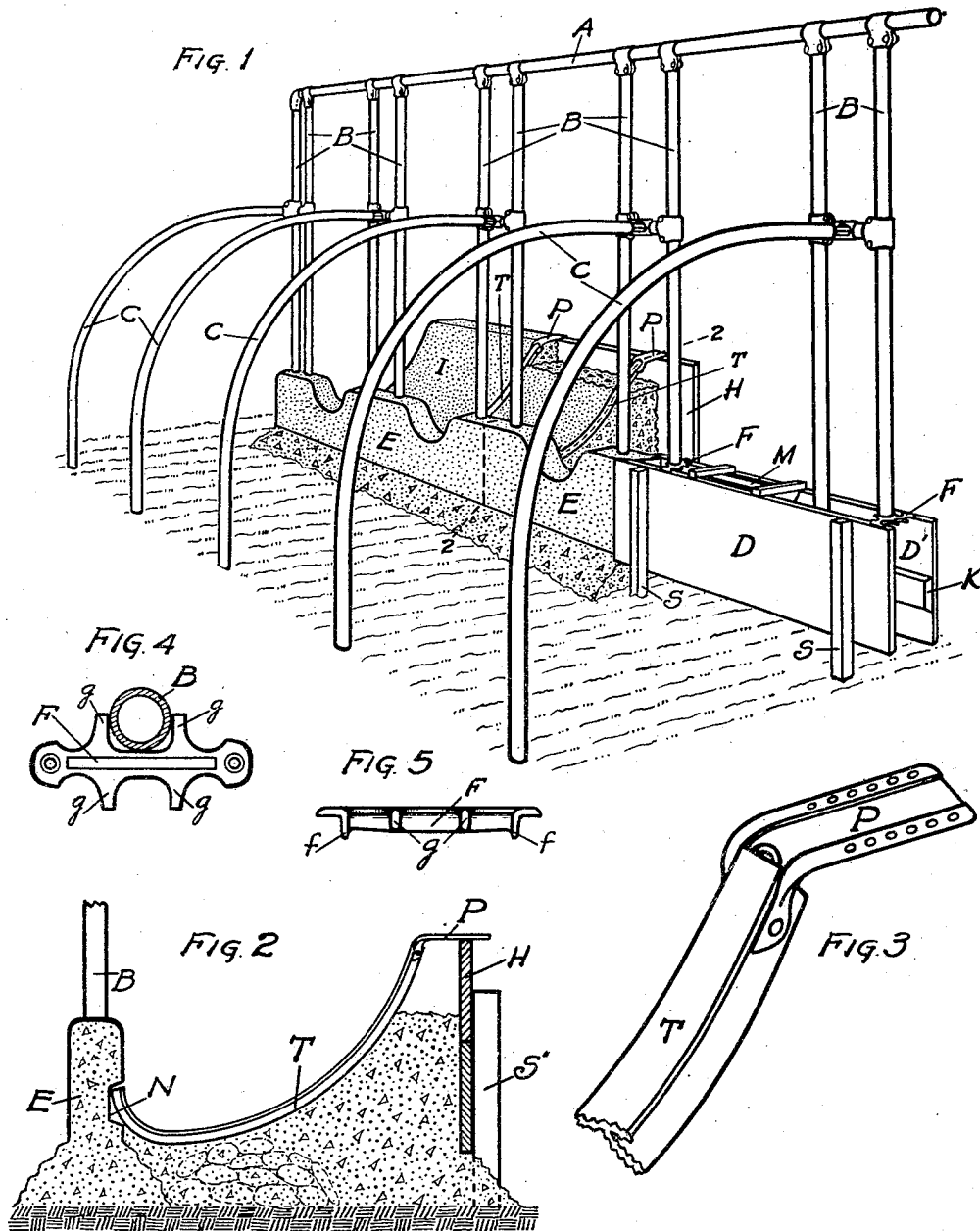


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 APPARATUS FOR CONSTRUCTING CONCRETE MANGERS.  
 APPLICATION FILED JULY 8, 1915.

1,234,944.

Patented July 31, 1917.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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APPARATUS FOR CONSTRUCTING CONCRETE MANGERS.

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Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, WILLIAM LOUDEN, residing at Fairfield, in the county of Jefferson, State of Iowa, have invented a new and useful Improvement in Apparatus for Constructing Concrete Mangers, of which the following is a specification.

My invention relates to the construction of concrete mangers used for cow stalls and the like whereby said mangers may be more easily made of uniform sizes and shapes and the different parts of the manger and other concrete work will be more securely united together, which results will be attained by the expenditure of a minimum amount of time and labor; and it consists of the employment of certain forms and appliances constructed and used as hereafter described to accomplish the results herein set forth.

In the accompanying drawings forming a part of this specification, Figure 1 is a perspective of a series of cow stalls having a partially constructed manger provided with appliances, embodying my invention. Fig. 2 is a transverse section running through the partially completed section of the manger, substantially on the line 2—2. Fig. 3 is an enlarged perspective of a portion of one of the appliances. Fig. 4 is an enlarged top view of another appliance. Fig. 5 is a side view of the latter.

Referring to the drawings, A represents the top-rail, B the stall posts and C the partitions of a series of cow stalls. These parts comprising the stalls are set up on the ground and are connected together in the usual manner as shown. After being properly lined up to make the row of stalls stand plumb and true, boards D and D' are set up on opposite sides of the lower ends of the posts B to make a form or mold for the manger curb E, which is made of concrete placed while in a plastic state between the boards D and D'.

The boards on both sides are supported in position by stakes S driven in the ground, the stakes on the rear side being hidden from view by the boards in Fig. 1. It is preferable that a space of several inches be left between the lower edges of the boards and the ground so that the plastic cement or concrete will run out under the boards to some extent and spread on the ground for a short distance so as to form an enlarged base for the curb, which is built first as shown by Figs. 1 and 2. Besides making a broader

base for the curb it will also make roughened sloping surfaces which will adhere better to the concrete thereafter added.

It is important that the boards D and D' be spaced apart equal distances on each side of the posts B so that the posts will stand directly in the center of the curb and not be set to one side or the other. To facilitate this central spacing I use devices F which may be called curb gages, enlarged views of which are shown by Figs. 4 and 5. The upper inner edges of the form boards D and D' are placed against the outer faces of the downwardly projecting lugs or shoulders f and nails or screws may be driven through the holes in the ends of the gages to hold the boards in this position.

Laterally projecting lugs g spaced apart so as to embrace some of the stall posts B are formed on the central portions of the gages. These lateral lugs being equal distances from the adjacent depending lugs or shoulders f, the boards D and D' will be held a uniform distance from each other and equal distances from the posts B. No cutting of bracing strips, nor measuring or fitting as was formerly needed will be required to get the parts in their proper places. It is preferable to have laterally projecting lugs on each side of the gages and to have the lugs on the opposite sides set different distances apart so the spaces between them will correspond with the different sizes of the material that may be used for the stall posts.

In Fig. 1, the section of the stalls at the right-hand end of the drawing (the fourth section from the left-hand end) shows the form boards D and D' in place ready for the placing of the concrete for the curb, while the first, second and third sections from the left-hand end show the curb completed and the form boards removed. The first section at the left also shows the manger I completed; the second section shows the manger partly completed, and the third section shows nothing done to the manger except the completion of the curb E and the setting up of a portion of the manger from board H.

The form board H is also held in position by stake S' a distance above the ground to permit the plastic concrete to run out under the edge of the board and spread upon the ground, thus enlarging the base of the manger as shown by Fig. 2. This arrangement

also insures a better joint between the manger and concrete floors which, though not shown, are usually built adjoining the curb as well as the outer side of the manger.

5 In constructing the manger bent metal bars T are used. These bent metal bars which may be called templets are preferably made of T steel and are bent to correspond with the contour of the inner face of the  
10 manger, and are preferably provided at their upper and outer ends with horizontally disposed plates P. The plates are preferably fitted with a series of holes through which nails or screws may be driven to hold  
15 the upper ends of the templets on the upper edge of the form board H. The lower ends of the templets are preferably set in recesses or pockets N formed in the adjacent edge of the curb E which is built first as  
20 plainly shown in Fig. 2.

One or more pairs of these bent metal bars or templets are thus placed according to the length of the section of the manger to be built at the same time. The plastic cement is placed in position until it is even  
25 with or a little above the upper edges of the templets T when it is smoothed off even with their upper edges by means of a straight edge. The workman stands outside of the  
30 form board H and draws the straight edge to him.

If the cement is soft and will not at first stand in its proper position at the upper  
35 edge of the manger, the workman can continue to draw it up toward him until it has stiffened sufficiently to stand; or if preferred he can clamp a thin board or sheet of metal upon the upper portions of the tem-  
40 plets to hold the cement in position until it has stiffened sufficiently to stand alone. When the cement has stiffened sufficiently to stand, the templets are removed and the small recesses or grooves formed by the tem-  
45 plets, as well as the recesses or pockets in the curb, are filled with cement by means of a trowel or otherwise, and the face of the manger is troweled smooth and made continuous, as may be required.

It is essential that the upper edges of the  
50 bars T be broadened to give them sufficient lateral strength and to cause less wear on the straight edge which is used to form the interior surface of the manger, also, to secure sufficient vertical strength without ex-  
55 tending the dimensions of the bars downward to any considerable extent. The recesses occupied by the bars having to be filled it is advantageous to have them as shallow as possible. A T shape with the  
60 head on the upper side is the preferable form for the bars, but other shapes may be used having a laterally extended upper surface and a downwardly disposed flange or web. The plates P being secured to the  
65 outer end of the bars does away with the

necessity of making sharp bends in them. It is not necessary to have any elaborate means for securing the boards D, D' and H. to the stakes S and S'. It is preferable to tack the boards to the stakes.

To facilitate the formation of the recesses or pockets in the side of the curb to receive and hold the lower ends of the bars or templets, it is advisable to nail or tack a strip K on the inner side of the form board D' as  
75 shown by Fig. 1. This strip will form a continuous groove in the side of the curb adjacent to the inner face of the manger as shown in cross section by Fig. 2, and will insure the placing of the lower ends of the  
80 templets in line with each other. It will also form a more substantial joint between the cement of the curb and the body of the manger. Without this groove there would  
85 probably be a perpendicular seam with a feather edge joint between the curb and the body of the manger which would be objectionable.

This defect will be obviated by forming the groove in the side of the curb by means  
90 of the strip K tacked on the form board D'. This will thicken what would otherwise be a feather edge of the main part of the manger adjoining the previously constructed curb by extending it into the groove in the  
95 side of the curb, and it will make a horizontal instead of a vertical joint.

Fig. 1 shows a different step in the construction of the manger in each of the stalls, but in actual operation the same step is  
100 usually continued through a section of four or more stalls at the same time. The object of the drawing is to illustrate the different steps in the minimum of space for the drawing. After the manger is completed the stall  
105 floor and other floors adjoining it may be added in the usual manner, but these operations are not shown in the drawings.

Fig. 1 shows cut-outs in the manger where the stanchions, (not shown) are usually anchored. These cut-outs are preferably made  
110 by cut-out forms M set in between the form boards D and D' and which are the subject of another application. The templets may be readily made to fit any size and shape of  
115 manger and the plate P being bendable may be readily bent to fit and stand horizontally on the upper edge of the form boards when different widths of boards are used to make the outer edge of the manger of different  
120 heights.

What I claim is:

1. An apparatus for constructing concrete  
125 mangers for animal stalls, wherein a stall frame having vertically disposed stall posts, is set on the ground, and the lower ends of  
130 said posts are to be embedded in a concrete manger curb, said apparatus comprising a pair of form-boards set up on opposite sides of the stall posts and spaced apart to con-

stitute a mold for the manger curb, and a gage member having its ends adapted to rest, and resting on the upper edges of the boards, and provided with downwardly projecting shoulders abutting the upper inner sides of the boards, and laterally-extended, centrally-located, spaced-apart lugs, embracing some of the stall posts, whereby the upper edges of the form-boards will be held a definite distance from each other and from the stall posts while the concrete for the curb is being placed, and the gage member will be detachable from the stall posts.

2. An apparatus for constructing concrete mangers, comprising a mold for the sides of the manger, and two or more metallic bars bent to conform to the interior cross-section surface of the manger, and their ends set on the edges of the mold, said bars being T shaped in cross-section with the head of the T constituting the upper surface of the bars.

3. An apparatus for constructing concrete mangers, comprising a mold for the sides of the manger, and two or more metallic bars bent to conform to the interior cross-section surface of the manger, and their ends set on the edges of the mold, said bars being T shaped in cross-section, the head of the T constituting the upper surface of the bars, and a horizontally disposed plate on one end of the bars adapted to be temporarily attached to one edge of one of the mold boards to support that end of the bar thereon, substantially as and for the purpose set forth.

4. An apparatus for constructing concrete mangers for animal stalls, comprising a pair of boards spaced apart to form a mold for the curb forming the inner side of the manger, a horizontally disposed strip on the inner side of the board on the side next the manger space to form a groove in that side of the curb, a board forming a mold for the outside of the manger, and two or more metallic bars bent to conform to the interior cross-section surface of the manger, one of the ends of said bars being set in the groove formed in the side of the curb by the aforesaid strip, and the other ends of the bars being supported on the upper edge of the board forming the mold for the outside of the manger, whereby the interior surface of the manger may be made to conform to the shape of the bars and the body of the manger will be more perfectly united to the previously built curb.

Fairfield, Iowa, July 6, 1915.

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Witnesses:

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