

(No Model.)

J. E. CLIFTON.

COAL CHUTE.

No. 297,350.

Patented Apr. 22, 1884.

Fig. 1.

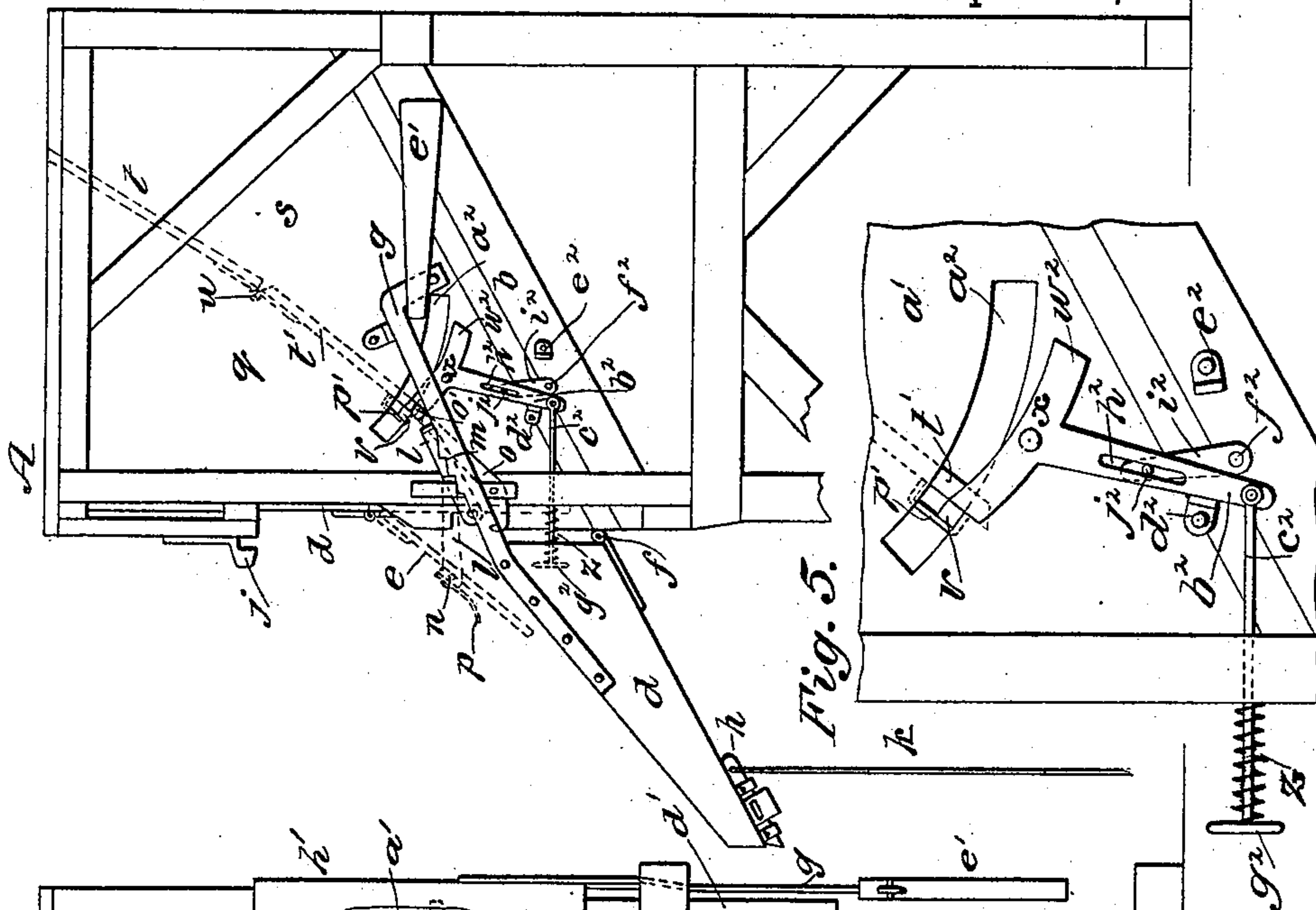


Fig. 2.

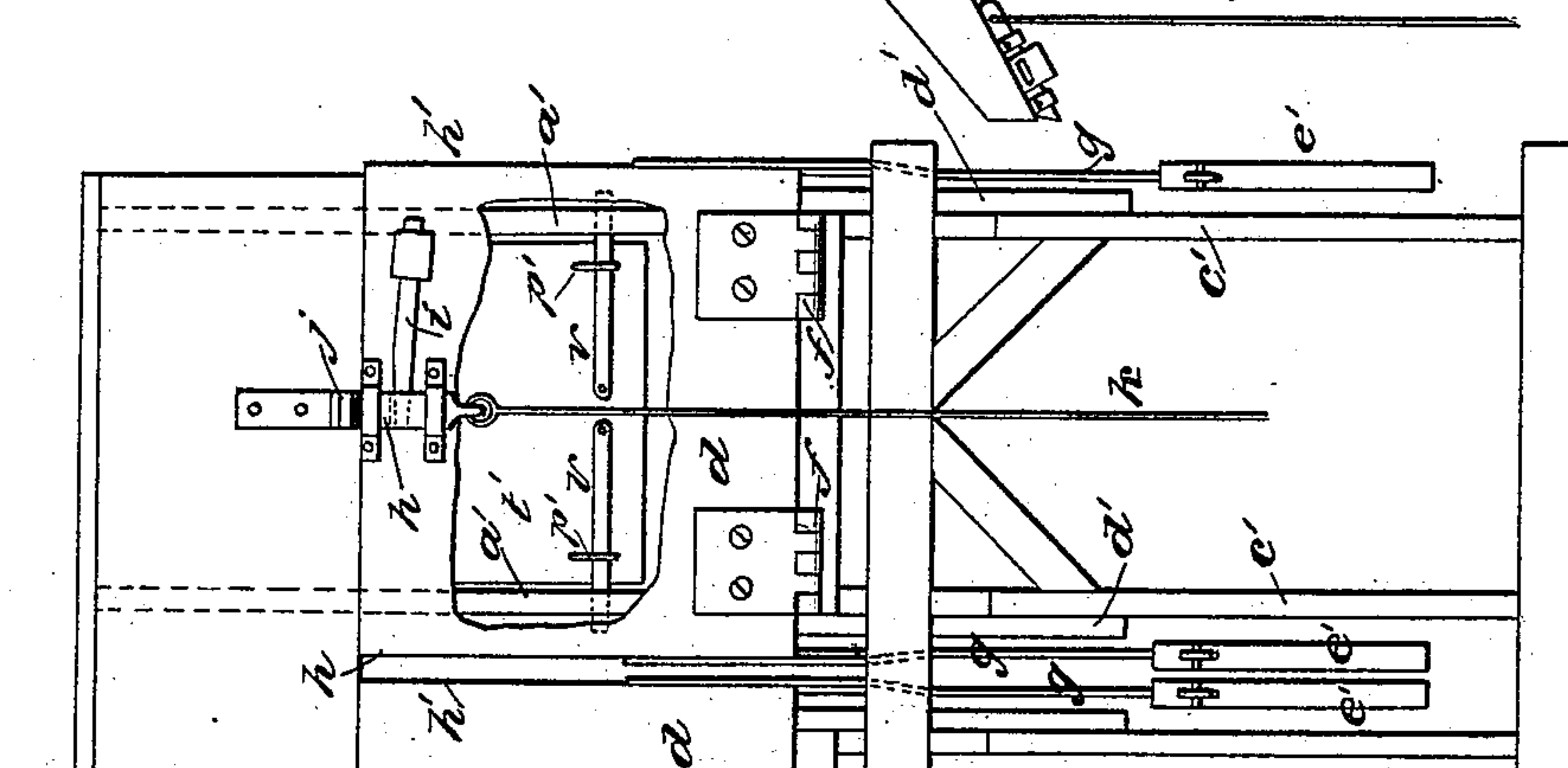
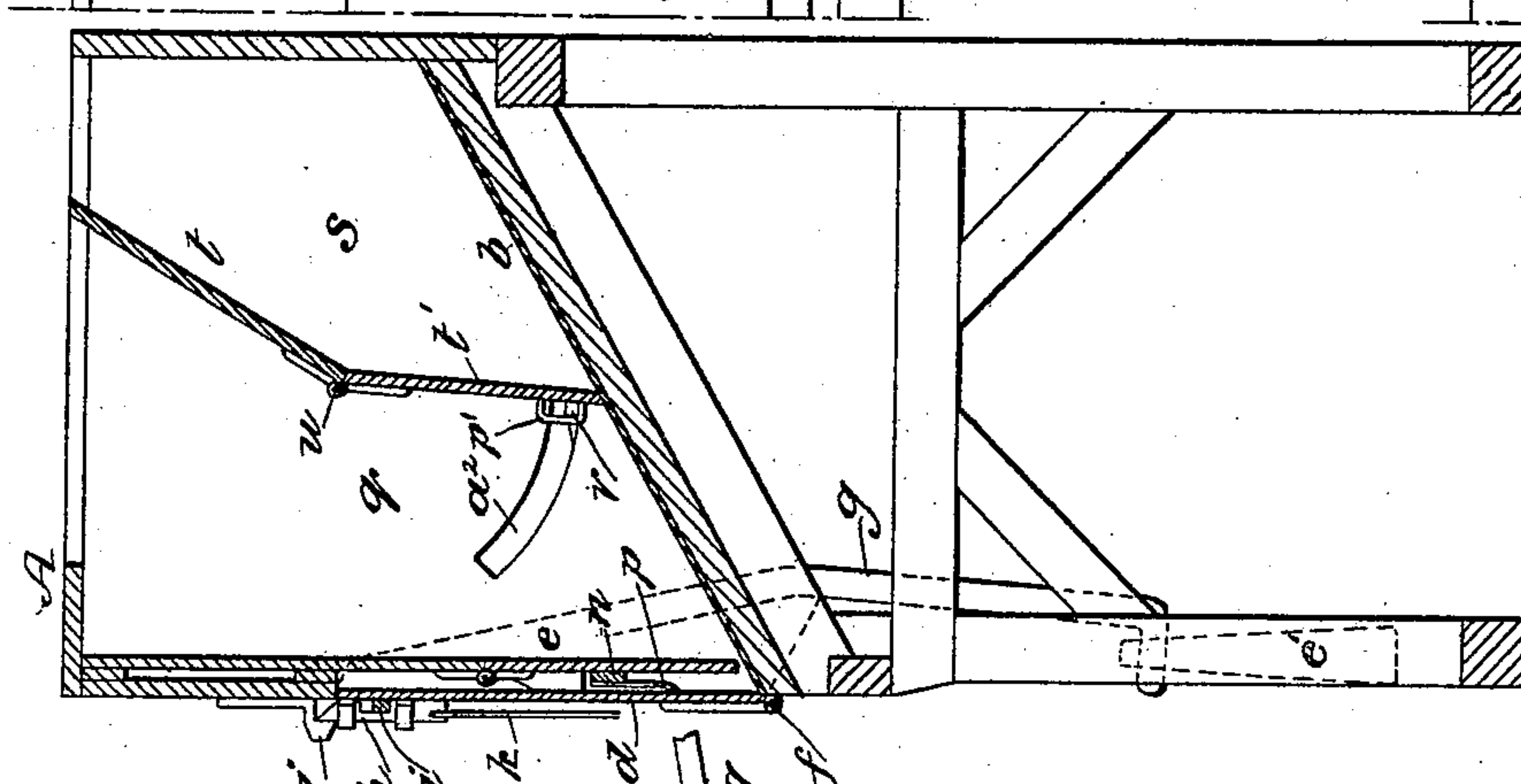


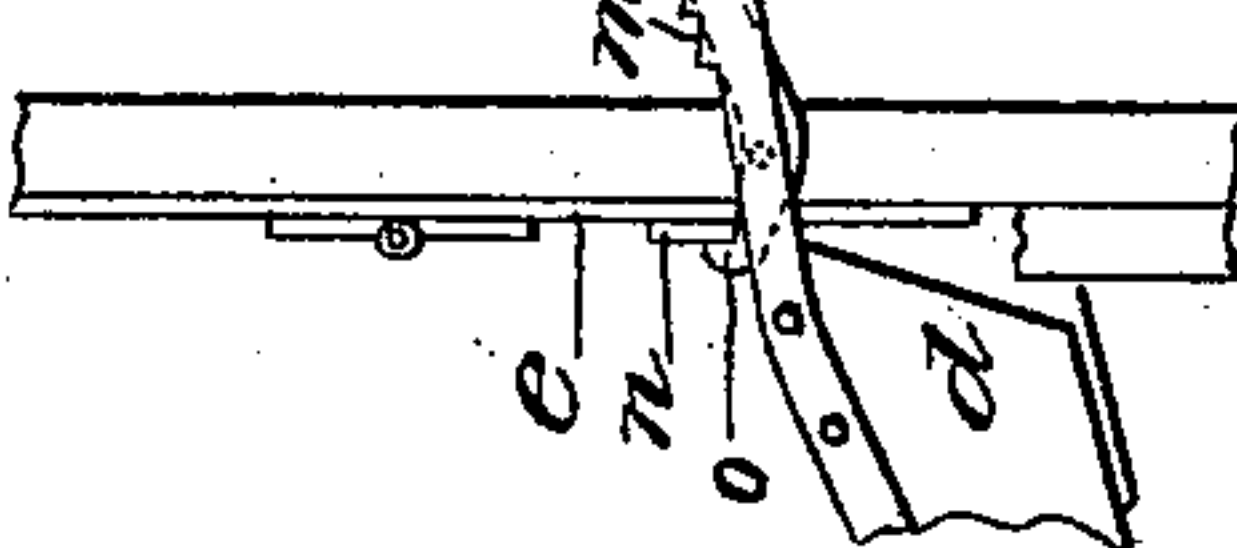
Fig. 3.



WITNESSES:

John C. Deemer
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Fig. 4.



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UNITED STATES PATENT OFFICE.

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COAL-CHUTE.

SPECIFICATION forming part of Letters Patent No. 297,350, dated April 22, 1884.

Application filed February 11, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH E. CLIFTON, of the city of Geneseo, in the county of Henry and State of Illinois, have invented new and useful Improvements in Coal-Chutes, of which the following is a full, clear, and exact description.

My invention relates to the construction and arrangement of coal-chutes used for coaling locomotive-tenders and other carriages, and to the construction and arrangement of the framework supporting such coal-chutes, the objects being to dispense with complicated mechanism, to save time and labor in the coaling operation, and to economize space and material in the construction of the supporting framework to such coal-chutes.

My invention consists of an improved arrangement of the latch for fastening up the balanced apron of the coal-chute; also, of a brace attachment to the door used in connection with the balanced apron, such brace attachment being to hold the door open when the chute is being operated, so as to prevent the coal from clogging, and also to facilitate and insure the closing of the door when the coal is all out of the coal box or pocket; also, of an attachment to facilitate and insure the latching of the door when the same is closed by the balanced apron when it closes up; also, of a partition in the coal box or pocket with a swinging door or gate, and latching devices operated by a lever or levers, to facilitate the discharge of coal in smaller batches.

My invention also consists of an improvement in the construction of the supporting-frames of the coal boxes or pockets, to facilitate the arrangement of them more closely together for economizing space and material when two or more coal boxes or pockets are to be placed side by side in the same building, all as hereinafter fully described.

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

Figure 1 is a side elevation of a coal-chute having my improved attachments. Fig. 2 is a front elevation of the same, with part broken out. Fig. 3 is a vertical sectional elevation, and Figs. 4 and 5 are detailed views.

a is the coal box or pocket, with a sloping and sheet-metal-lined bottom, *b*, door *e*, and balanced apron *d*, said apron being hinged at *f* to the bottom of the coal box or pocket *a*, and provided with weighted balance-arms *g*, to automatically close the balanced apron or coal-chute *d* up close to the front of the coal box or pocket, so as to be disposed of compactly when not required to be down for the discharge of coal; and the above parts are substantially the same as heretofore made.

For fastening the balanced apron *d* when in a closed position, I now propose to apply a sliding latch-bolt, *h*, to its outer or under side, at the top or outer end, with a spring or weighted lever, *i*, to thrust it upward to engage with the catch *j*, attached to the front of the coal box or pocket, thus securing the balanced apron from being forced down by the weight of the coal when placed in the coal box or pocket in case the door *e* should not be securely fastened; and I connect the chain, rope, or bar *k*, usually employed in pulling down the balanced apron to this bolt, so that the pull on the chain, rope, or rod *k*, to swing down the balanced apron, will first disengage the sliding bolt *h*, thus enabling the unlatching and the pulling down of the balanced apron with one and the same operation.

I now propose to apply a pawl-brace, *l*, to the edge of the door *e*, together with notches *m*, in or on the weighted arms *g*, back of the pivot upon which the balanced apron swings, in which notches the pawl-brace *l* will engage when the door *e* is released by the lowering of the balanced apron, and is forced open by the weight of the coal in the coal box or pocket, so as to hold the door *e* open until all the coal has run out of the coal box or pocket, thus facilitating the escape of all the coal, and preventing the door *e* from partially closing, and thereby clogging the coal. The pawl-brace *l* being so attached to the door *e*, and engaging in the notches *m* of the weighted arms *g*, back of the pivot upon which the balanced apron swings, the weight of the door *e* is thereby added to the weights *e'*, attached to the weighted arms *g*, so that when the coal has escaped the balanced apron will be forced shut with sufficient force, so that the sliding bolt *h* will engage with the catch *j*.

The door e has the usual latch-bar, n , with ends projecting beyond the ends of the door, to engage with the pivoted catches o when the door swings shut, which catches are raised at the upper end, o' , by the weighted balanced arms g , thereby releasing the door automatically when the balanced apron is drawn down. To insure the latching of the latch-bars n in these catches o by the balanced apron as it swings up, I have applied one or more buffers, p , to the outside of the door e , such buffers being so constructed that they project for such distance from the outside of the door e that the balanced apron d cannot swing to a closed position without coming in contact with them and forcing door e shut, and also forcing the latch-bar n into a position to engage with the catch o , thereby facilitating the latching of the door e , to prevent it from being forced open by the weight of the coal as the coal box or pocket a is filled.

In order to divide the coal box or pocket a into two chambers, q and s , so that smaller quantities can be discharged from a full box or pocket, I partition the box or pocket parallel to the door with a sloping or upright partition, t , permanently fixed above the pivot u , but jointed thereat, so that the lower part, t' , will open to discharge the contents of chamber s subsequently to discharging chamber q .

To fasten the swinging door or gate t' either open or shut, I attach latches v to the front side of the door t' , near the bottom, at each end. These latches are pivoted to the door t' at the inner end, the outer end being held to its position on the door t' by a staple or clasp, p' , securely fastened to the door t' , so as to allow the latch-bar v to play up and down on the door t' .

The latch-bar v , I construct long enough to extend through and to project on the outside of the side a' of the coal box or pocket a , and through slots a^2 , formed on the circle described by the latch-bars v as the partition-door t' swings backward and forward, said slots being of sufficient size to allow the latch-bars v to move up and down in the staple or clasp p' , holding the latch-bars to the door t' , and allowing said latches to move backward and forward in the slot so constructed as the partition-door t' swings forward and backward. Then I pivot to the outside of each side a' of the coal box or pocket a , at the point x , a movable curved catch, w^2 , with or without ratchet-notches, to which I permanently attach a lever, b^2 . I then attach a stop, e^2 , to the outside of one or both sides a' of the coal box or pocket a , at a point which, when the lever b^2 is pressed against it, the back top corner of the catch w^2 will project above the bottom of the slot a^2 , so that when the door t' is shut the latch-bars v will strike against the rear ends of the catches w^2 , and prevent the door from opening. Then I attach a stop, d^2 , on the outside of the coal box or pocket a , at a point which, when the lever b^2 is pressed forward against it, the front top corners of the catches w^2 will project above

the lower line of the slot a^2 , so that when the door t' is released and is forced outward by the coal as it escapes from chamber s of the coal box or pocket a the latches v will engage with the front corners of the catches w^2 so projecting, or with the notches therein, and prevent the door t' from closing and clogging the coal, thus facilitating the free passage of the coal from the chamber s .

To the bottom end of one lever, b^2 , I attach the rod c^2 , with the handle g^2 , and said rod will be held in position by passing through the corner-post of the coal box or pocket at a point above the pivot f , upon which the balanced apron or chute d swings, and inside of the overlapping sides of the balanced apron d . This rod c^2 , I construct of such a length that when the lever b^2 is pressed backward against the stop e^2 and the balanced apron d is in a closed position the handle g^2 of the rod c^2 will come in contact with the inner or upper side of the balanced apron d , so that when the balanced apron is in a closed position the latches v cannot be disengaged from the catches w^2 .

To hold the lever b^2 stationary when drawn forward against the stop d^2 , I attach a spring, z , to the handle g^2 of the rod c^2 , of sufficient strength to prevent the weight of the lever b^2 from displacing it.

In the lever b^2 , I construct a slot, h^2 , between the pivot x and the point where the rod c^2 is attached to the said lever b^2 .

With the latches v , slots a^2 , catches w^2 , levers b^2 , and slots h^2 on the right and left hand sides of the door t and coal box or pocket a , I attach a rod, f^2 , passing from side to side under the floor of the coal box or pocket a , on each end of which rod f^2 , I attach a crank, i^2 , in such a position that the extreme outward bends, j^2 , of the crank i^2 will pass through the slots h^2 ; and to fasten the cranks i^2 in the slots h^2 , I attach on the ends j^2 of the cranks i^2 a nut or a key passing through the end j^2 , so that when the lever b^2 on one side is moved the corresponding lever b^2 on the other side of the coal box or pocket is likewise moved in the same direction, thus facilitating the latching and the unlatching of the door t' , either when open or shut, simultaneously on each side by the use of the single rod c^2 , with handle g^2 attached to either side.

For economizing space in the construction of two or more of these coal-chutes side by side, I now propose to arrange the supporting-posts c' of the boxes or pockets closer together than the width of the boxes, with upper sections, d' , spliced on above where the weights e' of the lever g fall between the posts of the different coal boxes or pockets when the chutes are closed up, and to extend up along the sides of the boxes or pockets and form the corner-posts thereof, the chutes being placed as close together as will permit the balance-arms attached to the overlapping sides h' of the balanced apron to swing clear of each other, thereby saving in the length of the building the entire width of all the posts usually placed

between the aprons of chutes placed side by side, while the size of the coal box or pockets remains the same.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of a self-closing latch-bolt, *h*, with the balanced apron *d* and the coal box or pocket *a*, said latch-bolt having the chain, rope, or rod *k* attached to it in such manner that the pull of the chain, rope, or rod to swing the balanced apron down will unlatch the balanced apron, substantially as described.

2. The combination of the pawl-brace *l* with the door *e* of the box or pocket *a* and the balance-arms *g* of the balanced apron *d*, said balance-arms having the notches *m* for said pawl-brace, substantially as described.

3. The buffers *p*, attached to the door *e*, in combination with the latch-bar *n*, catches *o*, and the balanced apron *d*, substantially as described.

4. The partition *t*, having the door *t'* and latches *v*, in combination with the coal box or

pocket *a*, having door *e* and balanced apron *d*, and also having catches *w*², substantially as described.

5. The partition *t*, having the door *t'*, with latches *v*, in combination with the box or pocket *a*, having the curved slots *a*², catches *w*², levers *b*², stops *d*² and *e*², rod *c*², handle *g*², and spring *z*, said levers *b*² being connected to the cranked rod *f*², *i*², and *j*², substantially as described.

6. The supporting-posts *c'*, set under the boxes or pockets *a*, and having spliced pieces *d* for the side frames of the boxes or pockets *a*, attached to said posts above the point where the weights *e'* of the balance-arms *g* of the balanced apron *d* drop when the balanced apron is in a closed position, in combination with the balance-arms *g*, attached to the overlapping sides *h'* of the balanced apron *d*, substantially as described.

J. E. CLIFTON.

Witnesses:

EMERY C. GRAVES,
FRED. STEIN.