Jan. 17, 1928. 1,656,743

F. E. LITTELL

ELEVATED RUNWAY FOR VEHICLES

Filed May 8, 1926 2 Sheets-Sheet 1

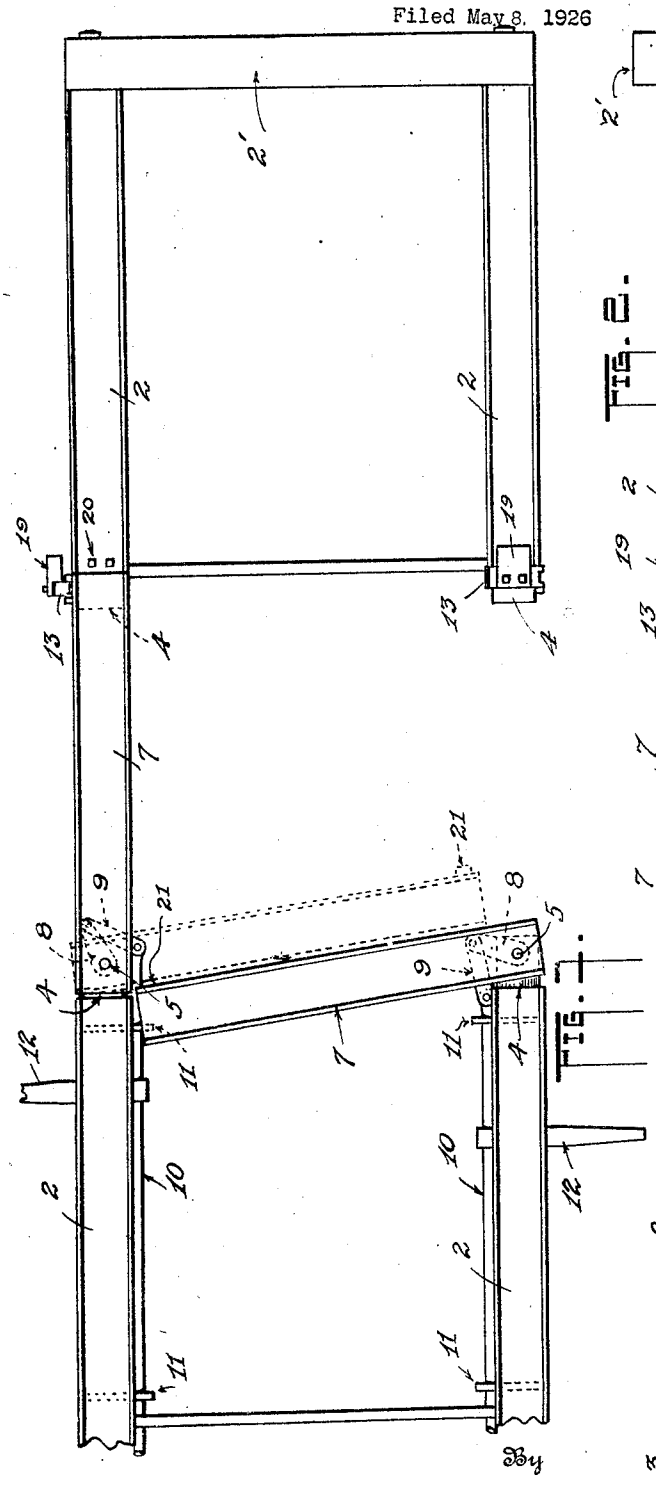

FIG. 1.

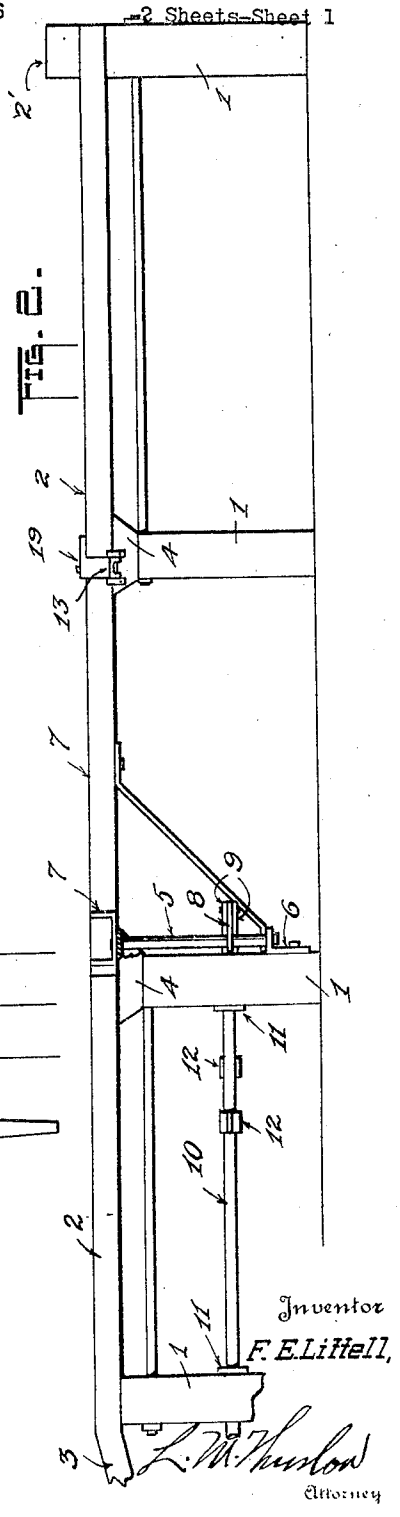

FIG. 2.

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ELEVATED RUNWAY FOR VEHICLES

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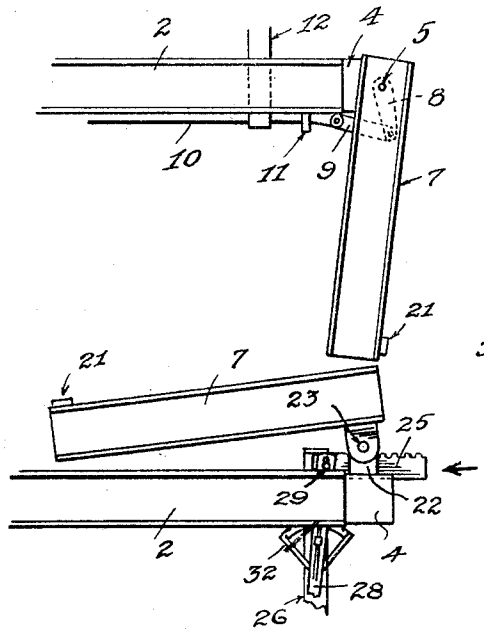

FIG. 3.

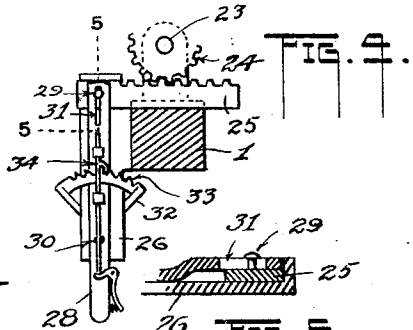

FIG. 4.

FIG. 5.

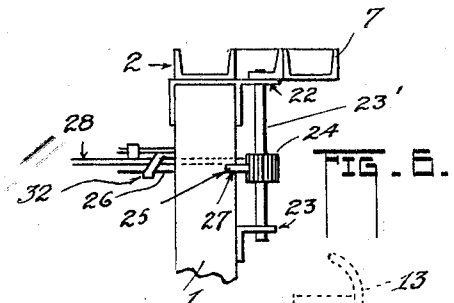

FIG. 6.

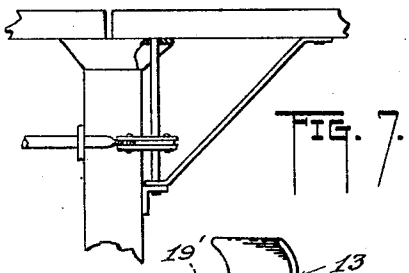

FIG. 7.

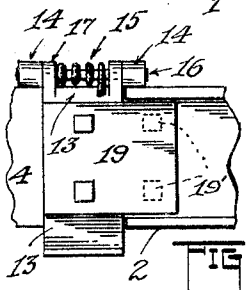

FIG. 8.

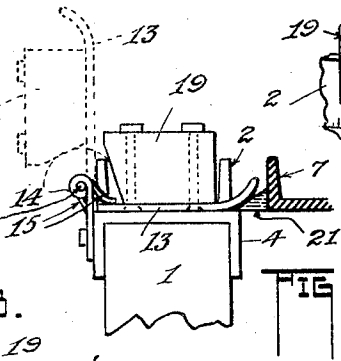

FIG. 9.

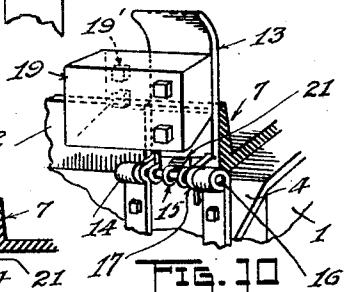

FIG. 10.

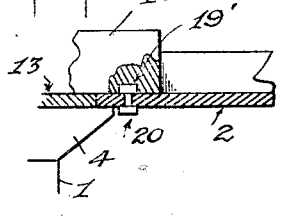

FIG. 11.

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Patented Jan. 17, 1928. 1,656,743

UNITED STATES PATENT OFFICE.

FRANK E. LITTELL, OF PEORIA, ILLINOIS.

ELEVATED RUNWAY FOR VEHICLES.

Application filed May 8, 1926. Serial No. 107,553.

This invention relates to runways for elevating automobiles and pertains particularly to an elevated runway up which automobiles may be driven by which to more readily work beneath them, and such as are used at oil stations and garages.

The object of the invention is to improve upon an elevated runway having an inclined approach as customary, by providing a swinging gate portion in that portion of the runway that lies between the front and rear wheels of the vehicle when mounted whereby the person working about the vehicle may readily get beneath such vehicle without being required to climb over or beneath such portion.

Another object is that of providing a part for blocking one or more of the wheels of the vehicle while standing on the runway and during the time the said gate portion is standing open, such blocking part being automatically operated to be placed behind the wheel or removed therefrom when and as the gate portion is opened or closed.

In the appended drawing which shows a preferred form of the apparatus,

Figure 1 is a plan of a device including a runway and showing my invention in one of its forms applied thereto.

Figure 2 is a side elevation of the same.

Figure 3 is a plan of a portion of the runway showing two different forms of operating mechanism for a gate portion.

Figure 4 is a plan in detail of parts shown in Figure 3.

Figure 5 is a longitudinal sectional elevation of parts shown in Figure 4 on line 5—5 of that figure.

Figure 6 is an end elevation of parts shown in Figure 3 as viewed in the direction indicated by the arrow in that figure.

Figure 7 is a side elevation of parts shown in Figures 1 and 3.

Figure 8 is a plan of a device for blocking the wheel of a vehicle when standing on the runway.

Figure 9 is an end elevation of the same.

Figure 10 shows the blocking device of Figures 8 and 9 in perspective, and

Figure 11 is a longitudinal section of portions shown in said Figures 8 and 9.

The runway comprises the usual standards 1 suitably braced and having mounted thereon opposite flanged members 2 lying parallel to one another and provided with the usual inclined approach, one of which is indicated partially at 3, while a stop member 2′ is positioned across the runways for preventing the vehicle passing off the forward ends.

A cap-member such as is indicated at 4 is mounted on two of the posts or standards 1 between which a passage-way, to be provided by invention, lies. This passageway is formed by terminating the runways 2 at said cap-members leaving a gap adapted to be closed by gate portions 7. As in Figures 1 and 2, a shaft 5 extends vertically through an extended portion of the cap-member 4 at said passage-way, its lower end being pivoted or journaled in a bracket 6 secured upon the post. Said shaft at its upper end is affixed to the said gate portion 7, the latter adapted to swing inwardly across the space between the two runways as shown in Figure 1, it being observed that when the gate is closed its free end rests upon the opposite cap-member.

Secured to the shaft is one end of an arm 8 and pivoted to the free extremity of said arm is a pair of links 9, one of the ends of which are in turn pivoted to one end of a rod 10 slidable in guide members 11 affixed to the posts 1, an arm 12 being secured to said rod for operating the same.

The relation of the several parts described is such that by shifting the rod 10 in one direction or the other the gate will be swung to either its closed position forming a continuous runway or to its open position whereby a person working about the vehicle mounted on the runway may have ready passage beneath, and both gates may be used for the purpose.

It is observed that when the gate is in its closed position it is automatically locked in place in that the links 9 lie so nearly at right angles to the bar 10 as to have no effect in moving the latter in the direction of its length.

Upon placing the vehicle in position on the runway one of the gates, or both of them, may be opened. Now, in order to prevent movement of the vehicle backward after being positioned I provide an automatically operated stop adapted to drop in behind one or both front wheels. This comprises a plate 13, Figure 1, and also shown in the last four figures of the drawing, which plate is hingedly mounted on members 14 secured on the outer side of the cap-member 4 and ex-

tending somewhat above the same forming a stop for the gate 7 when closed in line with the runway portions 2. The plate is of such length as to lie across the cap-member when the gate is open. This position is shown in Figures 8 and 9 and is maintained thus by means of a spring 15 which encircles a pivot-bolt 16 extending through eyes 17 in the said plate 13 and through said members 14, one end of the spring resting on the plate and the other bearing against the cap-member for example.

A block 19 is bolted to the plate and is adapted to lie within the runway 2 in the position described and shown in the figures named. Preferably, the bottom of the block where it overlies the run-way bottom has one or more cavities 19′ which receive the heads of bolts 20 secured in said runway, this structure being provided for firmly holding the block from movement along the runway should any pressure of the wheel happen to be brought upon it and which would otherwise transfer strains to the hinge-pin 16. The plate 13 extends beyond the block in the direction of the opposite runway and is curved upwardly so that an angular extension 21 on the gate 7 in meeting the curved portion will raise the plate and block, the said gate passing beneath said plate carrying it to an upright position as shown by broken lines in Figure 9 and also in Figure 10, the said extension 21 passing beneath the end of the upraised plate 13 permitting the gate to properly align with the runway 3.

It is clear that the action of the plate and its block is entirely automatic since due to the spring 15 the block will be carried into the runway when the gate is opened, and contrarywise, when the gate is closed the runway is free of the obstruction by the operation described.

In the lower part of Figure 3, also Figures 4, 5 and 6, is shown a modified form of gate operating means. In this instance an extension 22 of the cap-member, for example, projects toward the opposite runway, and below it and attached to the post 1 is a bracket 23. A shaft 23′ is journaled in both and has rigidly secured thereto the gate 7. Secured on the shaft is a gear 24 with which meshes the teeth of a rack-bar 25 supported slidably upon a bracket 26 secured to the said post in any desired manner and may likewise be guided in a notch 27 of said post or in any other way. A lever 28 is pivoted at 30 on the bracket 26 and the rack-bar 25 has a pin 29 which passes through a slot 31 of the lever. A sector 32 having ratchet teeth 33 is secured on the bracket 26 and a spring operated latch 34 is adapted to engage said sector. A movement of the lever 28 imparts movement to the gate 7 and if desired the latter may be thrown around against the runway as in Figure 3, permitting the gate of the opposite runway to be opened wider than that in Figure 1 and providing a slightly wider passageway.

The sector and spring-held latch serve to positively fix the gate in its closed position, the said ratchet teeth being so directed that, while it is required to lift the latch in opening the gate, said latch will pass freely over the teeth in the closing movement and drop behind a tooth and automatically lock the gate in alignment with the runway.

I may use either of the forms described for actuating the gates both forms being shown in Figure 3 and may be so used.

Although I have described and shown means for automatically locking the front wheels of the vehicle it is to be understood that I do not confine myself to the specific means shown nor the location thereof but to provide any structure for automatically locking or blocking and preventing movement of the vehicle at the ground wheels.

I claim:

1. In a device of the character described, in combination with a pair of runways upon which to elevate a vehicle, a gate-section forming part of one of such runways adapted to be swung out of the plane of the latter into the space between said pair of runways, and a pivoting portion therefor perpendicularly to the vehicle supporting surface of the runway.

2. In a device of the character described, in combination with a pair of runways upon which to elevate a vehicle, a mounted gate-section interposed between the spaced portions of one of such runways adapted to be swung out of the plane of the latter into the space between said pair of runways, the same including a vertically disposed pivot portion lying between said spaced portion.

3. In a device of the character described, in combination with a pair of elevated runways upon which to position a vehicle, a hingedly mounted gate-section normally forming part of one of such runways, the same adapted to be swung out of the plane of the same, and means to swing such gate-section.

4. In a device of the character described, in combination with a pair of elevated runways upon which to position a vehicle, a hingedly mounted gate-section normally forming part of one of such runways, the same adapted to be swung out of the plane of the same, and means to swing the same, said means adapted to automatically lock the gate-section in its position of alignment with said runway.

5. A device of the character described comprising a pair of elevated runways upon which to position a vehicle, each runway having a gateway therethrough, and a gate section pivotally mounted at each runway within the gateway thereof adapted to

swing in a horizontal plane into the space between the pair of said runways.

6. A device of the character described comprising a pair of elevated runways upon which to position a vehicle, each runway having a gateway therethrough, a gate section pivotally mounted at each runway within the gateway thereof adapted to swing in a horizontal plane into the space between the pair of said runways, and mechanism for separately swinging each section and for locking each in alignment with its respective runway.

7. In a device of the character described, in combination with a pair of runways upon which to position a vehicle, a hingedly mounted gate-section normally forming part of one of the runways, the same adapted to be swung out of the plane of the same, and means to swing the gate-section including a structure for automatically locking such gate-section in its position of alignment with the runway portion of which it is normally a part.

8. In a device of the character described, the combination with a runway, of a hingedly mounted gate-section as part thereof adapted to swing horizontally out of the plane of the same, an arm secured relatively to the gate-section, a shiftable rod, and linkage pivotally connected to both the arm and rod adapted when the rod is manually shifted to swing the section on its pivot, the several parts being arranged whereby in one position thereof the gate section is locked when in alignment with said runway.

9. In a device of the character described, in combination with a pair of runways upon which to position a vehicle, a gate-section hingedly mounted in one of said runways adapted to swing and having a position between the place of mounting of the front and rear wheels of said vehicle, and means mounted at the runway separate from the gate section adapted to lie in the path of a wheel of the vehicle when the gate section is swung to open it, said gate section when moved to its normal closed position in the runway adapted to engage and move said means out of said path.

10. In a device of the character described, in combination with a pair of runways upon which to position a vehicle, a gate-section hingedly mounted in one of said runways adapted to swing from a closed to an open position and when closed having a position between the place of mounting of the front and rear wheel of said vehicle, and a part mounted at one of the runways separate from said gate section, means to automatically move the same into the path of a wheel of said vehicle when the gate-section is opened, said gate section when in the act of being closed adapted to engage and remove said part from said path.

11. In a device of the character described, the combination with a runway having a gate-way therethrough, and a gate-section for closing said gateway, a blocking member pivotally mounted at the side of the runway, means to elastically maintain the same in a position across the runway in the path of the wheel of a mounted vehicle, the said blocking member adapted to be automatically moved outside the said path of the wheel by engagement of the gate-section therewith as the latter is moved into its normal position in the plane of the runway.

12. In a device of the character described, the combination of a runway, a gate-section as a part thereof, a shaft forming a pivotal mounting for said section, a gear on said shaft, a rack-bar engaging the gear, a lever to actuate the rack-bar, a mounting for the rack-bar and lever, and means to fix the lever in position in the closed position of said gate section.

In testimony whereof I affix my signature.

FRANK E. LITTELL.