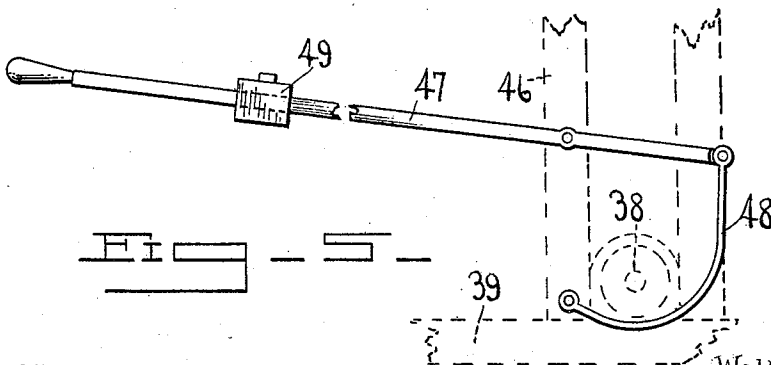
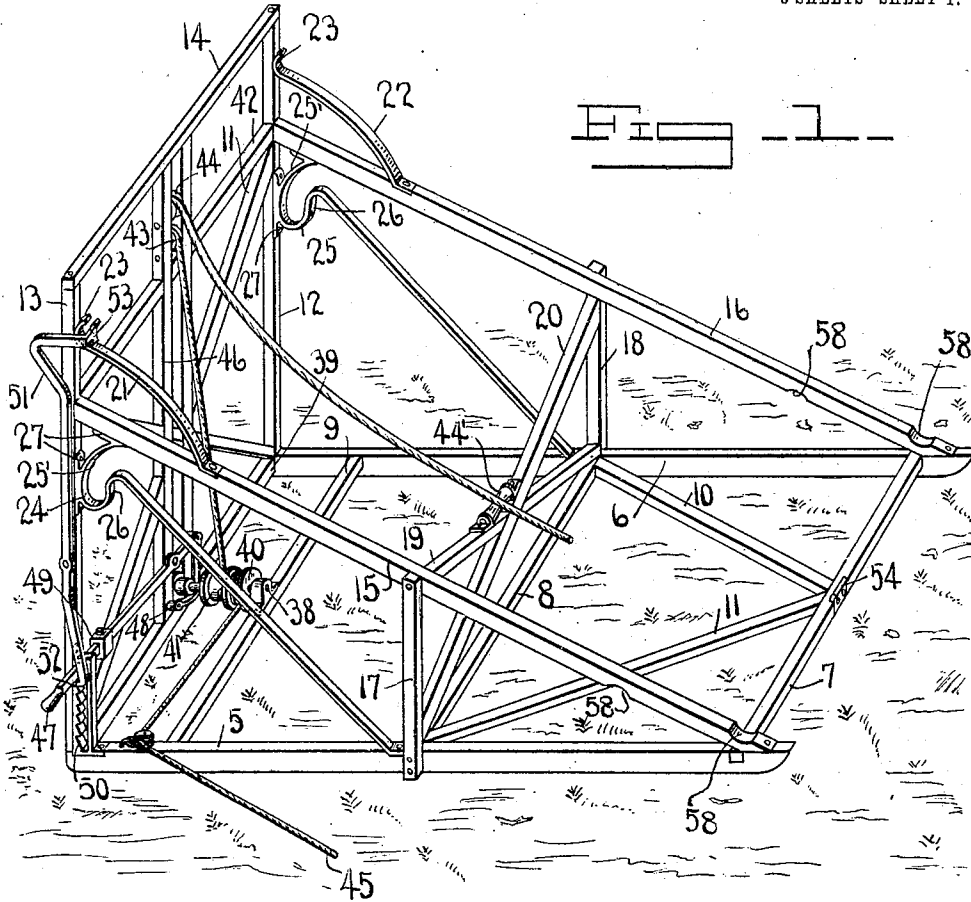


W. H. SABIN.
HAY STACKER.
APPLICATION FILED MAR. 13, 1909.

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Patented Sept. 6, 1910.

3 SHEETS—SHEET 1.



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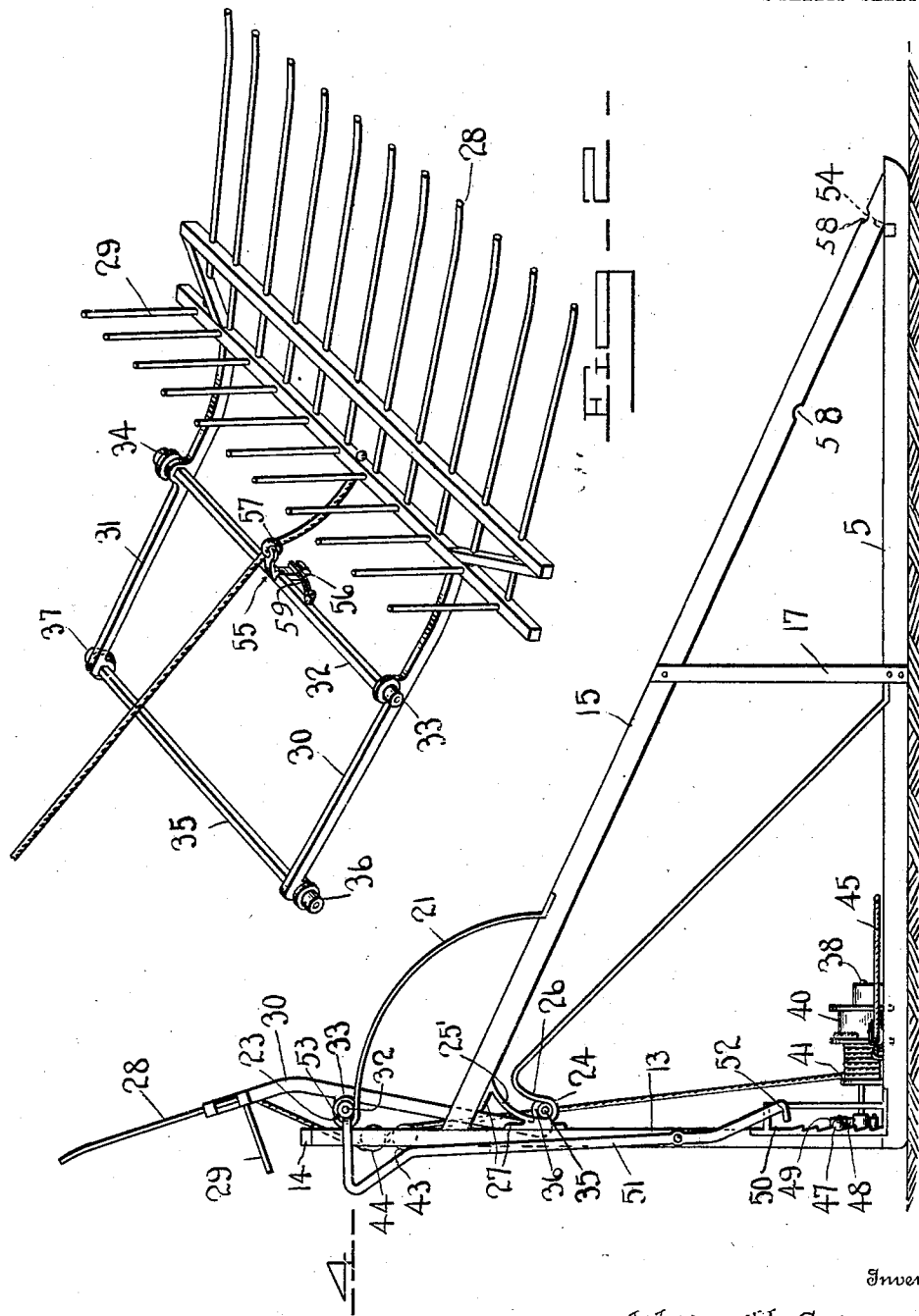
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3 SHEETS—SHEET 2.



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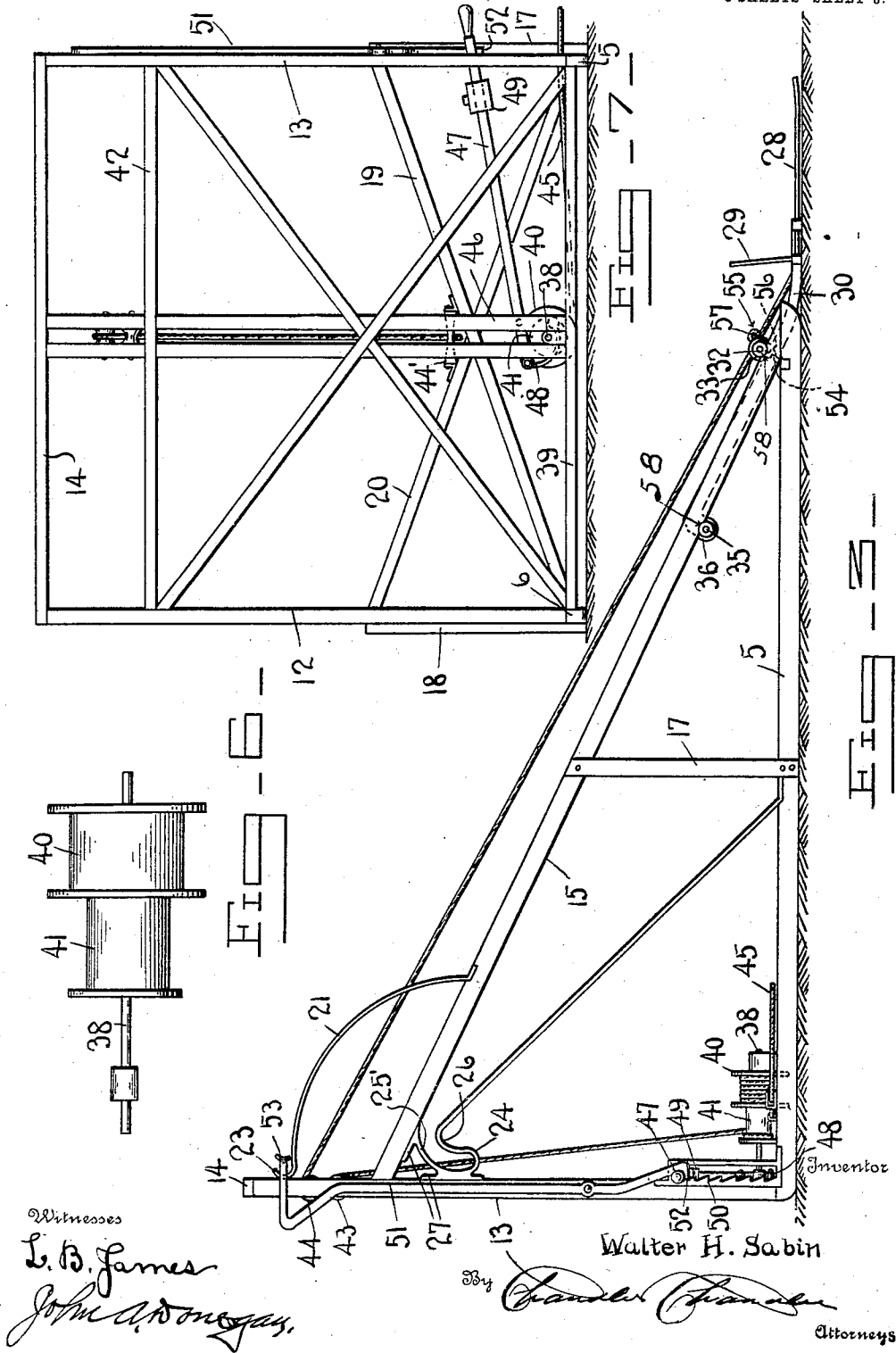
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969,197.

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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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HAY-STACKER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WALTER H. SABIN, a citizen of the United States, residing at Crookston, in the county of Polk, State of Minnesota, have invented certain new and useful Improvements in Hay-Stackers; 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.

This invention relates to improvements in hoisting and dumping apparatus and more particularly to the kind known as hay stackers.

One object of the invention is to provide an improved form of stacker the carrier of which will assume a vertical position at the upper end of the incline and dump its load.

Another object is the provision of an improved form of brake which will automatically act to check the animal or other source of power by means of which the carrier is raised, when the latter has reached the upper end of the incline.

A further object is the provision of a carrier provided with an automatic latch which will limit its outward movement from the carrier when in a loading position.

With these and other objects in view as will more fully hereinafter appear, the present invention consists in certain novel details of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings and more particularly pointed out in the appended claims. It is understood that various changes in the form, proportion, size and minor details of the device may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings forming part of the specification: Figure 1 is a perspective view of the track. Fig. 2 is a similar view of the carrier. Fig. 3 is a side elevation of the carrier upon the track and showing the same in a position to be loaded. Fig. 4 is a similar view showing the carrier in a dumping position. Fig. 5 is a detailed side elevation of the brake mechanism. Fig. 6 is a detailed side elevation of the drum. Fig. 7 is a rear end view of the device.

Similar numerals of reference are employed to designate corresponding parts throughout.

The track or elevator is shown to consist of an open frame work and is constructed so that it may be transported from place to place in the field. As shown in the drawings the sills 5 and 6 are in the form of runners, it is to be understood, however, that wheels may be applied to these runners whenever the ground or other circumstances so warrant. The sills 5 and 6 are spaced apart and parallel and are connected by the cross pieces 7, 8 and 9 disposed at the intermediate portion and adjacent either end of the sills, diagonal stringers 10 and 11 serve to further brace the sills against swagging or rocking movement. Rising from what will subsequently be termed the rear ends of the sills are the uprights or standards 12 and 13, the upper ends of which are connected by a cross piece 14. An inclined track consisting of the rails 15 and 16 extend from the upper end portions of the uprights 12 to the forward ends of the runners 5 and 6. Suitable uprights or braces 17 and 18 connect the intermediate portions of the rails with the runners. The upper ends of the braces are disposed on the outer faces of the rails 15 and 16 for a purpose to presently appear. Diagonally disposed stringers 19 and 20 connect the opposite upper ends with the opposite lower ends of the uprights 17 and 18 and serve to brace the same. By referring now to Figs. 1, 3 and 4 it will be seen that the rails 15 and 16 are provided adjacent their upper ends with bowed extensions 21 and 22. Each of these extensions is preferably formed of a single piece of metal, one end of which is secured to the upper face of the rail and the opposite end to the extreme upper end of the adjacent end standard. The end portion of the extension secured to the standard is curved inwardly over the face of the extension so as to provide a socket 23, the function of which will appear later. Disposed on the lower faces of the rails 15 and 16 and directly beneath the extensions 21 and 22 are sockets 24 and 25. Each of these members is preferably formed of a single casting having a downwardly curved side 25' extending from a point substantially in alinement with the intermediate portion of the extensions 21 and 22, this downwardly curved side ter-

minating in an upwardly curved extension 26 spaced from the side 25', and the end of which is spaced from and underlies the rails 15 and 16 and is substantially in a vertical plane with that end of the side 25' bearing against the rails 15 and 16. With this construction it can be seen that a socket is formed, the outline of which is a compound curve. The extensions are secured to the rails 15 and 16 and uprights 12 and 13 by means of lugs 27 secured to the outer faces of the sides 25'.

By referring now to Fig. 2 it will be seen that the form of carrier employed conforms to the usual type of carrier used in devices of this kind having the base prongs 28 from the rear ends of which project the vertical back prongs 29. The carrier in the present instance is shown to be greater in width than the distance between the rails 15 and 16 and projecting from the rear end of the base are spaced beams 30 and 31, the width of these beams is somewhat greater than the height of the rails 15 and 16 and secured to the upper face of the beams and adjacent their inner ends is a transversely disposed axle 32 on the opposite ends of which are journaled the flanged wheels 33 and 34, the distance between these wheels is approximately the same as the distance between the rails 15 and 16 so that when the former are placed upon the latter the carrier will be permitted to move along the track. Disposed adjacent the outer ends of the beams 30 and 31 and secured to the lower faces thereof is an axle 35 corresponding in length to the axle 32 and on the opposite ends of which are journaled the flanged wheels 36 and 37 which are adapted to bear on the lower sides of the rails 15 and 16. Thus it will be seen when the carrier is on the rails as shown in Figs. 3 and 4 the wheels on one side of the beams will bear on opposite sides of the rail. In this position the carrier is moved upwardly on the track until the wheels 36 and 37 enter the curved socket. When the parts are in this position and the wheels 36 and 37 begin to bear on the upper ends of the curved sides 25' the wheels 33 and 34 will have just engaged the lower ends of the extensions 21 and 22, as the carrier moves upwardly the wheels 36 and 37 will follow the curvature of the side 25' so also will the wheels 33 and 34 follow the curved surface of the extensions 21 and 22 with the result that the wheels will be changed in position from an inclined plane to a vertical plane, whereby the base 28 of the carrier will also occupy a similar position, thus it can be seen when the carrier is loaded with hay and turned upwardly as just described and when the tilting takes place its contents will be discharged over the back of the incline and into the hay stack.

In order that the carrier may be turned

up the track in an expeditious manner and to exert a brake upon the lifting power when the carrier has reached the limit of its upward travel the following construction is employed: By referring now to the drawings it will be seen that a suitable shaft 38 is journaled in the cross pieces 9 and 39 adjacent the rear ends of the sills or runners 5 and 6. Mounted on this shaft are a pair of drums 40 and 41 of different diameters. Suitably secured between the cross pieces 14 and 42 connecting the upper ends of the standards are a pair of pulleys 43 and 44, a suitable rope or cable having one end secured to the smaller of the drums 41 has its opposite end reeved through the pulleys and secured to the medial portion of the base 28 and at the rear end thereof, a suitable roller 44' is journaled on a shaft having its ends secured to the medial cross braces 19 and 20 which strengthen the uprights 17 and 18. This roller is in direct alinement with the sheaves of the pulleys and it is to be understood that the latter are so disposed that they are in alinement with the medial portion of the base 28. Secured to the larger drum is one end of a rope 45, the free end of which is connected with a draft animal or other means of power.

It is to be understood that the ropes combined with the drums 40 and 41 are sufficiently coiled about the same to permit the draft animal to move outwardly sufficiently far to bear the carrier up the tracks and it will be further understood that in order to accomplish this the ropes are oppositely coiled around the drums 40 and 41 so that when the draft animal moves outwardly from the elevator the rope will be unwound from the drum 40 while that connecting the drum 41 with the carrier will be wound upon the former. In order that a suitable brake may be applied to the shaft 38 whenever desired the following mechanism is employed: Fulcrumed to a standard 46 the opposite ends of which connect the intermediate portion of the cross piece 39 with the upper cross piece 14, is a lever 47, the outer end of which extends beyond the upright or standard 13 and the inner end of which is provided with a curved strip 48 which embraces the shaft 38. A suitable slide 49 is mounted on the lever and may be adjusted on the power arm side in any position to increase the friction between the curved strap 48 and shaft 38. A suitable rack 50 is disposed on the front face of the standard 13 the teeth of which are adapted to engage the lever and prevent upward movement of the same. Thus it will be seen when the lever is pressed downwardly the strap 48 will be brought into engagement with the shaft 38 and the friction on the latter will be sufficient according to the pressure on the lever to check the movement of the draft

animal. In order that the brake may be operated automatically when the carrier has reached the end of its upward journey the following device is employed: Pivoted to the outer face of the standard 13 is the intermediate portion of a lever 51 the upper end of which is bent inwardly and projects into the socket 23 at the upper end of the extension 22, the lower end of the lever or trip is bent inwardly and forms a latch 52 which engages the lever 47, thus it will be seen when the upper end of the trip is moved outwardly its opposite or latched end will be moved in an opposite direction and disengage the lever 47 whereby the latter will drop and the band 48 bear on the shaft 38, this it will not do however until the car wheel 36 has entered the socket 23 and engaged the extension 53 of the trip.

In order that the downward or outward movement of the carrier may be limited so that the wheels of the carrier will not bind within the crotch formed by the track and runners 5 and 6, the following construction is employed:—Four semi-circular notches 58 are formed in the upper and lower sides of the runners 15 and 16; these notches are so arranged that when the carrier moves downward far enough to bear on the ground the wheels of the carrier will enter the notches whereby further downward or outward movement of the carrier will be prevented.

Referring now to Fig. 1 it will be seen that a suitable keeper 54 is disposed at the intermediate portion of the cross piece at the free ends of the runners. This keeper is preferably formed of a single piece of sheet metal and is so arranged that its upper longitudinal side will extend above the plane of the upper face of the cross piece.

Reference to Fig. 2 discloses the fact that the axle 32 is intermediately provided, on that side adjacent the prongs 28 of the carrier with a transverse recess and pivoted in this recess is the intermediate portion of a latch 55. The latch 55 is substantially right-angular in contour and the terminal of its vertical side which extends below the plane of the axle is provided with a beveled nose 56, to engage the keeper. The latch is yieldingly held against upward and forward movement by means of a horizontally disposed leaf spring 59, one terminal of which is secured to the axle 32 and the opposite terminals bearing on the upper side of the nose 56. Thus it will be seen when the car moves downwardly the nose 56 will override the keeper 54 whereby upward movement of the carrier will be prevented while hay is being pushed thereon; the opposite end of the latch is curved upwardly and provided with an eye or opening 57 through which passes the rope by means of which the carrier is operated, thus as the rope is tightened the latch will be with-

drawn from engagement with the keeper and permit the carrier to move upward.

From the foregoing it can be seen that I have provided a device which is comparatively simple in structure and inexpensive to manufacture. With most devices of this kind now in use there is a tendency for the carrier to become affected during heavy winds and prevented from performing its proper function since with most devices the tilting movement is such that it can be successfully accomplished only when comparatively light winds prevail. It can be seen with a device of this kind this defect is overcome and at the same time the parts so positioned that the danger of derangement will be reduced to a minimum.

Having thus described my invention what is claimed as new, is:

1. In hoisting and dumping apparatus of the class described, the combination with an inclined track and a carrier movable thereon, of a hoisting drum to raise said carrier, a brake mechanism for the hoisting drum, a lever to operate said brake mechanism and a trip lever having means for engaging and releasing said brake lever, said trip lever extending into the path of said carrier and being movable by an element of the carrier to cause said trip lever to release the brake lever when the carrier reaches the upper limit of its movement.

2. In a hoisting and dumping apparatus the combination with a hoisting drum, a friction brake combined therewith, and a lever for operating said brake, of an inclined track, a carrier provided with wheels and movable along said track, a trip lever having a latch at one end for engaging the said brake lever and its opposite end extending to the upper end of said inclined track, and operable by said wheels to release said brake lever.

3. In a hoisting and dumping apparatus the combination with a hoisting drum having a friction brake combined therewith, and a lever for operating said friction brake, of an inclined track, a carrier movable along said track and deflectors at the upper end of the latter operating on said wheels and causing the said carrier to assume a vertical position, a trip having one end in engagement with said brake lever and its opposite end disposed adjacent one of said deflectors and operable by a wheel of said carrier to release said friction lever.

4. In a hoisting and dumping apparatus, an inclined track provided adjacent its end with notches, a carrier having wheels to run on said track and enter said notches whereby movement of said carrier in one direction will be prevented, a keeper combined with said track, and a pivoted spring pressed latch carried by said carrier to override said keeper on the downward move-

ment of the carrier and serving to prevent upward movement of the latter while being loaded.

- 5 In a hoisting and dumping apparatus, an inclined track provided adjacent its lower end with notches, a carrier having wheels to run on said track and enter said notches, whereby movement of said carrier in one direction will be prevented, a keeper
10 combined with said track, and a pivoted spring pressed latch carried by said carrier to override said keeper on the downward

movement of the carrier and prevent upward movement of the latter while being loaded, and means for moving the latch 15 from engagement with the carrier before the upward movement of the carrier.

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

WALTER H. SABIN.

Witnesses:

E. S. CRAIN,

HENRY M. FEMRITE.