

J. JONES.  
Dumping-Car.

No. 223,922.

Patented Jan. 27, 1880.

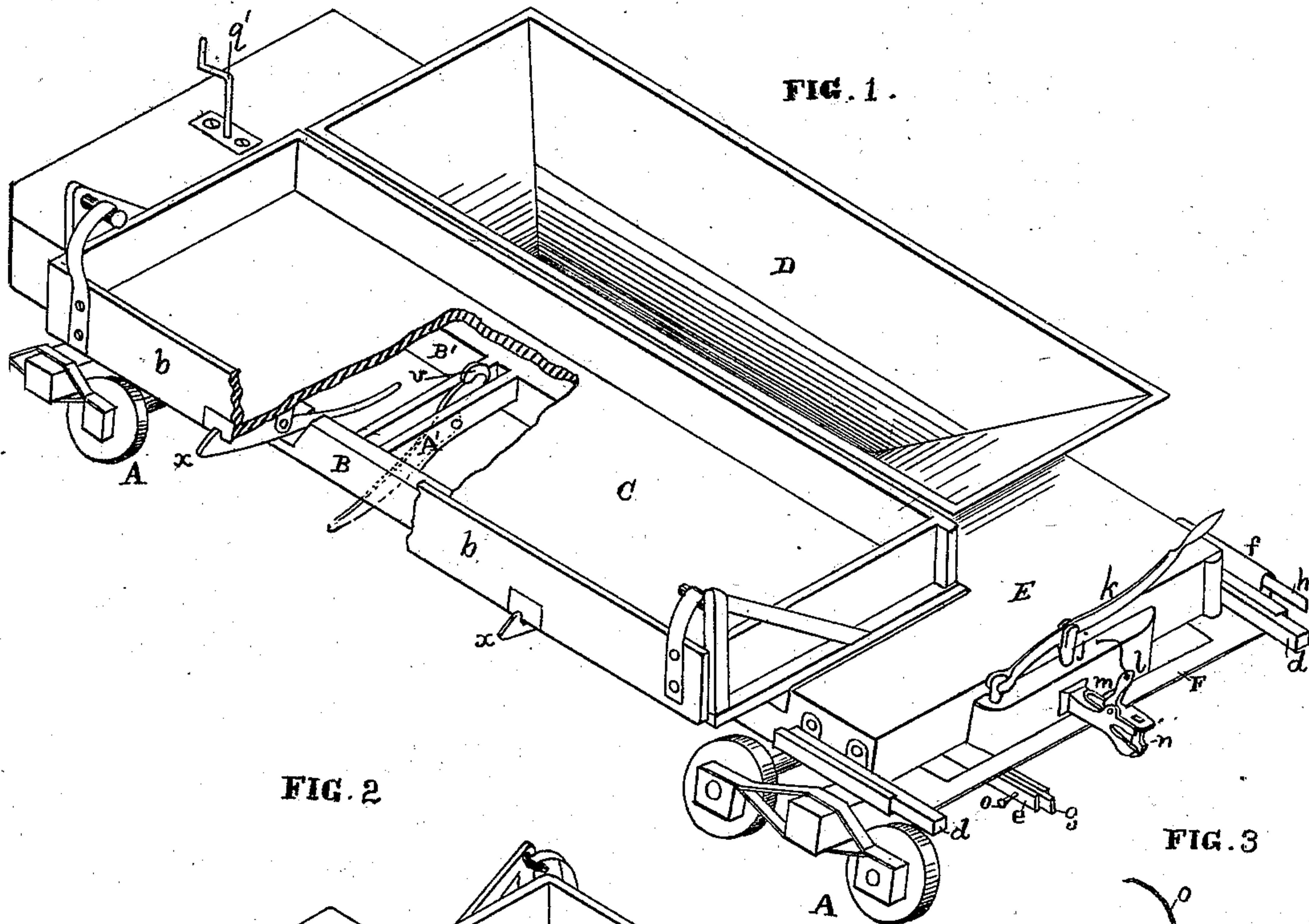


FIG. 2

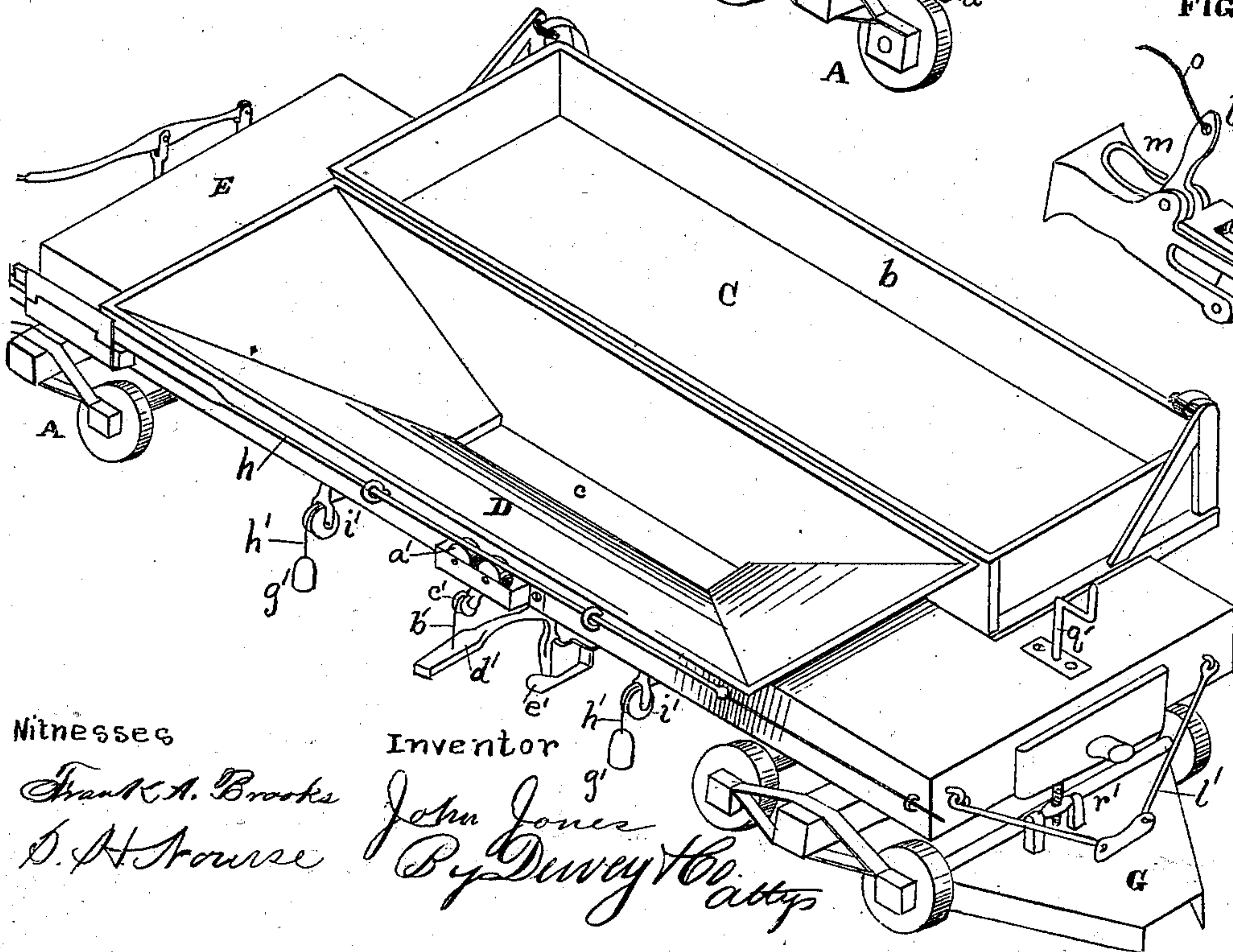
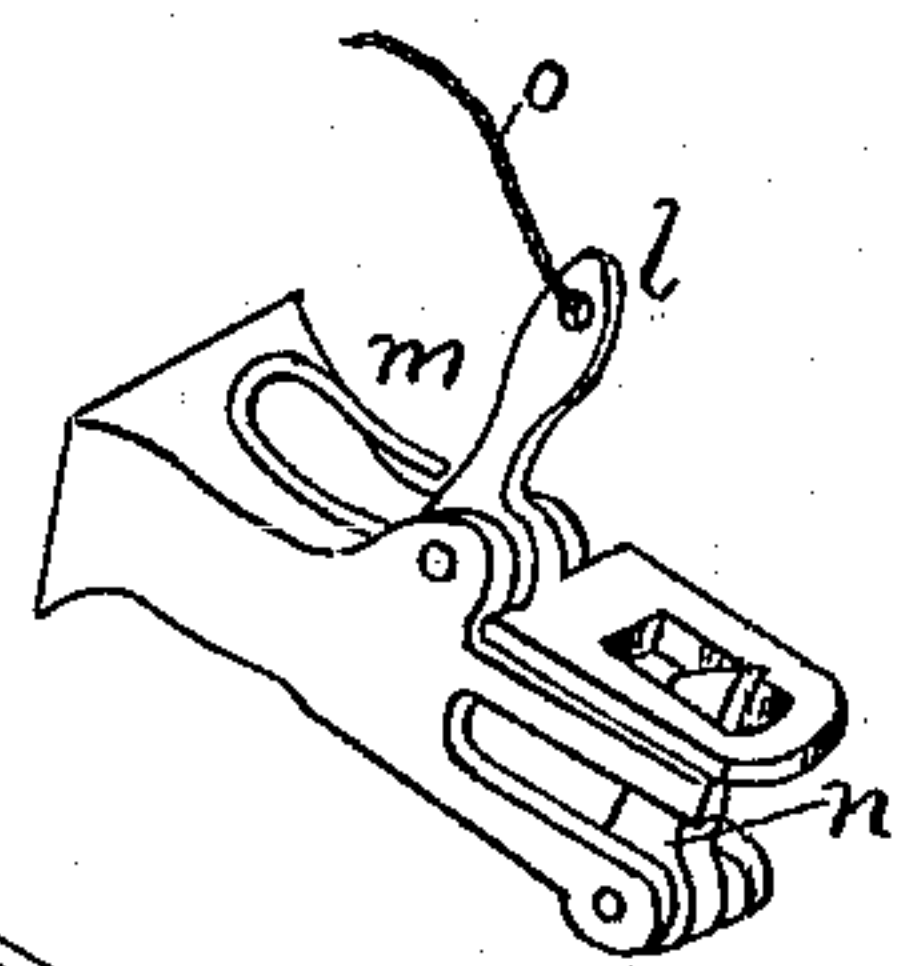


FIG. 3



Witnesses

Frank A. Brooks  
D. H. Hourse

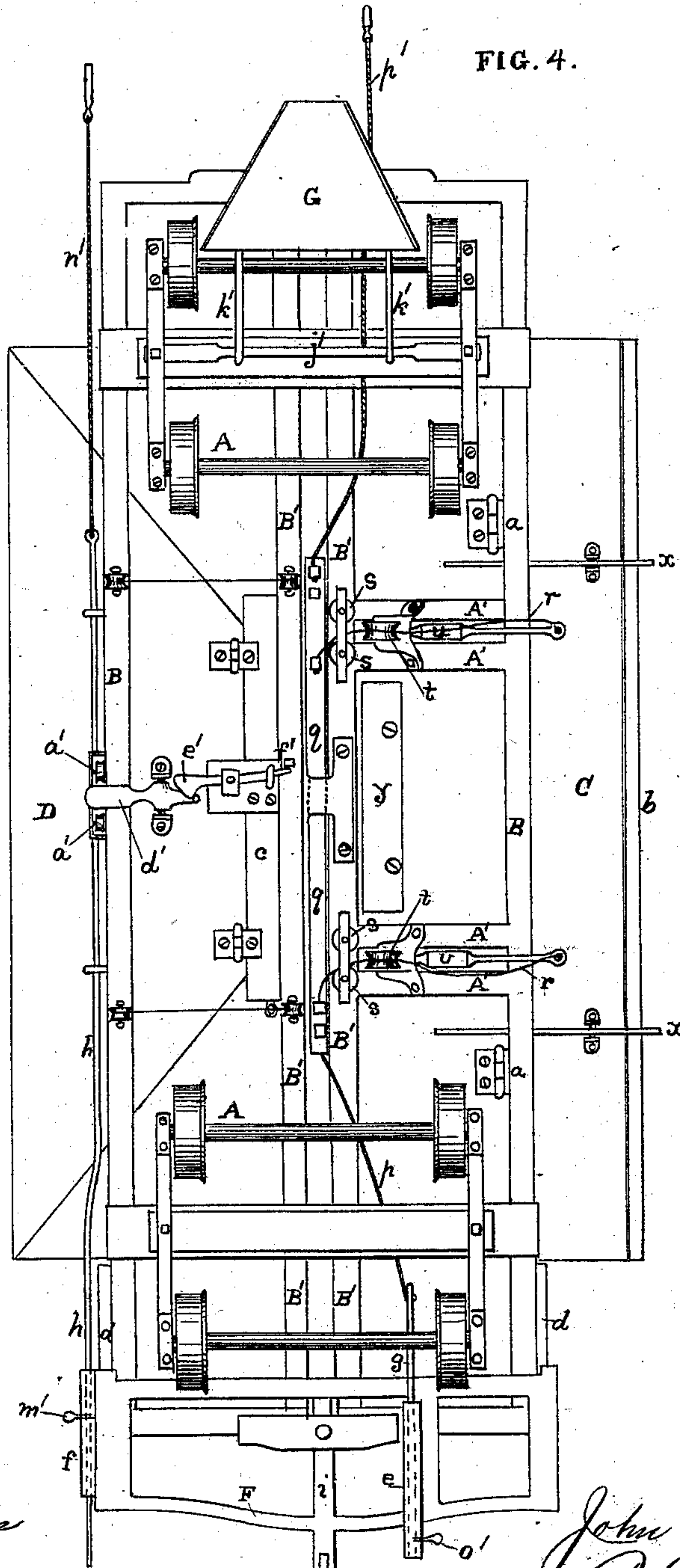
Inventor

John Jones  
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Witnesses

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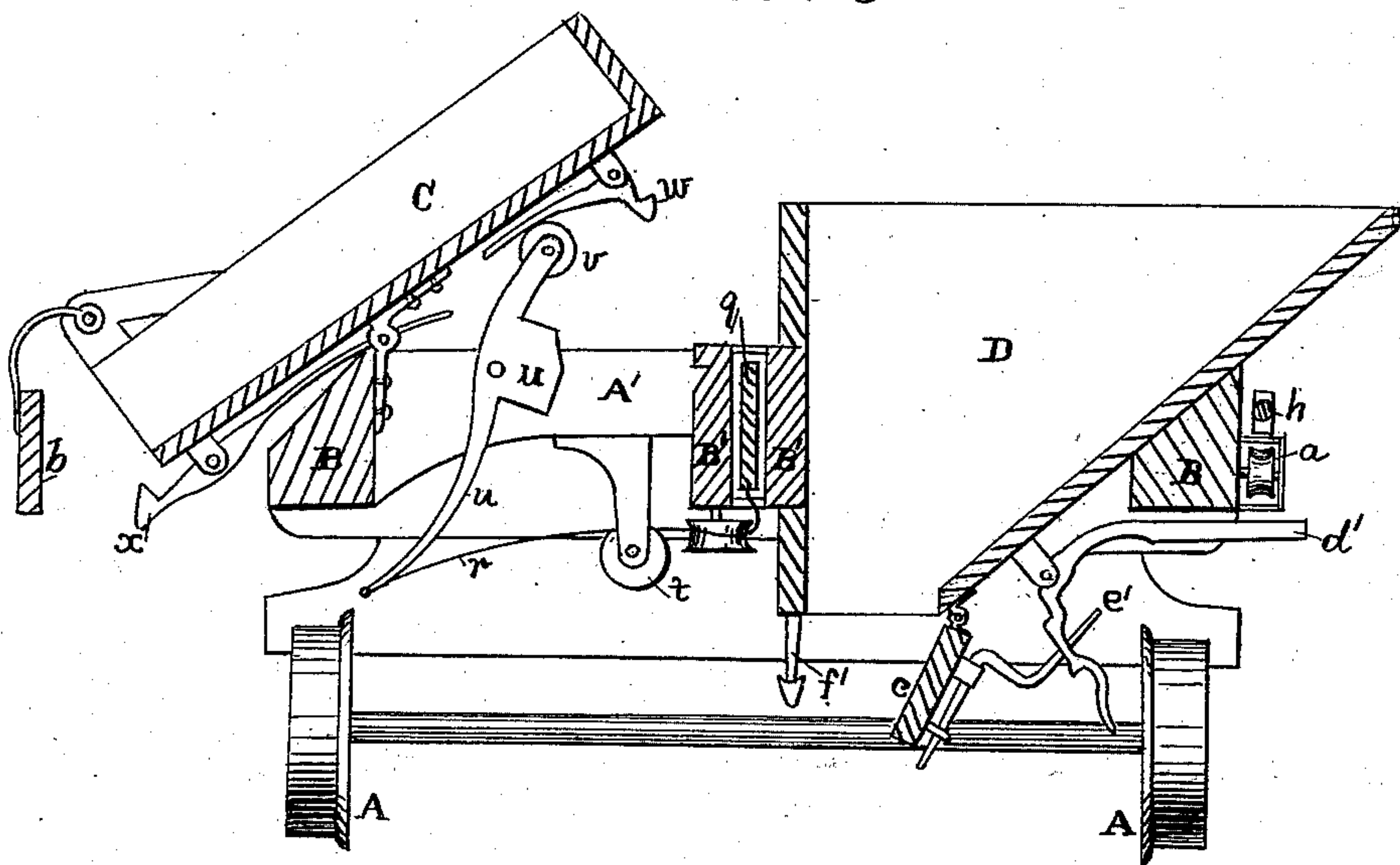


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FIG. 5



Witnesses

*Frank A. Brooks*  
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# UNITED STATES PATENT OFFICE.

JOHN JONES, OF LAKEVILLE, CALIFORNIA.

## DUMPING-CAR.

SPECIFICATION forming part of Letters Patent No. 223,922, dated January 27, 1880.

Application filed June 7, 1879.

*To all whom it may concern:*

Be it known that I, JOHN JONES, of Lakeville, county of Sonoma, and State of California, have invented an Improved Dumping-Car; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to an improved dumping-car; and my improvements consist in the construction of two separate boxes or receptacles, one of which discharges at the center and the other at the side, these boxes being so arranged as to be either dumped by hand or by the power of the locomotive, as desired, or both at the same time or separately.

It further consists in providing a centrally-placed scraper between the rear wheels, which will properly spread the ballast dumped from the centrally-discharging car, sloping it from the center outwardly, as required.

It also consists of certain details of construction in the parts for operating the dumping-boxes, as is more fully described in the accompanying drawings, in which—

Figures 1 and 2 are views of my dumping-car. Fig. 3 is a view of the bell-crank-lever coupling. Fig. 4 is a bottom view. Fig. 5 is a transverse section.

The trucks A are connected with the transverse timbers A' of the truck-frame in the usual manner, and the transverse timbers are connected by the longitudinal timbers B B'. There are three of these longitudinal timbers—one on each side—the central one, B', being slotted or made in two parts, with a space between, as shown, for the purpose hereinafter described.

Between the center and outer longitudinal timbers on one side is mounted the outwardly or side dumping box, C, which is hinged, as shown at *a*, to the timber B, and which has a hinged or swinging side, *b*, as shown. Between the center and outer longitudinal timbers on the opposite side is mounted the inclined centrally-discharging box D, provided with a swinging bottom, *c*, hinged to the box, as shown, and through which the contents may be dumped between the rails, as hereinafter described.

Under the front platform, E, of the car-frame is placed the sliding frame F. The side portions of this sliding frame slide in the guides *d*, and the central connecting-rod *i* passes

through the buffer-block and between the two parts of the central longitudinal timber, B', as shown. On this sliding frame are formed the guides *e f*, in which fit the rods *g h*, by which the cars may be dumped, as hereinafter described.

A pin, *j*, operated by the lever *k*, passes down through the buffer-block and through a slot or hole in the connecting-rod *i*, so as to hold the sliding frame in a fixed position. On the end of the connecting-rod is a slotted bell-crank lever, *l*, provided with a spring, *m*, for throwing the slotted arm down over so as to inclose the bevel-pointed hinged pin *n*, and hold said pin in an upright position, so as to connect the link of the preceding car. A chain or cord, *o*, is secured to the upper end of the bell-crank hinged lever *l*, the other end of which is fastened to the buffer-block, so that in case the sliding frame is drawn so far forward as to endanger breakage of the connecting parts of the frame, hereinafter described, this cord will operate the slotted bell-crank lever so as to release the beveled hinged pin, which will swing forward and downward, and free the link by which the preceding car is connected to it. When the pin *j* is in the slot in the central rod, *i*, of the sliding frame the said frame is fixed and cannot move forward, nor will the slotted bell-crank lever be operated to release the link from the pin. When, however, it is desired to allow the sliding frame to perform its office of dumping the boxes, as hereinafter described, then, by moving the lever *k* upward, the pin is lifted from the central rod, *i*, and the frame may be drawn forward faster than the car moves. In case the frame is drawn too far forward the cord will trip the bell-crank lever, and the preceding car be automatically released by its link sliding off the pin *n*.

Attached to the inner end of the rod *g*, which moves in the guide *e* on the sliding frame, is a chain or cord, *p*, said chain or cord being connected with the bar *q*, which is supported and moves on plates between the two parts of the double or slotted central longitudinal timber, B', this bar *q* having a longitudinal motion in the slotted timber. Attached to the lower edge of this sliding bar *q* are the cords or chains *r*, which lead through the oppositely-



placed double pulleys *s* and over the pulleys *t*, where the other ends are fastened to the ends of the long arms of the weighted levers *u*, said levers moving in the slotted timbers joining the central and side longitudinal timbers under the outwardly or side dumping box *C*, as shown.

On the ends of the short arms of the lever *u* are the anti-friction rollers *v*, which impinge on the under sides of the beveled hinged lever-catches *w*, which are hinged on the under inner side of the box, *C*. These catches *w* are hinged, like bell-crank levers, on the under side of the box, and their long arms or outer ends are weighted and beveled off, as shown. The hook or catch is formed on the downward-projecting end, said hook engaging with a lug or recess formed in the side of the central longitudinal timber, so as to prevent the box *C* from tipping down outwardly on its hinges unless said hooks are released. The inner or lower face of this hook is rounded or curved at the angle, so that the anti-friction rollers *v* on the levers *u* will fit into these curves as the box comes level, so as to force said hook to engage with the lugs or recesses with certainty. By these anti-friction rollers coming flush up against the downward-projecting part of the hook they come a little inside of the pin on which the hook swings, and, the angle being curved, the weight on the outer end of the hook draws that end down behind the rollers and throws the hooked end into the lug or recess.

As the levers *u* are operated by the cords *r*, as hereinafter described, the friction-rollers on the ends, impinging in the lever-catches, liberate the hooks from the lugs or recesses in the timbers, and, rolling back on the rear ends of said hooks, press upward on the under inner sides of the box and tip it over on its hinges.

The hinged side *b* of the box is held closed by self-adjusting catches *x*, which are hinged on the lower side of the box, like levers, the long arms extending back under the box and across over the longitudinal timber *B*, as shown. The weight of the longer arms of these catches is sufficient to throw the outer hooked end up into contact with the edge of the swinging side and hold it closed. When, however, the box is tipped these long arms come into contact with the edges of the longitudinal timber, their outer hooked ends are depressed, so as to release the side of the car, which swings open on its hinges, and the contents slide out beside the track. A weight, *y*, on the inner under side of the box brings it back to the level again after the load is dumped.

The box *D* is made with inclined sides, and the load is dumped through the hinged bottom *c*, so as to fall between the rails.

The rod *h* moves in eyes on the side of the longitudinal timber *B*, its front end moving in the guides *f* on the sliding frame. At the center of the timber are the pair of rollers *a'*, and

a cord, *b'*, attached to the rod *h*, passes between these rollers and under a roller, *c'*, where it is attached to the weighted bell-crank lever *d'*, which is pivoted on the outer sloping side of the box. The end of this lever *d'* engages with the beveled or sloping end of a laterally-moving spring-lever catch, *e'*, which is pivoted on the lower side of the hinged bottom *c*. The other end of this spring-lever catch engages with a notched lug, *f'*, so as to hold the bottom closed.

When the rod *h* is moved in either direction, the cord *b'*, moving over the rollers, operates the weighted lever *d'*, so that the other end of said lever will push on the beveled end of the spring-lever *e'*, moving it laterally, so as to release it from the lug *f'* on the edge of the box, and the bottom thus falls open.

As soon as the contents of the box are discharged, weights *g'*, which are hung on cords *h'*, passing over rollers *i'*, and attached to the corners of the movable bottom, draw the bottom up again to its seat, and the spring-lever catches on the lug and holds the bottom in position, the weighted lever dropping down, so as to again impinge on the said spring-lever, ready to operate it again.

On the timber or bolster of the rear axle is bolted a bar, *j'*, on which are two more rods, *k'*, carrying or holding the scraper *G*, the other end of which is supported on the rods or bars *l'*, which hang from the end of the car frame or platform. This scraper has downward-projecting flanges or sides, and is wider at the front than the rear end, as shown. It is placed between the last pair of wheels, and is designed to gather the gravel or ballast which is dumped from the centrally-discharging box, *D* and draw it toward the center of the track between the rails, so that there will be a slope from the center inwardly.

Passing down through the rear platform is a hand-rod, *q'*, which screws into a hanger, *r'*, on the upper front end of the scraper, by which the height of the front end of the scraper above the ground is regulated as desired. The scraper is thus rendered adjustable.

Each of the boxes on the car may be dumped automatically as the cars are moving, by means of the sliding frame *F*, at one and the same time, or separately, as desired, or they may be dumped by hand.

When it is desired to dump the centrally-discharging car *D* automatically a pin, *m'*, is pushed through the rod *h* and guide *f*, securing said rod to the guide. Then, when the pin *j* is withdrawn from the rod *i* of the sliding frame by means of the lever *k*, and the forward car draws the sliding frame forward, the rod *h* is also drawn forward. This action draws the cord *b'* over the rollers *a'* *c'*, and operates the bell-crank lever *d'*, moving the spring-lever catch *e'*, and allows the bottom to fall, so that the load will dump itself, sliding down the inclined sides of the box and falling between the rails.

If it is desired to dump the central car by



hand, the pin  $m'$  is removed from the rod  $h$  and guide  $f$ , and the rod  $h$  is drawn toward the rear of the car by means of a cord,  $n'$ , the rod  $h$  performing the same duty of operating the 5 levers and operating the bottom, whether drawn in one direction or the other, its cord  $b'$  leading over one of the rollers  $a'$  in either case.

To dump the side discharge car or box C automatically a pin,  $o'$ , is passed through the rod  $g$  and guide  $e$  on the sliding frame, so as to fasten said rod to the frame. Then when the pin  $j$  is withdrawn from the rod  $i$  of the sliding frame by means of the lever  $k$ , and the 15 forward car draws the sliding frame forward, the rod  $g$  is also drawn forward. This action draws the cord  $p$ , attached to the bar  $q$ , forward, moving said bar also forward. The cords or chains  $r$  on said bar  $q$ , leading over the pulleys  $s$  and  $t$ , operate the weighted levers  $u$ , which release the catches  $w$  and tilt the box C upon its hinges, and the self-operating catches  $x$ , when they strike on the longitudinal timbers, release the swinging side of the 25 box and allow the load to slide out.

If it is desired to dump this box by hand, the pin  $o'$  is withdrawn from the rod  $g$  and guide  $e$ , and a cord,  $p'$ , attached to the opposite end of the bar  $q$ , will move said bar in the 30 opposite direction, and the same dumping action is accomplished.

The cords or chains  $r$ , leading over the pulleys  $s$  and  $t$ , will operate the levers whether the bar is drawn in one direction or the other, and the same bar operates both sets of levers  $u$  and catches  $w$ , they being constructed exactly alike.

It will be evident that either centrally or outwardly discharging box may be dumped at 40 once, or either separately, as desired, and they can be dumped by hand or by power. The power of the locomotive in moving the car is partly expended in drawing the sliding frame forward when the pin is drawn out, as described, and all labor in dumping is obviated.

In case there is too much strain on the side rods and cords the cars are separated by the coupling-pin  $n$  being released, as herein described.

It will be seen that the position of the two boxes may be reversed on alternate cars by reversing the position of the scraper and sliding frame as to the end on which they are placed, and the ballast thus be evenly distributed. With the cars constructed in this 50 manner ballasting railroad-tracks may be done quickly and conveniently. The scraper draws the centrally-discharged load away from the rails, sloping it from the center outwardly, and very little hand labor will make an even 60 distribution.

The whole operation of dumping and scraping may be performed while the train is moving along, both the inside and the outside of the track being ballasted. When filling in 65 embankments, &c., where the track is on tres-

ties, the scraper may be dispensed with, but the loads will be dumped within close proximity to the line of the track.

In some cases it may be preferable to have 70 the central and side dumping boxes mounted on separate cars, where all the dumping is needed either in the center or on the side of the tracks. The levers and operating-rods may then be applied to the cars separately, 75 but in the same general manner as herein described.

Ordinarily it will only be necessary to have one of the sliding frames on the first car of a train, and the cords  $n' p'$  can then connect from 80 the rear end of one set of the operating-rods to the front of the rods on the next following car. Then, when the sliding frame is drawn forward, as herein described, all the operating-rods on the succeeding cars will be moved forward and the levers will dump the cars. The 85 hand-cords  $n' p'$  then form connecting-links between the sets of rods on the separate cars, so as to make the operating-rods act in unison and dump the boxes. These rods will operate 90 when the train is at a standstill, provided the pin is lifted and the sliding frame drawn ahead by the engine. Where only one or two cars are to be dumped it is sometimes preferable to dump by hand; but in a long train I will 95 connect the cords  $n' p'$  with the rods  $g h$  of the following car, and the sliding frame will dump the boxes in the whole train.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is— 100

1. The dump-car consisting of the centrally-discharging box D and outwardly or side discharging box C, arranged parallel with each other and mounted together on the trucks A, 105 and arranged to be dumped separately or simultaneously either by hand or by power, whereby the load may be deposited partly inside and partly outside the tracks, substantially as herein described. 110

2. The outwardly-dumping hinged box C, with its swinging side  $b$ , provided with the self-adjusting catches  $x$  and the weight  $y$  and hinged lever-catches  $w$ , in combination with the weighted bell-crank levers  $u$ , with their 115 anti-friction rollers  $v$ , and operating-cords  $r$ , leading over the rollers  $s t$  to the sliding bar  $q$ , provided with chains or cords  $p p'$ , whereby said box may be dumped by power applied at either end of the car, and returned and held in 120 its upright position without hand-adjustment, substantially as herein described.

3. The side-dumping car C, provided with the weighted bell-crank lever-catches  $w$ , arranged to hook into the lugs or recesses in the 125 timbers of the frame, and having a curved and beveled inner face, in combination with the weighted operating-levers  $u$ , having friction-rollers  $v$ , by which said operating-levers both engage and release said catches at the proper 130 times, substantially as herein described.

4. The combination, with the frame B, of



the side-dumping box C, hinged thereto, and provided with the hinged side *b*, and the self-adjusting catches *x*, hinged to the under side of the box C, with their long arms extending

back under the box and over the timber B, whereby said swinging side is released by the catches coming in contact with said timber, substantially in the manner herein shown and described.

5. The sliding frame F, moving in the guides *d*, and having a central rod or draw-bar, *i*, passing through the buffer-block, and provided with a coupling-pin, *n*, and a holding-pin, *j*, made movable by the lever *k*, said frame being provided with the guides *e f* for the rods *g h*, and the pins *m' o'*, for joining said rods and guides, whereby the power of the locomotive may be employed in moving the rods *g h*, with their attendant mechanism, and utilized in dumping or discharging the boxes C D, substantially as herein described.

6. The sliding frame F, moving in the guides *d*, with its central rod or draw-bar *i*, having a movable holding-pin, *j*, and lever *k*, and provided with the slotted bell crank lever *l*, with its spring *m* fitted to drop over the hinged beveled coupling-pin *n*, said bell-crank lever having an operating-cord, *o*, whereby, in case the sliding frame is drawn too far forward, the cord will operate the lever so as to allow the coupling-pin to release the link of the preceding car and prevent breakage, substantially as herein described.

7. The dumping-box C, with its swinging side *b* and self-adjusting catches *x w*, arranged to be dumped by the weighted bell-crank levers *u*, with their operating-cords leading over the rollers *s t* to the centrally-sliding bar *q*, said bar *q* being connected by the cord *p* with the rod *g*, in combination with the sliding frame F, with its guide *e* and movable pin *o'*, draw-bar *i*, and coupling-pin *n*, whereby the power of the engine may be employed in dumping the car, substantially as herein described.

8. The inclined-sided centrally-dumping box D, provided with the self-adjusting laterally-moving spring-catch *e'*, for engaging with the lug *f'*, and having the closing weights and cords *g' h'*, said box being provided with the weighted lever *d'*, operated by the cord *b'*, leading over the rollers *a' c'* to the rod *h*, having the cord *n'* at one end, and its other end fitting in the guide *f* with its pin *m'*, whereby said box may be dumped by power applied at either end of the car, and the bottom returned to its closed position without hand-adjustment, substantially as herein described.

9. The inclined-sided fixed box D, with its swinging hinged bottom *e*, provided with the laterally-moving spring-catch *e'* and weights and cords *g' h'*, said catch being released by the weighted lever *d'*, with its cord *b'*, leading over the rollers *a' c'*, operating in combination with the rod *h*, having the cord *n'*, and fitted to be fixed in the guide *f* in the sliding frame by means of the pin *m'*, whereby the box or

car may be dumped by the power of the engine, substantially as herein described.

10. The weighted bell-crank lever *d'*, fitted to engage with the laterally-moving spring-catch for holding the swinging bottom, and having the cord *b'*, in combination with the longitudinally-moving rod *h*, provided at one end with the cord *n'*, its other end fitted to the guide *f* on the sliding frame F, so as to be secured to or released from said frame by the pin *m'*, whereby the car may be dumped by hand or engine power, substantially as herein described.

11. The frame B B', mounted on the trucks A, and carrying the hinged side-dumping car C, with its swinging side *b* and self-adjusting catches *x*, weight *y*, and hinged lever-catches *w*, and arranged to be tilted by means of the weighted levers *u*, with their anti-friction rollers *v*, operating cords *r*, rollers *s t*, sliding bar *q*, chains or cords *p p'*, and rod *g*, and also carrying the centrally-discharging box D, with its swinging hinged bottom *e*, laterally-moving spring-catch *e'*, and weights and cords *g' h'*, operated by the weighted lever *d'* and cord *b'*, leading over the rollers *a' c'* to the rod *h*, provided with the cord *n'*, in combination with the sliding frame F, with its guides *e f* and movable pins *m' o'*, for securing the rods *g h* to said guides, and provided with the draw-bar *i*, with its coupling-pin *n*, and movable pin *j*, with its hand-lever *k*, whereby the two central and side discharge boxes on the same truck may be dumped separately or simultaneously, or by hand, or by the power of the engine, and part of the load left inside and part outside of the tracks, substantially as herein described.

12. The adjustable scraper G, with its downward-extending flanges and rods *k' l'*, and bar *j'*, with its rod *q'* and hanger *r'*, in combination with the rear truck, A, of the car, substantially as and for the purpose herein described.

13. In combination with the trucks A, carrying the frame B B' and centrally-discharging box D, the adjustable scraper G, with its contracting-flanges, secured to the rear truck, whereby the ballast dumped from the car between the tracks is spread so as to incline from the center outwardly, substantially as herein described.

14. The rods *g h*, the latter connecting with the operating-bar *q*, and both connecting with levers for dumping the boxes C D, in combination with the cords *n' p'*, whereby said rods may be operated by hand, or connected by said cords with corresponding rods in the following cars, in order that all the boxes in the train may be dumped, substantially as herein described.

In witness whereof I have hereunto set my hand.

Witnesses:

E. J. HOLLY,  
C. A. BODWELL.

JOHN JONES.