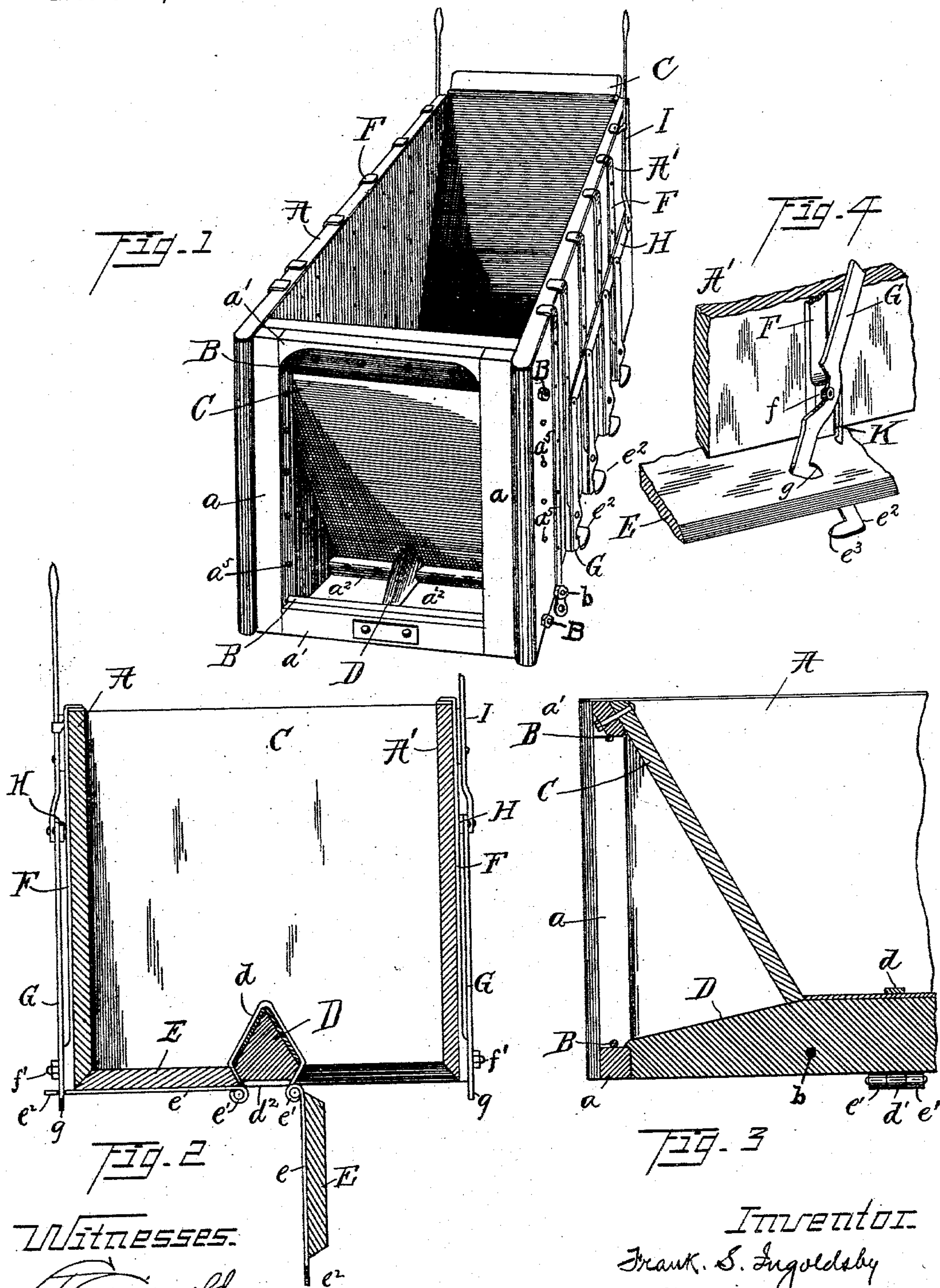


(No Model.)

F. S. INGOLDSBY.  
WAGON BOX.

No. 551,319.

Patented Dec. 10, 1895.



Witnesses:

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# UNITED STATES PATENT OFFICE.

FRANK S. INGOLDSBY, OF DENVER, COLORADO.

## WAGON-BOX.

SPECIFICATION forming part of Letters Patent No. 551,319, dated December 10, 1895.

Application filed April 1, 1895. Serial No. 544,037. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK S. INGOLDSBY, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Wagon-Boxes; 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.

My invention relates to certain improvements in the construction of wagon-boxes especially adapted for securely carrying and quickly dumping loads of ore or other loose material.

The objects of the invention are, first, to make the box particularly strong and stiff; and, second, to so construct and combine together the box, the swinging bottom doors, and the mechanism for holding the doors closed that the box will be so tight that none of the finely-comminuted material may drop through the cracks.

The invention consists in the construction and combination of parts hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of my improved wagon-box. Fig. 2 is a transverse vertical sectional view of the same. Fig. 3 is a longitudinal vertical sectional view of one end of the box, and Fig. 4 is an enlarged perspective view of the meeting edges of one door and one side and of the double-clamping lock for holding them together.

Referring to the parts by letters, A A' represent the two sides of the box, and C C the two ends which are inclined inward from top to bottom, as shown. These sides and ends are secured together by means, to be presently explained, which hold them in fixed relation to each other at all times and under all strains to which the box will be subjected when it is heavily loaded, or when the wagon of which it is a part is traveling on rough and hilly roads.

Both ends of the box are substantially alike, wherefore the description of the construction at one end will answer for both.  $a a$  represent two vertical beams, and  $a' a'$  two horizontal beams, which are secured together so as to form a rectangular frame, and this frame is

secured between the sides, close to their ends, by bolts  $a^5$ , and by the long transverse bolts or tie-rods B B, each of which passes through both vertical frame members  $a a$  and both sides.

$a^2$  represents a transverse beam which extends between the two sides near the lower edges of said sides, and at a point inside of the rectangular frame before mentioned—that is to say, nearer the center of the box. This beam is divided at its middle, and the center pole D fits closely between the proximate ends of the two parts of said beam. A transverse tie-rod  $b'$  passes lengthwise through both parts of beam  $a^2$ , through the interposed center pole, and through both sides A A', whereby said parts are held firmly in the described relative position. The inclined end C lies snugly between the sides A A', and its upper edge is bolted to the upper bar  $a'$ , while its lower edge is bolted to the beam  $a^2$ .

The construction above described connects the sides and end in such manner that there can be no change in the relative position of any of the parts, unless one or more of them breaks; wherefore, the box is stiff and strong and well adapted to sustain all of the strains to which it is liable to be subjected.

The center pole D extends from end to end of the box, and is connected at its ends to the lower horizontal members  $a'$  of the rectangular frames. It also lies tightly between the proximate ends of the divided beam  $a^2$ , where it is held by the tie-rod  $b'$ ; and since the inclined end C of the box is secured, as above explained, to the beam  $a^2$  and the upper beam  $a'$ , said center pole is securely supported in a manner which distributes the strain to which it is subjected to all of the parts named to which it is directly or indirectly connected. The top of this pole is V-shaped, wherefore it does not present any surface upon which any part of the load may lodge after the doors have been opened. The lower part of the sides of this pole are inclined or beveled toward each other, so that they are adapted to form a close joint with the correspondingly beveled adjacent edges of the doors.

The two doors E, each of which may extend from one end of the box to the other, or may be made in two or more sections, as desired, are hinged to the center pole. The part of



the door-hinges which are secured to the center pole consists of straps  $d$   $d$ , which pass over said pole, and their ends are drawn in against the lower inclined sides of said pole, where they are held by a rivet or bolt  $d^2$ , which extends through both ends of said strap. Each strap and its rivet form what is, in effect, a band or ring encircling the pole, whereby any movement of said strap relative to the pole is prevented. Both ends of the straps extend below the pole and are formed into eyes  $d'$   $d'$ , to which are pivoted the eyes  $e'$   $e'$  on the inner ends of the straps  $e$   $e$ . These straps  $e$   $e$  are riveted or bolted to the under side of the doors, and extend beyond both edges thereof, the extensions  $e^2$  at the outer edges of the doors being the parts with which the levers  $G$  engage.

The edges of the doors at the sides and ends are beveled outward from top to bottom. The lower edges of the sides  $A$   $A$  and ends  $C$   $C$ , as well as the center pole  $D$ , as before explained, are correspondingly beveled outward. It is evident, therefore, that when the doors are closed they fit like wedges into the space which they are intended to fill, bounded by the sides, ends and center pole, and that the more they are drawn up, the more closely they will fill said space, thereby tightly closing all cracks and joints through which any finely-comminuted material in the box might escape.

$F$   $F$  represent vertical straps which are riveted or bolted to the outer sides of the sides  $A$   $A'$ , and their upper ends are bent over onto the top edges of said sides. Near the lower ends of said straps the cylindrical projections  $f$   $f$  are formed integral with said straps. These projections form pivots on which the levers  $G$  are pivoted, said levers being held on said pivots by the bolts  $f'$   $f'$ , which pass through said projections.

On the lower ends of the levers  $G$  are the beveled projections  $g$ , which are adapted to engage beneath the projecting ends  $e^2$  of the straps  $e$  on the doors. When the engagement between these parts is established, the movement of the levers causes the beveled tops of said projections to move beneath said ends  $e^2$ , thereby drawing the door up and causing it to fill the space bounded by the sides, ends, and center pole, as before explained.

In order to prevent the sides from bulging outward under the pressure of the load, there is formed upon each end  $e^2$ , above referred to, a beveled projection  $e^3$ , which, as the levers are so moved as to cause their projections  $g$  to engage beneath said ends  $e^2$ , engage the outside of said levers. This causes the lower part of the sides to be drawn in against the doors at the same time the doors are drawn up against the sides, and also prevents the pressure of the load from forcing the sides outward, so as to open a crack between the doors and sides. The levers  $G$  and their beveled projections  $g$ , and the ends  $e^2$  with their

beveled projections  $e^3$ , form a double-clamping lock which moves and holds the outer edges of the doors and the lower edges of the sides in close contact with each other.

The upper ends of the levers  $G$  on each side are preferably connected by pivots to a bar  $H$ , which is moved by a lever  $I$ , whereby all of the levers  $G$  are simultaneously moved, either to close the doors or to release them.

It will be noticed by consulting Fig. 2 that incidentally the beveling of the inner edge of the doors as described produces this desirable result—viz., that when the doors hang open vertically their upper edges incline downward and outward, wherefore none of the material with which the box was loaded will lodge upon said ends, and thereby interfere with the closing of the doors.

The above-described wagon is especially designed for carrying heavy loads, of ore or any other material, over rough and hilly roads without straining or injuring the wagon and without losing any of the load. It will be noticed from the drawings and the foregoing description that when the doors are held closed by the described mechanism, the straps  $F$ , levers  $G$ , hinge-straps  $e^2$ , straps  $d$ , which pass over and around the center pole, and the rivets  $d^2$  coact to strengthen the box and to prevent any change in the relative position of the parts of the box substantially as if said straps formed a continuous band which followed the same path.

$K$  represents a spring-catch which is secured to the sides  $A$   $A'$  in such position that it is adapted to automatically engage with one of the projecting ends of the straps  $e$ , and to hold the door up (when the box is not loaded) in such position that the beveled projections on the levers  $G$  may engage with the projecting ends  $e^2$  of the straps  $e$  for the purpose described. This spring-catch is not stiff enough to hold up the door when the box is loaded, wherefore, when the levers  $G$  are moved so as to release their hold upon the door, the pressure of the load upon the door causes the spring-catch to be moved back, whereupon the door drops to a substantially vertical position, as shown at the right of Fig. 2.

Having described my invention, I claim—

1. In a wagon body, the combination of the sides, with the following parts secured at both ends thereof as described, viz., a rectangular frame placed between said sides near their ends, two transverse tie rods for holding said sides against said frame, a transverse beam  $a^2$  extending between the sides at a point near their lower edges and nearer to the center of the body than said rectangular frame, a transverse tie rod passing through both sides and through said beam  $a^2$  lengthwise, and an inclined end piece  $C$ , which lies snugly between said sides and is fastened to said beam  $a^2$  and to the upper transverse member  $a'$  of the rectangular frame, substantially as and for the purpose specified.



2. In a wagon body, the combination of the sides and a longitudinally placed center pole, with the following parts secured to both ends of the sides, as described, viz., a rectangular frame secured between the sides near their ends, two transverse tie rods for holding said sides against said frame, the divided transverse beam  $a^2$  the parts of which lie between the center pole and the opposite sides, a transverse tie rod which passes through the center pole, the two part beam  $a^2$  and both sides, and an inclined end piece C, which lies snugly between the sides and is fastened to the beam  $a^2$  and to the upper transverse member  $a'$  of the rectangular frame, substantially as and for the purpose specified.

3. In a wagon body, the combination of the sides, the ends, and longitudinal center pole, all having outwardly beveled lower edges, with two doors hinged to the center pole, and adapted to fit the spaces bounded by said pole, sides and ends, and having their edges beveled outward from top to bottom, and mechanism adapted to draw said doors up against the sides and the sides inward against the doors, substantially as and for the purpose specified.

4. In a wagon body, the combination of the sides, the ends, and the longitudinal center pole, with doors hinged to said center pole and adapted to close the spaces bounded by said pole, sides and ends, with straps secured to the doors and extending beyond their outer edges, beveled projections on the ends of said straps adapted to engage outside of the levers G, levers G pivoted to the sides and having beveled projections on their lower ends adapted to engage beneath said straps, whereby said straps and levers engage to form a double clamping lock which draws the doors upward and the sides inward, substantially as and for the purpose specified.

5. In a wagon body, the combination of the sides, the ends and the center pole secured together, swinging doors adapted to close the spaces bounded by said sides, ends and pole, straps passing over and partly around said pole and having their ends extended below the pole and formed into hinge eyes, bolts or rivets connecting said two ends of each of

said straps just above said hinge eyes, and hinge straps secured to the under side of the doors having eyes which are pivoted to the eyes first named, substantially as and for the purpose specified.

6. In a wagon body, the combination of the sides, the ends and the center pole secured together, with vertical straps secured to the sides and having their upper ends bent over onto the top edges thereof, straps  $d$  passing over and partly around the center pole and being connected near their lower ends by a bolt or rivet, the ends of said straps being extended below said center pole and formed into hinge eyes, the doors E, straps  $e$  secured to their under side and projecting beyond both edges thereof, the inner ends being formed into hinge eyes which are pivoted to the eyes in straps  $d$ , the outer ends of said straps  $e$  having beveled projections  $e^3$ , levers G pivoted to the vertical straps on the sides and having on their lower ends beveled projections  $g$  which interlock with the beveled projections  $e^3$ , substantially as and for the purpose specified.

7. In a wagon body, the combination of the sides, the ends and the center pole, all having their lower edges beveled outward, with doors hinged to the center pole and having their edges beveled outward from top to bottom, straps secured to the said doors and extending beyond their outer edges, and beveled projections on said extended ends adapted to engage with the levers G, vertical straps secured to the sides having their upper ends bent over onto the upper edges of said sides, and having integral cylindrical projections near their lower ends, levers G pivoted on said cylindrical projections and having on their lower ends beveled projections which are adapted to engage with the projecting ends of the straps on the doors, substantially as and for the purpose specified.

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

FRANK S. INGOLDSBY.

Witnesses:

EDWIN L. THURSTON,  
L. F. GRISWOLD.