W. BUTTERWORTH.

Gate.

No. 224,643. **Patented Feb. 17, 1880.**

Fig. 1.

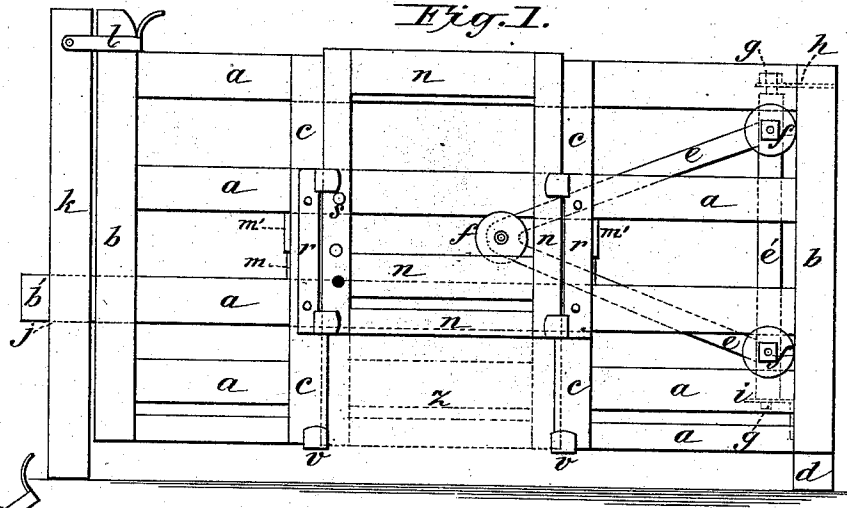


Fig. 2.

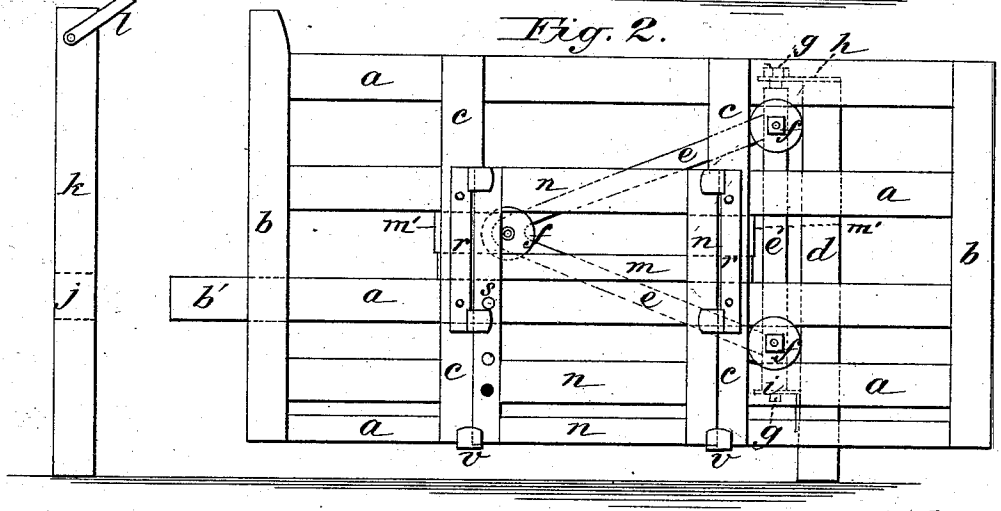


Fig. 3.

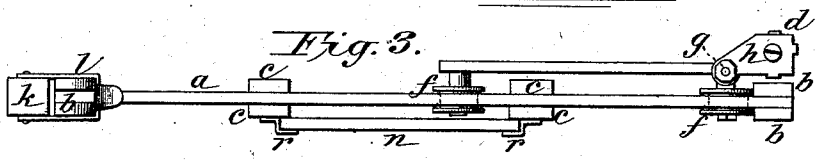
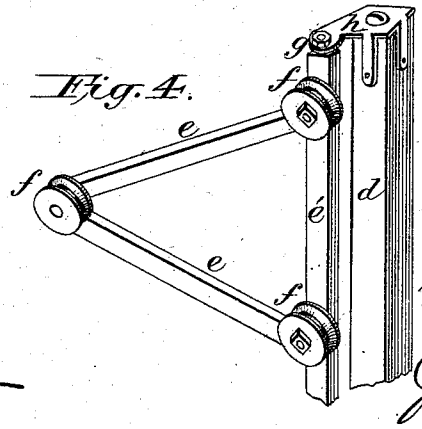


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM BUTTERWORTH, OF MORRIS, ILLINOIS.

GATE.

SPECIFICATION forming part of Letters Patent No. 224,643, dated February 17, 1880.

Application filed October 15, 1879.

To all whom it may concern:

Be it known that I, WILLIAM BUTTERWORTH, of the city of Morris, in the county of Grundy and State of Illinois, have invented certain new and useful Improvements in Farm and Stock Gates, of which the following is a specification.

It is the rolling and swinging kind of gate which I have improved—that is to say, a gate which, on being opened, is rolled back a short distance and then swung open. It is supported upon three flanged rollers mounted at the angles of a three-sided frame hung by its vertical side upon the main gate-post, the rollers being so disposed that two shall be carried in vertical line by the hinged side of the supporting swing-frame, and between the upper and lower bars of the gate, while the third roller is at the projecting point of said frame and between the middle bars of the gate, so that the latter, on being rolled back, will be brought to a balanced position upon the rollers before it is swung open, and thus supported in a manner to prevent sagging and to render it more durable by reason of having the points of support equally distributed between the bars.

Two or more of the lower horizontal bars of the gate do not cross the space between the vertical middle bars, leaving an open middle way at the bottom of the gate, and in connection therewith the gate is provided with a vertically-sliding panel, which can be raised and held at different heights to allow small stock to pass without opening the gate, so that larger stock cannot pass. This panel may be adjusted so that only very small pigs and lambs may pass, while sheep and hogs are prevented, as it often happens that such selections are desirable. For this purpose the panel is fitted to slide in guides on the vertical bars at the side of the gate opposite its supporting swing-frame, and bottom angle-stops sustain said panel when fully closing this open middle way. A pin serves to lock the panel to the gate when down, or to hold it at the desired adjustment.

A hinged strap serves to fasten the gate at the top when closed, and one of its horizontal gate-bars is extended so as to pass into a mortise in the latch-post to render the gate secure when closed.

Referring to the accompanying drawings, a farm and stock gate embracing my improvements is represented in elevation and as closed, and with the stock-panel open, in Figure 1, and in elevation as rolled back in balanced position to be swung open, and with the stock-panel closed, in Fig. 2, while a top view is shown with the gate closed in Fig. 3, and the roller-supporting swing-frame, in connection with a part of the main post, in Fig. 4.

The gate is constructed of horizontal bars *a*, united together at their ends by vertical side bars *b*, and intermediately by similar bars *c*, securely connected. It is supported upon the main post *d* by means of a frame, *c c'*, preferably of metal, and in form nearly that of a triangle, and having bearing-rollers *f*, and with one of its sides, *e'*, standing vertical and serving as the hinged side of said frame, the pivot-bearings *g* of which are secured at the top of the post by a strap, *h*, and screw-nut, and the bottom bearing in an eyed bolt or bracket, *i*, secured in or to the post. The bearing-rollers *f* are placed at the angles of the swing-frame, so that two will be in vertical line at its hinged side and between the upper and lower bars *a* of the gate, while the other is carried at the projecting end of the frame *e*, in position between the middle bars; and these rollers have double flanges by which to secure the gate to its supporting swing-frame, and upon which it is rolled to open and to close it. The bearing-rollers are secured upon horizontal stems by screw-nuts, and, being disposed as stated, give most effective support to the gate, and serve to balance it when rolled back, as in Fig. 2, in position to be swung open, and in which position the rollers will occupy the middle portion of the gate, and sustain it as if from a central support, relieving unequal strain and preventing sagging. This balancing position is obtained by rolling the gate till the middle vertical bars *c* come against the supporting-rollers. One of the lower horizontal bars projects by its end *b'* beyond the vertical end bars, *b*, and into a mortise, *j*, in the post *k*, to which the gate is fastened when closed by a loop-latch, *l*, pivoted at the top of said

post, so as to hook over the top of the end gate-bar, the mortise locking-bar *b'* sustaining the lower part of the gate against the pressure of the stock.

The supporting swing-frame *e* is about three feet projection from its hinged side *e'*, and the rollers *f* are about six inches in diameter, with flanges about one inch and a quarter projection, and between which the bars *a* of the gate roll in a manner to secure the gate upon the supporting swing-frame.

The middle roller is locked to the bar which rests upon it by an under key-bar, *m*, Fig. 2, secured between the middle vertical bars, *c*, by pieces *m'*, driven in between said vertical bars above the ends of the key-piece. The lower roller is confined by the bars above and below it, while the upper roller runs on the under side of the top bar only, so that in mounting the gate or removing it from its supporting frame the key-bar *m* must be locked in place or taken out, and the nut which confines the lower roller is removed and replaced in this operation.

For the purpose of adapting the gate to allow small stock to pass while the gate is closed it is provided with a middle way, *z*, at the bottom, between the middle vertical bars, *c*, as two or more of the lower bars, *a*, do not cross this space, and I place a vertically-sliding panel, *n*, over this middle way, so that it may be set at different heights for the smallest stock to pass through, or for hogs and sheep, as may be desired, by a pin, *s*, passing through the panel and the bar of the gate, while for cattle and horses the gate is swung open. The panel is fitted in guides *r* on the vertical middle bars, *c c*, and on the side opposite to that over which the roller swing-frame extends.

The panel may be an open frame, having cross-bars only corresponding to those sections removed from the gate, and it is supported when closed by angle-stops *v*, secured to the lower ends of the vertical middle bars, and when in this position it is fastened by the pin *s*, so that it cannot be raised nor forced out at the bottom.

The described disposition of the rollers is important in dividing the rolling support equally at the top, bottom, and middle of the gate, so that the rollers shall be out of horizontal plane, and thereby give a sliding movement free from binding or vertical wabbling of the gate, as the force applied to open or to close it is borne alike upon the three rollers with a steady and easy action.

I am aware that prior to my invention farm-gates have been mounted upon rollers carried by a frame hinged to the main post, so as to allow the gate to both slide and swing to open and to close it; but in such swing-frame the rollers have been disposed in horizontal planes either at the top or at the middle of the gate, so that its sliding movement is rendered more or less difficult from the binding action of rollers arranged in the plane of the sliding movement; nor does such an arrangement give an effective balance to the gate when opened; nor do I claim, broadly, an adjustable panel in a swinging gate for the passage of small stock, as the combination of these two things is old.

I claim—

1. In a sliding and swinging gate, the swing-frame *e e'*, having a flanged roller, *f*, at or near each pivot-bearing thereof, and in vertical plane with said pivot-bearings, and a flanged roller, *f*, at the point of said frame in advance of and intermediate with the said vertically-placed rollers, in combination with the gate having horizontal and middle bars, *a c c*, whereby the rolling support is equally divided and borne at the top, bottom, and middle of the gate, substantially as shown, and for the purpose described.

2. In a sliding and swinging gate, the vertical middle bars, *c c*, and the short lower horizontal bars, *a a*, forming the middle way, *z*, in combination with the vertically-adjustable middle panel having lower bars, *n n*, corresponding with the said short bars *a a*, and the pin *s*, substantially as shown, and for the purpose described.

3. The combination, with the gate having the open middle way, *z*, at the bottom, and the panel *n*, fitted in vertical guides and adapted to open and close said way, and to be adjusted at different heights, of the angle-stops at the lower ends of the middle bars and the locking-pin *s*, whereby said panel is prevented from being raised or forced outward by the stock when closed, as described.

4. The combination, with a gate composed of horizontal and vertical middle bars, of the swing-frame *e e'*, pivoted to the main post *d*, as described, and having flanged rollers *f* disposed in a manner to give middle, top, and bottom bearings upon which the gate is rolled back to a balanced position and swung open, and the key-bar *m*, whereby said gate is secured to the swing-frame, substantially as herein set forth.

5. A farm and stock gate consisting of horizontal and vertical bars, the swing-frame *e e'*, pivoted to the post *d*, and having rollers *f* disposed in a manner to give middle, top, and bottom bearings, and upon which said gate is rolled back to a balanced position and swung open, the fastening key-bar *m*, by which the gate and the swing-frame are secured together, and the vertically-adjustable panel *n*, adapted to open and to close an open middle way, *z*, at the bottom of the gate, and between the middle vertical bars *c* thereof, all constructed for use as described.

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Witnesses:

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ORION R. HIGHT.