Jan. 1, 1957 G. W. HULT 2,776,029

CONSTRUCTION UNIT

Filed Aug. 4, 1953 2 Sheets-Sheet 1

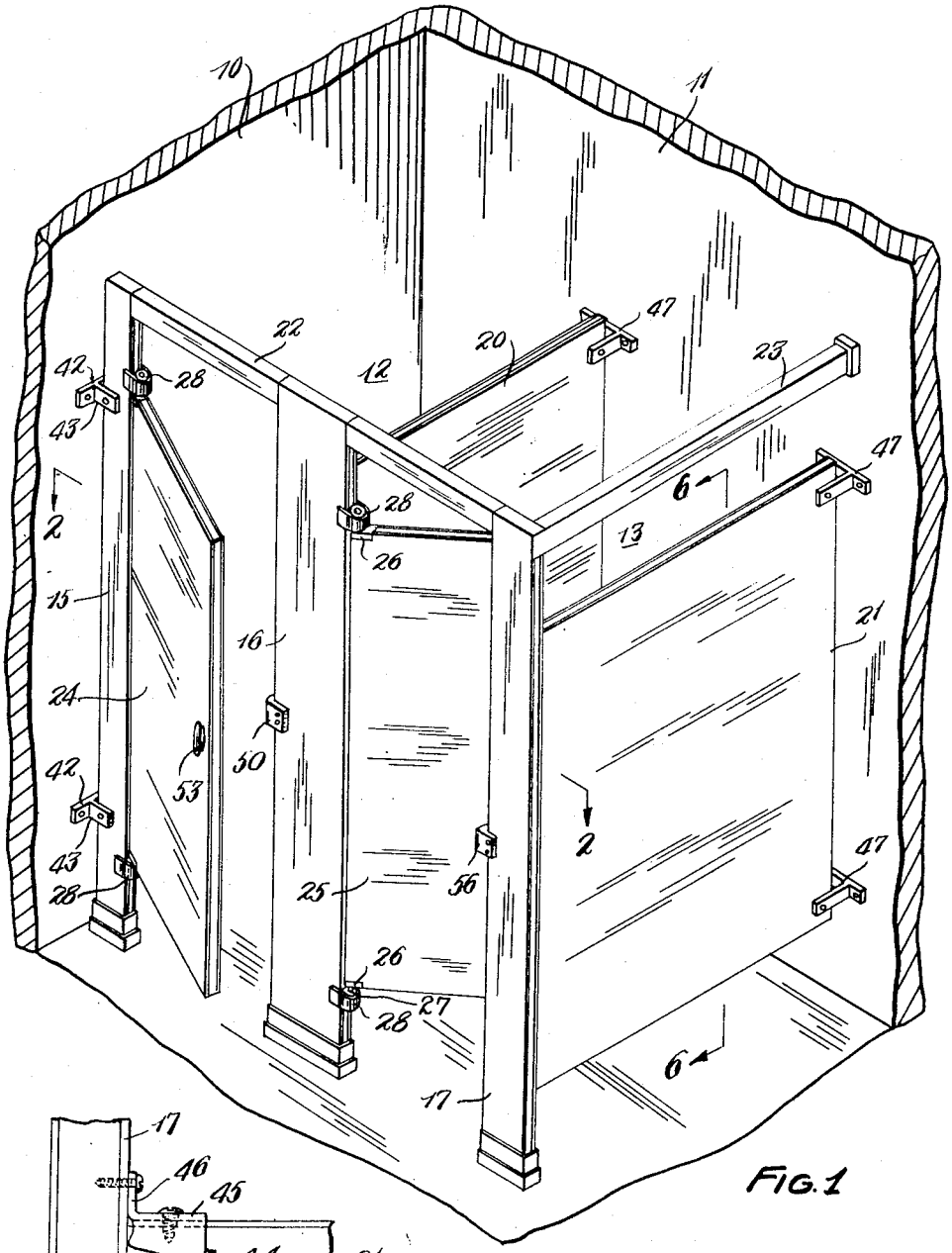


FIG. 1

FIG. 7

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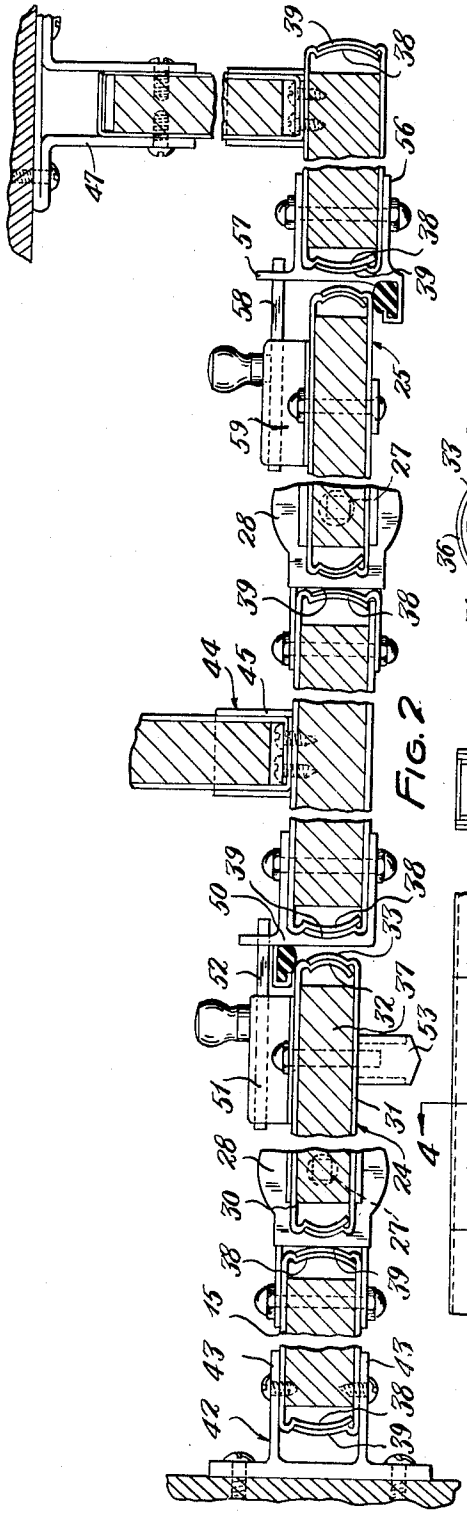


FIG. 2

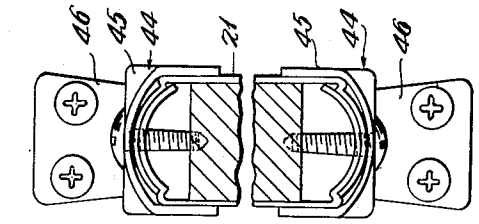


FIG. 6

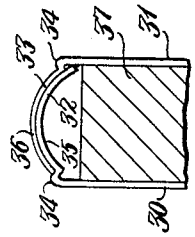


FIG. 5

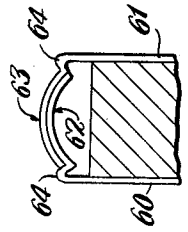


FIG. 8

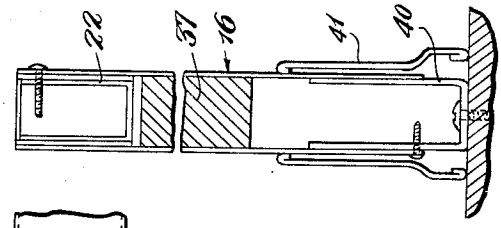


FIG. 4

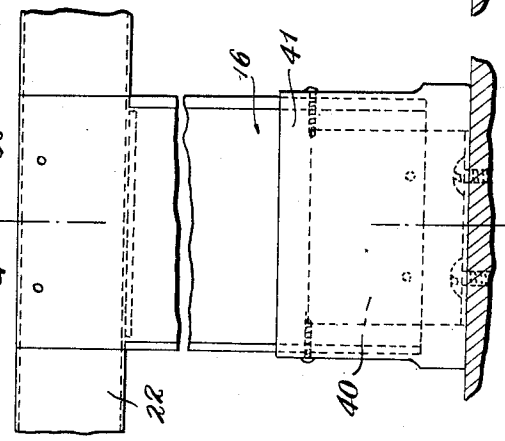


FIG. 3

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CONSTRUCTION UNIT

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Application August 4, 1953, Serial No. 372,230

13 Claims. (Cl. 189—34)

The present invention relates to cubicle assemblies and, more particularly, to the construction of sheet metal panels for use therein and means for assembling the panels into a cubicle assembly having one or more individual cubicles.

The principal object of the present invention is the provision of a new and improved cubicle assembly, and particularly an assembly of the type used in toilet rooms and a lavatories, which is pleasing in appearance and quickly and easily assembled.

Another object of the present invention is the provision of a new and improved cubicle assembly comprised of novel sheet metal panel members and means for supporting and securing the panels in their assembled relationship, the sides of the panels being formed by spaced, opposed metal sheets having overlapping, interlocking marginal flanges so shaped and arranged that the sheets can be quickly and easily assembled and when assembled are securely held in their proper position and have a pleasing appearance free from unsightly lines and offsets.

Another object of the present invention is the provision of a new and improved metal panel construction comprising spaced, opposed metal sheets forming the sides of the panel, the sheets having overlying, interlocking marginal flanges for locking the sheets together, which flanges are so constructed as to present a pleasing appearance free from objectionable offsets and unsightly lines, and to eliminate objectionable gaps caused by separation of the sheets with use.

A further object of the present invention is the provision of a sheet metal panel comprised of two sheet metal sections which are easily fabricated, quickly assembled, and which when assembled are securely held in their proper position by the interlocking action of marginal flanges on each sheet which abut against a surface or shoulder on the other sheet.

The invention resides in certain constructions and combinations and arrangements of parts and further objects and advantages of the invention will be apparent to those skilled in the art to which it relates from the following description of the preferred embodiment described with reference to the accompanying drawing forming a part of this specification and in which:

Fig. 1 is a perspective view of a cubicle assembly embodying the present invention;

Fig. 2 is a sectional view taken approximately along line 2—2 of Fig. 1;

Fig. 3 is a fragmentary enlarged view of one of the pilasters of the cubicle assembly;

Fig. 4 is a vertical sectional view taken approximately along line 4—4 of Fig. 3;

Fig. 5 is an enlarged fragmentary vertical sectional view of one of the doors of the cubicle assembly;

Fig. 6 is an enlarged sectional view taken approximately along line 6—6 of Fig. 1;

Fig. 7 is an enlarged fragmentary view showing the details of a supporting bracket used with the present invention; and

Fig. 8 is an enlarged fragmentary sectional view of one of the doors of the cubicle assembly showing a modified form of panel construction contemplated by the present invention.

Cubicle assemblies embodying the present invention may be of various types for use in various places and are particularly suitable for use in toilet rooms and the like.

Referring to the drawings the cubicle assembly embodying the present invention is shown located in the corner of a room having permanent walls **10** and **11** forming two sides of the assembly. The assembly comprises two individual cubicles **12** and **13** formed by pilasters **15, 16, 17** floor mounted along a line perpendicular to wall **10** and defining door openings into the cubicles, and side walls **20, 21** extending from the pilasters **16, 17** respectively to the wall **11** to provide side walls for the individual cubicles. The pilasters are each connected at their upper ends to a sheet metal head rail **22** extending from the wall **10** to the pilaster **17**. A rail **23** also extends from the upper end of pilaster **17** to the room wall **11**.

The cubicles **12, 13** are provided with doors **24, 25** respectively hinged to the vertical edge of the left hand pilaster defining the door opening into each cubicle. Each door is provided with fittings **26** attached thereto at the top and bottom of the door respectively adjacent the left hand edge thereof, which fittings are adapted to receive the hinge pins **27** of hinge stocks **28** mounted on the left hand pilaster of the door opening. The fittings **26** are shaped so as to fit over the door edge. The hinge stocks **28** are of conventional construction and are preferably of the spring-biased type. Inasmuch as such hinges are commercially available, their construction will not be described in detail. The lower hinge pins, however, are preferably rectangular while the upper ones are preferably round.

The doors **24, 25** are each formed of two opposed, spaced metal sheets **30, 31** having marginal flanges **32, 33** respectively along and substantially coextensive with their horizontal and vertical edges. The sheet **30** forms the inner face of the door while the sheet **31** forms the outer face. The flanges **32, 33** on each sheet are bent to extend inwardly toward the other sheet and overlap the corresponding marginal flange on the opposing sheet with flanges **33** overlying their corresponding flanges **32** and constituting the outside overlapping flange. The flanges are so shaped as to cooperate with each other to lock the sheets **30, 31** in their proper relationship. As shown each flange is reversely bent to form a shoulder **34** immediately adjacent and parallel to its inner edge, the outer or projecting portion of the flange, hereinafter referred to as the convex portion, being curved outwardly to form a portion arcuate in cross-section adapted to cooperate with the corresponding flange on the other sheet to interlock the sheets in their proper position. The convex portions **35, 36** of flanges **32, 33**, respectively, are proportioned so that the outer edge of the outside flange **33** abuts the shoulder **34** on the corresponding inside or overlapped flange **32** of the sheet **30** when the edge of portion **35** of the corresponding inside marginal flange **32** on sheet **30** abuts the inside surface of the sheet **31**. It can now be seen that the sheets will be prevented by the engagement of flange **32** with the sheet **31** and the engagement of the flange **33** with the shoulder **34** on flange **32** from displacement toward each other. The convex portions **35, 36** of the flanges **32, 33**, respectively, are of such curvature that the sheets will also be prevented from separating by the coaction between the convex portions. Preferably the

radius of curvature of the inside surface of portion **36** is approximately equal to the radius of curvature of the outside surface of portion **35**. It will be noted that the thickness of the sheet **31** is slightly less than the height of the shoulder **34** so that the edge of the overlying or overlapping flange **33** does not present any visible offset appearing merely as a line extending along the edge portions corresponding to the line presented by the base of shoulder **34** on the same flange. In addition, the panel viewed in elevation from either side appears as a flat surface and this will be true even if the edge of flange **33** separates from the shoulder **34** since the height of the shoulder or the height of the convex portion, depending on which side is being viewed, will hide the gap from the observer.

The door panel may be quickly and easily fabricated from a sheet metal blank. Prior to assembling the metal sheets **30** and **31** a piece of laminated fiberboard **37** is inserted therebetween to deaden the noise producing qualities of the panel member and to increase the fire resistance of the member. The panel member may have portions of the marginal flanges cut out to accommodate fittings **26**.

The panel members forming pilasters **15**, **16**, **17**, are formed by opposed spaced metal sheets having vertical edges with overlapping marginal edges **38**, **39** similar to flanges **32**, **33**, respectively, of the door panels. The horizontal edges of the pilasters are not provided with marginal flanges which interlock since the pilasters are secured at the top and bottom, respectively, to the head rail **22** and the floor. The fiberboard between the sheet metal sections forming each pilaster terminates at a point below the top of the pilaster allowing the head rail **22** to be inserted between the inner and outer faces thereof as is illustrated in Fig. 4. The pilaster may be secured to the head rail by suitable metal screws.

The fiberboard intermediate the metal sheets forming the pilaster also terminates short of the bottom of the pilaster to allow a metal frame member **40** to be inserted therein for purposes of fastening the pilaster to the floor of the room. The metal frame member is U-shaped in cross section, is fabricated from sheet metal, and is adapted to have its sides secured to the inner surfaces of the metal sheets forming the pilaster by metal screws. The bottom of the U-shaped frame member is adapted to be mounted flush with the floor of the room and to be secured thereto by anchor bolts in a manner well-known in the art. The bottom of each pilaster is covered by a sheet metal shoe **41** which may slide upwardly on the pilaster.

The pilaster **15** which forms the extreme left hand pilaster of the cubicle assembly is connected to the wall **10** by wall brackets **42** having spaced arms **43** extending outwardly from the wall to receive the pilaster **15** therebetween. The pilaster **15** is secured to the wall brackets by metal screws so that the left hand vertical edge of the pilaster is spaced from, and parallel to, the wall **10**.

Sheet metal panels similar to the metal panels which form the doors **24**, **25** are utilized to provide side walls **20**, **21** of the cubicles **12**, **13**. The side walls do not have marginal interlocking flanges along their vertical edges but rather are provided with flanges which are bent inwardly at right angles toward each other to present a flat panel edge which is adapted to abut a plane surface as shown in Figs. 1 and 2. The horizontal edges, however, are provided with overlapping, interlocking marginal flanges as shown in Fig. 6 which are similar to, and cooperate in the same manner as the flanges **32**, **33** of the metal sheets **30**, **31** forming the door panel. The side walls **20**, **21**, are each secured to their respective pilasters **16**, **17**, by L-shaped brackets **44** having legs **45**, **46**. The leg **45** is U-shaped in cross section and adapted to fit over the panel edge while the leg **46** is adapted to be secured to the flat inner side of the pilaster to which the side wall is connected. The side walls are provided with two such brackets, one engaging and supporting the lower panel edge and the other engaging the top panel edge. The structure of the brackets **44** enables the side walls to be readily connected to, or disconnected from, the pilasters of the assembly. The side walls are connected at their rearward vertical edge to the room wall **11** and spaced therefrom by brackets **47** which are similar in construction to the brackets which secure the pilaster **15** to the wall **10**.

The doors **25** on the respective cubicles are adapted to swing inwardly or outwardly according to the available space. The direction in which the doors swing is determined by the position of a door bumper against which the door abuts when it is in its closed position. The door on cubicle **12** is illustrated as swinging outwardly and is provided with a bumper **50** mounted on pilaster **16** so as to engage the inner side of the door **25** when in closed position. The bumper is in line with the inner side of pilaster **16** and extends from the left hand edge thereof into the door opening. The position of the bumper **50** is such that when the door is in abutting engagement with the bumper the door is substantially in line with the pilasters **15** and **16**.

A side latch **51** having a latching lever **52** is mounted on the inside face of the door to enable the door to be locked from the inside. The latching lever **52** is adapted to be moved laterally to engage the outer side of the bumper **50** and prevent the door from swinging outwardly. A plastic handle **53** may be mounted on the outside face of the door to provide a means for opening the closed door.

The door in cubicle **13** is illustrated as swinging inwardly and in this case a door bumper **55** is mounted on the pilaster **17** so as to engage the outside right hand edge of the door when the door is in its closed position. The bumper **55** is supported by a stirrup bracket **56** having a portion **57** extending toward the inner part of the cubicle and adapted to engage the latching lever **58** of a side latch **59** mounted on the interior face of the door similar to the side latch **51**. It can be seen that the bumper **55** while preventing outward movement of the door allows the door to be swung inwardly permitting access to the cubicle.

A modified form of panel construction is illustrated in Fig. 8. The modified panel comprises two opposed spaced metal sheets **60**, **61** having marginal flanges **62**, **63**, respectively, extending inwardly toward the other sheet. The flanges **62**, **63** are each reversely bent to provide a shoulder **64** extending the length of the flange adjacent its inner edge. The outer portion of each flange is convex, the radius of curvature of the inside surface of the flange **62** being substantially the same as the radius of curvature of the outside of flange **63**. The flanges **62**, **63** are of substantially the same width and when the opposed sheets **60**, **61** are in their assembled position as illustrated in Fig. 8, the edge of flange **62** abuts the shoulder **64** on the corresponding flange **63** and the edge of flange **63** terminates short of the inside surface of the sheet **60**. The engagement of the flange **62** with the shoulder **64** will prevent inward displacement of the two sheets. As in the first described embodiment, the arcuate portions of the corresponding flanges cooperate to prevent the sheets from being separated. It will be noted that externally the modified panel will have the same pleasing appearance as the first described embodiment. The modified panel may have marginal flanges along both the vertical and horizontal sides, or the flanges may be omitted from either the horizontal or vertical sides in order to form pilasters and side walls as previously described.

It can now be seen that I have provided an improved cubicle assembly having panel members of novel construction and improved means for holding and securing the panels in their assembled relationship.

It is apparent that the invention is susceptible to various modifications within the scope of the appended claims and is not limited to the particular construction described and

it is the intention to hereby cover all adaptations, modifications and variations which come within the practice of those skilled in the art to which the invention appertains.

Having thus described my invention, I claim:

1. A sheet metal panel construction comprising opposed, spaced, first and second metal sheets forming the sides of the panel, each of said sheets having a plurality of marginal flanges along corresponding edges extending inwardly toward the other sheets with each flange of the first sheet overlapping a portion of the corresponding flange on the second sheet and constituting the outside overlapping flange, the overlapping portions of the flanges being curved and cooperating to lock the sheets in their spaced relationship, each of said flanges having an external groove parallel to the length of the flange adjacent the inner edge thereof, said flanges being so proportioned that the outside overlapping flange abuts a side of the groove in the corresponding inside overlapped flange and the inside flange abuts the inside surface of the opposed sheet.

2. A sheet metal panel construction comprising opposed, spaced, first and second metal sheets forming the sides of the panel, each of said sheets having a plurality of marginal flanges along corresponding edges extending inwardly toward the other sheet, said flanges being substantially coextensive with the respective edges of the panel sides and each flange of the first sheet overlapping a portion of the corresponding flange on the second sheet and constituting the outside overlapping flange, the overlapping portions of the flanges being curved convexly and cooperating to lock the sheets in their spaced relationship, each of said flanges having an external shoulder parallel to the length of the flange adjacent the inner edge of the flange, said flanges being so proportioned that the outer edge of the outside overlapping flange abuts the shoulder in the corresponding inside overlapped flange and the inside flange abuts the inside surface of the opposed sheet.

3. A sheet metal panel construction comprising opposed, spaced, first and second metal sheets forming the sides of the panel, each of said sheets having a plurality of marginal flanges along corresponding edges extending inwardly toward the other sheet, said flanges being substantially coextensive with the respective edges of the panel sides and each flange of the first sheet overlapping a portion of the corresponding flange on the second sheet and constituting the outside overlapping flange, the overlapping portions of the flanges being curved and cooperating to lock the sheets in their spaced relationship, the radius of curvature of the inside surface of the outside overlapping flange being approximately equal to the radius of curvature of the outside surface of the corresponding overlapped flange, each of said flanges having an external shoulder parallel to the length of the flange adjacent the inner edge of the flange, said flanges being so proportioned that the outer edge of the outside flange abuts the shoulder in the corresponding overlapped flange and the inside flange of the overlapping flanges abuts the inside surface of the opposed sheet.

4. A metal panel construction comprising opposed, spaced, first and second metal sheets forming the sides of the panel, each of said sheets having a plurality of marginal flanges along corresponding edges extending inwardly toward the other sheet, the flanges of the first sheet overlying a portion of the corresponding flange on the second sheet, the overlapping portions of the first and second sheets being curved and cooperating to lock the sheets in their spaced relationship, each of said flanges having an external groove parallel to the length of the flange adjacent the inner edge of the flange, one side of each of said grooves being part of said concave portion, the other side of each of said grooves in the flanges of the second sheet forming a shoulder against which the corresponding flanges of the first sheet abut.

5. A metal panel construction comprising two spaced first and second metal sheets forming the sides of the panel, each of said sheets having marginal flanges along corresponding edges extending inwardly toward the other sheet, the flanges of the first sheet overlying a portion of the corresponding flanges of the second sheet, the overlapping flange portions of the first and second sheets being convex and cooperating to lock the sheets in their spaced realtionship, each of said flanges being reversely bent to form an external shoulder parallel to the length of the flange adjacent the inner edge of said convex portion, and the edge of each of said overlapping flanges of the first sheet abutting against the shoulder in the corresponding flange of the second sheet.

6. A sheet metal panel construction comprising opposed, spaced, first and second metal sheets forming the sides of the panel, each of said sheets having a plurality of marginal flanges along corresponding edges extending inwardly toward the other sheet, the flanges of the first sheet overlapping a portion of the corresponding flange on the second sheet and constituting the outside overlapping flange, the overlapping portions of the flanges being curved and cooperating to lock the sheets in their spaced relationship, each of said flanges having an external groove parallel to the length of the flange adjacent the inner edge of the flange, said flanges being so proportioned that the inside flange of the overlapping flanges abuts the inside surface of the first sheet and the outside flange terminates short of the second sheet.

7. A sheet metal panel construction comprising opposed, spaced, first and second metal sheets forming the sides of the panel, each of said sheets having marginal flanges along corresponding edges extending inwardly toward the other sheet and substantially coextensive with the edges of the sides of the panels, the flanges of the first sheet overlying a portion of the corresponding flange on the second sheet and constituting the outer overlapping flange, the overlapping portions of the first and second sheets being curved convexly and cooperating to lock the sheets in their spaced relationship, each of said flanges having an external groove parallel to the length of the flange adjacent the inner edge of the flange, one side of each of said grooves being part of said curved portion, the other side of each of the grooves in the flanges of the second sheet forming a shoulder against which edge of the corresponding flanges of the first sheet abut.

8. A metal panel construction comprising two opposed, spaced, first and second metal sheets forming the inner and outer faces of the panel, each of said sheets having marginal flanges along corresponding edges extending inwardly toward the other sheet, the flanges of each sheet overlapping a portion of the corresponding flanges on the other sheet, the overlapping flange portions being convex and corresponding flanges cooperating to lock the sheets in their spaced relationship, the radius of curvature of the inside surface of each outside overlapping flange being approximately equal to the radius of curvature of the outside surface of the corresponding inside overlapped flange, each of said flanges being narrower than the spacing between said sheets and reversely bent to form a shoulder parallel to the length of the flange adjacent the inner edge of said convex portion, and the edge of the outside flange of the overlapping flanges abutting against the shoulder in the corresponding inside flange preventing the inward displacement of the sheets.

9. A cubicle assembly comprising pilasters forming the front wall of said assembly and defining door openings into each cubicle of the assembly, cubicle side walls extending rearwardly from said pilasters, and a door mounted in each door opening, said pilasters, doors and side walls being comprised of sheet metal panels formed of two opposed, spaced, metal sheets having marginal flanges along corresponding edges, the flanges on each sheet extending inwardly toward the other sheet and overlapping

the corresponding flanges thereof, each of said flanges having an external longitudinal shoulder along its inner edge, the outside flange of each set of overlapping flanges abutting against the shoulder on the corresponding inside flange, the overlapping portions of said flanges being curved and coacting to prevent separation of said sheets.

10. An assembly as defined in claim 9 wherein the side walls are secured to the pilasters by an L-shaped bracket having two legs defining a right angle, one leg of said bracket being adapted to fit flush against the pilaster surface and the other leg being U-shaped in cross section, the U-shaped section being adapted to receive a horizontal edge of the side wall.

11. A cubicle assembly comprising pilasters forming the front wall of said assembly and defining door openings into each cubicle of the assembly, cubicle side walls extending rearwardly from said pilasters, and a door mounted in each door opening, said pilasters, doors and side walls being comprised of sheet metal panels formed of two opposed spaced metal sheets having marginal flanges along corresponding edges, the flanges on each sheet extending inwardly toward the other sheet and overlapping the corresponding flanges thereof, each of said flanges having an external longitudinal shoulder along its inner edge, the outside flange of each set of overlapping flanges abutting against the shoulder on the corresponding inside flange, the overlapping portions of said flanges being convex with the radius of curvature of the inside surface of the outside overlapping flange being approximately equal to the radius of curvature of the outer surface of the inside overlapped flange.

12. A cubicle assembly comprising pilasters forming the front wall of said assembly and defining door openings into each cubicle of the assembly, cubicle side walls extending rearwardly from said pilasters, and a door mounted in each door opening, said pilasters, doors and side walls being comprised of sheet metal panels formed of two opposed spaced metal sheets having marginal flanges along corresponding edges, the flanges on each sheet extending inwardly toward the other sheet and overlapping the corresponding flanges thereof, each of said flanges having an external longitudinal shoulder along its inner edge, the outside flange of each set of overlapping flanges abutting against the shoulder on the corresponding inside flange and said inside flange abutting the inside surface of the opposed sheet, the overlapping portions of said flanges being curved and coacting to prevent separation of said sheets.

13. A cubicle assembly comprising pilasters forming the front wall of said assembly and defining door openings into each cubicle of the assembly, cubicle side walls extending rearwardly from said pilasters, and a door mounted in each door opening, said pilasters, doors and side walls being comprised of sheet metal panels formed of two opposed spaced metal sheets having marginal flanges along corresponding edges, the flanges on each sheet extending inwardly toward the other sheet and overlapping the corresponding flanges thereof, each of said flanges having an external longitudinal shoulder along its inner edge, the outside flange of each set of overlapping flanges abutting against the shoulder on the corresponding inside flange and said inside flange abutting the inside surface of the opposed sheet, the overlapping portions of said flanges being convex with the radius of curvature of the inside surface of the outside flanges being approximately equal to the radius of curvature of the outside surface of the inside flange.

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