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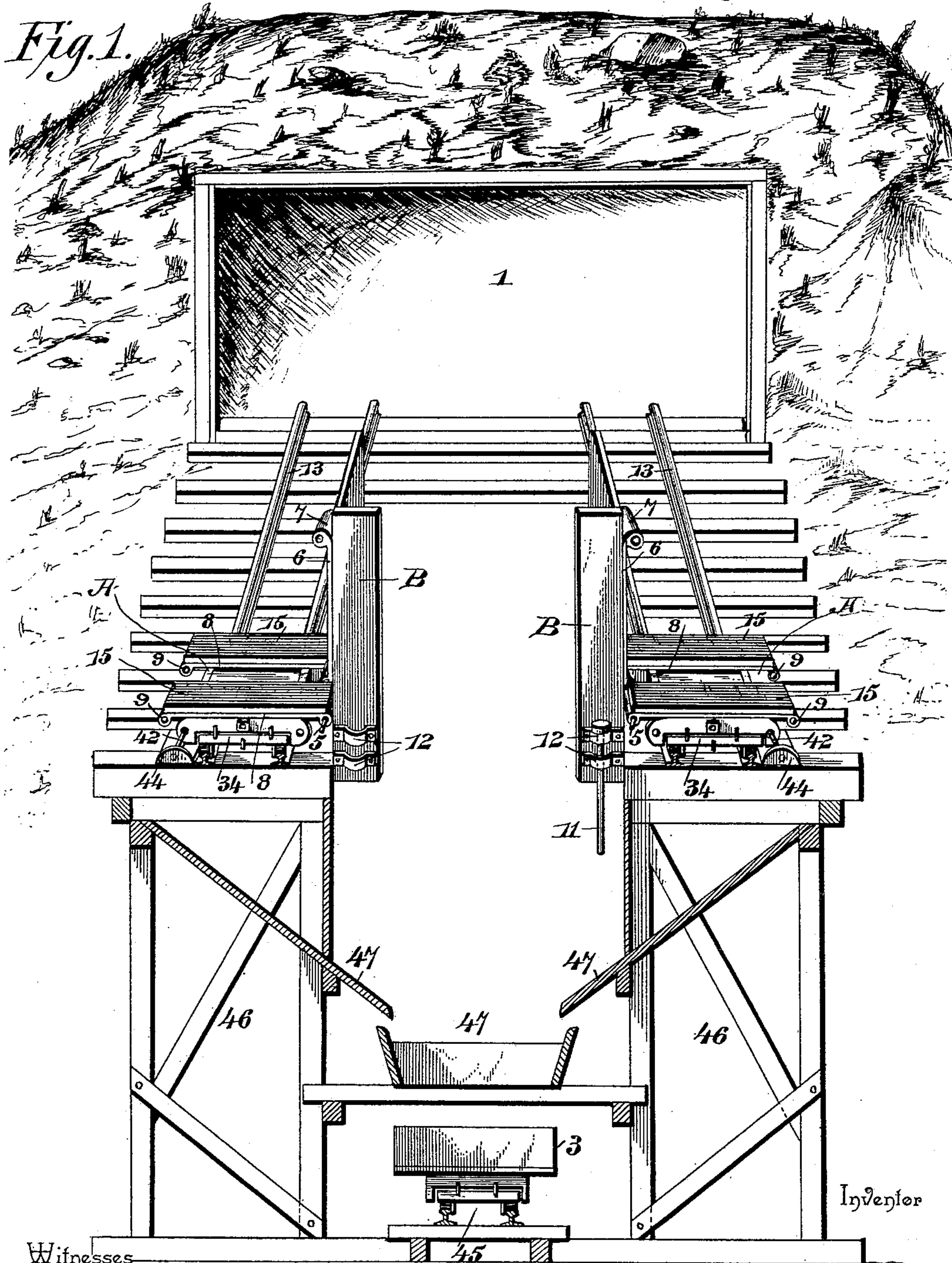
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J. DWYER.
MINING CAR AND RAILWAY SYSTEM THEREFOR.

No. 602,435.

Patented Apr. 19, 1898.

Fig. 1.



Witnesses

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(No Model.)

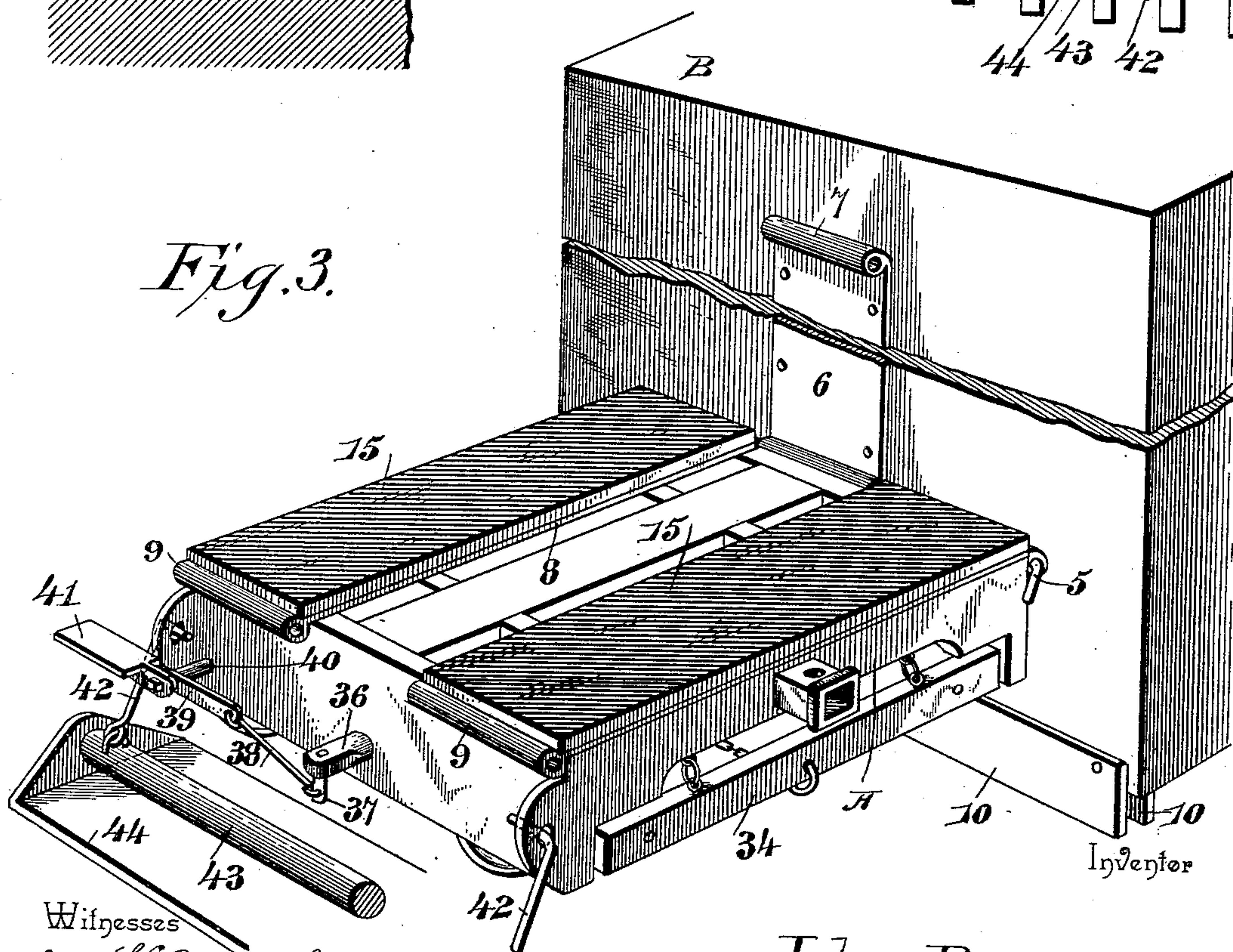
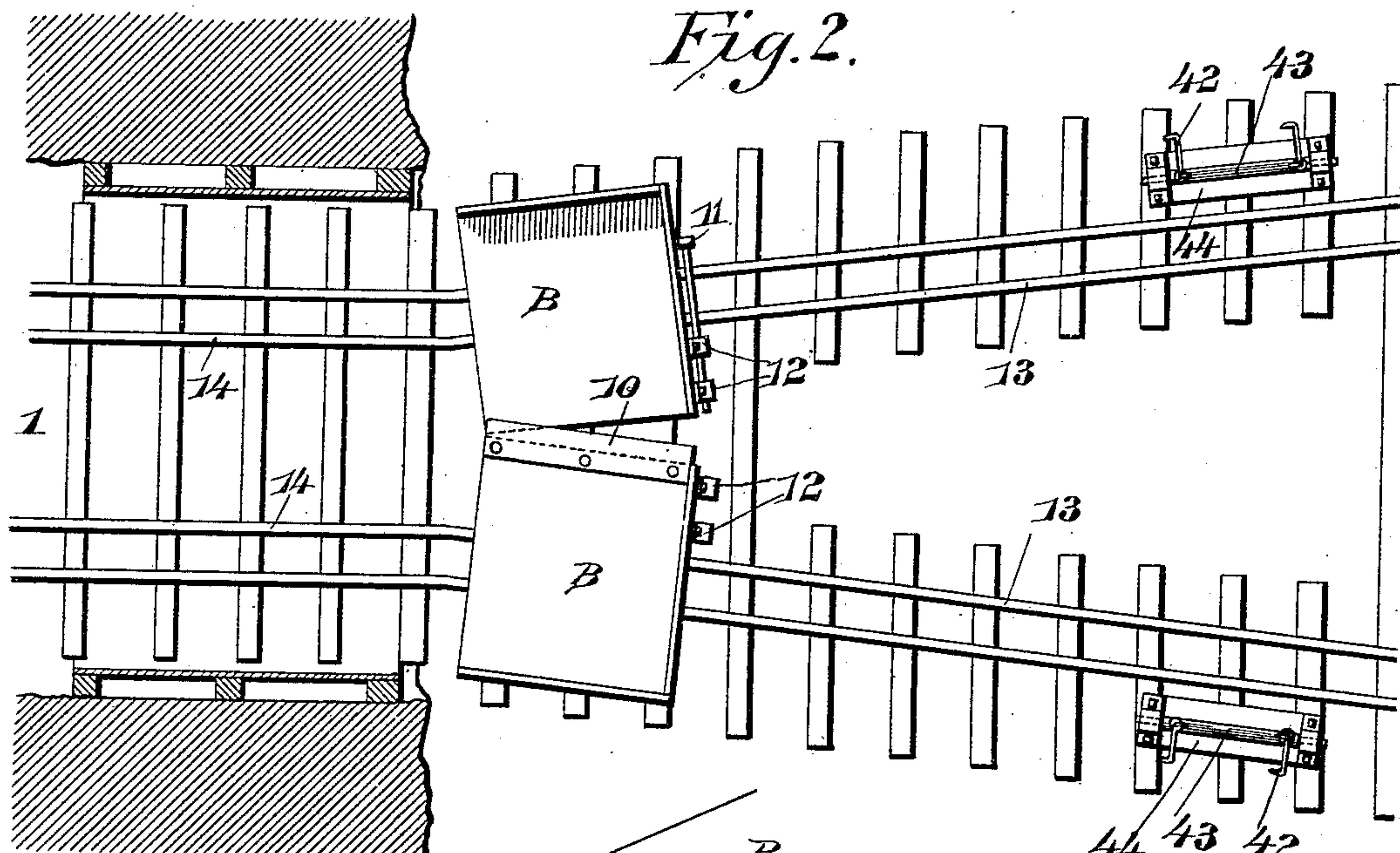
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Fig. 4.

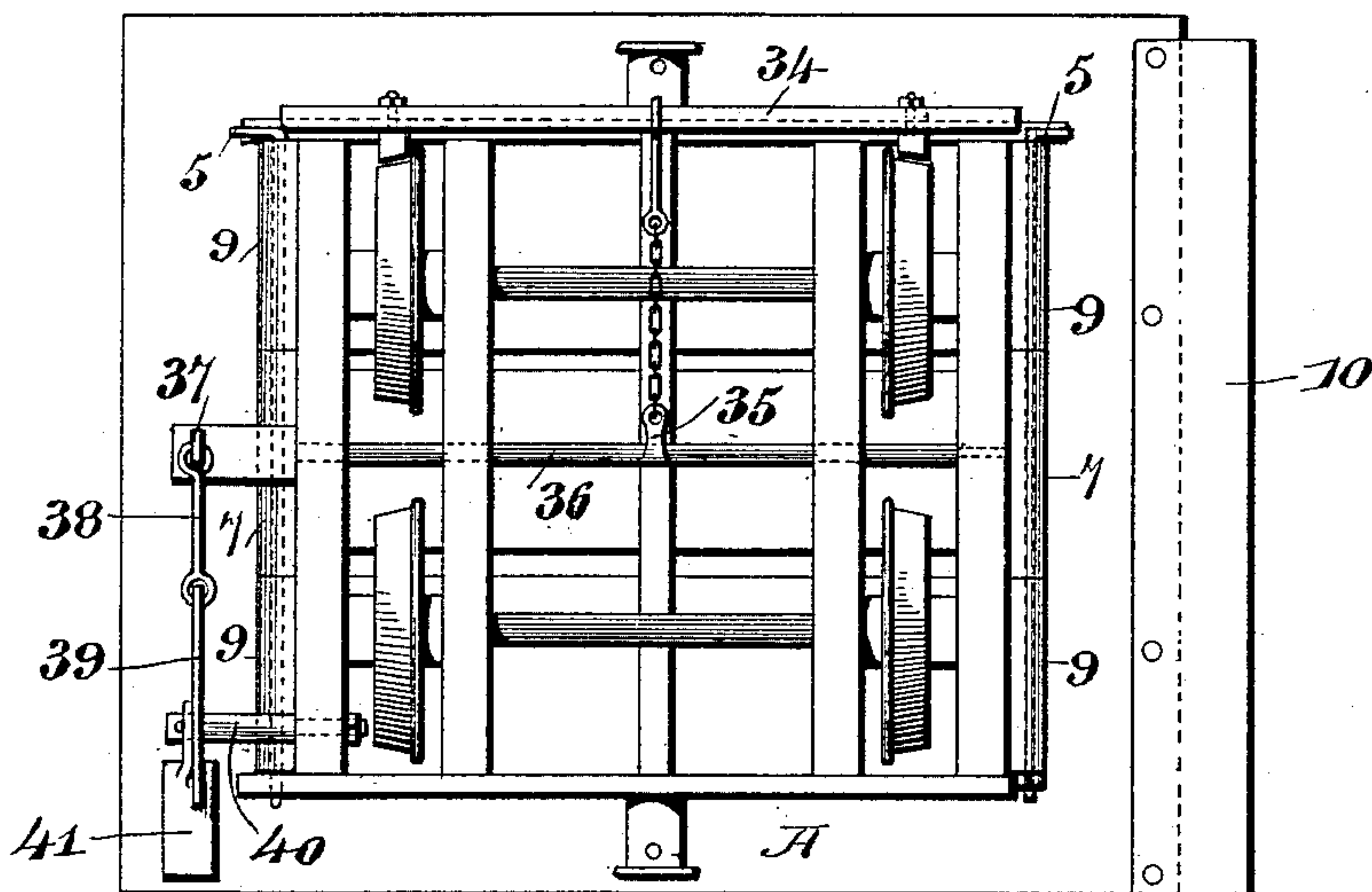
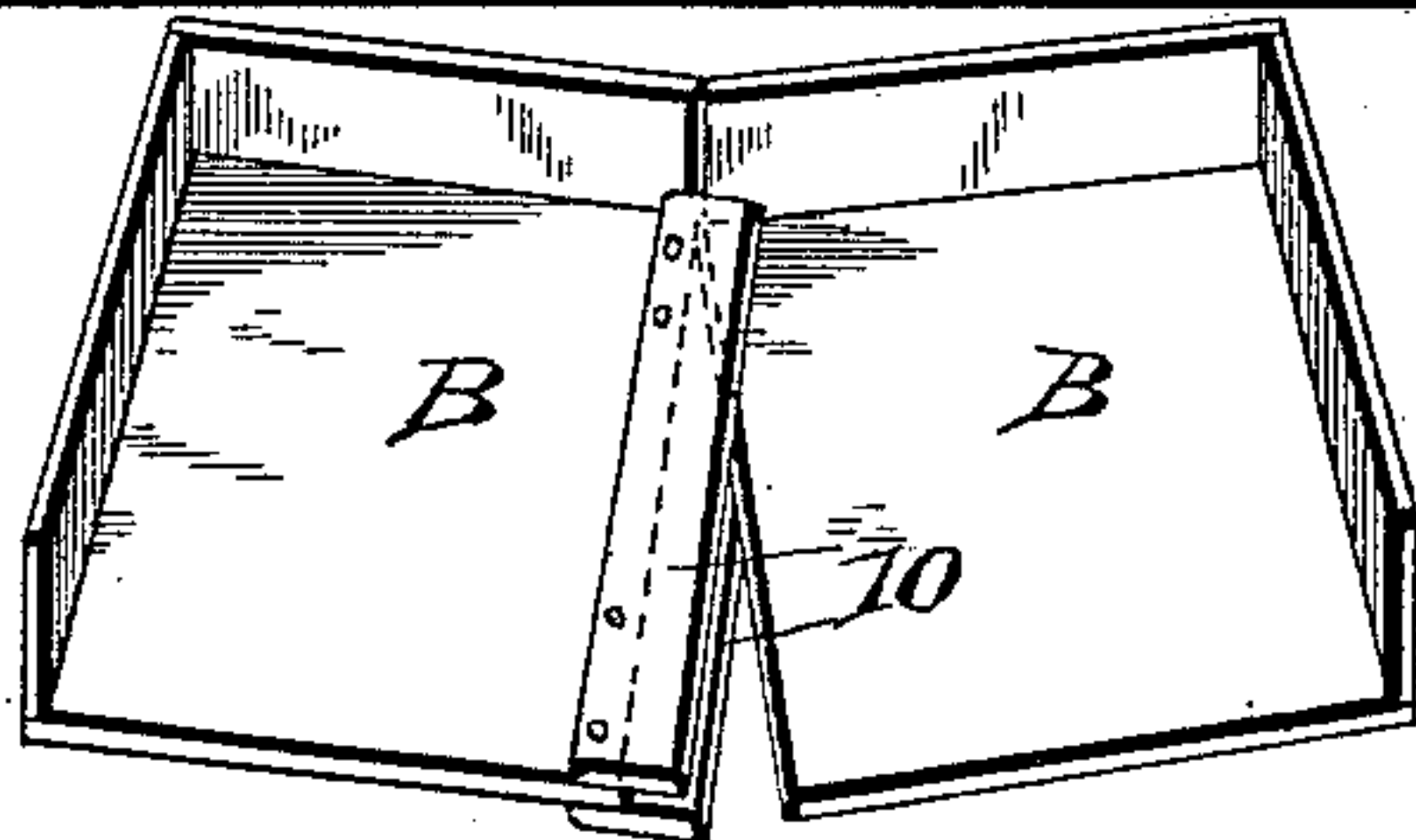


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN DWYER, OF BUTTE, MONTANA.

MINING-CAR AND RAILWAY SYSTEM THEREFOR.

SPECIFICATION forming part of Letters Patent No. 602,435, dated April 19, 1898.

Application filed March 10, 1897. Serial No. 626,827. (No model.)

To all whom it may concern:

Be it known that I, JOHN DWYER, a citizen of the United States, residing at Butte city, in the county of Silver Bow and State of Montana, have invented a new and useful Mining-Car and Railway System Therefor, of which the following is a specification.

The primary object of the present invention is to facilitate mining and blasting operations, dispense with labor, lighten the work, and reduce the cost incident to constructing tunnels and cuts for railroads and canals, the earth and rock loosened, shattered, and detached by blasting being loaded on cars placed in position, thereby obviating the expense and expenditure of manual energy required to load the same onto cars as commonly practiced by the methods now in use.

A vital feature of the improvement is the construction of cars sufficiently low to receive the major part of the earth and rocks loosened at the time of the blast, whereby as little shoveling as possible is required for clearing the cut or tunnel after an explosion, and to this end it is desirable to have the cars as low as possible and to have the bodies tiltingly mounted upon the trucks, whereby the load can be easily and quickly dumped after the cars are withdrawn from the tunnel, cut, or shaft.

The cars are specially designed to be used singly or in groups, and when grouped they form, in effect, a single car, the several cars having their contiguous portions matching, so as to prevent any intervening space or any independent vertical movement between the contiguous ends of adjacent cars which would result in providing a space and admitting of small particles and earth escaping when drawing the cars from the cut or tunnel.

For a full understanding of the merits and advantages of the invention reference is to be had to the accompanying drawings and the following description.

The improvement is susceptible of various changes in the form, proportion, and the minor details of construction without departing from the principle or sacrificing any of the advantages thereof, and to a full disclosure of the invention an adaptation thereof is shown in the accompanying drawings, in which—

Figure 1 is a perspective view in elevation and partly in section, showing two cars as they will appear when withdrawn from the tunnel or drift and having their bodies tilted for discharging the load into a car for conveying the same to the required place of deposit. Fig. 2 is a top plan view of two cars and two tracks, showing the latter diverging from the mouth of the tunnel or drift, whereby the cars are automatically separated. Fig. 3 is a detail perspective view of a car, showing the body tilted and the means for securing the car when dumping the load. Fig. 4 is an inverted view of the car shown in Fig. 3. Fig. 5 is a detail view showing the means for connecting the contiguous ends of adjacent car-bodies.

Corresponding and like parts are referred to in the following description and indicated in the several views of the accompanying drawings by the same reference characters.

While the invention is intended for constructing tunnels, subterranean passages, cuts, &c., it is shown in connection with a drift or tunnel, as it will be more generally used for mining operations.

In practicing the invention the car or cars are moved into the tunnel or drift close against the breast, the latter being previously drilled and charged with blasting-cartridges or other explosive generally employed for loosening and shattering rocks and earth when cutting into the earth's crust. After the car or cars have been placed in position the blast is effected and the loose rock, earth, &c., are received therein, and the car or cars are drawn from the tunnel or drift in any convenient or known manner, and the load automatically deposited thereon is conveyed directly to the required point of deposit or is discharged into a transfer-car 3, as shown in Fig. 1, by means of which it is conveyed to the desired point.

In order to prevent the blast from moving the car away from the breast, so as not to receive the bulk of the detached earth and rocks, a timber is placed against the lower portion of the breast and in advance of the truck and the car or cars are blocked and otherwise secured in place as may be found most advantageous, and after the explosion the securing means are removed, thereby permitting the

car or cars to be drawn out of the passage or cut to be relieved of their load.

The car-bodies are hinged or pivotally connected with their respective trucks so as to tilt either forwardly or laterally to dump the load, and in order to admit of a body tilting at either end or side the plates forming the support are provided at each of their ends with knuckles, through which pins 5 pass for connecting the parts together. A single plate 6 is secured about centrally to the bottom of each car body or platform and has knuckles 7 at its ends. Corresponding plates 8, disposed in parallel relation, are applied to the top of each truck and have knuckles 9 at their extremities, which aline with the knuckles 7 when the plates are in the same plane. When the car is not tilted, its body is held rigidly to place by means of the pins or rods 5, which pass through the alining knuckles 7 and 9, and when it is required to tilt the body or platform one or the other of the pins or rods 5 is withdrawn and the body or platform tilted, as clearly shown in Figs. 1 and 3. If the body or platform is to be tilted to the front or rear, the plates 6 and 8 will be disposed so as to extend parallel with the track and the direction of movement of the car; but if the said body is to be tilted laterally the plates will be disposed at right angles to the track and line of motion, as clearly indicated in Fig. 1.

When the cars are constructed for conjoint use, their contiguous parts will match, whereby a space between them is obviated and independent vertical movement avoided. Any means may be resorted to for effecting an interlocking of the contiguous ends or portions of adjacent cars so long as the desired end is attained, and, as shown, strips 10 are secured to the top and bottom edges of a car and extend beyond the end thereof a sufficient distance to overlap the contiguous edge portion of the adjacent car, thereby causing the cars to move together at their meeting ends and closing any space which might otherwise be provided. This exceedingly simple construction admits of the cars readily separating when the diverging portions of the tracks are reached, as indicated in Fig. 2. A bolt or rod 11 slides in keepers 12, provided at the ends of the cars, and supplements the action of the strips 10 with respect to obviating independent vertical movement or play, and this bolt may be shot back by hand or withdrawn when the cars reach the diverging portions 13 of the tracks 14, as will be readily understood. Rubber strips 15 are interposed between the bed of the truck and the car body or platform and relieve in a measure the jolt and jar and serve as a noise-deadener and cushion and compensate for the impact incident to throwing the body or platform back upon the truck from a tilted position.

Inasmuch as the track will slope in places or throughout its length it is expedient that

each car be provided with a suitable brake mechanism.

In Figs. 3 and 4 is shown a form of brake applied to the truck-wheels, the brake-beam 34 bearing brake-shoes to be brought into engagement with the truck-wheels and having connection with an arm 35 of a shaft 36, provided at its outer end with an arm 37, connected with a link 38, having attachment with a lever 39, mounted upon a stud 40. A foot-lever or treadle 41 is loosely mounted upon the stud 40 and engages with the outer or rear end of the lever 39, and when pressed upon turns the shaft 36 in its bearings and sets the brake. When not required for immediate use, the foot-lever 41 can be folded upon the lever 39, so as to be out of the way.

At the place where the cars are unloaded suitable means are provided for securing them while dumping the load, and for the sake of simplicity of illustration hooks 42 are provided and engage with openings in lateral extensions of the truck-frame. These hooks 42 have loose connection with a rod or bar 43, applied to a base 44, secured to ties at the required point. Obviously the hooks or their equivalent means may be secured to the road-bed in any manner other than that shown, and the desired end will be effected.

When the tunnel, passage, or cut is elevated and it is not desirable or advantageous to move the cars to the required point of deposit, a track 45 will be provided at a lower level and intermediate of the branching portions 13 of the tracks 14, and the diverging portions 13 of the tracks leading from the tunnel or drift will be supported upon a scaffolding or trestle-work 46, and chutes 47 will be provided, so as to direct the earth, rocks, and other matter into the transfer-car 3, as most clearly shown in Fig. 1, and said car 3 will carry the load to the desired point.

The end cars when used in series of two or more will have a side piece in addition to the rear end piece, as will be clear on reference to Figs. 2 and 5, but when an intermediate car is required it will have an end piece only.

The truck for supporting a car-body is indicated by A, and the body by B, and each body is mounted upon its truck in the manner set forth, so as to tilt to permit the load to be easily dumped. While the car-bodies will be similarly mounted, they will not all be constructed alike, as will be apparent from the description herein and the annexed drawings, the particular manner of using them, whether singly or jointly, controlling largely their specific formation and equipment. The rubber strips 15 are thicker than the plate 6 to enable them to cushion the blow incident to the return of the body to a normal position after dumping the load.

Having thus described the invention, what is claimed as new is—

1. In a mining system, the combination with the truck and body of a car, of plates spaced apart and rigidly secured to the truck and

having knuckles at their opposite ends, a plate firmly attached to the car-body and fitting snugly between the spaced plates, and of a corresponding length therewith and having 5 knuckles at its ends, and pins or rods removably fitted into the alining knuckles of the plates to secure the parts of the car together and form a support for the body to tilt upon, substantially as set forth.

10 2. In a mining system, the combination with the truck and body of a car, of plates spaced apart and firmly secured to the truck and having knuckles at their ends, a plate rigidly attached to the body and fitting snugly be- 15 tween the spaced plates and having knuckles at its ends to aline with the knuckles of the spaced plates, pins or rods passing through the alining knuckles of the plates to secure the body in place, and removable to admit of 20 the body tilting from either end, and rubber strips applied to the top side of the spaced plates and thicker than the plate applied to the body, substantially as shown for the purpose set forth.

25 3. In a mining system, two or more separate and independent cars constructed for conjoint use placed side by side and having their contiguous portions intermatching, whereby the cars are held against vertical displacement 30 and are free to separate, substantially as set forth for the purpose described.

4. In a mining system, the combination of two or more separate and independent cars constructed for conjoint use placed side by 35 side, and strips overlapping the joint formed between contiguous portions of adjacent cars and rigidly secured to the opposite sides thereof, whereby the cars are prevented from independent vertical movement but are free to 40 separate laterally under conditions, substantially as described.

5. In a mining system, the combination of two or more separate and independent cars

arranged side by side and having vertical end pieces, and having the contiguous edges of 45 their bottoms intermatching, keepers applied to an end of one car, and a bolt or rod slidably mounted in keepers applied to the end of the other car and adapted to engage with the keepers of the first-mentioned end, sub- 50 stantially as set forth for the purpose described.

6. In a mining system, the combination of tracks extending parallel for a given distance, thence branching or diverging, and cars 55 mounted upon the tracks side by side and having their contiguous portions intermatching and readily separable when the cars reach the diverging or branching portions of the tracks, substantially as set forth. 60

7. In a mining system, the combination of tracks extending parallel for a given distance, thence branching or diverging, cars mounted upon the tracks and having their contiguous portions intermatching and read- 65 ily separable when the cars reach the diverging portions of the tracks, means for securing the cars prior to unloading, and provision for admitting of the car-bodies tilting, substantially as specified. 70

8. In a mining-car, the combination of a brake-beam, a shaft having connection with the brake-beam, a lever having one end connected with an arm of the said shaft, and a foot-lever mounted upon the same support 75 with the lever and engaging with the free end thereof, and adapted to fold, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in 80 the presence of two witnesses.

JOHN DWYER.

Witnesses:

A. E. WHIPPS,
NEWTON W. SIMMONS.