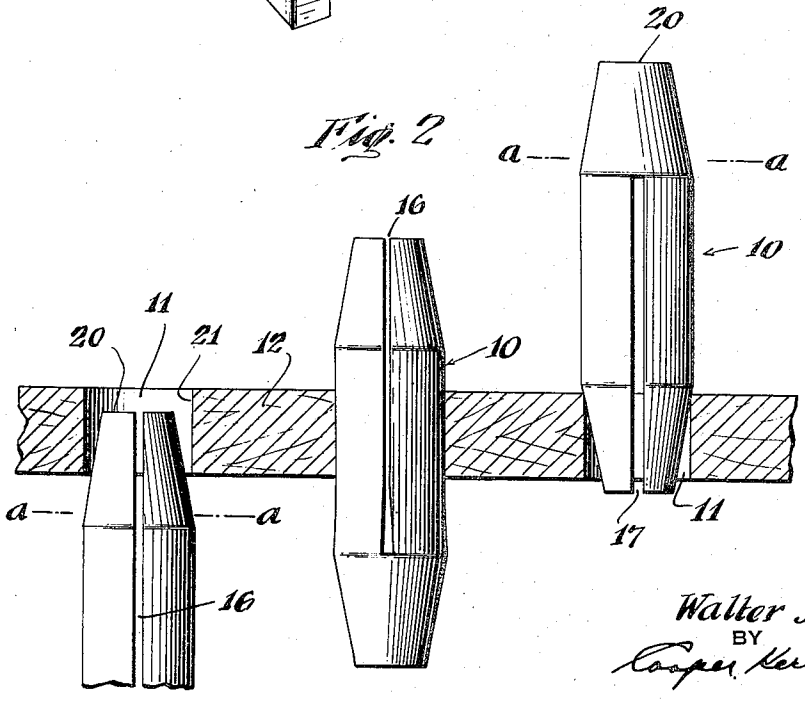


Fig. 2



INVENTOR

Walter J. Fletcher

BY

Cooper, Kerr & Dunham

ATTORNEYS

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EDUCATIONAL TOY

Walter J. Fletcher, Albany, N. Y., assignor to The Embossing Company, Albany, N. Y., a corporation of New York

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1 Claim. (Cl. 35—29)

This invention relates to educational toys of the kind designed to develop coordination between the mental and physical faculties of children while providing amusement. The toy comprises in general a board having apertures for which pegs are provided. The pegs are designed to be driven through the apertures in which they fit fairly tightly. A mallet is provided for accomplishing this and a child may hammer away at will upon a peg and gradually advance it through its aperture.

It has been a common practice to provide cylindrical pegs cut from dowel rods at right angles to the axis of the rods. The apertures in the board are plain cylindrical holes so that a peg is always held in the board so long as any portion of it extends within an aperture. With such construction, the upper end of the peg can not be struck with a mallet after it has passed into its aperture. Without the intermediary of a drift pin or another peg, the peg cannot be removed from engagement with the board without pulling the peg from its aperture. It is the object of the present invention to provide a toy of this nature having such construction as to enable the complete removal of a peg by hammer blows delivered directly upon the uppermost end of the peg. This I accomplish by the relieving of the tight fit between the peg and the aperture so as to release frictional attachment therebetween at or just prior to the advance of the peg to a position in which its uppermost end is flush with the upper surface of the board.

Another object of the invention is to provide a peg board and peg construction which, while retaining all of its qualities having to do with teaching physical and mental coordination, provides further amusement and attraction because of the capability of knocking the pegs through the board as the successful culmination of a continuous series of blows.

Other objects and advantages will appear hereinafter from the description and drawing.

In the drawing,

Fig. 1 is a perspective view of the toy.

Fig. 2 is a section on line 2—2.

I have illustrated my invention in conjunction with a board having eight apertures arranged in series of twos and fours, but it is to be understood that my invention is not limited to the number of apertures and pegs utilized or to their arrangement. In toys designed for promoting coordination between the physical and mental faculties in children, the pegs may be of different colors and the pegs and apertures may be of different sizes so that the pegs of any one size will be engageable only with apertures of corresponding size. So far as the present invention is concerned, the number of pegs, their colors and the size of the pegs and apertures are all discretionary factors which may be availed of, depending upon the attraction qualities desired or the degree of instruction it is desired to impart. In the toy illustrated, all of the pegs 10 are fashioned to engage with any one of the apertures 11 in the board 12. The board is supported by standards 13 and 14 in a manner to provide enough space beneath the board for permitting the pegs to fall through as they are released from the apertures in the board. The board may be made of wood and should be substantial enough to withstand mallet blows. The apertures may be provided by drilling holes through the board.

Each peg is designed to fit tightly in the holes, but the fit is such as to yield to blows from a mallet 15 in the hand of a child. A convenient manner of constructing the pegs is to cut them from wooden dowel rods. The dowel rods are so chosen that the maximum normal diameter of the pegs will be slightly oversize in respect to the diameter of the holes. In order to augment the natural compression property of the wooden pegs, they may be slotted axially with the slots intersecting the axis of the pegs, but plain unslotted pegs may be used, if desired.

As may be seen in Fig. 1, a slot 16 is cut from one end of the peg, and a slot 17 is cut from the other end of the peg, these slots being at right angles to each other and extending about three-quarters of the length of a peg. The slots provide elasticity which makes allowance for the reduction in girth of a peg which is necessary for its passage through an associated aperture.

In order that a peg may be driven through the board without interruption of the blows being delivered upon it, I have so formed the end of the peg that it will become free from engagement with the wall of an aperture when the peg has been advanced almost through the board. This I accomplish by reducing the diameter of the peg near its end to a degree and for a length sufficient to free the peg from the aperture when its uppermost end has been advanced to a position approximately flush with the uppermost side of the board.

I have found that to taper the ends of the pegs is a convenient way of accomplishing this. The taper or other form of girth reduction should be such that it provides a reduced girth at a distance from the end of the peg which is at least equal to

the thickness of the board or the length of the wall of the aperture which engages the peg. As illustrated in Fig. 2, this reduced girth is in a radial plane located at *a*—*a*. Its axial distance from the end 20 is greater than the length of the wall 21 of the aperture through which the peg has been driven. The result of this construction is that when the peg has been advanced through the aperture until the plane *a*—*a* is just above the under surface of the board, a final hammer blow will dislodge the peg from further frictional engagement with the wall of the aperture. It will then drop of its own accord below the board from which position it is again immediately available for use.

It will be appreciated that the frictional contact between the peg and the wall of an aperture will be less between the large base of the truncated cone and the plane *a*—*a*, but that the large base and plane *a*—*a* may be made to coincide if desired.

It is preferable that both ends of the peg be similarly truncated so that the ends be interchangeable. This has the advantage that the peg may be readily started in an aperture before any hammering is done so that even a one year old child would not be confronted with difficulty in this maneuver. A peg is shown in the starting position at the right-hand side of Fig. 2. In this position the plane *a*—*a* coincides with the uppermost surface of the board. Another advantage of truncating both ends of the peg is that such construction prevents injury to the portion of the peg which engages an aperture. Any burr developed about the boundary of the end surface being hammered cannot extend outward of the boundary sufficiently to impair its introduction into an aperture or its passage therethrough.

What is claimed is:

An educational toy comprising a board having a plurality of holes passing therethrough, a plurality of pegs having portions intermediate their ends which are frictionally engageable within said holes but capable of passage through said holes under influence of force applied to the pegs, said pegs being provided with laterally reduced end-portions beyond the limits of said frictionally engageable intermediate portions and with no lateral dimension thereof as great as the lateral dimension of said intermediate portions, each of said reduced end-portions having a striking surface and a bordering surface non-engageable with the wall of one of said holes when a peg is frictionally held thereby at its intermediate portion, said bordering surface having its dimension axial of the peg greater than the height of the wall of the hole through the board so that the peg will not engage the board and will fall away from the board when its uppermost striking surface is advanced flush to the surface of the board on the entrance side of the hole, and means for supporting said board at sufficient elevation to permit a peg to drop from the board when it has been advanced to a position in which its intermediate frictionally engageable portion is no longer in frictional engagement with the wall of its associated hole and the reduced end portion comes opposite the wall of the hole and frictional restraint upon the free movement of the peg through the hole is relieved.

WALTER J. FLETCHER.