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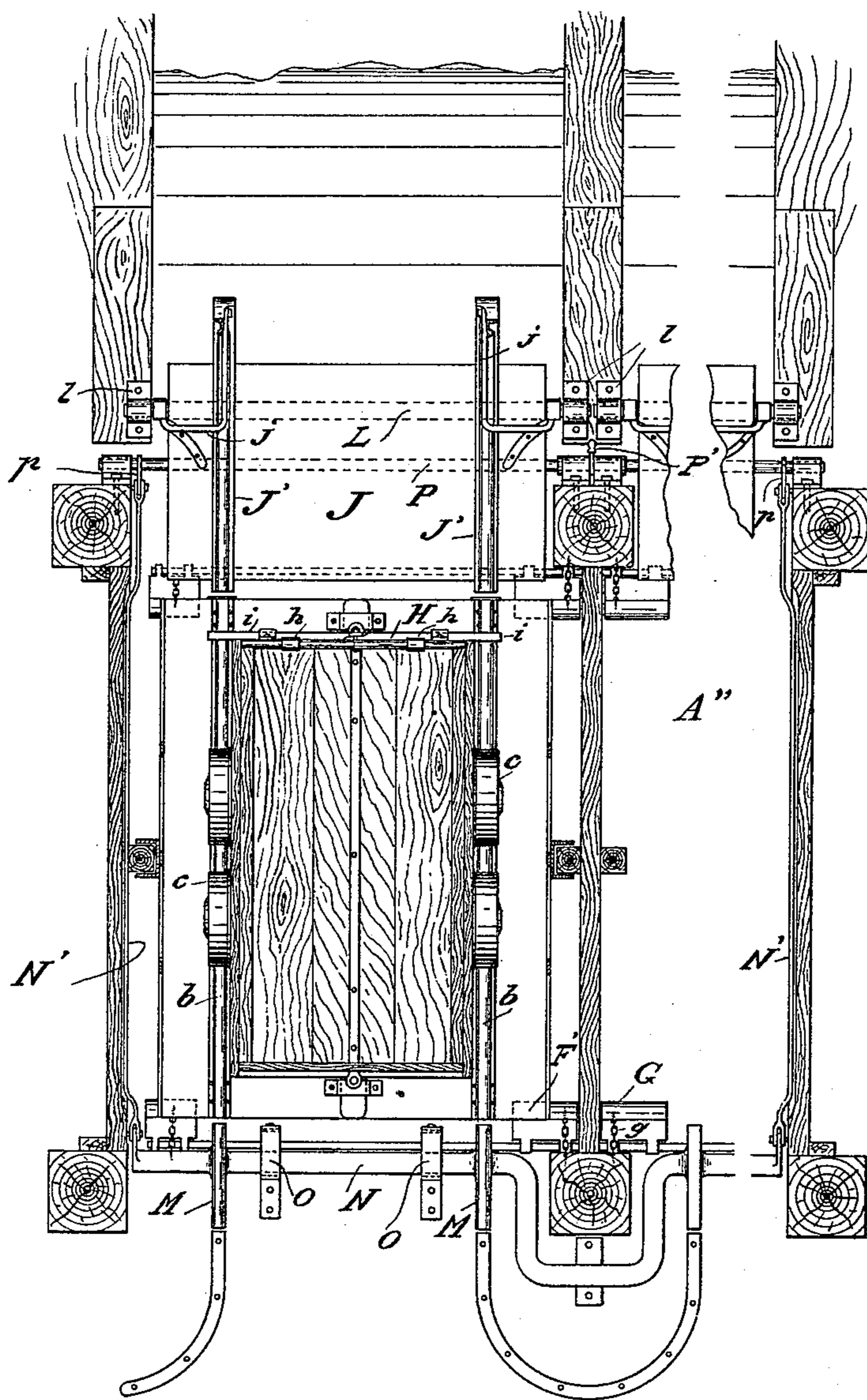
4 Sheets—Sheet 1.

T. J. PHILLIPS.  
CAR DUMPING APPARATUS.

No. 481,968.

Patented Sept. 6, 1892.

*Fig. 1.*



Witnesses  
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Inventor  
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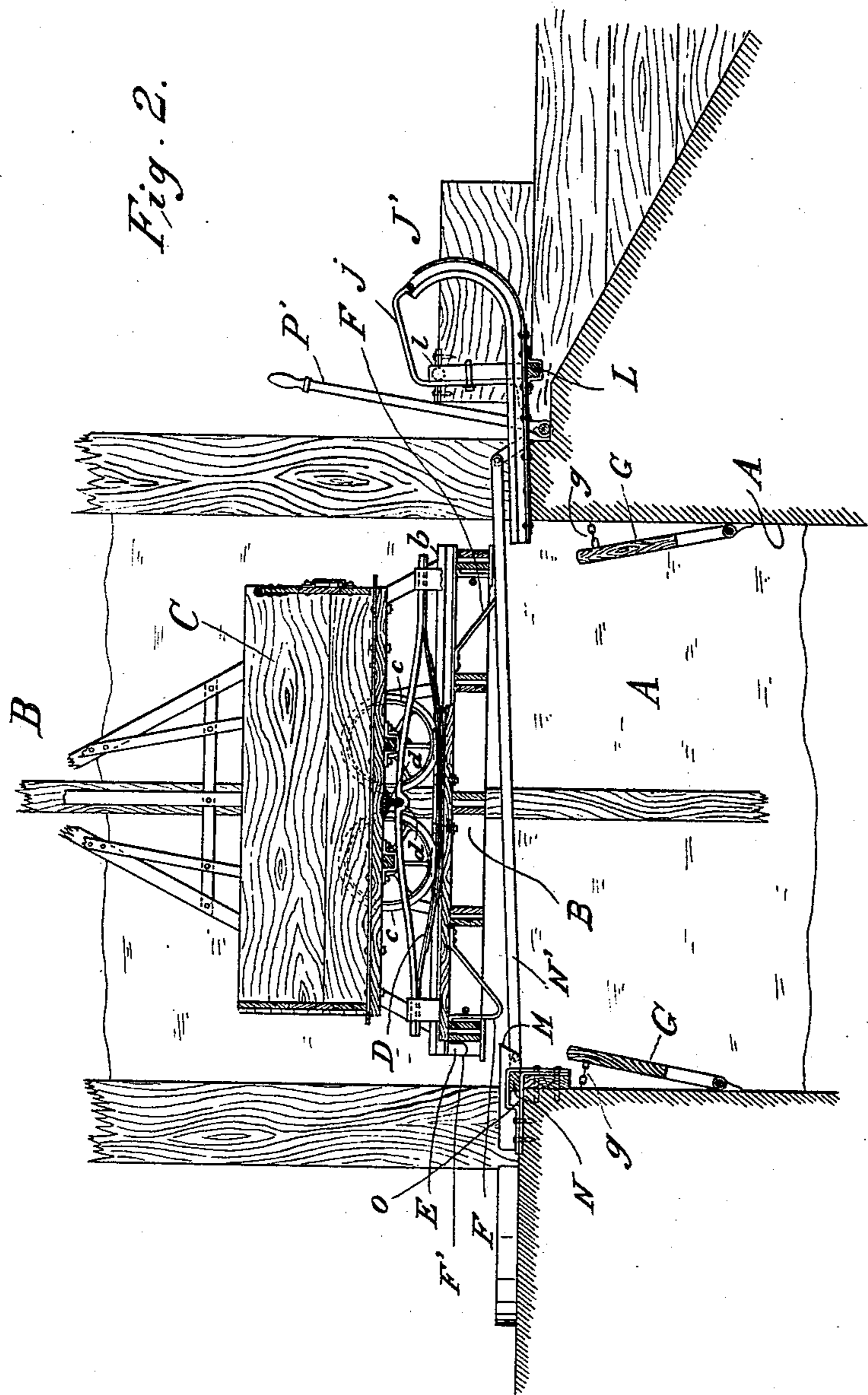
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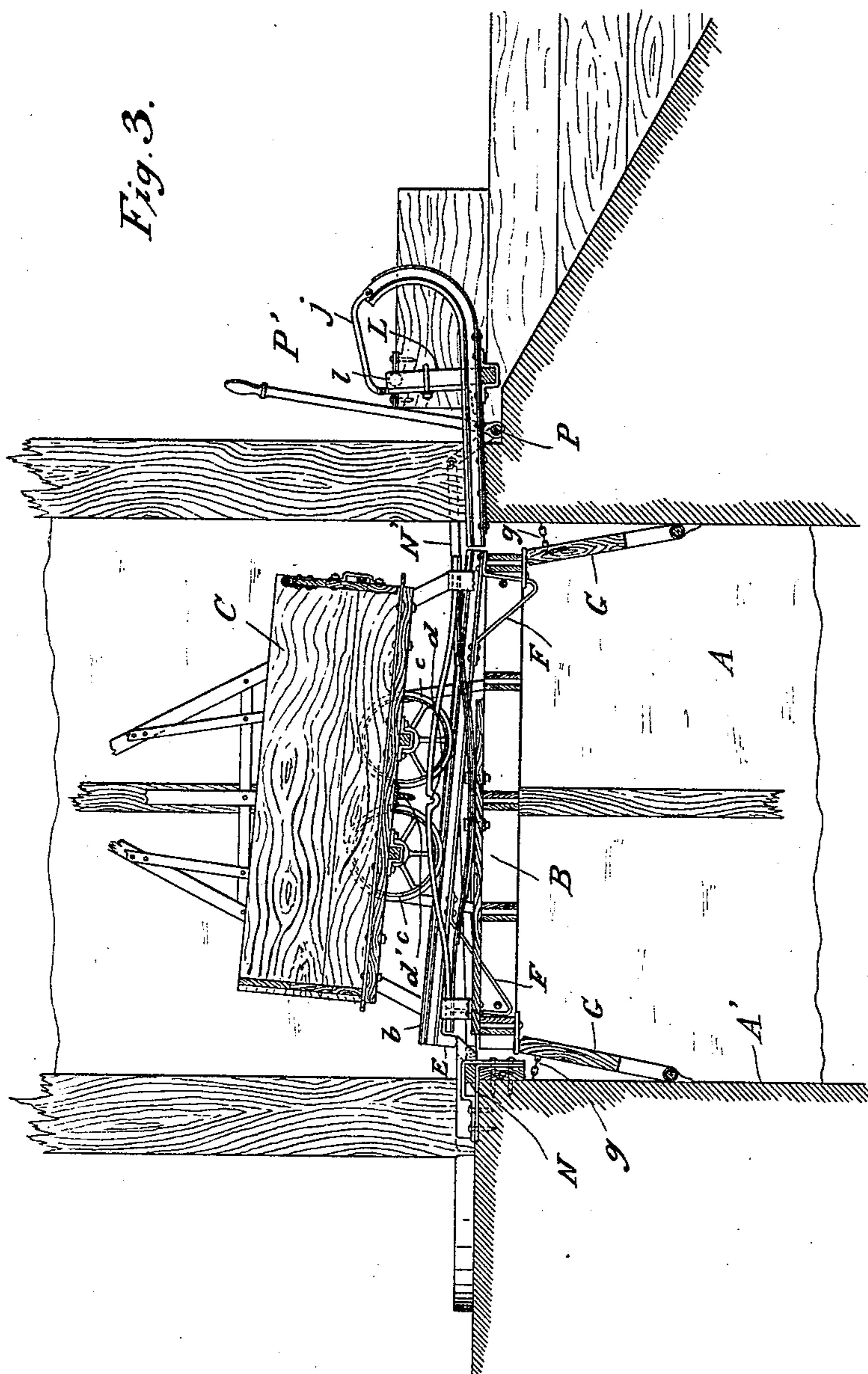
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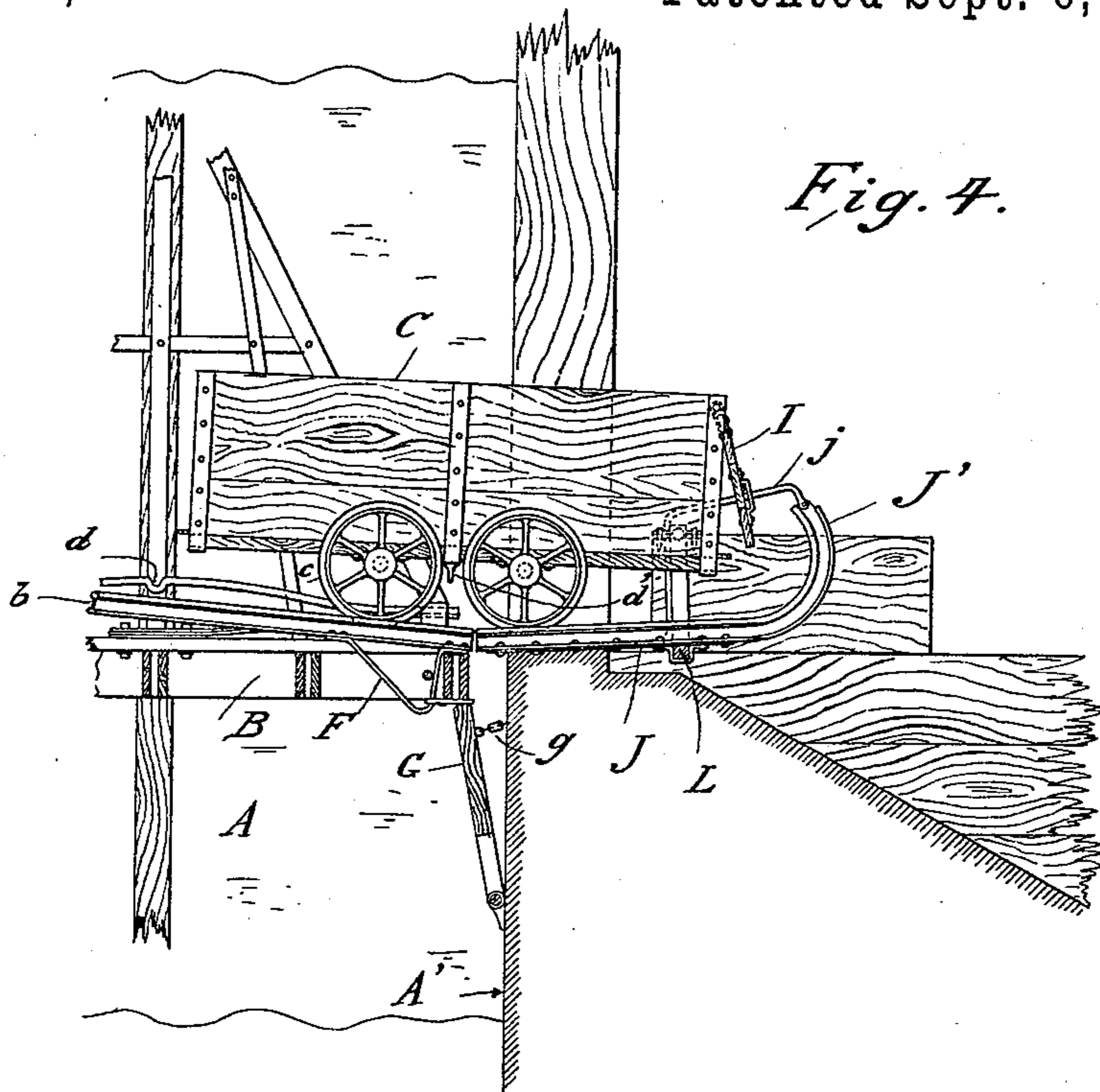
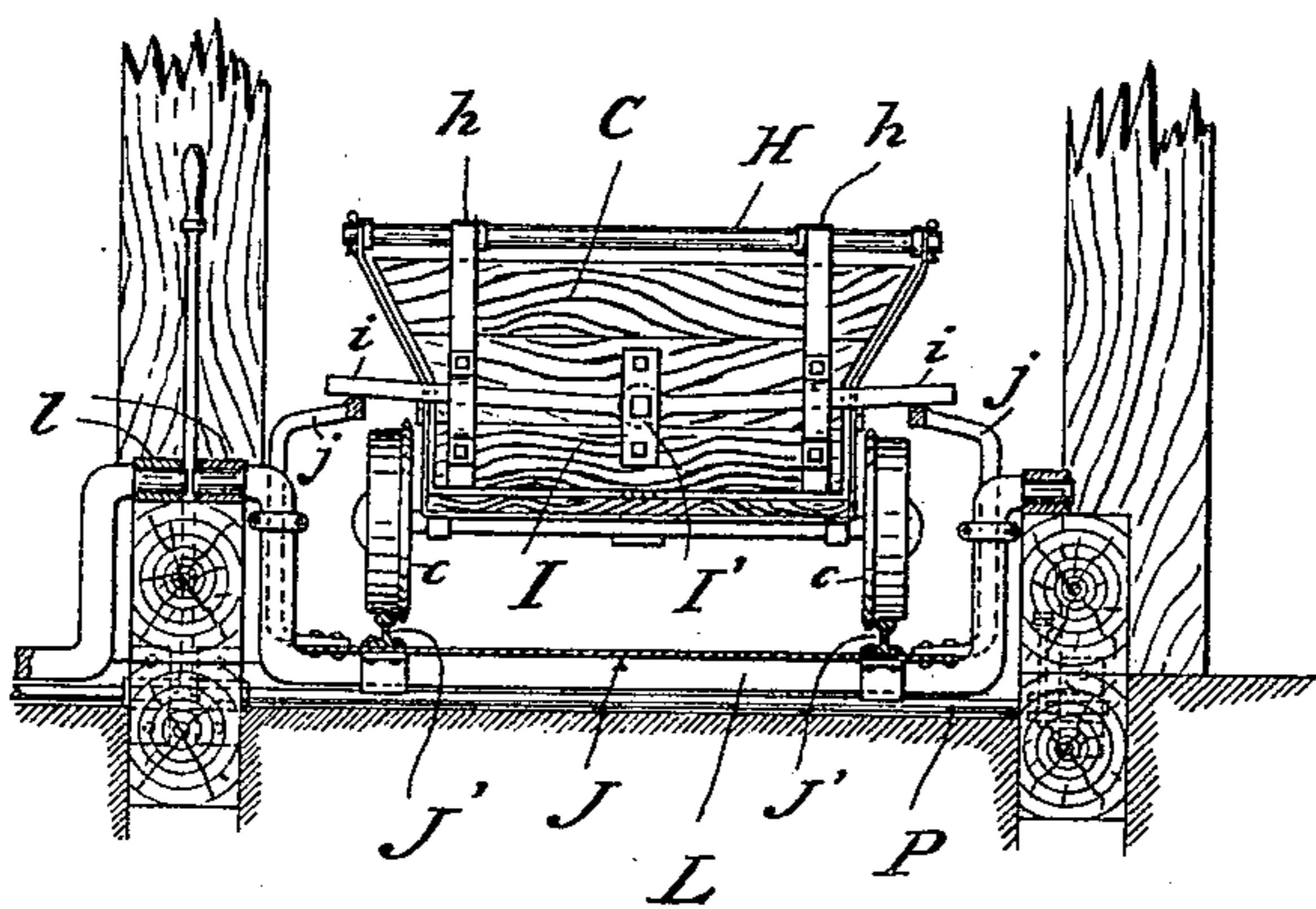


Fig. 5.



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# UNITED STATES PATENT OFFICE.

THOMAS J. PHILLIPS, OF OTTUMWA, IOWA.

## CAR-DUMPING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 481,968, dated September 6, 1892.

Application filed June 30, 1891. Serial No. 398,092. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS J. PHILLIPS, a citizen of the United States, residing at Ottumwa, county of Wapello, and State of Iowa, have invented certain useful Improvements in Car-Dumping Apparatus, of which the following is a specification.

My invention relates to improvements in car-dumping, in which cars loaded with mineral or other substances are brought to the earth's surface on cages plying usually in the vertical shafts of coal and other mines; and the objects of my improvement are the automatic action of the car, as follows: The locking of the car on the stage by automatic devices, the automatic movement of the car from the stage, the automatic return of the car to the stage, also such an adjustment of the machinery that the car will run off the stage in either of two opposite directions from the same level or landing, a superior device for moving the sliding bar back and forth by the use of two connecting-rods, and an improved latch-lifter. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 shows a plan view of a shaft with sections of track to conduct the cars to the tipple and with a car standing on the cage over one division of the shaft and the sliding bar to tip the track upon the cage. Fig. 2 is a vertical section of the shaft with the cage, a loaded car thereon held in position, and the entire cage and car elevated to the return point, ready to settle down upon its supports, and with the flat bar thrown in to engage with the lug on the rail and tip it in its descent, also the inclined tipple-rail and latch-lifter. Fig. 3 represents the same features shown in Fig. 2, the cage being lowered and resting upon its supports. Fig. 4 shows the loaded car moving toward the tipple. Fig. 5 is an end view illustrating the latch-lifting apparatus.

Similar letters refer to similar parts throughout the several views.

A is a vertical shaft sunk in the earth for mining or other purpose, and A' the walls thereof, usually constructed of or strengthened by planks or other timbers.

A'' is a twin shaft. (Partly shown in Fig. 1.)

B is the cage provided with two short parallel rails *b b*, upon which stands the car C on its wheels *c c*.

Attached to the floor of the cage B is an elliptic spring D, provided with a dowel *d*, adapted to receive a dowel-pin *d'*, which is attached to and depends from the car C.

The rails *b b*, which may be attached together, rest on the floor of the cage and are provided on their under sides at each end with suitably-attached lugs E, projecting downward through the floor of the cage, usually about three inches, and are also provided with longer lugs F, riveted to the bottom of the rails, as shown in Fig. 1, to prevent the endwise shifting of rails *b b* when inclined or tipped. Instead of the two lugs E E, a single lug may be used, and this may be placed on a connecting-bar between the rails *b b* or upon one of the rails only, but I prefer to use the two lugs, as shown in the drawings.

Movably attached to the walls of the shaft are four hinged posts or wings G, so loosely adjusted at the top by chains *g* that the rising cage will brush them aside in passing, but so hung as to swing outward automatically to intercept and thus stop the cage in its descent at a point on the level with the surface-tracks.

Upon the end of the car C, and swung from a rod or support H by the iron strap-hinges *h h*, is a door I, provided with a latch *i i*, pivoted at *i'* to be automatically lifted to open the door of the car in its progress to the tipple J by the latch-lifters *j j*. The tipple J is composed of two short rails J', attached to a platform or similar support and so curved at the outer end as to receive the forward wheels and stop the car. Fastened to its curved points are the latch-lifters *j j*, before mentioned. The center of the tipple is supported by a shaft L, journaled at either end in boxes *l*, and is adapted to be tipped by the weight of the car, as hereinafter described.

On the opposite side of the shaft from the tipple J and in line with the rails *b b* are two rails M M, forming a section of track, onto which the car may be run, if desired. These rails M M are attached to a flat bar N, adapted to be moved laterally by the connecting-rods

N', only one of which is shown connected, the other connecting-rod N' occupying a like position on the opposite side of the twin shaft A''. The rails M M on the flat bar N are adapted to be thrust under to tip the rails on the cage, and for this purpose the bar N is connected with the rock-shaft P by the rod N' in such a way that the rails M M may be advanced at will to tip the rails *b b* or withdrawn to form part of a continuous track to the floor of the dump-house. This bar rests on suitable bearings O O to allow it to have a reciprocating motion at the will of the operator through the lever P', rock-shaft P, and short rods *p* on the opposite side of the shaft, which are connected with the bar N by the connecting-rods N' N'.

In the operation of unloading coal by my mechanism the method is as follows: The cage B, with its car C, is first lifted up the shaft above the level of the sections of track. As the cage passes the hinged posts G they immediately swing out into the position shown in the drawings in readiness to receive and stop the cage in its descent. If the operator then desired to shunt or propel the loaded car upon the tippie, he moves the lever P' and throws the flat bar N forward until its rails M M are thrust under the track-rails *b b* in position to intercept and tip them on the descent of the cage. The cage is now lowered until the lugs E E on the rails *b b* are intercepted in their descent by the rails M M, attached to the bar N in a way to tilt the ends of the rails *b b*, as shown in Fig. 3. The cage is now still further lowered until the spring sinks away from the car and the dowel *d* in the spring is disengaged from the dowel-pin *d'* and the corners of the cage F' rest on the hinged supports G. The car is thus left standing on an inclined track and disengaged from the locking of the spring and its dowel, as shown in Fig. 3. From this position it is now automatically impelled downward on the inclined track toward the tippie J by gravity and is carried by the momentum of its descent up the slightly-inclined tippie-rails until it reaches and is stopped by the curved outer ends of the rails J'. As the car nears the curved ends of the rails the latch I is automatically lifted by the latch-lifter *j j*. The door thus freed from the restraint of the latch is swung open by the pressure of the contents of the car and the jolt of the collision of the car against the curved car-stops J'. The car swings on the tippie in the usual manner and the load is discharged through the open door of the car. To secure the automatic return of the car from the tippie, the tippie-rails *j j* are also, as previously mentioned, made to incline toward the shaft when the tippie is in its untipped position, as shown in Fig. 4. The car is returned to its horizontal position on the tippie by gravity and now stands on the inclined plane of the tippie-rails as it previously stood on the inclined rails *b b*; but the track on which it stands is now inclined toward the cage instead

of from it. The rails M M are withdrawn from beneath the lugs E E, allowing the rails *b b* of the track on the cage to drop down upon the floor of the cage. The car now occupies a position above the level of the track on the cage and is returned by its own gravity down the inclined track and is carried forward by its momentum and run upon the cage, depressing the spring D until the dowel *d* receives the dowel-pin *d'*, which effectually and automatically locks the car upon the rails of the track on the cage. When it is desired, as is often the case, to remove the car from the cage on the opposite side from the tippie to run it elsewhere, the lever P remains stationary. The rails M M are not advanced, as shown in Fig. 2, and do not engage with the lugs E E, and the cage is lowered at once upon the wings G in such a position that when the spring D is depressed by the foot of the operator releasing the dowel *d* from the dowel-pin *d'* the car can be moved from the cage. The rails M M, being now in line with the rails *b b* on the cage, form a continuous track, allowing the car to be removed on the floor of the dump-house or elsewhere on substantially the same level as the tippie.

Heretofore in using a self-dumping car placed on a cage it has been impossible to remove a car on the opposite side from the tippie and on substantially the same level therewith, owing to the fact that the device used for elevating the rails on the cage would not allow the car to pass off from the cage after the rails had returned to a horizontal position while the cage rested on the wings G. This necessitated a second set of wings below or above the wings G and also necessitated a second landing, both of which by using my device are unnecessary.

To obviate the necessity for a second set of wings and a second landing in order to unload or run off a car in any other direction than in the direction of the tippie, I employ the herein-described devices.

I consider this device of great value, as it avoids the expense and inconvenience heretofore incurred of duplicate landings and tracks.

I do not claim, broadly, the tippie herein shown, nor, broadly, the mere device for tipping the rails of the cage by interposing a prop under one end of the rails in their descent, as I believe these features are both old; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. In a car-dumping apparatus, a track-rail having beneath it at one end an attached lug adapted to engage with an interposed stop or bar to tip the rail and also adapted to drop below the surface of the track when not in use to afford an unobstructed track, thus enabling the car to run off the cage in an additional direction, substantially as described and shown.

2. In a car-dumping apparatus having a

cage with a track thereon made adjustable to enable it to be tilted to place the car on an inclined plane, the rails *bb*, provided with lugs *F* to prevent the endwise shifting of the rails, substantially as described and shown.

3. In a car-dumping apparatus having a cage with a track thereon made adjustable to enable it to be tilted to place the car on an inclined plane, the rails *bb*, provided with lugs *E E* to give the ends of the rails *b b* an additional landing-base, substantially as described and shown.

4. In a car-dumping apparatus having a cage with a track thereon made adjustable to enable it to be tilted to place the car on an inclined plane, the rails *bb*, provided with lugs *E E* to give the ends of the rails *b b* an additional landing-base, and with lugs *F* to prevent the endwise shifting of the rails, substantially as described and shown.

5. In a car-dumping apparatus carrying a car on an adjustable track, said track adapted to be tipped to place the car on an inclined plane, a slidable bar *N*, provided with short track-rails *M M*, so adjusted as to form a continuation of the untipped track, and also adapted to be readily interposed beneath the rails of the adjustable track to tip the same, substantially as described and shown.

6. The combination, in a car-dumping apparatus, of the slidable bar *N*, connected with the rock-shaft *P* and lever *P'* of the rods *N' N'*, and short rods *p p*, located on opposite sides of the twin shafts, substantially as described and shown, and for the purpose specified.

7. In a car-dumping apparatus, the combination of a cage having an adjustable track, with track-rails *M M*, adapted to form a continuation of the adjustable track, and means whereby the track-rails may be moved beneath the adjustable track to tilt the same, all substantially as described.

8. In a car-dumping apparatus, the combination of a cage having an adjustable track, with a lug or lugs *F*, attached to the adjust-

able track to prevent the endwise shifting of the track, all substantially as described.

9. In a car-dumping apparatus, the combination of a cage having an adjustable track, track-rails *M M*, adapted to form a continuation of the adjustable track, and means whereby the track-rails *M M* may be moved beneath the adjustable track to tilt the same, a tippie adapted to connect with the adjustable track, having an automatic unlatching device and having tippie-rails inclining downward toward the cage to secure the return of the empty car upon the cage, substantially as described.

10. In a car-dumping apparatus, the combination of the cage adapted to be landed near the surface, an adjustable track on the cage, an elliptic spring adapted to fix the car on the cage and hold it while in vertical transit, a slidable bar adapted to tip the track upon the cage to place the car on an inclined plane, a tippie adapted to connect with the track upon the cage, an automatic unlatching device, and a tippie-track inclining downward toward the cage and located between the tippie and the cage to secure the return of the empty car, all substantially as described and shown.

11. In a car-dumping apparatus, the combination of the cage adapted to be landed near the surface, an adjustable track on the cage, having lugs *F* and *E*, an elliptic spring adapted to fix the car on the cage and hold it while in vertical transit, a slidable bar adapted to tip the track upon the cage to place the car on an inclined plane, a tippie adapted to connect with the track upon the cage, an automatic unlatching device, and a tippie-track inclining downward toward the cage and located between the tippie and the cage to secure the return of the empty car, all substantially as described and shown.

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Witnesses:

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