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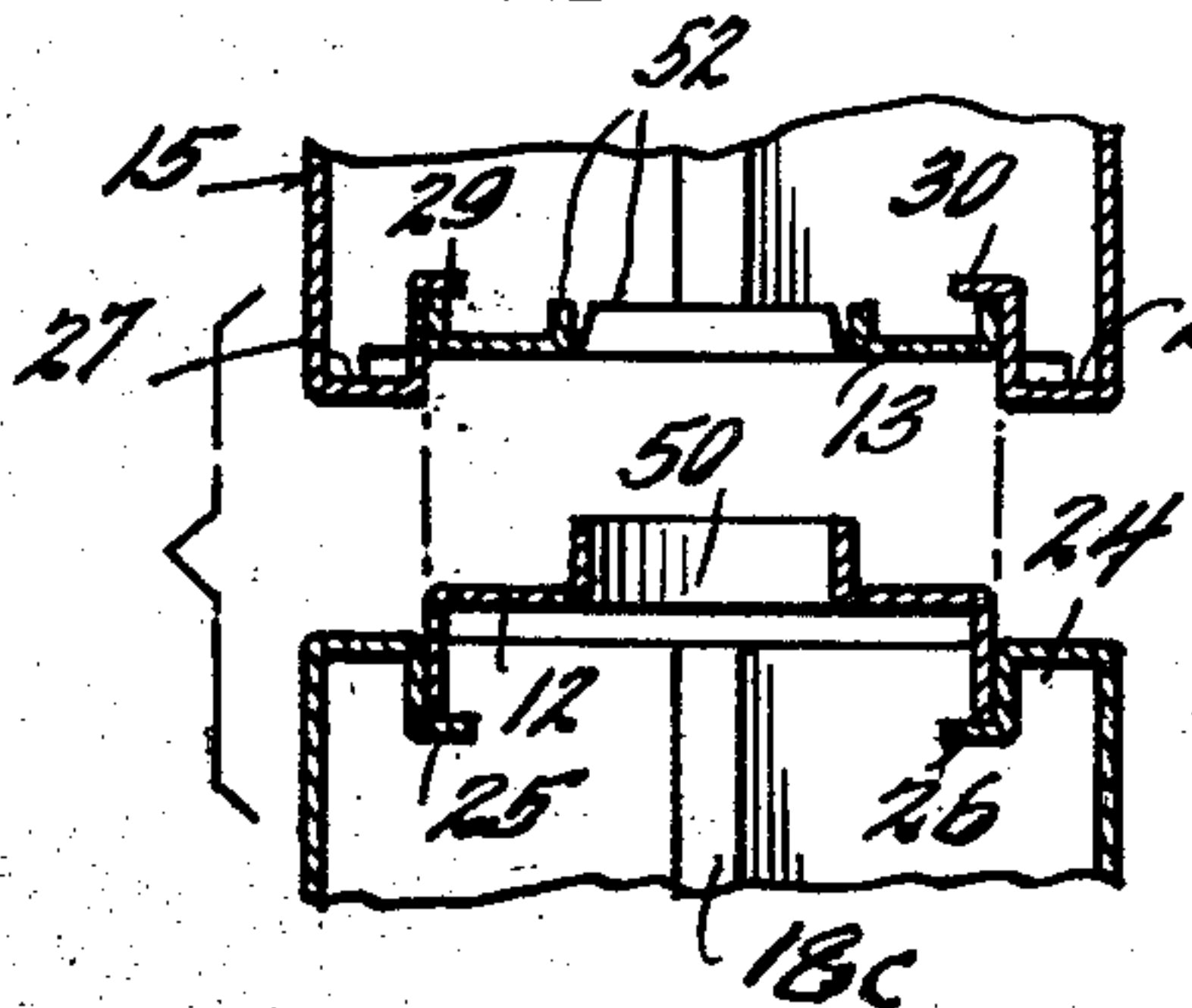
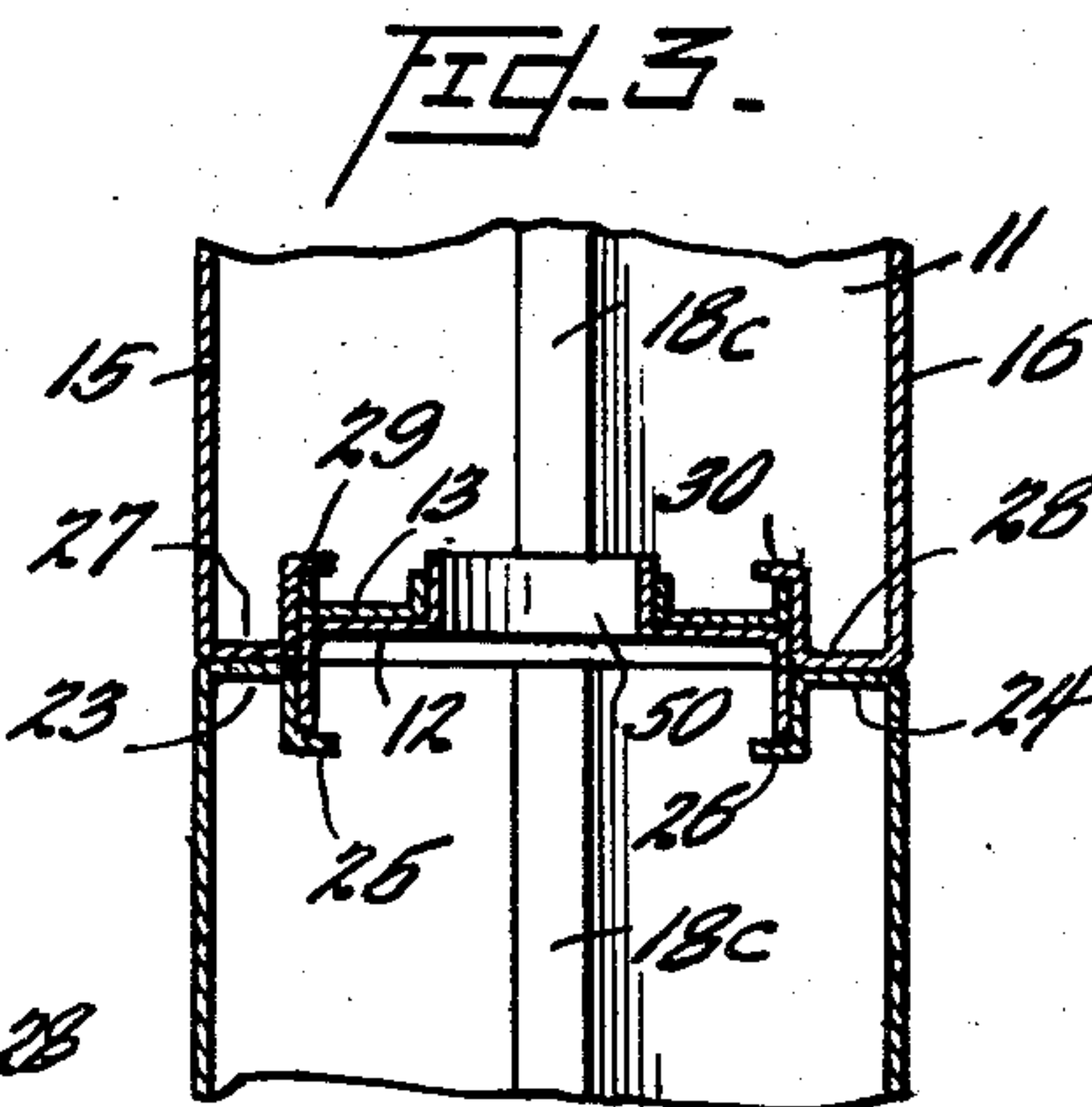
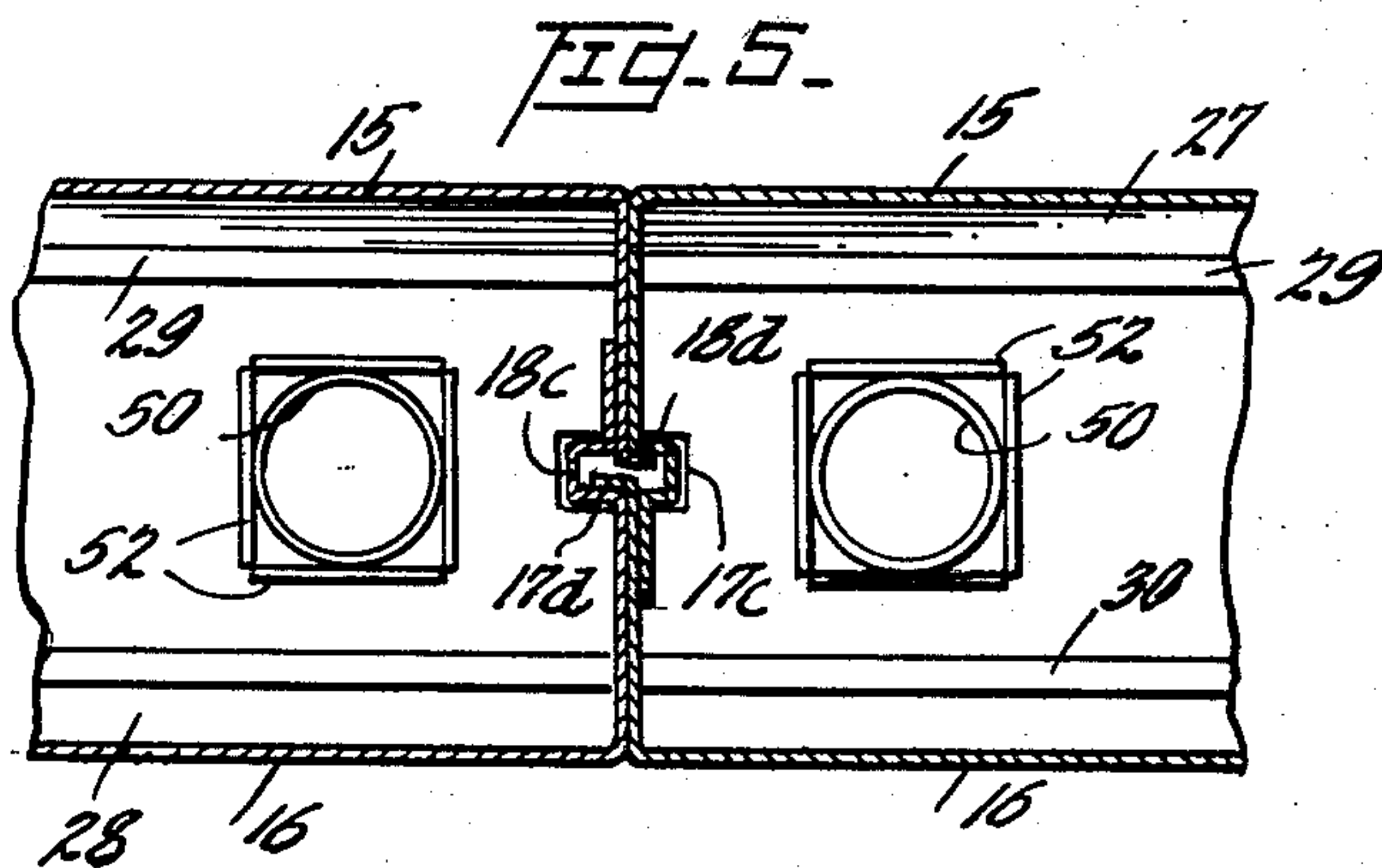
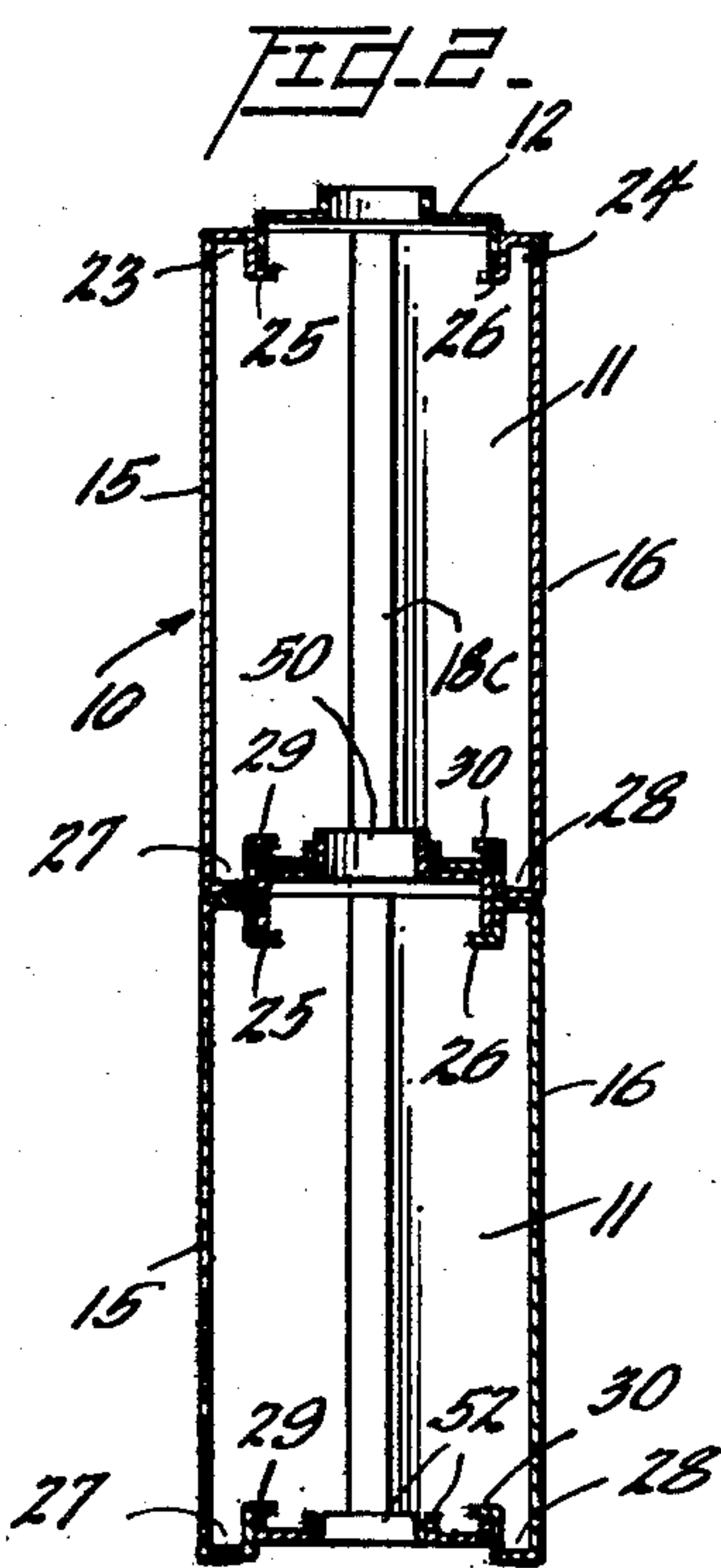
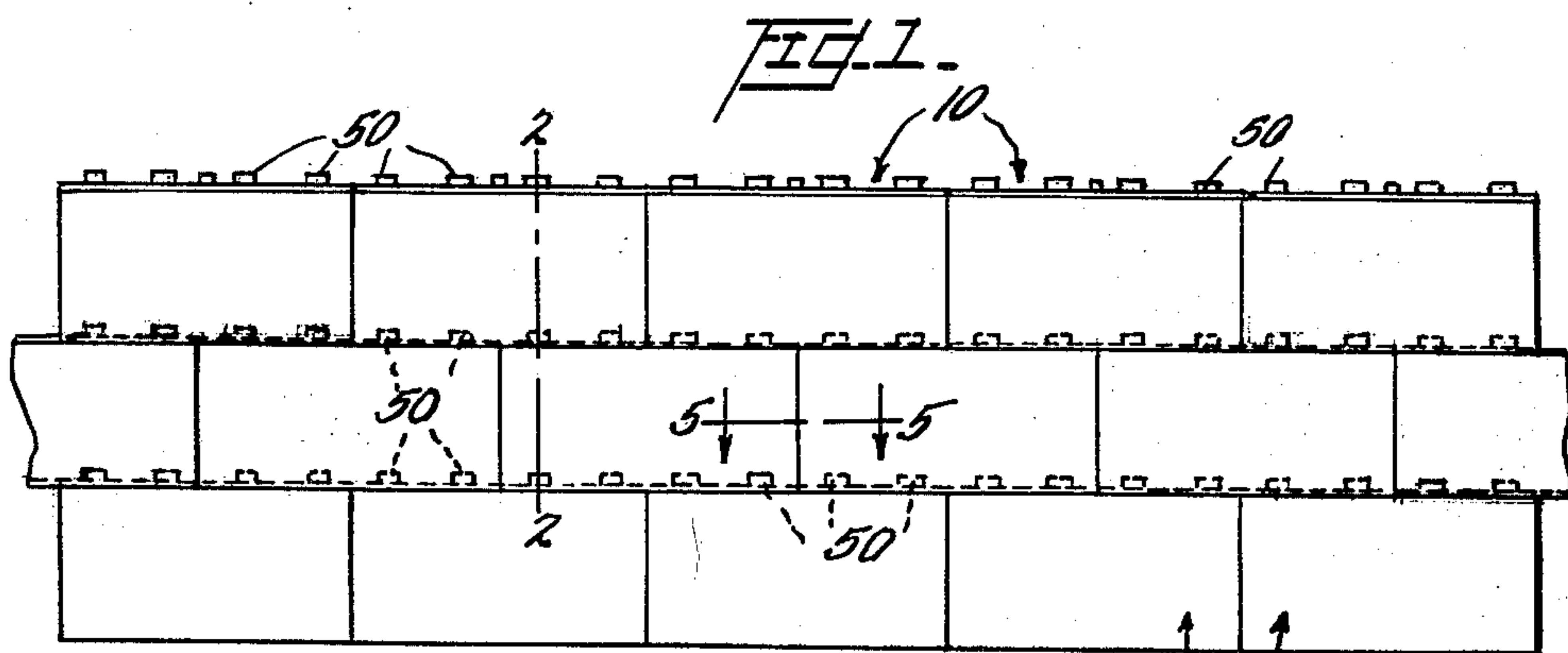
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3,180,060

BUILDING BLOCKS

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2 Sheets-Sheet 1



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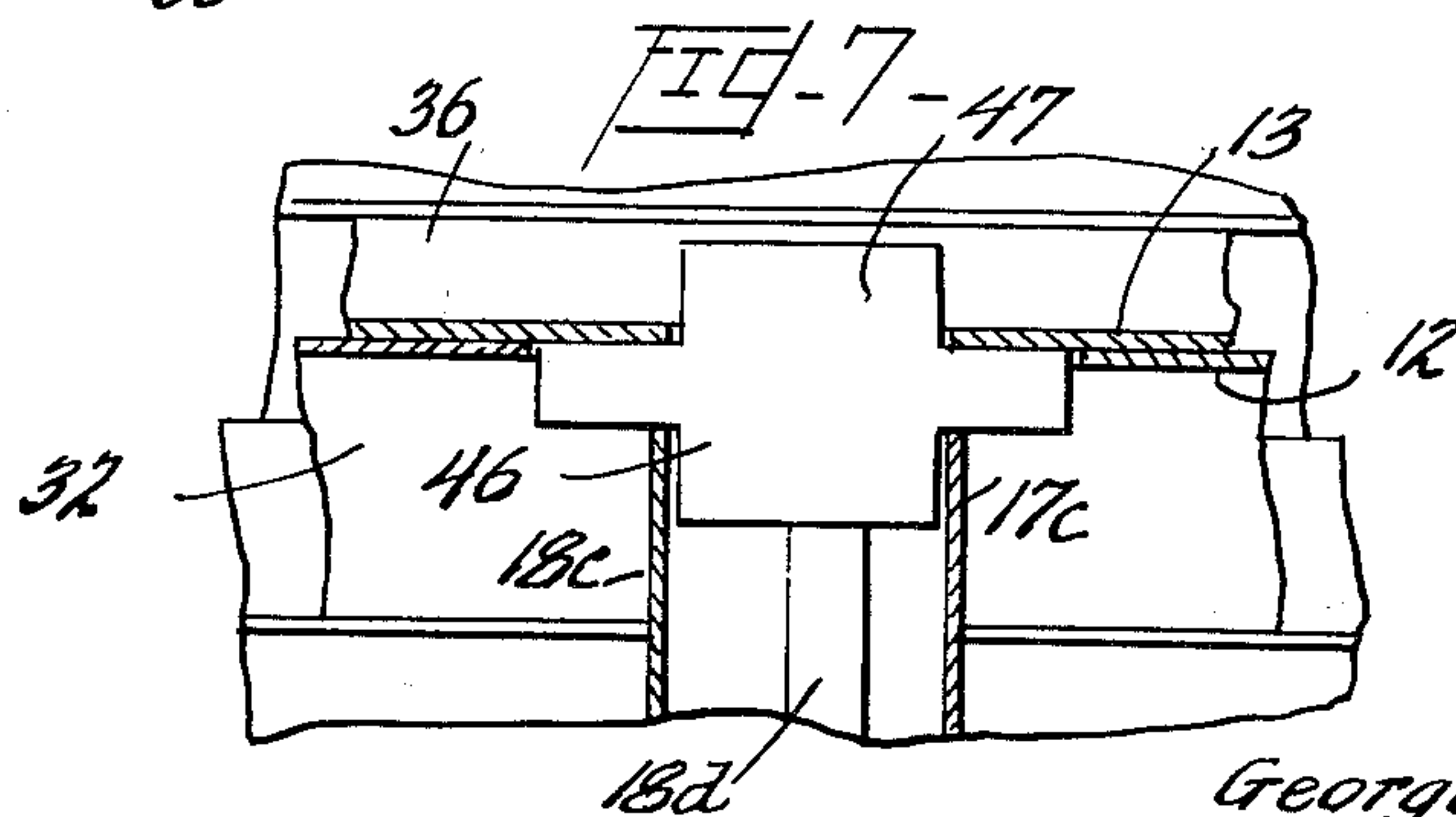
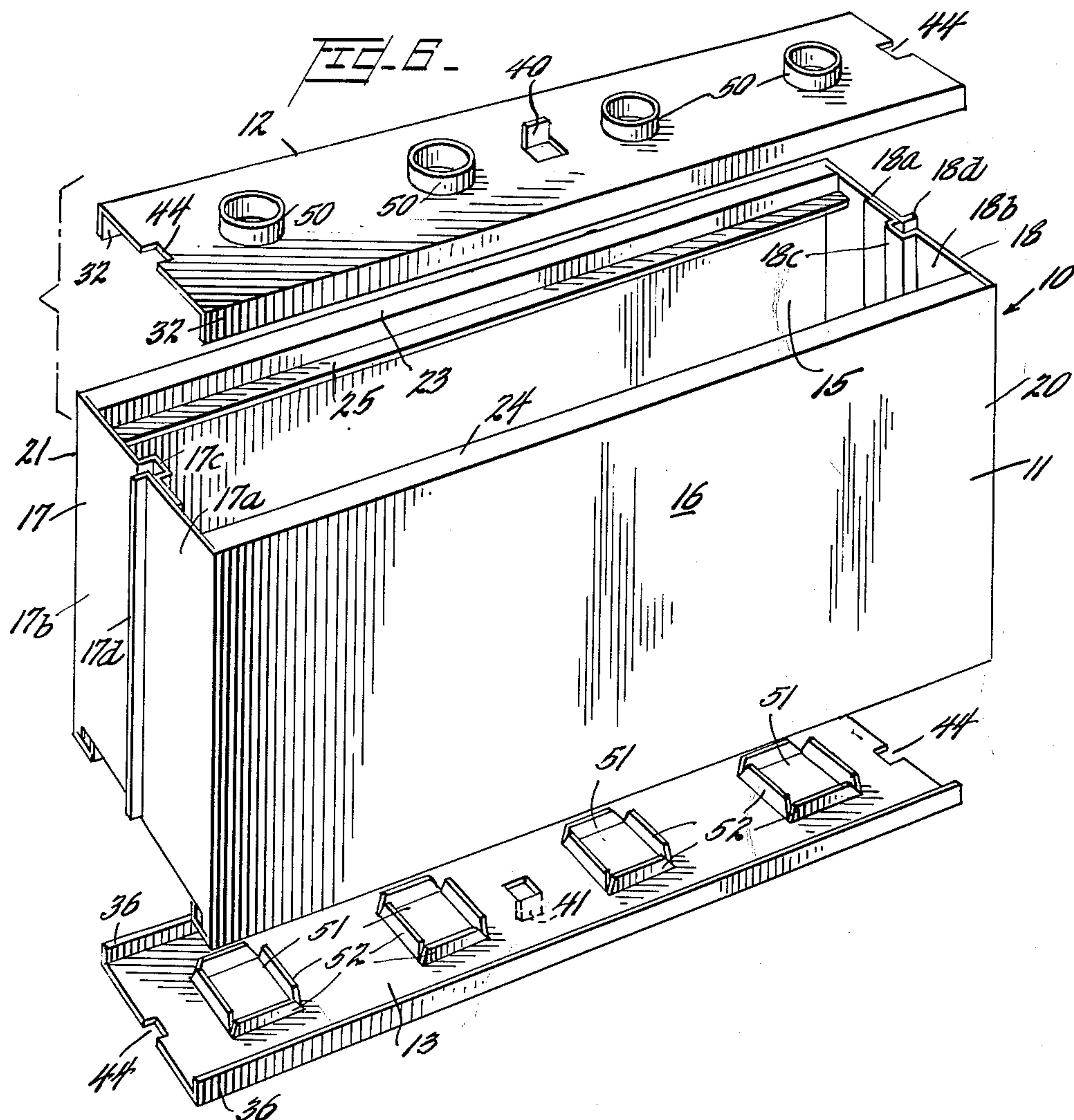
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BUILDING BLOCKS

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6 Claims. (Cl. 50-450)

This invention relates to building blocks for use in erecting exterior or interior walls, partitions, room-dividers, and the like.

More particularly, the invention is concerned with building blocks for the above-mentioned purposes, constructed so as to enable them to be used in erecting a wall or partition without the necessity of employing mortar or other cementitious material for bonding together the adjacent blocks composing the wall or partition.

The principal object of the invention is to provide a building block of the aforesaid character, so constructed that when used, with other like blocks, in erecting a wall, partition, or the like, without using mortar or other cementitious bonding material in the joints between adjacent blocks, will nevertheless preclude the passage of light from one face of the wall or partition to the opposite face thereof, along the horizontal joints between adjacent rows of blocks and along the vertical joints between the abutting blocks of every row.

Another object of the invention is to provide a building block of the character aforesaid, so constructed as to facilitate its manufacture by automation processes, and hence at greatly reduced cost.

Still another object of the invention is to provide building blocks as aforesaid, which may be readily utilized in erecting a wall, partition, or the like, by relatively unskilled labor.

The invention finds particularly advantageous use with building blocks in the form of a hollow, substantially rectangular body, having relatively elongated front and back walls connected by end walls parallel to one another, a separate horizontal top wall and a separate horizontal bottom wall parallel thereto, the top wall being formed with upwardly projecting male elements which frictionally engage vertically aligned openings in the bottom wall of the blocks of a superposed row, thereby to interlock the blocks of each row with those of the rows next below, and next above, the adjacent blocks of each row abutting one another at their respective opposite ends.

According to the invention, each end wall of the block is provided with a groove extending inwardly into the hollow body throughout the height of the end walls, and with a vertical flange extending outwardly of the end walls throughout the height thereof, these grooves and flanges being so disposed that when the blocks are properly positioned in erecting a wall or partition therewith, the flange at one end of each block will enter the groove at the correspondingly opposite end of the adjacent block, thereby precluding the passage of light from one face of the wall or partition to the other along the vertical joints between the adjacent blocks. Further, according to the invention, in order to prevent passage of light from one face of the wall or partition to the other along the horizontal joints between adjacent rows of blocks, the block is constructed so that the top wall thereof lies in a plane slightly above the uppermost edges of the body, and so that the bottom wall thereof lies in a plane spaced upwardly above the lowermost edges of the body a distance corresponding to the distance by which the plane of the top wall is disposed above the uppermost edges of the body.

In accordance with the invention, furthermore, the separable top as well as the separate bottom of the blocks, are provided with means which serve, in the erected wall or partition composed thereof, to prevent the passage of

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light from one face of the partition to the other at the corners of the blocks, i.e., at the places where the horizontal and vertical joints between adjacent blocks intersect one another.

The invention will be more readily understood from the following detailed description, and from the accompanying drawing, in which:

FIG. 1 is a view, in front elevation, of a portion of a wall, partition, room-divider or the like, composed of a number of superposed rows of blocks embodying the invention;

FIG. 2 is a view in cross-section, on an enlarged scale, taken along line 2-2 of FIG. 1;

FIG. 3 is an enlarged fragmentary view of a portion of FIG. 2;

FIG. 4 is an expanded view of the parts shown in FIG. 3;

FIG. 5 is an enlarged view in cross-section, taken along line 5-5 of FIG. 1;

FIG. 6 is an expanded view, in perspective, of a building block constructed according to the preferred embodiment of the invention; and

FIG. 7 is a view, in vertical cross-section showing a modified form of one of the parts.

Referring more in detail to the drawings, the building block of the invention is indicated as a whole by numeral 10. As will be seen, particularly from the enlarged view in FIG. 6, it is composed essentially of three separate parts, namely, a substantially rectangular hollow body portion 11, a separately formed top wall member 12, and a bottom wall member 13, preferably also separately formed.

Each of these three parts of the block, may be made of any suitable material which can readily be shaped to the desired form. Preferably, they are made of metal of, say, 22 to 28 gauge sheet steel. If desired, however, particularly in the case of blocks to be used for interior partitions or room-dividers which are not required to be load-supporting, the parts or at least the body portion 11, may be formed from suitable synthetic resinous plastic material of commercially available types, such as polystyrene, polypropylene, copolymers such as acrylonitrile-butadiene-styrene, or the like, which may be formed in the desired shape by injection molding, extrusion, vacuum-forming, or other suitable forming processes.

If desired, the body portion may be made of a material different than that of which the top and bottom members are made. Thus, the body portion may be of metal, glass, or resinous plastic, whereas the top and bottom members are made of sheet metal, or vice versa.

In terms of practical dimensions, the blocks may be of a length of, say, twelve to thirty-six inches or more, a width of, say, two to six inches, and a height of, say, six to ten inches.

The body portion 11 comprises a pair of relatively elongated front and back walls 15, 16, joined at their respective ends by transversely extending, parallel end walls 17, 18.

The body member 11, particularly when made from sheet metal, is preferably fabricated, as by stamping the same, from two separate pieces thereof. One of these pieces, indicated by numeral 20, is formed to provide a central portion constituting the front wall 16 of the body, and is bent at a right angle, at one end of the central portion to provide a portion 17a of the end wall 17. It is similarly bent at the opposite end of the central portion to provide a portion 18b of the end wall 18. Similarly, the other piece 21 is formed to provide the back wall 15 of the body, the portion 17b of end wall 17 and the portion 18a of the end wall 18. As will be seen from the drawing, the central portion of each

of the pieces 20 and 21 is of somewhat greater transverse dimension than that of the portions 17a, 17b, 18a, 18b, and the longitudinal dimension of each of the portions 17b and 18b is somewhat greater than that of the portions 17a and 18a.

Adjacent the marginal edge of each portion 17b, 18b, there is formed an inwardly directed groove or depression 17c, 18c, respectively, extending transversely from one longitudinal edge of the respective portions to the other thereof. At the marginal edge of each portion 17a, 18a, there is formed an outwardly directed flange 17d, 18d, respectively, extending transversely from one longitudinal edge thereof to the other, in a plane preferably at a right angle to the plane of the respective portions 17a, 18a, and lying slightly offset with respect to the axis of the grooves 18c, 17c, respectively.

When the two pieces 20, 21 as thus formed are joined at their opposite ends, as by spot welding, along the overlapping margins of the portions 17a, 17b, and 18a, 18b, the hollow rectangular body member 11 of the block will result.

As will be seen, particularly from FIG. 5 of the drawing, when one of the blocks is positioned with each of its end walls abutting the correspondingly opposite end walls of adjacent blocks in a horizontal row of blocks, the flanges 17d, 18d of each block will, respectively, be disposed in the grooves 18c, 17c of the adjacent blocks in the same row. The thus partially overlapped flanges in the vertical joints between the adjacent blocks will thereby preclude the passage of light through the vertical joints from one face of the wall or partition to the other.

The central portion of each of the pieces 21, 20, is formed along one of its opposite longitudinal margins with inwardly directed right-angular return-bent portions 23, 24 terminating in flanges 25, 26, respectively. The flanges 25, 26 each extend at a right angle to the outer leg of the respective return-bent portions. At the opposite longitudinal margin of each of the pieces 21, 20 there is formed a similar return-bent portion 27, 28, terminating in right-angularly extending flanges 29, 30, respectively.

The above-described construction of the body portion 11 has, as another of its advantages, the fact that it is reversible top for bottom, i.e., either of its open ends may be utilized, in assembling the blocks, to receive the separately formed top wall 12 or the separately formed bottom wall 13.

The top wall member 12 may be fabricated as by stamping the same from sheet metal, and is of a length substantially equal to the longitudinal dimension between the walls 17 and 18 of the body portion 11. At each of its longitudinal margins, member 12 is formed with a right-angularly depending flange 32, these flanges extending the full length of the member and being spaced transversely from one another a distance such as to provide a snug fit when the thus formed top member is inserted between the depending legs of the return-bent portions 23, 24, at the upper open end of the body portion 11. The height or transverse dimension of the flanges 32 is such that when the longitudinal terminal edges of the flanges are in contact with the upper faces of the flanges 25, 26, the upper horizontal surface of the member 12 will project a slight distance, of the order of one-sixteenth to one-eighth inch, above the upper longitudinal and transverse edges of the body portion.

The bottom wall member 13 of the block may likewise be fabricated by stamping the same from sheet metal, and is of a longitudinal dimension substantially equal to that of the top member 12. Member 13 is formed along its opposite longitudinal margins with right-angularly extending flanges 36, extending the full length of the member and being spaced transversely from one another a distance such as to provide a snug fit when this member 13 is inserted between the legs of the return-bent portions 27, 28, at the bottom end of the body

portion 11. The height or transverse dimension of each of the flanges 36, in accordance with the invention, is less than that of the flanges 32 on the top member 12, and is such that when the bottom member is inserted in the open bottom of the body portion and the longitudinal terminal edges of the flanges 36 have been brought into contact with the bottom surfaces of the flanges 29, 30, the bottom horizontal surface of member 13 will be disposed in a plane lying above the longitudinal and transverse bottom edges of the body portion 11 a distance substantially equal to that by which the upper horizontal surface of the top member 12 extends above the uppermost edges of the body portion 11.

Thus, as will be seen from the drawing, particularly Figs. 2, 3 and 4 thereof, when the blocks are properly positioned in superposed rows, passage of light from one face of the wall or partition to the other, along the horizontal joints between adjacent rows of blocks in a wall or partition, will be precluded.

In order to preclude the passage of light from one face of the wall or partition to the other, along the corners of the blocks, i.e., at those places where the vertical joints between abutting blocks in a row intersect the horizontal joints between the rows of blocks immediately thereabove and immediately therebelow, a tab 40 may be formed in top member 12 so as to extend upwardly along the longitudinal median line thereof, and a similar tab 41 may be formed in the bottom member 13 so as to extend downwardly along the longitudinal median line thereof. These tabs are located substantially midway of the length of the blocks, so as to span across each such corner or point of intersection of horizontal and vertical joints. In other words, each tab 40 is disposed so as to be received between the lower ends of flanges 17d, 18d of two horizontally abutting blocks in the row next above; and each tab 41 is disposed so as to be received between the upper ends of flanges 17d, 18d of the abutting blocks in the row next below, being accommodated for this purpose by the notches 44 of the underlying member 12. The tabs 40, 41 also serve as guides or spacers for properly positioning the blocks longitudinally in each row with respect to the blocks of the preceding row.

Suitably spaced notches 44 are formed along the end edges of the top and bottom members 12, 13, to receive and accommodate the tabs 40 and 41, and so that the bottom member 13 may be accommodated to the inwardly directed grooves 17c, 18c formed in the end walls 17, 18 of the body portion 11.

In lieu of the tabs 40 and 41 formed in top and bottom members 12 and 13, respectively, the latter may be formed with rectangular-shaped openings for cooperation with separate insert plates 46 as shown in FIG. 7. The plates 46 each comprises a flat piece of material configured in the shape of a cross having an overall length such as to be accommodated in the space between the transverse edges of opposite notches 44 at the upper and lower ends of the vertical joints between adjacent blocks. The plates 46, positioned in a vertical plane at the upper and lower ends of each of the vertical joints, will have one of their arms 47 disposed between flanges 17d, 18d, either at the upper or the lower end of the vertical joints, while the other arm 47 thereof is disposed in an opening either in member 13 of the superposed block or in member 12 of the subjacent block, as the case may be.

In order to interlock the blocks of a row with those of the rows immediately above and below, the cover member 12 of each block may be provided with a series of suitably spaced protrusions 50, preferably of hollow cylindrical form, disposed in longitudinal alignment with one another centrally of the block and extending a distance of say, one-eighth to one-quarter inch above the top surface of the cover member 12. The bottom member 13 may be formed with a series of square-shaped openings 51 spaced longitudinally from one another centrally

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of the bottom member in axial alignment with the protrusions 50, the sides of each of these openings being of a length substantially equal to or slightly less than the outside diameter of the protrusion 50. The protrusions 50 thus constitute male elements which interlock with the openings 51 in the bottom wall or a block or blocks of the row next above in erecting a wall or partition. This interlocking engagement of blocks of superposed rows is readily achieved by exerting relatively slight downward pressure upon each block (except those of the lowermost row in the wall or partition) so that the openings 51 engage the protrusions 50 of a superposed block or blocks. This downward pressure will cause a slight flexing or contraction of the protrusions 50 on the block or blocks therebelow until the block above has reached its limit of movement, with the bottom wall 13 in contact with the top surface of the top wall member 12 on the superposed block. The slight flexibility or yieldability of the protrusions 50 enables them to spring or snap back to normal position after such limit of movement has been reached, thereby providing a very tight-fitting frictional interlocking of the blocks in each row with those of the rows immediately thereabove and therebelow. If desired, the frictional engagement between the outer surface of the protrusions 50 and the edges of the openings 51 may be increased by forming the sides of the latter with flanges 52 extending inwardly of the bottom wall and at an angle toward the axis of the openings 51.

The invention thus makes it possible to erect a wall or partition possessing adequate structural strength and sturdiness without requiring the use of mortar or other cementitious material for bonding together the blocks composing the wall or partition, yet precluding the passage of light from one side of the wall or partition to the other along the vertical joints between abutting blocks of a row as well as along the horizontal joints between adjacent rows of blocks, and at the corners of the blocks or intersections between such joints.

I claim:

1. A building block adapted to be laid with other like blocks in superposed rows for erecting a building wall or partition without the use of mortar or other cementitious material between adjacent blocks, said block consisting essentially of:

- (1) a hollow, substantially rectangular relatively elongated body portion, comprising:
 - (a) front and back walls;
 - (b) a pair of parallel end walls extending transversely with respect to said front and back walls and connecting the respective ends of said front and back walls to provide an open top and an open bottom for said body portion;
- (2) a separable closure member for said open bottom of said body portion, said closure member being formed with a series of spaced, longitudinally aligned openings therein; and
- (3) a separable closure member for said open top of said body portion, said last-named closure member being formed with a series of spaced, longitudinally aligned protrusions projecting upwardly therefrom;

said closure members each having flanges extending substantially at right angles thereto along each of their respective longitudinal margins, said front and back walls each being formed with return-bent portions at their respective upper and lower ends, each of said return-bent portions at the lower end of said front and back walls receiving and frictionally engaging therebetween the flanges of said first-named closure member and having a limit stop formed on the return-bent portions and spaced above the lower ends of said front and back walls a distance greater than the depth of the flanges on the first-named closure member, said limit stop engaging the

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edges of the flanges on the first-named closure member to position the latter member in a horizontal plane disposed above said lower ends of said front and back walls, each of said return-bent portions at the upper end of said front and back walls receiving and frictionally engaging therebetween the flanges of said second-named closure member and having a limit stop formed on the return-bent portions and spaced below the upper ends of said front and back walls a distance less than the depth of the flanges on the second-named closure member, said limit stop engaging the edges of the flanges on the second-named closure member to position the latter member in a horizontal plane disposed above said upper ends of said front and back walls, said protrusions on said second-named closure member being configured and dimensioned relative to the openings in the first-named closure member whereby each of said protrusions will be received in and frictionally engaged by an axially aligned one of said openings in a first-named closure member of a block in a row of like blocks superposed thereon, for interlocking said block with blocks in said row of like blocks superposed thereon.

2. A building block as defined in claim 1, wherein said flanges formed on said second-named closure member are of a width greater than that of said flanges formed on said first-named closure member.

3. A building block as defined in claim 1, wherein said limit stops on said return-bent portions each consists of a flange extending along the return-bent portion in a plane substantially at a right angle to that of the return-bent portion and in a direction toward the longitudinal axis of the body portion.

4. A building block as defined in claim 1, and having each of said end walls thereof formed with (1) a groove extending vertically of said body portion and substantially throughout the height of said end walls, said grooves being axially aligned with one another longitudinally of the body portion, and (2) a flange extending vertically of said body portion and substantially throughout the height of said end walls in a direction outwardly with respect to the exterior face of the respective end walls, the flange on one of said end walls being offset with respect to the flange on the other of said end walls transversely of the end walls.

5. A building block as defined in claim 1, wherein each of said closure members is formed substantially midway of the length thereof with a tab extending in a plane substantially at a right angle thereto and along the longitudinal median line thereof, said tab on said first-named closure member projecting downwardly with respect thereto, said tab on said second-named closure member projecting upwardly with respect thereto and being transversely offset with respect to the tab on said first-named closure member.

6. A building block as defined in claim 4 and wherein each of said closure members is of a length corresponding substantially to the length of said body portion and being formed along each of the end edges with a notch receiving the said groove formed in the respective end walls of said body portion.

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