

No. 714,082.

Patented Nov. 18, 1902.

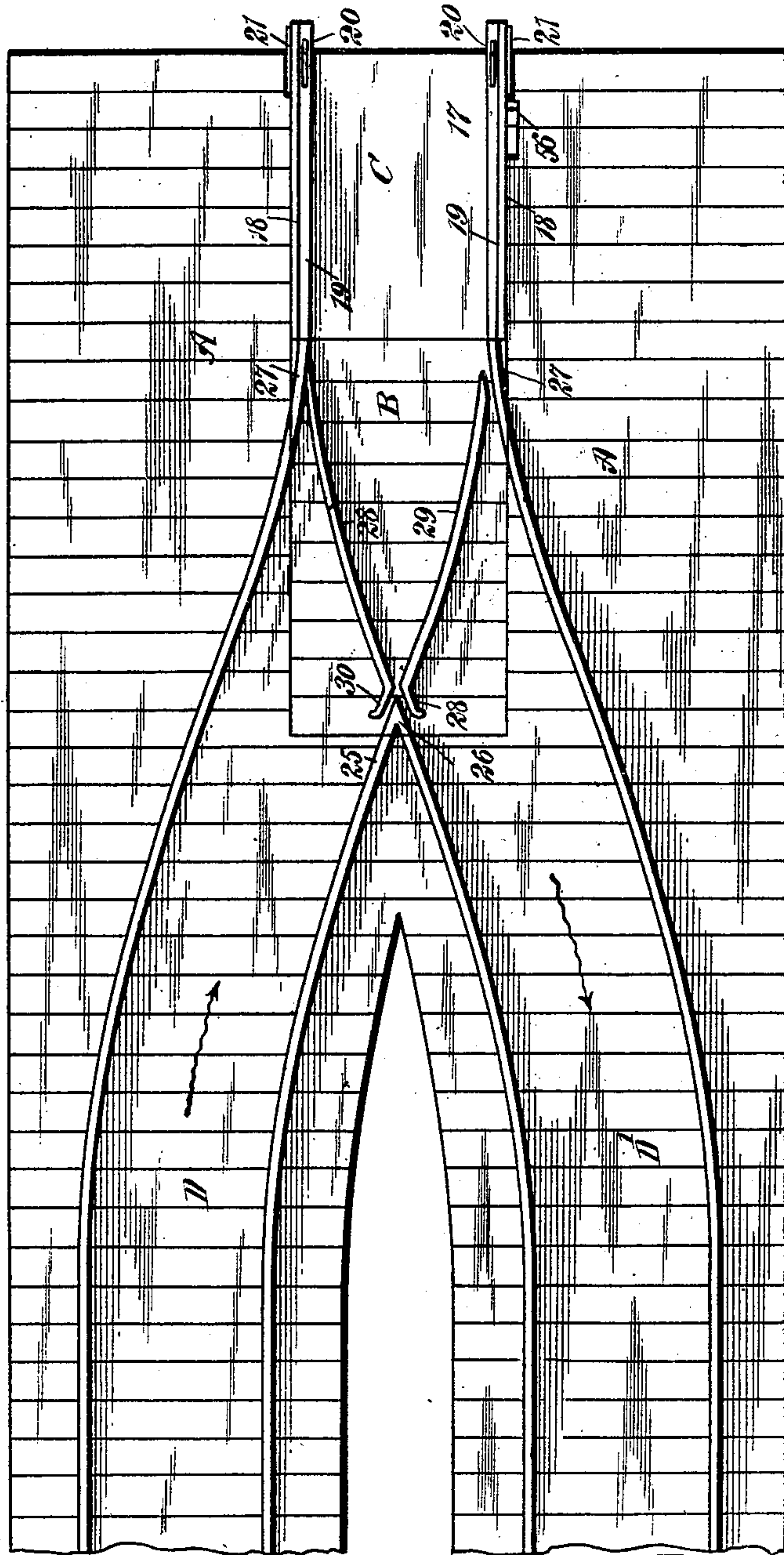
F. W. WILLIS.
COAL TIPPLE.

(Application filed July 2, 1902.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



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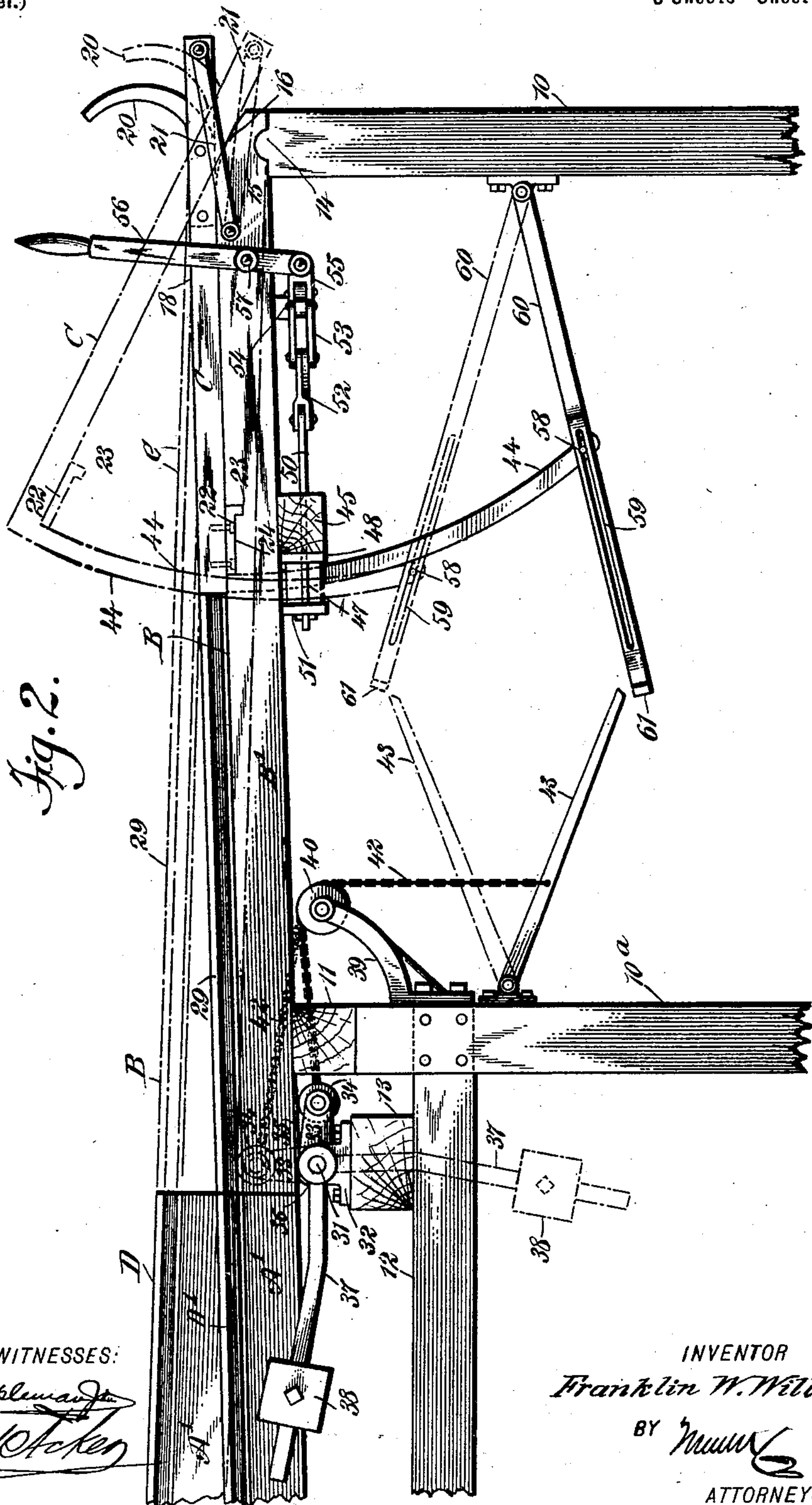


Fig. 2.

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Fig. 3.

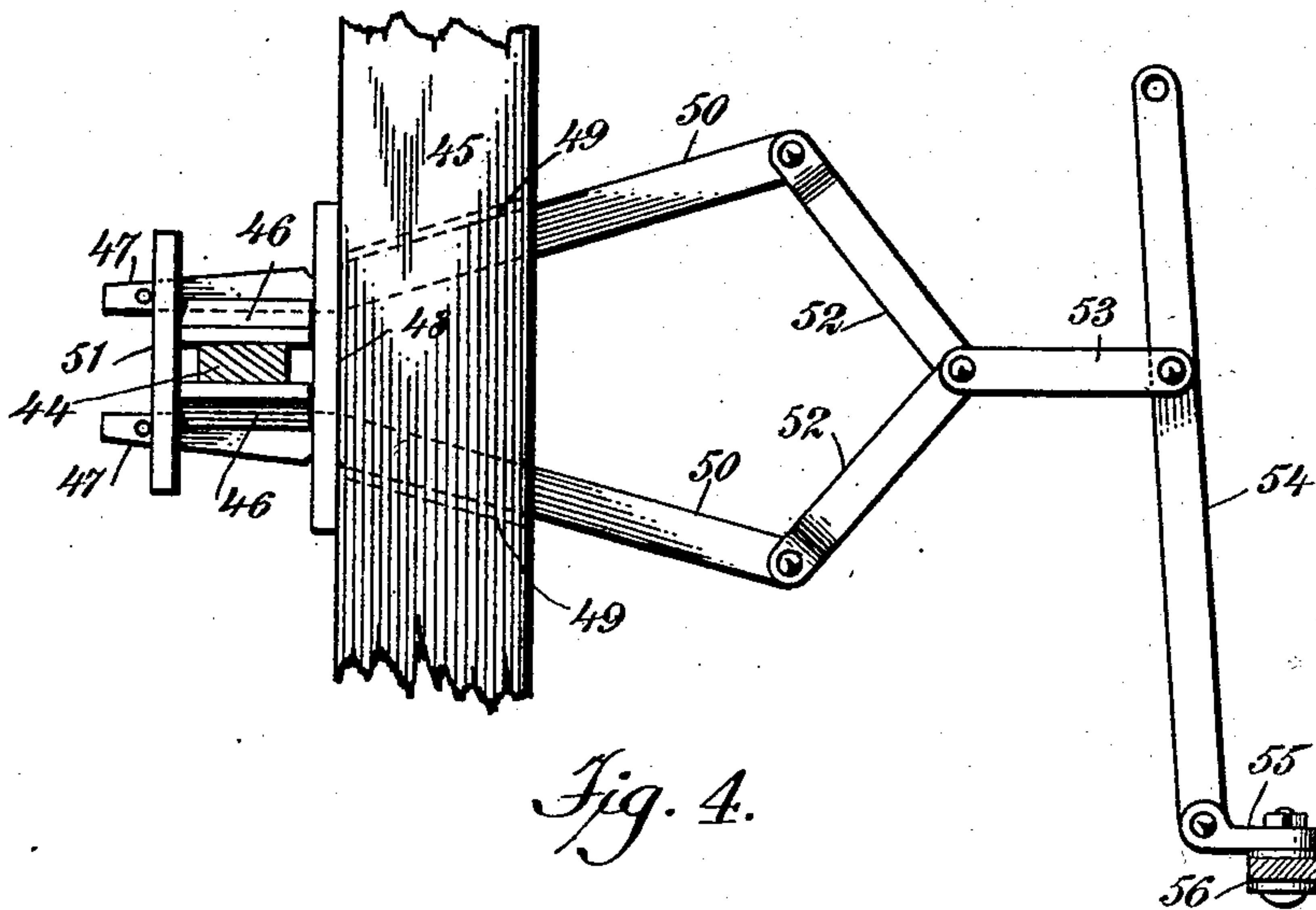
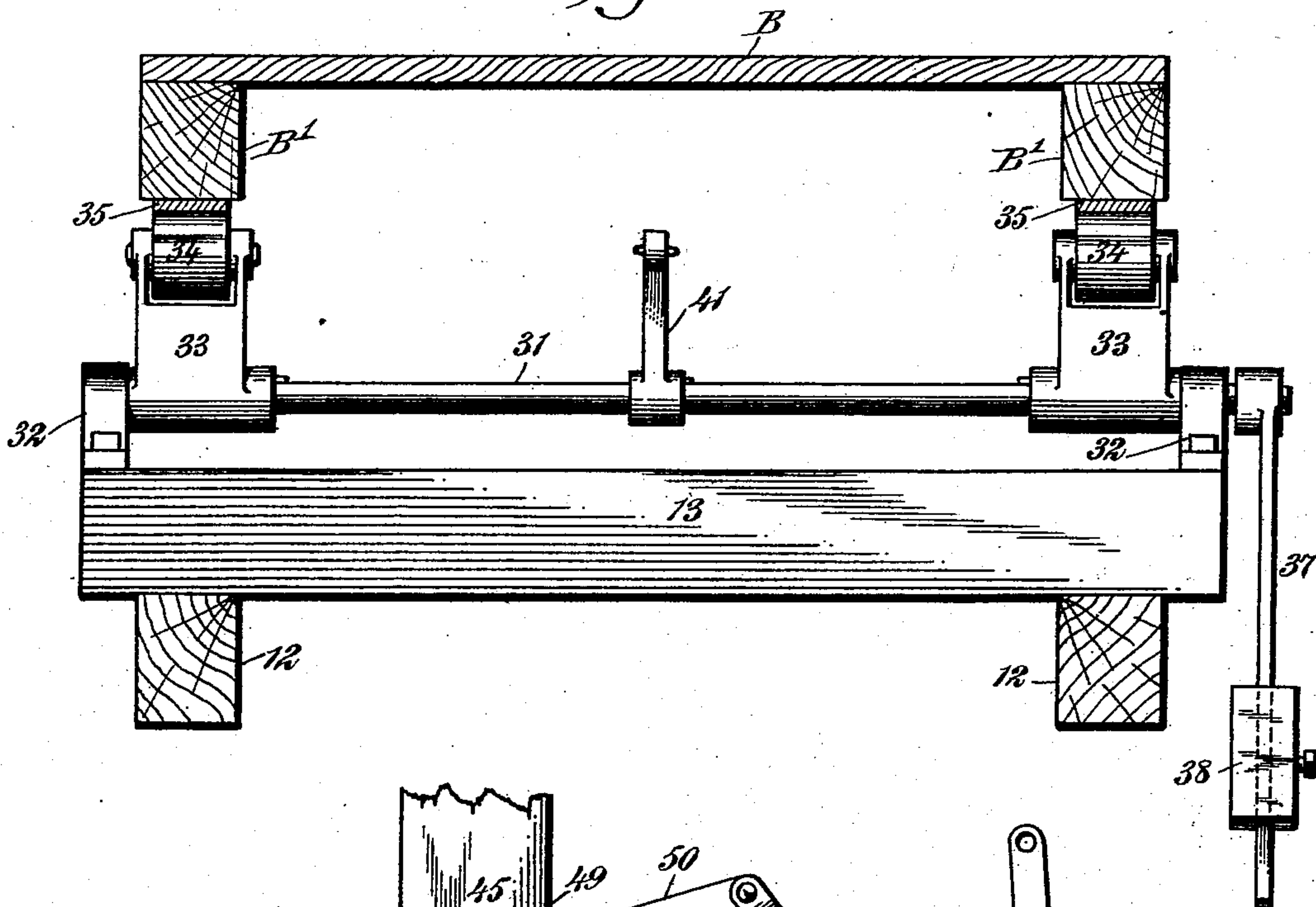


Fig. 4.

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FRANKLIN W. WILLIS, OF PRATT, WEST VIRGINIA.

COAL-TIPPLE.

SPECIFICATION forming part of Letters Patent No. 714,082, dated November 18, 1902.

Application filed July 2, 1902. Serial No. 114,052. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN W. WILLIS, a citizen of the United States, and a resident of Pratt, in the county of Kanawha and State of West Virginia, have invented a new and Improved Coal-Tipple, of which the following is a full, clear, and exact description.

The purpose of my invention is to provide a simple, durable, and economic coal-tipple automatic in its action and so constructed that the loaded car will approach the dumping-platform at an inclination downward to the platform and will leave the dumping-platform at a downward inclination therefrom, the rails for the loaded car being at a greater elevation than the rails for the empty cars.

Another purpose of the invention is to provide a construction whereby the structure at the dumping-platform is left unobstructed and also to provide a simple and effective brake for the mechanism of the dumping-platform whereby to hold the platform at pleasure in dumping or receiving positions or in positions intermediate of such points.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the improved coal-tipple. Fig. 2 is a side elevation showing the dumping-platform raised in dotted lines and lowered in positive lines. Fig. 3 is a transverse section through the pivoted track-carrying platform and a portion of the structure upon which it has movement, showing said platform in an elevated position; and Fig. 4 is a sectional plan view of the brake mechanism.

A represents a fixed platform which is at any desired elevation from the ground, but rests upon stringers A'. (Shown in Fig. 2.) Said stringers are held in horizontal or inclined position by any arrangement of uprights, cross and brace beams that may be desired.

In connection with the fixed platform and its supports, an adjustable or pivoted plat-

form B is employed, which is practically a section of the fixed platform A. This pivoted or adjustable platform B is located at the longitudinal center of the fixed platform A, at the forward or dumping end thereof, as is best shown in Figs. 1 and 2. The pivoted or adjustable platform B rests upon longitudinal stringers B', (shown in Fig. 2,) and the forward ends of said stringers B' are pivoted upon standards 10, suitably secured in the ground or upon a suitable support. This pivotal connection is usually brought about, as illustrated in Fig. 2, by forming segmental projections 14 at the upper ends of the standards 10, which enter recesses 15 in the under surfaces of the stringers B'. The said stringers at their pivot ends are provided with a downwardly-inclined surface 16, as is shown in Fig. 2.

The inner end of the pivoted platform B is independent of the fixed platform A, as are also the side portions thereof, and when the pivoted platform B is in its lowest position (shown in positive lines in Fig. 2) the stringers B' of said pivotal platform near their forward ends rest upon a cross-beam 11, supported by suitable standards 10^a. Horizontal beams 12 are usually secured to the standards 10^a. These longitudinal beams support a transverse beam 13 slightly to the rear of the standards 10^a, as is shown in Fig. 2 and also in Fig. 3.

A dumping-platform C is supported upon the pivoted platform B at the outer end portion of the latter, and this dumping-platform C consists of a bottom 17, which in the lower position of the dumping-platform rests upon the upper faces of the stringers B' of the pivoted platform B, as is shown in Fig. 2. This bottom portion of the dumping-platform C is provided with upwardly-extending side sections 18 of suitable height, and adjacent to each side section 18 a rail 19 is laid upon the bottom of the said dumping-platform, as is shown best in Fig. 1, and these sides 18 and rails 19 of the dumping-platform extend beyond the outer end of the bottom, as is also shown in Fig. 1.

Horns 20 extend upward from the outer end portions of the rails 19, the said horns being upwardly and rearwardly curved. These horns are adapted to engage with the forward

wheels of the forward truck of a car on the said dumping-platform and take the forward thrust of the car, so that when the car-wheels engage with the horns 20 the forward end of the platform is tilted downward, rocking on the inclined surfaces of the stringers B', as is shown in dotted lines in Fig. 2, thus elevating the rear end of the dumping-platform.

The dumping-platform has a hinged connection at its outer end with the pivoted platform B, and said hinged connection is preferably effected by means of links 21, pivoted at one end to the outer side faces of the dumping-platform and at their opposite ends to the outer faces of the stringers B' at a point to the rear of the inclined surfaces 16 of said stringers, as is also shown in Fig. 2.

The dumping-platform is prevented from being pushed forward or from moving on the pivoted platform B when a loaded car passes onto the dumping-platform by means of stop-plates 22, which are secured to the under surface of the dumping-platform C at or near its rear end. These stop-plates 22 are provided with downwardly-extending lugs 23 at their outer ends, and when the dumping-platform is in its receiving position the stop-plates 22 and their lugs 23 enter recesses 24, produced in the upper surfaces of the stringers B'.

The fixed platform A is so constructed as to support two tracks D and D'. Both of these tracks lead to the pivoted platform B, and a car passing over either track may be carried to the dumping-platform; but the track D, which is at a greater elevation than the track D', is adapted to receive the loaded cars and conduct such cars to the dumping-platform through the medium of the pivoted platform B, while the track D' is adapted to receive an empty car when it has left the dumping and pivoted platforms.

The track D is inclined downwardly in direction of the dumping-platform C, while the track D' is inclined downwardly in an opposite direction, or in a direction from the dumping-platform C, as is shown in Fig. 2. The inner rails 25 of both tracks D and D' closely approach each other at the central portion of the inner end of the pivoted platform B, and these converging ends of the inner rails 25 of the tracks are adapted to register with the members of a triangular frog 26, secured centrally upon the pivoted platform B at its inner end, as is shown in Fig. 1. Near the forward end portion of the pivoted platform B side-track sections 27 are secured, which abut against the inner ends of the tracks 19 on the dumping-platform C. These side-track sections 27 are adapted to register with the forward ends of the outer rails of the tracks D and D', as is also shown in Fig. 1.

Two lengths of track 28 and 29 are laid upon the pivoted platform B. These lengths of tracks 28 and 29 are combinedly in the form of a V, and their diverging ends approach more or less closely the side-track sections 27 on the said pivoted platform B, while

the converging or rear ends of the tracks 28 and 29 have extensions 30, adapted to pass one at each side of the frog 26, as is also shown in Fig. 1. When the pivoted track-carrying platform B is raised, the track-sections thereof will register with the outer end of the track D and the car will travel at an inclination along the track D and over the sections of track on the platform B onto the dumping-platform C, which is raised with the platform B, and is therefore given a downward and forward inclination, causing the car received thereon to engage with the horns 20 and by its weight to bring the dumping-platform C to the dumping position (shown in Fig. 1) without the necessity of momentive force. When the pivoted track-carrying platform is in its lower position and the dumping-platform is in engagement throughout its length with the said platform B, both of these platforms will incline downwardly and rearwardly on a grade with the corresponding inclination of the track D', and at such time an empty car will leave the dumping-platform C and will pass over the track-sections of the platform B to the depressed return-track D'.

The rear or free end of the pivoted track-carrying platform B is raised and lowered by a mechanism shown in Figs. 2 and 3, which consists of a shaft 31, journaled in suitable bearings 32, secured on the transverse beam 13, and this shaft is provided near each end with a crank-arm 33. Each crank-arm 33 is recessed at its free end to receive a friction-roller 34, which friction-rollers are adapted to engage with and travel on wear-plates 35, secured to the bottom of the stringers B', and the rear ends 36 of the said plates 35 are downwardly curved, as shown in Fig. 2, so that when the crank-arms 33 are in an upright position to elevate the platform B to its highest extent the friction-rollers 34 cannot travel farther rearward on the wear-plates, and when the pivoted track-carrying platform B is thus elevated its rails are brought in proper registry with the rails of the elevated track D, as is shown in dotted lines in Fig. 2.

At one end of the shaft 31 a long crank-arm 37 is secured, and on this crank-arm 37 a weight 38 is adjustably held by means of a set-screw or otherwise. This weight is adapted to overbalance the weight of the platform B, so that after a car has passed from the platform the weight 38 will force the outer crank-arm 37 to such a position as to bring the roller-carrying crank-arms 33 to a vertical position, (shown in Fig. 3 and in dotted lines in Fig. 2,) thus bringing the platform B to its upper position, and therefore in position to conduct a loaded car to the dumping-platform.

The pivoted track-carrying platform B is brought to its lower position, so as to conduct an empty car to the return-track D' when the dumping-platform C is carried to dumping position, and such action is accomplished in the following manner: An upwardly-extend-

ing arm 39 is secured to the forward face of a standard 10^a, and a pulley 40 is carried by said arm. A central crank-arm 41 is secured to the shaft 31, extending in the same direction as the roller-carrying crank-arms 33, and a chain 42 is attached to this crank-arm 41 and is passed over the pulley 40 to an engagement with a finger-bar 43, pivoted in any suitable or approved manner to the aforesaid standard 10^a in a manner to permit of the finger-bar moving vertically. The chain 42 is connected to the finger-bar 43 at a point between its ends, and the outer or free end of the finger-bar 43 is downwardly and forwardly beveled, as is shown in Fig. 2. At one side of the dumping-platform C, at its free end, a segmental arm 44 is secured. This segmental arm extends down at the rear of a cross-beam 45, secured to the bottom portion of the stringers B', and between two brake-shoes 46, (shown best in Fig. 4,) which brake-shoes are removably and interchangeably secured upon the straight rear sections 47 of brake-arms 50, which brake-arms 50 extend outward in opposite directions from their rear straight sections 47 through openings in a plate 48, resting against the beam 45 and moving with the parts 47 through diagonal passages 49, produced in the said beam 45, as is shown in Fig. 4, the passages 49 being much wider than the brake bars or arms 50, so that the said brake bars or arms may have end movement in the diagonal channels 49 to carry the brake-shoes 46 to an engagement with the segmental bar 44 or out of engagement therefrom. The brake-shoes are held in position between the plate 48, above referred to, and a plate 51, loosely passed over the rear members 47 of the brake-bars, and held in position by suitable pins. The forward ends of the brake-bars 50 are pivotally attached to links 52, and these links are pivoted together and are likewise pivotally connected with a single link 53, which extends forward to a pivotal engagement with a horizontal lever 54, fulcrumed at one end beneath the said platform B, and at the opposite end of the lever 54 a link 55 is pivoted, and a hand-lever 56 is pivotally attached to the link 55 and is fulcrumed to a side of the platform B, as is shown at 57 in Fig. 2. The segmental bar 44, attached to the dumping-platform C, is provided with a pin 58 at its lower end, adapted to travel in a slot 59, produced in a trip-arm 60, hinged at its forward end to the rear face of a forward standard 10. This trip-arm 60 extends rearwardly in direction of the finger-bar 43, with which it is adapted to engage, and terminates at its free end in a T-head 61.

In the operation of the device the pivoted track-carrying platform B is normally in an upper position, with its rails in registry with the rails of the track D, on which the loaded car travels, the platform being held in such position by the upright position of the roller-carrying crank-arms 33, and at such time the weighted crank-arm 37 on the shaft 31 will

be in a lower or vertical position, (shown in Fig. 2,) and the finger-bar 43 will be in an upper inclined position, as is also shown in dotted lines in Fig. 2.

If now a loaded car travels along the track D and reaches the dumping-platform C, the moment the wheels of the car come in contact with the stop-horns 20 the dumping-platform will be carried to the upper inclined position (shown in dotted lines in Fig. 2) to dump the load from the car, and the trip-arm 60 will be carried upward to the upper dotted position shown in Fig. 2, with its T-head just over the outer end of the finger-bar 43. When the load is dumped, the weight of the empty car will cause the dumping-platform to return to its lower or normal position, and in so returning the trip-arm 60 is carried downward and, engaging with the finger-bar 43, carries the said bar downward with it to the position shown in positive lines in Fig. 2, thus causing the chain 42 to draw on the central crank-arm 41 of the shaft 31 and turn said shaft forward, bringing the roller carrying or supporting crank-arms 33 to the horizontal position, (shown in positive lines in Fig. 2,) thus permitting the platform B to drop to its lower position and bring its rails in registry with the rails of the return-track D', as is shown in positive lines in Fig. 2. The empty car will now travel down the incline presented to it and will pass to the return-track D. The moment the empty car has left the pivoted track-carrying platform B the weighted crank-arm 37, which in the lower position of the platform was carried horizontally to the rear, will be forced by the action of its weight 38 to drop to the lower vertical position, (shown in dotted lines in Fig. 2,) thus again restoring the supporting crank-arms 33 to their upper vertical position and bringing the platform B to its upper normal position.

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

1. In a coal-tipple, depressed and elevated tracks inclined in opposite directions, a pivoted platform carrying a switch-rail and capable of vertical movement to register with either of the said tracks, and a dumping-platform mounted to rock on the rail-carrying platform, substantially as described.

2. In a coal-tipple, depressed and elevated tracks inclined in opposite directions, a pivoted platform carrying switch-rails and capable of vertical movement to register with either of the said tracks, a dumping-platform mounted to rock on the rail-carrying platform, stops located at the dumping end of the platform, and a track for the said dumping-platform, substantially as described.

3. In a coal-tipple, depressed and elevated tracks inclined in opposite directions, a pivoted platform carrying switch-rails and capable of movement to register with either of said tracks, a dumping-platform mounted to rock on the rail-carrying platform, and means,

substantially as described, for raising and lowering the rail-carrying platform through the movement of the dumping-platform, substantially as described.

5 4. In a coal-tipple, a switch-carrying platform having vertical movement, a dumping-platform mounted to rock on the switch-carrying platform, and curved stops at the dumping end of the dumping-platform, substantially as described.

10 5. In a coal-tipple, a switch-carrying platform pivoted for vertical movement, a dumping-platform mounted to rock on the switch-carrying platform, stops at the dumping end
15 of the dumping-platform, raising and lowering devices for the switch-carrying platform, and members connected with the dumping-platform, for automatically operating the said raising and lowering devices, substantially as
20 described.

6. In a coal-tipple, a pivoted platform capable of vertical movement, switch-rails carried by the said pivoted platform, a dumping-platform mounted to rock on the said switch-

carrying platform and provided with rails 25 adapted to register with the said switch-rails, stops carried by the dumping end of the dumping-platform, a rock-shaft, an arm extending from the rock-shaft, an adjustable weight carried by the said arm, crank-arms also carried by the rock-shaft and adapted for engagement with the lower portion of the switch-carrying platform at its free end, a finger-bar, a support for the same, a connection between the finger-bar and rock-shaft, and a trip-arm 30 operated by the movement of the dumping-platform and adapted to operate the said finger-bar to carry the crank-arms of the rock-shaft to horizontal and vertical positions, for the purpose specified. 35 40

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANKLIN W. WILLIS.

Witnesses:

G. W. BOTT,

J. E. SHIELDS.