

Feb. 27, 1934.

C. J. MEARS

1,948,931

FORM FOR CONCRETE CATCH BASINS OR THE LIKE

Filed Nov. 7, 1931

2 Sheets-Sheet 1

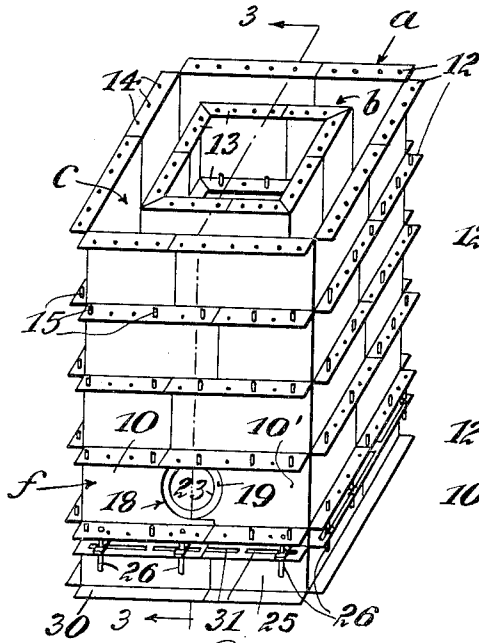


Fig. 1.

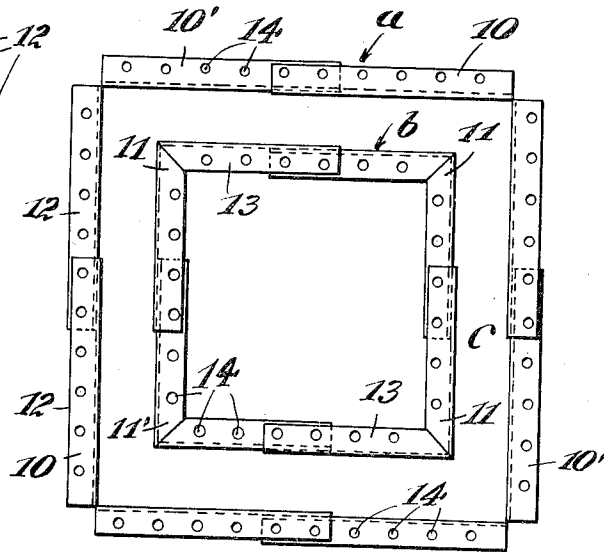


Fig. 2.

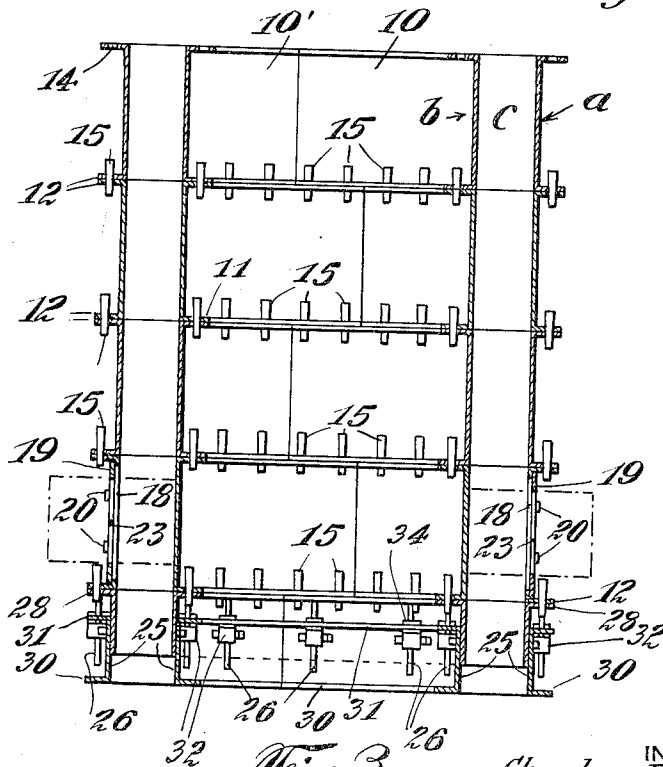


Fig. 3.

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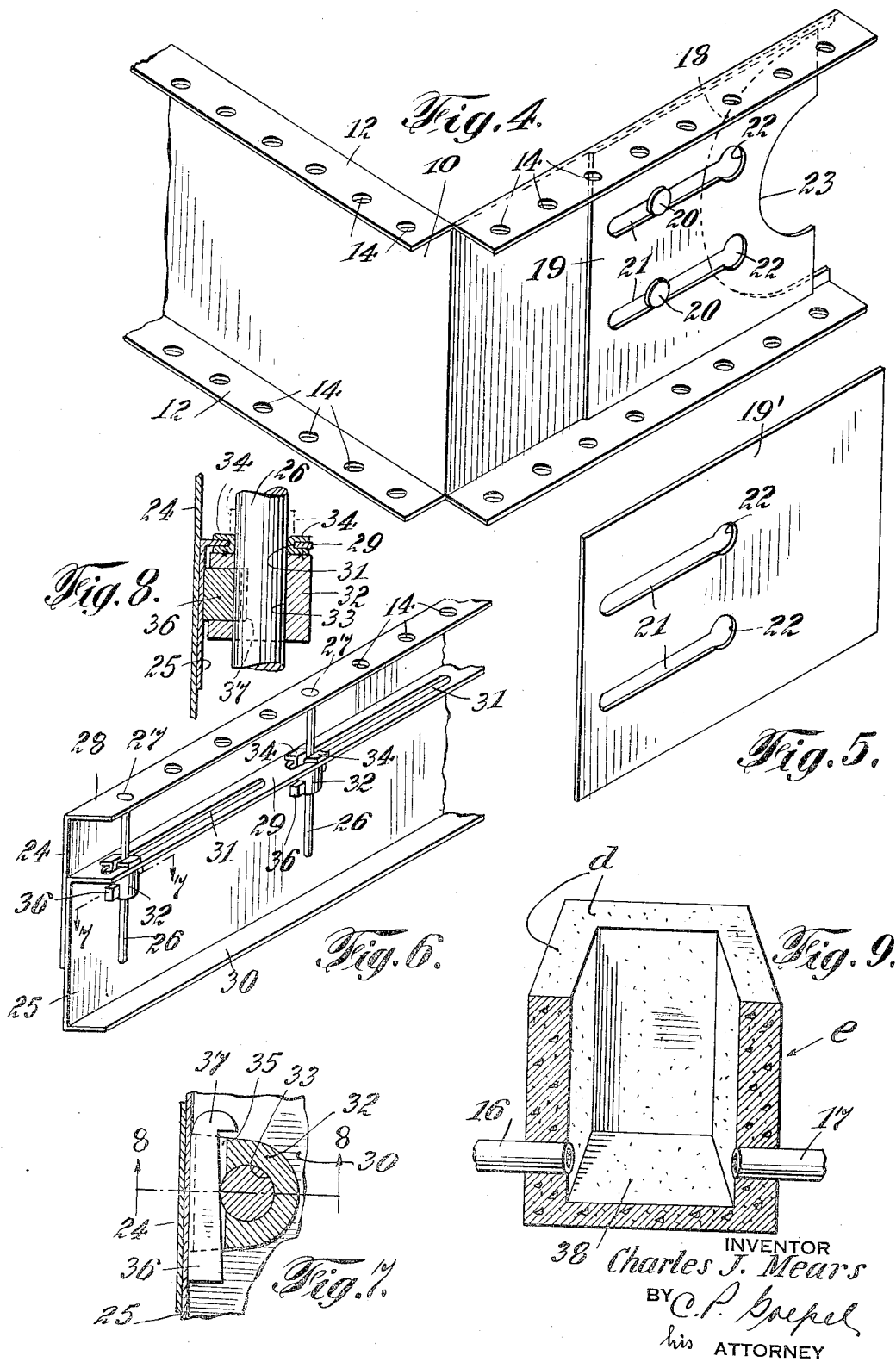
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FORM FOR CONCRETE CATCH BASINS OR THE LIKE

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2 Sheets-Sheet 2



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FORM FOR CONCRETE CATCH BASINS OR
THE LIKE

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Application November 7, 1931. Serial No. 573,545

10 Claims. (Cl. 25—124)

This invention relates to forms for molding cementitious work, the invention being more particularly related to metallic sectional forms for producing concrete catch basins and similar structures.

As at present carried out, the work of producing forms for catch basins for sewers is both laborious and expensive. The form for the mold into which the cementitious material is poured to produce the concrete wall of the basin is made of wood. The building of the form for pouring each catch basin requires a fresh supply of lumber. This makes the cost of the individual basins much more than it would be if the same mold forms could be used for new erections again and again, and regardless of the relative sizes of the basins to be produced. Furthermore, in making the individual forms from lumber, there is a great waste of material, and the time which the workmen must give to the building of the forms is an expensive item.

The purpose and object of my invention are to provide metallic sectional unit forms which may be quickly and readily set up to produce the mold for pouring the concrete basin wall and which, after the wall has been produced, is capable of disassembly with ease and dispatch for use in building another mold on a new site. The metallic sectional unit forms of my invention may be used over and over again until worn out.

One object of my invention is the provision of metallic mold form parts so devised and constructed that they can be adjusted relatively to one another in order to vary, as may be desired, the thickness of the basin wall. Another object of the invention is the provision of parts which may be set up in superposed tiers to produce a basin wall of the height desired.

A further object is the provision of a construction of the character described, wherein one or more of the tiers includes parts adjustable for receiving and retaining different sizes of pipes or conduits which are to be embedded in the concrete wall for conducting water into and out of the basin.

A still further object of the invention is the provision of a foundation tier which of itself is vertically adjustable in order that the inlet and outlet pipes or conduits may be located at the desired elevation from the bottom of the basin.

It is to be understood that various additional objects not specifically enumerated above, are contemplated for this invention and these will appear to one skilled in the art as the detailed description is proceeded with.

The invention consists in the improved mold forming device and in the form, construction and relative arrangement of its several parts as will be hereinafter more fully described, illustrated and claimed.

In the accompanying drawings, wherein I have illustrated one simple and practical embodiment of the invention, and in which similar reference characters designate corresponding parts throughout the several views:—

Figure 1 is a perspective view, more or less diagrammatic in character, showing the metallic forms assembled to produce a mold for pouring the catch basin wall;

Fig. 2 represents a top plan view on a larger scale, showing the arrangement of the adjustable inner and outer sections of a tier;

Fig. 3 is a vertical sectional view, more or less diagrammatic in character, taken substantially on the line 3—3 of Fig. 1;

Fig. 4 is a fragmentary perspective view of a corner angle plate having a pipe opening, and of an auxiliary covering plate having a pipe opening of smaller size;

Fig. 5 is a perspective view of an auxiliary covering plate which is not provided with a pipe opening;

Fig. 6 is a fragmentary detail perspective view of two vertically adjustable foundation elements;

Fig. 7 represents an enlarged detail horizontal section, taken on the line 7—7 of Fig. 6;

Fig. 8 represents a vertical section on the line 8—8 of Fig. 7; and

Fig. 9 represents a vertical sectional view of a catch basin wall of the type produced in the mold formed by my sectional devices.

Referring now in detail to the accompanying drawings, it will be seen that the mold form device of my invention comprises complete outer and inner sections designated generally and respectively as *a* and *b*, which sections are spaced from one another all around in order to provide a continuous mold space *c* into which the cementitious material is poured in order to cast between the sections and in uninterrupted union the several side walls as *d* of the box-like catch basin *e* illustrated in vertical section in Fig. 9.

The outer and inner sections *a* and *b* are each composed of superposed tiers of metallic vertically disposed plates. In the present embodiment, each tier in the outer section is composed of two plates 10, 10 alternating with two plates 10', 10'; while each tier in the inner section is correspondingly composed of two plates 11, 11 alternating with two plates 11', 11'. All of the plates are of

angular form as shown; the angles being midway the length of the plates in order to come at the corners of the catch basin *e* which in the present instance is of rectangular form. Except in the instances hereinafter referred to, all of the superposed plates in the outer section *a* are formed along their top and bottom edges with horizontal outwardly projecting flanges 12; and all of the plates in the inner section are also formed along their top and bottom edges with horizontal flanges 13 which, however, project inwardly or in a direction opposite to that of the projection of the flanges 12. As best illustrated in plan in Fig. 2, the four flanged corner angle plates forming a tier in the outer section and likewise the four flanged corner angle plates forming a tier in the inner section are overlapped in sliding contact. By varying the overlaps between adjacent plates the size of the box-like catch basin may be varied in a horizontal direction. Furthermore, by varying the overlaps of the plates forming the inner section with respect to the plates of the outer section, or vice versa, the cross sectional dimension of the mold space *c* and hence of the thickness of the side walls *d* of the catch basin may be varied.

As will be noted from an inspection of Fig. 2, for the outer section *a* the outwardly projecting top flanges of each tier serve as ledges or rests for the outwardly projecting bottom flanges of the next higher tier. In a similar manner, for the inner section, the top inwardly projecting flanges of each tier serve as rest ledges for the lower inwardly projecting flanges of the next higher tier. All of the flanges are provided with spaced apertures 14 adapted to receive longitudinally tapering pins as 15. After the plates of each tier have been set up in proper overlapped sliding contact and adjusted to the positions which they must occupy in order to produce a mold space *c* of the desired dimensions, and with the apertures 14 of the top flanges in registry with the corresponding apertures in the bottom flanges of the next higher tier, the pins 15 are inserted through the registering apertures whereby to secure the assembled plates in place. As many tiers are built up as may be necessary to give the side walls *d* the height desired.

In catch basins built of concrete, it is customary to embed in the side walls a suitable pipe as 16 for conducting water into the interior of the catch basin, and also a suitable pipe as 17 for conducting water from the interior of the catch basin to a sewage line (not shown). It is usual for these pipes to communicate with the interior of the catch basin at a level somewhat above the bottom of the catch basin. In carrying out my invention, provision is made for embedding the inlet and outlet pipes in the side walls of the basin by providing certain of the plates in one of the tiers of the outer section, in the present instance, in the tier indicated generally by the reference character *f*, with suitable pipe receiving openings; and in order to vary the position of the inlet and outlet pipes with respect to the bottom of the catch basin, the foundation tiers of the inner and outer sections may be made for adjustment vertically.

In the tier designated as *f* (or, if desired, in any tier thereabove), the cooperating plates 10 and 10', for the side wall where the pipe is to be embedded, are cut away at their adjacent overlaps to produce a common pipe receiving opening 18, one portion of which is provided in the plate 10, while the remaining portion is provided in the cooperating plate 10'. This opening 18 should be of a size to receive the largest pipe

which is intended to be used in connection with the catch basin. Where a pipe of a smaller diameter is to be employed, two auxiliary covering plates as 19, 19 are mounted for adjustment on the respective plates 10 and 10'. The means by which the auxiliary plates 19 may be mounted for adjustment are illustrated in detail in Fig. 4, from which it will be seen that the main plate is provided with two headed pins 20 in spaced relation and that the auxiliary plate is provided with two parallel elongated key slots 21 expanded at 22 for the passage of the heads of the pins in a manner that will be readily understood. The two auxiliary plates mounted for sliding adjustment respectively on the plates 10 and 10', are provided at their adjacent ends with segmental or complementary opening portions 23 designed to snugly embrace the inserted pipe from opposite sides. When the two auxiliary plates are closed against an inserted pipe, the opening 18 formed between the plates 10 and 10' will be covered. A pair of cooperating auxiliary plates as 19 may be provided for each standard size of pipe that is intended to be used in connection with a catch basin. Such auxiliary plates are readily attached or detached from the main plates. In this way, interchangeability of the auxiliary plates is provided for, so that a pair of standard auxiliary plates having cut-away portions of a size to fit a particular pipe may be quickly applied and clamped against a pipe which is inserted through the opening 18 and far enough to engage the plates of the inner section. When the concrete is poured, it naturally flows around the inserted pipe which becomes embedded in the concrete and furnishes communication with the interior of the catch basin.

For the foundation tiers of the two sections, one of the overlapped corner angle plates is supported for vertical adjustment upon the other. In Fig. 6, it will be seen that the corner angle plate 24 (fractionally shown) is supported upon the corner angle plate 25 (also fractionally shown) by means of vertically depending pins 26 the upper ends of which are fixed at 27 to the usual horizontally projecting flange 28. The lower portion of the plate 24, in order to provide for vertical adjustment, does not have a flange. The supporting plate 25 has a top flange 29 below the flange 28 and a bottom or foot flange 30. Said top flange 29 is provided with elongated slots 31 down through which the pins 26 extend. Sliding members 32 suitably holed as at 33 for receiving the pins 26 are suspended from the flange 29. As herein exemplified, the mode of suspension may consist in providing each of the sliding members with opposing upwardly projecting tongues 34 which, after passing through the slot 31, are bent over upon the top surface of the flange 29. The pins 26 pass between the opposing tongues 34. The members 32 are slidable along the flange 29 and since the pins 26 are engaged with the members 32, the plate 24 while being supported upon the flange 29 through the pins and members 32 will be adjusted in a direction lengthwise of the plate 25 in accordance with the sliding adjustment of said members 32. When the plate 24 is adjusted vertically to the position desired, the pins 26 are wedged tightly in their openings in the sliding members 32. Provision is made for the wedging operation by providing the sliding members 32 with open cross notches 35 in communication with the openings 33. A suitable wedge member 36 is disposed in each notch 35, the wedge member being of such size and shape

that when it is moved in one direction it will effect a wedging action between the web of the plate 25 and the pin so as to firmly bind the pin in its opening and at the same time wedge the sliding member 32 in a fixed position against any sliding movement along the flange. By moving the wedge reversely, both the pin and the sliding member will be released. Each wedge is provided with a head end 37 designed to prevent accidental withdrawing of the wedge from the notch after the pin has been inserted in the sliding member. Provision is thus made for adjusting the supported plates 24 in a direction lengthwise of the supporting plates 25 and also in a direction vertically with respect thereto. Through the adjustment of the plates 24 vertically with respect to the plates 25, the tier *f* is fixed at a position for maintaining pipes as 16 and 17 at the desired elevation above the bottom 38 of the catch basin.

In order to erect a catch basin, a hole suitable for accommodating the same is first dug in the ground and a concrete bottom 38 for the catch basin is laid or produced in the hole. Thereupon the inner and outer sections are built up, mounting tier upon tier of the plates until the desired height of the catch basin is obtained. The top tiers of the inner and outer sections may, if desired, consist of a vertically adjustable construction of the kind illustrated in Fig. 6. After the parts have been built up so as to produce the desired mold space *c* for the side walls which come in continuity, and after the pipes have been inserted so as to be embedded in the desired positions in the side walls, the cementitious material is poured. After the material has properly hardened, the tiers composing the inner and outer sections are removed, commencing at the top and disassembling in succession the plates composing each tier until the foundation plates have been removed.

Although in the present embodiment, there is shown a device having four plates in each tier of the outer section and four plates in each tier of the inner section, it is to be understood that any number of plates could be employed in each tier as this does not affect the principle of the invention. The plates may be of the right angular corner type as herein shown; or they may have either acute corner angles or obtuse corner angles, accordingly as best befits the style, size or shape of the catch basin to be produced. Also, instead of having corner angles, the plates may be longitudinally curved to have overlapped sliding contact with one another.

While I have illustrated and described the preferred forms of construction for carrying my invention into effect, these are capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

I claim:—

1. In a form device for casting the concrete side walls of a catch basin, a plurality of vertically disposed plates adjustably connected to make a continuous outer section for forming in continuity the outer faces of the side walls, a plurality of vertically disposed plates adjustably connected to make a continuous inner section for forming in continuity the inner faces of the side walls, certain of the adjustably connected plates of the outer section having main segmental pipe receiving openings, and auxiliary adjustably con-

nected plates having segmental pipe receiving openings differing in size from the main segmental openings.

2. In a form device for use in casting a concrete side wall, the combination of two slidably engaged vertically disposed plates, horizontal flanges for connecting said plates, projecting in the same direction one above the other, and means adapted to afford and maintain an engagement between the flanges for maintaining the plates in adjusted positions with respect to each other both in vertical and horizontal directions.

3. In a form device for use in casting a concrete side wall, the combination of two slidably engaged vertically disposed plates, horizontal flanges for connecting said plates, projecting in the same direction one above the other, and means adapted to afford and maintain an engagement between the flanges for supporting one plate on the other, said means being adjustable in a vertical direction for maintaining the supported plate in a position of vertical adjustment on the supporting plate, and said means being slidable along one of the flanges for maintaining the supported plate in a position of horizontal adjustment with respect to the supporting plate.

4. In a form device for use in casting a concrete side wall, the combination of two slidably engaged vertically disposed plates, horizontal flanges on said plates, projecting in the same direction one above the other, and adjustable connections between the flanges for supporting one plate on the other, comprising retaining members slidable along one of the flanges, pins on the other flange extending through said retaining members, and means for securing the pins in adjusted position in the retaining members.

5. In a form device for use in casting a concrete side wall, the combination of two slidably engaged vertically disposed plates, horizontal flanges on said plates, projecting in the same direction one above the other, and means to afford and maintain an engagement between the flanges for maintaining the plates in adjusted positions with respect to each other both in vertical and horizontal directions, comprising fixed pins on one flange extending through elongated slots in the other flange, sliding members slidable along the flange containing the slots and adjustably receiving the pins, and means for securing the pins to the sliding members in a position of vertical adjustment.

6. In combination, two vertically disposed slidably engaged plates, each formed along its top with a lateral flange, projecting one above the other, one of said flanges provided with elongated slots, vertical pins fixed to the other flange and extending through said slots, sliding members adjustable along the flange containing the slots and provided with vertical openings for receiving the pins therein, and means for securing the pins and sliding members in a position of adjustment.

7. In a form device for use in casting a concrete catch basin side wall and retaining a pipe end which is to be embedded in such wall, vertically disposed slidably adjusted overlapping plate members having adjacent openings for accommodating the pipe end, the edges defining the openings being curved to correspond to a section of the pipe end, together with integral overlapping flanges projecting laterally from the members on the same side thereof and having a series of eyes, and a part for engaging selected eyes to hold the plates in adjusted position for

retaining the pipe end by the engagement therewith of said edges.

8. In combination with two vertically disposed main plates arranged in adjustable sliding contact and cut away to provide a common opening 5 for receiving a transversely disposed length of pipe, means for securing the main plates in adjusted condition, auxiliary plates slidably mounted on the main plates and having adjacent ends 10 cut away in conformity with the pipe for embracing the pipe from opposite sides thereof and to close the common opening around the pipe.

9. In combination with a pair of vertically disposed main plates arranged in adjustable sliding 15 contact and cut away to provide a common opening for receiving a transversely disposed length of pipe, means for securing the main plates in adjusted condition, a pair of auxiliary plates slid-

ably engaged with the main plates and having adjacent ends cut away in conformity with the pipe for embracing the pipe from opposite sides thereof, and means for adjustably connecting the auxiliary plates to the main plates comprising 30 headed pins on the plates of one pair and longitudinally extending key slots receiving the pins on the other pair of plates.

10. In combination, two separate side walls disposed in sliding surface contact, lateral flanges 35 on the side walls, projecting from the same side thereof, and an adjustable connection between the flanges for adjusting the side walls with respect to each other, said connection being effective to adjust the side walls both in vertical and 90 horizontal directions while maintaining them in sliding surface contact.

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20	95
25	100
30	105
35	110
40	115
45	120
50	125
55	130
60	135
65	140
70	145
75	150