(No Model.)

S. FADER.

CAR FOR TRANSPORTING COAL, &c.

No. 539,678. Patented May 21, 1895.

Fig. 1.

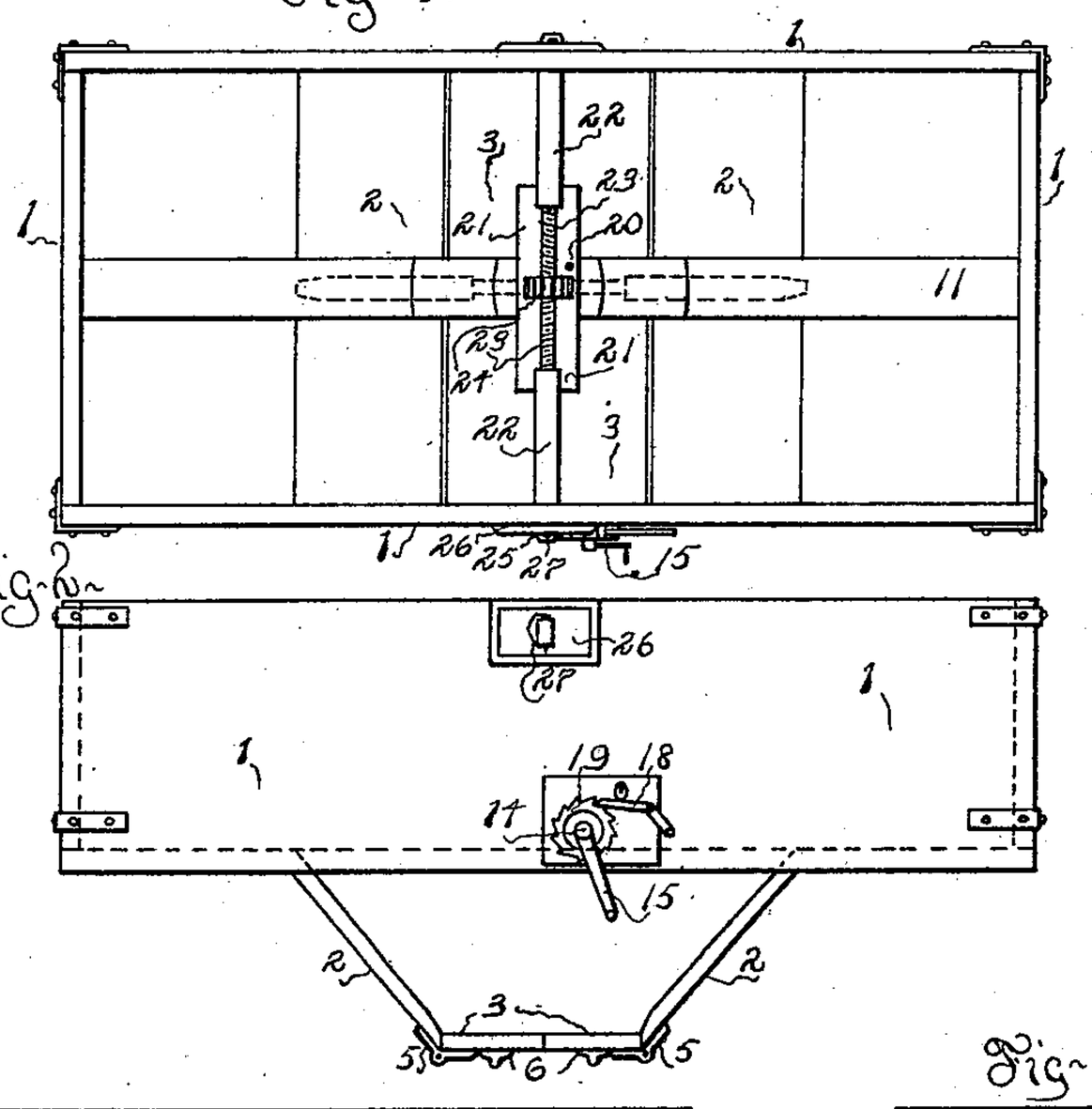


Fig. 2.

Fig. 3.

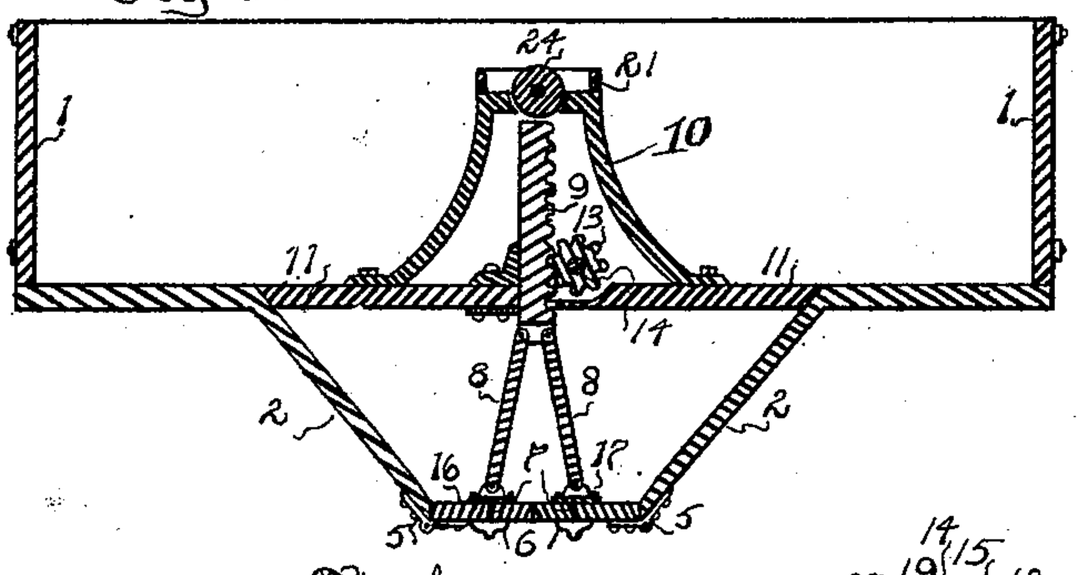


Fig. 7.

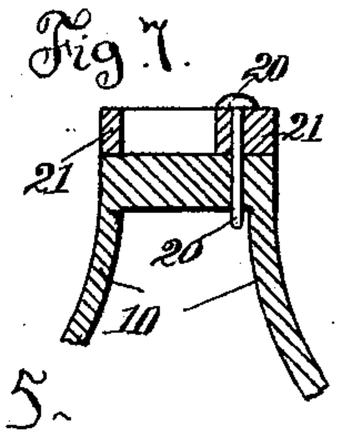


Fig. 5.

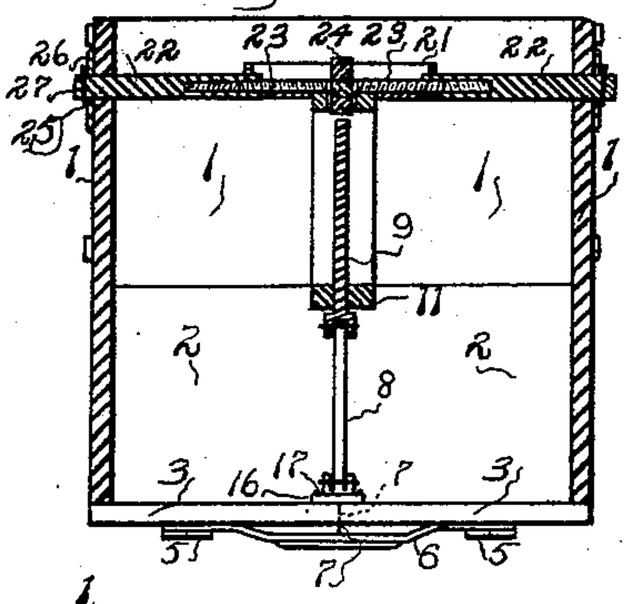


Fig. 6.

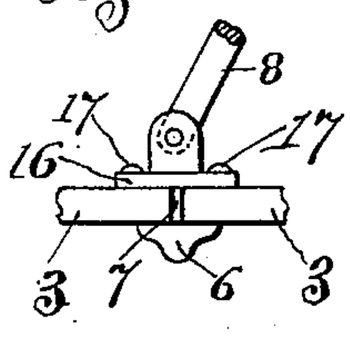
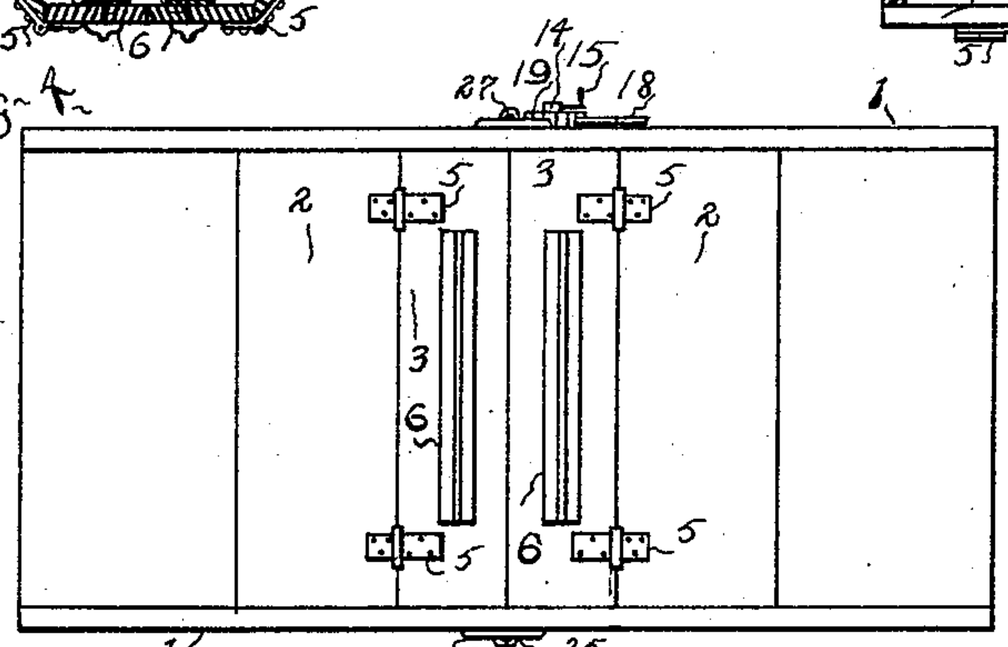


Fig. 4.



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UNITED STATES PATENT OFFICE.

SILAS FADER, OF VANCOUVER, CANADA.

CAR FOR TRANSPORTING COAL, &c.

SPECIFICATION forming part of Letters Patent No. 539,678, dated May 21, 1895.

Application filed May 24, 1894. Serial No. 512,380. (No model.)

To all whom it may concern:

Be it known that I, SILAS FADER, a subject of the Queen of England, residing at Vancouver, in the district of New Westminster and Province of British Columbia, Canada, have invented certain new and useful Improvements in Cars for Transporting Coal and Like Commodities in Bulk and Lumber and Timber; and I do hereby declare the following to be a sufficiently full, clear, and exact description thereof as to enable others skilled in the art to make and use the said invention.

This invention relates to dumping or drop bottomed hopper cars for railways for the transportation of coal, and other commodities in bulk, and has for its objects the prompt opening and secure closing of the drop bottoms of such cars, and efficient and convenient means of forcing open the drop doors when obstructed by frost, and also a means of bracing the sides of the cars from spreading and bulging from internal pressure of load, which is removable or reversible in position so that the cars may be used for lumber transportation, as well as for other purposes.

The construction and operation of the invention are hereinafter fully described and shown in the accompanying drawings, in which—

Figure 1 shows a top or plan view of a car-body embodying this invention; Fig. 2, a side elevation thereof. Fig. 3 shows a vertical lengthwise section thereof; Fig. 4, an inverted plan or bottom view of such car; Fig. 5, a vertical transverse section thereof. Fig. 6 is an enlarged detached view of the joint between the doors and the links, and Fig. 7 is an enlarged sectional view showing the guide pivoted to the cover 10.

1 represents the sides of the car body; 2, the inclined sides of the hopper bottom; 3, doors closing the bottom hopper; 5, hinges for such doors connecting them to the front and back inclined sides; 6, bracing bars on the under side of the doors, which bracing bars are made of metal and ribbed so as to stiffen them and apply pressure at points near the hinges between the hinge 5 and opposite edge of the door 3 thereby relieving the hinge 5 of stress.

The bracing bars 6 have a portion 7, extending up through the door 3 and pivotally attached to a link 8, which link is attached to a rack 9 formed of a bar "T" shaped in cross section, and guided in a sheath or cover 10, supported on a bracing timber 11.

The pinion 13, is turned by a shaft 14, fitted therein, provided with a crank 15, on the side 1 of the car body, and engages the teeth of the rack bar 9, so as to raise and lower the doors.

A washer or collar 16 is placed on the portion 7, and secured by a pin 17, or bolt and nut, and provides a bearing surface on the upper side of the door 3, to distribute the strain so that when links 8 and rack 9 are pushed down by turning the shaft 14, and pinion 13, reversely the doors 5 are forced open gradually from the center without such strain as otherwise might split them.

It is desirable in opening the door, in case of freezing, that the entire stress of breaking the ice through the whole length of the door, be not at once applied; but to break the ice at one point by springing it open at one point, and then gradually across the entire width of the door.

A ratchet wheel 19 is fitted on the shaft 14 at the side 1 of the car, and has a pawl 18 arranged to engage therein and hold the pinion 13 in position, with the rack 9 upward and the doors 5 closed when the car is loaded.

Above the sheath or cover 10 which guides and protects the rack 9 from becoming obstructed by the contents of the car, is placed a pivot 20 upon which is mounted a horizontal sliding guide 21 from which two arms or braces 22 project and slide inward and outward. These arms 22 are operated by a right and left screw 23, and hand wheel 24, so as to lengthen and shorten the brace thus formed. The ends of this brace fit through apertures 25 in the sides of the car body, reinforced by washers or plates 26 and are there secured by pins 27 which rest against the washers 26 on the outer sides of the car and thus distribute the stress.

When the car is loaded with coal or like commodity in bulk, the braces 22 are put in position through the apertures 25 in the sides of the car, the pins 27 are inserted and, by the screw 23, the braces 22 are drawn up so as to hold and tighten the pins 27 against the wash-

ers 26 on the side of the car, and thus brace the sides against bulging from internal pressure of the load.

When the car is to be used for transporting lumber, or other like freight, the arm 22 or sliding pieces of the braces are drawn inwardly to the center so as to be free from the sides of the car body, and then turned around on the pivot 20 so as to be lengthwise of the motion of the train, (as shown in dotted lines in Fig. 1,) and permit long objects such as timber or lumber to be placed in the cars; the shaft 14 for operating the pinion being sufficiently low to not interfere with lumber which lies over the horizontal portion of the deck of the car.

Having described my invention, what I claim is—

1. In a drop bottom car, the inclined sides contiguous to the door opening, the doors hinged to the lower edge of said inclined sides, and the bracing bars parallel with the axis of the hinges of the said doors and attached by their ends to the doors at points between the hinges and free ends of the doors, in combination with mechanism attached to the said bracing bars for closing and securing the doors, said mechanism being centrally applied in the length of the said braces, substantially as set forth.

2. In doors for drop bottom cars a bracing bar, arranged to distribute the stress from points contiguous to the hinges of said door; a lug passing centrally through said door and provided with a pin and washer for the purpose of facilitating the opening of said door in combination with links connecting said lug pivotally with a rack and pinion arranged to operate the same substantially as set forth.

3. In a drop bottom railway car an extensible and contractible brace, arranged to extend removably through the sides of said car, and to be retracted therefrom, and provided with a pivot, whereby the same can be placed lengthwise of the car substantially as and for the purpose set forth.

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