Oct. 28, 1941. I. STEINHARDT 2,261,040

PUZZLE

Filed Oct. 21, 1939

Fig. 1

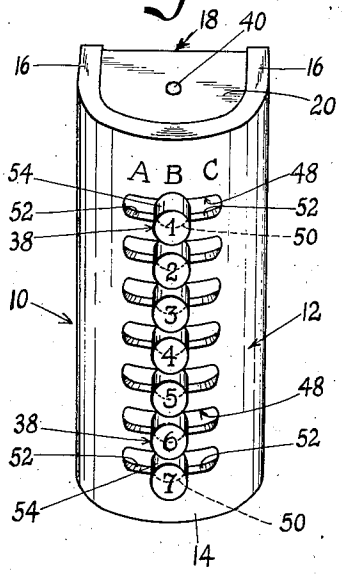


Fig. 2

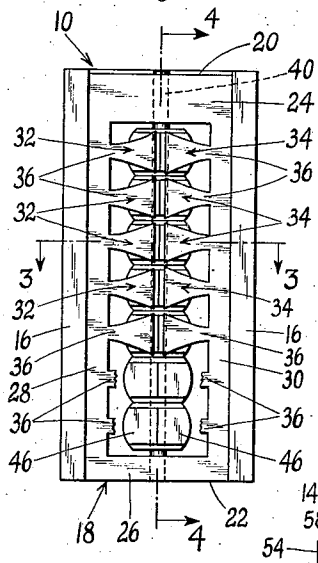


Fig. 3

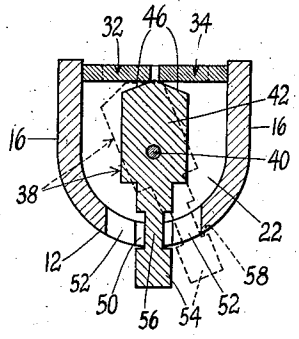


Fig. 4

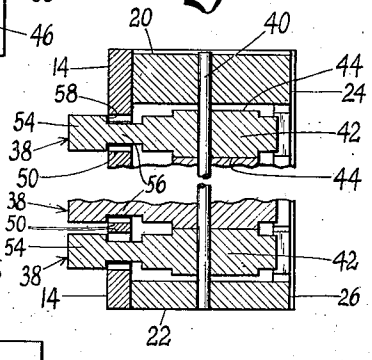


Fig. 5

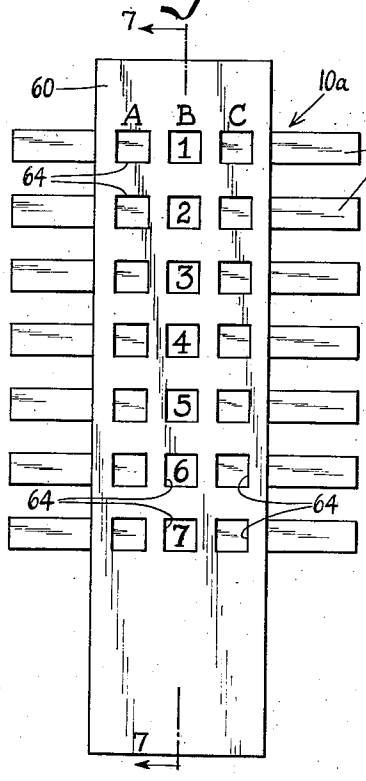


Fig. 6

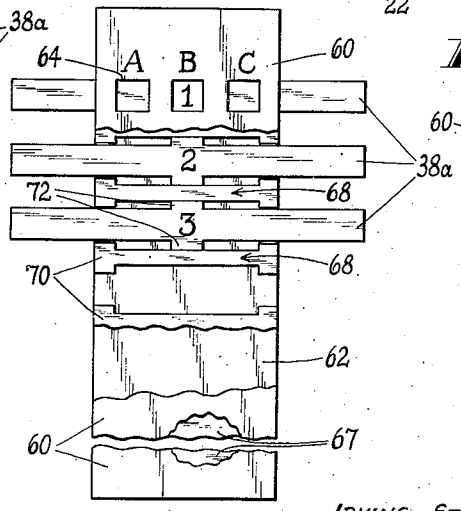
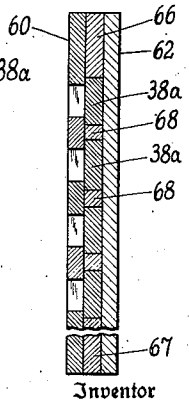


Fig. 7



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2,261,040

PUZZLE

Irving Steinhardt, New York, N. Y.

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8 Claims. (Cl. 273—155)

This invention relates to amusement devices and, more particularly, to puzzles.

One object of the invention is to provide a puzzle comprising a frame and a plurality of movable members mounted in the frame, the construction and organization of the frame and elements being such that the puzzle is of a small size whereby it can be carried about conveniently in a garment pocket or in a purse or handbag.

Another object of the invention is to provide a puzzle in which the parts are in fixed assembled relation, and in which, in working the puzzle, certain of the parts are movable according to predetermined rules for providing a highly interesting device.

A further object of the invention is to provide a puzzle comprising a frame and a plurality of movable members mounted in the frame, the construction and organization of the frame and said elements being simple and inexpensive, and such as to facilitate the manipulation of the several movable members in the frame in working the puzzle.

A further object of the invention is generally to provide a puzzle which is simple in construction, convenient to manipulate, and interesting to work.

The above objects of the invention and other objects which might hereinafter appear will be more fully understood from the following description considered with reference to the accompanying drawing.

In the drawing:

Fig. 1 is a perspective view, on an enlarged scale, of a puzzle embodying the present invention;

Fig. 2 is a rear view in elevation of the puzzle, with parts broken away for illustration purposes;

Fig. 3 is a sectional view on the line 3—3 of Fig. 2;

Fig. 4 is a sectional view on the line 4—4 of Fig. 2;

Fig. 5 is a plan view of a puzzle made in accordance with another form of the invention;

Fig. 6 is a fragmentary plan view of the puzzle shown in Fig. 5, with parts cut away for the purpose of illustration;

Fig. 7 is a sectional view on the line 7—7 of Fig. 5.

Referring to the drawing in detail and first to the form of the invention illustrated in Figs. 1 to 4, the puzzle 10 comprises, as here shown, a frame having a U-shaped member 12 which includes in integral relation the front curved wall 14 and the opposite side walls 16, said member 12 being preferably U-shaped as clearly illustrated in Figs. 1 and 3. The other part 18 of the frame fits into U-shaped member 12, and has opposite end walls 20 and 22 which close the ends of U-shaped member 12, said end walls 20 and 22 conforming in size and shape to the curvature of the inner surface of U-shaped member 12. Frame member 18 has a rear wall integral with end members 20 and 22. Said rear wall is constituted by the outer portions 24 and 26 of end walls 20 and 22, respectively, and by opposite longitudinally extending side portions 28 and 30, and said rear wall also includes a plurality of pairs of confronting projections 32 and 34 extending from parts 28 and 30 of the frame, respectively. Members 32 and 34 are somewhat resilient and for this purpose are of dovetail shape to provide the narrow portions 36 at the juncture of said members with side portions 28 and 30, respectively, of frame member 18. It will be observed that there are a plurality of pairs of members 32 and 34 disposed in spaced relation longitudinally of frame member 18 and that the confronting edges of members 32 and 34 are spaced a short distance from each other transversely of a longitudinal median line. Frame members 12 and 18 may be made of any suitable material, "Bakelite" or the like being preferred.

A plurality of movable members 38, also preferably formed of "Bakelite", are pivotally mounted in the frame in side by side relation on a metal pivot pin 40 extending longitudinally of the frame and fixed at its ends in the end walls 20 and 22 of frame member 18. Each movable member 38 comprises an apertured body portion 42 journalled for pivotal movement on pin 40. The opposite sides 44 of each body portion 42 are flat and the free end of said body portions is defined by flat converging surfaces 46 which meet at a line at the center of said body portion in the direction of pin 40. When members 38 are positioned centrally of front wall 14 in the slots 48 thereof, which will be hereinafter described more specifically, the outer ends of the body portion 42 of said pins are engaged by the confronting edge portions of members 32, 34 for holding the pins in said position. When the pins 38 are moved to the left or to the right on pivot pin 40, the end surface portions 46 are engaged by the inner surfaces of projections 32, 34 for holding said members releasably in said positions, respectively. The slots 48 in front wall 14 of frame member 12 extend transversely of said front wall and are disposed in spaced relation longitudinally of the frame. A central portion 50 of each slot 48 is somewhat wider than the side portions 52 of

each slot 48. Slot portions 50 are of about the same size as projecting head portions 54 of members 38 which extend through slots 48, so that said head portions can be pushed through said portions 50. Thus, the enlarged slot portions 50 permit frame member 18 with the movable members 38 mounted thereon to be assembled as a unit with frame member 12. Separation of frame member 18 from frame member 12 can be prevented in any suitable way, but ordinarily no additional securing means is necessary as the projecting head portions 54 of movable members 38 are so nearly of the same size as enlarged portions 50 of slots 48 as to prevent unintended movement of the frame member 18 out of frame member 12. Members 38 each has a reduced neck portion 56 which is movable in the narrower portions 52 of a companion slot 48. The portion of wall 14 which is provided with slot 48 is preferably arcuate to permit the pivotal movement of members 38 with a preferred sliding engagement of the inner or shouldered ends 58 of said members with the outer surface of wall 14.

Wall 14 of frame member 12 has longitudinally extending zones indicated by the reference letters A, B and C, said zones being disposed in laterally spaced relation on wall 14. Each zone has a plurality of laterally spaced stations in the paths defined by slots 48 for the projecting portions 54 of pivoted members 38, one station being at the center of each slot 48 defined by the enlarged portion 50 thereof and the other two stations being at the opposite ends of the same slot. Thus, for example, referring to Fig. 1, each member 38 is movable from its central station in zone B to two other stations at the ends of the companion slots in zones A and C, respectively. Said movable members 38 have arbitrary relative values assigned thereto. As here shown, said members 38 are numbered consecutively from 1 to 7 indicating that member 38 which has the assigned arbitrary highest value of 1 is superior to each of the other movable members, while the member which is numbered 7 has the lowest value in relation to the other movable members.

In working the puzzle, the object is to move members 38 one at a time from their respective stations in one zone to their respective stations in another predetermined zone, without moving a member of one value into or out of a zone occupied by a member of another predetermined relative value, although it is permissible for the members to be moved through a zone even though any station in the latter is occupied by a member of such other relative value. Thus, for example, assuming that all of the movable members are in zone B, the object of the puzzle is to move all of members 38 into zone A or into zone C, as may be pre-selected, so that all of said members are positoned in said pre-selected zone, and this must be done in compliance with the rule that a member of one arbitrary value cannot be moved into or out of a zone occupied by a member of another predetermined relative value. For example, with members 38 positioned as illustrated in Fig. 1, none of the members 38 of lower value than member 38 having the assigned highest value of one can be moved out of zone B, but this can be done if member 38 having the highest value 1 assigned thereto is first moved either into zone A or into zone C. If said last mentioned member is moved into zone A, none of the other members can be moved into said zone. Accordingly, it is necessary in accordance with the rules for working this puzzle to move member 38 of the value 1 into zone C. As zones A and C are now occupied by members 38 each of a higher value than member 38 of value 3, it is necessary to move member 38 of value 1 into zone C in order that member 38 of value 3 can be moved into zone A. This method of manipulating the movable members from their stations in the several zones is continued until all of said members are moved in compliance with the rules for working the puzzle into one predetermined zone. It will be understood that the rule can be changed to provide that the members of higher value cannot be moved into or out of a zone occupied by a member of lower value instead of the requirement that members of lower value cannot be moved into or out of a zone occupied by a member of higher relative value. As hereinbefore stated, any of the members can be moved through zone B even though said zone is occupied by members of higher value, assuming the first mentioned rule is adopted, or even though said zone is occupied by members of lower value, assuming the last mentioned rule is adopted. Thus, for example, if any of the movable members except the member of highest value is in zone B, any of said movable members of lower value can be moved from zone A to zone C or vice versa as the case may be, passing through zone B, but said members of lower value could not be stationed in zone B as long as said zone is occupied by a member of higher value. The number of movable members in relation to the number of zones is such that all of said movable members can be moved one at a time from one predetermined zone to another predetermined zone without moving a member of one value into or out of a zone occupied by a member of another predetermined relative value, and, preferably, in order to avoid a too simple solution of the puzzle, the number of movable members is at least as large as the number of zones. It will be observed that the movable members are independently movable in the frame from one zone to another in fixed paths.

Referring now to the form of the invention illustrated in Figs. 5 to 7 of the drawings, it will be understood that while the construction of the puzzle 10*a*, as here shown, is different from the construction of puzzle 10 illustrated in Figs. 1 to 4, the principle on which the puzzle is based is the same in respect to both forms. The frame of puzzle 10*a* as well as the movable members are formed of suitable sheet material such as cardboard. The frame comprises a front member 60 and a back member 62 between which the movable members 38*a*, which correspond to the members 38 of puzzle 10, are movable from their stations in the several zones A, B and C. Frame member 60 is provided with a plurality of aligned station openings 64 extending longitudinally of the frame in spaced relation in each of zones A, B and C, and movable members 38*a* each carries a number, visible through said openings, indicating the arbitrary value assigned thereto. Frame members 60 and 62 are secured to each other in spaced overlying relation by end spacing members 66 and 67 and by spacing members 68 disposed in spaced relation longitudinally of the frame and provided with enlarged end portions 70 which are engaged by the intermediate lateral projections 72 on each movable member 38*a*, thereby constituting stops to limit the movement of members 38*a* in the slots

formed by frame members 60 and 62 and spacing members 68.

While I have shown and described the preferred forms of the invention, it will be understood that the invention may be embodied in other forms as well, and that in the constructions herein shown or described certain changes may be made. Therefore, I do not wish to be limited to the invention as herein shown or described except as may be required by the scope of the appended claims.

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

1. A puzzle comprising a frame having a plurality of zones disposed laterally of each other and extending longitudinally of the frame, each of said zones having a plurality of stations defined by openings in the frame, said station-openings in each of the zones being spaced from each other longitudinally of the frame, and a plurality of members pivotally mounted in said frame for movement transversely of said zones at said station-openings, there being a station-opening in each zone for each of said members, said movable members having arbitrary relative values, the number of said movable members in relation to the number of zones being such that all of said movable members can be moved one at a time from their respective stations in one zone to their respective stations in another zone without moving a member of one value into or out of a station in a zone having a station thereof occupied by a member of another predetermined relative value, the number of said movable members being at least as large as the number of zones.

2. A puzzle comprising a frame having a plurality of zones disposed laterally of each other and extending longitudinally of the frame, each of said zones having a plurality of stations defined by openings in the frame, said station-openings in each of the zones being spaced from each other longitudinally of the frame, and a plurality of members mounted in said frame for movement transversely of said zones at said station-openings, there being a station-opening in each zone for each of said members, said members projecting through said station-openings, respectively, in a direction transversely of the direction of movement of said members from the inside of the frame to the outside thereof for providing finger pieces for manipulation of said member by the user of the device.

3. A puzzle comprising a frame having a plurality of zones disposed laterally of each other and extending longitudinally of the frame, each of said zones having a plurality of stations defined by openings in the frame, said station-openings in each of the zones being spaced from each other longitudinally of the frame, and a plurality of members pivotally mounted in said frame for movement transversely of said zones at said station-openings, there being a station-opening in each zone for each of said members, said members projecting through said station-openings, respectively, in a direction transversely of the direction of movement of said members from the inside of the frame to the outside thereof for providing finger pieces for manipulation of said member by the user of the device.

4. A puzzle comprising a frame having a front wall provided with a plurality of openings, a plurality of members pivotally mounted in said frame at the rear of said wall and movable longitudinally of said openings, respectively, said members having end portions projecting through said openings in a direction transversely of the direction of movement of said members for providing finger pieces for manipulation of said members by the user of the device, and means on said frame engageable with said members for releasably holding them in stationary position in the frame.

5. A puzzle comprising a frame having a front wall provided with a plurality of openings, a plurality of members pivotally mounted in said frame at the rear of said wall and movable longitudinally of said openings, respectively, said members having end portions projecting through said openings in a direction transversely of the direction of movement of said members for manipulation of said members by the user of the device, said frame having a rear wall spaced from said front wall, and means formed in said rear wall engageable with the ends of said members remote from said front wall for releasably holding them in stationary position in the frame.

6. A puzzle comprising a frame having a front wall, and end walls, said front wall having a plurality of slots disposed in spaced relation between said end walls, a pivot pin mounted in said end walls, and a plurality of members pivotally mounted on said pivot pin and projecting through said slots, respectively, for movement about said pivot pin longitudinally of said slots.

7. A puzzle comprising a frame having a front wall, a rear wall, and end walls, said front wall having a plurality of slots disposed in spaced relation between said end walls, a pivot pin mounted in said end walls, a plurality of members pivotally mounted on said pivot pin and projecting through said slots, respectively, for movement about said pivot pin longitudinally of said slots, and resilient members formed in said rear wall engageable with said pivoted members to hold them releasably in stationary position.

8. A puzzle comprising a frame having a front wall and a rear wall, said front wall having a plurality of openings arranged in laterally spaced groups, the openings in each group being spaced from each other longitudinally of said front wall, movable members between said front and rear walls movable laterally thereof and exposed to view through said openings, said rear wall having a plurality of resilient portions, and said movable members engageable individually at their inner ends with said resilient rear wall portions, respectively, for releasably holding said members in predetermined positions in relation to said openings in said front wall.

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