

No. 776,074.

PATENTED NOV. 29, 1904.

B. LOENS.
DUMPING WAGON OR CAR.
APPLICATION FILED AUG. 19, 1903.

NO MODEL.

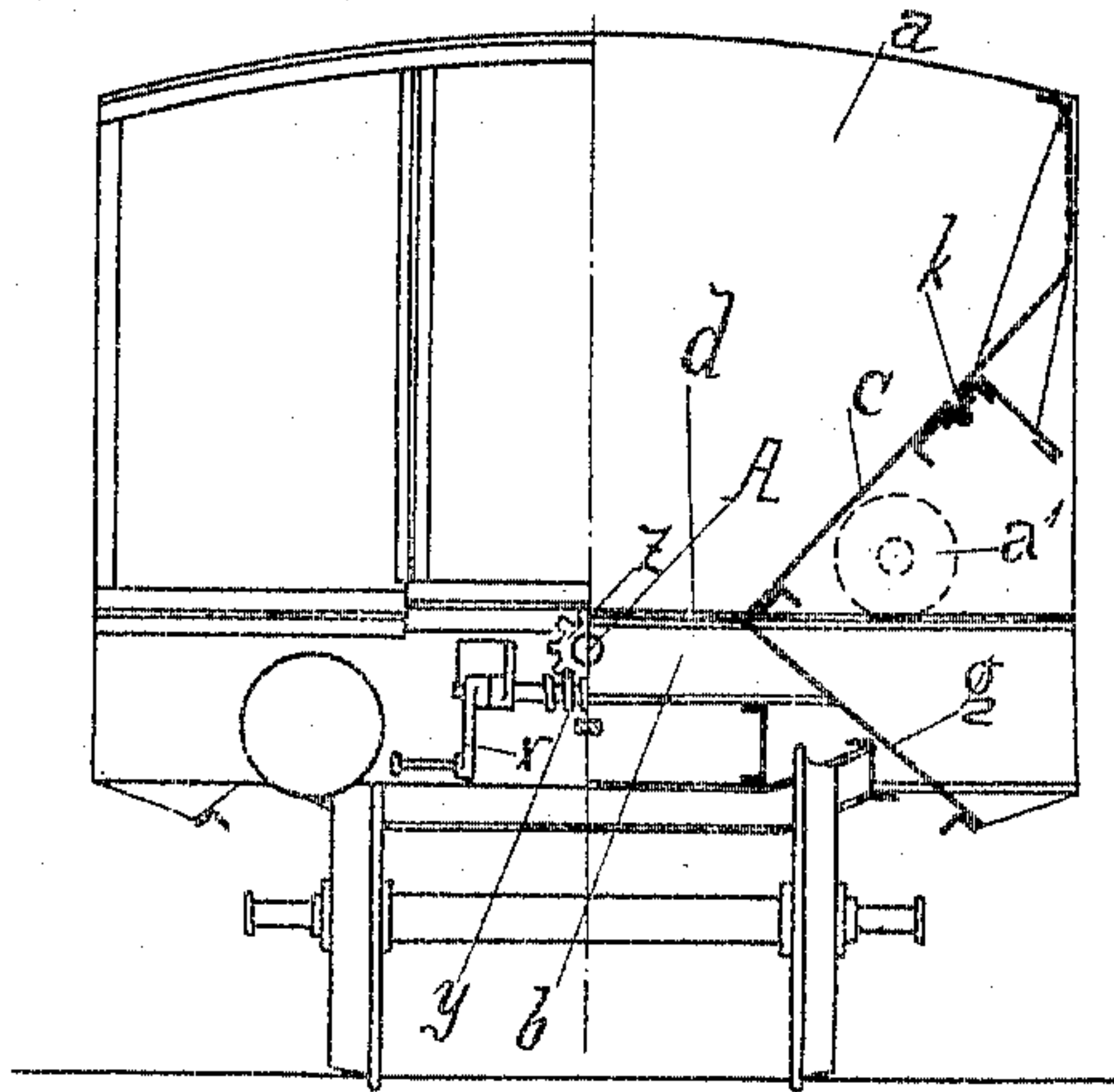


Fig. 1.

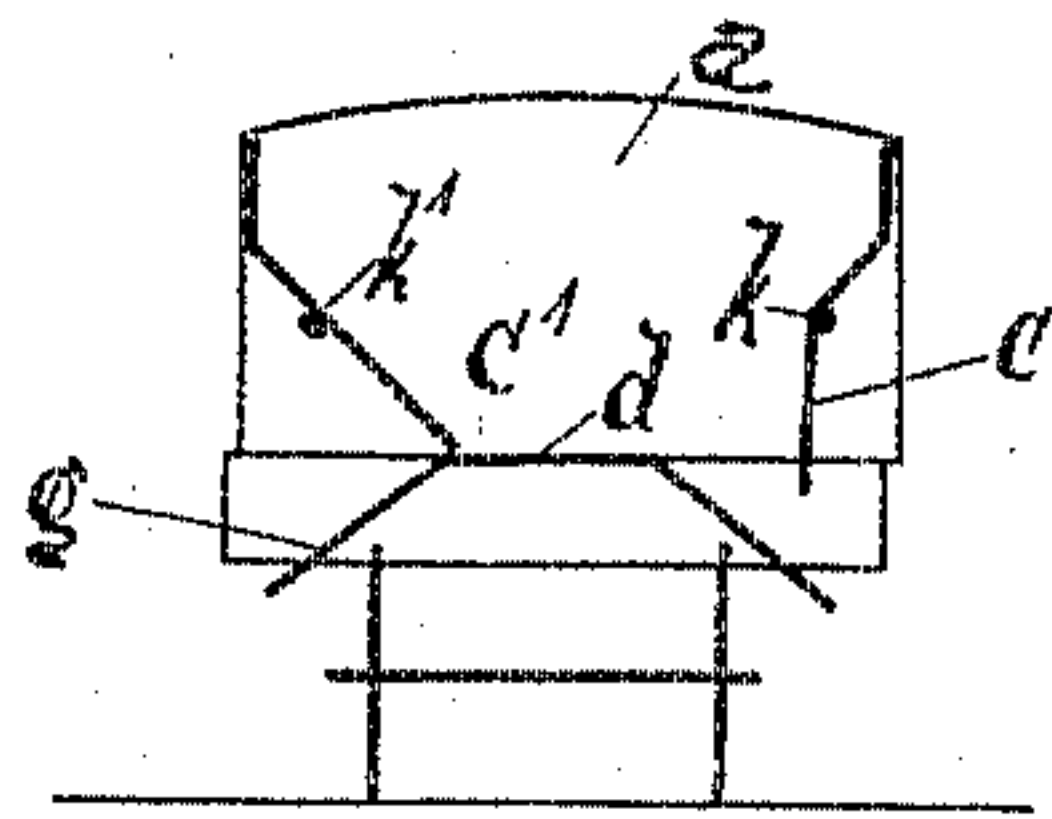


Fig. 2.

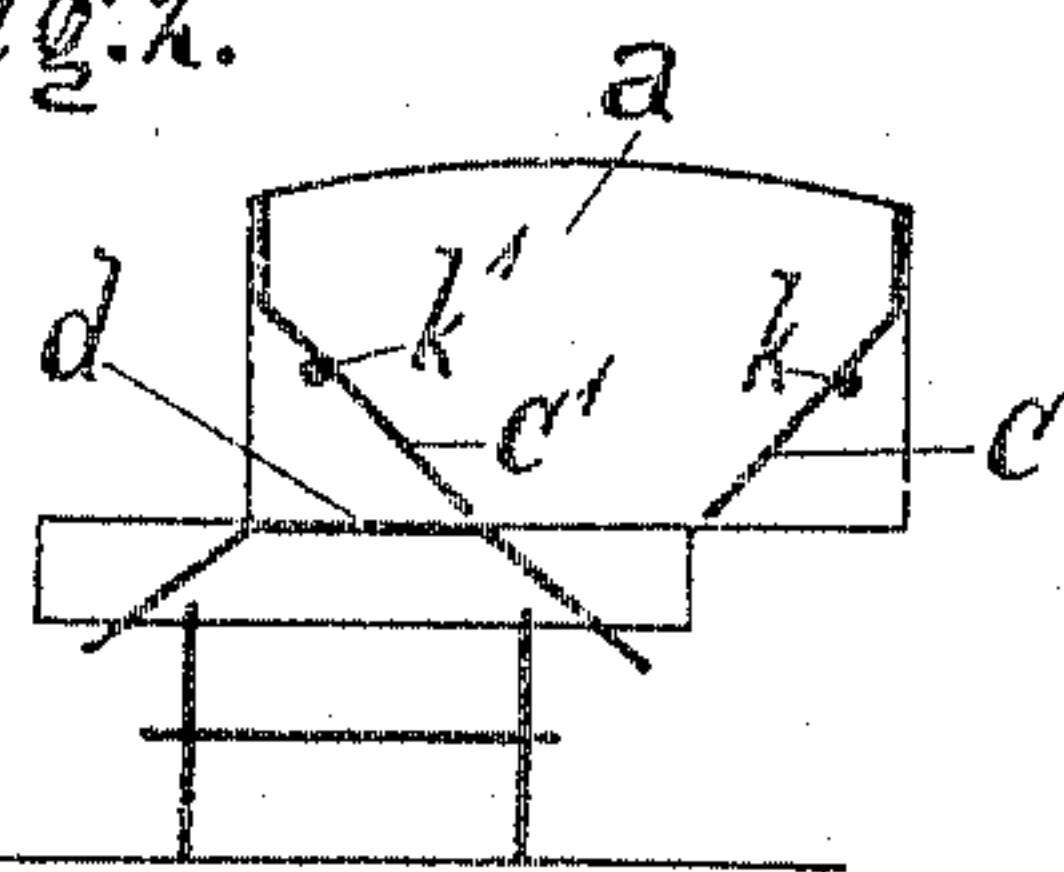


Fig. 3.

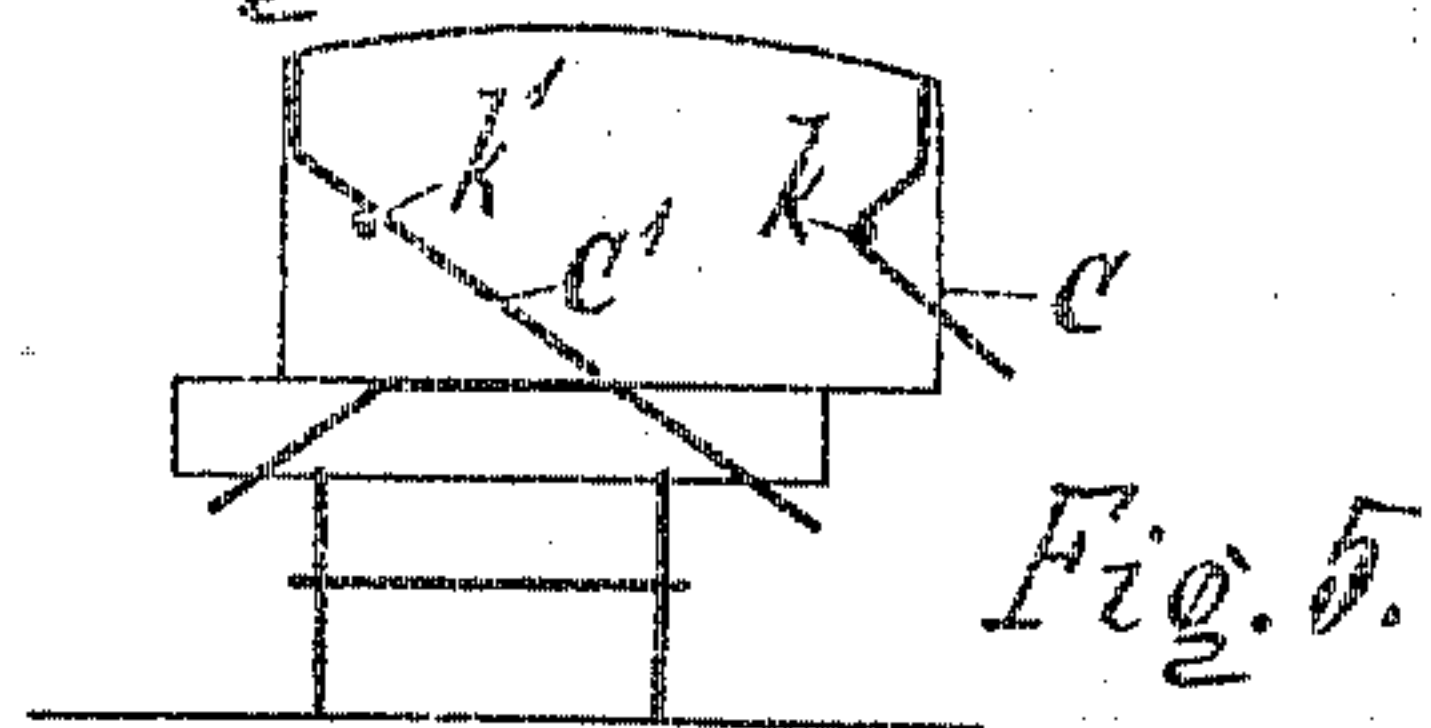


Fig. 5.

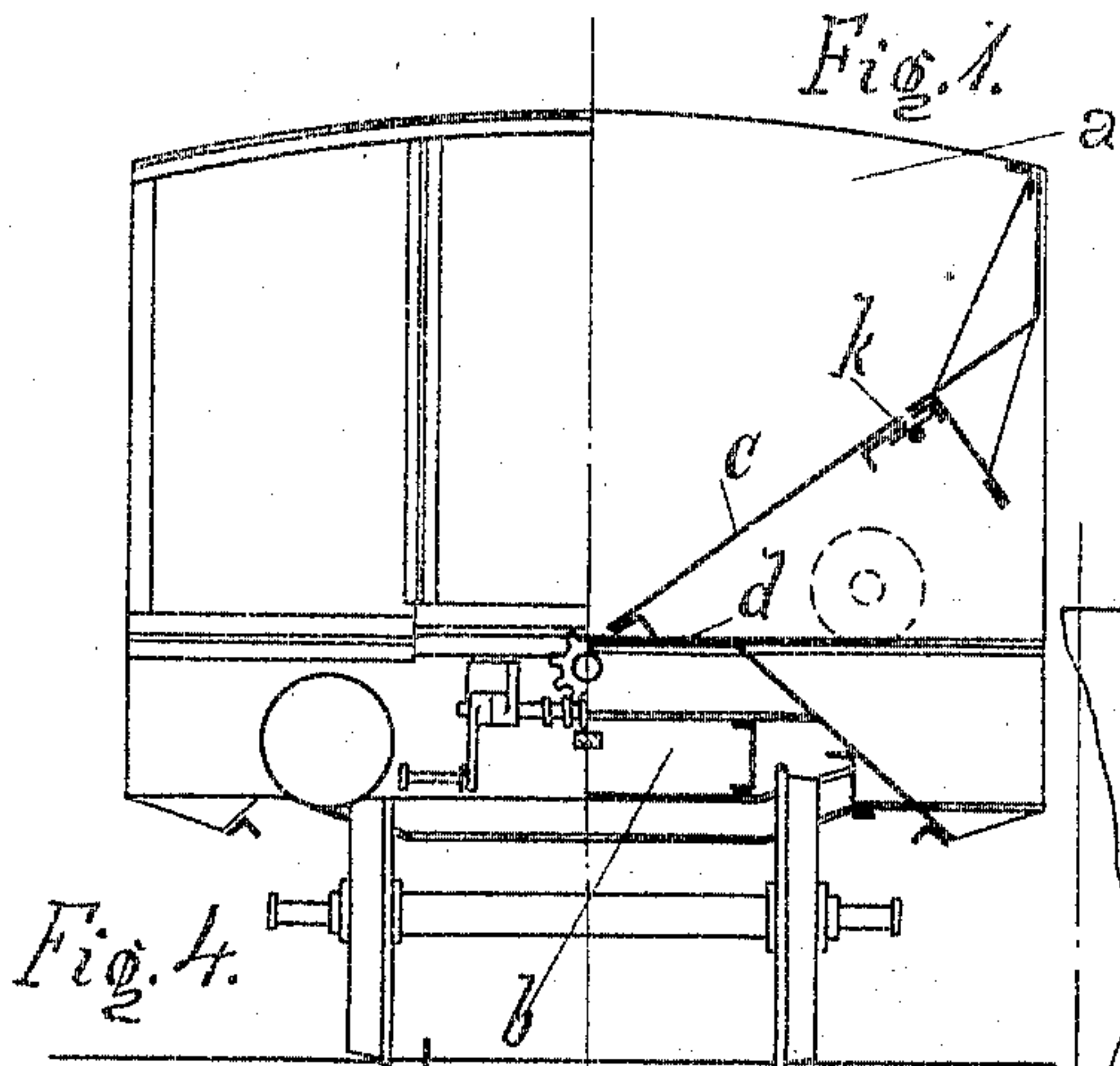


Fig. 4.

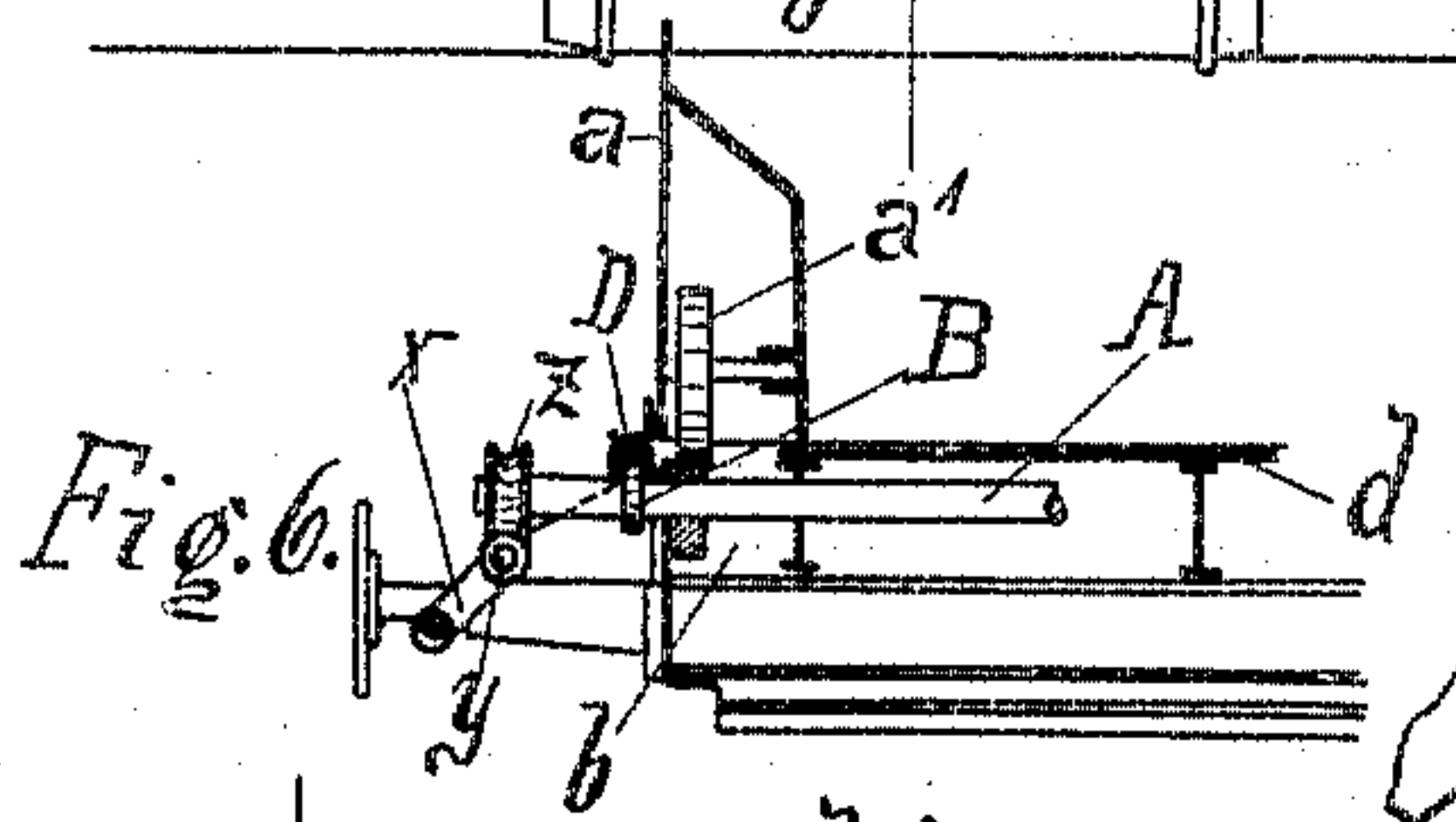


Fig. 6.

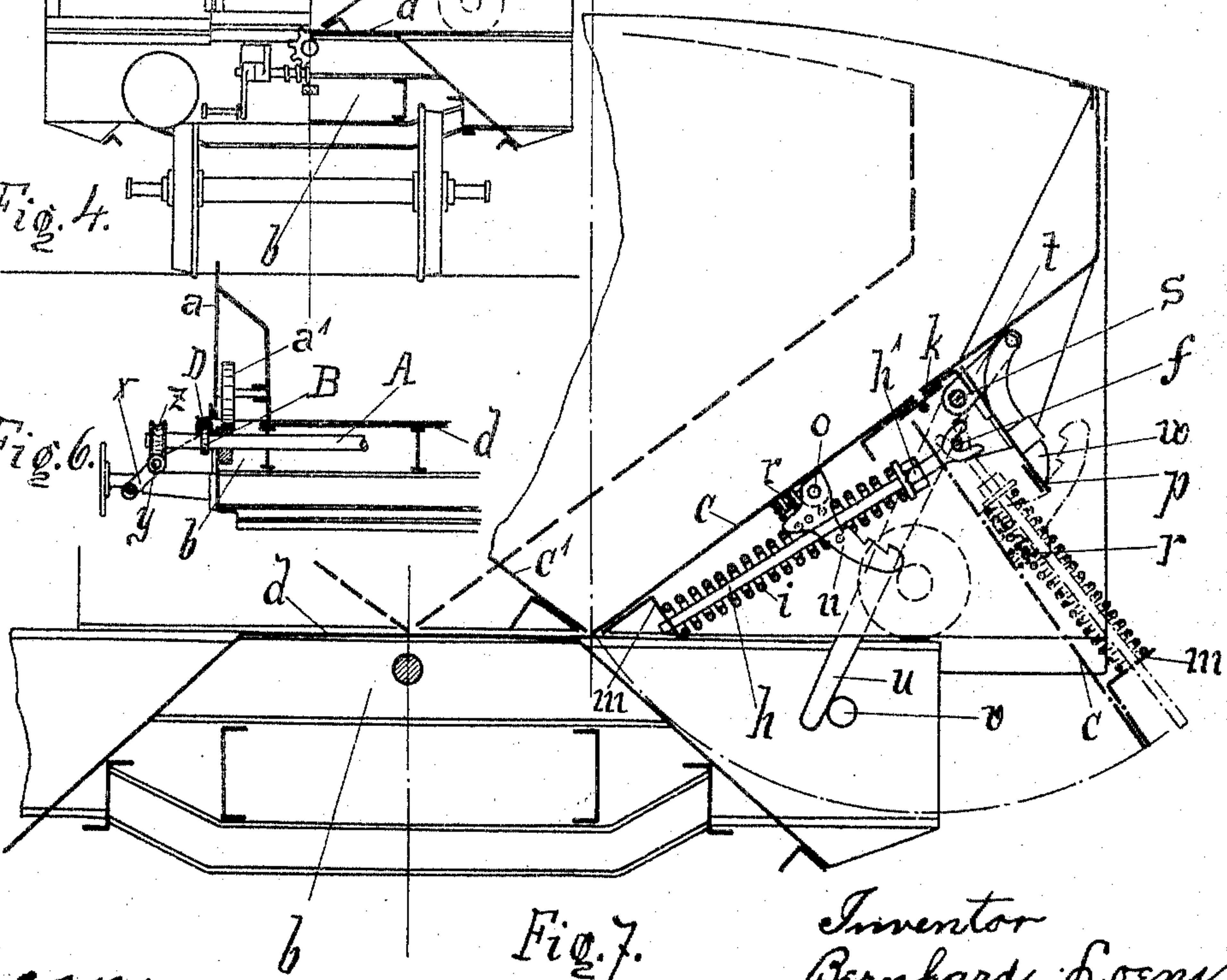


Fig. 7.

Witnesses

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BERNHARD LOENS, OF COLOGNE, GERMANY.

DUMPING WAGON OR CAR.

SPECIFICATION forming part of Letters Patent No. 776,074, dated November 29, 1904.

Application filed August 19, 1903. Serial No. 170,067. (No model.)

To all whom it may concern:

Be it known that I, BERNHARD LOENS, engineer, a subject of the King of Prussia and Emperor of Germany, residing at 4 Balduin street, Cologne, Germany, have invented certain new and useful Improvements in Dumping Wagons or Cars, of which the following is a full, clear, and exact description.

The present invention relates to a wagon adapted for rapid and automatic unloading in which the unloading is effected by displacing the wagon-body. It is characterized by an arrangement whereby the side flaps, which open during the unloading, are maintained in the closed position by resting against the floor of the truck and when the body of the wagon is displaced slip off and automatically open under the weight of the material. The wagon may also be constructed so that the side flaps, which open during the unloading, meet when closed at an angle on the floor of the truck or on cross-bars, so that they receive the weight of the material. This type of construction is for the purpose of facilitating the lateral displacement of the wagon and enabling it to be rapidly emptied when the flaps are opened without any further operation being necessary. In both cases the arrangement is such that the flaps, which open automatically under the pressure of the contents after the wagon is emptied, automatically close again under the action of spiral springs. In order to prevent them closing too soon, a catch is arranged which engages when the latter opens in a ratchet mechanism on each flap and holds it open. The catch is disengaged automatically by another slight lateral displacement of the wagon, a lever mechanism of any preferred construction being operated by an abutment on the edge of the wagon-truck in such a manner that the catch is disengaged from the ratchet mechanism, whereupon the flap can move back under the action of the spiral spring into the closed position. Of course the whole mechanism can be so arranged that the flaps are not closed by the action of a spring, but that after the unloading, on moving the wagon farther toward the side, the flaps can rest against sliding-surfaces and slide along them, and thus return to the closed position.

They are then kept closed by a catch mechanism, which is disengaged again on moving the wagon back into the loading position.

A constructional form of a wagon of this kind is illustrated, by way of example, in the accompanying drawings, in which—

Figure 1 illustrates the wagon, partly in elevation and partly in section, in the position for loading. Figs. 2 and 3 illustrate, on a reduced scale, the wagon shown in Fig. 1 in different positions for unloading. Fig. 4 is a modification of Fig. 1, partly in elevation and partly in section, in the loading position. Fig. 5 shows the same wagon shown in Fig. 4, on a reduced scale, in the discharging position. Fig. 6 shows a longitudinal section through Fig. 4. Fig. 7 shows, on an enlarged scale, a constructional modification of the catch mechanism for the flap.

Upon a wagon-frame *b* there is supported a box-shaped body *a*, which, provided with rollers *a'*, can be moved upon the frame *b* toward both sides by means of a crank mechanism. The crank mechanism comprises a handle *x*, Figs. 1, 4, and 6, by means of which a worm *y* can be rotated and which engages with a worm-wheel *z*. The worm-wheel *z* is secured upon the axle *A*, passing longitudinally through the wagon-frame and bearing the gear-wheels *B*. These wheels engage with a rack *D* attached to the body *a*, so that on revolving the crank-handle *x* the body *a* can be moved to and fro upon the frame *b*. The body *a* possesses the sectional form shown in the drawings. Consequently the longitudinal sides are normally oblique. Upon these longitudinal sides there are placed the flaps *cc'*, revoluble upon pivots *k k'*, which flaps in the loaded condition rest upon the bottom *d* of the wagon with their lower edge, as plainly shown in Figs. 1 and 4. The bottom *d* itself is fixed to the wagon-frame *b*.

If it be desired to effect the discharge to the right, Fig. 2, then the box *a* is displaced in this direction. As, however, the bottom *d* does not possess the same width as the box itself, the lower edges of the flaps *cc'* will lose their point of support in consequence of the displacement of the box and will open under the pressure of the material. The discharge—

planes *g* are attached sidewise to the bottom *d*, and the material will for the most part slide down over same as soon as the flaps *c* open, Fig. 2. The material which still remains in the wagon is then completely discharged by moving the wagon farther out of the position shown in Fig. 2 into that shown in Fig. 3. When all the material has been discharged, the flaps *c* will pass out of the position shown in Fig. 2 automatically back into that shown in Fig. 3 by means of the device hereinafter described. If then the box *a* be again moved out of position shown in Fig. 3 into that shown in Fig. 1, the wagon becomes immediately capable of being reloaded, because in this position the lower edges of the flaps *c* rest upon the horizontal bottom *d*, and thus are again able to support the pressure of the load. If it be desired to effect the complete discharge as soon as one side flap *c* opens, then the entire wagon may suitably have the shape shown in Figs. 4 to 7, in which the oblique side walls or their flaps *c c'* come in contact with the bottom of the wagon at an angle as shown. The wagon-box is here also displaceable sidewise, and if the same be brought out of the position shown in Fig. 4 into that shown in Fig. 5 then the flaps *c* will open under the pressure of the load and the discharge takes place completely, because the opposite flap *c'* rests upon the edge of the bottom *d* on the discharge side. After the complete discharge the flaps are required to be again closed, as already stated, and therefore to resume the position shown in Figs. 3 and 7. For this purpose there is arranged upon the bar *h*, revolvable around the point *f*, Fig. 7, a spiral spring *i*, the lower end of which is applied against the contact-piece *m* attached to the flap, whereas the bar *h* itself passes through the said part *m*. The opposite end of the spiral spring *i* rests against a nut *h'*, by the adjustment of which upon the bar *h* the tension of the spring *i* can always be regulated. If now the flap *c* opens under the pressure of the load—that is to say, if it moves from the position illustrated in Fig. 7 into that indicated in dotted lines—then the bar *h* will pass through the part *m*, because the distance of the said part *m* from its point of revolution *k* remains constant on the pinion of the flap, whereas the distance of the said piece *m* from the point of revolution *f* of the bar *h* is diminished. Consequently the spring *m* is compressed, and after all the material is discharged this spring will tend to push back the flap again into the closed position. In order, however, that this motion may not occur too soon, there is provided another piece, *n*, revolvable upon the pivot *o* and attached to the flap *c*, which piece engages itself in the open position with a catch upon the edge of a bar *p*, and thus holds the flap *c* in the position indicated in dotted lines in the drawings. A spiral spring *r* presses the catch *n* upon the edge

of the bar *p*. For the automatic release of the catch *n* there is provided the lever *t* and the lever *u* upon the axle *s*. The catch *w* engages with the lever. If the wagon-box be shifted out of the position shown in Fig. 7 a little farther to the right, then the lever *u* is revolved upon its axle *s* by means of a projection *v*, fixed upon the wagon-frame, and by means of the lever and the catch *w* the catch *n* is disengaged from the edge of the bar *p*, so that the flap returns to the closed position under the influence of the spring *i*.

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

1. In a dumping wagon or car, the combination with the bottom, of a body shiftable over the bottom, and an inclined side flap supported at its lower end on the bottom and moving to discharge the contents of the body, when the body is shifted to a position to free its lower end.

2. In a dumping wagon or car, the combination with the bottom, of a body shiftable on the bottom, and inclined side flaps carried by the body resting at their lower ends on the bottom in one position, and being mounted so that one of them slips off the bottom to discharge the contents of the body when the body is shifted in one direction and the other one slips off the bottom when the body is moved in the other direction.

3. In a dumping wagon or car, the combination with a bottom, of a body mounted to move to and fro on the bottom, inclined side flaps carried by the body, and adapted to rest at their ends on the bottom, and mechanism for moving the body and the side flaps to one side of the bottom to cause one of the side flaps to slide off the bottom and discharge the contents of the body or to move the body to the other side of the car to cause the other side flap to slide off the bottom.

4. In a dumping wagon or car, the combination with the bottom, of a body shiftable on the bottom, inclined side flaps carried by the body resting at their lower ends on the bottom in one position, and being mounted so that one of them slips off the bottom to discharge the contents of the body when the body is shifted in one direction and the other one slips off the bottom when the body is moved in the other direction, and mechanism for automatically moving the side flaps to their original position relative to the body.

5. In a dumping wagon or car, the combination with the bottom, of a body shiftable on the bottom, inclined side flaps carried by the body resting at their lower ends on the bottom in one position, and being mounted so that one of them slips off the bottom to discharge the contents of the body when the body is shifted in one direction and the other one slips off the bottom when the body is moved in the other direction, and springs acting on the side flaps.

6. In a dumping wagon or car, the combination with the bottom, of a body shiftable on the bottom, inclined side flaps carried by the body resting at their lower ends on the bottom in one position, and being mounted so that one of them slips off the bottom to discharge the contents of the body when the body is shifted in one direction and the other one slips off the bottom when the body is moved in the other direction, and catches for holding the flaps in their open positions.

7. In a dumping wagon or car, the combination with the bottom, of a body shiftable on the bottom, inclined side flaps carried by the body resting at their lower ends on the bottom in one position, and being mounted so that one of them slips off the bottom to discharge the contents of the body when the body is shifted in one direction and the other one slips off the bottom when the body is moved in the other direction, mechanism for automatically moving the side flaps to their original position relative to the body, and catches for holding the flaps in their open positions.

8. In a dumping wagon or car, the combination with the bottom, of a body shiftable on the bottom, inclined side flaps carried by the body resting at their lower ends on the bottom in one position, and being mounted so that one of them slips off the bottom to discharge the contents of the body when the body is shifted in one direction and the other one slips off the bottom when the body is moved in the other direction, springs acting on the side flaps, and catches for holding the flaps in their open positions.

9. In a dumping wagon or car, the combination with the bottom, of a body shiftable on the bottom, inclined side flaps carried by the body resting at their lower ends on the bottom in one position, and being mounted so that one of them slips off the bottom to discharge the contents of the body when the body is shifted in one direction and the other one slips off the bottom when the body is moved in the other direction, mechanism for automatically moving the side flaps to their original position relative to the body, catches for holding the flaps in their open positions, and mechanism for automatically releasing the catches when the body is moved.

10. In a dumping wagon or car, the combination with the bottom, a body, inclined pivoted side flaps on the body adapted to rest on the bottom, crank mechanism for moving the body and the inclined side flaps to release the flaps, springs for returning the side flaps to their original positions relative to the body, catches for holding the side flaps in their open positions, and mechanism for releasing the catches on a further movement of the body comprising projections on the bottom, levers on the body engaging the projections on the bottom on the said movement of the body, and connections between the levers and the catches to operate said catches.

The foregoing specification signed at Cologne, Germany, this 7th day of August, 1903.

BERNHARD LOENS.

In presence of—

CARL W. SCHMITT,
JOH. SCHOLZ.