No. 729,746. PATENTED JUNE 2, 1903.

A. FILER.

ATTACHMENT FOR WINDING SHAFTS FOR DUMPING DOORS FOR CARS.

APPLICATION FILED FEB. 16, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

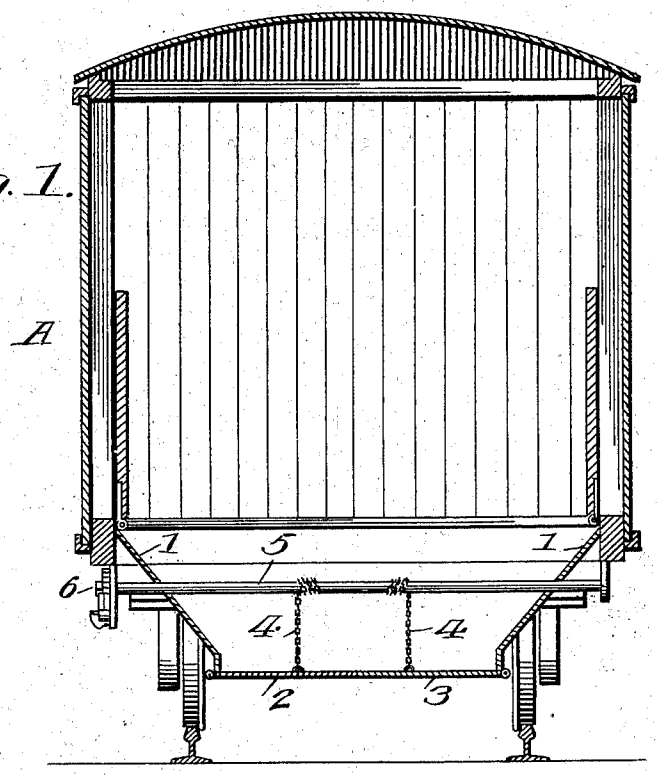
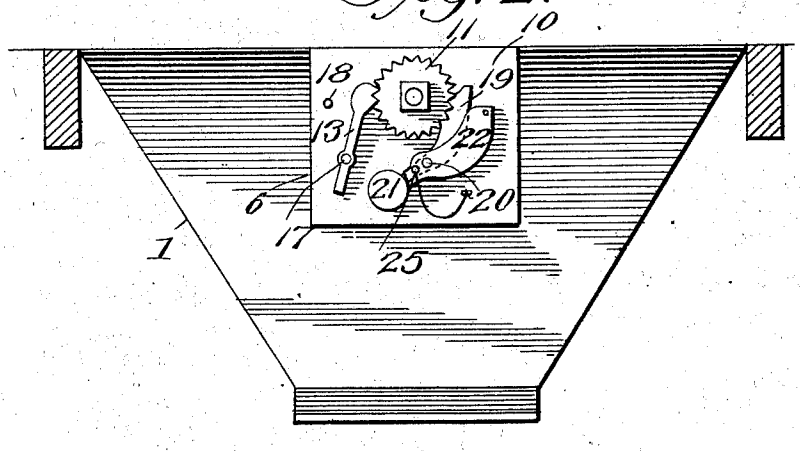


Fig. 2.



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Fig. 3.

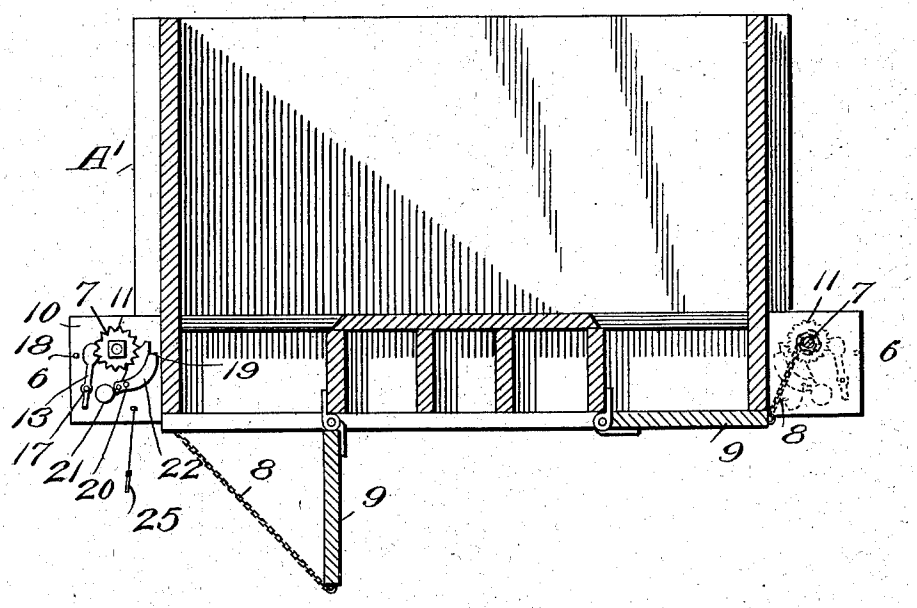


Fig. 4.

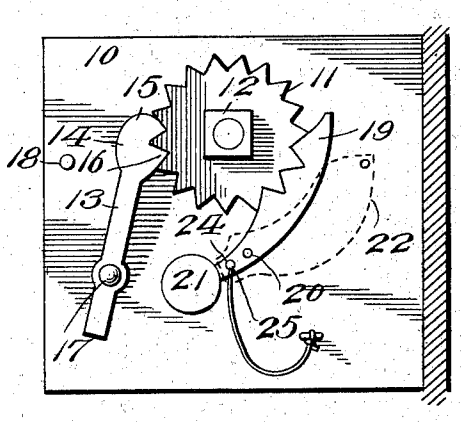


Fig. 5.

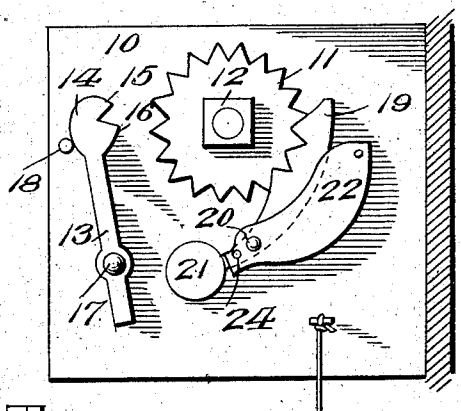
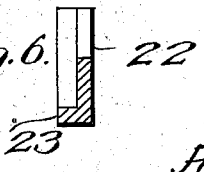


Fig. 6.



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No. 729,746. Patented June 2, 1903.

UNITED STATES PATENT OFFICE.

ALBERT FILER, OF ALTOONA, PENNSYLVANIA.

ATTACHMENT FOR WINDING-SHAFTS FOR DUMPING-DOORS FOR CARS.

SPECIFICATION forming part of Letters Patent No. 729,746, dated June 2, 1903.

Application filed February 16, 1903. Serial No. 143,558. (No model.)

To all whom it may concern:

Be it known that I, ALBERT FILER, a citizen of the United States, residing at Altoona, in the county of Blair and State of Pennsylvania, have invented certain new and useful Improvements in Attachments for Winding-Shafts for Dumping-Doors for Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has relation to improvements in attachments for winding-shafts for dumping-doors for cars; and the object is to simplify and improve the art relating thereto by providing a gravity-acting attachment to such winding-shaft which is certain in action, effective in holding the shaft in relative position to which turned, and strong and durable in the uses and purposes intended.

With these objects in view the invention embodies a ratchet-wheel mounted on the winding-shaft a gravity-acting holding-pawl having multiple engagement with the ratchet-wheel, and a protective shoe or housing for the multiple ratchet-pawl, all as will be hereinafter fully disclosed, and the novelty thereof particularly and distinctly pointed out in the claims.

It will be premised that the invention is applicable to either a shaft disposed longitudinally on the car or to a shaft arranged transversely across the car, and I have shown both of these arrangements in the drawings. It may be also stated that the device may be readily accommodated to shafts used for the purpose and positioned differently from those shown in the accompanying illustrations.

I have fully and clearly illustrated the improvements as practically applied in the accompanying drawings, wherein—

Figure 1 is a vertical transverse section of a car having a hopper-bottom with hinged dumping-doors opened and closed by chain connections to a winding-shaft mounted across the hopper and showing the improvements associated therewith. Fig. 2 is a side elevation of the car-hopper and front view in elevation of my improved device. Fig. 3 is a transverse vertical section of a car having hinged drop-doors and indicating the application of the invention to winding-shafts running parallel with the sides of the car. Fig. 4 is a detail view in elevation of the invention in locked position, the shoe or shield being indicated in dotted lines in order to show the multiple pawl clearly. Fig. 5 is a detail view in elevation of the improvements, showing the stay-pawl removed from engagement and the multiple pawl unlocked. Fig. 6 is a transverse section through the housing and guide-shoe.

Referring to the drawings, it will be seen that in Fig. 1 the attachment or device is operatively applied to a hopper-bottom car having hinged dump-doors connected by winding chains to a winding-shaft mounted across the hopper, and to the projecting end of the shaft is operatively connected my improved device. In this arrangement, A designates the body of the car. 1 is the hopper. 2 3 are the dropping dump-doors; 4, the winding chains; 5, the winding-shaft, and 6 designates in a general way the improved device mounted at the side of the car with the end of the shaft journaled therein.

In Fig. 3 of the drawings the device is shown as mounted and applied to shafts journaled lengthwise of the car and the chains connected to doors which fall down and inward on their hinges. The car A′ is shown as being of the flat-bottom construction, and reference being had to this figure, A′ designates the car-body; 7, the winding-shafts; 8, the winding chains; 9, the dumping-doors, and 6 the device generally mounted and secured as extending from the sides of the car at right angles to the face thereof. It will thus be seen that the improvements are readily applicable to dumping-cars of different makes, shapes, or styles.

Particularly describing the device, 10 designates a suitable support to be secured to a convenient place on the car, with the winding-shaft journaled therein. On the winding-shaft is fixedly mounted the ratchet-wheel 11, formed with a squared hub 12, adapted to take a suitable wrench or other fixture, implement, or tool. The teeth of the ratchet-wheel are of the double-incline shape in order that the oppositely-arranged pawls may both conveniently engage them.

13 designates the pawl utilized for engaging the ratchet-wheel to prevent it from return movement when the shaft is being turned

to wind up the chains. This pawl consists of a stem or handle 13, formed with a flat head 14, provided with two teeth 15 16 with a notch between them to straddle any one of the teeth of the ratchet-wheel. The stem of the pawl 13 is supported by a pivot-bolt 17, placed at such point that the stem of the pawl may stand at an incline when in engagement and be maintained in such position and returned to engagement by gravity. It will be perceived that the tooth 15 acts to hold the wheel against return movement and that the wheel may be rotated in the other direction notwithstanding the engagement of the pawl, which will be intermittently thrown back to escape the released tooth and then re-engaged by gravity. A stop-pin 18 is provided to prevent the pawl from falling too far back beyond the vertical line, and the stem of the pawl may be extended below the pivotal point, as shown, for convenient manipulation when releasement is required to permit the dumping-doors to open.

The locking-pawl consists of a curved flat bar or arm 19, formed with a multiple of teeth, as shown, to engage their complement of teeth of the ratchet-wheel, either detachably, as when winding or unwinding the chains, or to lock the ratchet-wheel with the shaft and the associated mechanism in position. This multiple-tooth engagement is a strong one and removes the load from a single tooth and distributes the strain equally to the number of teeth engaged. The pawl-arm 19 is pivotally mounted on a bearing-pin 20 and is extended below its bearing and provided with a weighted portion 21 of such force as to effect the engagement by gravity.

To prevent accident to and shield the pawl-arm 19, as well as to guide it in its action, I provide a shoe or housing 22, within which the pawl has movement and is prevented from being moved beyond the point required, as indicated in the drawings. This shoe, shield, or housing consists of a flat curved plate having an inwardly-extending flange 23 along its lower edge, which flange sets against the face of the support. The shoe is secured in position by any proper fastenings and also has the bearing-pin 20 projected through it.

Any suitable means may be employed to lock and hold the pawl 19 in engagement with the ratchet-wheel. I have illustrated a means consisting of a pin-hole 24, made through the lower part of the shoe and the pawl-arm, and a locking-pin 25, detachably fitted to the pin-hole.

From the foregoing description, taken in connection with the illustrations, it will be readily discovered that the manipulation of the device, its effect on the associated mechanism, and its operation may be stated as follows: When it is necessary to permit the dumping-doors to open, all that is to be done is to withdraw the locking-pin and disengage the pawl 13, when the weight on the doors will force them open and the load thus discharged through them. Then to restore the dumping-doors to closed position the pawl 13 is moved into engagement with the ratchet-wheel, the shaft-turning means applied and actuated, and the chains wound up on the shaft, carrying with them the dumping-doors, which being thus closed the locking-pin is placed in locking position, and pawl 19 thus locked in the ratchet-wheel and the winding-shaft thus held locked securely against rotation.

Having described my invention, what I claim is—

1. The combination with the winding-shaft and a ratchet-wheel fixed on the shaft and having a squared hub-piece, of a pawl to hold the ratchet-wheel against return movement, the stem of the pawl being pivotally supported and standing approximately vertical and adapted to engage the ratchet-wheel by gravity, and a pivotally-mounted flat curved pawl-arm provided with a plurality of teeth to engage the ratchet-wheel and weighted at its lower end beyond the pivotal support, and a locking means to lock the pawl-arm in engagement with the ratchet-wheel.

2. The combination with the winding-shaft and a ratchet-wheel fixed on the shaft and having a squared hub-piece, of a pawl to hold the ratchet-wheel against return movement, the stem of the pawl being pivotally supported and standing approximately vertical and adapted to engage the ratchet-wheel by gravity, a pivotally-mounted flat curved pawl-arm provided with a plurality of teeth to engage the ratchet-wheel and weighted at its lower end beyond the pivoted support, a shield over the curved pawl-arm, and a locking means to lock the pawl-arm in engagement with the ratchet-wheel.

In testimony whereof I affix my signature in presence of witnesses.

ALBERT FILER.

Witnesses:
J. D. HICKS,
G. W. BUCK,
JACOB FOSTER.