June 7, 1949. G. J. POLIVKA 2,472,122

MILKING BARN

Filed April 20, 1944 2 Sheets-Sheet 1

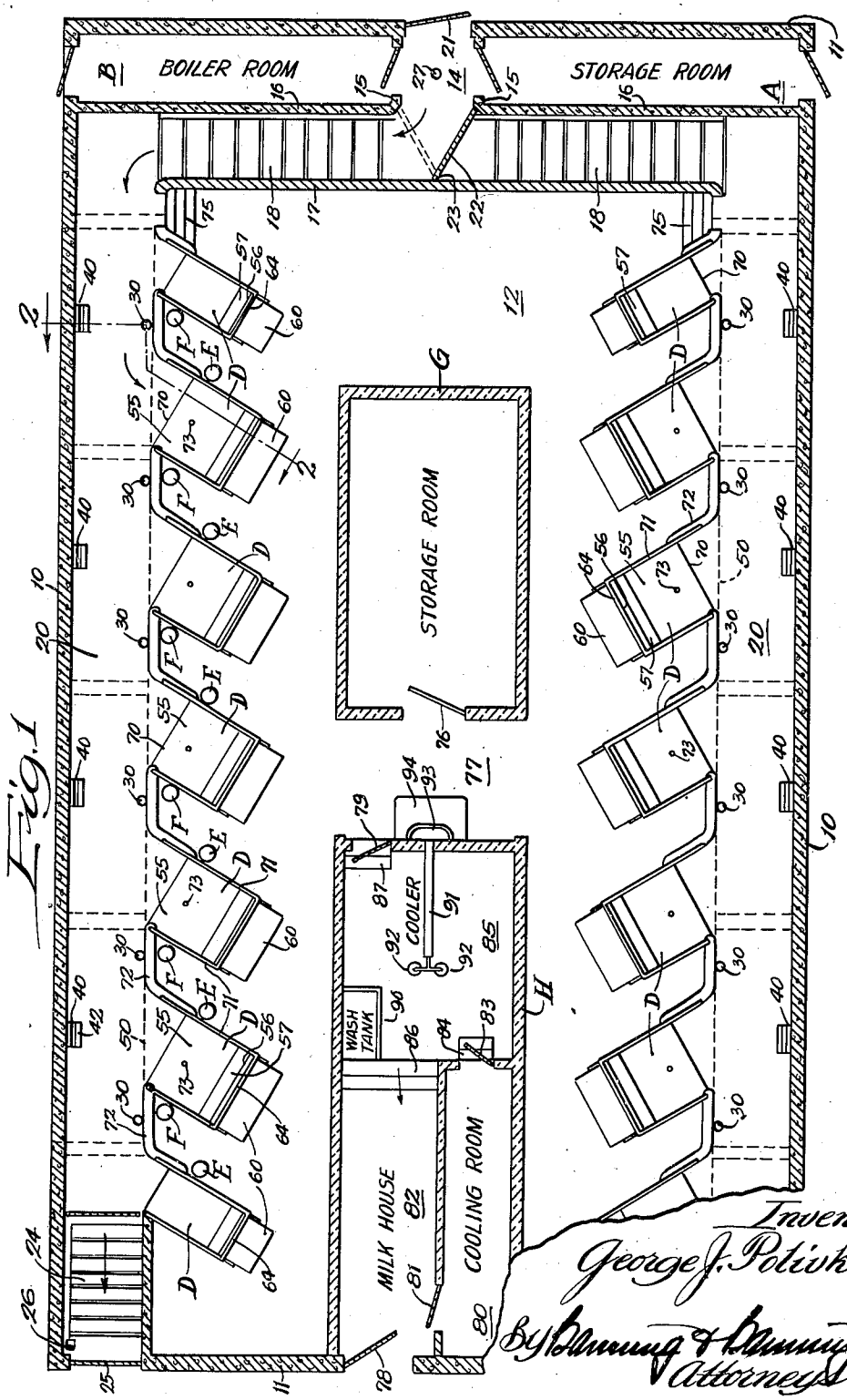


Fig. 1

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Fig. 2

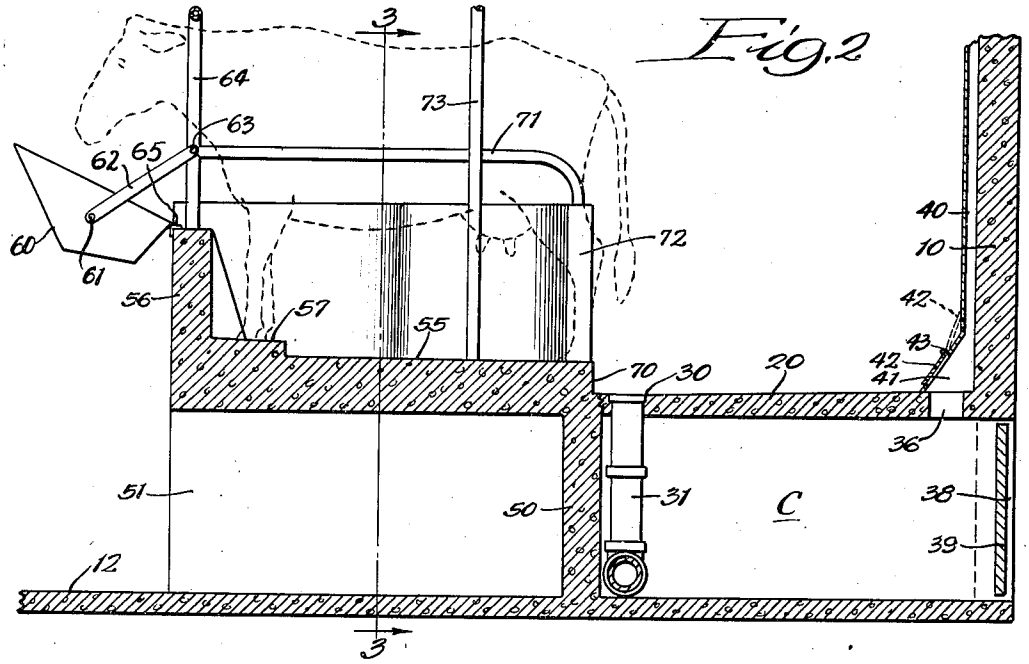
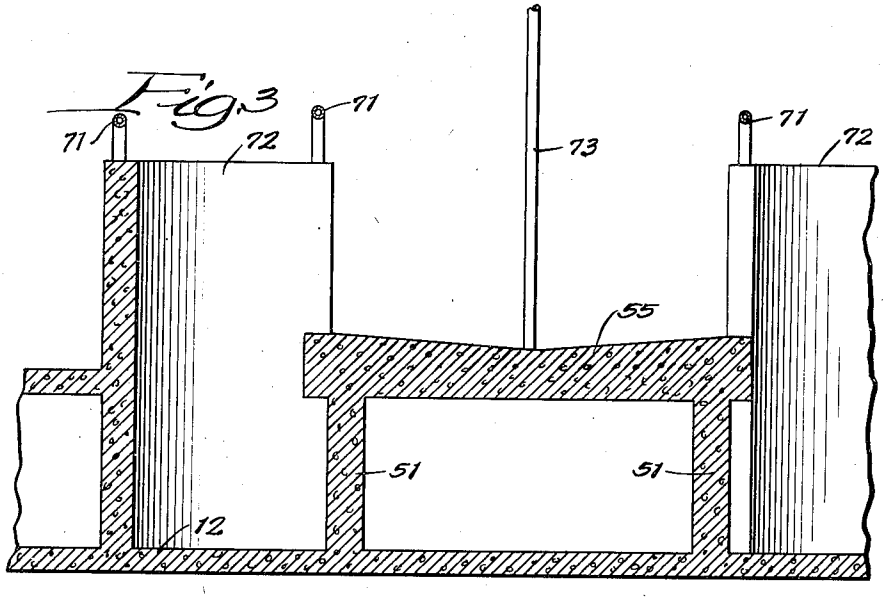


Fig. 3



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Patented June 7, 1949

2,472,122

UNITED STATES PATENT OFFICE

2,472,122

MILKING BARN

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Application April 20, 1944, Serial No. 531,907

9 Claims. (Cl. 119—16)

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The present improvements have to do largely with a barn structure in which provision is made for a novel arrangement of stalls for accommodation of cows during a milking operation, the primary objects being to provide for greater ease and expedition in this work, reduction in effort and expense in the care and upkeep of the premises, and promotion of sanitary conditions at all times. These objects, as well as others which will hereinafter appear, may be attained by a construction such as is shown by way of example in the accompanying drawings, wherein—

Figure 1 is a horizontal section through a milking barn showing the general plan and arrangement of the ramps, aisles, stalls, and milkhouse;

Fig. 2 is a detail in section taken on line 2—2 of Fig. 1; and

Fig. 3 is a vertical section taken on line 3—3 of Fig. 2.

The milking barn here illustrated comprises side and end walls 10 and 11 respectively, together with a floor 12. At one end of the barn is a central entering passage 14 defined by spaced partitions 15 beyond which are cross partitions 16 and 17 with ramps 18 extending oppositely between them to connect with elevated aisles 20, one disposed adjacent each side of the building. The room A to one side of the entering passageway, entered by doors at opposite ends, may be used for storage or other purposes, whereas the room B on the opposite side of the same passageway may accommodate a boiler or heating plant, fuel bin, and other desired equipment. At opposite ends of the entering passageway I have shown doors 21 and 22, the latter hinged to the partition 17 at 23, so as to swing either way to a position of rest at the juncture of the partitions 15 and 16, thereby to block off passage to one of the two ramps 18.

The aisles 20 which continue near to the opposite end of the building join with descending ramps 24 leading down to approximately ground level, where an exit door 25 is provided for each of the aisles. A drain opening 26 is placed near the base of the ramp and cross grooves formed in the surface thereof may be so pitched as to facilitate flow of water to the drain opening. In like manner the ramps 18 may be provided with cross grooves to facilitate flow of water to the entering passageway where a drain opening 27 is provided.

In the construction of the present milking barn concrete may be used with advantage for the foundations, ramps, aisles, and even the stalls and supports thereof, as will presently be noted.

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Each aisle is desirably pitched slightly to the inner side where a plurality of drain openings 30 are provided, each in connection with a pipe 31 forming part of a drainage system. Near the opposite side of each aisle adjacent the outside wall 10 of the building I provide a plurality of hatchways 36 each communicating with a bin C below the aisle. Desirably this bin rises from the floor 12 and is also provided with an opening 38 leading to the outside of the barn, a door 39 being placed in the opening to afford a closure therefor. The floor of the bin is substantially at ground level thereby facilitating the work involved in moving material out through the opening 38 for clean-out purposes.

Leading upwardly from each hatchway is an air duct 40 that may be supported against the proximate building wall 10. The side walls of each duct are flared out as at 41 near the aisle level to extend past the hatchway 36 on opposite sides thereof, the space between these flared walls being open for the reception of material that is to be pushed thereinto for discharge through the hatchway into the bin therebelow. A lid 42 which is hinged at 43 is adapted to close this opening whereby to promote ventilation through the duct; when swung open to a past center position as shown in Fig. 2, the interior of the duct at its base is uncovered to receive material thereinto for discharge through the hatchway.

Each aisle may be supported adjacent its outer side by one of the outside building walls (see Fig. 2). The inner side of each aisle receives support from a wall 50 which upstands from the floor 12 to form a back wall for the several bins C. Extended inwardly from each aisle is a plurality of stalls D each supported in part by the wall 50 and also by spaced parallel walls 51 (see Fig. 3) which rest upon the floor 12. As shown, the stalls are arranged in closely spaced, side-by-side, parallel and diagonal relation. The floor 55 of each stall is desirably raised slightly, say four inches above the aisle (see Fig. 2), and at its inner end is provided with an upstanding low wall 56. The floor 55 is formed with a low step 57 at the inner end of the stall, and upon this step the fore feet of the cow will rest when in position for milking with her head adjacent a manger 60. As shown, this manger which is in the form of a trough may be supported at its closed ends at 61 upon a pair of links 62 which are pivoted at 63 to an approved stanchion frame structure 64. An angle lip 65 is adapted to rest upon an upper corner of the stall wall 56 and is secured thereto

to receive engagement from the manger when the latter is in use.

In the arrangement shown, there are two single end stalls and a plurality of double stalls therebetween, each being separated from the one adjacent by the minimum of space which is necessary and convenient for accommodation of a pair of milking machines E and F, one for each adjacent stall. The space between and around the stalls in which the attendants are free to move is on the floor level of the barn, whereas the stalls and the connecting aisles therefor are at a raised elevation of perhaps a couple of feet. Each cow, therefore, stands in an elevated position so as to facilitate work of the attendants in use of the milking machines.

At the outer end of each stall is a vertical shoulder **70** which defines the differential in levels at that point. The sides of the stalls are desirably provided by a suitable pipe framework which extends rearwardly from the stanchion **64** and then downwardly to join with curb walls **72** of concrete which extend along the inner edge of the aisle and toward the proximate stall side which is farthest removed from the aisle. The drain openings **30** are desirably positioned along the low sides of the aisle between the stalls and adjacent the curb walls **72**. The floor of each double stall may be pitched toward the center (see Fig. 3) where I mount a vertical pipe **73** which makes for sufficient separation between adjacent cows in this stall.

From the aisles down to the lower floor level I may provide stairs **75** near one end of the building. The width of the building is preferably such that each aisle **20** and stalls extended therefrom shall be spaced from the other aisle and associated stalls a distance sufficient for placing near the center of the building of a storage room G in which may be kept milking machines and other equipment. Such a room may desirably be constructed of walls made of glass brick, both for the transmission of light and for cleanliness. At one end of this room is a door **76** which enters from a passage **77** on the opposite side of which is a milkhouse H which may be extended lengthwise of the building clear to the end thereof where an entering door **78** is provided. This milkhouse is also desirably built with walls of glass brick. At its inner end is a second door **79** permitting entrance thereto from the passage **77**. Within the milkhouse is a cooling room **80** having a door **81** into a main passage **82** in the milkhouse, and a second door **83** at one end where steps **84** lead down to an end room whose floor **85** is of lower elevation. Other steps **86** connect the floors **82** and **85** of differing levels and likewise steps **87** are provided at the door **79**. A wash tank **90** may be located adjacent the steps **86**. Extending centrally into the room along the floor **85** of lower elevation is a cooler unit **91** opposite one end of which may be placed cans **92** to receive the discharged cooled milk. The opposite cooler end connects with a bowl **93** on the outside of the milkhouse and at a sufficient elevation above the floor of the passage **77** to cause a gravity flow of milk into the cooler unit. To facilitate pouring of the milk into this bowl I may provide a raised step **94**, as shown.

A milking barn having this special construction and arrangement of stalls, aisles, ramps, and milkhouse requires but a minimum of area for the accommodation of all such units. Of importance, moreover, is the ease and expedition with which milking operations may be conducted.

In practice, several cows, up to twelve according to the number of stalls indicated in the drawing, may be admitted through the entering passage **14**. As the cows advance processionally, they turn to the right or left according to the position of the door **22** to ascend one of the ramps **18**. The cows, proceeding one after the other, move along the proximate aisle **20**, and with little or no attention will turn into the vacant diagonal stalls to occupy therein the positions intended for them.

At this point an attendant on the floor may advance adjacent the stalls, in order, bringing to each the milking machine which is to be attached operatively to the cow. In practice, the leading cow will move into the stall furthest along the aisle and presumably will be the first that is ready to be milked. Starting from this end, the attendant will then advance along the remaining stalls to attach milking machines to the cows which have taken up positions therein. By the time this has been done, the milking operation of the first cow may have been completed. The step of detaching the milking machines, in order, may next be performed, and as each cow is freed she will be ready to back out of the stall the few feet that is necessary to resume forward movement along the aisle at the end of which is the descending ramp **24**. With a little training the cows that are milked in such a barn will readily learn the correct maneuvers so that their advance along the aisles into the stalls, and later out of them for departure from the barn, will proceed expeditiously, and require little or no watching on the part of the attendants.

It is to be noted that the diagonal arrangement of stalls places the inner corner of one opposite the adjacent stall at a point which is removed from its inner corner; in other words, each stall along one side projects inwardly a considerable distance beyond the proximate side of the next adjacent stall—a stepped arrangement, as it were. Because of this special relationship it is possible to locate two milking machines E and F in the single space between two adjacent stalls, each machine close to the stall containing the cow to which it is attached, with ample room around the machine for the attendant to pass or stand when he is doing his work. This is important because if the machines, in use, were to be placed as is usual, i. e. about opposite each other, the clearance between stalls would have to be greater in order to provide sufficient working room for the attendants.

In keeping the milking barn clean and in a sanitary condition, I provide for complete drainage through the several holes **30** in the aisle and also through the drain openings at the bottom of the several ramps. In a hosing operation all contaminating matter is flushed out and down through the drains. Heavy matter, such as manure, may be collected for discharge into the hatchways **36**, but only when the lids **42** are first raised to expose the same. At all other times these hatchways are closed and the ventilating ducts in connection therewith are fully operative. Disposal of the manure which collects in the bins C may readily be performed by its transference through the openings **38** into trucks which may be driven close thereto along the outside of the building.

A milking barn embodying the features of my invention reduces the labor involved in each milk-

ing operation. With as many as twelve stalls on each of the two aisles, two herds of twelve each can be admitted to the barn at one time; also a lesser number down to perhaps one third of that number can be handled with distinct advantage. The arrangement is therefore one which is flexible in that the number of cows to be milked at one time may vary widely, with more or less attendants on hand, as necessary, yet with a definite saving in time and effort all around.

I claim:

1. A milking barn in which is provided an aisle, and a plurality of spaced side-by-side stalls diagonally extended from the aisle, the inner corner of one stall proximate to the adjacent stall being disposed opposite thereto at a point which is remote from the inner end of the stall last noted whereby the space between the stalls may accommodate a pair of milking machines, each near the outer end of one stall and proximate thereto, at unequal distances from the aisle.

2. A milking barn above whose floor is provided a raised aisle and a plurality of spaced side-by-side raised stalls diagonally extended from the aisle, the inner corner of one stall proximate to the adjacent stall being disposed opposite thereto at a point which is remote from the inner end of the stall last noted whereby the floor space of lower elevation between the stalls may accommodate a pair of milking machines, each near the outer end of one stall and proximate thereto, at unequal distances from the aisle.

3. A milking barn above whose floor is provided a raised aisle and a plurality of closely spaced side-by-side stalls extended diagonally from the aisle and disposed at an elevation slightly thereabove, the inner end of each stall being further raised to provide an elevated support for the front feet of a cow accommodated within the stall, the stall inner corner proximate to the adjacent stall being disposed opposite thereto at a point which is remote from the inner end of the stall last noted whereby the floor space of lower elevation between the stalls may accommodate a pair of milking machines, each near the outer end of one stall and proximate thereto, at unequal distances from the aisle.

4. A milking barn above whose floor is provided a raised aisle and a plurality of closely spaced side-by-side stalls extended diagonally from the aisle, the inner end of each stall being slightly raised to provide an elevated support for the front feet of a cow accommodated within the stall, the stall inner corner proximate to the adjacent stall being disposed opposite thereto at a point which is remote from the inner end of the stall last noted whereby the floor space of lower elevation between the stalls may accommodate a pair of milking machines, each near the outer end of one stall and proximate thereto, at unequal distances from the aisle.

5. A milking barn having a main floor at one elevation, an aisle at an elevation above the floor extending longitudinally of one barn wall adjacent the same, ramps leading up to and down from the aisle at opposite ends thereof, a plurality of elevated side-by-side stalls projecting over the main floor from said aisle and having their outer ends located at the inner side of said aisle, a plurality of hatchways through the aisle located entirely beyond the outer ends of the stalls and bins arranged beneath the hatchways and also located beyond the outer ends of said stalls.

6. A milking barn having a main floor at one elevation, aisles arranged in parallelism and extending longitudinally of opposite barn walls and located adjacent the same, a plurality of elevated side-by-side stalls projecting over the main floor from each of said aisles and having their outer ends located adjacent the inner sides of the aisles, an entrance located at one end of the barn between said aisles, exits located at the other end of the barn adjacent the proximate ends of said aisles, transverse ramps extending upwardly from said entrance to said aisles at one end thereof, and other ramps extending downwardly from the other ends of said aisles to said exits.

7. A milking barn having a main floor at one elevation, aisles at an elevation above the floor extending longitudinally of the barn at opposite walls thereof and located adjacent the same, a plurality of elevated side-by-side stalls projecting over the main floor from said aisles and having their outer ends located at the inner sides of the aisles, an entrance located at one end of the barn between said aisles, transverse ramps extending upwardly from the entrance to the proximate ends of the aisles and a hinged closure mounted between said transverse ramps and arranged to swing in opposite directions for alternately exposing and closing the ramps.

8. A milking barn having a main floor at one elevation, aisles arranged in parallelism and extending longitudinally of opposite barn walls and located adjacent the same, a plurality of elevated side-by-side stalls projecting over the main floor from each of said aisles and having their outer ends located adjacent the inner sides of the aisles, an entrance located at one end of the barn between said aisles, exits located at the other end of the barn adjacent the proximate ends of said aisles, transverse ramps extending upwardly from said entrance to said aisles at one end thereof, other ramps extending downwardly from the other ends of said aisles to said exits, bins located beneath said aisles and arranged beyond the outer ends of the stalls and accessible exteriorly of the barn, and hatchways extending through the aisles and communicating with the bins.

9. A milking barn having a main floor at one elevation, an aisle at an elevation above the floor extending longitudinally of one barn wall adjacent the same, ramps leading up to and down from the aisle at opposite ends thereof, and a plurality of elevated side-by-side stalls projecting over the main floor from said aisle and having their outer ends located at the inner side of said aisle.

GEORGE J. POLIVKA.

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