No. 714,677. Patented Dec. 2, 1902.

J. W. COMBS.

FLOOR FOR STALLS.

(Application filed Aug. 5, 1901.)

(No Model.) 3 Sheets—Sheet 1.

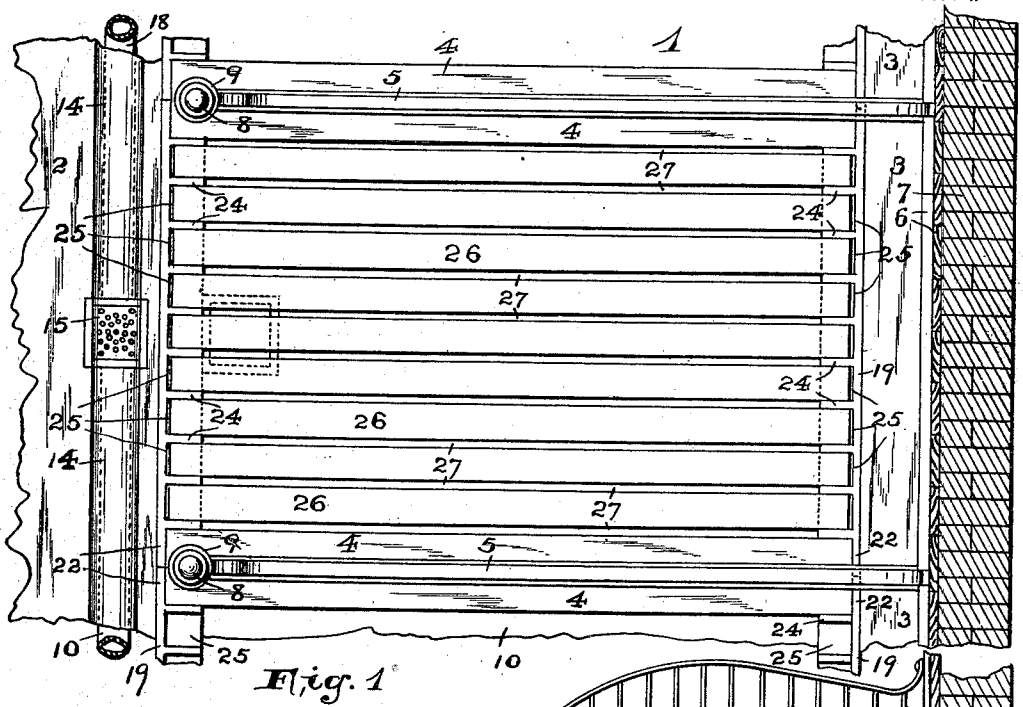


Fig. 1

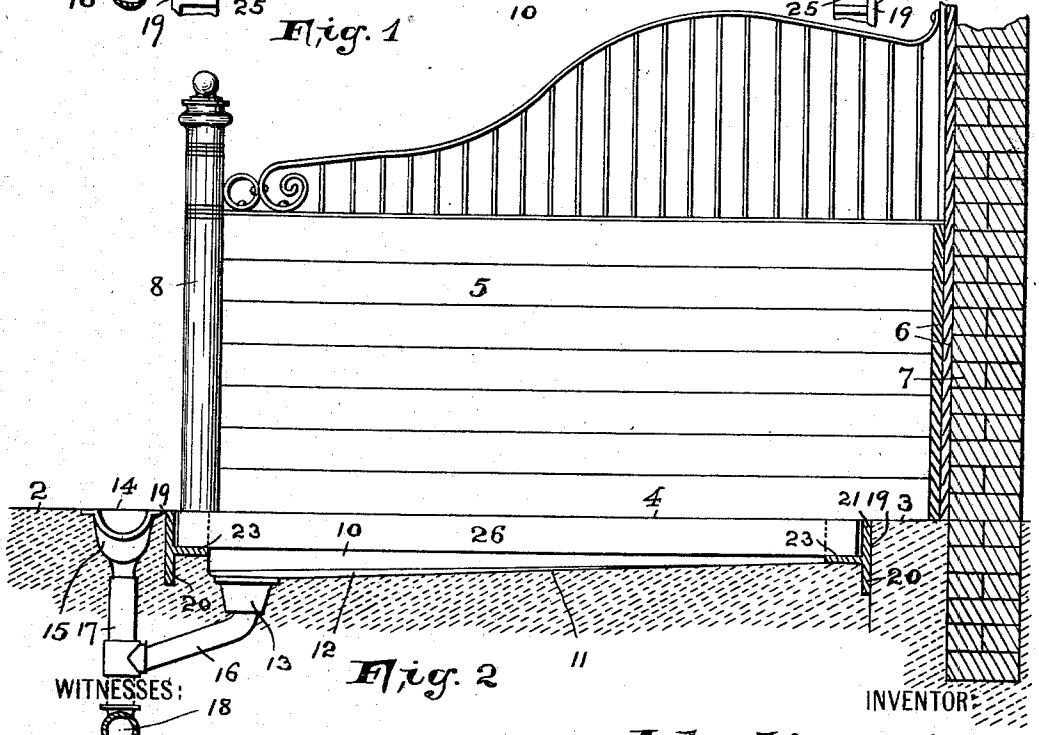


Fig. 2

WITNESSES:

E. VanNess.

F. A. Fieldkamp.

INVENTOR:

John W. Combs,

BY Fred C. Fraentzel,

ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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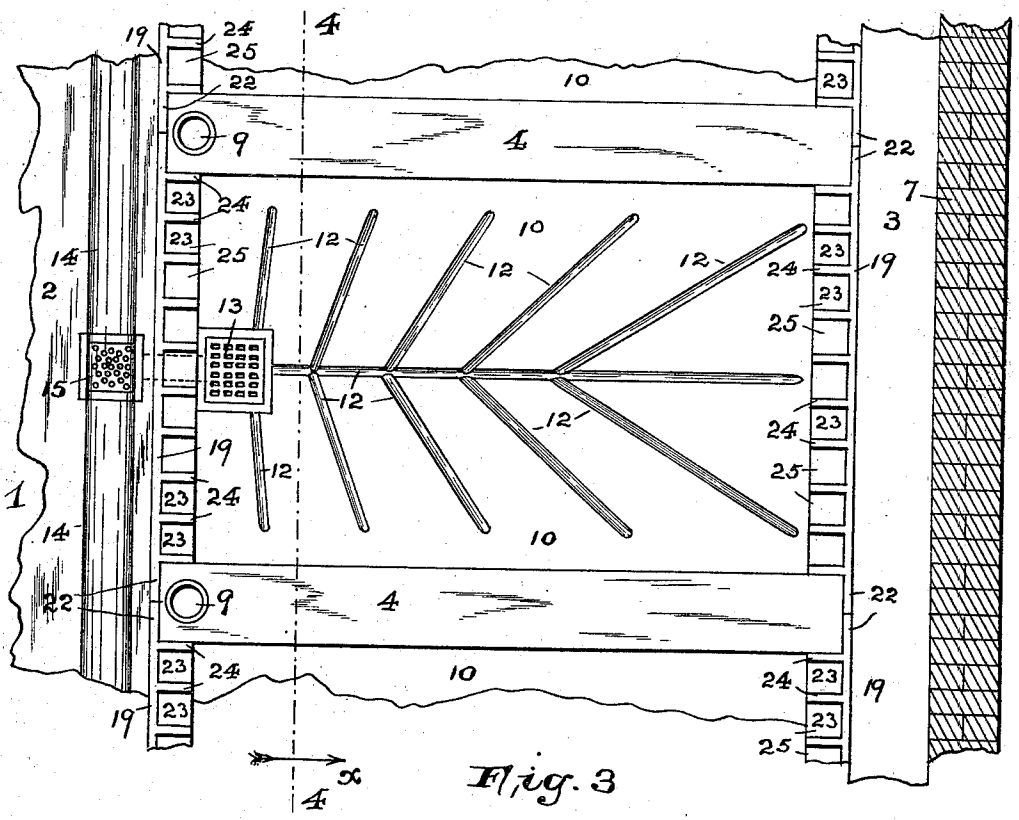


Fig. 3

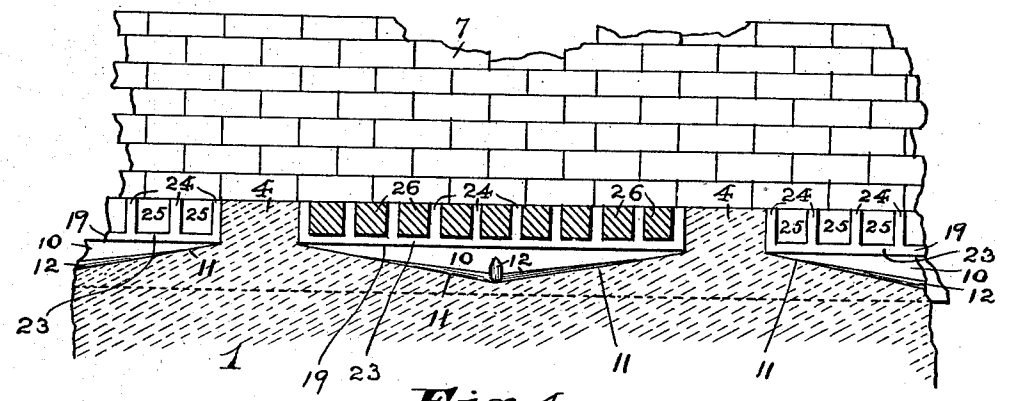


Fig. 4

WITNESSES:

E. VanNess.

F. A. Feldkamp.

INVENTOR:

John W. Combs,

BY

Fred C. Fraentzel,

ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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(Application filed Aug. 5, 1901.)

(No Model.)

3 Sheets—Sheet 3.

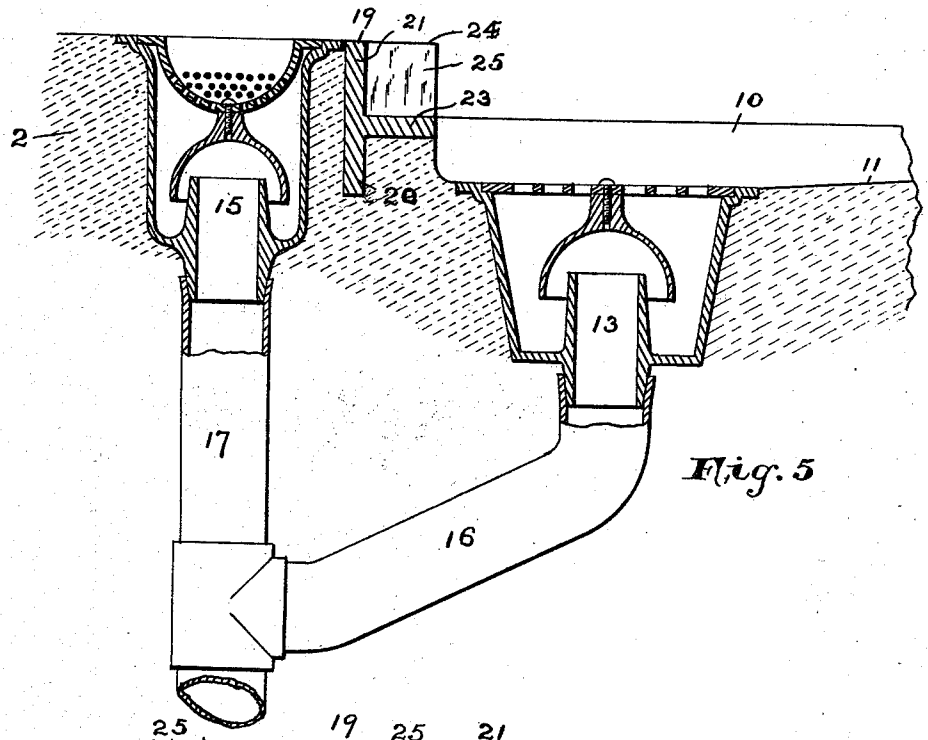


Fig. 5

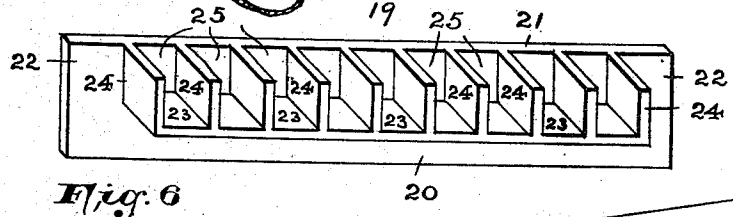


Fig. 6

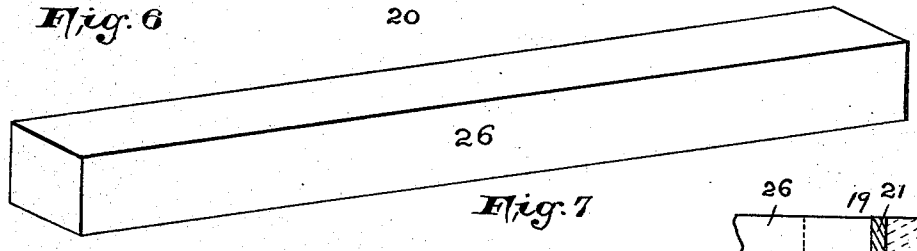


Fig. 7

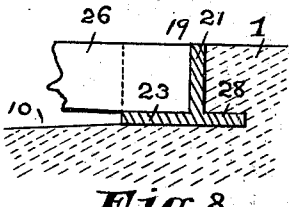


Fig. 8

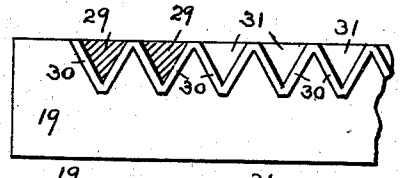


Fig. 9

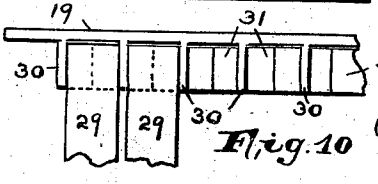


Fig. 10

WITNESSES:

E. Van Keuren.

F. A. Feldkamp.

INVENTOR

John W. Combs,

BY

Fred C. Fraentzel,

ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN W. COMBS, OF SOUTH ORANGE, NEW JERSEY.

FLOOR FOR STALLS.

SPECIFICATION forming part of Letters Patent No. 714,677, dated December 2, 1902.

Application filed August 5, 1901. Serial No. 70,864. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. COMBS, a citizen of the United States, residing at South Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Floors for Stalls; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to numerals of reference marked thereon, which form a part of this specification.

The invention relates generally to improvements in stall-floors; and the invention is particularly designed to provide a novel construction of stall-floor consisting, primarily, of an arrangement of supporting-slats which are reversibly as well as detachably arranged in socket-plates or other equivalent supporting means embedded or otherwise secured in the concrete, stone, wood, or other foundation of the stall, the said slats being capable of easy removal from the supporting-sockets and adapted for rearrangement in the said sockets, so that when one portion of a slat is worn down it can be turned on its side or reversed end to end to present a new surface for the horse to stand upon, and in this manner being capable of arranging each slat usually in eight different positions until sufficiently worn to be discarded.

A further object of this invention is to arrange the slats in a position above the upper surface of the stall-foundation by supporting each slat at its extreme ends in the extreme ends of the foundation, whereby the major part of each slat is arranged above the foundation and an unobstructed space is provided longitudinally between the upper surface of the foundation and the lower surfaces of the slats, thereby providing a free circulation of air around all the sides of the slats and allowing the urine from the horse to pass through the intervening spaces between the slats into the chamber formed beneath the slats, from which it is carried into the sewer connected with the foundation of the stall by means of a sanitary trap and pipe connections.

By my invention, to be presently fully described, the floor upon which the horse stands is always kept dry and the slats can be easily removed for flushing out and cleaning the upper surface of the stall-foundation beneath this arrangement of supporting-slats and an elastic floor for the horse to stand on is provided.

In the general arrangement of stall-floors as heretofore made it has been the practice to so support each slat that practically a solid or rigid floor construction is the result. It is the main purpose of my present invention to avoid this objectionable feature and to produce a perfectly elastic flooring from end to end of the stall-foundation, whereby the most beneficial results to the feet of the horse standing upon the elastic flooring are obtained. It is a well-known fact that with the stamping of the horse when placed in the stall the cords of the legs become stiffened, and when standing on a solid or rigid flooring this fact is clearly noticeable to the person taking the horse from the stall, especially after it has stood for some time.

With the arrangement of the floor-slats as set forth in the following description of my invention I provide a stall-floor of perfect elasticity which is restful to the feet of the horse, and when the horse does stamp, which seems to be its nature, such arrangement of elastic slats makes it easy on the cords throughout the legs, and therefore has the most beneficial results, in that the horse after it has stood in its stall can be taken therefrom in a refreshed condition.

With these several objects in view my invention consists in the novel stall-floor to be hereinafter more particularly set forth; and, furthermore, this invention consists in the various novel arrangements and combinations of the several devices and parts, as well as in the details of the construction thereof, all of which will be fully described in the accompanying specification and then finally embodied in the clauses of the claim, which form a part of this specification.

The invention also consists, furthermore, in the novel combination, with a supporting means, of an arrangement of removably as well as reversibly placed slats of any suitable number of sides, preferably four in number, the said sides all being of the same widths, whereby when a slat has four equal

sides, so as to form a perfect square in cross-section, the slat can be turned four times as it becomes worn, and then the same slat can be reversed end to end and then again turned four times, the same slat therefore being capable of presenting eight different surfaces to the wear and stamp of the horse's front feet, where the most wear is brought upon the surface of the stall-floor.

The invention is clearly illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of one stall provided with a floor made according to the principles of my invention, the said view illustrating, in connection with the stall at either side, portions of other stalls adjacent thereto; and Fig. 2 is a longitudinal and central vertical section of the stall with the slats and the sewer connections represented in side elevation. Fig. 3 is a plan view of the various parts illustrated in said Fig. 1, but with the various slats removed to more clearly illustrate the arrangement of the supporting devices for holding the slats in place, as well as the upper surface of the stall-foundation, with which the sewer-traps are connected; and Fig. 4 is a vertical cross-section taken on line 4 4 in said Fig. 3 looking in the direction of the arrow x, the said view also representing in cross-section the arrangement of the slats which provide the flooring for the horse to stand on. Fig. 5 is a vertical section, on an enlarged scale, of one of the slat-supporting devices and a portion of the stall-foundation, the said view also representing in vertical section a pair of sewer-traps and in elevation the pipe connection between the said traps. Fig. 6 is a perspective view of one of the slat-supporting devices, and Fig. 7 is a perspective view of one of the slats. Fig. 8 is a vertical section of a slat-supporting device of a modified form of construction, representing in connection therewith a portion of the stall-foundation and an end piece of one of the slats. Fig. 9 is a face view, and Fig. 10 a top view, of a slat-supporting device of a modified form of construction, the said views illustrating in connection therewith two of the slats, which in this case are of a triangular cross-section.

Similar characters of reference are employed in all of the said above-described views to indicate corresponding parts.

In the said drawings, 1 indicates the complete stall-foundation, which usually consists of concrete, chert-stone, wood, cement, or any other material suitable for such purposes. In the drawings this foundation is represented as made of concrete, and the foundation consists, essentially, of the rear 2, the front coping 3, and the two side copings 4. Upon the copings 4 are the usual side partitions 5 of the stall, which extend back to and are secured against the inner sheathing or planks 6 of the wall 7. Each post 8 is secured in a post-socket 9, embedded in the copings 4, as illustrated in Figs. 1 and 3. The space between the various copings 3 and 4 and the rear 2 is provided with a suitably-formed depressed part 10, the upper surface 11 of which is made to incline from the front coping 3 to the rear of the stall and from the two side copings 4 toward the middle of the depressed part 10, as clearly illustrated in Figs. 2 and 4, the said inclined surfaces 11 of the depressed part 10 usually being provided with narrow ducts or runways 12, which lead to a trap 13, usually a bell-trap, as represented more especially in Fig. 5. These ducts or runways 12, however, are not an absolute necessity and may be dispensed with, if desired. Furthermore, the rear 2 of the foundation 1 is usually provided with a gutter 14, running laterally directly in rear of the stall, being provided with a trap 15, which is preferably a bell-trap, as shown. Connecting the said traps 13 and 15 are various pipes 16 and 17, which lead to a main sewer-pipe 18 for conducting all liquid matter into the said sewer-pipe, such as the urine from the animal and the water when flushing out the depressed part 10. Embedded in the said foundation 1, at the front and rear edges, respectively, of the said depressed part 10, are a pair of slat-holding devices 19. These devices 19 are preferably made as indicated in Figs. 1, 2, 3, 4, and 6 of the drawings, the lower edge or portion 20 of each device 19 being securely embedded and held in the concrete foundation 1, while the upper edge or portion 21 of each device is respectively lined against the inner surfaces of the front 2 and the front coping 3, as clearly represented in the said Figs. 1, 2, and 3. Each device 19 has its ends 22 embedded in the side copings 4, as clearly shown in Figs. 1 and 3. In this manner the two supporting devices 19 at the front and rear of the depressed part 10 are securely fixed in their proper positions for the purposes to be presently described.

As shown, each device 19 is formed with a forwardly-extending flange 23 and a suitable number of upwardly-projecting ribs or walls 24, thereby providing receiving pockets or sockets 25. The number and sizes of these pockets or sockets 25 correspond to the number and sizes of the slats 26 which are employed in the floor of the stall, and it will therefore be clearly evident that I may employ any number of slats 26 and such receiving or supporting pockets 25. The width of the said upwardly-projecting ribs or walls 24 is usually one-half inch; but of course this may also be varied, if desired, so as to provide larger or smaller spaces between the adjacent slats 26 and between the two end slats and the edges of the side copings 4, as will be clearly evident. The said devices 19 are usually made of cast-iron; but it will be understood that any other material which is suitable for the purposes for which the said devices 19 are employed may be used.

The several slats 26 are made of hard wood, preferably maple or spruce, or any other wood,

and are readily placed in position with the ends of a slat resting in the oppositely-placed pockets or sockets of the respective devices 19 at the front and rear of the depression 10, thereby providing a perfectly level stall-floor having the longitudinally-extending narrow openings 27 between the slats, through which any urine and other foreign matter passes into the chamber formed by the bottoms of the said slats and the inclined surface of the depressed part 10 of the foundation and thence by means of the trap into the sewer-pipes. As has been stated and as illustrated in the several figures of the drawings, the said slats 26 are preferably of a square shape in cross-section, whereby each slat as it becomes worn can be turned on its several flat sides and also reversed end to end and then capable of being turned four times again, whereby each slat can be safely used eight different times before it has to be discarded. Furthermore, the several slats can be separately removed for washing them off, should this be necessary, or for readily flushing out the depressed part 10 of the foundation.

In Fig. 8 I have represented a modified form of slat-supporting device 19 in which I have dispensed with the lower edge portion 20 and have provided the device with a rearwardly-extending projection or shoulder 28, which is fully embedded in the concrete, as shown.

As has been stated, the supporting or floor slats need not of a necessity be of a rectangular or a square cross-section, but they may be of any other suitable polygonal cross-section. Such a modified form of slat and correspondingly-formed slat-supporting device are illustrated in Figs. 9 and 10 of the drawings. In this construction of stall-floor I employ slats 29, which are of an equilateral-triangular cross-section, each supporting device in this arrangement being formed with V-shaped ribs 30, which form the correspondingly-shaped receiving sockets or pockets 31, in which can be removably and reversibly arranged the ends of the triangular slats 29, all of which will be fully and clearly understood from an inspection of the said Figs. 9 and 10.

My flooring combines the advantages of simplicity and slight cost, since it consists merely of lengths of wood or slats having no special formation and sockets of simple form to receive the ends of the slats; durability, since a very large number of surfaces can be presented for wear, the slats being rotatable and reversible end for end, and since the slats are supported so as to be wholly out of contact with water and to permit of free circulation of air; sanitation, since perfect drainage is possible and there are no pockets for the retention and accumulation of excreta; convenience, since the slats have merely to be lifted when they are to be removed and in replacing them they are in readiness for putting in place whichever end may be presented and whichever side be up, and comfort for and protection to the animal from injury, since he stands and stamps not on a rigid unyielding surface, but on one that is yielding or elastic, the slats being of such length as to wholly support the animal with all feet thereon and being supported themselves only at their ends are free to bend or flex, and the slats not retaining water afford a comfortable and healthy bed.

I am fully aware that changes may be made in the arrangements and combinations of the various devices and parts which are employed without departing from the scope of this invention. Hence I do not limit my invention to the exact arrangements and combinations of the devices and parts as hereinabove described and as illustrated in the accompanying drawings, nor do I confine myself to the exact details of the construction of any of the said parts.

The arrangement herein shown and described for the outlet of liquid is not claimed herein, but is made the subject of a separate application, filed by me October 1, 1902, Serial No. 125,529.

Having thus described my invention, what I claim is—

1. A stall-floor comprising a series of slats of a length for the animal to stand on with all feet, and supports for the slats at their extremities only, whereby the slats are free to flex or bend, said slats being independent of each other and bodily removable from both supports, and reversible end for end.

2. A stall-floor comprising a series of slats of a length for the animal to stand on with all feet, and supports for the slats at their extremities only, whereby the slats are free to bend or flex, said supports consisting of sockets that receive the ends of the slats and hold them separate from each other, and from which they are bodily removable.

3. A stall-floor comprising a series of slats of a length for the animal to stand on with all feet, and being each of uniform size and shape from end to end, and supports for the slats at their ends only, whereby the slats are free to flex or bend, said slats being bodily removable from both supports.

4. A stall-floor comprising a series of slats of a length for the animal to stand on with all feet, each slat being polygonal in cross-section, with equal sides, whereby different sides in succession may be placed uppermost, and supports for the slats at their extremities only, whereby the slats are free to flex or bend, and the slats being bodily removable from said supports, whereby they may be reversed end for end.

5. A stall-floor comprising a series of slats of a length for the animal to stand on with all feet, and similar supports for the slats at their extremities only, whereby the slats are free to flex or bend, the portions of the slats that engage the supports being the same in size and shape at both ends of the slats, and the slats

being bodily removable from the supports and reversible end for end.

6. A stall-floor comprising a series of slats of a length for the animal to stand on with all feet, and similar supports for the slats at their extremities only, whereby the slats are free to flex or bend, the portions of the slats that engage the supports being square in cross-section and of the same size at both ends whereby the slats may be turned to present different surfaces uppermost, and be reversed end for end.

7. A stall-floor comprising a foundation of concrete, with a depressed surface, and having at front and rear ends slat-supports, and slats of a length for the animal to stand on with all feet, supported by said supports only, whereby they are free to flex or bend, the slats being bodily removable from said supports and reversible end for end.

In testimony that I claim the invention set forth above I have hereunto set my hand this 2d day of August, 1901.

JOHN W. COMBS.

Witnesses:
FREDK. C. FRAENTZEL,
E. VAN NESS.