

June 7, 1955

E. F. CHASE

2,710,242

TABLE WITH ROTATABLE COMPARTMENT

Filed Feb. 20, 1951

2 Sheets-Sheet 1

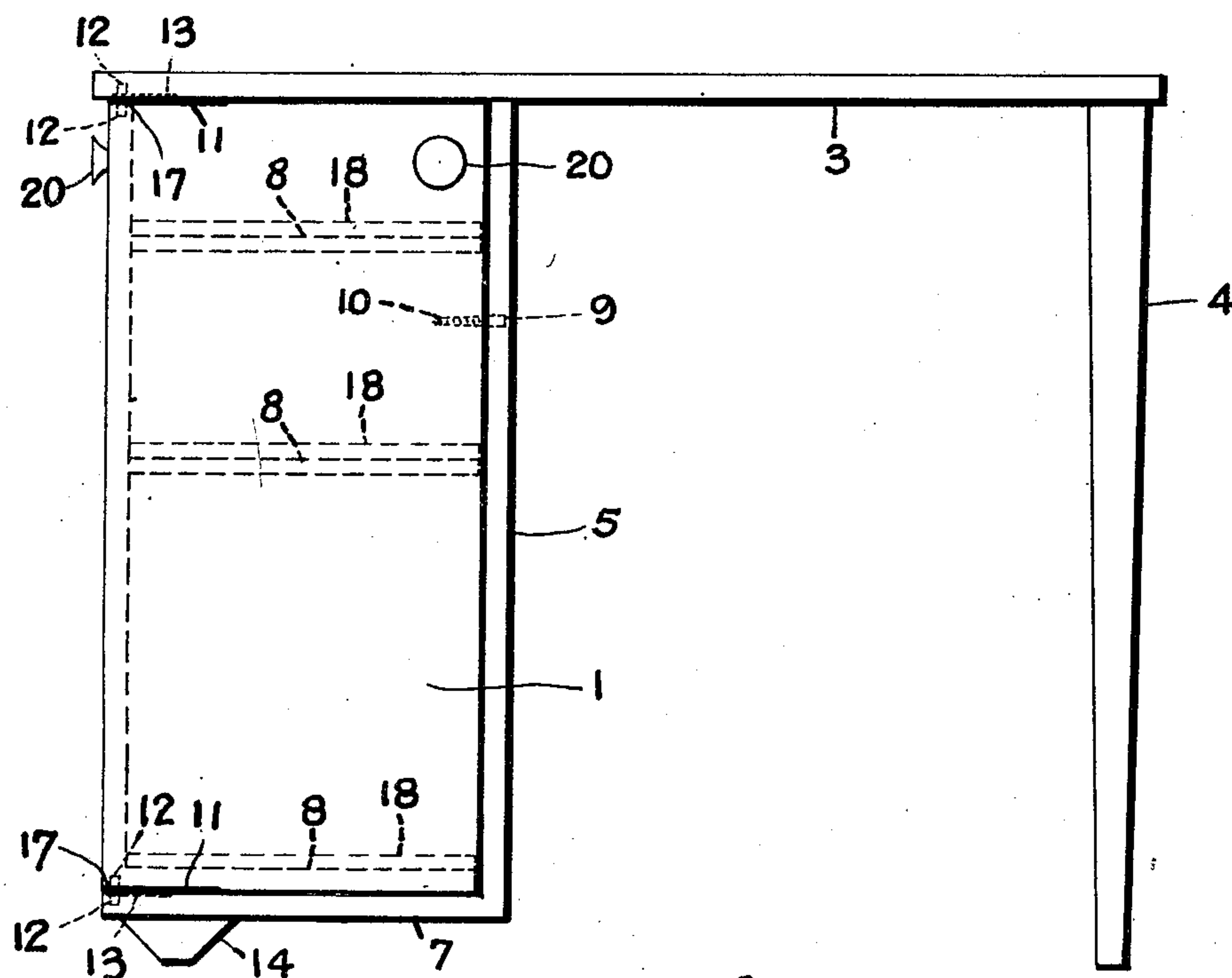


Fig. 1.

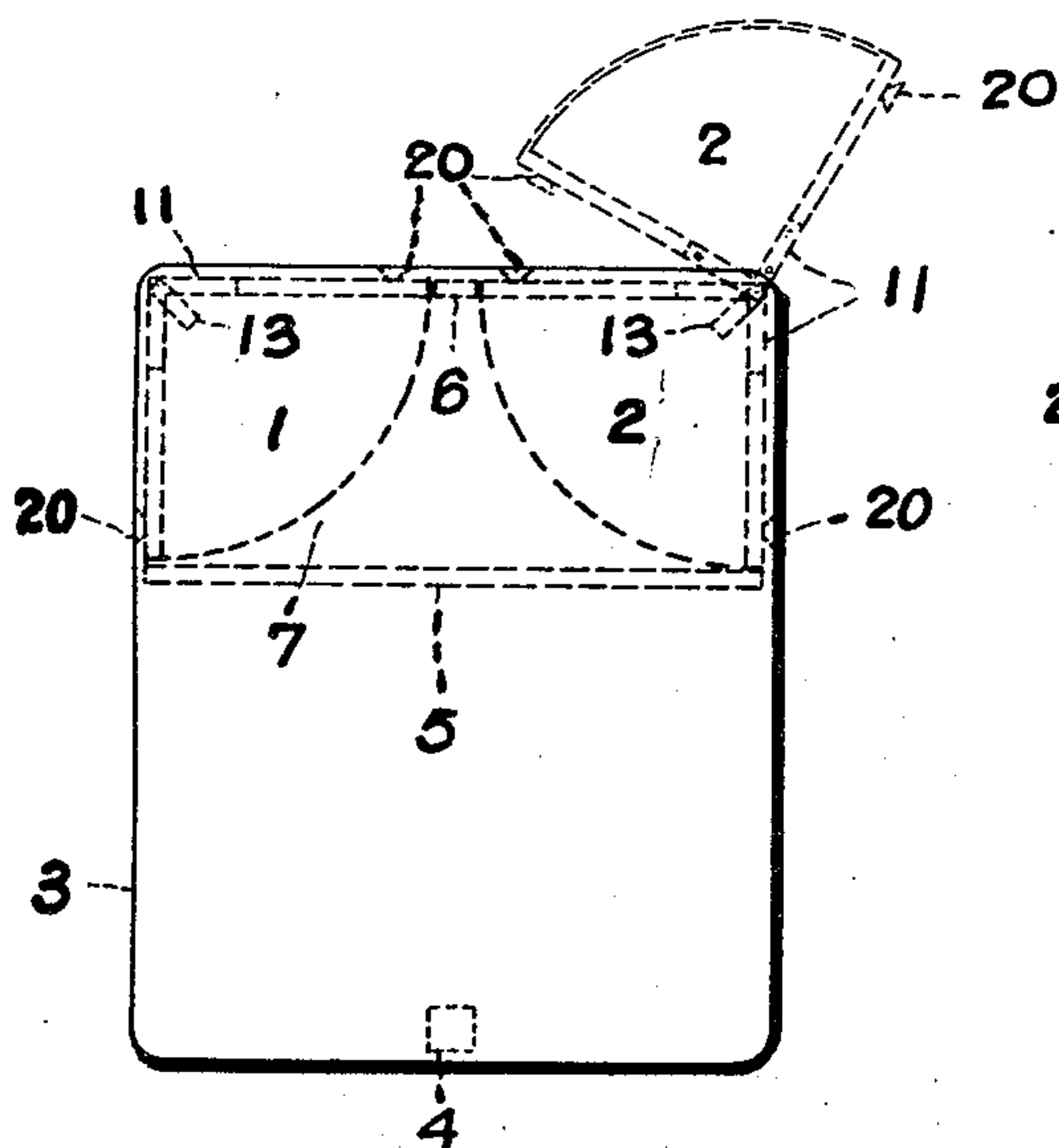


Fig. 2.

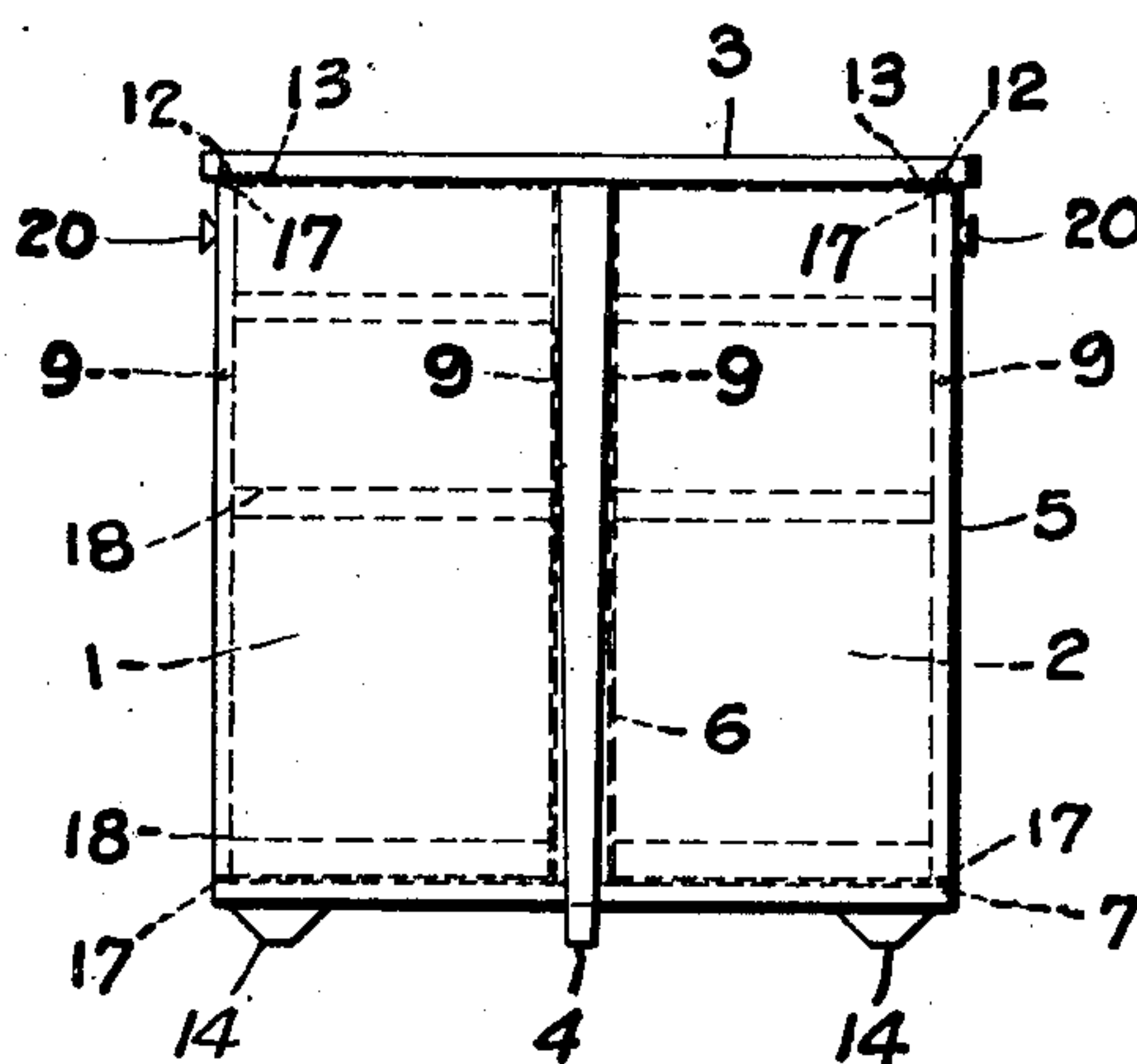


Fig. 3.

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Fig. 4.

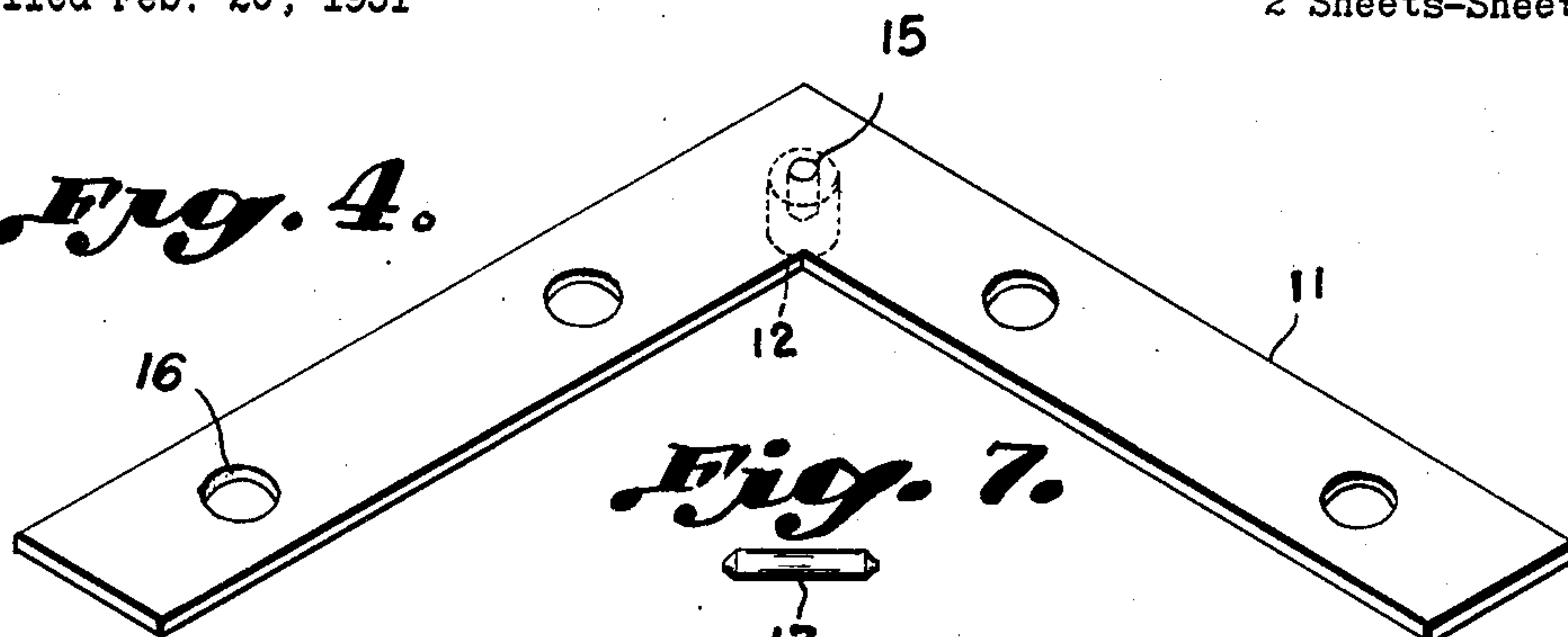


Fig. 7.

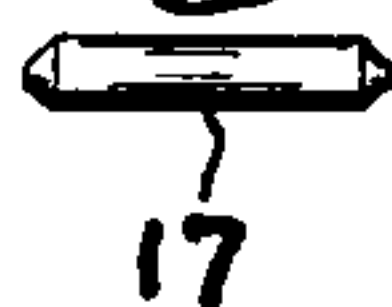


Fig. 5.

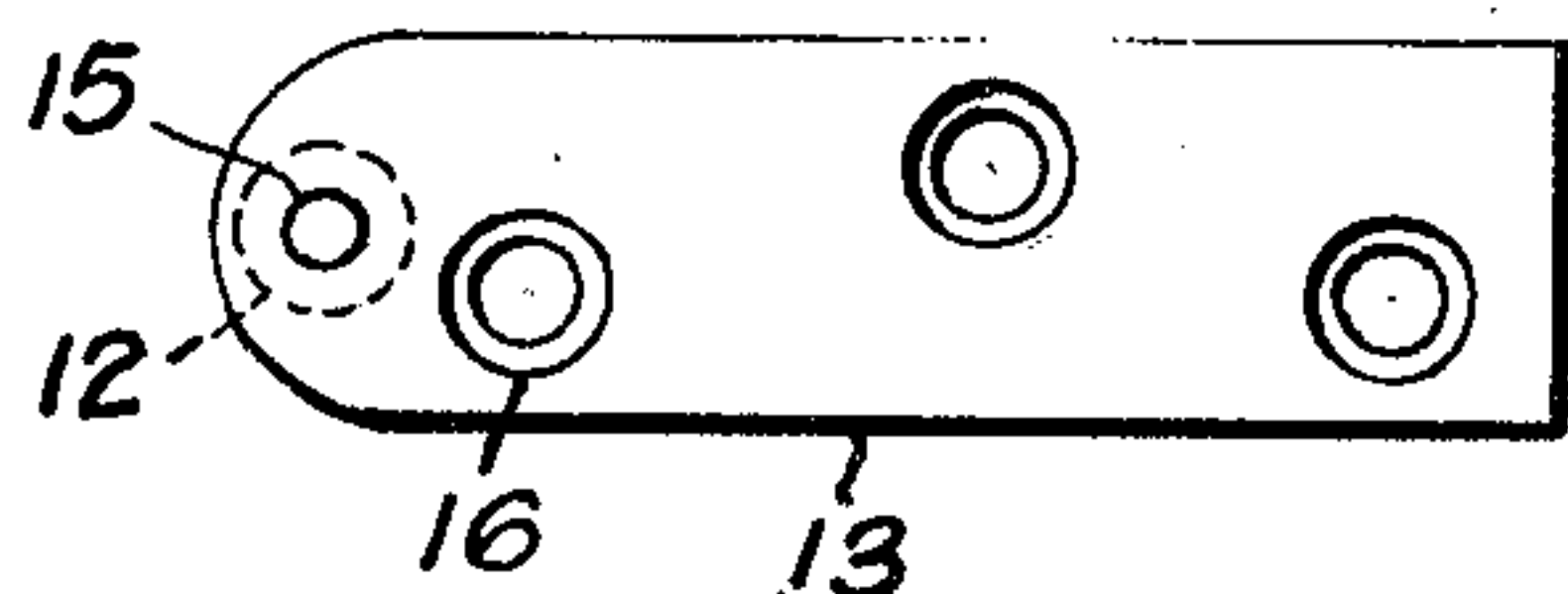


Fig. 6.

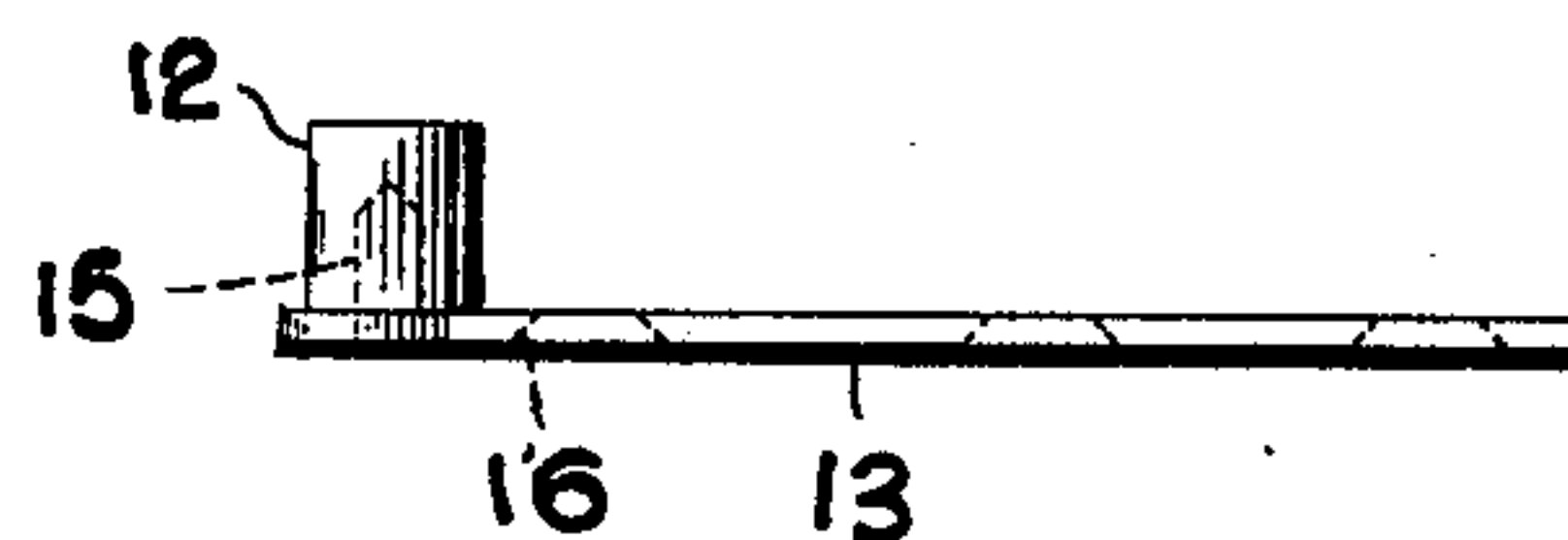


Fig. 8.

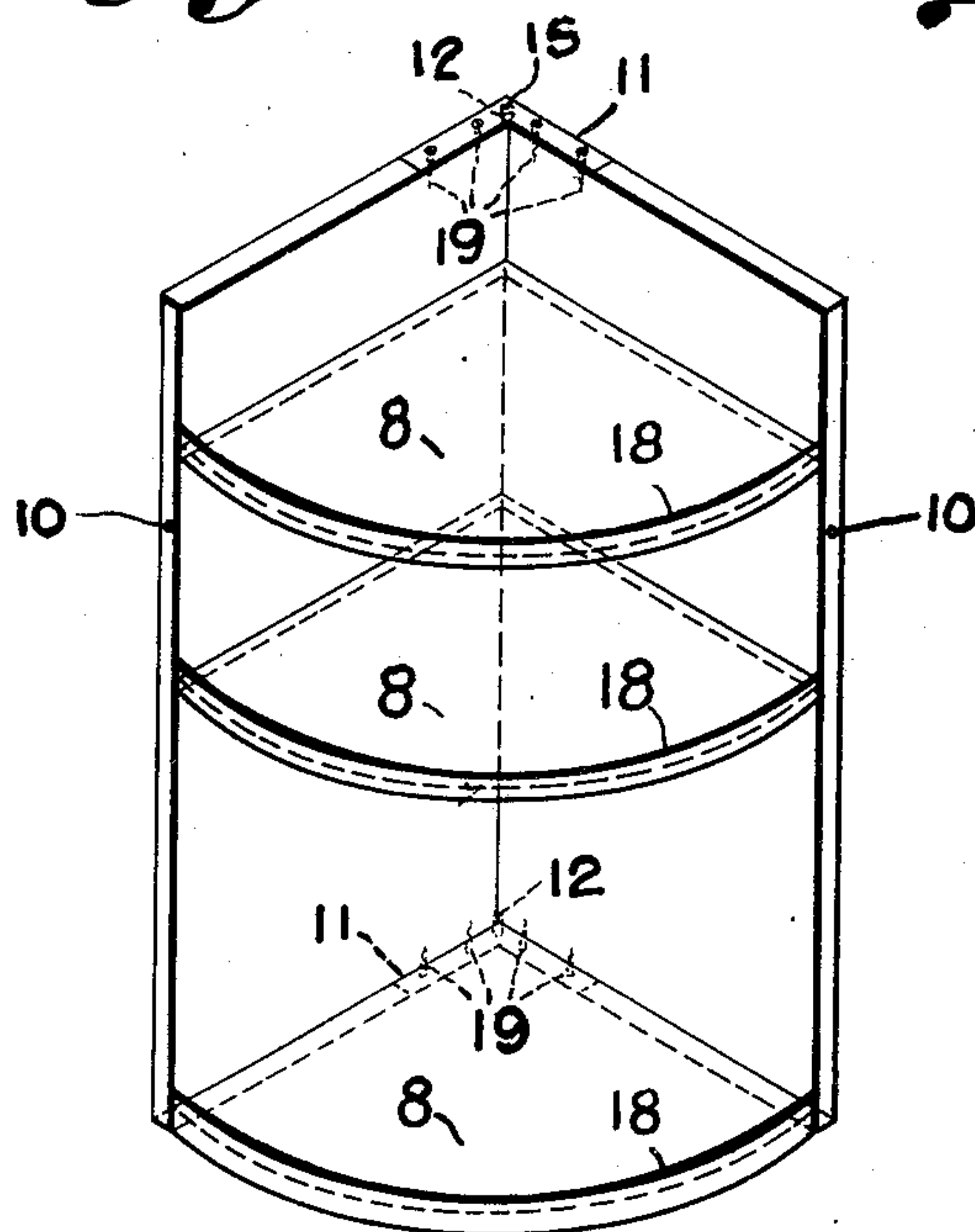


Fig. 9 Fig. 9a



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TABLE WITH ROTATABLE COMPARTMENT

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6 Claims. (Cl. 312—329)

The object of my invention is to provide a combination dining, work and storage table with a novel, or unique, storage arrangement. The storage arrangement, as will be seen from the drawings, consists of rotary compartments rotatable on a vertical axis at corners of the table. A further novel part of my invention rests in the bearing unit which I use to allow for rotation of the storage compartments; it consists of a loose, pin-type, conical-ended, hardened steel roller bearing the opposite ends of which are revoluble in sockets drilled in flat corner irons and flat metal plates, said sockets extending into round housings which are end-welded onto the bottoms of said flat corner irons and flat metal plates; said sockets being drilled so as to insure a snug fit between the exterior surface of said roller bearing and the interior surface of said socket.

In this invention the construction material I had in mind is wood, but the idea and advantages of the invention can be realized regardless of the material used.

Referring to the drawings, Fig. 1 is a side view of the table showing the rotary compartments 1 and 2 closed. Fig. 2 is a top plan view of the table with both compartments in a closed position, also showing compartment 2 in an open position. Fig. 3 is an end view of the table, again with both compartments closed. Fig. 4 is a perspective view of one of the flat corner irons 11 with the round housing 12 fabricated in place. Fig. 5 is a top view of one of the plates 13 with the round housing 12 fabricated in place. Fig. 6 is a side view of one of the plates 13 in an inverted position—as it would be positioned in the top 3 of the table. Fig. 7 is a side view of the conical-ended roller bearing 17. Fig. 8 is a perspective view of one of the rotary compartments. Fig. 9 includes a side view of an ordinary bullet catch 9 with a hardened steel ball in its head and Fig. 9a is a top view of what is known as a recessed, or "Phillips," oval head screw 10.

The table comprises a top 3, an upright member 5, a bottom member 7, a narrow upright member 6, two short legs 14 and one long leg 4. The members 3, 5, 6 and 7 cooperate to form a framework to contain the rotary compartments 1 and 2. The members 5 and 7, as will be noted from Figs. 2 and 3, extend laterally across the table so that their vertical edges are flush with the outside walls of the rotary compartments when said compartments are closed. The narrow upright member 6 and the edge of the bottom member 7 at the end of the table are also flush with the outside walls of the rotary compartments when said compartments are closed. The two short legs 14 are simply inverted four-sided pyramids with their top points cut off. The single leg 4 is used at one end of the table in view of the counter-balancing effect of the storage compartments and their contents at the opposite end; the single leg construction makes it easier to sit down to the table, and to walk around and clean around the table, and the table will set better on an uneven floor; of course, more conventional supports could be used instead of the single leg.

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The flat corner irons 11 are used at the tops and bottoms of the rotary compartments as shown in Figs. 1, 2 and 8; the bottom sides (by the bottoms of both the corner irons 11 and the plates 13 I mean the side opposite of where the countersink 16 shows) are faced inward so that the housing 12 extends into a hole previously bored in the wall of the compartment at the corner thereof. The walls of the compartments at their corners are cut away sufficiently so as to allow the top surfaces of the corner irons to set flush with the balance of the compartment wall. The corner irons serve several purposes: (1) They bear part of the bearing structure; (2) by reason of the four screws 19 entering the walls of the compartment, they secure the bearing structure in place, cooperating with the plates 13 in so doing; (3) they strengthen the compartment at the corner; (4) they spread any thrust load over the entire width of the wall of the compartment and away from the pivot point.

The straight metal plates 13, of which there are two for each compartment as shown in Fig. 1, are mounted above and below said compartment—one is mounted in the top 3 so that the housing 12 protrudes into the top, and the other is mounted in the bottom 7 so that the housing 12 protrudes into said bottom. It is important that the center lines of the sockets 15 in the housings 12 line up from top to bottom; this is taken care of by accurate fabrication of the housings 12 onto the corner irons 11 and the plates 13, by accurate drilling of the sockets 15, by accurate boring of the holes in the corners of the compartment, top 3 and bottom member 7, to receive the housings 12, and by accurate mounting of the corner irons 11 and the plates 13. It will be noted from Fig. 2 that the plates 13 are directed inward, at an angle to both the sides and end of the table, so as to be out of sight.

It will be noted from Figs. 4 and 6 that the bottoms of the sockets 15 have the same angle or bevel as the ends of the pivot pin 17; this aids longevity and smooth operation and also provides the maximum bearing surface with relation to the diameter of the roller bearing so as to more adequately sustain radial and thrust loads. Some sort of suitable lubricant, graphite, or grease with a high degree of cohesiveness, is inserted into the sockets 15 before the roller bearings 17 are finally installed therein; in view of the close fit between the exterior surface of the roller bearing 17 and the interior surface of the socket 15 the lubricant is virtually locked in and long life lubrication is thus provided for.

The sockets 15 in all of the housings 12 are drilled to such a depth as to allow a small, set clearance between the top surfaces of the plates 13 and the corner irons 11 when the roller bearing 17, which is of a predetermined length, is inserted into the sockets.

For each rotary compartment two bullet type catches 9 are provided—one in the upright member 7 as shown in Figs. 1 and 3 and the other at the same level in the upright member 6 as shown in Fig. 3; they cooperate to hold the compartment in a closed position, and each one serves to hold the compartment in an open position when said compartment is rotated in either direction through an arc of ninety (90) degrees. Of course, each compartment can be rotated through the complete three hundred and sixty (360) degree circle. The strike I use for these bullet catches is the head of a large (#14) recessed ("Phillips"), oval head sheet metal screw 10 which has quite a large opening in its center to receive the head of the bullet catch, and being a sheet metal screw, it is hardened, which makes for long life. Of course, a more conventional type of strike could be used.

The knobs 20, of which there are two for each com-

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partment, allow for push or pull rotation of the compartment from the side or end of the table.

As shown in the drawings there are three shelves 8 in each rotary compartment; naturally, a greater or lesser number of shelves could be used. Each shelf is provided with a thin edging 18 to keep articles from falling off as the compartment is rotated. Compartments for cutlery and other kitchen utensils could be fabricated onto the shelves 8; on the inside wall of upright member 5 hooks could be installed to accommodate pots and pans in the otherwise wasted space between the compartments 1 and 2; a horizontal towel rack could be installed on the outside wall of upright member 5 near the top of same.

Another method of using the roller bearing 17 for rotation of the compartments 1 and 2 would be to drill and countersink the corner irons 11 and the plates 13 at the same points as shown for end-welding of the studs 12; these countersunk holes would receive flat head screws which would be drilled in their centers to receive the roller bearing 17 in the same manner as the drilled housings 12. Still another method would be to use thick corner irons and plates which could be drilled to a sufficient depth to accommodate opposite ends of the roller bearing. Another method of allowing for rotation would be to use a ball bearing in combination with thick corner irons and plates wherein said irons and plates would be reamed out to accommodate opposite sides of the ball bearing.

Obviously, my bearing unit could be used in many instances where a structure is rotatable relative to an adjacent structure.

Various methods of fastening the several parts of the table together and of strengthening the joints of the table are well known in the art and need not be gone into here.

Obviously, roller bearings with flat, rounded or other shaped ends could be used instead of those with the conical ends, although not with the same advantages. Also, the corner irons 11 could be used instead of the plates 13.

While I have shown but one embodiment of my invention it is to be understood that it is to be taken as illustrative only and not in a limiting sense. Changes in details of construction and in the combination and arrangement of parts may be availed of within the spirit and scope of the invention as defined in the hereunto appended claims.

I claim:

1. A substantially rectangular table having spaced upper and lower horizontal parts and including at least one compartment rotatable on a vertical axis between said horizontal parts, said axis being substantially at a corner of said table, said compartment having two side walls forming a right angle; a first pair of adjacent housings, one of the pair located on said upper horizontal part and the other on the top extremity of said compartment; a second pair of adjacent housings, one of the second pair located on the lower extremity of said compartment and the other on said lower horizontal part, each pair of housings having oppositely disposed sockets, all of said sockets being in vertical alignment, a pivot pin extending into the oppositely disposed sockets and being rotatable therein, said sockets being so constructed so as to receive said pins in a snug manner and only to such depth so as to provide a predetermined clearance between the said opposed pairs of housings and provide a predetermined clearance between the said top and bottom extremities of said compartment and said horizontal parts so as to thereby allow said compartment to be rotatable through a complete circle.

2. A structure having spaced upper and lower substantially horizontal parts and including at least one compartment rotatable on a substantially vertical axis between said horizontal parts; a first pair of adjacent housings, one of the pair located on said upper hori-

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zontal part and the other on the top extremity of said compartment; a second pair of adjacent housings, one of the second pair located on the lower extremity of said compartment and the other on the said lower horizontal part, each pair of housings having oppositely disposed sockets, all of said sockets being in vertical alignment, a pivot pin extending into the oppositely disposed sockets and being rotatable therein, the said sockets being so constructed so as to receive said pins in a snug manner and only to such depth so as to provide a predetermined clearance between the said opposed pairs of housings and provide a predetermined clearance between the said top and bottom extremities of said compartment and said horizontal parts so as to thereby allow said compartment to be rotatable through a complete circle.

3. In a rotatable structure, said structure being rotatable between two relatively stationary members, two pivot pins, each of said pins being provided with opposed conical ends and a cylindrical portion extending between said ends; a first pair of adjacent housings, one of said housings being located on said rotatable structure and the other on one of said stationary members; a second pair of adjacent housings, one of said second pair being located on said rotatable structure and the other on the other of said stationary members, each pair of housings having oppositely disposed sockets, all of said sockets being in alignment, the bottoms of all of said sockets being shaped to fit the angle of bevel of the said opposed conical ends of said pivot pins so as to thereby provide bearing surfaces for the said conical ends, all of said sockets being round and similar in diameter to the said cylindrical portions of said pins so as to receive said pins in a snug manner but yet allow said pins to be rotatable in said sockets, each of said sockets being so constructed so as to receive said pins only to such depth so as to provide for predetermined clearances between said opposed pairs of housings and between said structure and said members so as to thereby allow said structure to be rotatable through a complete circle.

4. A structure having spaced upper and lower relatively stationary parts and including at least one compartment rotatable on a substantially vertical axis between said stationary parts; a first pair of adjacent housings, one of the pair located on said upper stationary part and the other on a top extremity of said compartment; a second pair of adjacent housings, one of the second pair located on a lower extremity of said compartment and the other on said lower stationary part, each pair of housings having oppositely disposed sockets, all of said sockets being substantially in vertical alignment, a pivot pin extending into the oppositely disposed sockets and being rotatable therein, said sockets being so constructed so as to receive said pins in such manner that there is a snug fit between side surfaces of said pins and said sockets, said sockets of said second pair of adjacent housings being so constructed so as to receive said pin associated therewith only to such depth so as to provide for predetermined clearances between said second pair of adjacent housings and between the said lower extremity of said compartment and said lower stationary part so as to thereby allow said compartment to be rotatable through a complete circle.

5. A structure having spaced upper and lower relatively stationary parts and including a structure rotatable on a substantially vertical axis between said stationary parts; a first pair of adjacent housings, one of the pair located on said upper stationary part and the other on a top extremity of said rotatable structure; a second pair of adjacent housings, one of the second pair located on a lower extremity of said rotatable structure and the other on said lower stationary part, each pair of housings having oppositely disposed sockets, all of said sockets being substantially in vertical alignment, a pivot pin extending into the oppositely disposed sockets and being rotatable therein, said sockets being so constructed

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so as to receive said pins in a snug manner and only to such depth so as to provide predetermined clearances between the said opposed pairs of housings and between the said top and bottom extremities of said rotatable structure and said stationary parts so as to thereby allow said rotatable structure to be rotatable through a complete circle, the pivot pin associated with the oppositely disposed sockets in said first pair of housings being provided with opposed conical ends and a cylindrical portion extending between said opposed conical ends, the bottoms of the sockets in said first pair of housings being shaped to fit the angle of bevel of the said opposed conical ends of said pivot pin so as to thereby provide bearing surfaces for the said conical ends, said sockets in said first pair of housings being round and similar in diameter to the said cylindrical portions of said pins so as to receive said pins in a snug manner but yet allow said pins to be rotatable in said sockets.

6. A structure having spaced upper and lower relatively stationary parts and including at least one compartment rotatable on a substantially vertical axis between said stationary parts; a first pair of adjacent sockets, one of the pair located on said upper stationary part and the other on a top extremity of said compartment; a second pair of adjacent sockets, one of the second pair located on a lower extremity of said compartment and the other on said lower stationary part, all of said sockets being substantially in vertical alignment, a pivot pin extending into each pair of oppositely disposed

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sockets and being rotatable therein, said sockets being so constructed so as to receive said pins in such manner that there is a snug fit between side surfaces of said pins and said sockets, said second pair of sockets being so constructed so as to receive said pin associated therewith only to such depth so as to provide for predetermined clearances between said second pair of sockets and between said lower extremity of said compartment and said lower stationary part so as to thereby allow said compartment to be rotatable through a complete circle.

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