J. W. TREW & C. McGAUGHEY.

AUTOMATIC CATCHING DEVICE.

APPLICATION FILED SEPT. 23, 1911.

1,025,034.

Patented Apr. 30, 1912.

3 SHEETS—SHEET 1.

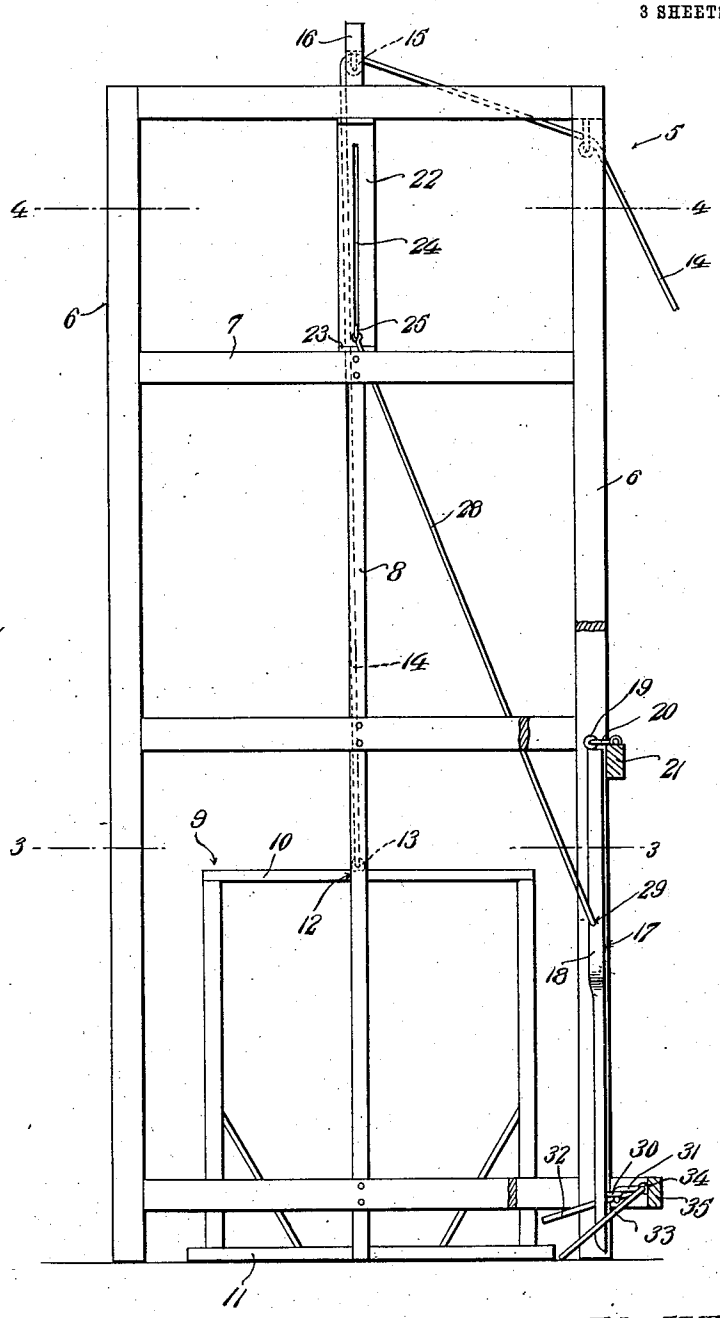

Fig. 1.

Witnesses

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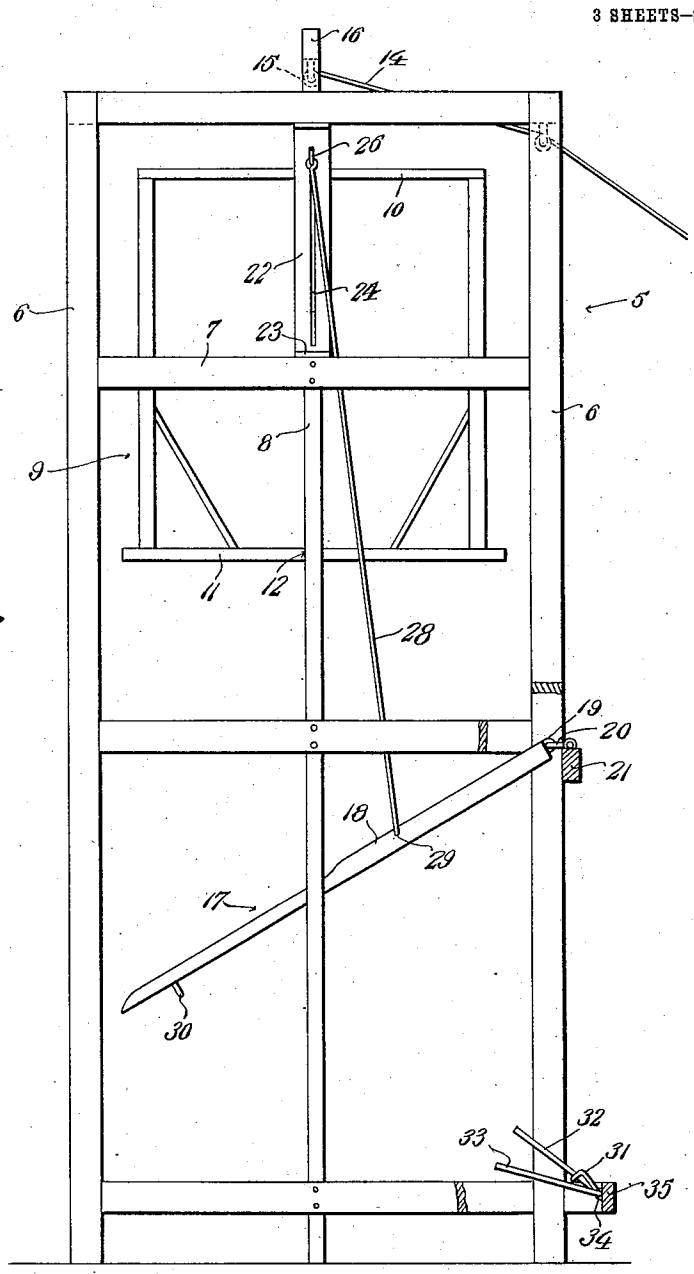

Fig. 2.

Witnesses

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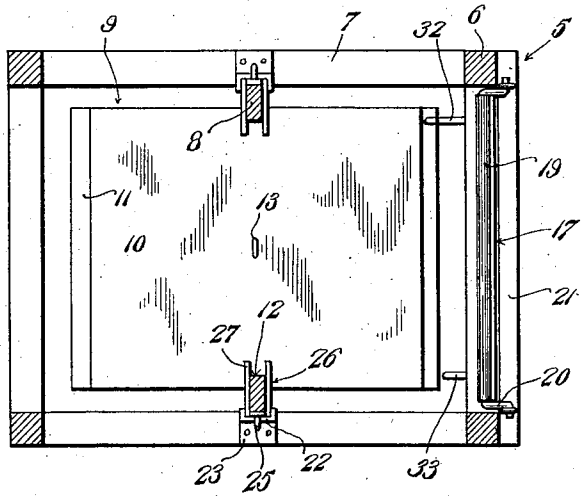

Fig. 4.

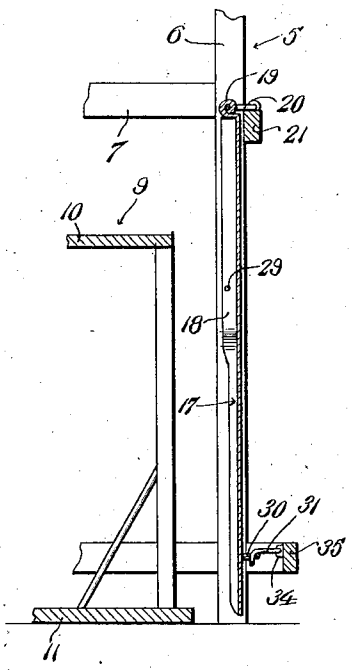

Fig. 5.

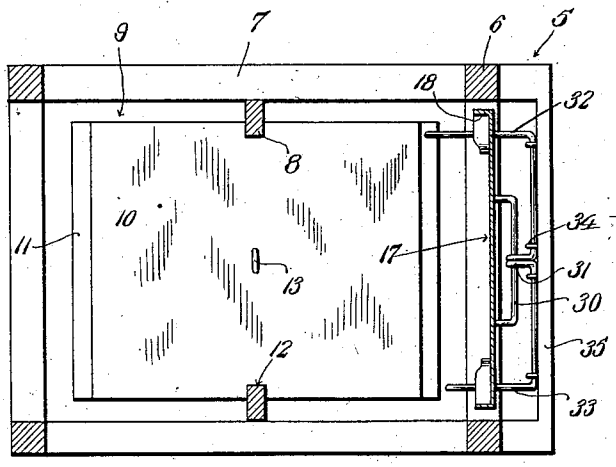

Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

JOHN W. TREW AND CHARLES McGAUGHEY, OF STAUNTON, ILLINOIS.

AUTOMATIC CATCHING DEVICE.

1,025,034. Specification of Letters Patent. Patented Apr. 30, 1912.

Application filed September 23, 1911. Serial No. 650,869.

To all whom it may concern:

Be it known that we, JOHN W. TREW and CHARLES McGAUGHEY, citizens of the United States, residing at Staunton, in the county of Macoupin and State of Illinois, have invented new and useful Improvements in Automatic Catching Devices, of which the following is a specification.

The invention relates to automatically operated material catching devices, and more particularly to the class of coal catchers for mine tipples.

The primary object of the invention is the provision of an automatic catching device of this character in which coal or other material, when being elevated upon a lift, will be deflected from the tipple when falling off of the lift, thereby preventing the filling of the lower end of the shaft, and avoiding the necessity of the cleaning of the shaft at the bottom thereof.

Another object of the invention is the provision of a catching device which is adapted to swing out of the path of movement of the lift, when being lowered, and that will be automatically shifted on the ascending of the lift, so as to catch any material falling therefrom, during its ascent, thus avoiding accumulation of material at the bottom of the shaft in which the lift travels.

A further object of the invention is the provision of a catching device of this character in which material accidentally falling from an elevator, lift or the like will be caught in a chute and directed from the shaft, so as to avoid the deposit thereof in the bottom of the shaft, thereby obviating the necessity of the cleaning out of the shaft bottom, as is customary, the chute being automatic in operation, and adapted to be locked from accidental swinging movement resultant from heavy winds or other natural causes.

A further object of the invention is the provision of a catching device of this character which is simple in construction, thoroughly reliable in operation, and inexpensive in installation.

With these and other objects in view, the invention consists in the construction, combination and arrangement of parts, as will be hereinafter more fully described, illustrated in the accompanying drawings, and pointed out in the claims hereunto appended.

In the drawings: Figure 1 is a side elevation of a mine shaft, with the lift in lowered position, showing the catching device applied thereto in accordance with the invention. Fig. 2 is a similar view, showing the lift raised and the chute in position for catching material accidentally falling from the lift. Fig. 3 is a sectional view on the line 3—3 of Fig. 1. Fig. 4 is a sectional view on the line 4—4 of Fig. 1. Fig. 5 is a fragmentary vertical longitudinal sectional view.

Similar reference characters indicate corresponding parts throughout the several views of the drawings.

Referring to the drawings by numerals, 5 designates the elevator or lift shaft, including vertical corner posts 6, and cross brace beams 7, the same being united to the corner posts 6 in any suitable manner. Fixed to the cross beams 7 at the sides of the shaft are vertically disposed opposed guide tracks 8, upon which is adapted to travel a lift or elevator cage 9, the same being provided with a top 10, and a bottom or platform 11, the top and bottom being cut away to provide guide notches 12, into which project the tracks 8, so that the said cage or lift will be guided when ascending or descending in the shaft, as usual.

Fixed centrally in the top 10 of the lift 9 is a coupling 13, to which is connected a lifting cable 14, the same being trained over a sheave or pulley 15, fixed to and depending centrally from a U-shaped bridge bar 16, fixed to the shaft 5 at the head thereof, the lifting cable 14 being operated in any suitable manner for causing the ascending and descending of the cage or lift. The cage or lift 9 is adapted to receive thereon coal, lead, zinc, gold, and silver, or any other suitable material, when it is desired to convey the same from the bottom of the shaft to the top thereof for the dumping of such material by means of tipple mechanism (not shown).

In the loading of the cage or lift 9, it is frequently executed in a careless manner, due to the fact that the operation is performed with considerable rapidity, and in actual practice it has been found that as the lift or cage 9 ascends, a certain amount of the material accidentally falls from the lift or cage, and becomes deposited in the bottom of the shaft 5, thereby necessitating frequent cleaning out of the shaft at the

bottom thereof. Therefore, to avoid this additional amount of labor, and the loss of material, there has been devised an automatic catching device, presently described.

The catching device comprises a chute 17, the same being narrower at one end than the other, and on opposite longitudinal edges thereof are provided guard strips 18, which prevent any material deposited in the chute from dropping therefrom, after the chute has been raised to the proper inclination for the discharge of the material deposited thereon, the chute 17, at its wider end, being provided with a bearing 19 loosely engaging a substantially U-shaped pivot yoke 20, the ends of which are fixed to a cross beam 21 secured to the corner posts 6, adjacent to each other, at a point above the bottom of the shaft 5; thus, in this manner the said chute 17 may be swung from substantially perpendicular position to the desired inclination for the catching of material falling upon the cage or lift 9, during the ascent thereof, so that said lost material may be discharged outside of the shaft 5, where it may be collected in any suitable manner.

Fixed to the outer edges of the tracks 8, near the upper ends thereof are U-shaped guide housings 22, the opposite ends of which are formed with outturned ears 23 fixed to the cross beams 7, adjacent thereto, the housings 22 being provided with elongated vertical slots 24 arranged centrally therein, through which project eyes 25, of lifting devices, each comprising a substantially U-shaped member 26, the limbs 27 of which project inwardly of the shaft 5, at opposite sides of the tracks 8, into the path of movement of the lift or cage 9 to engage the top thereof on the ascent of the same, the eyes 25 being connected to cables 28, the same being also connected in eyes 29 formed in the side guard strips 18 of the chute, at a point intermediate the ends of the said chute, so that when the lifting devices are engaged and rise with the lift or cage 9, the chute will be automatically shifted at an angle, near the bottom of the shaft 5, so that material falling from the lift or cage 9 will be caught thereby and deflected outside of the shaft 5 to one side of the same, thereby preventing the deposit of the falling material upon the base or bottom of the shaft. Thus, in this manner the necessity of cleaning of the bottom of the shaft is obviated. On the descending of the lift or cage 9 and its arrival at a predetermined distance from the bottom of the shaft 5, the chute 17 will move out of the path of movement of the lift or cage 9 into substantially parallel alinement with the corner posts 6, adjacent thereto, and between which the chute is mounted, so that the said lift or cage 9 will descend without being impeded in its travel by the chute, thus enabling it to be lowered to the bottom of the shaft for the reloading thereof.

Mounted upon the chute 17, on the outer face thereof, near its free end is a keeper or bail 30, which is adapted to be engaged on the lowering thereof to substantially perpendicular position by means of a locking device, presently described.

The locking device comprises a hook-like member, forming a catch 31, the same being provided with reversely curved arms 32 and 33, respectively, projected into the path of movement of the lift or cage 9, the arm 33 being adapted to be engaged by the bottom or platform 11 of the lift or cage 9 when descending, so as to bring the catch 31 into locking engagement with the keeper or bail 30, and the arm 33 is designed to be engaged by the platform 11 of the lift or cage 9 when ascending to automatically release the catch 31 from the bail or keeper 30, whereby the chute 17 will be free to be automatically moved to an inclined position on the cage or lift 9 reaching a predetermined height in the shaft, so that the said chute 17 will catch any material falling from the lift or cage, during the ascent thereof in the shaft, and prior to the delivery of the material from the same.

The catch 31 is pivoted, as at 34, to a cross bridge bar 35 fixed to the corner posts adjacent thereto of the shaft.

What is claimed is:

1. The combination with a shaft, and a movable lift traversable therein, of lifting devices arranged for sliding movement near the head of the shaft, a swinging chute pivoted to one side of the shaft near the lower end thereof, connections between the lifting devices and the said chute for the swinging of the latter at an angle below the lift on the engagement thereof with the said lifting devices, and means operated by the lift for locking the chute out of the path of movement of the lift on the descending of the latter.

2. The combination with a shaft, and a movable lift traversable therein, of lifting devices arranged for sliding movement near the head of the shaft, a swinging chute pivoted to one side of the shaft near the lower end thereof, connections between the lifting devices and the said chute for the swinging of the latter at an angle below the lift on the engagement thereof with the said lifting devices, means operated by the lift for locking the chute out of the path of movement of the lift on the descending of the latter, and means for raising and lowering said lift.

3. The combination with a shaft, and a lift adapted for travel therein, of a chute pivoted to one side of the shaft and adapted to swing from normal perpendicular posi-

tion to an inclination, means engageable with the lift near the top of the shaft for bringing the chute to inclined position when the lift is ascending in the shaft, and means for locking the chute in perpendicular position on the lowering of the lift and for unlocking said chute on the raising of the said lift.

4. The combination with a shaft, and a lift adapted for travel therein, of a chute pivoted to one side of the shaft and adapted to swing from normal perpendicular position to an inclination, means engageable with the lift near the top of the shaft for bringing the chute to inclined position when the lift is ascending in the shaft, means for locking the chute in perpendicular position on the lowering of the lift and for unlocking said chute on the raising of the said lift, and means for raising and lowering the lift in the shaft.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN W. TREW.
CHARLES McGAUGHEY.

Witnesses:
H. H. WILLOUGHBY,
W. P. WALL.