No. 701,320. Patented June 3, 1902.

C. FISHER.

COMBINED END BOARD AND BOOT FOR WAGONS.

(Application filed Apr. 21, 1902.)

(No Model.)

Fig. 1.

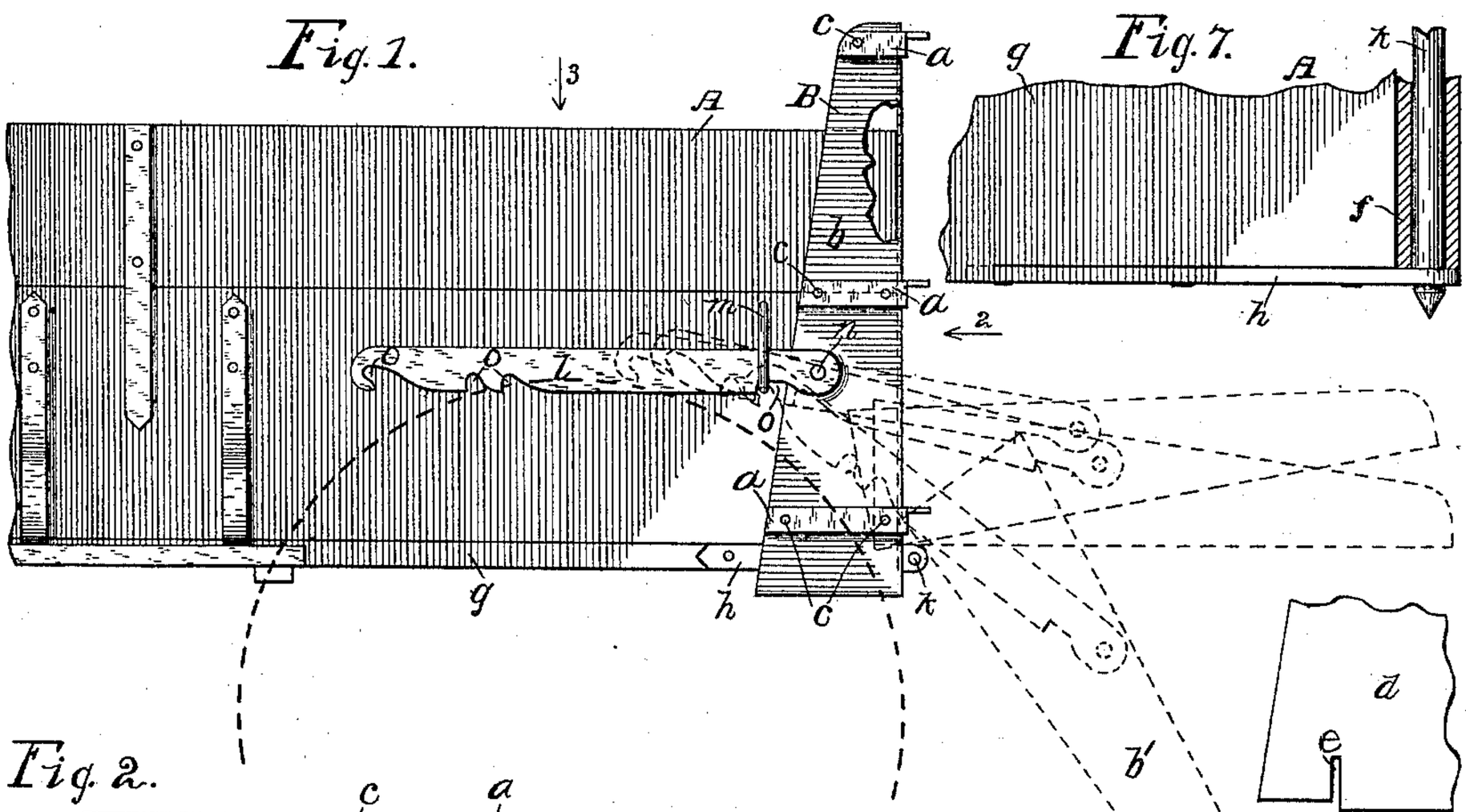


Fig. 7.

Fig. 8.

Fig. 2.

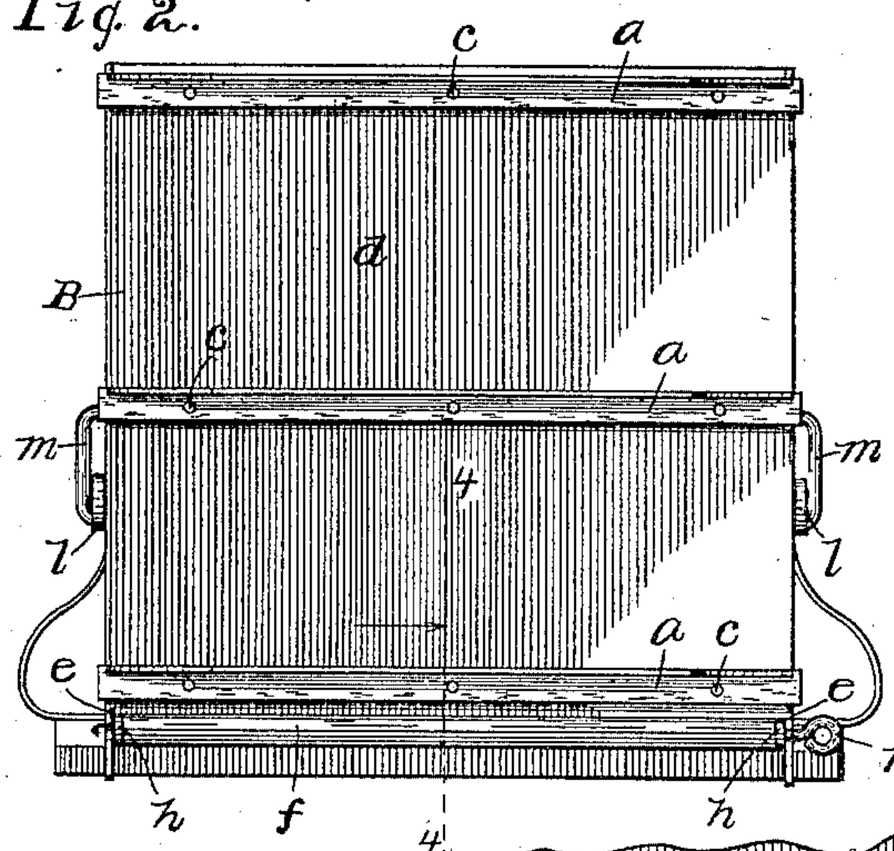
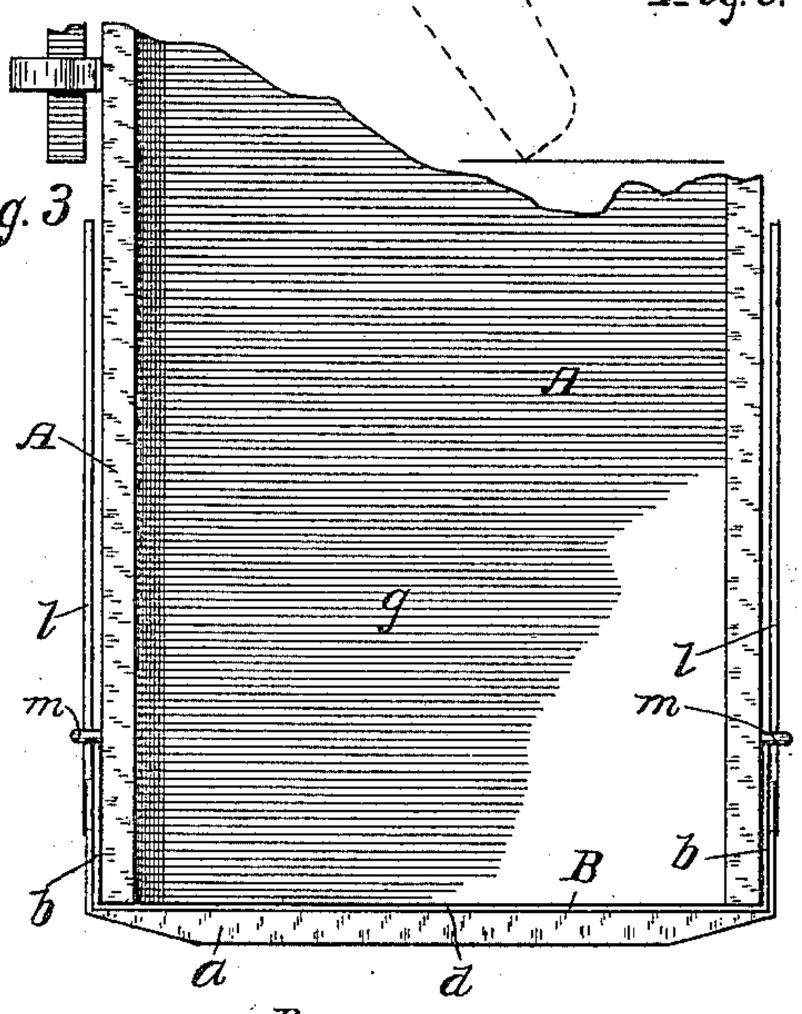


Fig. 3



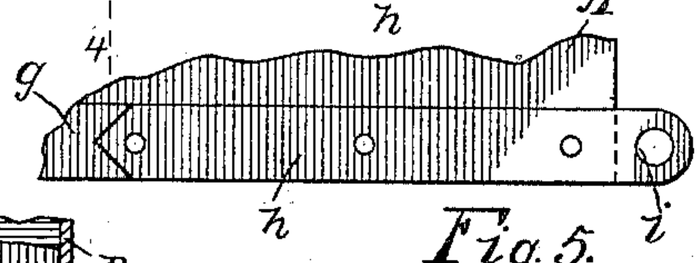
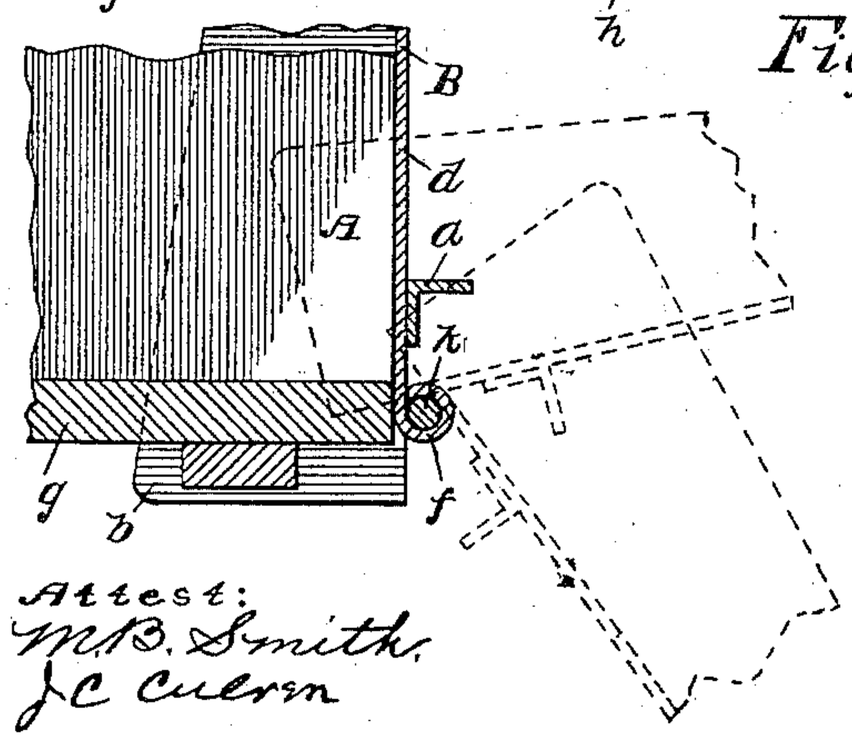


Fig. 4.

Fig. 5.



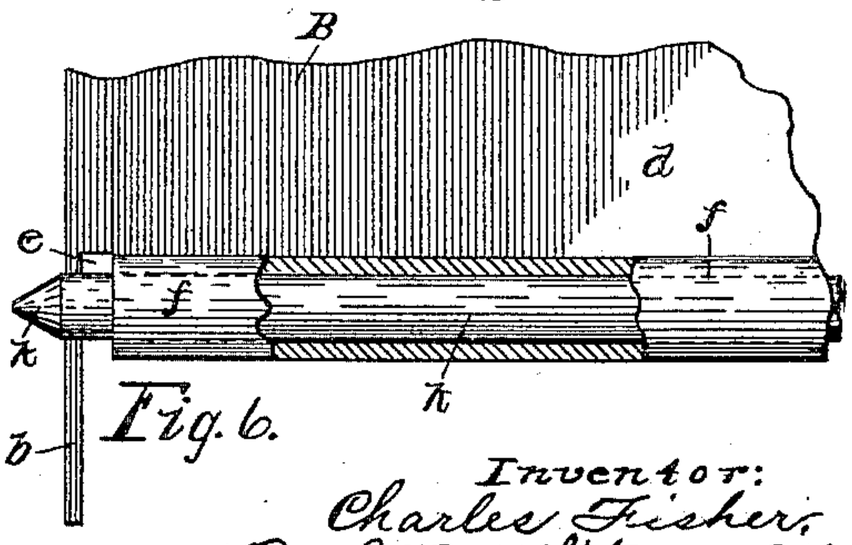


Fig. 6.

Attest:
W. B. Smith.
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Inventor:
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By E. B. Whitmore, Atty

UNITED STATES PATENT OFFICE.

CHARLES FISHER, OF LYONS, NEW YORK, ASSIGNOR OF ONE-HALF TO GEORGE A. HORN, OF NEWARK, NEW YORK.

COMBINED END-BOARD AND BOOT FOR WAGONS.

SPECIFICATION forming part of Letters Patent No. 701,320, dated June 3, 1902.

Application filed April 21, 1902. Serial No. 104,034. (No model.)

To all whom it may concern:

Be it known that I, CHARLES FISHER, of Lyons, in the county of Wayne and State of New York, have invented a new and useful Improvement in a Combined End-Board and Boot for Wagons, which improvement is fully set forth in the following specification and shown in the accompanying drawings.

My invention is a combined end-board and boot for wagon-boxes, preferably made of steel, held to the rear end of the box in a movable joint and adapted to turn or swing in a vertical plane.

The main object of the invention is to produce a hinged boot that may stand in a vertical position and close the rear end of the wagon-box, as an end-board, or occupy a horizontal or an inclined position convenient for removing the contents of the box with a shovel.

Another object of the invention is to construct the boot to act as an inclined skid at the end of the wagon up or down which to roll or slide heavy bodies, as filled barrels, &c., in loading or unloading the wagon.

Other objects of the invention will be brought out and made to appear in the following specification, reference being had to the accompanying drawings, the invention being fully described, and more particularly pointed out in the claim.

In the drawings, Figure 1 is a side elevation of a portion at the rear end of a wagon-box, showing my improved device in place thereon, parts being shown in various positions by full and dotted lines. Fig. 2 is a rear end elevation seen as indicated by arrow 2 in Fig. 1. Fig. 3 is a plan of the parts seen as indicated by arrow 3 in Fig. 1. Fig. 4 is a central longitudinal section of parts, taken on the dotted line 4 4 in Fig. 2, further showing the form of the tubular joint, the boot being shown in various positions by full and dotted lines. Fig. 5, detached, further shows in side elevation the form of one of the joint-straps. Fig. 6 is a rear elevation of parts of the joint, further showing the form thereof, parts being omitted and the tube being in part longitudinally sectioned. Fig. 7 is a plan of parts at the rear end of the box, the joint-tube being centrally and horizontally sectioned. Fig. 8 shows the form of one of the lower corners of the sheet or plate of steel before being finally bent to form. Figs. 4 to 7, inclusive, are drawn to scales larger, and Fig. 8 to a scale smaller, than that of Figs. 1, 2, and 3.

Referring to the parts shown, A is the wagon-box, it being substantially of ordinary construction.

B is my improved end-board and boot attached in place to the rear end of the box. This boot is usually made of steel, one or more sheets or plates *d* being employed, the two vertical edges being bent up at right angles to form parallel sides *b b* to pass outside of the wagon-box, as shown. These sides are made wider at the bottom than at the top, the wide ends extending below the bottom of the box A, as shown in Figs. 1 and 4. The boot is made higher than the wagon-box, the plate or sheet *d* of the boot when used singly being reinforced or stiffened by transverse strips *a* of angle steel, the flat ends of which being bent around against the outer faces of the sides *b b*, the steel strips being secured to the plate *d* by some ordinary means, as rivets *c*.

The plate or sheet *d* is primarily formed at the bottom and near the corners with two vertical slits *e e*, Figs. 2, 6, and 8, the parts of the sheet outside of the slits being bent to form the sides *b b* of the boot, as above set forth, and the part between the slits being rolled upward to form a horizontal tube *f*. The bottom board *g* of the wagon-box is provided with a pair of metal joint-straps *h h*, Figs. 1, 2, 5, and 7, the rear projecting ends of which occupy the respective slits *e e* in the sheet *d*, as shown. These projecting ends of the straps *h h* are perforated at *i* and are adjacent to the respective ends of the tube *f*, the perforations *i* being in line with the bore of the tube. A hinge-rod *k*, Figs. 2, 4, 6, and 7, is passed horizontally through the tube and the perforations of the joint-straps *h h*, which rod constitutes the pintle of the hinge of the boot upon the wagon-box. This rod has a continuous and unbroken bearing throughout the entire width of the wagon-box, as shown, which is important, as it gives great stability to the boot and materially supports it when serving as a skid for loading or un-

loading heavy bodies. The boot is adapted to swing or turn in a vertical plane on the rod *k* to the several positions shown and for the several uses stated. The even convex surface of the tube *f* bears throughout its length directly against the rear end of the bottom board *g* of the wagon in every position of the boot, which forms a continuous close joint between the boot and the bottom board, preventing grain or other small substances with which the wagon may be loaded from falling through while being removed by means of the boot.

l l are a pair of equal bars or hangers each formed with a series of notches *o* in its lower edge, these hangers being connected pivotally at *n* to the respective sides *b b* of the boot in a manner to swing in vertical directions thereon.

m m are loops rigid with the sides of the wagon-box, through which the hangers *l l* pass and which engage with the notches *o* of the hangers, as shown. The notches are so located along the edges of the hangers as to hold the boot in the different positions shown and indicated in Fig. 1 when the hangers are differently engaged. When, for example, the notches nearest the joints *n* are in engagement with the loops, the boot is held firmly against the rear end of the wagon-box, forming a tight joint therewith all around, as shown in Fig. 3, the boot in this position constituting an end-board for the box. When the notches at the extreme ends of the hangers are near or caught onto the loops, the boot will drop to the position shown by dotted lines at *b'*, Fig. 1, its outer end resting on the ground, or if the ground be uneven and low the hangers may be entirely withdrawn from the loops to permit the end of the boot to rest thereon. When the intermediate notches *o* engage with the loops, the boot will be in one or the other of the positions shown in dotted lines above the position shown at *b'*.

When the boot is in a vertical position, serving as an end-board, the notched hangers will hold it securely to place against the end of the wagon-box, even though the hinge-rod *k* be removed. This is made possible on account of the inner surface of the boot bearing against the box at points both above and below the level of the joints *n* of the hangers, the boot thus being prevented from tilting or moving away from the box either at the top or the bottom.

When the boot is turned backward to a horizontal position, or nearly so, as indicated in Fig. 1, for the purpose of shoveling grain or other produce from the wagon-box, the downwardly-extended ends of the side parts *b b* of the boot will reach by or lap over the respective sides of the box, and so prevent openings being formed between said parts *b b* and the wagon-box. This serves to prevent a loss or waste of the grain or contents of the wagon-box through openings that would otherwise be formed at those points by the turning downward of the boot.

What I claim as my invention, and desire to secure by Letters Patent, is—

A combined boot and end-board for wagon-boxes, comprising a metal plate having upturned opposite sides to pass outside the wagon-box, severed near their ends from the intermediate part of the plate by slits, said intermediate part being bent or rolled to the form of a tube with its convex surface in contact with the wagon-box, a pair of holding joint-straps rigid with the wagon-box having perforated ends projecting through said slits opposite the respective ends of said tube, an axial rod within the tube and passing through the joint-straps, and a notched hanger held pivotally to each upturned side of the plate, and loops on the wagon-box to control the notched hangers, substantially as set forth and shown.

In witness whereof I have hereunto set my hand, this 10th day of April, 1902, in the presence of two subscribing witnesses.

CHARLES FISHER.

Witnesses:
E. B. WHITMORE,
MINNIE SMITH.