

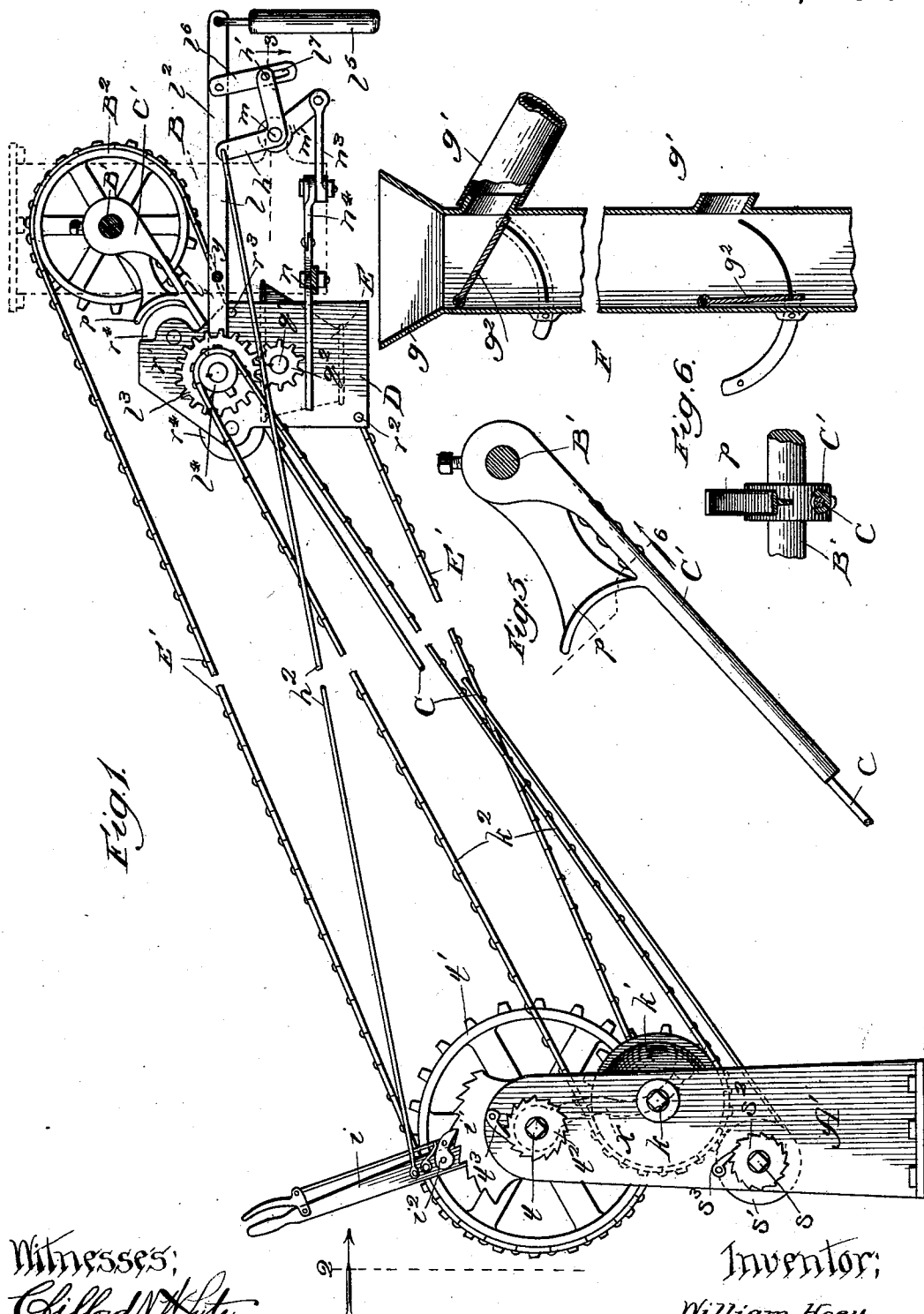
(No Model.)

3 Sheets—Sheet 1.

W. HOEY.
HOISTING MECHANISM.

No. 512,511.

Patented Jan. 9, 1894.



Witnesses:
Clifford W. Ste.
E. Shipley

Inventor;
William Hoey,
By Dymforth & Dymforth
Attys

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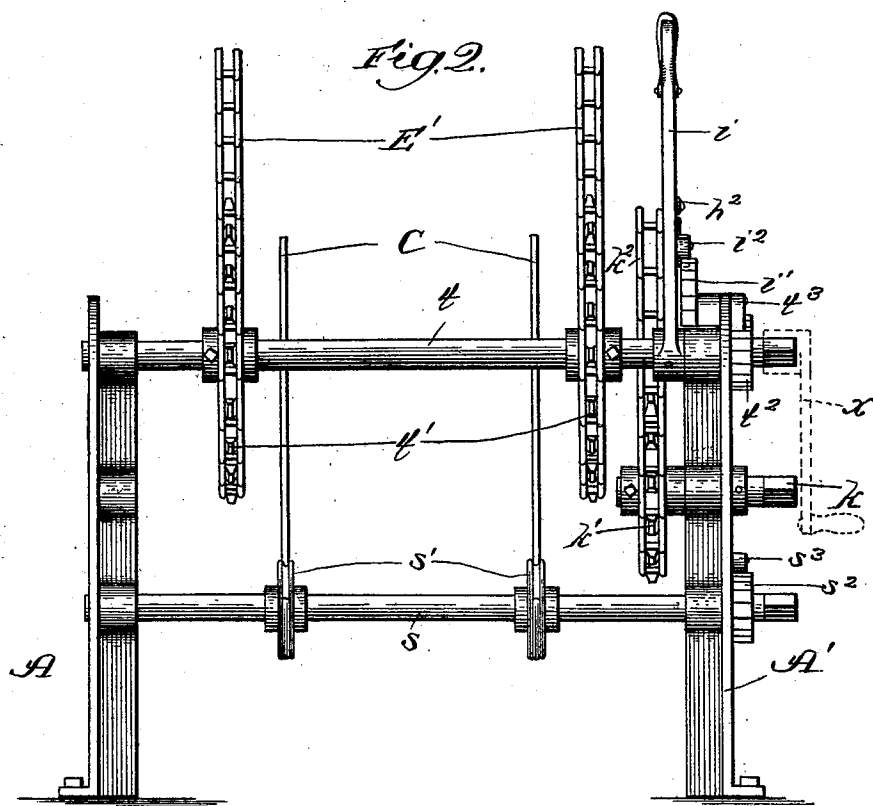
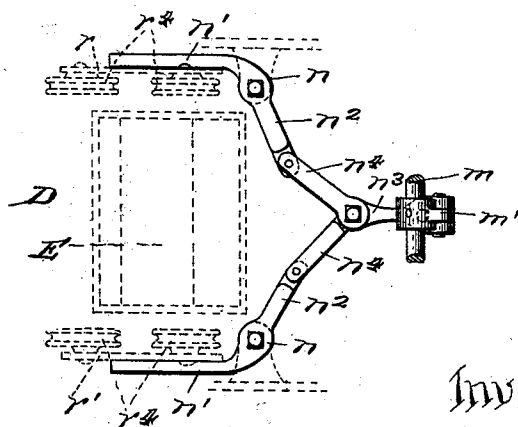


Fig. 3.



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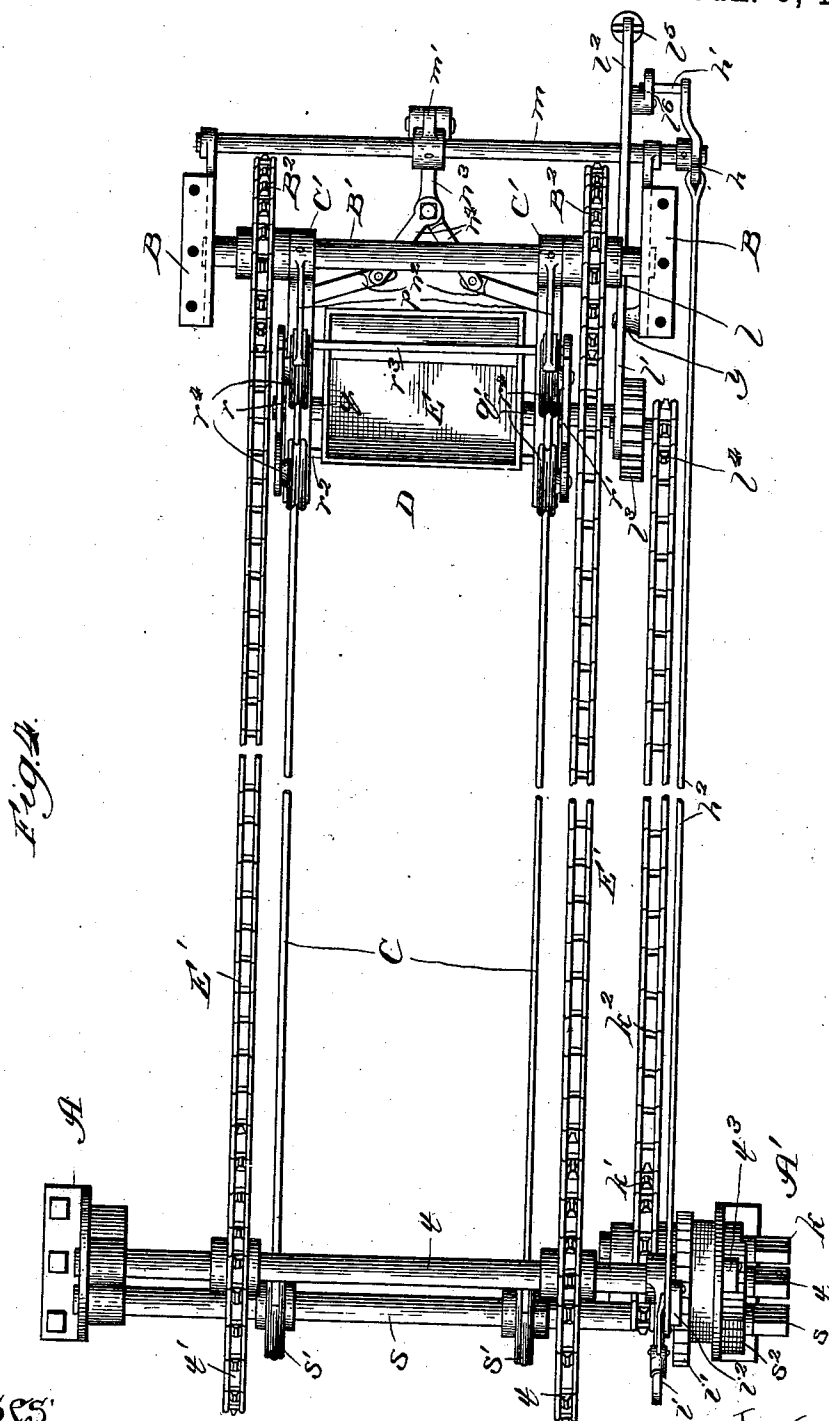


Fig. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM HOEY, OF CHICAGO, ILLINOIS.

HOISTING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 512,511, dated January 9, 1894.

Application filed April 10, 1893. Serial No. 469,731. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HOEY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Hoisting Mechanism, of which the following is a specification.

My object is to provide improved hoisting mechanism for use in conveying coal or other articles to the upper stories of buildings, and whereby the hoisting and delivering may be done by a single person, quickly and with comparative ease.

In the drawings—Figure 1 is a broken diagrammatic and partly sectional view showing my improved hoisting mechanism as I prefer to construct it when the coal or other articles are to be conveyed up an inclined plane to one of the upper stories of a flat building, as from a coal shed or the like in rear of and some distance from the building; Fig. 2, a broken view of the mechanism taken from line 2 of Fig. 1; Fig. 3, a broken plan view taken from line 3 of Fig. 1 of a detail at the upper end portion of the mechanism; Fig. 4, a plan view of the construction shown in Fig. 1; Fig. 5, a sectional view of a detail of the construction enlarged; and Fig. 6, a section taken on line 6 of Fig. 5, and viewed in the direction of the arrow.

A, A' are standards located at the lower end of the hoisting mechanism. They are securely anchored in place, and afford bearings for two cross shafts t and s . At the upper end of the hoisting mechanism are hangers B, B, carrying a cross-shaft B', and fixed to an overhead support toward the top of the building. Fixed to the shaft s are two pulleys s' , s' . Secured at their lower ends to the pulleys s' respectively are two parallel cables C, C, which at their upper ends are secured to arms C', C' on the shaft B'. The cables C together afford a track for a traveling carrier-frame D, hereinafter described. The shaft s is squared at its end beyond the standard A' to receive a crank, and carries a ratchet-wheel s^2 which is engaged by a pawl s^3 . By turning the shaft s the cables may be tightened and held taut by engagement of the pawl s^3 with the ratchet s^2 . The carrier frame D comprises two side plates r r' held apart

in rigid relation by cross rods r^2 , r^3 . Journalled on the inner sides of the plates r , r' at the tops of the latter are grooved wheels r^4 which run upon the cables C.

E is a bucket journalled on trunnions q , q' in the side plates r , r' of the carrier frame, the trunnion q' extending beyond the side of the frame and carrying a pinion q^2 . On the shaft t are sprocket-wheels t' , and on the shaft B' are sprocket wheels B².

E', E' are drive chains, affording a flexible driving medium, connected at one end to the upper forward side of the frame D, extending thence over the sprocket wheels B² down to the sprocket wheels t' , and thence around the latter and up to the lower rear side of the frame D, to which they are secured. The shaft t is squared at its end beyond the standard A' to receive an operating crank, and it is provided with a ratchet wheel t^2 which is engaged by a pawl t^3 on the standard A'. By applying a suitable operating crank X to the shaft t the latter may be turned to turn the sprocket wheels t' and run the chains E' and traveling carrier frame up and down the cables C as desired. On the arms C' are stops p with which the forward wheels r^4 of the carrier engage when the latter reaches the limit of its traverse in the upward direction on the track afforded by the cables C.

Pivoted to the lower end of the hangers B, to swing in the horizontal plane, are levers n , n having arms n' at opposite sides of the path of the carrier frame, and short arms n^2 . Journalled in the hangers B in the position shown is a rock-shaft m provided at its center with a downward extending arm m' . Pivoted to the lower end of the arm m' is a link n^3 , from the opposite end of which extend two toggle-links n^4 , pivoted to the arms n^2 of the lever n . Pivoted at y upon one of the hangers B is a lever l having a short arm l' and a long arm l^2 . On the short arm l' is a pinion l^3 adapted to engage the pinion q^2 on the carrier when the latter reaches its elevated position. On the shaft of the pinion l^3 is a sprocket-wheel l^4 . At the end of the long arm l^2 of the lever l is a weight l^5 . On the standard A' is a shaft k , squared at its end and carrying a sprocket-wheel k' . Extending around the sprocket-wheels k' l^4 is a drive chain k^2 . Pivoted upon

the shaft t , is a lever i , and on the top of the standard A' is a rack i' with which a pawl i^2 on the lever i engages. On the shaft m is a bell crank lever h , carrying at the end of one of its arms a pin h' . Hanging from the long arm l^2 of the lever l is a link l^6 having an elongated slot l^7 into which the pin h' on the lever h extends. The other arm of the bell-crank lever h is connected by means of a cable, or the like, h^2 with the lever i above the pawl i^2 .

In operation, the traveling carrier frame D and bucket E suspended therein on trunnions, as described, are lowered to the standards A A' , and the bucket filled with coal or other articles. The crank X is then applied to the shaft t and the latter turned to rotate sprocket wheels t' and cause the chains E' to draw the carrier frame and bucket up the track to the stops p . As the carrier frame nears the stops p it passes between the arms n' of the levers n , and the pinion q^2 stops beneath the pinion l^3 . When the carrier reaches the upper end of its traverse it is held in that position by the engagement of the pawl t^3 with the ratchet-wheel t^2 , on the shaft t . The operator then draws upon the lever i causing it to draw upon the cable h^2 and swing the bell-crank lever h and rock the shaft m . As the shaft m rocks it swings the arm m' , drawing upon the link n^3 and toggle links n^4 to press the arms n' of the levers n against opposite sides of the frame D , while the bucket is being dumped. As the lever h is swung its pin h' raises the link l^6 and swings the lever l against the resistance of the weight l^5 , to carry the pinion l^3 into mesh with the pinion q^2 . The engagement of the pawl t^3 , on the lever i , with the rack i' holds the parts in the positions described. The operator then transfers the crank X from the shaft t to the shaft k , and turns the latter to rotate the sprocket wheel k' and cause the drive-chain k^2 to move and rotate the sprocket wheel l^1 , and through the latter the pinion l^3 . The pinion l^3 being in engagement with the pinion q^2 on the bucket trunnion, causes the latter to turn and upset the bucket to dump it of its contents. When the operation described is completed, the pawl i^2 is disengaged from the rack i' and the lever i pushed forward, whereby the pressure of the arms n' against the carrier frame is relaxed, and the lever l permitted to turn under the action of its weight to raise the pinion l^3 out of engagement with the pinion q^2 . The crank X is then applied to the shaft t to lower the carrier frame to the standards A A' for another load.

Where my improved hoist is only to be used in delivering coal or the like to a single upper story, a suitable bin may be provided below the point where the dumping operation takes place; but where it is to be employed in delivering coal or the like to more than one story, I prefer to provide the chute F ,

shown in Fig. 1. The chute F extends in the vertical plane, being provided with a hopper shaped top g , and delivery spouts g' at each story. At each spout is a valve g^2 which may be opened to cause the coal or the like to drop past it, or may be closed to direct the falling coal or the like through the spout g' with which it registers. By means of the chute F , articles dumped in at the top may be delivered to any desired story of the building.

While I prefer to provide my improved hoisting mechanism as shown and described, it may be modified in the matter of details of construction without departing from the spirit of my invention as defined by the claims.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a hoisting apparatus, the combination of a carrier frame, a dumping bucket in said frame, a track extending between the bucket filling and dumping positions upon which the said carrier frame travels, a flexible driving medium to which the carrier frame is attached operative to move the carrier frame back and forth upon the said track between the filling and dumping positions, a stop for the carrier frame at said dumping position and dumping mechanism for the bucket adjacent to said stop and operated from said filling position, substantially as described.

2. In a hoisting apparatus, the combination of a carrier frame, an upsetting bucket mounted upon trunnions in said frame, a flexible driving medium to which said frame is connected operative from the bucket filling position to move the frame back and forth between the bucket filling and dumping positions, a stop for the carrier frame at said dumping position, a pinion on one of the bucket trunnions, and a pinion mounted adjacent to said stop and operated from the said filling position to engage and rotate the pinion on the bucket trunnion to upset the bucket, substantially as described.

3. In a hoisting apparatus, the combination of a carrier frame, an upsetting bucket mounted upon trunnions in said frame, a flexible driving medium, to which said frame is connected, operative from the bucket filling position to move the frame back and forth between the bucket filling and dumping positions, a stop for the carrier frame at said dumping position, a pinion on one of the bucket trunnions, a pinion mounted adjacent to said stop and operated from said filling position to engage and rotate the pinion on the bucket trunnion to upset the bucket, and carrier frame engaging mechanism at said stop for steadying the frame during the dumping operation, substantially as described.

WILLIAM HOEY.

In presence of—

M. J. FROST,

W. N. WILLIAMS.