

PATENTED NOV. 27, 1906..

2 SHEETS--SHEET 1.



Kirkley Hyde.  
Grace E. Hibbert.

James R. Duff.

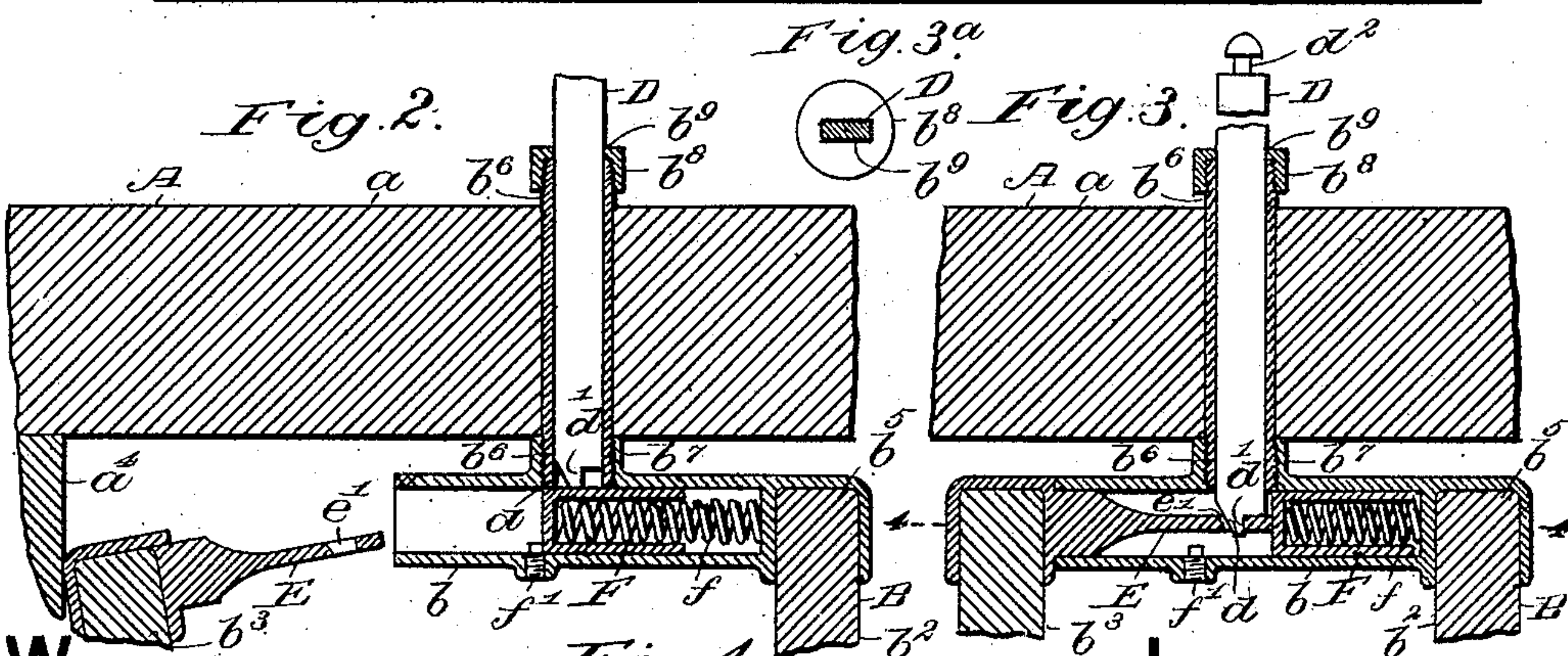
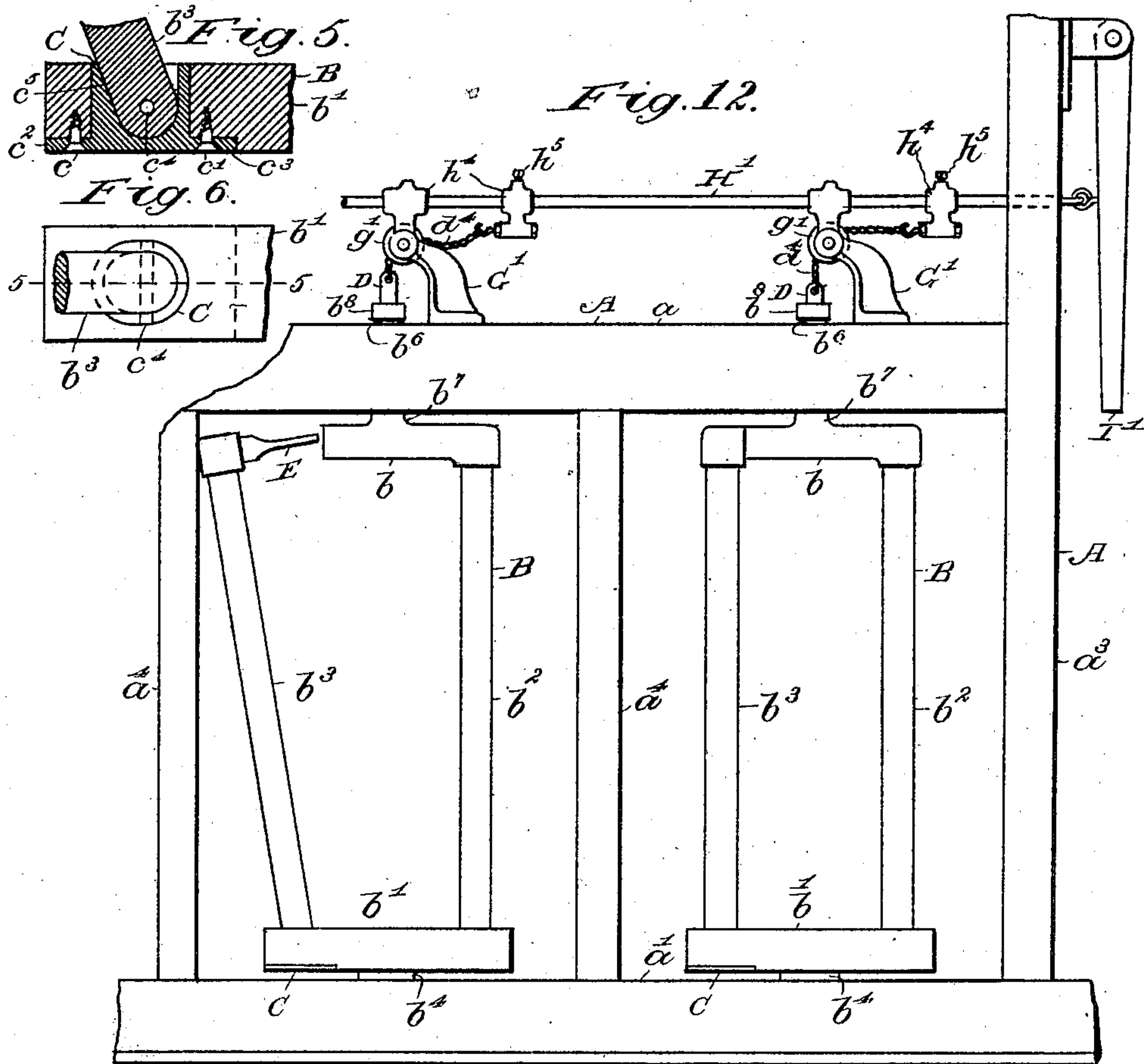
BY *Albert M. Moore,*  
His ATTORNEY.

No. 836,671.

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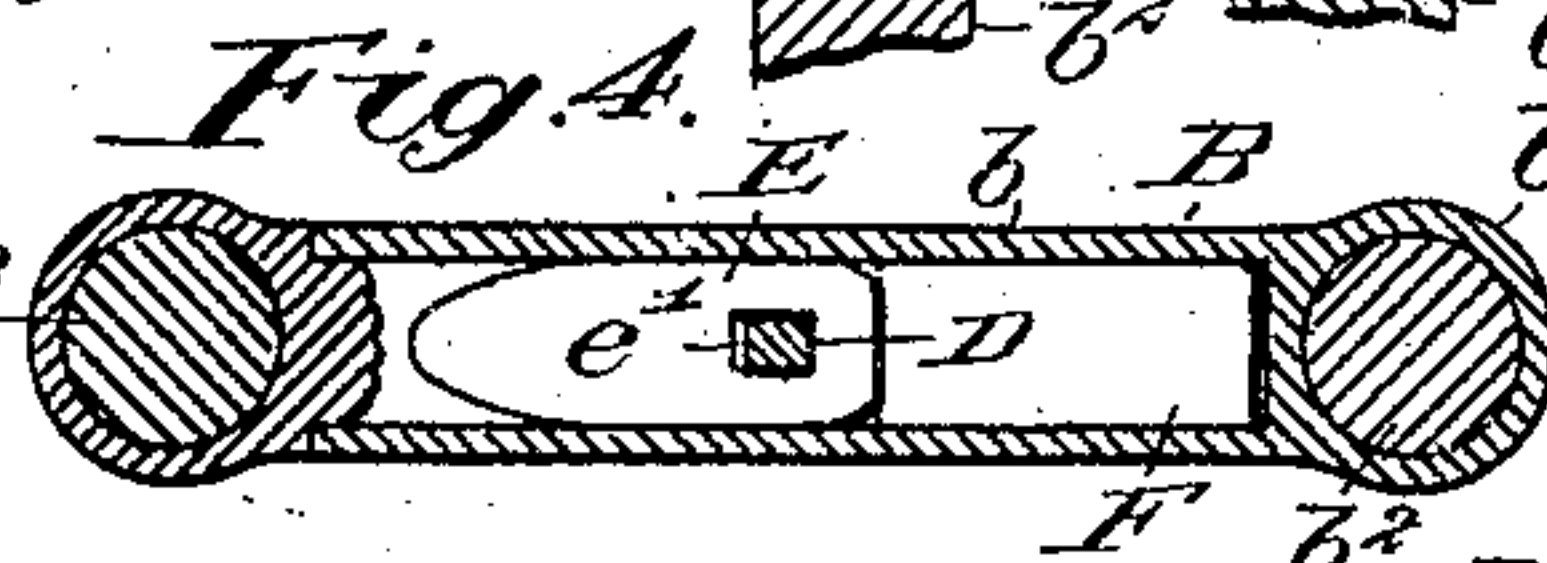
J. R. DUFF.  
CATTLE STANCHION.  
APPLICATION FILED FEB. 2, 1900.

2 SHEETS—SHEET 2.



WITNESSES.

Hickley Hyde,  
Grace E. Hibbert.



INVENTOR  
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# UNITED STATES PATENT OFFICE.

JAMES R. DUFF, OF LOWELL, MASSACHUSETTS.

## CATTLE-STANCHION.

No. 836,671.

Specification of Letters Patent.

Patented Nov. 27, 1906.

Application filed February 2, 1900. Serial No. 3,679.

*To all whom it may concern:*

Be it known that I, JAMES R. DUFF, a citizen of the United States, and a resident of Lowell, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Cattle-Stanchions, of which the following is a specification.

This invention relates to cattle-stanchions; and it consists in the devices and combinations hereinafter described and claimed.

The improvement is more particularly designed for stanchions which are capable of turning upon a vertical axis and is designed to allow all the stanchions of a row to be opened by a single manual act, to release all the animals thereby restrained, while, if desired, any such animal may be separately released.

In the construction herein shown and described the bolt which locks the movable stanchion-bar in position is arranged in the pivot of the stanchion and turns with the stanchion and is adapted to engage said movable bar upon the closing of the same, and means are provided for holding the bolt out of engaging position after the bolt is drawn out of such position until the stanchion is again closed and to open said stanchion when the bolt is withdrawn.

The construction also provides a limit to the opening movement of said movable stanchion-bar and adjustable bolt-drawing devices by which any one or more of the bolts may be drawn in advance of the others or simultaneously with any or all of the others.

In the accompanying drawings, on two sheets, Figure 1 is a front elevation of two stanchions embodying my improvement, one stanchion being open and the other closed; Fig. 2, a vertical longitudinal section of the upper part of a stanchion and its supporting-frame, the stanchion being open; Fig. 3, a similar view, the stanchion being closed; Fig. 3<sup>a</sup>, a plan of the cap of the hollow pivot; Fig. 4, a horizontal section on the line 4 4 in Fig. 3; Fig. 5, a central vertical horizontal section of a part of the swinging stanchion-bar and the lower cross-head of a stanchion; Fig. 6, a plan of the same; Fig. 7, a front elevation of a part of the stanchion-supporting frame, the upper pivot, the bolt, the bolt-releasing devices, and the stand which supports said devices, said stand being partly in section; Fig.

8, a side elevation of the same; Fig. 9, a plan of the same; Fig. 10, a front (or rear, front and rear being alike (elevation of a part of the releasing-bar and the adjustable cam or incline; Fig. 11, a plan of the parts shown in Fig. 10; Fig. 12, a front elevation showing a modification of the construction shown in Fig. 1.

The stanchion-frame A is of usual construction, consisting of horizontal rails  $a$   $a'$  and vertical supporting-posts  $a^2$   $a^3$   $a^4$ .

Each stanchion B consists of an upper cross-head  $b$ , a lower cross-head  $b'$ , a stanchion-bar  $b^2$ , rigidly secured to both cross-heads, and another stanchion-bar  $b^3$ , pivoted to the lower cross-head  $b'$  and adapted to engage the upper cross-head  $b$ . The lower cross-head and the stanchion-bars may be of any desired rigid material, wood being preferred on grounds of economy.

A metallic socket C, Figs. 5 and 6, is preferably inserted in a hole in the lower cross-head  $b'$  and may be held in place by screws  $c$   $c'$ , which pass through flanges  $c^2$   $c^3$ , although, of course, the socket might be merely a depression in said cross-head  $b'$ .

The lower end of the movable stanchion-bar  $b^3$  is pivoted in said socket C on a pin  $c^4$ , which passes through said socket, and the internal shape of the socket is such that the swing of said stanchion-bar  $b^3$  is so limited that the two bars of the same stanchion always lie in the same plane with each other and the movable bar cannot be swung open far enough to strike the front or rear faces of the posts of the stanchion-frame A, the opening of said socket being straight at the front and rear and inclined at  $c^5$  at the outer side to form a stop for said bar  $b^3$  when open, Fig. 5.

Each stanchion B is arranged between and pivoted in the rails  $a$   $a'$ , the lower pivot  $b^4$  being of any usual construction.

The upper cross-head  $b$ , Figs. 2, 3, 3<sup>a</sup>, and 4, is hollow and is provided at one end with a recess  $b^5$ , which receives the upper end of the rigid stanchion-bar  $b^2$ , and the pivot  $b^6$  of said head  $b$  is hollow—for convenience, a tube rigidly secured in a suitable nipple  $b^7$  on said head  $b^6$  and extending up through the upper rail  $a$  of the frame A.

A bolt D slides vertically in the pivot-tube  $b^6$  and turns with said tube when the stanchion is turned, the means shown for preventing



the bolt from turning in said tube being a cap  $b^8$ , rigidly secured on the top of said tube and having a rectangular slit  $b^9$ , through which said bolt slides, the bolt being in horizontal section of the same form as said slit.

The lower end of the bolt D is reduced and beveled at  $d$  on the side next the pivoted stanchion-bar  $b^3$ , and the upper end of said stanchion  $b^3$  carries an arm E, provided with a recess adapted to receive said upper end. The arm E enters the open end of the hollow cross-head  $b$  when the stanchion-bar  $b^3$  is swung into its vertical position, the free end of said arm striking the bevel  $d$  and raising and passing under the bolt D if the plug F, named below, fails to support said bolt, as hereinafter described.

When the stanchion-bar  $b^3$  is fully closed against the upper cross-head  $b$ , the lower end of the bolt D drops into a hole  $e'$  in the arm E and holds said stanchion-bar  $b^3$ , a shoulder  $d'$  on said bolt acting as a stop, preventing the lower end of the bolt from falling too far and wedging in said hole  $e'$ . When the bolt is again raised, as hereinafter described, to release the stanchion-bar  $b^3$ , a plug F, arranged in the hollow head  $b$ , is forced by a spring (represented as a helical spring  $f$  compressed between said plug and the closed end of said head  $b$ ) under the bolt and prevents the bolt from falling until said plug is forced from under said bolt by the free end of the arm E, when the stanchion is again closed. The spring-impelled plug F also throws the stanchion-bar  $b^3$  open by pressing against the arm E, when the bolt is raised. A stop (represented as a screw  $f'$ , which passes through the wall of the head  $b$ ) serves to prevent the plug F from being forced by the spring  $f$  out of said head. The head  $b$ , arm E, plug F, and bolt D should be made of tough material, not easily broken, as malleable iron or metal of similar properties. Stands G are supported on the upper rail  $a$  of the frame A, as shown in Figs. 1, and 8 9. In these stands G are vertically-guided links  $D'$ , connected by swivels  $d^2$  to the upper ends of the bolts D to allow said bolts to turn without turning said links.

A horizontal releasing-rod H is guided in slots  $a^5$  in the uprights  $a^2$   $a^3$  and in other slots  $g$  in the stands G and passes freely through the links  $D'$ . The upper ends of the links  $D'$  are each provided on the inside with a downwardly - pointing wedge - shaped cam  $d^3$  or double incline, and an equal number of other cams or inclines  $h$ , similar to the cams  $d^3$ , but inverted with respect to them, are secured on the top of the releasing-rod H at or near where the latter passes through said links, so that when the rod H is drawn endwise sufficiently the cams  $h$  will raise the cams  $d^3$ , links  $D'$ , and bolts D, allowing the movable stanchion-bars  $b^3$  to be thrown open and the animals confined thereby to be released. The

cams  $h$  are adjustable on the rod H, so that each of said cams may act at the same time or at different times on the corresponding link-cams  $d^3$ , said cams  $h$  having wings  $h'$ , provided with slots  $h^2$ , through which slots screws  $h^4$  are driven into the top of said rod H, so that the cams  $h$  may, when the screws are loosened, be moved on the rod H a distance not exceeding the length of the slots  $h^2$ .

A lever I is pivoted between ears  $i$  on the upright  $a^3$  and carries an impelling pawl or hook  $i'$ , adapted to engage notches  $h^3$  in the top of the rod H, so that by drawing the lower end of the lever away from said upright  $a^3$  said rod H will be given a longitudinal movement. There may be as many notches  $h^3$  as there are stanchions B, and the movement of the lever may disengage one bolt for each notch.

The operative movement of the lever I may be limited in any convenient manner, as by providing said lever above its pivot with a short arm  $i^2$ , which strikes on the top of the ears  $i$ .

A retaining-pawl  $i^3$  engages the notches  $h^3$  and normally prevents the return movement of the rod H; but when said pawl  $i^3$  is raised out of engagement with said notches the rod H will be returned to position by a bent lever J, having its fulcrum on a stand  $j$ , secured to the upright  $a^2$ , one arm  $j'$  of said lever engaging said rod H and the other arm  $j^2$  of said lever being weighted at  $j^3$ .

In Fig. 12 the same letters of reference indicate parts like those already described. The differences are pointed out below. The rod H' is guided in stands G', and the bolts D are connected by chains  $d^4$  or other flexible connections to sleeves  $h^4$ , adjustable on said rod H', and held in any desired position by set-screws  $h^5$ , which turn in said sleeves against said rod H', said chains or connections  $d^4$  passing over idle rolls  $g'$ , supported on said stands G'. The lever I' is connected directly to the rod H'. The lever J is omitted. In other respects the device shown in Fig. 12 is like that shown in Fig. 1 in all essential particulars.

I claim as my invention—

1. The combination of a lower cross-head and a hollow upper cross-head, a stanchion-bar, rigidly connecting said heads, another stanchion-bar, pivoted to the lower cross-head and having an arm adapted to enter said upper cross-head, and provided with a hole and a bolt, adapted to enter said hole and hold said pivoted bar against said cross-head, said bolt being provided with a bevel at its lower end, on the side next said arm and arranged and adapted to be raised by said arm striking said bevel.

2. The combination of a lower cross-head and a hollow upper cross-head, a stanchion-bar, rigidly connecting said heads, another stanchion-bar, pivoted to the lower cross-



head and having an arm adapted to enter said upper cross-head, and provided with a hole and a bolt, adapted to enter said hole and hold said pivoted bar against said cross-head, said bolt being provided with a bevel at its lower end, on the side next said arm, and arranged and adapted to be raised by said arm striking said bevel, said bolt being also provided with a shoulder to rest on said arm when said bolt and arm are in engagement and to limit the engaging movement of said bolt.

3. The combination of a lower cross-head and a hollow upper cross-head, a stanchion-bar, rigidly connecting said heads, another stanchion-bar, pivoted to the lower cross-head and having an arm adapted to enter said upper cross-head, a bolt adapted to engage said arm and a spring arranged in said upper cross-head to force said arm out of said upper cross-head when said bolt is disengaged from said arm.

4. The combination of a lower cross-head and a hollow upper cross-head, a stanchion-bar, rigidly connecting said heads, another stanchion-bar, pivoted to the lower cross-head and having an arm adapted to enter said upper cross-head, a bolt adapted to engage said arm, a plug arranged in the hollow of said upper cross-head and a spring, to force said plug past said bolt when said bolt is disengaged from said arm and to hold said bolt out of engagement, said plug being arranged to be struck by said arm and to be forced out of the path of said bolt to allow said bolt to engage said arm.

5. The combination of a lower cross-head and a hollow upper cross-head, a stanchion-bar, rigidly connecting said heads, another stanchion-bar, pivoted to the lower cross-head and having an arm adapted to enter said upper cross-head, a bolt adapted to engage said arm, a plug arranged in the hollow of said upper cross-head and a spring, to force said plug past said bolt when said bolt is disengaged from said arm and a stop, to limit the movement of said plug and to retain the same in said upper cross-head.

6. The combination of the stanchion, having a swinging stanchion-bar, and having a hollow pivot, turning with said stanchion, a bolt arranged within said pivot and provided with a bevel, to engage said swinging bar, and means for causing said bolt to turn with said pivot.

7. The combination of the stanchion, having a swinging stanchion-bar and having a hollow pivot, turning with said stanchion, a bolt, arranged within said pivot and concentrically therewith, to engage said swinging bar, said bolt being many sided in cross-section and a cap, having a slit of the same form as said cross-section and rigidly secured to the top of said pivot.

8. The combination of a lower cross-head

and a hollow upper cross-head a stanchion-bar, rigidly connecting said heads, another stanchion-bar, pivoted to the lower cross-head and having an arm adapted to enter said upper cross-head, a bolt arranged within said pivot and adapted to engage said arm, and a releasing-rod connected to said bolt, to withdraw said bolt from said arm to allow said pivoted stanchion-bar to swing away from said upper cross-head.

9. The combination of the stanchion, having a swinging stanchion-bar, and having a hollow pivot, turning with said stanchion, a bolt, arranged within said hollow pivot to engage said swinging bar, means for causing said bolt to turn with said pivot, a link, swiveled to said bolt, and a releasing-rod, passing through said link and having a cam or incline to disengage said bolt from said swinging bar.

10. The combination with a stanchion-frame, a plurality of stanchions supported therein, each stanchion having a lower cross-head, an upper cross-head, a stanchion-bar, rigidly connecting said cross-heads, another stanchion-bar, swinging on said lower cross-head against and away from said upper cross-head, and a bolt to hold said swinging stanchion-bar against said upper cross-head, of links, each swiveled to one of said bolts, a releasing-rod, and cams or inclines, equal in number to said bolts, secured to said rod and each adapted to engage one of said links to unlock a bolt.

11. The combination of a stanchion-frame, a plurality of stanchions, supported in said frame and each provided with a swinging stanchion-bar and with a bolt to lock said stanchion-bar in its closed position, links, each swiveled to a bolt, a releasing-rod, cams, each carried by said releasing-rod and each adapted to engage one of said links and to move a bolt out of its locking position, and means of adjusting the spaces between said cams or inclines relatively to the distances between said bolts.

12. The combination of a stanchion-frame, stanchions, supported in said frame and each having a movable stanchion-bar and a bolt to lock said bar, links, each swiveled to one of said bolts, a releasing-rod, as many cams as there are bolts, each adapted by engaging one of said links to move a bolt out of its locking position when said rod is moved in one direction, and a restoring-lever to turn said rod to normal position.

13. The combination of a stanchion-frame, stanchions, supported in said frame and each having a movable stanchion-bar and a bolt, to lock said bar, links, each secured to a bolt, a releasing-rod having a plurality of notches, as many cams as there are bolts, each adapted to move by engaging one of said links, a bolt out of its locking position when said rod is moved in one direction, a releasing-lever, a



pawl carried by said lever, to engage said notches, and a stop, to limit the operative movement of said lever.

14. The combination of a stanchion-frame,  
5 stanchions, supported in said frame and each having a movable stanchion-bar and a bolt, to lock said bar, links, each secured to a bolt, a releasing-rod having a plurality of notches, as many cams as there are bolts, each adapted,  
10 by engaging one of said links, to move a bolt out of its locking position when said rod is moved in one direction, a releasing-lever, a

pawl carried by said lever, to engage said notches, a stop, to limit the operative movement of said lever, and another pawl to prevent the return movement of said releasing-rod. 15

In testimony whereof I have affixed my signature in presence of two witnesses.

JAMES R. DUFF.

Witnesses:

ALBERT M. MOORE,  
GRACE E. HIBBERT.