

June 7, 1927.

A. QUADE ET AL  
STALL AND STANCHION  
Filed May 28, 1925

1,631,337

4 Sheets-Sheet 1

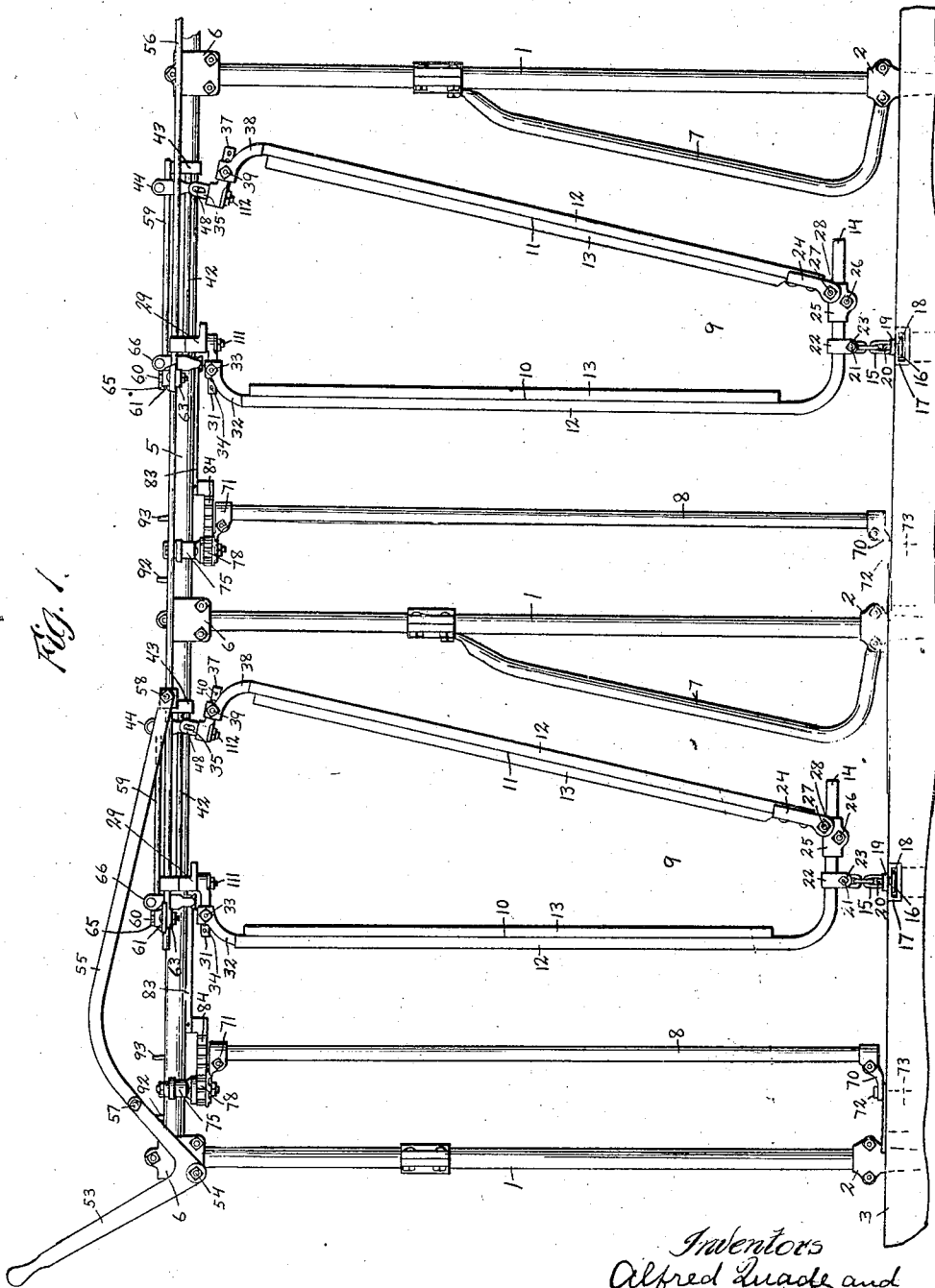


Fig. 1.

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4 Sheets-Sheet 2

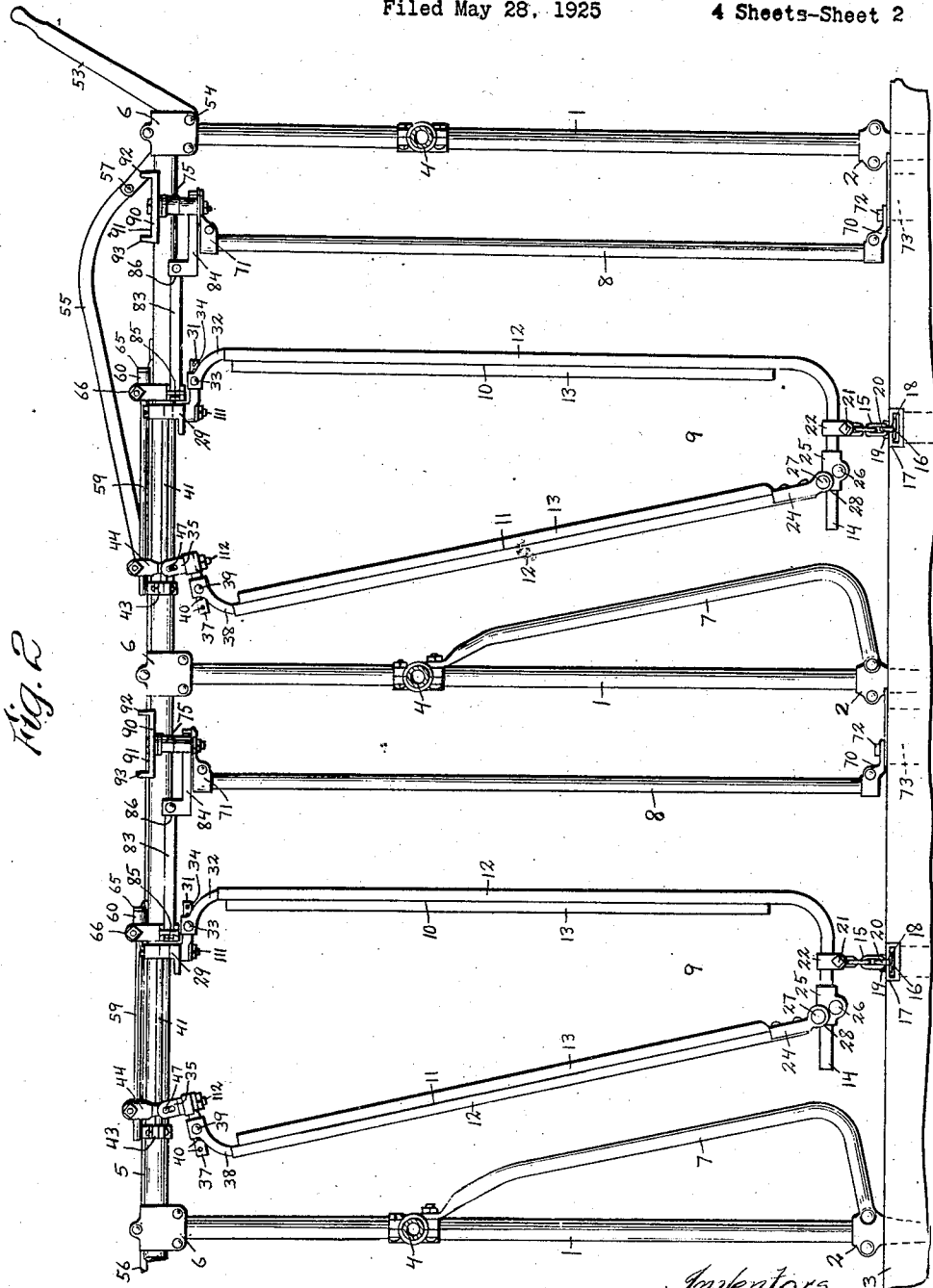


Fig. 2

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4 Sheets-Sheet 3

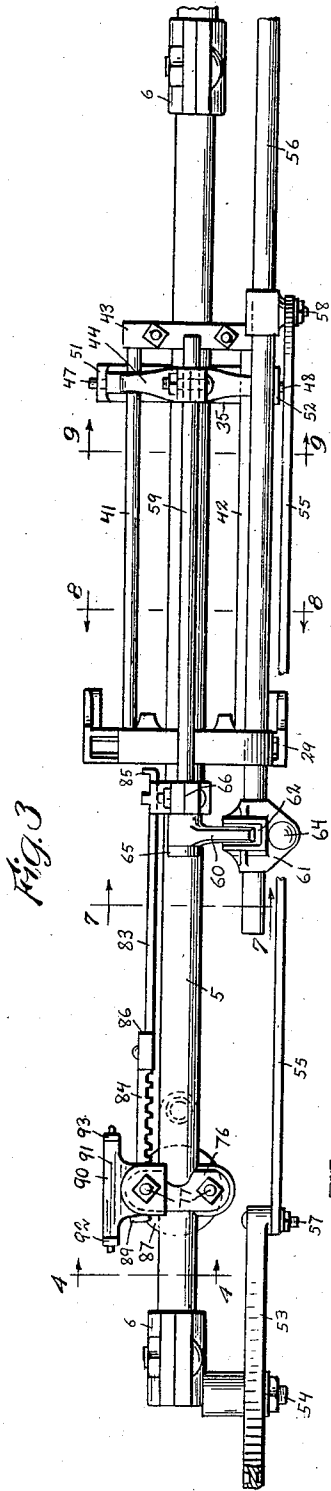


Fig. 3

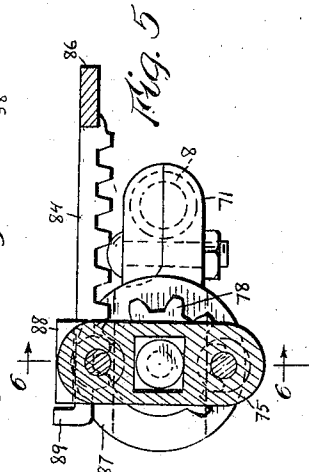


Fig. 5

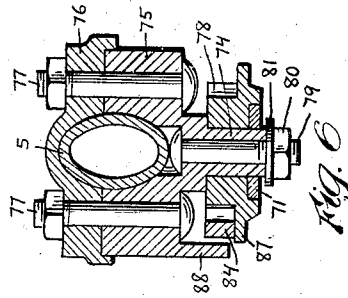


Fig. 6

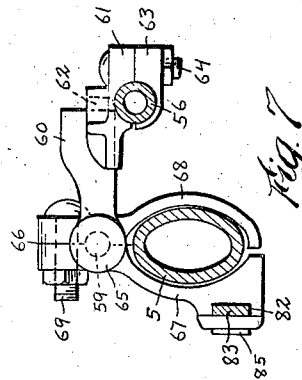


Fig. 7

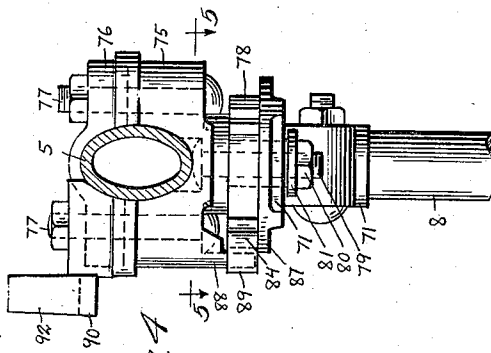


Fig. 4

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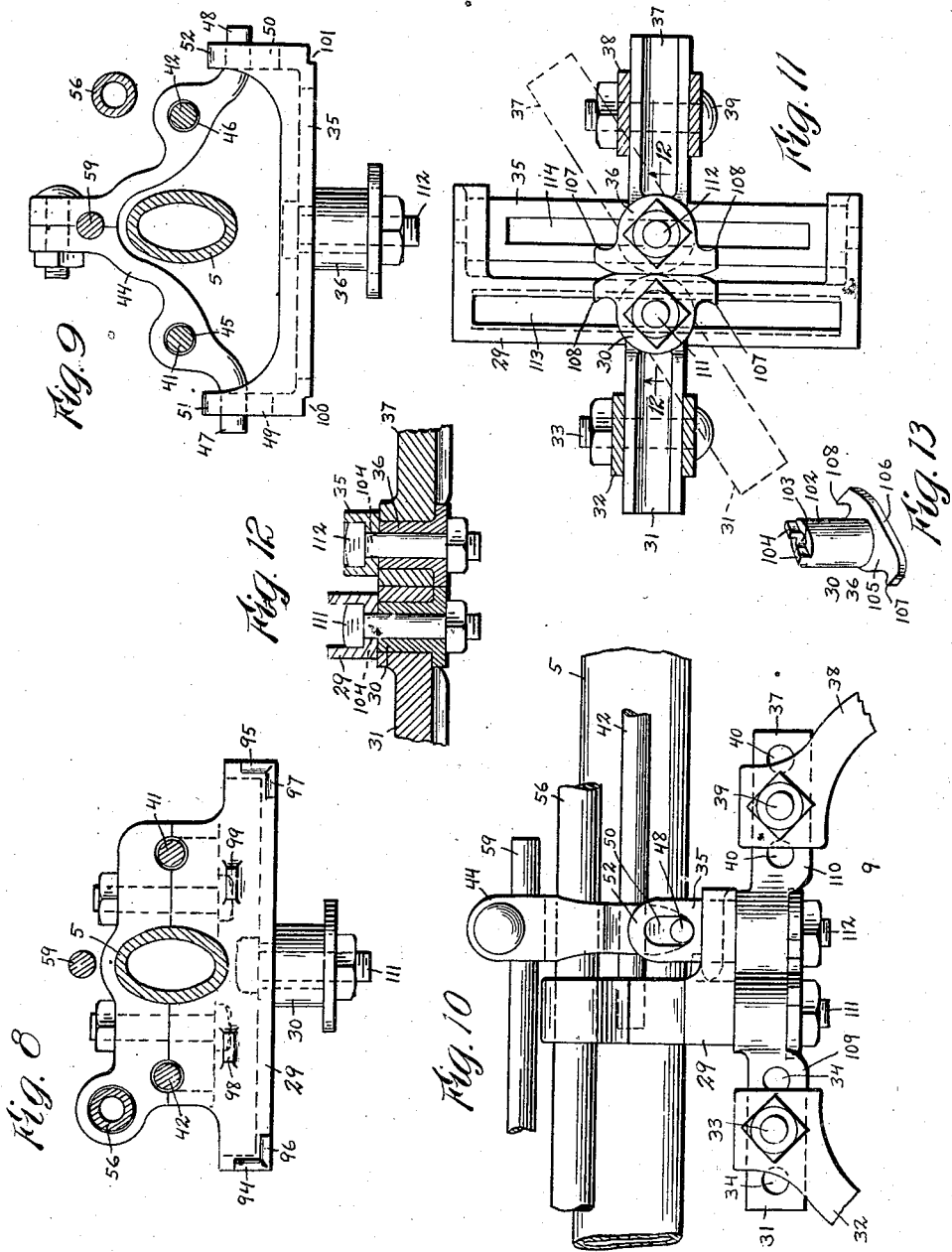
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4 Sheets-Sheet 4



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# UNITED STATES PATENT OFFICE.

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## STALL AND STANCHION.

Application filed May 28, 1925. Serial No. 33,361.

This invention relates to stalls and stanchions and the object of the invention is to improve the construction and operation of stalls and stanchions in the manner to be hereinafter described and claimed.

Referring to the drawings which accompany this specification and form a part hereof, which drawings illustrate an embodiment of this invention, and on which drawings the same reference characters are used to designate the same parts, Fig. 1 is an elevation of stalls and stanchions from outside the stalls; Fig. 2 is an elevation of stalls and stanchions, looking into the stalls; Fig. 3 is a plan view of parts of the construction; Fig. 4 is a section taken on the line 4—4 on Fig. 3, looking in the direction indicated by the arrows; Fig. 5 is a section taken on the line 5—5 on Fig. 4, looking in the direction indicated by the arrows; Fig. 6 is a section taken on the line 6—6 on Fig. 5, looking in the direction indicated by the arrows; Fig. 7 is a section taken on the line 7—7 on Fig. 3, looking in the direction indicated by the arrows; Fig. 8 is a section taken on the line 8—8 on Fig. 3, looking in the direction indicated by the arrows; Fig. 9 is a section taken on the line 9—9 on Fig. 3, looking in the direction indicated by the arrows; Fig. 10 is an elevation of parts; Fig. 11 is a plan view of the bottom of parts; Fig. 12 is a section on the line 12—12 on Fig. 11, looking in the direction indicated by the arrows; and Fig. 13 is a perspective view of a part.

Referring to the drawings, the reference numeral 1 designates uprights secured to clamps 2, the lower ends of which are set into cement or concrete 3. Stall side members or partitions 4, of well-known construction, are secured to the uprights 1 and the upper ends of the uprights 1 are secured to a non-circular top rail 5 by clamps 6. Immovable sure stops 7 are illustrated by the drawings as secured to uprights of the stalls on the sides of the stanchions where the swinging bows are located and movable sure stops 8 are illustrated by the drawings as located between the fixed bows of the stanchions and the adjacent uprights.

The stanchions, for convenience, are designated by the reference numeral 9 and they each include a fixed bow 10 and a swinging

channel iron 12, with the channels opening outwardly, with wood or other suitable material 13 secured to the inner faces of the channel iron. The lower end of the channel iron 12 of the fixed bow 10 is illustrated by the drawings as bent to extend horizontally to form a bottom member 14 for a stanchion. A flexible member 15, of suitable length, is secured at its lower end to a ring member 16 which is adjustable longitudinally of a stall by its co-action with an anchor member 17 which is secured in the cement or concrete 3 and which is provided with a longitudinal slot 18 through which projects a threaded projection for a nut 19 and a ring piece 20 to which the flexible member 15 is secured. The upper end of the flexible member 15 is secured to a bolt 21 which passes through the arms of a U-shaped clamp 22. By loosening the nut 23 the U-shaped clamp 22 can be moved to any desired position upon the bottom member 14 of the stanchion and can then be secured in position by tightening the nut 23. This construction provides for increasing or decreasing the distance between the bows of a stanchion while permitting the U-shaped clamp 22 to be set so as to be practically mid-way between the bows. A hinge member 24 is illustrated as riveted to the bottom of the channel iron 12 of the swinging bow 11 and a U-shaped hinge member 25 is removably held in a selected position upon the bottom member 14 of the stanchion by a bolt 26. The hinge pin 27, which passes through the hinge members 24 and 25, completes the hinge 28 which connects the swinging bow 11 with the fixed bow 10.

A support 29 is fixedly clamped to the top rail 5 and is provided with a trunnion 30 upon which a hanger 31 is pivotally supported. The upper end of the fixed bow 10 is adjustably secured to the hanger 31 by means of the extension 32, which is secured to the channel iron 12 of the fixed bow 10 and which may be secured to the hanger 31 by means of a bolt 33 which can be passed through any one of several holes 34 provided in the hanger 31 for the purpose of adjustment.

A movable support 35 is provided with a trunnion 36 upon which a hanger 37 is pivotally supported. The upper end of the swinging bow 11 is adjustably secured to

the hanger 37 by means of the extension 38, which is secured to the channel iron 12 of the swinging bow 11, and which may be secured to the hanger 37 by means of a bolt 39 which  
 5 can be passed through any one of several holes 40 provided in the hanger 37 for the purpose of adjustment. The trunnions 30 and 36 may be and are duplicates and their construction, which is illustrated by Fig. 13  
 10 of the drawings, will be described specifically later. The hangers 31 and 37 may also be duplicates and the extensions 32 and 38 may also be duplicates.

The reference numerals 41 and 42 designate fixed rails which are clamped to the top rail 5 by means of a clamp 43 and which are also held in position and alignment by the support 29. A carriage 44 is provided with apertures 45 and 46 for the rails 41 and  
 20 42 and this carriage 44 is provided with trunnions 47 and 48 with which the movable support 35 is engaged both for pivotal and vertical movement by the trunnions 47 and 48 being received within vertically elongated slots 49 and 50 in lugs 51 and 52 extending upwardly from the movable support 35.

A bell-crank lever 53, as illustrated by the drawings, is pivotally supported by a  
 30 bolt 54, which is one of the bolts connecting the parts of a clamp 6, and a connecting rod 55 connects the bell-crank lever 53 with a horizontally reciprocable common operating rod or pipe 56 which may be supported by parts  
 35 of the fixed supports 29. The purpose of the common operating rod or pipe 56 is to move the swinging bows of a plurality of stanchions simultaneously into their closed or their open positions by moving the bell-crank lever 53. The bell-crank lever 53 is so proportioned that, in co-operation with the connecting rod 55, when swung into a position to close the swinging bows, the swinging bows of the stanchions will be  
 45 locked closed by the position which the pivot 57 occupies with respect to a straight line through the bolt 54 and the pivot 58 in a well-known manner. An individual operating rod or pipe 59 is securely clamped to each carriage 44 and is provided with a swinging latch 60 which can be engaged with the common operating rod or pipe 56 to move a swinging bow when the common operating rod or pipe 56 is reciprocated, or  
 55 can be disengaged therefrom when the common operating rod or pipe 56 is reciprocated. The drawings illustrate a latch co-operating member 61, provided with a recess 62 to receive a latch 60, clamped to the common operating rod or pipe 56 by means of a clamp member 63 and a bolt 64. The swinging latches 60 are retained in position upon the individual operating rods or pipes 59 by being placed between heads 65 and guide members 66 which are composed of two parts 67

and 68, loosely encircling the top rail 5, and clamped upon the individual operating rods or pipes 59 by bolts 69.

The movable sure stops 8 are secured to crank arms 70 and 71, the lower ones of  
 70 which are pivoted upon pins 72 projecting upwardly from anchors 73 which are set in the cement or concrete 3. The upper crank arms 71 are pivoted upon trunnions 74 which depend from brackets 75 clamped to the top rail 5 by a strap 76 and bolts 77. The crank arms 71 have gears 78 connected thereto so as to rotate said crank arms and the movable sure stops 8. Bolts 79, provided with nuts 80 and washers 81 may be  
 80 provided for retaining the brackets 75 assembled with the sure stops 8 while parts are being shipped, for example.

The parts 67 of the guide members 66 are provided with apertures 82 through which  
 85 bars 83 extend. The bars 83 have racks 84 secured to them to mesh with and oscillate the gears 78, and the movable sure stops 8, through arcs of 180°, whereby the movable sure stops 8 are moved away from the stanchions to the vicinity of the adjacent uprights 1, or are moved to positions substantially mid-way between the fixed bows  
 90 10 of the stanchions and the adjacent uprights 1, in a manner which will be readily understood. The gears 78, as shown by Figs. 4 and 5 of the drawings, are mutilated gears as they require only a sufficient number of teeth to coast with the teeth of the racks 84 to rotate the movable sure stops 8  
 100 through arcs of 180°. The drawings illustrate the bars 83 as provided with outwardly turned ends to form stops 85 and the racks 84 are riveted to the bars 83 so as to provide stops 86. This construction provides a lost motion connection between the guide members 66 and the racks 84 so that greater movement is permitted for the swinging bows of the stanchions and the guide members 66 than is necessary for the racks 84 to  
 110 oscillate the gears 78 to swing the fixed sure stops 8 through arcs of 180°, it being understood that a rack 84 will not be moved unless a guide member 66 is in contact with either a stop 85 or with a stop 86. The  
 115 racks 84 rest upon ledges 87 projecting from the gears 78 and are retained in mesh with the gears 78 by projections 88 which extend downwardly from the brackets 75. The racks 84 are provided with stops 89 which  
 120 can contact with the projections 88 and thereby prevent the movable sure stops 8 from being moved outwardly by an animal entering a stall, as will be readily understood from inspection of Fig. 3 of the drawings. 125

It will be apparent, from the foregoing description and an inspection of the drawings, that, assuming that the swinging latches 60 are engaged in the recesses 62 of the latch co-operating members 61, that recipro- 130

cations of the common operating rod or pipe 56 will move the swinging bows of the stanchions to their open or closed positions and at the same time will swing the movable sure stops 8 through arcs of 180°. If, however, when a swinging bow of a stanchion is in its closed position, the swinging latch 60 for that stanchion be turned out of the recess 62 provided for it, the swinging bow and the movable sure stop for that stall will not be affected by reciprocations of the common operating rod or pipe 56, but a cow secured by the stanchion could move the swinging bow of the stanchion and release herself, so locks 90 are provided which are illustrated by the drawings as secured to brackets 75 by one of the bolts 77 and these locks are provided with flat tops 91 having upstanding fingers 92 and 93 at their extremities. If a swinging latch 60 is swung over so as to rest upon a flat top 91 of a lock 90, the finger 93 will prevent movement of a swinging latch 60, the carriage 44, and the swinging bow 11 by an animal confined by that stanchion. The locks 90 are provided with two fingers 92 and 93 simply as a matter of convenience in manufacturing and assembling and it will be readily understood that if the positions of the parts were transposed, looking at Fig. 3 of the drawings, so that the swinging bows of the stanchion were at the opposite sides of the stalls, the fingers 92 of the locks 90 would co-operate with the swinging latches 60.

It is desirable to have the upper ends of the bows of stanchions firmly secured together, when the stanchions are closed, and yet provide for free twisting of the stanchions at their tops as a cow moves her head and neck sideways. To provide for such twisting of the upper parts of the stanchions, without separation or displacement of parts, the supports 29 are provided with end guides 94 and 95, bottom guides 96 and 97 and top guides 98 and 99 between which the movable support 35 is received to prevent either longitudinal or vertical movements of the movable support 35 with respect to the support 29. The end guides 94 and 95, the bottom guides 96 and 97, and the top guides 98 and 99 are illustrated by the drawings as projections or lugs and the bottom of the movable support 35 may be provided with rabbets 100 and 101 to receive the bottom guides 96 and 97, and the guides are preferably beveled or rounded at their ends to more readily receive and locate the movable support 35, as is clearly shown by Fig. 8 of the drawings, and the co-acting parts of the movable support 35 may be correspondingly beveled or rounded, as is clearly shown by Fig. 11 of the drawings to provide for the easy and exact entrance of the movable support 35 between the several guides on the support 29. The vertically

elongated slots 49 and 50 in the lugs 51 and 52 on the movable support 35 provide for loose motion connections between the movable supports 35 and the carriages 44 of sufficient magnitude to allow for the opening and closing of the swinging bows of the stanchions and the interlocking of the movable supports 35 with the supports 29.

An inspection of Fig. 11 of the drawings will clearly disclose the fact that while the trunnions 30 and 36 for the fixed bows 10 and the swinging bows 11 of a stanchion are not co-incident, in the same vertical line, nevertheless, they are so nearly co-incident in the same vertical line that for all practical purposes the fixed bows 10 and the swinging bows 11 of the stanchions are locked together at their tops so as to swing about a substantially fixed pivot. These stall fittings are not made with the utmost mechanical precision and the hangers 31 and 37 have a little freedom of movement upon the trunnions 30 and 36 and the bows of the stanchions are long enough to permit of some give so that the stanchions can be turned about the trunnions 30 and 36 to the same extent, for all practical purposes, as though only a single trunnion were employed for both bows of a stanchion, as clearly shown by the dotted line positions of the hangers 31 and 37 as shown by Fig. 11 of the drawings.

Referring, now, to Fig. 13 of the drawings, a trunnion 30 or 36 is illustrated as composed of a conical or cylindrical part 102 which is provided with a bore 103, oppositely disposed projections 104, and a bottom flange 105. The bottom flange 105 supports a hanger 31 or 37 and may be flattened at 106 so as not to project beyond its support. The projections 104 extend upwardly into slots in the supports to prevent the trunnions from turning as they have stops 107 and 108 to be contacted by depending parts 109 and 110 of the hangers 31 and 37 to limit the possible rotational movements of the stanchions when the fixed bows and the movable bows are locked together at their tops. A bolt 111 secures the trunnion 30 to the support 29, and a bolt 112 secures the trunnion 36 to the movable support 35.

The support 29 is provided with a slot 113 extending longitudinally with respect to a stall, and the movable support 35 is provided with a similar slot 114. These slots permit the bolts 111 and 112 to be set longitudinally of a stall to suit the length of a cow which is assigned to the stall and the lower end of a stanchion can be correspondingly adjusted longitudinally of the stall by moving the ring member 16 and securing it in proper position by the nut 19.

The construction and operation, and the principles of the construction and operation of the stall and stanchion, or a plurality of

the same, are obvious from the foregoing description, read in connection with the drawings, and it will be readily understood that a movable bow can only be opened by means  
 5 of the bell crank lever 53 and the common operating rod 56, when a latch 60 is engaged in a recess 62 of a latch co-operating member 61, and that, when a latch 60 is so positioned, the movable sure stop for that stanchion will  
 10 be actuated by the movement of the common operating rod 56. A movable or swinging bow of a stanchion and a movable sure stop for that stanchion will be moved by the common operating rod 56 as long as a swinging  
 15 latch 60 is engaged within a recess 62 of a latch co-operating member 61. By swinging a latch 60 out of engagement with a recess 62 in a latch co-operating member 61, a stanchion can be opened by hand without  
 20 affecting any other stanchion, and by turning a swinging latch 60 over upon the flat top 91 of a lock 90, any stanchion can be made independent of movements of the common operating rod 56 and, as shown by Fig.  
 25 3 of the drawings, the finger 93 will prevent movement of the swinging latch 60 to the right and thereby prevent an animal confined by the stanchion from moving the swinging bow of the stanchion to an open  
 30 position.

It will also be obvious that, when the movable support 35 is engaged with the fixed support 29, the movable bow of a stanchion is locked to the fixed bow of a stanchion in  
 35 such a manner that there can be no substantial relative movements between the bows of the stanchion caused by movements of an animal confined by the stanchion.

What we claim is:

40 1. The combination with the bows of a stanchion which are connected together at their lower ends for opening and closing movements, of means for confining the lower end of the stanchion without prevent-  
 45 ing rotational movements thereof, separate means for pivotally supporting the upper ends of the bows, said separate means for pivotally supporting the upper ends of the bows being provided with means for limit-  
 50 ing the rotational movement of the bow supported thereby, and means for locking the upper ends of the bows together to permit of rotational movements of the stanchion as a whole when the bows are in closed positions.  
 55 2. The combination with the bows of a stanchion which are hinged together at their lower ends for opening and closing movements, of separate pivotal means for supporting the upper ends of the bows, fixed  
 60 rails for keeping the upper ends of the bows in alinement, stops for independently limiting the extent of rotational movement of each bow, and means to lock the upper ends of the bows together to permit rotational  
 65 movements of the stanchion as a whole.

3. The combination with a top rail of a stall, of a fixed support secured thereto, a stanchion including bows which are hinged together at their lower ends for opening and  
 70 closing movements at their upper ends and one of which is pivotally connected with said support, fixed rails, a carriage movable upon said fixed rails, a loose support supported by said carriage, the other bow of the stan-  
 75 chion being pivotally connected with said loose support, means for locking the upper ends of the bows together to permit rotational movements of the stanchion as a whole, and stops for limiting rotational  
 80 movements of the bows of the stanchion.

4. The combination in a stall, of a top rail, a support secured to said top rail, a fixed bow of a stanchion pivotally supported from said support, a movable bow hinged to  
 85 the lower end of said fixed bow for opening and closing movements, means to confine the lower ends of said bows without preventing rotational movements of the stanchion as a whole, fixed rails, a pivotal support for the  
 90 upper end of the movable bow guided by said fixed rails, the upper end of the movable bow being pivoted to said pivotal support so as to swing independently of the other bow and means to lock the upper ends of the two bows together in such wise that  
 95 the stanchion as a whole can be rotatably moved.

5. The combination in a stall, of a top rail, a support secured to said top rail, a fixed bow of a stanchion pivotally supported from  
 100 said support, a movable bow hinged to the lower end of said fixed bow for opening and closing movements, means to confine the lower ends of said bows without preventing rotational movements of the stanchion as a  
 105 whole, fixed rails, a carriage movable on said fixed rails, a movable support loosely connected to said carriage, a pivotal connection between the upper end of said movable bow and said movable support, the sup-  
 110 port secured to the top rail being provided with means to position said movable support, and means for locking said movable support in engagement with the support secured to the top rail.  
 115

6. The combination in a stall, of a top rail, a support secured to said top rail, a fixed bow of a stanchion pivotally supported from said support, a movable bow hinged to the lower end of said fixed bow  
 120 for opening and closing movements, means to confine the lower ends of said bows without preventing rotational movements of the stanchion as a whole, fixed rails, a carriage movable on said fixed rails, a movable sup-  
 125 port loosely connected to said carriage, a pivotal connection between the upper end of said movable bow and said movable support, an individual operating rod for said carriage, a common operating rod, a lock,  
 130



and means for connecting the individual operating rod with the common operating rod or with said lock.

7. The combination with a movable bow of a stanchion, of a sure stop connected therewith by a lost motion connection.

8. The combination with a movable bow of a stanchion, of a sure stop connected therewith, a lock, a common operating rod, and means for connecting said movable bow either with the lock or with the common operating rod.

9. The combination in a stall, of a stanchion including a movable bow, a rotatable sure stop, means for rotating the sure stop by movements of the movable bow, and means for limiting the extent of rotation of the sure stop.

10. The combination with the bows of a stanchion, of trunnions therefor, supports provided with slots, the trunnions being provided with stops for the bows and with oppositely disposed projections to extend into said slots to prevent rotation of the trunnions, and means for adjustably securing said trunnions in said slots.

11. The combination with the bows of a stanchion which are connected together at their lower ends for opening and closing

movements, of means for confining the lower end of the stanchion without preventing rotational movements thereof, a top rail, a support secured to the top rail, a trunnion secured to said support and provided with stops, a hanger secured to one bow of the stanchion and pivoted upon the said trunnion, a clamp secured to said top rail, fixed rails secured adjacent said top rail by said support and said clamp, a movable carriage supported upon and guided by said fixed rails, a movable support loosely connected with said carriage to permit said support to be moved vertically with respect to said carriage, a trunnion secured to said movable support and provided with stops, a hanger secured to the swinging bow of the stanchion and pivoted on said last mentioned trunnion, an individual operating rod secured to said carriage and provided with a latch, a common operating rod with which said latch can be engaged, a gear, a rotatable sure stop connected with said gear, a rack, and a lost motion connection between said individual operating rod and said rack.

In witness whereof we hereto affix our signatures.

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