

Oct. 31, 1939.

I. STEINHARDT

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PUZZLE

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3 Sheets-Sheet 1

Fig. 1.

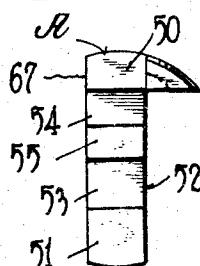


Fig. 2.

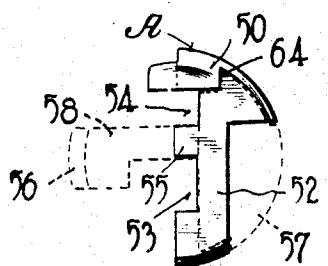


Fig. 3.

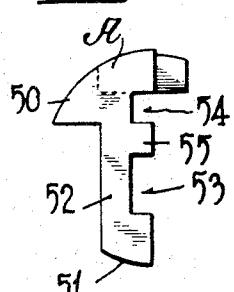


Fig. 4.

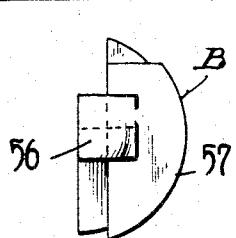


Fig. 5.

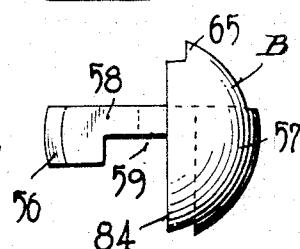


Fig. 6.

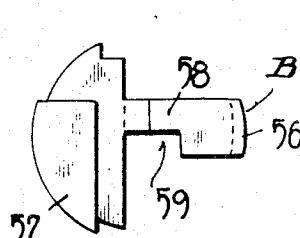


Fig. 7.

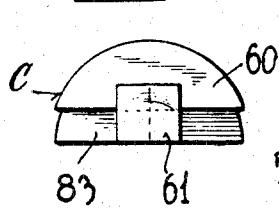


Fig. 8.

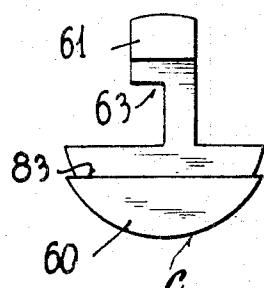


Fig. 9.

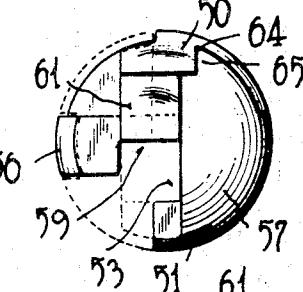


Fig. 10. Fig. 11.

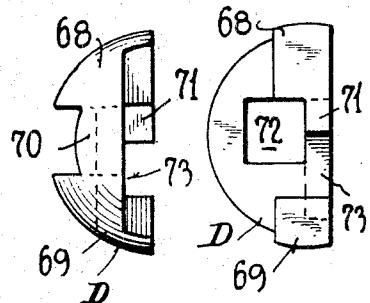


Fig. 9. Irving Steinhardt

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FIG. 14.

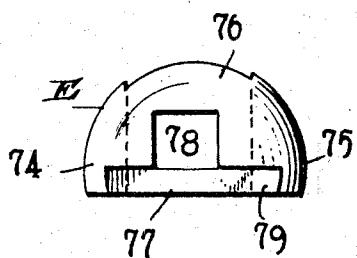


FIG. 15.

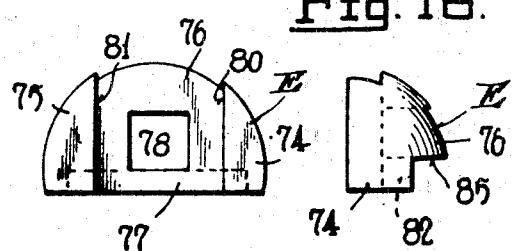


FIG. 16.

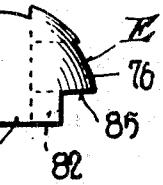


FIG. 17.

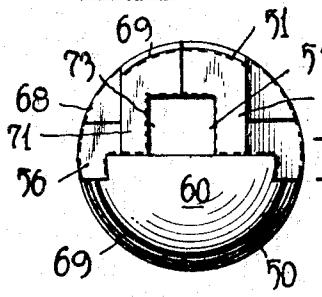


FIG. 20.



FIG. 18.

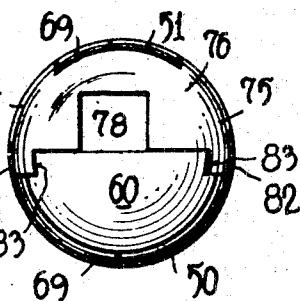


FIG. 21. FIG. 19.

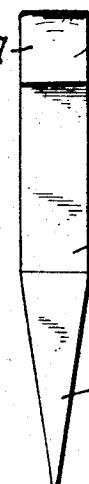
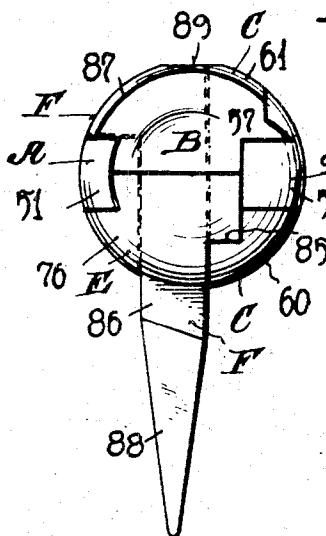


FIG. 22.

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FIG. 23.

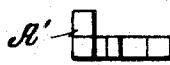


FIG. 25.



FIG. 24.

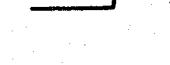


FIG. 29.



FIG. 31.

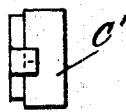
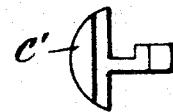


FIG. 30.

FIG. 32.



FIG. 34.

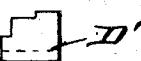


FIG. 33.

FIG. 40.

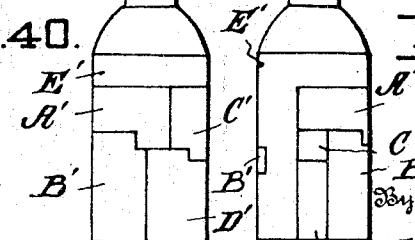


FIG. 41.

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FIG. 26.

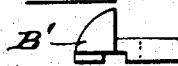


FIG. 28.



FIG. 27.



FIG. 35.

FIG. 36.

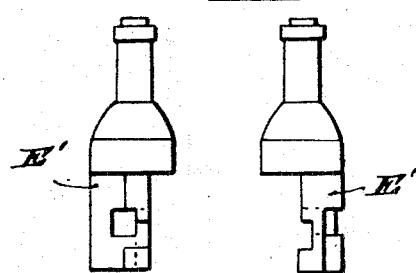


FIG. 37.

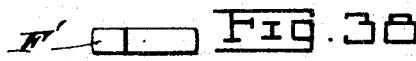


FIG. 38.



FIG. 39.

## UNITED STATES PATENT OFFICE

2,178,190

## PUZZLE

Irving Steinhardt, New York, N. Y.

Application March 2, 1939, Serial No. 259,455

3 Claims. (Cl. 273—160)

The puzzle consists of a plurality of pieces each specially formed so that they interlock and may be assembled and disassembled in a special order. The form of each piece may seem arbitrary and the pieces when assembled may have a unitary, distinctive outer appearance. The outer appearance may be varied without altering the inner interlocking construction of the pieces. The puzzle consists of six pieces each definitely formed and arranged to be assembled and interlocked in a special order, the final piece when inserted acting as a lock to hold all the pieces in place.

Figures 1, 2 and 3 are elevations in different directions of one piece of the puzzle. Figs. 4, 5 and 6 are elevations in different directions of a second piece of the puzzle. Figs. 7, 8 and 9 are elevations in different directions of a third piece of the puzzle. Figs. 10, 11 and 12 are elevations in different directions of a fourth piece of the puzzle. Fig. 13 is an elevation of the assembly formed by joining the piece illustrated in Figs. 1 to 9. Figs. 14, 15 and 16 are elevations in different directions of a fifth piece of the puzzle. Fig. 17 is an elevation of the assembly formed by adding to the assembly of Fig. 13 the piece illustrated in Figs. 10, 11 and 12. Fig. 18 is an elevation of the assembly formed by adding to the assembly in Fig. 17 the pieces illustrated in Figs. 14, 15 and 16. Fig. 19 is an elevation of the assembly of Fig. 18 at the other side. Figs. 20 and 21 are end and side elevations respectively of the sixth piece of the puzzle. Fig. 22 is a side elevation of the assembly formed by uniting all of the six pieces. Figs. 23 to 39 are elevations in different directions of six pieces corresponding to those already illustrated but having different external forms. Figs. 23, 24 and 25 correspond to Figs. 1, 2 and 3; Figs. 26, 27, and 28 correspond to Figs. 4, 5 and 6; Figs. 29, 30 and 31 correspond to Figs. 7, 8 and 9; Figs. 32, 33 and 34 correspond to Figs. 10, 11 and 12; Figs. 35, 36 and 37 correspond to Figs. 14, 15 and 16; Figs. 38 and 39 correspond to Figs. 20 and 21; Figs. 40 and 41 are side elevations in different directions of the assembly formed by adding together the pieces illustrated in Figs. 23 to 39.

In the accompanying drawings are shown a plurality of pieces which may be generally lettered in the order in which they may be assembled. Thus the piece illustrated in Figs. 1, 2 and 3 may be indicated by A generally. The piece illustrated in Figs. 4, 5 and 6 may be indicated generally by B. This piece illustrated in Figs. 7, 8 and 9 may be indicated generally by C. The pieces A, B and C, when assembled, take the

form illustrated in Fig. 13 in which it may be seen that the assembly begins to take the form of a sphere. The piece illustrated in Figs. 10, 11 and 12 may be indicated generally by D. The piece illustrated in Figs. 14, 15 and 16 may be indicated generally by E and the piece illustrated in Figs. 20 and 21 may be indicated generally by F.

The piece A consists of end members 50 and 51 and a central bar 52. In the central bar 52 are provided two sockets 53 and 54 the socket 54 being half as wide as the socket 53. Forming the sockets and between them is a projecting member 55. The second piece B has end members 56 and 57 joined by a central bar 58 provided with a socket 59. The piece C has end members 60 and 61 connected by a central bar 62 which is provided with a large socket 63. The shape, size and appearance of the end members of the various pieces is not essential to the present invention. They may be varied considerably from the specific forms illustrated in the drawings. In Figs. 1 to 22 the end members are so formed that they interlock and form a sphere when the apparatus is entirely assembled as indicated in Fig. 22, there being one portion projecting outwardly from the surface of the sphere.

The member A may be associated with the member B so that as illustrated the socket 64 of the member A will interlock with the projection 65 on the member B. In this position as indicated in dotted lines in Fig. 2 the central bars 52 and 58 will cross each other a portion of the bar 58 registering with the projection 55 of A and interlocking therewith. The central bar 62 of C may then be inserted in the socket 54 of A bringing the end members 60 and 61 of C into register with the end members of A and B so as to form therewith parts of a sphere to be completed. The edge 55 of the socket 63 will engage the central bar 58 of B while the edge 66 of the end member 60 of C will engage the side 67 of the end member 50 of A thus fastening and holding together the three piece assembly. The fourth piece D illustrated in Figs. 10, 11 and 12 has end pieces 68 and 69 which are connected by an external member 70. The piece D also has a central bar 71 between which and the end members is formed a socket or hole 72. The hole 72 may be placed over the end member 56 of B to form an assembly illustrated in Fig. 17 and in such a way that the socket 73 of the bar 71 of D registers with the socket 53 of A to form a square aperture. The fifth piece E illustrated in Figs. 14, 15 and 16 has end pieces 74 and 75 connected together by a surface portion 76 which cooperates with the cen-

tral bar 77 to form an approximately square aperture 78. Through the bar 77 and the end pieces 74 and 75 is a groove 79 formed by walls 80 and 81. The piece E may now be slid into the assembly illustrated in Fig. 17. The walls 80 and 81 of the groove 79 engaging the outer sides of the central bars 82 and 77 so as to hold the pieces assembled. The hole 78 thus registers with the hole formed by the sockets 83 and 78 and forms an extension of the square hole formed by them.

In this position the projecting side 82 of the central bar 77 extends under the end member 88 of C engaging its wall 83 thus holding the parts in assembled position as indicated in Fig. 18. The assembly of the first five pieces illustrated in Fig. 18 is shown as it appears on the other side in Fig. 19. It will be seen on this side that the hole 78 is extended toward the margin by a continuation of the line 84 of the end member 87 of B to the surface of the sphere. Likewise the edge 85 of the connecting portion 78 of the member E forms a registering recess. Thus the apparatus as assembled in Figs. 18 and 19 has through it a hole one end of which is enlarged toward the surface of the sphere, that is toward the bottom as illustrated in Fig. 19. The sixth member F illustrated in Figs. 21 and 22 consists of a central bar 86 which passes through the hole 78 and has a somewhat extended end member 87 resting in and filling the socket between 84 and 85 as illustrated in Fig. 19. The other end of the member F may be tapered and pointed to form a prismatic member 88 which as illustrated extends beyond the surface of the sphere and so tends to give to the finished article the appearance of a sphere and pyramid. It will be noted that when the piece F is in place it locks and holds together all of the pieces of the puzzle.

In order that the device may sit upright it may be desirable to level off a small portion of the end members 87 and 61 as indicated at 89 in Fig. 22 thus forming a flat base on which the assembled puzzle may rest with the end member 88 projecting upwardly.

As stated above the end members of the various pieces may be varied in shape within wide limits. Each or all of the end members illustrated in Figs. 1 to 22 may be enlarged or made smaller or extended so as to otherwise interlock but without changing the shape or appearance of the final assembly illustrated in Fig. 22.

In Figs. 23 to 39 the end members of the pieces have been materially changed so as to form when assembled a figure which may illustrate a bottle as shown in Figs. 40 and 41. The method of assembly of the various pieces shown in Figs. 23 to 39 will be understood from the description already given and it will not be necessary here to describe again in detail the assembly of the various pieces, it being sufficient to state that the piece shown in Figs. 23, 24 and 25 is marked A' to indicate that it corresponds to the piece marked A in Figs. 1, 2 and 3; the piece illustrated in Figs. 26, 27 and 28 is marked B' to indicate that it corresponds to the piece marked B in Figs. 4, 5 and 6; the piece illustrated in Figs. 29, 30 and 31 is marked C' to indicate that it corresponds to the piece marked C in Figs. 7, 8 and 9; the piece illustrated in Figs. 32, 33 and 34 is marked D' to indicate that it corresponds to the piece marked D in Figs. 10, 11 and 12; the piece illustrated in Figs. 35, 36 and 37 is marked E' to indicate that it corresponds to the piece illustrated in Figs. 14, 15 and 16 and marked E; the piece illustrated in Figs. 38 and 39 is marked

F' to indicate that it corresponds with the piece illustrated in Figs. 20 and 21 and marked F. The letters A' to F' are used in Figs. 40 and 41 to indicate the location of the various pieces in the finally assembled puzzle illustrated in Figs. 23 to 39. The puzzle has been illustrated and described for the purpose of explaining its construction and operation and not for the purpose of limiting the invention which may be embodied in other specific forms.

I claim as my invention:

1. In a puzzle comprising six interlocking pieces, a first piece having end members and a central bar having a projection thereon forming, with the end members, two sockets one of which is twice as wide as the other, a second piece having end members and a central bar having a socket on one side into which fits the projection of the first piece so that the bar of the second piece forms a continuation in part of the projection on the first piece, a third piece having end members and a central bar passing through the narrower socket of the first piece and clamping together the first and second pieces, a fourth piece having connected end pieces and a central bar forming a socket therebetween for surrounding and engaging one end of the second piece and a projection engaging an end of the first piece and a half socket registering with the larger socket of the first piece, a fifth piece having connected end pieces and a central bar forming a socket therebetween which forms a continuation of the socket formed by the first and fourth pieces, the bar fitting under a part of an end member of the third piece and provided with projections holding together the socket sections of the first and fourth pieces, and a sixth piece having an end member resting against end members of the first, second, third and fourth pieces and having a central bar passing through the socket formed by the first, fourth and fifth pieces and locking all the pieces together.

2. In a puzzle comprising six interlocking pieces, a first piece having end members and a central bar having a projection thereon forming, with the end members, two sockets one of which is twice as wide as the other, a second piece having end members and a central bar having a socket on one side into which fits the projection of the first piece so that the bar of the second piece forms a continuation in part of the projection on the first piece, a third piece having end members and a central bar passing through the narrower socket of the first piece and clamping together the first and second pieces, a fourth piece having connected end pieces and a central bar forming a socket therebetween for surrounding and engaging one end of the second piece and a projection engaging an end of the first piece and a half socket registering with the larger socket of the first piece, a fifth piece having connected end pieces and a central bar forming a socket therebetween which forms a continuation of the socket formed by the first and fourth pieces and provided with projections holding together the socket sections of the first and fourth pieces, and a sixth piece having a central bar passing through the socket formed by the first, fourth and fifth pieces and locking all the pieces together.

3. In a puzzle comprising six interlocking pieces, a first piece having end members and a central bar having two sockets one of which is larger than the other, a second piece having end members and a central bar having a socket on

one side into which fits a portion of the central bar of the first piece, a third piece having end members and a central bar passing through the narrower socket of the first piece and clamping together the first and second pieces, a fourth piece having connected end pieces and a central bar forming a socket therebetween for surrounding and engaging one end of the second piece and a half socket registering with the larger socket of the first piece, a fifth piece hav-

ing connected end pieces and a central bar forming a socket therebetween which forms a continuation of the socket formed by the first and fourth pieces and provided with projections holding together the socket sections of the first and fourth pieces, and a sixth piece having a central bar passing through the socket formed by the first, fourth and fifth pieces and locking all the pieces together.

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