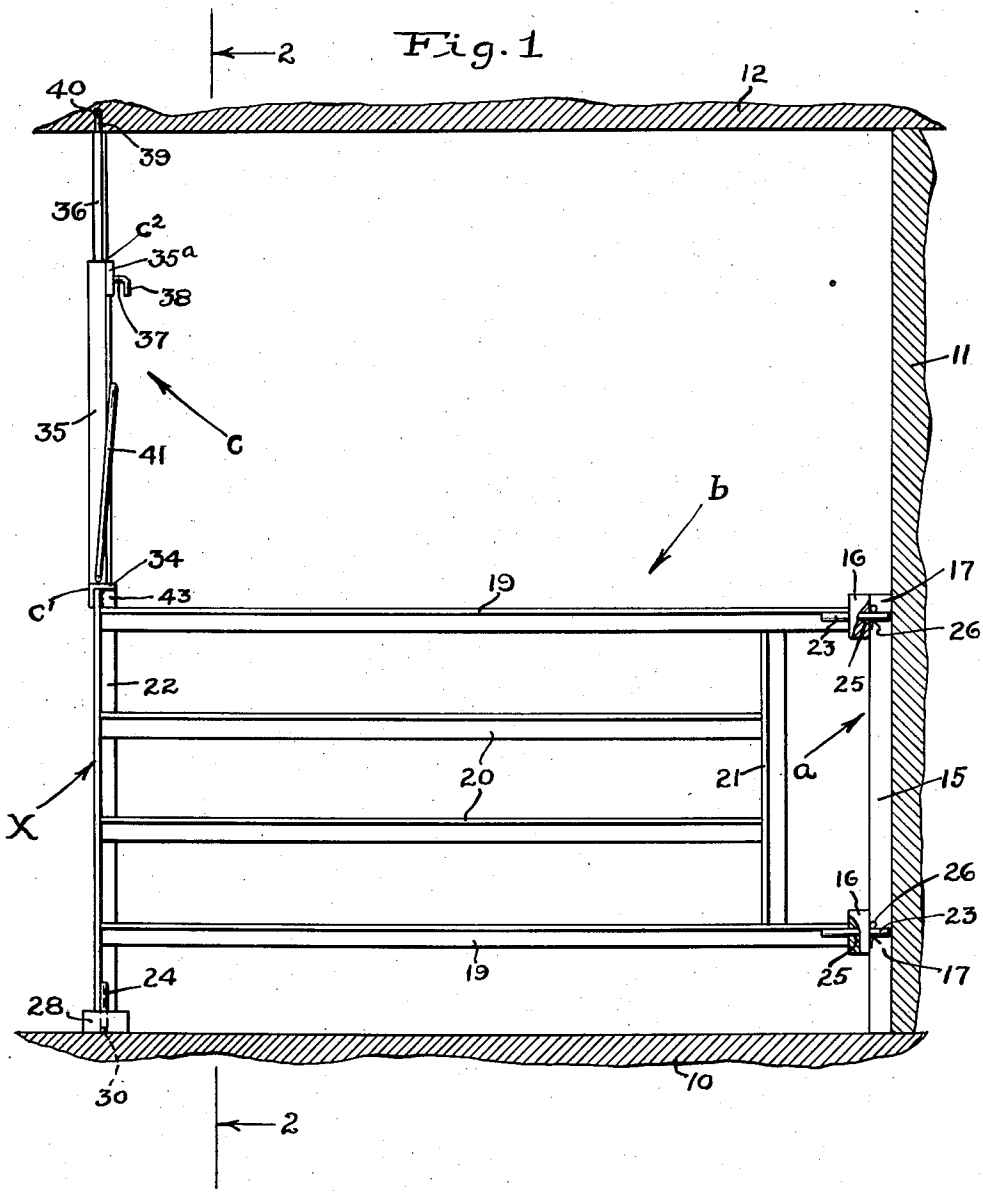
Jan. 3, 1961 J. M. LIETZAU 2,966,883

KNOCK-DOWN FARROWING PEN

Filed April 17, 1959 3 Sheets-Sheet 1

Fig. 1



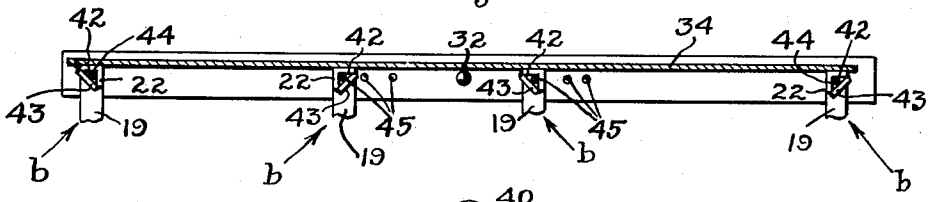
Inventor
John M. Lietzau
By Bacon & Lagaard
Attys.

Jan. 3, 1961 J. M. LIETZAU 2,966,883

KNOCK-DOWN FARROWING PEN

Filed April 17, 1959 3 Sheets-Sheet 2

Fig. 3



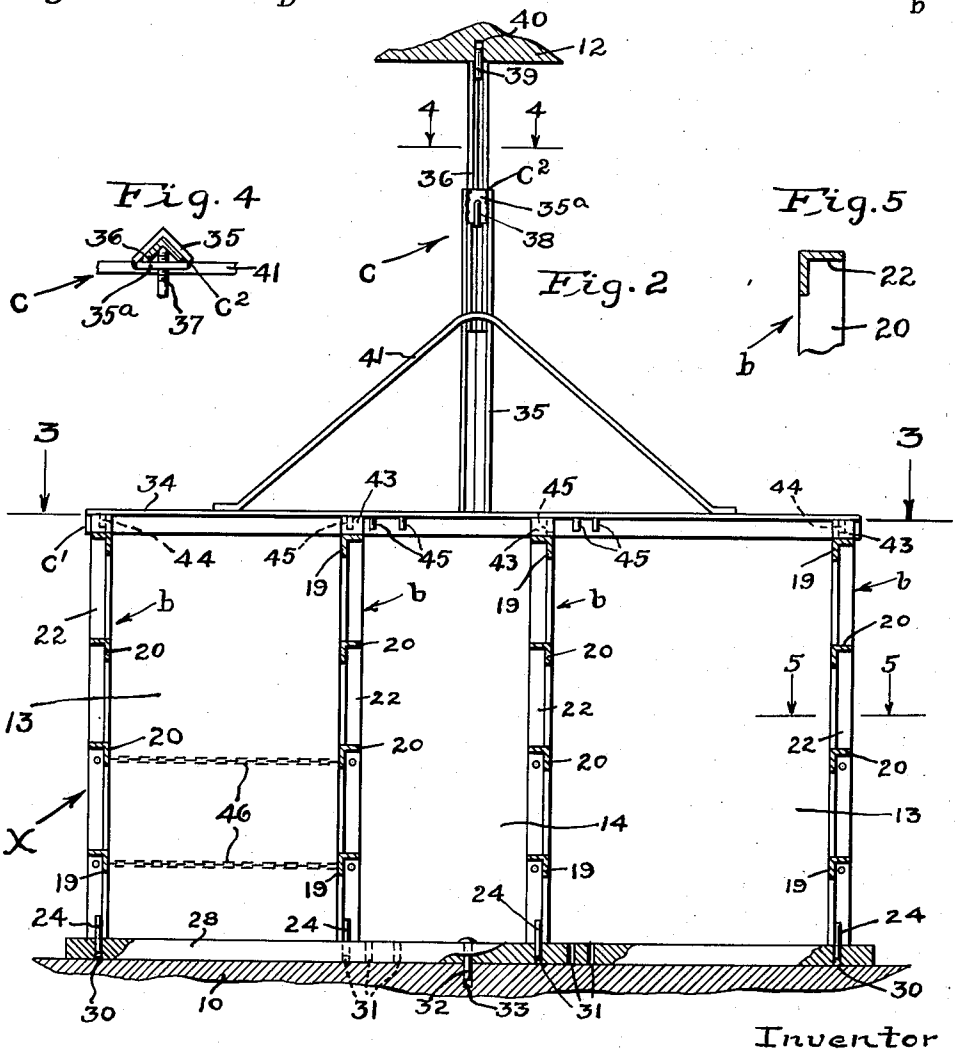


Fig. 4

Fig. 5

Inventor
John M. Lietzau
By Connell & Zagaud
attys.

Jan. 3, 1961 J. M. LIETZAU 2,966,883

KNOCK-DOWN FARROWING PEN

Filed April 17, 1959 3 Sheets-Sheet 3

Fig. 8

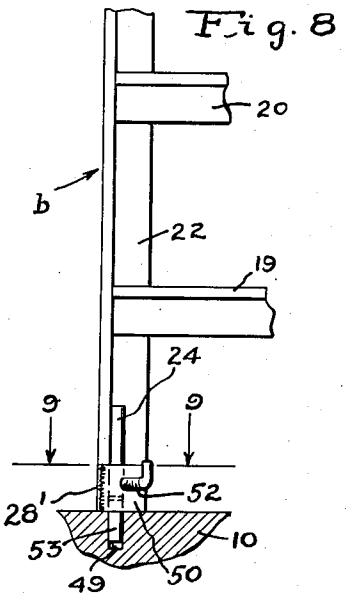


Fig. 9

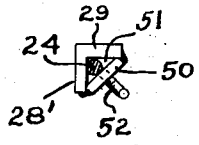


Fig. 7

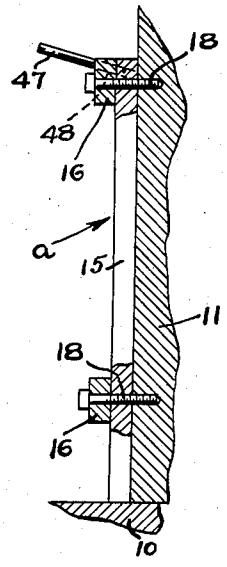
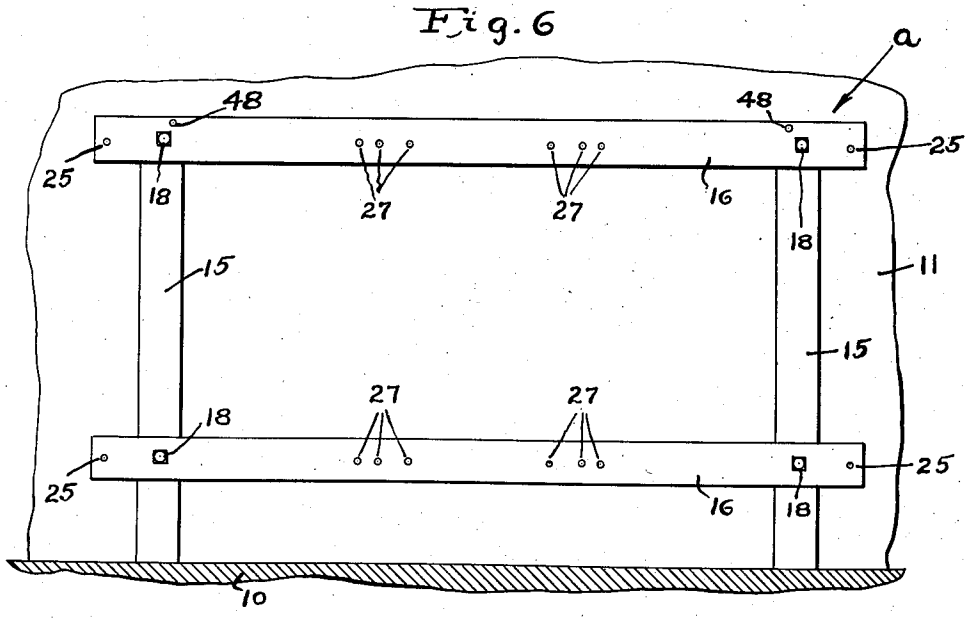


Fig. 6



Inventor
John M. Lietzau
By Cowell & Lagaard
Attys.

United States Patent Office 2,966,883 Patented Jan. 3, 1961

2,966,883

KNOCK-DOWN FARROWING PEN

John M. Lietzau, Cosmos, Minn.

Filed Apr. 17, 1959, Ser. No. 807,098

9 Claims. (Cl. 119—20)

This invention relates to improvements in farrowing pens, an object thereof being to provide a simple, durable, relatively inexpensive pen structure for the safe and sanitary farrowing and nurturing of pigs, which structure is adapted to be quickly and easily set up for use and knocked down into compact form for storage in disuse.

More specifically, it is an object of my invention to provide a pen structure of the present nature for installation in a building having a farrowing space defined, in part at least, by a floor, wall and ceiling, such structure including a head frame adapted to be permanently connected to the building wall, and stall-forming side frames adapted to be detachably connected at their forward ends to the head frame and adapted also to be detachably connected at their lower rear portions to the floor of the building in a manner depriving the side frames at their said lower rear portions of movement relative to the floor other than upwardly therefrom, such pen structure further including a holddown frame adapted to be interposed between and detachably connected with the upper rear portions of the side frames and the ceiling of the building.

Another object of the invention is to provide a pen structure, as aforesaid, wherein the connections for detachably connecting the side frames to the head frame and to the floor of the building and to the hold-down frame enable said side frames to be relatively adjusted laterally, thereby to vary the width of the stalls defined between said side frames.

A further object of the invention is to provide a dual pen structure of the present nature in the form of a unit employing a single head frame and a single hold-down frame for both of two pairs of stall-forming side frames, the adjacent side frames of the two pairs thereof being laterally spaced apart to provide an area between the two stalls of the dual structure for the safe retirement of the pigs farrowed in either stall.

An additional object of the invention is to supply dual pen structures, as above indicated, adapted to be set up side by side, as a battery of units, providing between adjacent units a space for the safe retirement of pigs farrowed in the adjacent stalls of such units.

Other objects of the invention reside in the novel combination and arrangement of parts and in the details of construction hereinafter illustrated and/or described.

In the drawing:

Fig. 1 is a side elevational view of a dual farrowing pen structure constructed in accordance with my invention, the same being shown as installed in association with the floor, a wall and the ceiling of a building.

Fig. 2 is a vertical sectional view taken as on the line 2—2 of Fig. 1.

Fig. 3 is a horizontal sectional view taken as on the line 3—3 of Fig. 2.

Fig. 4 is a horizontal sectional view in detail taken as on the line 4—4 of Fig. 2, and shown in scale doubly enlarged over that appearing in said Fig. 2.

Fig. 5 is a view similar to Fig. 4, taken as on the line 5—5 of Fig. 2.

Fig. 6 is a rear elevational view of the head frame of the structure shown in Fig. 1.

Fig. 7 is an end elevational view of said head frame shown partly broken away and as attached to the wall of a building.

Fig. 8 is a side elevational view in detail illustrating in enlarged scale the lower rear portion of the side frame of the pen structure shown in Fig. 1 and portraying an alternate form of connection between the post of a side frame and a floor.

Fig. 9 is a horizontal sectional view taken as on the line 9—9 of Fig. 8.

The illustrated embodiment of my invention is shown as installed in a building having a floor 10, wall 11 and ceiling 12. This embodiment of the invention comprises a farrowing pen unit X having dual pens providing two stalls 13 with a space 14 therebetween, said unit structure X being adapted to be employed with other such units arranged side by side with a space, similar to said space 14, between the adjacent stalls 13 of adjacent units. The stalls 13 each accommodate a sow and the spaces between adjacent stalls provide for the farrowed pigs areas of safe retirement from the sows in said stalls.

A farrowing pen unit X includes a head frame *a*, two pairs of side frames *b* and a hold-down frame *c*.

The head frame *a* consists of a pair of stiles 15 and upper and lower rails 16, all suitably of wood two inches thick and four inches wide. The stiles 15 are placed against the wall 11 of a building and the rails 16 overlie the rear faces of said stiles 15 leaving a space 17 (Fig. 1) between the rails 16 and the wall 11. Lag bolts 18 extending through said upper and lower rails 16 and stiles 15 are screwed into the wall 11. These lag bolts 18 hold the stiles 15 and rails 16 of the head frame *a* together and permanently fasten said head frame to the wall.

The two pairs of side frames *b* are all similarly suitably constructed of lengths of angle iron. Each side frame *b* has upper and lower rails 19, two intermediate rails 20, and a stile 21 which is welded at its ends to the upper and lower side-frame rails 19 near their front ends and which is also welded intermediately thereof to the forward ends of said intermediate rails 20. Each side frame *b* also has a rear post 22 to which the rear ends of the upper and lower rails 19 and the intermediate rails 20 are welded. Each of the upper and lower rails 19 of each side frame *b* is provided with a pin 23 for connecting it to its respective rail 16 of the head frame *a*. In each instance, this pin 23 is welded at its butt portion to the side-frame rail 19 in the reentrant angle thereof and extends forwardly from the front end of the rail. Each post 22 of each side frame *b* is similarly provided with a pin 24 which extends downwardly beyond the bottom of the post.

Near each end of each of the upper and lower rails 16 of the head frame *a* and extending horizontally therethrough is an opening 25, these openings 25 in the corresponding ends of the rails 16 being vertically aligned. Each pair of said vertically aligned openings 25 removably receives the pins 23 on the upper and lower rails 19 of one of the side frames *b*, each pin 23 being of a length enabling it to extend through its respective head-frame rail 16 into the space 17 between it and the building wall 11 when the front end of its respective side-frame rail 19 is brought into abutment with the rear face of its respective head-frame rail 16. Each such pin 23 has a cotter-key opening (not shown) therein which is accessible in said space 17 for the reception of a cotter-key 26 to keep the pin 23 from being unintentionally withdrawn from its respective opening 25 in its respective head-frame rail 16.

The two side frames *b* which are removably connected to the head frame *a* through the media of their pins 23

and the vertically aligned openings 25 in the rails 16 of said head frame are the outer side frames of the dual pen structure X. The inner side frames *b* of said dual pen structure are similarly removably connected to the head frame *a* but in a manner enabling each inner side frame *b* to be stationed at various selected positions laterally with respect to its respective outer side frame *b*, thereby to vary the width of the stall 13 defined by the companion side frames *b*. To this end, for each of the inner side frames *b*, each of the upper and lower rails 16 of the head frame *a* is provided with a set of horizontally spaced pin-receiving openings 27, the set of openings 27 in the upper head-frame rail 16 corresponding with the set of openings 27 in the lower head-frame rail 16, corresponding openings of the two sets being vertically aligned. Fig. 2 of the drawing shows the effect attained in varying the width of the two stalls 13 between the two pairs of side frames *b* by varying the selection of pin-receiving openings 27 in the head-frame rails 16 upon the application of the connecting pins 23 of the inner side frames *b* to said openings 27.

With the side frames *b* connected to the head frame *a*, the posts 22 of said side frames *b* stand bottomed upon a base member such as the sill 28 (Figs. 1 and 2) or, alternatively, such as the foot 28^1 shown in Fig. 8. The sill member 28 suitably may be a length of wood two inches thick and four inches wide placed flat on the floor 10 beneath the posts 22 of the side frames *b*. This sill 28 near each end thereof has a vertical opening 30 therein, each such opening 30 being adapted to receive the pin 24 at the bottom of the post 22 of one of the outer side frames *b*. For each of the inner side frames *b*, the sill 28 is formed with a set of vertical openings 31 for removably receiving the pin 24 on the post 22 of such side frame. These sets of openings 31 in the sill 28 correspond with the sets of openings 27 in the head-frame rails 16, whereby the pins 24 on the posts 22 of the inner side frames *b* may be received in openings 31 in the sill 28 matching the openings 27 in the head-frame rails *a* which have been selected for the reception of the pins 23 on the rails 16 of the side frames *b*. Between the two sets of openings 31 in the sill 28, said sill 28 is fitted with an anchoring pin 32 which extends therethrough and therebeneath and is adapted to be removably received in a socket 33 formed in the floor 10, thereby to connect the sill 28 to the floor. Due to such connection of the sill 28 to the floor 10 by the anchoring pin 32, and due to the connection of the side frames *b* to the sill 28 by the pins 24 on the posts 22, the side frames *b* are restrained at their rear ends against movement relative to the floor 10 other than in a direction upwardly therefrom. And, too, the lower rear portions of the side frames *b* are thereby held in the same laterally spaced relationship as that established at the front ends of said side frames *b* by the pins 23 connecting the side-frame rails 19 with the rails 16 of the head frame *a*.

The hold-down frame *c* is removably interposed between the ceiling 12 of the building and the upper ends of the posts 22 of the side frames *b*. Said hold-down frame *c* deprives the side frames *b*, at their rear ends, of upward movement relative to the floor 10, and it retains the side frames *b*, at their upper rear portions in the laterally spaced relationship established by the pins 23 connecting the side frame rails 19 with the rails 16 of the head frame *a* and by the pins 24 connecting the side-frame posts 22 with the sill 28. This hold-down frame *c* includes a beam c^1 of angle iron the leg 34 whereof overlies the upper end portions of the side-frame posts 22 which extend above the upper rails 19 of the side frames *b*. Standing on the leg 34 of the beam c^1 midlength thereof is a truss member c^2 which engages the ceiling 12 at its upper end and holds the beam c^1 depressed against the upper ends of the side-frame posts 22. Said truss member c^2 includes a lower section 35 and an upper section 36, both of angle iron, the lower truss section 35 being welded at its lower end to the leg 34 of the beam c^1 of the hold-down frame *c*, the upper truss section 36 being nested and telescopically slidable in said lower truss section 35. At the upper end of the lower truss section 35 is a plate 35^a which is welded at its ends to the edges of the angle iron constituting said truss section 35, as best seen in Fig. 4. This plate 35^a forms a guide for the slidable truss section 36 and it has a clamp-screw 37 threaded therethrough and screwable by means of a finger piece 38 against said slidable truss section 36 to hold it fixed in selected position relative to said lower truss section 35. Welded to the upper end of said slidable truss section 36 in the reentrant angle thereof is an upstanding pin 39. This pin 39 extends above said upper end of said upper slidable truss section 36 and is adapted to be received in a socket 40 formed in the ceiling 12 as the upper truss section 36 is adjusted relative to the lower truss section 35 to bring the top of said upper truss section 36 into abutment with said ceiling 12. A rod 41 welded midlength thereof to the edges of the angle iron constituting the lower truss section 35 and also welded at its ends to the leg 34 of the beam c^1 of the hold-down frame *c*, braces the truss member c^2 and additionally forms a second guide on the lower truss section 35 for the upper truss section 36. Each side-frame post 22, at its upper end, has an upwardly opening socket 42 formed by welding the ends of a plate 43 to the edges of its angular structure, as best seen in Fig. 3. Depending from the leg 34 of the beam c^1 near each end thereof is a peg 44 which is received in the post-socket 42 of its respective outer side frame *b*. Likewise depending from said beam c^1 intermediately thereof are two sets of pegs 45, one set for each of the inner side frames *b*. The pegs 45 of each of said sets thereof are respectively received in the post-socket 42 of their respective inner side frame *b* in accord with the relationship of the side frames *b* established by the connections made between said side frames and the head frame *a* and between said side frames and the sill 28. Lodged in their respective post-sockets 42 said pegs 45 serve to maintain such established relationships of the side frames *b* at their upper rear portions.

To prevent a sow from backing out of a farrowing stall 13, suitable means will be provided, such, for example, as the gate chains 46 which are stretched from one to the other of the posts 22 of companion side frames *b*.

The lower rails 19 of the side frames *b* are disposed at an elevation sufficiently high to provide access by suckling pigs to a sow in a stall 13 of the pen structure and to enable the young pigs to withdraw from such stall into a space between stalls when danger of injury from the sow impends.

To knock down the pen structure, the cotter-keys 26 are removed from the pins 23 at the front ends of the side-frame rails 19, thus releasing said pins for withdrawal from the openings 25, 27 in the head-frame rails 16. The upper truss section 36 of the truss member c^1 is released and lowered within the lower truss section 35 to free said upper truss section 36 from its abutment with the ceiling 12 and to withdraw the pin 39 on said upper truss section 36 from the socket 40 in the ceiling. Thereupon the hold-down frame *c* is lifted from the posts 22 to withdraw its pegs 44, 45 from the sockets 42 of said posts, thereby freeing said hold-down frame *c* from the side frames *b*. The rear ends of the side frames *b* are then lifted to withdraw the pins 24 on the posts 22 from the openings 30, 31 in the sill 28 which then may be lifted from the floor. Finally, to free the side frames *b* they are shifted rearwardly to withdraw the pins 23 on their rails 19 from the openings 25, 27 in the rails 16 of the head frame *a*. The then free side frames *b*, sill 28 and hold-down frame *c* may be gathered together and hung compactly in disuse on pegs 47 (Fig. 7) socketed in openings 48 (Fig. 6) formed in the upper

rail 16 of the head frame *a* which frame, preferably, will remain attached to the wall 11 of the building.

In cases wherein it is desirable to substitute separate footings for the posts 22 of the side frames *b* in place of the sill 28, such footings, as 28^1 in Figs. 7 and 8, are provided and instead of making one socket in the floor 10, as at 33 for the pin 32 in the sill 28, two sockets, such as the socket 49 shown in Fig. 8, will be made in the floor 10 to match the two openings 25 in the upper and lower rails 16 of the head frame *a*, and two sets of additional sockets (three sockets to each set), similar to socket 49, will be formed in the floor 10 to match the two sets of sockets 27 in said upper and lower rails 16 of said head frame *a*. Each footing 28^1 will consist of a body 29 in the form of short length of angle iron to the edges of which a plate 50 will be welded, as best seen in Fig. 9, to provide an upwardly opening socket 5^1 for the reception of the pin 24 on the post 22 of its respective side frame *b*. A screw 52 screwed through said plate 50 and against such pin 24 will secure the footing 28^1 to the post 22. An anchoring pin 53 welded at its upper end to the body 29 of the footing 28^1, in the reentrant angle thereof, depends from said body 29 and is received in a floor socket such as the socket 49 shown in Fig. 8.

It will now be readily comprehended that my concept in farrowing pen structures fully meets the various states objectives thereof, and that therewith the production of pigs, in operations both large and small, may be profitably conducted with minimum effort and at relatively small investment in equipment.

Changes in the specific form of the invention, as herein described, may be made within the scope of what is claimed without departing from the spirit of the invention.

Having described the invention, what is claimed as new and desired to be protected by Letters Patent is:

1. A knockdown farrowing pen for installation in a building having a floor, a wall and an overhead structure formed with a downwardly opening socket therein, said pen comprising a head frame adapted to be attached to the wall of the building, a first side frame and a second side frame, each side frame having a post at the rear end thereof, the top of each post having an upwardly opening socket therein, connecting means for said first side frame adapted detachably to connect the same at its forward end to said head frame, connecting means for said second side frame adapted detachably to connect the same at its forward end to said head frame in any of various laterally spaced positions relative to said first side frame, connecting means for the post of said first side frame adapted detachably to connect the same at its lower end to the floor of the building, connecting means for the post of the second side frame adapted detachably to connect the same at its lower end to the floor of the building in position laterally spaced from the post of the first side frame in correspondence with the lateral spacing effected between the forward ends of said side frames, the said means connecting the posts of the side frames to the floor enabling said posts to be detached from the floor upon movement of the rear ends of the side frames upwardly from the floor, and hold-down means for holding down and depriving the rear ends of said side frames of movement upwardly from said floor, said hold-down means including a beam adapted to overlie the posts of the side frames, said beam having a peg depending therefrom adapted to be removably received in the socket of the post of said first side frame, additional pegs depending from said beam, there being one such additional peg for each of the various laterally spaced dispositions attainable between the second side frame and the first side frame, each of said additional pegs being adapted in its respective dispositioning of the second side frame relative to the first side frame to be removably received in the socket in the post of said second side frame, a truss member upstanding from said beam, said truss member having an upstanding pin at its upper end adapted to be removably received in the downwardly opening socket in said overhead structure.

2. A knockdown farrowing pen for installation in a building having a floor, wall and an overhead structure formed with a downwardly opening socket therein, said pen comprising a head frame adapted to be attached to the wall of the building, a pair of side frames, each side frame having a post at the rear end thereof, connecting means for each side frame adapted detachably to connect the same at its forward end to said head frame, connecting means for each post adapted detachably to connect the same at its lower end to the floor of the building, said last connecting means enabling said posts to be detached from said floor upon movement of the rear ends of the side frames upwardly from the floor, and hold-down means for holding down and depriving the rear ends of said side frames of movement upwardly from said floor, said hold-down means including a beam adapted to overlie the posts of the side frames, connecting means for each post adapted detachably to connect the same at its upper end to said beam and deprive the said upper end of the post of lateral movement relative to the beam, a truss member upstanding from said beam, said member being adapted to engage the overhead structure of the building, said truss member having an upstanding pin at its upper end adapted to be removably received in the downwardly opening socket in said overhead structure and to deprive said upper end of said truss member of lateral movement relative to said overhead structure.

3. A knockdown farrowing pen, as defined in claim 2, wherein the upstanding truss member is adjustable in length to accommodate overhead structures of different heights and to facilitate the insertion and withdrawal of the pin on said truss member into and from the socket in the overhead structure.

4. A knockdown farrowing pen for installation in a building having a floor, a wall and an overhead structure, said pen comprising a head frame adapted to be attached to the wall of the building, a pair of side frames, each side frame having a post at the rear end thereof, connecting means for each side frame adapted detachably to connect the same at its forward end to said head frame, connecting means for each post adapted detachably to connect the same at its lower end to the floor of the building, said last connecting means enabling said posts to be detached from said floor upon movement of the rear ends of the side frames upwardly from the floor, and hold-down means for holding down and depriving the rear ends of said side frames of movement upwardly from said floor, said hold-down means including a beam adapted to overlie the posts of the side frames, connecting means for each post adapted detachably to connect the same at its upper end to said beam and deprive the said upper end of the post of lateral movement relative to the beam, a truss member upstanding from said beam, said member being adapted to engage the overhead structure of the building, and connecting means for said truss member adapted detachably to connect the same at its upper end with said overhead structure and deprive said end of said truss member of lateral movement relative to said overhead structure.

5. A knockdown farrowing pen for installation in a building having a floor, a wall and an overhead structure, said pen comprising a head frame adapted to be attached to the wall of the building, said head frame including an upper rail and a lower rail, first and second side frames, each side frame including an upper rail, a lower rail and a post at the rear ends of said side frame rails, each side frame rail having a pin projecting forwardly from its front end and the post having a pin projecting downwardly from its lower end, each of the upper and lower rails of the head frame having a horizontally extending opening

therein, each opening being vertically aligned with the other, said openings being adapted to receive the pins on the upper and lower rails of said first side frame, each of said upper and lower rails of said head frame also having a set of horizontally extending horizontally spaced openings therein, each opening of each set being vertically aligned with a corresponding opening of the other set, the openings of said sets of openings in alignment with each other being adapted to receive the pins on the upper and lower rails of said second side frame, a sill member adapted to rest on the floor of the building beneath the posts of the side frames, connecting means adapted to coact with said sill member and floor and deprive said sill member of movement along the floor, said sill member having a vertically extending opening therein adapted to receive the pin on the post of said first side frame, said sill member also having a set of vertically extending openings therein horizontally spaced in correspondence with the horizontal spacing of said sets of openings in the upper and lower rails of the head frame, each opening of the set of openings in the sill member being adapted to receive the pin on the post of said second side frame when the pins on its rails are received in corresponding openings of said sets of openings in the rails of the head frame, and hold-down means removably interposed between and coacting with the overhead structure of the building and the posts of said side frames at their upper ends, said hold-down means holding the upper ends of the posts against relative lateral movement and holding said posts down on the sill member and holding said sill member down on the floor of the building.

6. A knockdown farrowing pen for installation in a building having a floor, a wall and an overhead structure, said pen comprising a head frame including stiles adapted to be attached to the wall of the building, said head frame further including an upper rail and a lower rail both attached to the rear sides of said stiles to provide a space rearwardly of said rails between the same and said wall, first and second side frames, each side frame including an upper rail and a lower rail, each side frame rail having a pin projecting forwardly from its front end, each of the upper and lower rails of the head frame having an opening therein extending horizontally therethrough, each such opening being vertically aligned with the other, said openings being adapted to receive the pins on the upper and lower rails of said first side frame, each of said upper and lower rails of said head frame having an additional opening extending horizontally therethrough, each of said additional openings being vertically aligned with the other, said additional openings being adapted to receive the pins on the upper and lower rails of said second side frame, said pins on the side frame rails being adapted to extend through the openings in the rails of the head frame and into the space between said rails and the wall of the building, pin-securing means removably applicable to said pins on the rails of said side frames within said space aforesaid, said pin-securing means being adapted to deprive said pins of movement withdrawing the same from the openings in said head frame rails, connecting means detachably connecting said side frames at their lower rear portions to the floor of the building, said connecting means enabling the side frames to be detached at their said lower rear portions from said floor upon movement of the rear ends of the side frames upwardly from the floor, and hold-down means interposed between the overhead structure of the building and the upper rear portions of said side frames, said hold-down means depriving the rear ends of said side frames of movement upwardly from said floor and depriving said side frames of relative lateral movement at said upper rear portions thereof.

7. A knockdown farrowing pen for installation in a building having a floor, a wall and an overhead structure, said pen comprising a head frame adapted to be attached to the wall of the building, a pair of side frames, connecting means adapted detachably to connect said side frames at their forward ends to the head frame in various laterally spaced relations, other connecting means adapted detachably to connect said side frames at their lower rear portions to the floor of the building in the laterally spaced relation established in connecting the forward ends of said side frames to the head frame, said other connecting means enabling said side frames to be detached at their lower rear portions from the floor of the building upon movement of the rear ends of the side frame upwardly from the floor, and hold-down means common to said side frames removably interposed between said overhead structure of the building and the said side frames at their upper rear portions, said hold-down means coacting with said overhead structure and the said side frames at their upper rear portions to deprive the rear ends of the side frames of movement upwardly from the floor, said hold-down means acting further to secure said side frames at their upper rear portions in the established laterally spaced relation of the front ends and the lower rear portions of said side frames.

8. A knockdown farrowing pen for installation in a building having a floor, a wall and an overhead structure, said pen comprising a head frame adapted to be attached to the wall of a building, two pairs of side frames removably attachable at their forward ends to said head frame with the side frames of each pair in laterally spaced relation and with adjacent side frames of the two pairs also in laterally spaced relation, connecting means detachably connecting the side frames to the floor at the lower rear portions of said side frames and in the same spaced relation thereof as aforesaid, said connecting means depriving said side frames, at their rear portions, of movement relative to the floor other than upwardly therefrom, and hold-down means removably interposed between the overhead structure of the building and the upper rear portions of the side frames, said hold-down means having a horizontal member common to and engageable with both of the side frames of both pairs thereof and also having an upright member upstanding from said horizontal member, said upright member being engageable at its upper end with the overhead structure of the building at a point between the vertical planes occupied by the adjacent side frames of the two pairs thereof.

9. A knockdown farrowing pen for installation in a building having a floor, a wall and an overhead structure, said pen comprising a head frame adapted to be attached to the wall of a building, a pair of side frames, connecting means detachably connecting said side frames at their forward ends to said head frame in laterally spaced relation, other connecting means detachably connecting said side frames at their lower rear portions to the floor of the building in the same laterally spaced relation as aforesaid, said other connecting means enabling the side frames to be detached at their lower rear portions from the floor of the building upon movement of the rear ends of the side frames upwardly from said floor, and hold-down means common to said side frames interposed between the overhead structure of the building and the upper rear portions of said side frames, said hold-down means depriving the rear ends of said side frames of movement upwardly from said floor and depriving said side frames of relative lateral movement at their upper portions.

References Cited in the file of this patent

UNITED STATES PATENTS

591,792	Stitzer	Oct. 12, 1897
2,764,127	Newman	Sept. 25, 1956