Oct. 21, 1941. W. H. CORNELIUS 2,259,798

DUMPING APPARATUS

Filed April 11, 1940 4 Sheets-Sheet 1

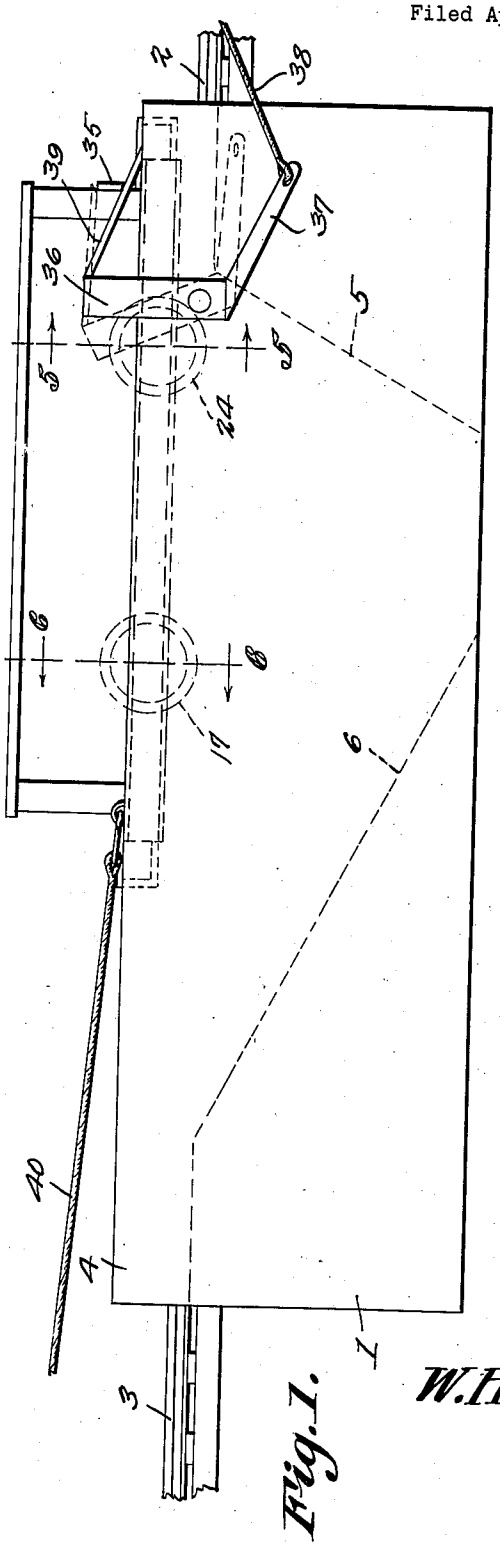


Fig. 1.

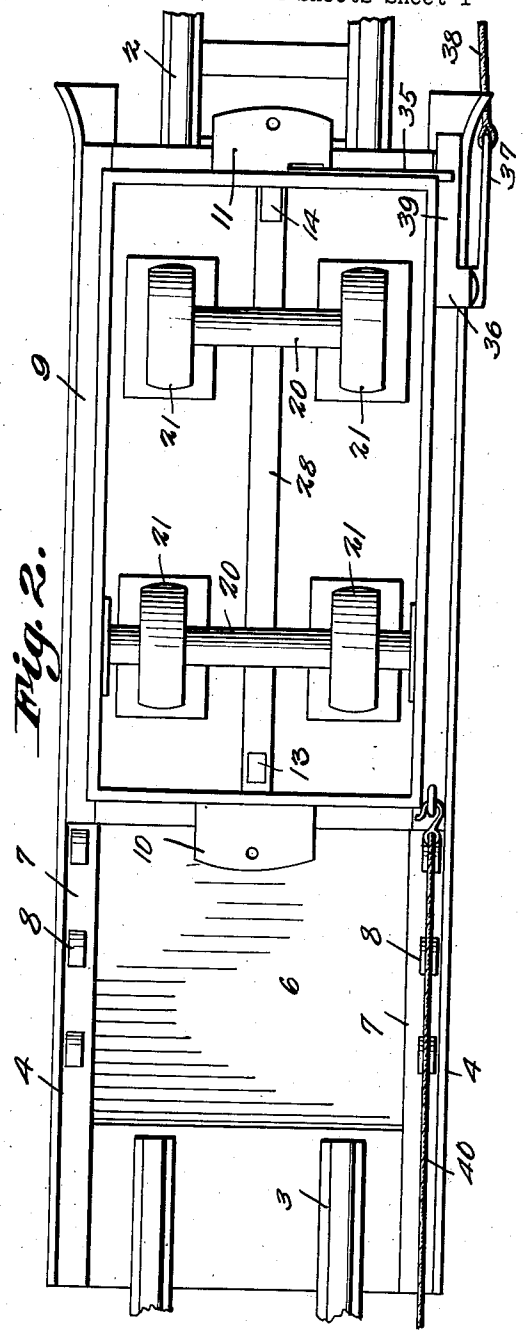


Fig. 2.

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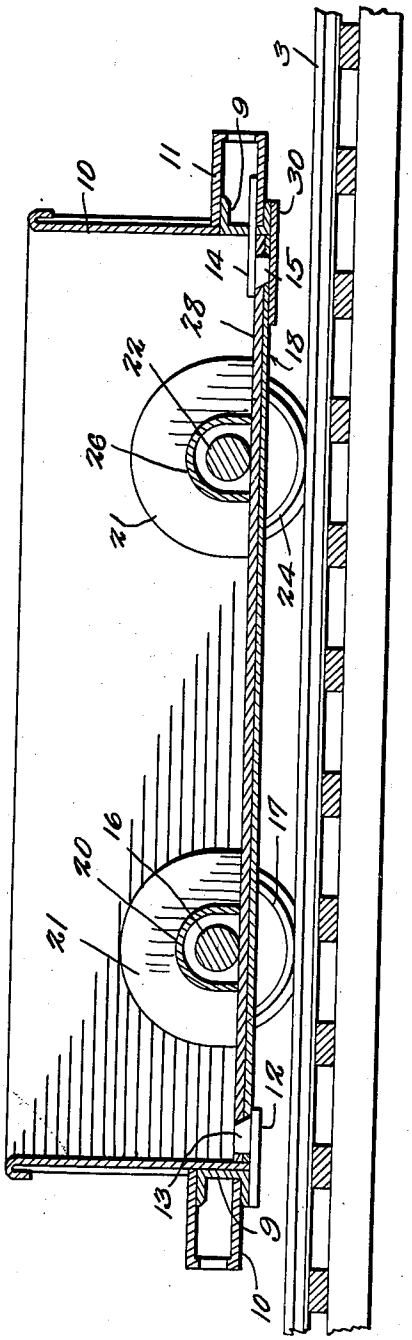


Fig. 3.

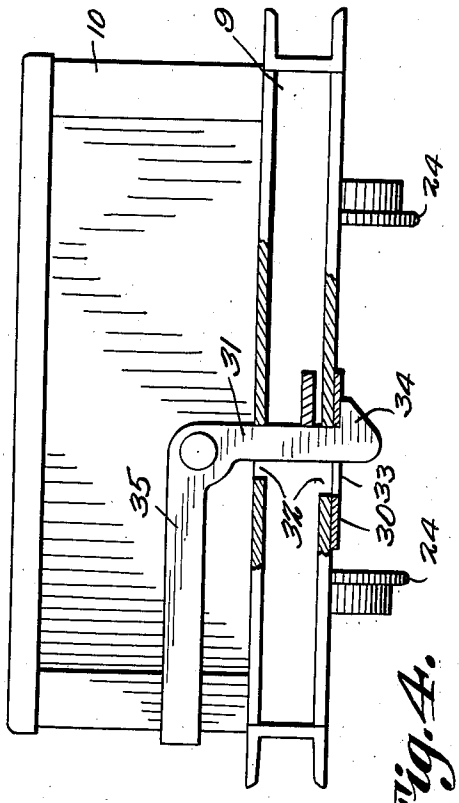


Fig. 4.

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Fig. 5.

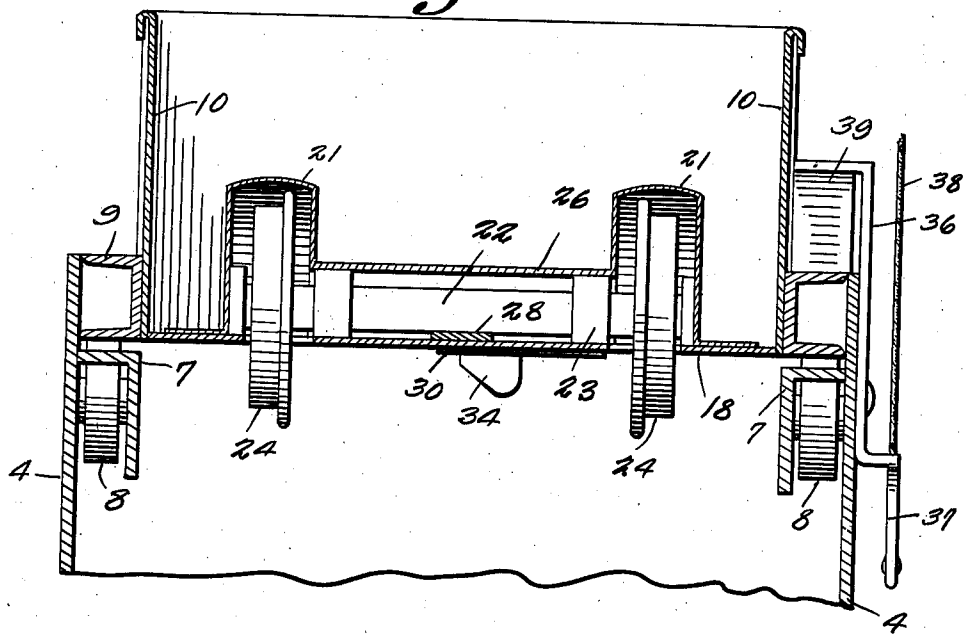
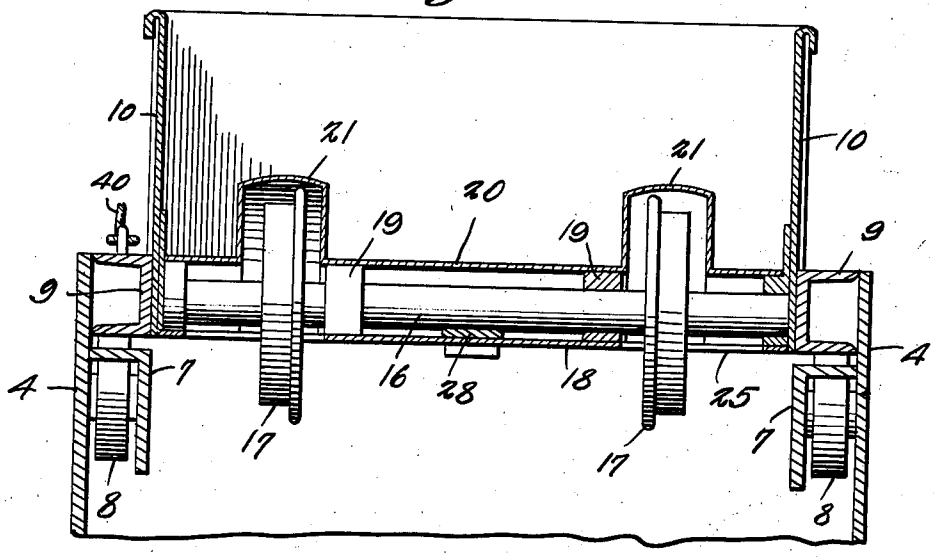


Fig. 6.



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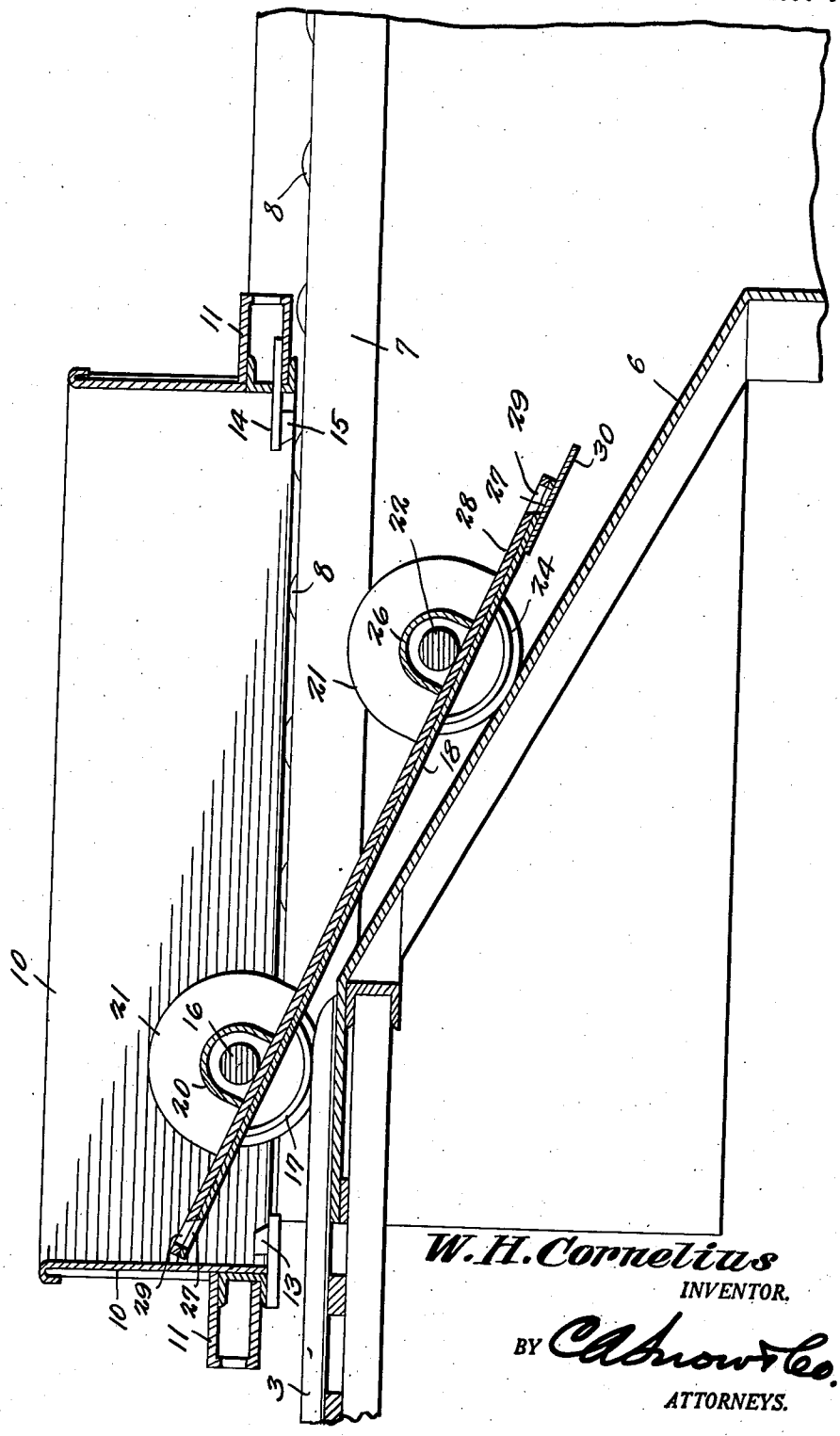
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Fig. 7.



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UNITED STATES PATENT OFFICE

2,259,798

DUMPING APPARATUS

Willie H. Cornelius, Packard, Ky.

Application April 11, 1940, Serial No. 329,181

1 Claim. (Cl. 214—58)

This invention relates to dumping apparatus designed primarily for use in mining operations, one of the objects being to provide a novel form of car of maximum capacity adapted to dump automatically while in transit.

A further object is to provide a car built very low but which maintains a maximum load so as thus to be particularly advantageous for use in connection with low vein coal.

Another object is to provide a car the bottom of which is adapted to swing downwardly relative to the body of the car, the wheels being movable with the bottom during the dumping operation.

Another object is to provide a structure for cooperation with the car adapted to receive the discharged material and to support the body of the car while the bottom is in unloading position.

A still further object is to provide a car which cooperates with the dump pit to insure automatic closing of the bottom of the car after the load has been delivered.

A further object is to equip the dumping pit with means whereby the car can be passed over the pit without releasing the bottom of the car.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claim, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings

Figure 1 is a side elevation of a portion of a dump pit and showing a car passing thereover with the bottom held in load retaining position.

Figure 2 is a top plan view of the structure shown in Figure 1.

Figure 3 is a central vertical longitudinal section through the car and the track on which it is mounted while approaching the dump pit.

Figure 4 is an end elevation of the car, a portion being broken away.

Figure 5 is an enlarged section on line 5—5, Figure 1.

Figure 6 is an enlarged section on line 6—6, Figure 1.

Figure 7 is an enlarged central vertical longitudinal section through the car and a portion of the pit and showing the bottom of the car being lifted to closed position following the dumping of a load.

Referring to the figures by characters of reference, 1 designates a dumping pit in the form of a hopper which is located in a gap formed between spaced track sections 2 and 3. The cars to be unloaded are adapted to approach the pit along the section 2 and, after being unloaded, move onto the section 3. The sides of the dump pit extend above the level of the track sections to form guides as shown at 4 spaced apart a distance slightly greater than the width of the car frame hereinafter described and while the bottom of the dump pit is formed of downwardly converging portions 5 and 6, the portion 6 is inclined upwardly toward the end of the track section 5 so as to form a wheel guide as hereinafter explained.

Secured to the inner surfaces of the side portions 4 are body supporting rails 7 and in each of these rails is journalled a longitudinally extending series of spaced rollers 8. These rollers are so located as to engage and support the bottom surface of the side portions of a car frame while a car is passing over the dump pit as hereinafter explained.

The car to be used with the dump pit thus far described is of special construction so as to permit use in handling a maximum load of coal taken from a low vein. The car comprises a body frame 9 the width of which is slightly less than the distance between the sides 4 of the dump pit and upstanding from the inner sides of this frame are the side and end walls 10' of the car body, these walls, in the structure shown, being fixedly joined to the frame 9. Secured to and extending outwardly from the central part of each end of the frame is a coupling head 10 and 11 respectively and connected to and extending backwardly from the front coupling head 10 is a tongue 12 having an upwardly extended angular lug 13. Extending forwardly from the rear coupling head 11 is another tongue 14 having a downwardly extended angular lug 15.

A transverse axle 16 is mounted in the sides of frame 9 adjacent to the forward ends thereof and is supported by wheels 17. A bottom for the car body has been indicated at 18 and is extended under the axle 16 by means of blocks 19 through which the axle extends. A shield 20 is arched over the axle and is joined to the bottom 18, this shield being extended from one side to the other of the car body and formed with enlargements or guards 21 which house the upper portions of the wheels 17 so

that rotation of the wheels will not be interfered with by bulk material contained within the car.

Another axle 22 is mounted in bearing blocks 23 on the bottom 18 near the other end thereof and this axle is supported by wheels 24. It will be noted that this axle 22 is not connected to the frame 9 but is joined solely to the bottom 18. It will also be noted that the bottom 18 is cut-away to permit the wheels 17 and 24 to extend therethrough, the openings provided for these wheels being indicated at 25 and being completely covered by the shield 20 and by another shield 26 which is mounted on the bottom and bridges axle 22 and the wheels 24.

As axle 16 is spaced inwardly from the ends of the bottom 18 but is nearer the front head 10 than the rear head 11, it constitutes a pivotal support for the bottom which obviously is overbalanced and tends to swing downwardly at its rear end. Both ends of the bottom have apertures 27 and when the bottom 18 is in closed position, the forward end thereof overlies the tongue 12 while the rear end of the bottom extends under and bears upwardly against the other or rear tongue 14. When the bottom is in closed position the lug 13 projects into the forward opening 27 while the lug 15 extends into the rear opening 27. Thus when a pull is transmitted to the forward coupling head 10 the bottom will serve to transmit the power from the lug 13 to the lug 15 and thence through tongue 14 to the rear coupling head 11. For the purpose of reenforcing the bottom it is preferred to extend a bar 28 along bottom 18 to which it is secured, this bar having openings 29 which register with the openings 27 so as to receive the lugs 13 and 15.

The rear portion of the bottom 18 has an extension 30 adapted to extend under the rear portion of frame 9 so that when the wheels 17 and 24 are mounted on the rails of a track, the axle 16 and the extension 30 will cooperate to support frame 9 and the upstanding end and side walls 10' as shown for example in Figure 3.

Pivotally mounted on the rear end of the car is a latch 31 which extends downwardly through openings 32 in the head 11 and also through a slot 33 in the extension 30 whereby the head 34 of the latch will engage under the extension 30 and hold it in raised position against the bottom of frame 9. This lever has a laterally extending arm 35 which projects slightly beyond one side of the car.

Mounted on the dump pit at one side thereof and adjacent to the track section 2 is a lever 36 having an actuating arm 37 which can be operated by means of a rope 38 extending to any point most convenient to the operator. One end of lever 36 projects above the side of the dump pit and carries a cam plate 39 which, as shown by full lines in Figure 1, is normally positioned in the path of the end of the tripping lever or arm 35. Lever 36 is so proportioned, however, that when it is shifted in one direction out of normal position, as shown by broken lines in Figure 1, the cam plate 39 will be raised above the path of the tripping arm or lever 35 so that the same can pass thereunder without releasing the extension 30 from engagement with the head 34 of latch 31.

Normally the cam plate 39 is positioned as shown in Figure 1 and the loaded car is propelled along the track sections 2 in any suitable manner, as by means of a cable 40. As the body of the car is very low, the bottom being below the axles, said car is especially adapted for handling low vein coal. As the car travels along track section 2 with the wheels 17 and 24 travelling along the rails, the body of the car will be supported as shown in Figure 3 by axle 16 and extension 30.

As the car enters the dump pit, the sides of the frame 9 will be brought to position over the series of rollers 8 and after all parts of the car are located between the track sections and above the pit, the tripping arm 35 will come against and ride upwardly along the cam plate 39 so as to disengage the latch from the extension 30. As the bottom is thus relieved of its rear support, it will swing downwardly, as shown for example, in Figure 7, thereby dumping the contents of the car into the pit. As the car continues to advance, its body being supported by the series of rollers 8, the wheels connected to the bottom 18 will ultimately come against the guide or bottom portion 6 and will ride upwardly therealong, as shown in Figure 7, until the wheels are finally restored to the tracks forming section 3 and when this position is assumed, the extension 30 automatically engages the latch 31 so that the parts are all restored to their initial positions.

Obviously several cars could be coupled together by means of links or the like in engagement with the coupling heads and as the train of cars passes over the dump pit the said cars will be successively dumped and reset. Should it be desired to move a car across the pit without causing the bottom to swing downwardly, it would merely be necessary to elevate the cam plate as shown by broken lines in Figure 1 so that the tripping arm 35 will pass under the said plate without being actuated thereby.

In addition to extension 30 the tongues 12 and 14 also serve to limit the swinging movement of the bottom relative to the body.

What is claimed is:

The combination with spaced alined track sections providing a gap therebetween, of a car bottom movable along the sections and across the gap, spaced pairs of track wheels connected to the bottom, a car frame supported by the bottom, said bottom being movable relative to the frame about the axial center of the wheels of one pair, laterally spaced means bridging the gap and positioned for supporting the respective sides of the frame and guiding the wheels against lateral displacement relative to the track sections while the bottom is above the gap, the wheels of the other pair constituting means for releasing the bottom for abrupt downward swinging away from the frame when said wheels leave one track section, thereby to be suspended by the bottom in the gap, and a guide below the gap and inclined upwardly to one of the sections for engagement by and elevation of the suspended wheels.

WILLIE H. CORNELIUS.