Sept. 1, 1959 R. E. CIESLA 2,901,809

MEANS OF FORMING CATCH BASINS

Filed Sept. 20, 1954 4 Sheets-Sheet 1

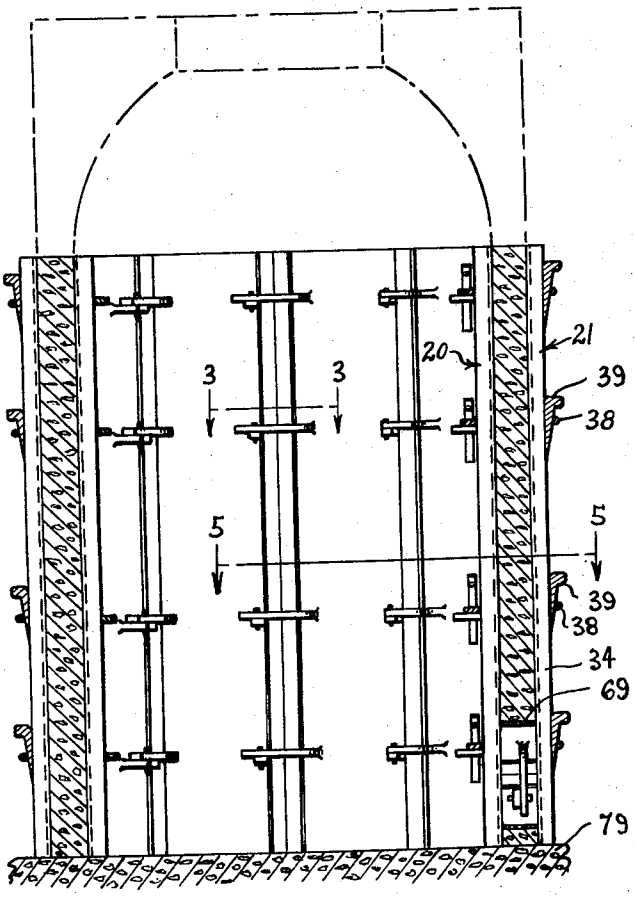


Fig. 1

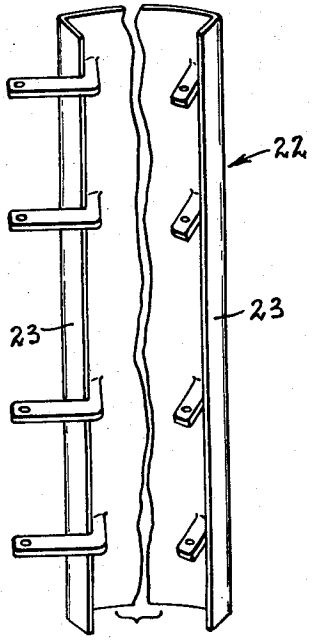


Fig. 2

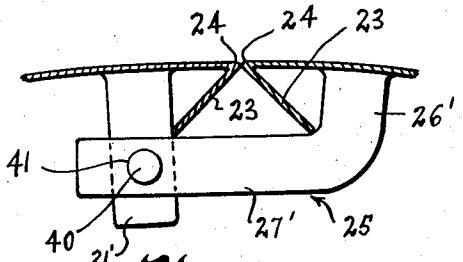


Fig. 3

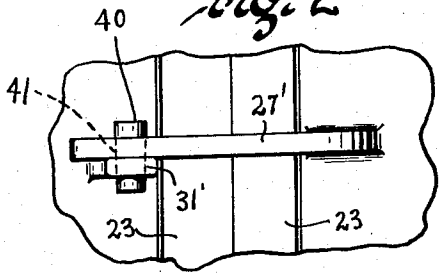


Fig. 4

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MEANS OF FORMING CATCH BASINS

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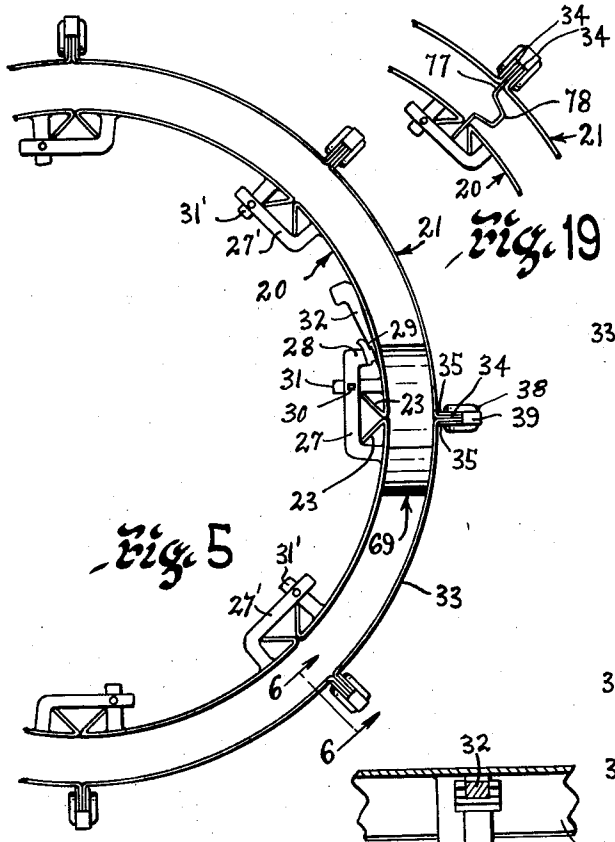


Fig. 19

Fig. 5

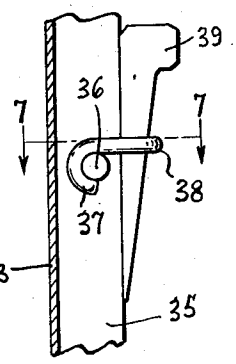


Fig. 6

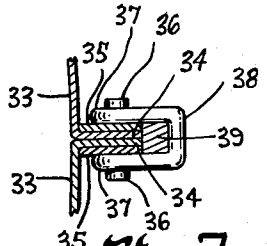


Fig. 7

Fig. 9

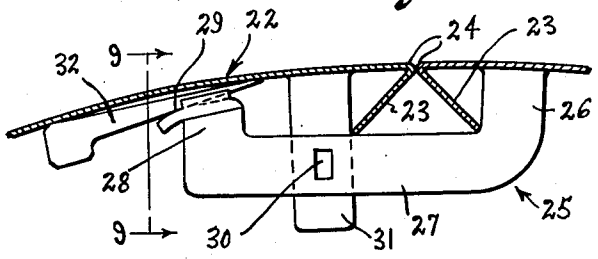


Fig. 8

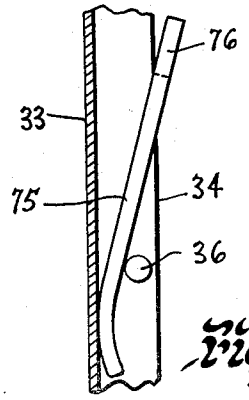


Fig. 10

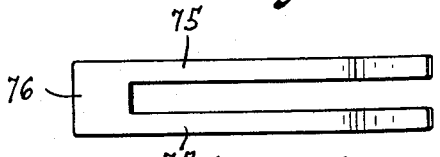


Fig. 11

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MEANS OF FORMING CATCH BASINS

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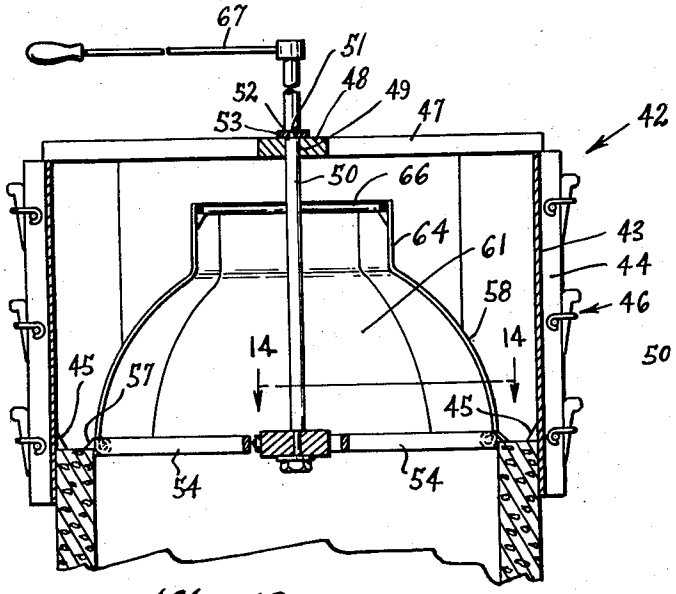


Fig. 13

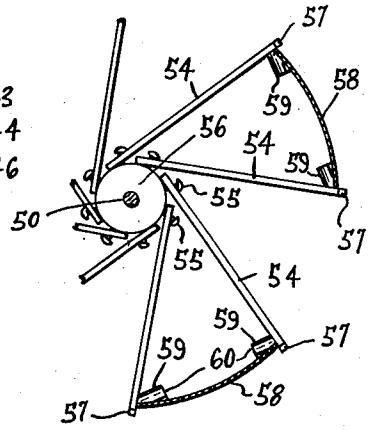


Fig. 14

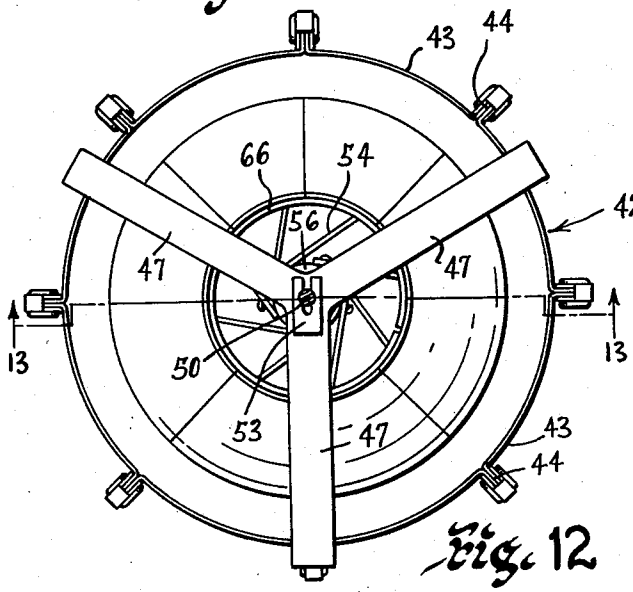
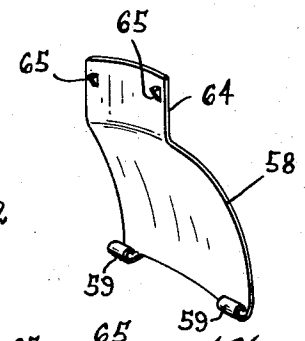


Fig. 12



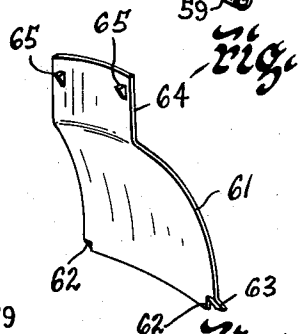


Fig. 15

Fig. 16

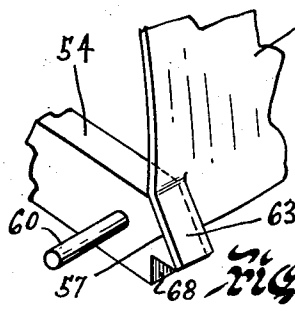


Fig. 17

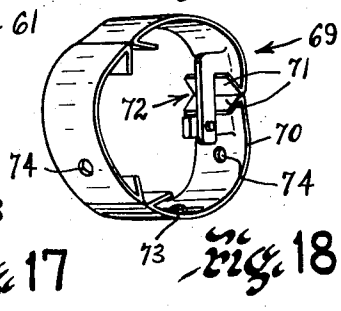


Fig. 18

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MEANS OF FORMING CATCH BASINS

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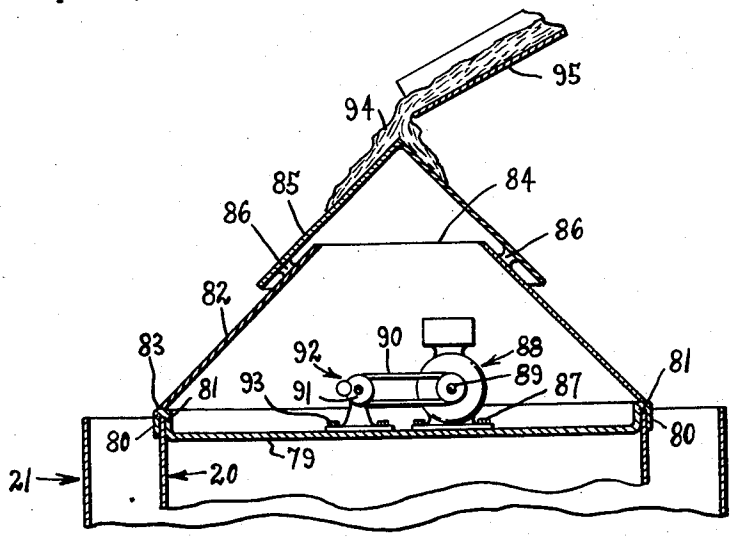


Fig. 20

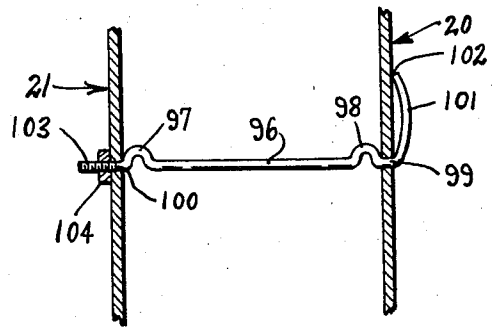


Fig. 21

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2,901,809

MEANS OF FORMING CATCH BASINS

Raymond E. Ciesla, Webster, Mass.

Application September 20, 1954, Serial No. 456,949

5 Claims. (Cl. 25—124)

This invention relates to improvements in catch basins and has particular reference to the provision of novel means of making the same.

One of the principal objects of the invention is to provide novel forms for molding or casting the main cylindrical body portion of a catch basin from concrete or the like and to thereafter form the dome or cap of said catch basin, said forms, subsequent to such casting or molding, being collapsible and removable whereby they may be reassembled for repetitive use.

Another object is to provide a molding or casting form embodying sectional parts and novel means of assembling the same for producing the main cylindrical body portion of a catch basin, with the said parts thereafter being collapsible and removable, and to further provide a molding or casting form for the dome or cap of the catch basin in sectional parts which may be assembled and secured to the top of the preformed cylindrical portion whereby the said cap or dome may be molded or cast in position of use in a single pouring operation, said parts of the form for said cap or dome being thereafter collapsible and removable.

Another object is to provide novel means of forming catch basins whereby the parts thereof are reduced to a minimum and may be molded or cast in actual position of use.

Another object is to provide cylindrical forms of the above character for casting the main body portion of a catch basin having means therebetween for retaining said members in positive spaced relation with each other.

Another object is to provide spacer means for retaining the outer and inner cylindrical portions of the mold for the main body portion of the catch basin in positively spaced relation with each other during the pouring of cement in said mold.

Another object is to provide novel means of controlling the flow of the cement into the mold whereby the cement may be substantially uniformly directed throughout the entire circumference of the mold.

Another object is to provide automatically functioning means for causing the cement to be uniformly dispersed throughout the entire circumference of molds used in forming the main body portion and dome of a catch basin during the flowing of said cement into the molds from a conventional mixing machine.

Other objects and advantages of the invention will become apparent from the following description taken in connection with the accompanying drawings, and it will be apparent that many changes may be made in the details of construction, arrangement of parts shown and described without departing from the spirit of the invention as expressed in the accompanying claims. I, therefore, do not wish to be limited to the exact details of construction, arrangement of parts and method shown and described as the preferred only have been given by way of illustration.

Referring to the drawings:

Fig. 1 is a sectional view illustrating the means and method of forming the cylindrical base portion of the catch basin and diagrammatically illustrating the relation of the dome portion with said base portion;

Fig. 2 is a perspective view of a section of the form utilized in producing said base portion;

Fig. 3 is a fragmentary sectional view taken as on line 3—3 of Fig. 1 and looking in the direction indicated by the arrows;

Fig. 4 is a fragmentary side elevational view of the portion of the device illustrated in Fig. 3;

Fig. 5 is an enlarged fragmentary sectional view taken as on line 5—5 of Fig. 1 and looking in the direction indicated by the arrows;

Fig. 6 is an enlarged fragmentary sectional view taken as on line 6—6 of Fig. 5 and looking in the direction indicated by the arrows;

Fig. 7 is a sectional view taken as on line 7—7 of Fig. 6 looking in the direction indicated by the arrows;

Fig. 8 is a view generally similar to Fig. 3 illustrating one of the main connection members for securing sections such as illustrated in Fig. 2 in assembled relation with each other;

Fig. 9 is a sectional view taken as on line 9—9 of Fig. 8 and looking in the direction indicated by the arrows;

Fig. 10 is a view generally similar to Fig. 6 illustrating a modified type of connection member;

Fig. 11 is a face view of the detachable portion of the connection means illustrated in Fig. 10;

Fig. 12 is a plan view of the form for producing the dome portion shown in dash lines in Fig. 1;

Fig. 13 is a sectional view taken as on line 13—13 of Fig. 12 looking in the direction indicated by the arrows;

Fig. 14 is a fragmentary sectional view taken as on line 14—14 of Fig. 13 and looking in the direction indicated by the arrows;

Fig. 15 is a perspective view of a portion of the form illustrated in Fig. 13;

Fig. 16 is a view similar to Fig. 15 of another portion of the form illustrated in Fig. 13;

Fig. 17 is an enlarged fragmentary view of a lower section of the portion of the form illustrated in Fig. 16;

Fig. 18 is an aperture producing form for use with the form illustrated in Fig. 1;

Fig. 19 is a fragmentary view similar to a portion of Fig. 5 illustrating a modification of the invention;

Fig. 20 is a fragmentary sectional view of a device for automatically controlling the flow of the cement into the mold from a conventional cement mixing machine and showing its associated relation with the mold for the main body portion of the catch basin; and

Fig. 21 is a fragmentary sectional view showing one of a modified form of spacer means for retaining the sections of the mold for the main body portion of the catch basin in positive spaced relation with each other.

It has been the usual practice in the past in forming catch basins to prefabricate some of the parts and to assemble and seal the parts with each other to complete the same or to form said catch basins from bricks and mortar which are built up in position of use in order to complete the same. Such prior art catch basins have been exceptionally costly to fabricate and required special skill in properly assembling and sealing the parts with each other.

The present invention, therefore, is designed primarily to cast or mold the parts of the catch basin in actual position of use whereby a minimum of sealed joints is required and the main portions of the catch basin may be formed in integral relation with each other. A further

object is to provide collapsible molds whereby said catch basins may be cast in position of use and the parts of said molds may thereafter be collapsed and removed and may be reassembled for repetitive use.

Referring more particularly to the drawings wherein like characters of reference designate like parts throughout the several views of the drawings, the invention comprises in part a form embodying an inner cylindrical member **20** and an outer cylindrical member **21** for use in casting or molding the main cylindrical body portion of a catch basin. The inner cylindrical member **20** comprises a plurality of cylindrical sections **22** of a length sufficient to extend throughout the entire height of the main body portion of the catch basin to be molded and each having a transverse radius of curvature controlled according to the diameter of the circular cross sectional dimension desired of said inner cylindrical member **20**. Each curved section has along the longitudinal edges thereof an inwardly angled lip **23** which provides relatively sharply angled abutting edges **24** held in said aligned abutting relation with each other by tie members **25** which are spaced at given intervals longitudinally of said sections **22**, see Fig. 8. Each tie member comprises a portion **26** secured to one section **22** adjacent the angled edge portion **23** thereof by welding or the like. The said portion **26** extends inwardly substantially normal to the adjacent inner surface of the section and thence angles outwardly with a portion **27** which overlies the angled lips **23** and extends transversely thereof and terminates in an inwardly angled portion **28** having a channeled angled end surface **29** spaced relative to the adjacent inner surface of an adjoining section **22**. The said portion **27** is provided with a rectangular opening **30** aligned with a similar opening formed in a post **31** secured to the adjoining section adjacent its inwardly angled edge portion or lip **23** by welding or the like. The said rectangular openings are adapted to receive a wedge pin **32** for securing said portions **27** and **31** in interlocked relation with each other to retain the abutting edges **24** in aligned relation with each other. Several of such tie members **25**, as stated above, are provided at spaced intervals throughout the length of said sections whereby the said abutting edges **24** will be retained in proper relation with each other when the parts are assembled. Several of such sections are provided to complete the cylinder which produces the inner member **20** of the mold.

Spaced relative to said inner member **20** is said outer cylindrical member **21** which is also formed of sections **33** similar to the sections **22**. The sections **33**, however, are provided along their longitudinal edges with outwardly extending lips **34** adapted to abut with each other. Each of said lips is provided with an outer reinforcing strip **35** and at spaced intervals longitudinally thereof are provided with outwardly extending pin members **36** adapted to receive the spaced hook-shaped ends **37** of U-shaped connection means which are positioned in straddling relation with the lips **34** and the reinforcing strips **35**. The joining portions **38** of said hook-shaped ends **37** are normally spaced relative to the outer edges of the abutting angled lips **34** and are adapted to receive tapered wedges **39** which, when tightly driven therein, causes the hook-shaped ends **37** to securely grip the pin members **36**. This securely and releasably holds the meeting edges of the sections **33** together. A plurality of such sections is provided to complete the cylinder **21**, as shown in Fig. 5, and when the said sections of said inner and outer cylindrical members **20** and **21** of the mold are assembled, the cement is poured between said cylindrical members to cast the main cylindrical body portion of the catch basin. When the cement hardens and sets, the tapered pins **32** and wedges **39** are removed and the sections of the inner and outer cylindrical members may then be removed from the cast main cylindrical body portion of the catch basin. The tapered pins **32** after removal from the rectangular openings **30** are driven in between the angled

end surfaces **29** and the wall of the adjacent section **22**, as shown in Fig. 8, whereby the adjoining section **22** will be moved away from the inner wall of the main cylindrical body portion of the basin. The portion **27** functions as a lever to force the abutting edges of the adjacent sections away from each other whereby the remaining adjoining sections of the mold may be collapsed and removed. This is possible as the connecting means for securing the meeting edges of the remaining sections of the mold are constructed as shown in Fig. 3 wherein tapered cylindrical pins **40** are used in circular openings **41**. The portions **26'**, **27'** and **31'** are generally similar to parts **26**, **27**, and **31** of the construction shown in Fig. 8 with the exception that the part **27'** has no inwardly extending end **28**.

Following the casting of the main cylindrical body portion of the catch basin, a mold member **42** comprising a plurality of cylindrical sections **43** similar to the sections of the outer cylindrical member **21** and having outwardly extending angled lip portions **44** along the longitudinal edges thereof and placed in assembled relation with each other with the lower edges thereof overlapping the upper edge of the main cylindrical body portion of the basin, as shown in Fig. 13. The said sections are each provided with spaced inwardly extending tongues **45** which are adapted to rest upon the top edge of the main body portion to complete a cylindrical wall surrounding the upper portion of said main body portion. The sections **43** are held in assembled relation with each other by connection means **46** which are constructed and function the same as the connection means for the sections of the outer cylindrical member **21**, as shown in Figs. 6 and 7 and as described above.

Following the assembly of the outer cylindrical member **42** a supporting frame embodying three radial bar portions **47** is placed on the top edge of said cylindrical member **42**. The inner ends of said radially disposed bar portions **47** are joined with a central portion **48** having an opening **49** extending therethrough and adapted to receive a rod **50** having a circumferential groove **51** therein. The said groove is adapted to receive a key member **53** for holding the said rod **50** in a desired fixed position with respect to said supporting frame while permitting rotation of said rod. The lower end of the rod **50** is provided with a plurality of radially disposed bar members **54**, each pivotally connected at **55** to a disc **56** attached to said rod. The respective bars **54** are provided with a downwardly and outwardly angled end **57** adapted to overlie the upper edge of the main body portion of the catch basin, as shown in Fig. 13, and are supported so as to lie substantially parallel with the plane of said upper edge. A plurality of hemispherical sections are then fitted in side by side relation with each other with the lower edges of certain of said sections **58** having inwardly curled or tubular portions **59** secured thereto and adapted to be fitted over a pin **60** carried by the adjacent ends of certain of said bars **54**, that is, every other one of said spherical sections are provided with said inwardly curled or tubular portions **59** while the hemispherical sections lying therebetween do not have such inwardly curled or tubular portions. However, said intermediate sections, designated by the numeral **61**, have their lower opposed edges notched as illustrated at **62** with a portion **63** being angled outwardly so as to overlie the angled end **57** of the rods **54**. This is to permit the side edges of the respective hemispherical sections **58** and **61** to be positioned in substantially flush edge-to-edge relation with each other and the lower edges thereof to be intimately fitted with the upper end surface of the main cylindrical body portion. The upper portions of each hemispherical section **58** and **61**, as shown best in Figs. 13, 15 and 16, are provided with integral sectional cylindrical portions **64** adapted to be fitted in edge-to-edge relation with each other, when the hemispherical sections are so fitted, and to form an upwardly

extending cylindrical wall above the hemispherical sections. Inwardly of each of said cylindrical sections, as shown at 65, there is provided spaced protruding portions on which a ring 66, see Figs. 12 and 13, is supported to retain said sectional cylindrical portions in proper position. The notched portions 62 are adapted to fit over the bar members 54, as shown in Fig. 17, with the outwardly angled lips 63 engaging the angled ends 57 of said bar members so as to support said sections 61 against being displaced with respect to said bar members 54 when the cement is poured between the inner cylindrical member and hemispherical member and the outer cylindrical member 42.

There is provided a lever 67 which may be attached to the upper end of the rod 50 and which, after the cement has been poured and is allowed to set and harden, may be used to rotate the rod 50 to cause the bar members 54 to be drawn inwardly to remove the ends 57 thereof from the upper edge of the main cylindrical body portion. The sections 58 attached to said bar members 54 by the inwardly curled or tubular portions 69 and pins 60 will also be simultaneously pulled free from the inner wall of the cast concrete dome. It is pointed out that the ring 66 is first removed from said inner cylindrical sections prior to rotating the lever 67. The intermediate hemispherical sections having the opposed notched lower edges 62 are now free to be removed from the inner wall of the dome. To further insure that the bar members 54 properly seat on the upper edge of the main cylindrical body portion of the catch basin, the ends of said respective rods 54 may be notched, as illustrated at 68, so as to provide end surface areas for engaging the inner wall of the main cylindrical body portion as well as to have edge overlying portions.

If it is desired to cast a drain pipe aperture or opening in the lower portion of the main cylindrical body portion, a cylindrical member 69, such as shown in Fig. 18, may be positioned between the inner and outer cylindrical members 20 and 21, respectively, as shown in Fig. 1. The said member 69 has its end edges shaped to fit rather intimately with the inner surface shapes of the outer and inner walls of said cylindrical members 20 and 21 and comprises a plurality of cylindrical sections 70 having inwardly angled side portions 71 joined in bent edge-to-edge relation with each other by connection means 72 formed and functioning in a manner similar to the connection means shown in Figs. 3 and 8.

The said cylindrical member 69 is provided with an opening 73 in the lower wall portion thereof and with an opening 74 in each side wall portion thereof to provide vent means for preventing pressure from being built up during the pouring of the cement between said members 20 and 21 and to avoid having the said aperture forming cylindrical portion 69 become displaced during said pouring. What actually takes place is that the water pressure built up during said pouring is obviated by permitting the leakage thereof through the openings 73 and 74. The inherent self-sealing action of cement due to the collection of the solid portions thereof wherever leakage takes place will eventually restrict or stop said leakage and permit the cement to build up about said cylindrical member 69 without displacement thereof. This same self-sealing action takes place wherever leakage may occur.

After the molds 20 and 21 have been removed, the said cylindrical member 69 can also be removed by disconnection of the connection means thereof whereby an opening will remain in the side wall of the main cylindrical body portion.

In Figs. 10 and 11 there is illustrated a modified form of connection means which may be used instead of the members 38 having the hook-shaped ends 37. In this instance, the connection means is in the form of a dog having spaced branches 75 joined at one end 76 so that the dog may be positioned, as shown in Fig. 10, in straddling relation with the outer angled portions 34 of the outer sections of the cylindrical member 21. In this instance, the branches 75 extend down between the pin 36 and the adjacent side walls of the cylindrical sections with the joined end 76 thereof engaging the edges of said portions 34. These dogs, as well as the members 38, may be secured to the adjacent parts of the mold by chains or the like to prevent loss thereof.

In Fig. 19 there is illustrated a further modification wherein the outer and inner cylindrical members 20 and 21 are held in positive spaced relation with each other by spacer members 77 positioned between a portion of the adjacent angled side edges of said sections forming said cylindrical members 20 and 21 and outwardly angled portions 34. It is particularly pointed out that the spacer members are held in position by the connection means which hold said bent edges together and are provided with an intermediate reversely bent portion 78 so as to key the adjacent walls of the main cylindrical body portion together in a transverse direction at the completion of the pouring of the cement and the hardening thereof.

The various sections, connection means and associated parts by which the molds or forms for the main cylindrical body portion and the dome or cap portion are produced may be used repetitively and successively by following the procedure set forth herein.

It is to be understood that the main cylindrical body portion of the catch basin is cast upon a concrete footing 79 which is formed prior to said casting or molding of said main cylindrical body portion.

In Fig. 20 there is shown a sectional view of a device for use in more uniformly guiding the mixed cement into the molds for the main body portion of the catch basin and for the cap or dome of the basin. The said device comprises a disklike spanner member 79 having a circumferentially channeled edge 80 adapted to overlie the upper edge 81 of the inner cylindrical portion 20 of the mold. The mold in this instance is for the main body portion of the catch basin. The said peripheral portion of the disk-like spanner member 79 has a frustum of a cone shaped portion 82 secured thereto by welding, soldering or the like along the lower peripheral edge 83 of said portion 82. The said portion 82 has an opening 84 in the upper end thereof over which is fitted a cone shaped portion 85 having its lower peripheral portion secured in spaced relation with said portion 82 by spacer members 86. This is to provide a vent between said portions 82 and 85. Inwardly of the portion 82 and attached to the disk-like spanner member 79 by bolts or the like 87 there is a gas operated motor or the like 88 having rotatable pulley 89 thereon.

The pulley 89 is connected through a belt 90 to the pulley 91 of a vibrator device 92 attached to the plate 79 by bolts or the like 93 and which is adapted to cause the plate and associated parts to have a vibrating movement imparted thereto. This vibrating movement is transmitted to the portions 82 and 85 and to the inner cylindrical portion 20 of the mold. The cone-shaped portions 82 and 85 are for causing the cement, diagrammatically illustrated at 94 and directed thereon by a trough or the like 95 from a conventional cement mixing machine, to flow downwardly on all sides thereof substantially uniformly and into the mouth or open end of the mold portions 20 and 21. The motor 88 which rotates the vibrator device 92 simultaneously to said flowing of the cement causes the cones 82 and 85, as well as the inner cylindrical portion 20, to be vibrated and thereby causes the cement to flow more freely and more uniformly and compactly between the cylindrical portions 20 and 21. This arrangement obviates the necessity of manually dispersing the cement during the flowing thereof into the mold from the trough 95.

While the cone-shaped members are diagrammatically illustrated as being placed in assembled relation with the

inner cylindrical portion 20 of the mold for the main body portion of the catch basin, it is to be understood that a similar device may be associated with the inner portion of the mold for the cap or dome of the catch basin, it only being necessary to control said device dimensionally so that it may be fitted on the upper inner cylindrical portion 64.

In Fig. 21 there is illustrated a modified form of spacer member comprising an intermediate bar portion 96 having portions 97 and 98 bent in a sidewise direction so as to retain the side walls of the inner and outer cylindrical portions of the mold in positive spaced relation with each other. The said spacer member, outwardly of the respective sidewise bent portions 97 and 98, are provided with portions 99 and 100 adapted to be extended through openings formed in said respective cylindrical portions 20 and 21. The portion 99 terminates in an angularly bent portion 101 having inherent resilient characteristics whereby the end 102 thereof, when rotated in an upward direction, will frictionally bind with the adjacent side wall of the inner cylindrical member 20. The portion 100 has an outer threaded end 103 having a nut 104 threadedly connected thereto which, after the spacer means are located in position of use, may be tightened to hold the side walls of said inner and outer cylindrical members 20 and 21 against spreading relative to each other.

The said connection means are first extended through the openings in the inner cylindrical member after its sections have been completely assembled and the ends 100 are then extended through the openings in the outer cylindrical member 21 during the assembling thereof. The nuts 104 are then threaded on to the threaded ends 103 and tightened to retain the angled portion 101 in binding relation with the inner wall of the inner cylindrical member.

It is to be understood that a plurality of such spacer members are placed at different spaced intervals throughout the circumference and length of said inner and outer cylindrical members and are adapted to remain in the cast cement after the same has set and hardened. The sections of the outer cylindrical portion 21 may be disassembled by removing the nuts 104 and the sections of the inner cylindrical member 20 are removed by lifting them off of the ends 101.

From the foregoing description it will be seen that simple, efficient and economical means have been provided for accomplishing all of the objects and advantages of the invention.

Having described my invention, I claim:

1. In a form for molding the main cylindrically shaped body portion of a catch basin, the combination of spaced outer and inner cylindrically shaped members, the inner one of said cylindrically shaped members being divided longitudinally into parallel sections, each section having its opposed longitudinal side edges provided with a lip folded in a sidewise direction to a position wherein it is acutely angled with respect to the plane of the adjacent surface portion of said section to provide relatively sharply angled abutting edges with other of said sections along the fold lines of said lips, each of said sections inwardly of the free edges of said angled lips being provided with longitudinally spaced tie members, the tie members on one of said sections comprising a portion welded to a side surface of said section and extending outwardly thereof in substantially normal relation to said surface and having a side surface adjacent said inner free edge of the angled lip and having an angled normally related portion extending transversely of the lips of said sharply angled abutting edges of said sections and having an opening therein spaced from said portion welded to said section a distance greater than the distance between the inner free edges of said angled lips and the other of said sections having longitudinally spaced posts welded to their side surfaces inwardly of their angled lips and in normal relation with said surfaces, each of said posts having a side surface adjacent the inner free edge of said angled lip and having an opening therein spaced outwardly of said inner free edge and adapted to be aligned with the opening in said angled portion of said other tie member and a tapered pin fitting within said aligned openings for fixedly securing said tie members together and for retaining said sharply angled abutting edges in engagement with each other.

2. In a form for molding a cylindrically shaped portion, the combination of spaced outer and inner cylindrically shaped members, the inner cylindrically shaped member being divided into sections having substantially parallel longitudinal edges, said sections each having a transverse curvature of a radius controlled according to the diameter desired of said inner cylindrically shaped member, each section having its opposed longitudinal edges provided with a lip folded in a sidewise direction to a position wherein it is acutely angled with respect to the plane of the adjacent surface portion of said section to provide at said folds relatively sharply angled edges for abutting similar edges of other adjacent sections when said sections are fitted in edge-to-edge relation with each other to form said inner cylindrically shaped member, each of said sections adjacent the free edges of the angled lips being provided with tie members spaced longitudinally of said edges, the tie members adjacent the free edge of the lip of one of said sharply angled edges which engage the sharply angled edge of an adjacent section each comprising a portion secured to the adjacent side surface of said one of said sections and extending outwardly thereof in substantially normal relation to said surface, said portion having a side surface in engaging relation with the free edge of the adjacent lip and further having an angled normally related portion extending transversely of said lip and the lip of the other adjacent section when said sharply angled edges of said sections are in engaging relation, said normally related portion having an opening therein and the tie members of said adjacent section each comprising posts spaced longitudinally of the adjacent lip of said section and secured to the adjacent side surface of said section along the free edge of its lip and having a side surface in engaging relation with said free edge, each post having an opening therein adapted to be aligned with the opening in the normally related portion of a respective other tie member and a tapered pin fitting within said aligned openings for fixedly securing said tie members together for retaining said sharply angled abutting edges of said adjacent sections in engagement with each other.

3. A device of the character described comprising the combination of spaced inner and outer cylindrically shaped members, the inner one of said cylindrically shaped members being divided longitudinally into separate sections each having integral longitudinal lip portions bent inwardly along fold lines into acutely angled relation with the adjacent surface portions of said sections to produce relatively sharp angled edges for abutting similar edges of other of said sections when said sections are fitted in edge-to-edge relation with each other to form said inner cylindrically shaped member, each of said sections adjacent the free edges of the lips thereof being provided with tie members spaced longitudinally of said sections, the tie members adjacent the lip of one of the sharply angled edges of a first section which engages the sharply angled edge of an adjacent second section each comprising a portion secured to a side surface of said first section and extending outwardly thereof in substantially normal relation to said surface and being in engaging relation with the inner free edge of said lip of said section and further having an angled normally related portion extending transversely of said lip and the adjacent lip of said adjacent second section, said normally related portion having an opening therein and the tie

members of said adjacent second section each comprising longitudinally spaced posts secured to the side surface of said second section along and in engagement with the free edge of its adjacent lip, said posts having openings therein adapted to be aligned with the respective openings in the normally related portions of said other tie members and a tapered pin fitting within each of said aligned openings for detachably securing said tie members together for retaining said sharply angled abutting edges of the adjacent sections in engagement with each other and the outer one of said cylindrically shaped member being divided longitudinally into a plurality of sections having integral outwardly extending substantially normally related angled edged portions extending longitudinally of said sections and means for clamping said outwardly extending angled edge portions in aligned side surface relation with each other, said device further comprising a relatively short cylindrical member of substantially the same diameter as the diameter of the outer cylindrical portion, said short cylindrical member being formed of vertically divided sections having integral outwardly extending angled edge portions fitted in side surface relation with each other, detachable means for holding said edge portions in said relation, a support comprising rigid radially extending bar portions joined centrally by a hub and having their outer portions fitting on the upper edge of said relatively short cylindrical member, said hub having an opening therein, a rod rotatably supported in said opening and having a portion extending inwardly of said short cylindrical member, said rod having a plurality of outwardly extending bar members pivotally attached adjacent their inner ends to the lower end of said rod and having outwardly and downwardly angled end edges, a hemisphere portion divided vertically into a plurality of sections fitting in edge-to-edge relation with each other having their lower edges engaging said bar members adjacent the angled end edges thereof, each hemispherical section having an upper integrally related cylindrical section thereon which also fit in edge-to-edge relation with each other and detachable means for retaining said short cylindrical sections and said hemispherical sections in said edge-to-edge relation with each other.

4. A device of the character described comprising an outer cylindrically shaped member, an inner cylindrically shaped member spaced from said outer cylindrically shaped member, each of said cylindrically shaped members being divided into sections having substantially parallel longitudinal edges detachably joined in edge-to-edge relation with each other, a spanner member having its edge connected with the upper edge of said inner cylindrically shaped member, a frustum of a cone shaped member having its edge secured to the spanner member adjacent the outer edge thereof and overlying the upper end of said inner cylindrically shaped member, said frustum of a cone shaped member having an opening in the upper end thereof, a cone-shaped cap portion overlying said opening and the portion of the frustum of a cone shaped member surrounding said opening, said cone-shaped cap portion having its lower peripheral portion spaced from said frustum of a cone shaped member, spacer members secured between said lower peripheral portion of said cone-shaped cap portion and said frustum of a cone shaped member to provide a vent between said member and said cap portion and vibrating means supported inwardly of said frustum of a cone shaped member by said spanner member for imparting a vibratory movement thereto and to said frustum of a cone shaped member and said cap portion.

5. A form for molding a cylindrically shaped portion, comprising the combination of spaced outer and inner cylindrically shaped members, the inner cylindrically shaped member being divided into sections having substantially parallel longitudinal edges, said sections each having a transverse curvature of a radius controlled according to the diameter desired of said inner cylindrically shaped member, each section having its opposed longitudinal edges provided with a lip folded in a sidewise direction to a position wherein it is acutely angled with respect to the plane of the adjacent surface portion of said section to provide at said folds relatively sharply angled edges for abutting similar edges of other of said sections when said sections are fitted in edge-to-edge relation with each other to form said inner cylindrically shaped member, each of said sections adjacent the free edges of the lips thereof being provided with tie members spaced longitudinally of said sections, the tie members adjacent the lip of one of the sharply angled edges of a first section which engages the sharply angled edge of an adjacent second section each comprising a portion secured to a side surface of said first section and extending outwardly thereof in substantially normal relation to said surface and being in engaging relation with the inner free edge of said lip of said section and further having an angled normally related portion extending transversely of said lip and the adjacent lip of said adjacent second section, said normally related portion having its end angled toward the surface of said adjacent second section and provided with a channel which, between it and said surface enables a tapered wedge to be driven inwardly thereof, said normally related portion further having an opening therein and the tie members of said adjacent second section comprising longitudinally spaced posts secured to the side surface of said adjacent second section along and in engagement with the free edge of its adjacent lip, said posts having openings therein adapted to be aligned with the respective openings in the normally related portions of said other tie members and a tapered pin fitting within each of said aligned openings for detachably securing said tie members together for retaining said sharply angled abutting edges of the adjacent sections in engagement with each other.

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