May 5, 1936. J. G. SHODRON 2,039,562

ROUND ENDED BUILDING

Filed May 22, 1933 4 Sheets-Sheet 1

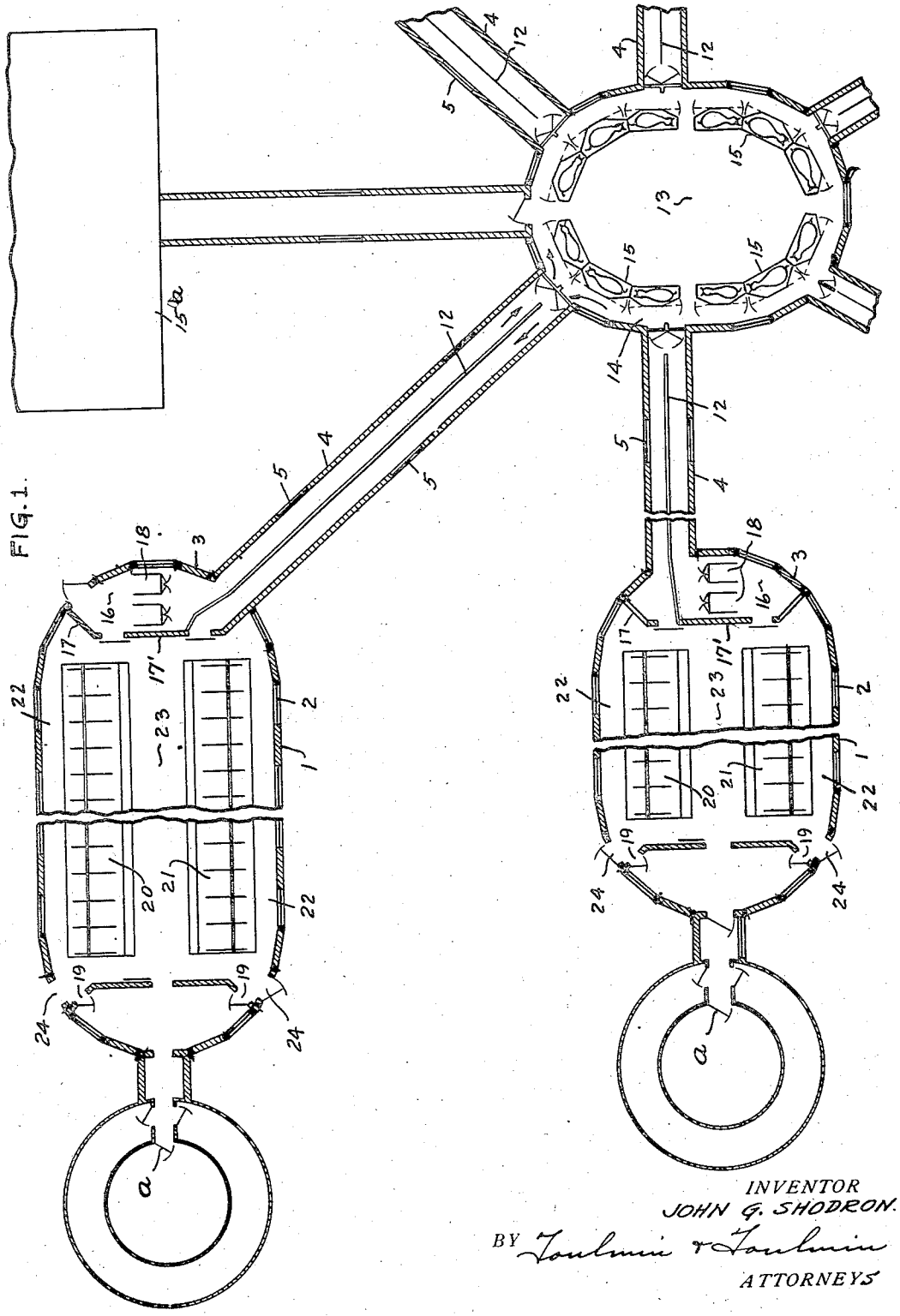


FIG. 1.

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FIG. 2

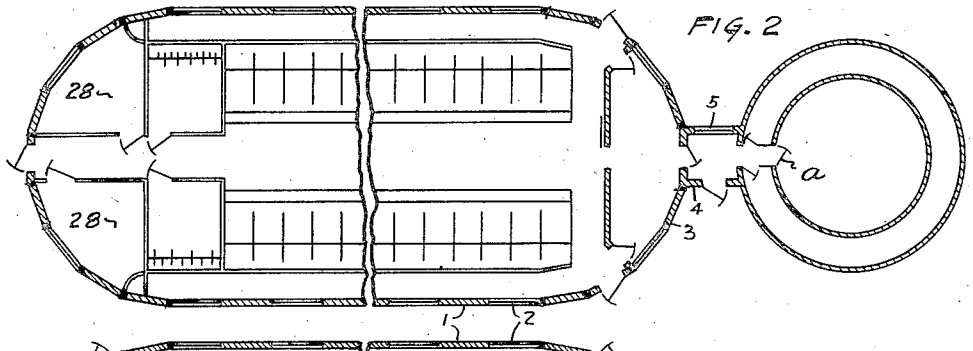


FIG. 3

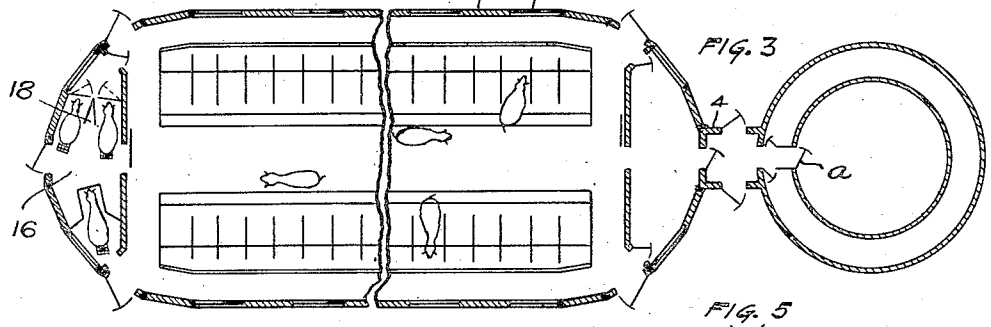


FIG. 4

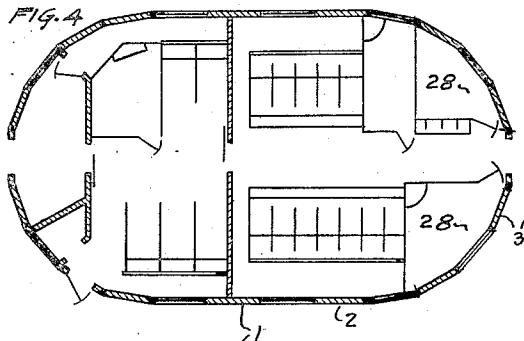


FIG. 5

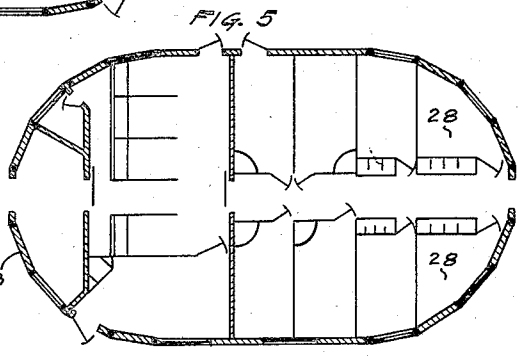
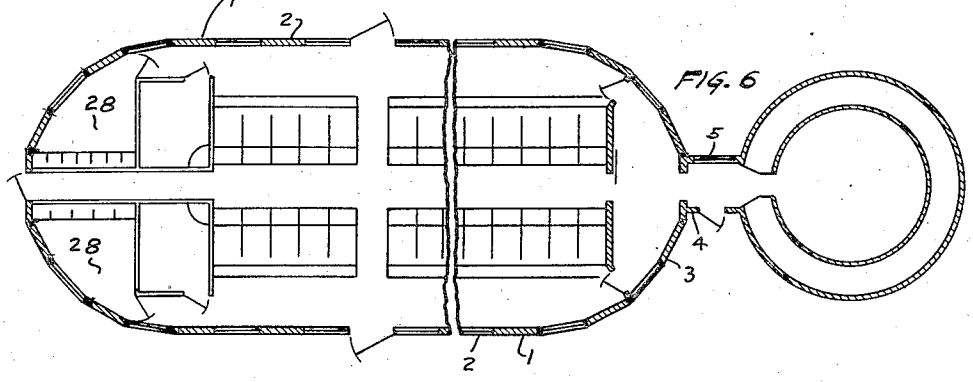


FIG. 6



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FIG. 7.

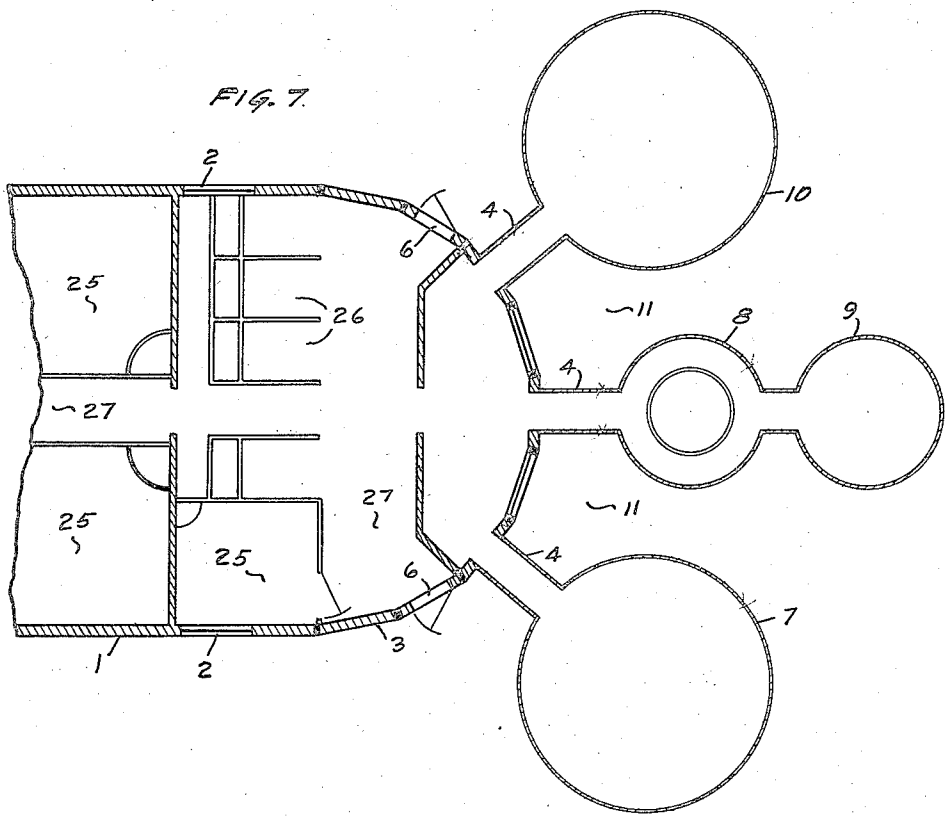
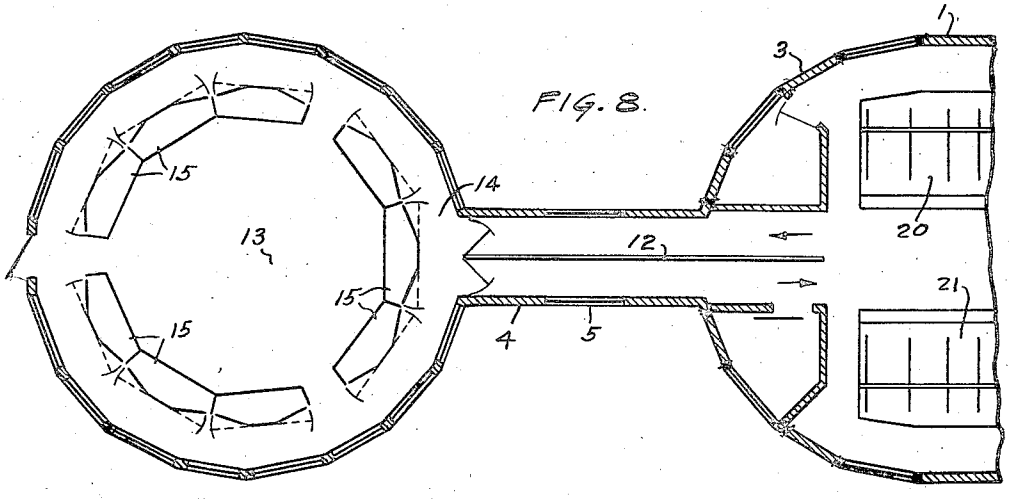


FIG. 8.



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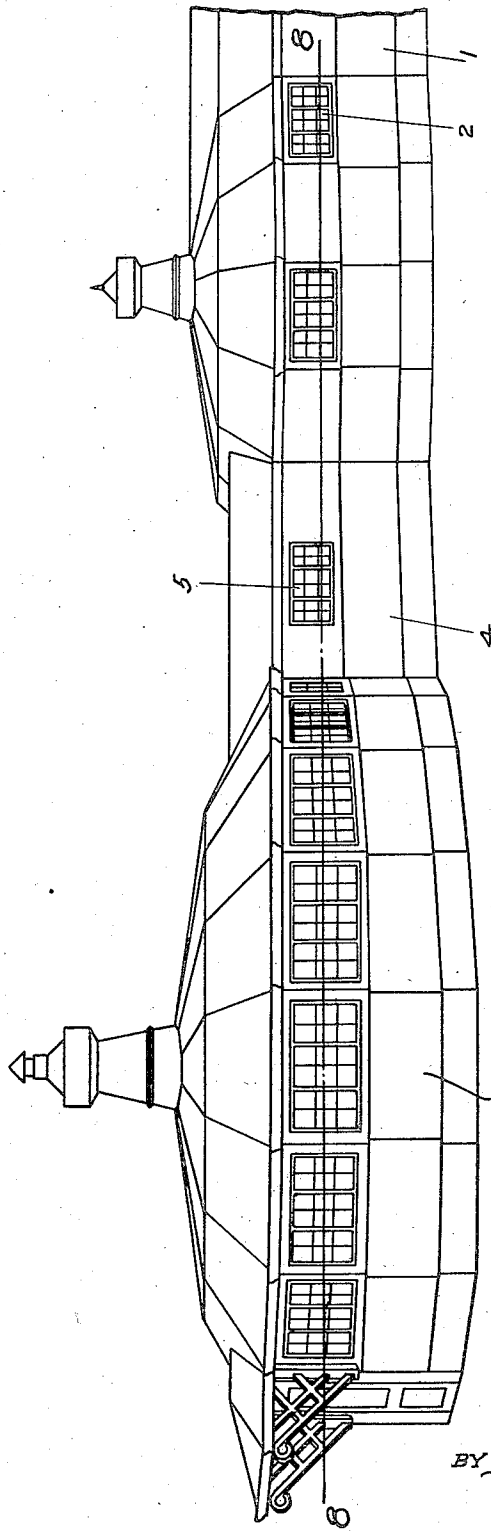


FIG. 9.

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Patented May 5, 1936 2,039,562

UNITED STATES PATENT OFFICE

2,039,562

ROUND ENDED BUILDING

John G. Shodron, Fort Atkinson, Wis., assignor to James Manufacturing Company, Fort Atkinson, Wis., a corporation of Wisconsin

Application May 22, 1933, Serial No. 672,223

4 Claims. (Cl. 119—16)

My invention relates to buildings and in particular buildings and systems of buildings for the housing of stock and food products for feeding stock.

It is my object to provide round ended buildings which facilitate storage of food and the handling of stock and the distribution of stock and food in buildings.

It is a further object to provide a supplementary system by which stock such as cows may be conveniently fed and stalled, then moved from the feeding point to a room to be washed and then circulated to an enclosure to be milked and then returned in a circulatory path to the initial stall position.

It is a further object to provide adequate feed chambers and feed mixing chambers so that the feed may be stored, mixed and then delivered in suitable quantities to the stock without having the feed in the presence of stock except so much of it as will be consumed at a single meal, thereby reducing the difficulties of dust, contamination, disease and fire hazards.

The advantage of the round ended barn is that it reduces the handling of large numbers of stock and the handling of feed for such stock and therefore economizes on expensive labor which is the principal item of expense of the dairyman. It permits of the assembly of a plurality of different types of communicating structures radially from the end of the building but at the same time permitting of adequate space for light and ventilation for each building which is so connected. This results in reducing the outside wall area of the building, decreasing infiltration, heat loss and the cost of wall construction and decreases the resistance to wind due to the shape. The roof stresses are reduced by the round ended barn shown and described, and it is easy to ventilate, light and heat.

The round ended buildings eliminate all corners where there is either lost space or an accumulation of feed and dirt which results in fire hazards and disease. There are no waste spaces to heat, the reduced outside wall area reduces heat loss and reduces the cost of construction as compared to the square wall area. It is cheaper to construct than with a square end and permits of the circulatory system for stock to and from adjacent buildings. The distribution of windows in the round ended barn permits the sun to enter through more hours of the day during late fall, winter and early spring due to the low declination of the sun during this period. The reduced roof and side wall area absorb a minimum of the sun's radiation in summer.

It permits of a ready handling of the feed and the cleaning of the building by having the animals face all in the same direction in groups. It permits of such regular grouping of animals such as milch cows that have to have a uniform treatment of feed, light and ventilation while it permits of small triangular rooms in the ends of buildings for cows and young calves where special conditions of feeding, light, heat and ventilation are necessary.

This arrangement provides for entrance passageways, barn space, milking rooms, washing stall rooms, feed mixing rooms and tool rooms, all under a single roof of a series of buildings that interconnect so that it is unnecessary in winter weather to go outside the buildings for the complete handling of the stock, and feeding and milking.

Referring to the drawings, Figure 1 is a section taken horizontally through a series of buildings having the round ended construction, making possible various combinations to practice the method of my invention.

Figure 2 is a similar section showing the interior arrangement and connection of feed storage chambers for ensilage and hay in connection with a round ended building, but showing a different interior arrangement of the animal housing structure from that shown in Figure 1.

Figure 3 is a similar view showing the method of circulation of the cows and how the round ended buildings are utilized for washing stations and the like, but showing a different interior arrangement of the animal housing structure from those shown in Figures 1 and 2.

Figure 4 illustrates another form of arrangement of a round ended building providing the rectangular stalls and compartments as well as passageways at the ends of the buildings in such a manner that direct drafts will not come upon the stock, particularly cows and calves in the building.

Figure 5 illustrates another interior arrangement.

Figure 6 illustrates an additional interior arrangement.

Figure 7 illustrates the method by which a plurality of different types of food containers may be connected to a common food assembly chamber formed in the round end of the building which permits of the connection of these food chambers to the round end while at the same time providing sufficient room for light, air and

ventilation around the food containing chambers.

Figure 8 is a view showing the connection of a milking parlor connected directly to the round ended building illustrating how the circulatory method may be adapted to this type of building, taken on the line 8—8 of Figure 9.

Figure 9 is an exterior elevation of Figure 8 showing the arrangement of windows for light and ventilation in a round ended building, the connecting passageway building and a milking station building.

It is to be understood that any one of the animal housing structures having the interior arrangements shown in the drawings is designed and constructed to be used with any of the washing and feeding stations, and food containers, which may be connected to each other by the corridors illustrated in any number of different arrangements, depending on the number and size of the animal housing structures used, the shape and size of the plot of ground used and other considerations incident to the erection and location of the various buildings. The purpose of the drawings has been to show some of the many arrangements which may be used, and the interior constructions of some of the buildings embodying this invention. The buildings shown may be added to as the size of the herds is increased. Each animal housing structure is preferably provided with its individual food container that is conveniently connected to it by a corridor, but which is removed therefrom to prevent danger of fire to the animals in the housing structure from the forage in the food container, even though the latter is constructed of fireproof materials and the food is ventilated during storage to prevent spontaneous combustion.

Referring to the drawings in detail, 1 indicates the straight side walls of the building having windows 2 distributed along the sides of the walls. The buildings terminate at round ends generally designated 3 which are formed of a plurality of panels, the round ends being formed by these angularly disposed panels. Accordingly, it is possible to remove any one of these panels and put in the place thereof a communication passageway such as 4, the side walls being provided with any number of windows 5. Such passageways may be of any number depending upon the number of panels and due to the fact that the building is round ended, these passageways can radiate from the common center about which the round end is described. This is seen illustrated very clearly in Figures 1 and 7.

For instance, in Figure 7 the passageways 4, which in this case are three in number, radiate from the round end of the building 3 and between the passageways are provided the windows 2 and next to the passageways are doors 6. This provides for light and ventilation between the storage chambers 7, 8, 9, and 10 that are thus connected to the round end of the building. Spaces 11 between such buildings provide sheltered spots for stock where they can stand when the weather is bright and clear but windy and cold. According to the apparatus of my invention I place all storage of feed outside of the buildings. In Figs. 1, 2, and 3, the silos are shown each with a swinging door *a*, to give access to the silos. These doors will swing either inward or outward.

These vertical cylindrical containers are more fully set forth in the applications of Shodron, Serial No. 675,799, filed June 14, 1933; Serial No. 637,817; filed October 14, 1932, now matured into Letters Patent No. 1,995,551 issued March 26, 1935; Serial No. 649,555, filed December 30, 1932; and Kreutzer, Serial No. 637,027, filed October 10, 1932, now matured into Letters Patent No. 1,981,417 issued November 20, 1934; Serial No. 669,896, filed May 8, 1933, now matured into Letters Patent No. 1,981,420 issued November 20, 1934; Serial No. 669,897, filed May 8, 1933, now matured into Letters Patent No. 1,981,421 issued November 20, 1934, and Serial No. 669,898, filed May 8, 1933, now matured into Letters Patent No. 1,981,422 issued November 20, 1934, as well as others all owned by the same assignee.

By the use of these radiating passageways and connecting food containers, all feed such as hay is stored outside the building where the stock is kept and thereby the fire hazard of spontaneous combustion is eliminated while a very easy and ready access to the feed is provided. In these containers are both hay storage chambers and ensilage chambers, and, if desired, grain storage chambers. The round ended building makes possible this distribution of these containers where they are convenient but not dangerous.

Likewise, the round ended building permits of the circulation passageways such as shown in Figures 1 and 8 between the round ended buildings used for milking stations or so-called milking parlors. By putting a partition 12 in one of these passageways 4, the cows are guided to and from the round ended milking parlors designated 13 where they automatically circulate through the passageways 14 around the enclosure to their stalls 15 where they may be placed either singly or in pairs. By using the round ended buildings a plurality of communicating stables may connect thereto at each one of the wall panels of the buildings, thereby providing similar advantages with respect to the round ended milking parlor. It is so arranged that the cows may circulate as indicated by the arrows so that they do not double back on the tracks and there is no confusion in their movement to and from milking position. Thereafter the milk can be conveyed either in bulk or mechanically by pipes or otherwise to the milk house 15*a*.

It will be noted that all of the operations of the dairy from feeding to milking can be conducted under cover at the same time with adequate sunlight, heat and ventilation as may be required and with absolute sanitation, as there is no place in the building proper for the accumulation of material that would contaminate the milk or injure the stock.

Referring to the building shown in Figure 1, it will be noted that one end of the building is provided with a compartment 16 formed by the partition 17, 17' where there are stalls 18 in which the cows may be placed to be washed prior to their going to the milking parlor. The other end of the building is provided with a similar chamber which is used for a feed mixing or tool storage chamber, or both. It is provided with end doors 19 so that if the cows face outwardly in groups as in group 20 and group 21, the feed may be circulated by a carrier to the heads of the animals through the outside passageway 22 while the cleaning of the animals may be performed through passageways 23 and thence out through the doors 24.

Figure 3 is likewise provided with washing compartment **16** and stalls **18**.

The transverse partition **17'** which is of a length substantially equal to the width of the passageway and the communicating chamber with its longitudinal axis in alignment with the end of the partition prevents confusion and allows the animals to move from the chamber into the barn without mixing with the animals which are moving toward the milking parlor from the barn and those animals which are being washed before being sent into the milking parlor.

Another arrangement may be employed as shown in Figure 7 where there are pens **25** and stalls **26** with passageways **27** communicating with the doors **6**. Alternative arrangements showing the flexibility of these buildings are shown in Figures 2 to 6. The round ended building permits of very satisfactory triangular pens **28** as indicated particularly in forms **4**, **5**, and **6**. It is the flexibility of this type of arrangement which adapts it to the amount of stock that the farmer has on his farm which makes it a desirable form of construction for the housing, feeding and care of stock.

It will be understood that I desire to comprehend within my invention such modifications as may be necessary to adapt it to varying conditions and uses.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a building system, including a milking parlor, one or more barns and an interconnecting extended chamber between each of said barns and said milking parlor, and other communicating chambers, said barns having substantially rounded ends, each of said ends consisting of a plurality of removable panels, said panels being adapted to be replaced by entry or exit ends of said other communicating chambers, whereby said rounded ends of said barns may be removably connected to the milking parlor and to one or more additional buildings.

2. In a building system, including a milking parlor, one or more stock barns and an interconnecting communicating chamber between each of said barns and said milking parlor, and other communicating chambers, said barns having substantially rounded ends and a longitudinal central passageway, each of said ends consisting of a plurality of removable panels, said panels being adapted to be replaced by entry or exit ends of said other communicating chambers, whereby said rounded ends of said barns may be removably connected to the milking parlor and to one or more additional buildings, one of said ends having a transverse partition of a length substantially equal to the width of said passageway and spaced from said passageway, and one of said communicating chambers having its longitudinal axis in alignment with an end of said partition whereby animals moving from the chamber into the barn will be directed between said end of the partition and a wall of the communicating chamber and toward the central passageway.

3. In a building system, including a milking parlor, one or more stock barns and an interconnecting communicating chamber between each of said barns and said milking parlor, and other communicating chambers, said barns having substantially rounded ends and a longitudinal central passageway, each of said ends consisting of a plurality of removable panels, said panels being adapted to be replaced by entry or exit ends of said other communicating chambers, whereby said rounded ends of said barns may be removably connected to the milking parlor and to one or more additional buildings, one of said ends having a transverse partition of a length substantially equal to the width of said passageway and spaced from and parallel to the end of said passageway, and one of said communicating chambers having its longitudinal axis in alignment with an end of said partition whereby animals moving from the chamber into the barn will be directed between said end of the partition and a wall of the communicating chamber and toward the central passageway.

4. In a building system, including a milking parlor, one or more barns and an interconnecting communicating chamber between each of said barns and said milking parlor, and other communicating chambers, said barns having substantially rounded ends, and a transverse partition in at least one of said ends, one of said chambers having a wall extending inwardly into said barn and forming with the transverse partition an opening, said chamber having therein a central spacing member to separate animals moving in opposite directions, each of said ends consisting of a plurality of removable panels, said panels being adapted to be replaced by entry or exit ends of said other communicating chambers, whereby said rounded ends of said barns may be removably connected to the milking parlor and to one or more additional buildings, the opening being in alignment with a space formed by said spacing member and the inwardly extending wall of said chamber.

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