

(No Model.)

G. L. STUEBNER & P. NIES.
COAL CHUTE.

No. 511,557.

Patented Dec. 26, 1893.

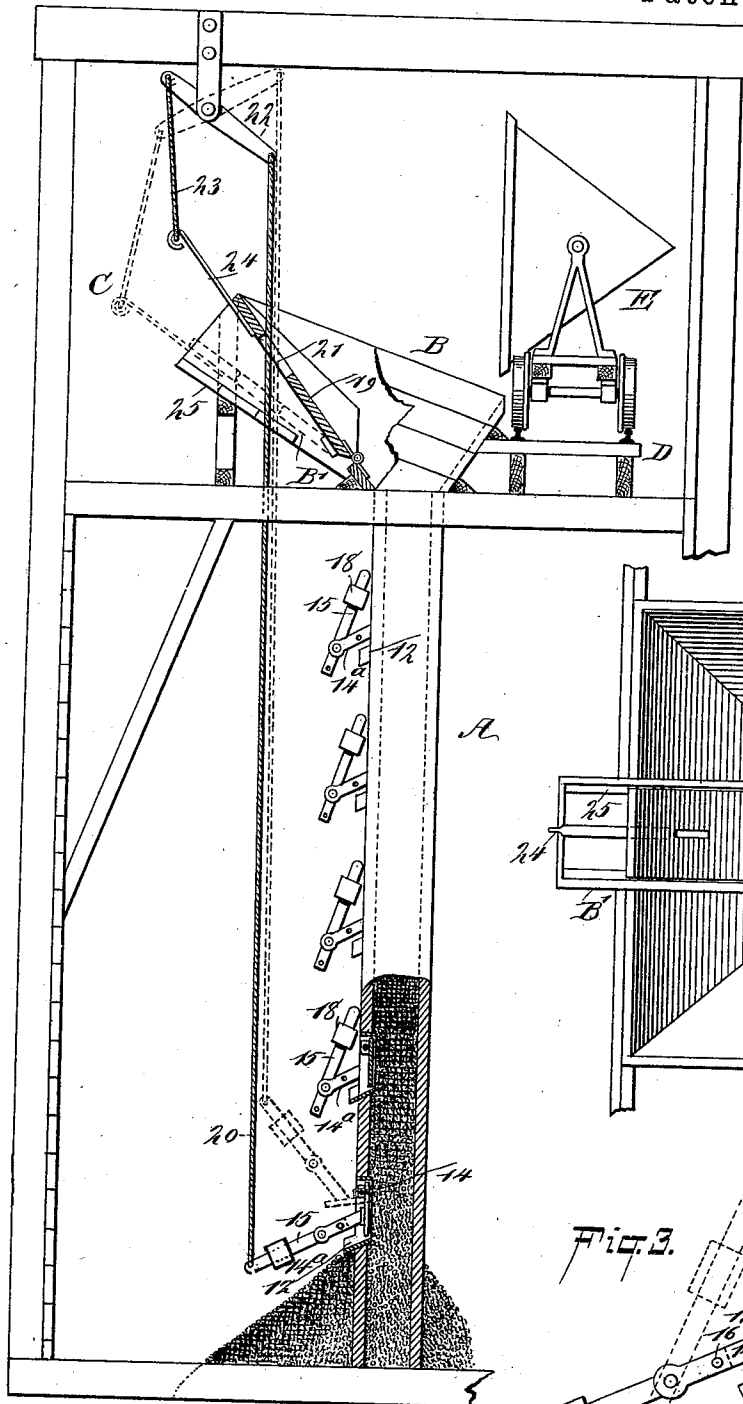


Fig. 1.

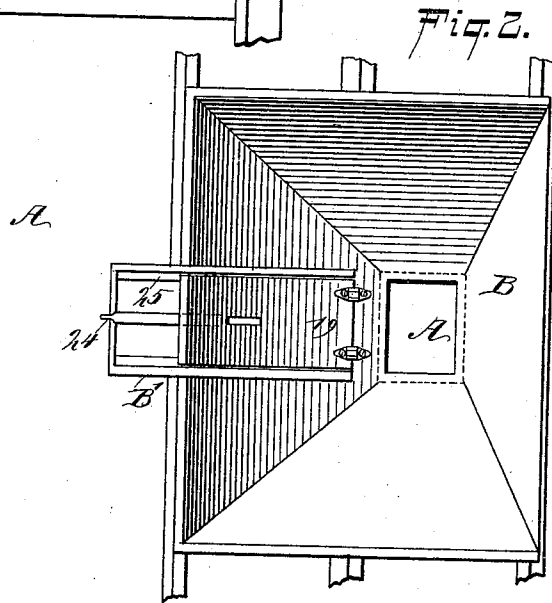


Fig. 2.

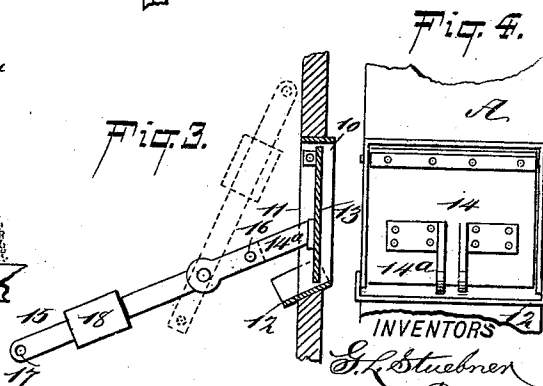


Fig. 4.

Fig. 3.

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COAL-CHUTE.

SPECIFICATION forming part of Letters Patent No. 511,557, dated December 26, 1893.

Application filed August 18, 1893. Serial No. 483,440. (No model.)

To all whom it may concern:

Be it known that we, GUSTAVUS L. STUEBNER, of Long Island City, in the county of Queens, and PHILIPP NIES, of Brooklyn, in the county of Kings, State of New York, have invented a new and useful Improvement in Coal-Chutes, of which the following is a full, clear, and exact description.

Our invention relates to an improvement in coal chutes, and it has for its object to so construct the chute that coal may be delivered to a given point through the chute from any desired elevation without danger of the coal becoming broken during its passage down the chute.

A further object of the invention is to so construct the chute that as each load of coal is dumped therein a predetermined door, being one of a series produced in the chute, will be automatically opened and the coal be discharged from the chute to the ground upon which it is to be piled.

A further object of the invention is to provide a means whereby the discharge attachment may be expeditiously and conveniently disconnected from any one door and connected with another, and whereby the medium of attachment between the discharge mechanism and the several doors may be placed out of the way of the discharge attachment when any one, or more doors, is not to be acted upon.

A further object of the invention is to effect a discharge of the coal from the chute directly through the medium of the coal delivered to the chute at its receiving end.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a partial side elevation of the improved chute and a partial sectional view thereof. Fig. 2 is a plain view of the chute. Fig. 3 is a detail sectional view taken through a portion of the chute and one of its doors; and Fig. 4 is a side elevation of a section of the chute and one of its doors.

In carrying out the invention the chute A may be made of any desired shape, or may be

constructed of any approved material, and it may be erected to any desired height. The chute is provided at intervals in its length with series of openings 10, the openings being provided with suitable casings 11, which casings at their lower ends, as shown in Figs. 1 and 3, are provided with attached or integral troughs 12, having an outward and downward inclination. In the casing of each opening the upper end of a door 13, is pivoted, the door being provided upon its outer face with ears 14, having a downward inclination, standing at an obtuse angle to the door, as shown in Figs. 3 and 4. In connection with each door an arm 15, is employed, the said arm being pivoted between the ears 14 a predetermined distance from its inner end, so that when an arm is brought into longitudinal alignment with the ears to which it is pivoted, the inner end of the arm will extend between the ears in direction of the door, and the arm is held in that position by passing the pin 16 through the ears and through the inner end of the arm. The arm 15, is provided at its outer end preferably with an aperture 17 and with a weight 18, and the latter may be adjustable if desired. Whenever it is necessary to fold the arm upward, as shown in Fig. 1, the pin 16, is removed, and the weighted end of the arm is carried above the ears to an engagement substantially with the chute. The weight 18 is adapted, when the arm is in its lower position, to maintain the door with which it is connected closed.

At the upper end of the chute a hopper B, is constructed, and the hopper is inclined upon all sides in direction of its bottom, and the mouth of the chute substantially constitutes the said bottom, as shown in Fig. 2. A well or depression B', is made in one side of the hopper, and the bottom of this well or depression consists of a platform 19, said platform being hinged, preferably at its lower end, to one of the walls of the hopper proper. The platform is held in an upper position, that is, removed from the bottom of the well B', as shown in Figs. 1 and 2, through the medium of the weight 18 on any of the arms connected with the chute, as for example a cable or chain 20, is connected with the outer end of the lowermost arm 15, and the rope or cable is carried upward through an opening 21 in the platform, and at its upper end the cable

is connected with the longer end of a lever 22, the said lever being fulcrumed at one side of its center to any fixed support, ordinarily a portion of the framing C, utilized to support the upper end of the chute and the hopper B. The shorter end of the lever 22, is connected by a cable or chain 23, with a rod 24 or its equivalent, attached to the upper or outer end of the platform. The platform is prevented from dropping farther than the bottom of the well B', through the medium of ledges 25, upon the lower portion of the well, and when the platform is in its lower position it still has a decided inclination in direction of the top of the chute, and completely closes the bottom of the well. One portion of the track D, upon which the car E carrying the coal travels, is located at the lower side of the hopper in order that the car may be dumped readily therein.

The operation is as follows: All the doors in the chute being closed it is filled with coal; next, the lower end of the cable or chain 20, is connected with the lower arm 15, said arm being secured in its lower position to the lowermost door; when this attachment is made the weight on the lower arm will maintain the platform in an upper position, as shown in Fig. 1. All of the other arms 15, are at this time preferably carried to their upper positions against the chute, as shown in Fig. 1, in order that they shall not interfere with the cable 20. The next load that is received in the hopper will be received partially by the platform 19, the platform will be pressed downward to its lower position, shown in dotted lines in Fig. 1, the shorter end of the lever 22, will be depressed, its opposite end elevated, and the lower arm 15, through the medium of the cable 20 and the lever 22, will likewise be carried to the upper position, also shown in Fig. 1 in dotted lines, the lower door will be opened, and the coal will run out through the door opening and fall around the base of the chute. When sufficient coal has been discharged through the lower opening to relieve the platform from pressure, the weight upon the lower arm will act to close said platform, at the same time acting to close the lower door, or practically close it. After the coal has reached the level of the lower door, the arm 15 connected with that door is carried to the folded or upper position, and the cable 20, is attached to the arm of the next door above, that arm having been rigidly connected with the door, and in this manner the cable is changed from arm to arm 15, as the pile of coal around the chute reaches the level of an opening covered by the door with which the arm is connected. It is evident that by this manner of delivering coal, the coal will not be broken even though delivered from a great height, and the operation of stacking or piling the coal is thoroughly automatic with the exception of changing the connection between the cable 20 and the trip arms of the doors.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In a coal chute, a series of doors covering openings therein, weighted arms connected with the doors, a hopper located at the top of the chute, a pivoted platform located in the hopper and adapted to receive the impact of the material placed therein, a lever, a connection between the platform and the lever, and a connection between an arm of one of the doors and the lever, substantially as shown and described.

2. In a coal chute, the combination, with a chute, a series of doors covering openings in the chute, and weighted arms having pivotal and locking engagement with the doors, of a hopper located above the chute, a platform pivoted within the hopper, a lever a connection between one end of the platform and one end of the lever, and a connection between the opposite end of the lever and the arm of one of the doors, as and for the purpose specified.

3. A coal chute provided with a series of openings, doors normally closing the openings, a series of arms having pivotal and locking engagement with the doors, and means, substantially as shown and described, of opening a door through the instrumentality of the material entering the chute, as and for the purpose set forth.

4. The combination, with a chute provided with a series of openings, doors pivoted in the openings and normally closing the same, and ears projected from the doors, of weighted arms pivotally connected with the ears, a portion of the arms extending within the ears in direction of the doors, and a removable locking device adapted to hold the ears and arms in longitudinal alignment, as and for the purpose set forth.

5. The combination, with a chute provided with a series of openings, doors pivoted in the openings and normally closing the same, and ears projected from the doors, of weighted arms pivotally connected with the ears, a portion of the arms extending within the ears in direction of the doors, a removable locking device adapted to hold the ears and arms in longitudinal alignment, a hopper located at the top of the chute, a platform hinged within the hopper, adapted to receive a portion of the impact of the material placed in the chute, a lever fulcrumed to a fixed support, a cable connection between one end of the lever and the platform, and a cable connection between the opposite end of the lever and one of the weighted arms connected with the door, the arm being in rigid connection with the door, substantially as shown and described.

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