

(No Model.)

3 Sheets—Sheet 1.

T. H. LEWIS.
COAL CONVEYER.

No. 460,643.

Patented Oct. 6, 1891.

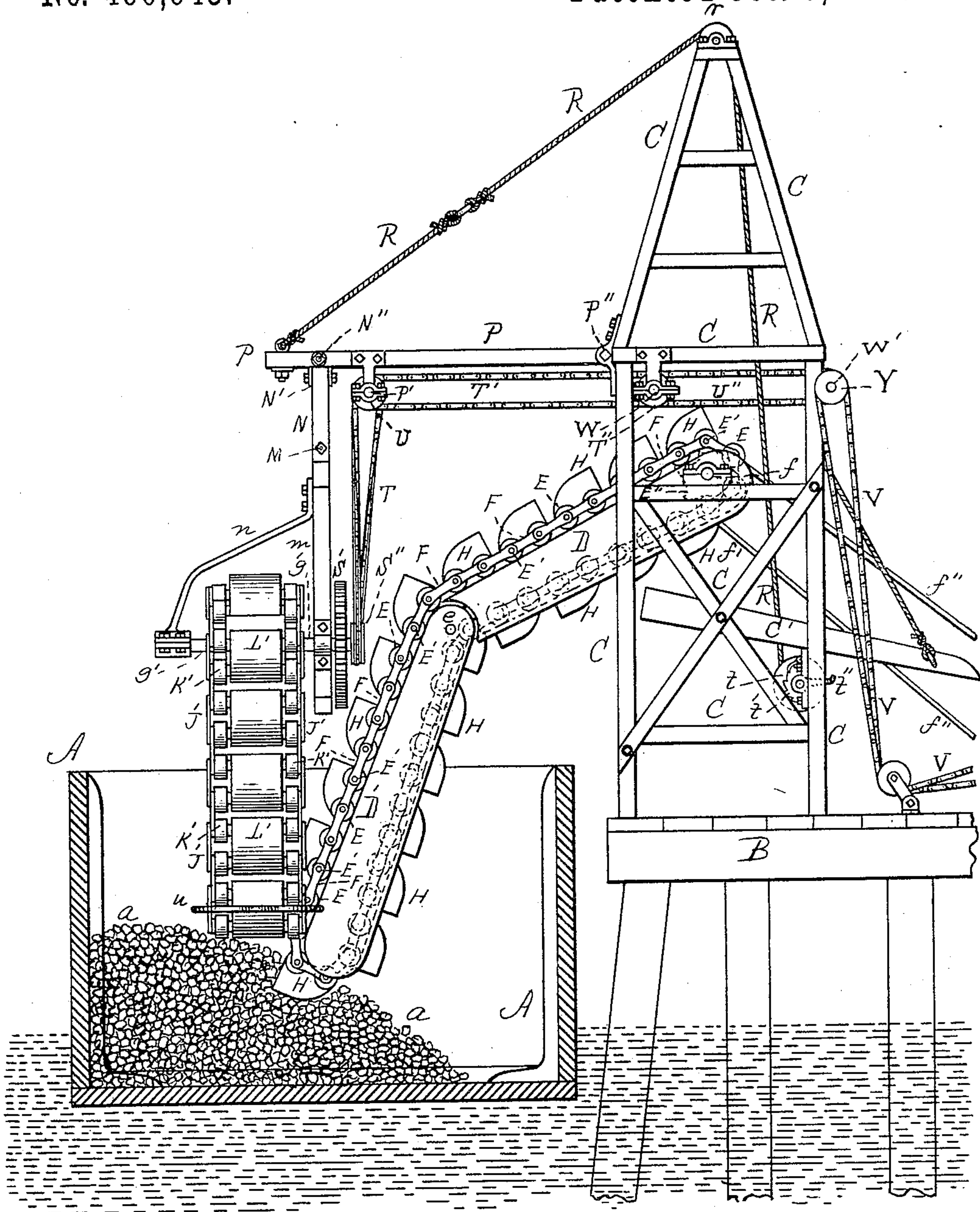


FIG. 1.

WITNESSES

J. M. Hartnett.

B. M. Williams

INVENTOR

Theodore H. Lewis

By his Atty

Sherry Williams

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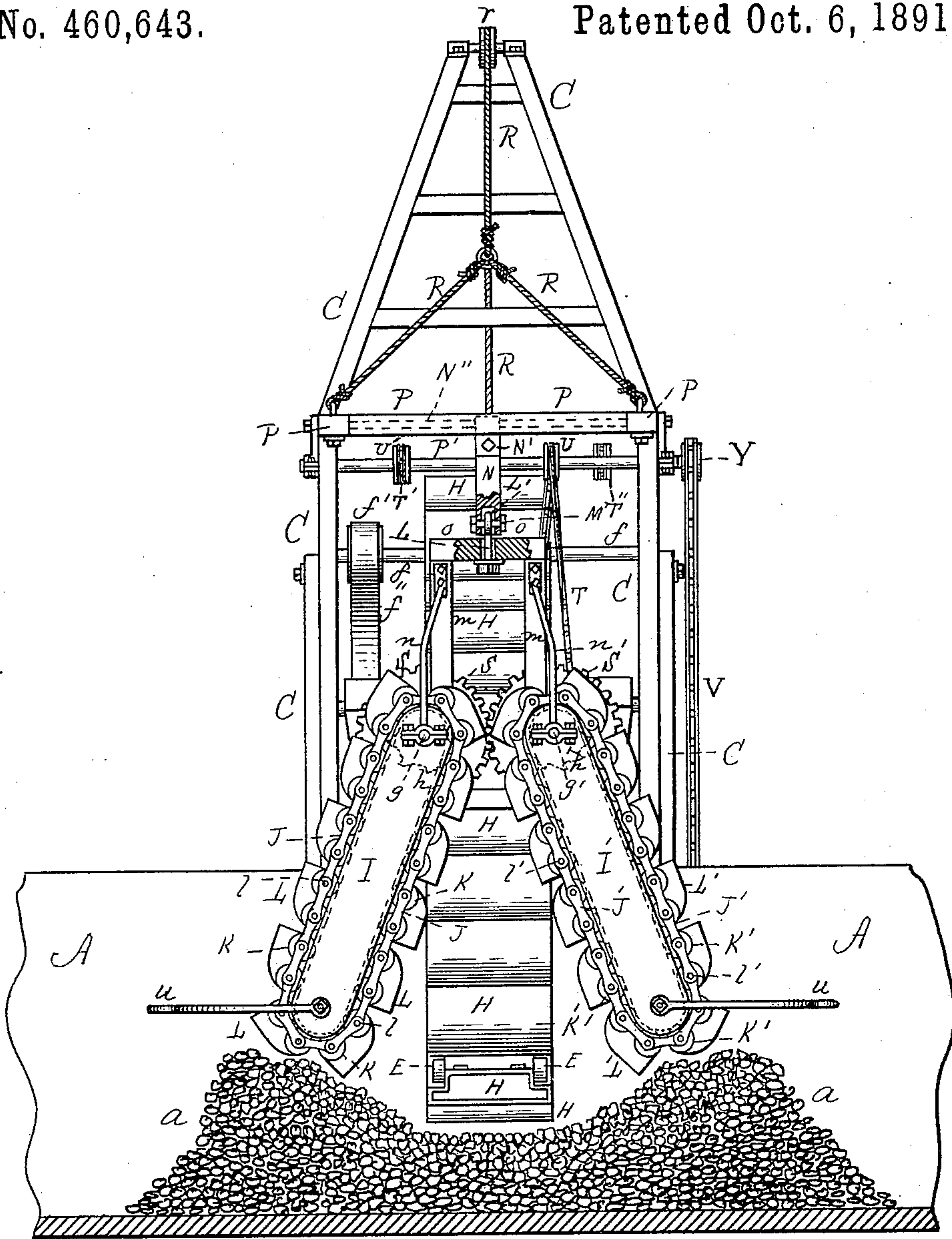


Fig. 2.

WITNESSES

J. M. Hartnett.

L. B. W. Williams

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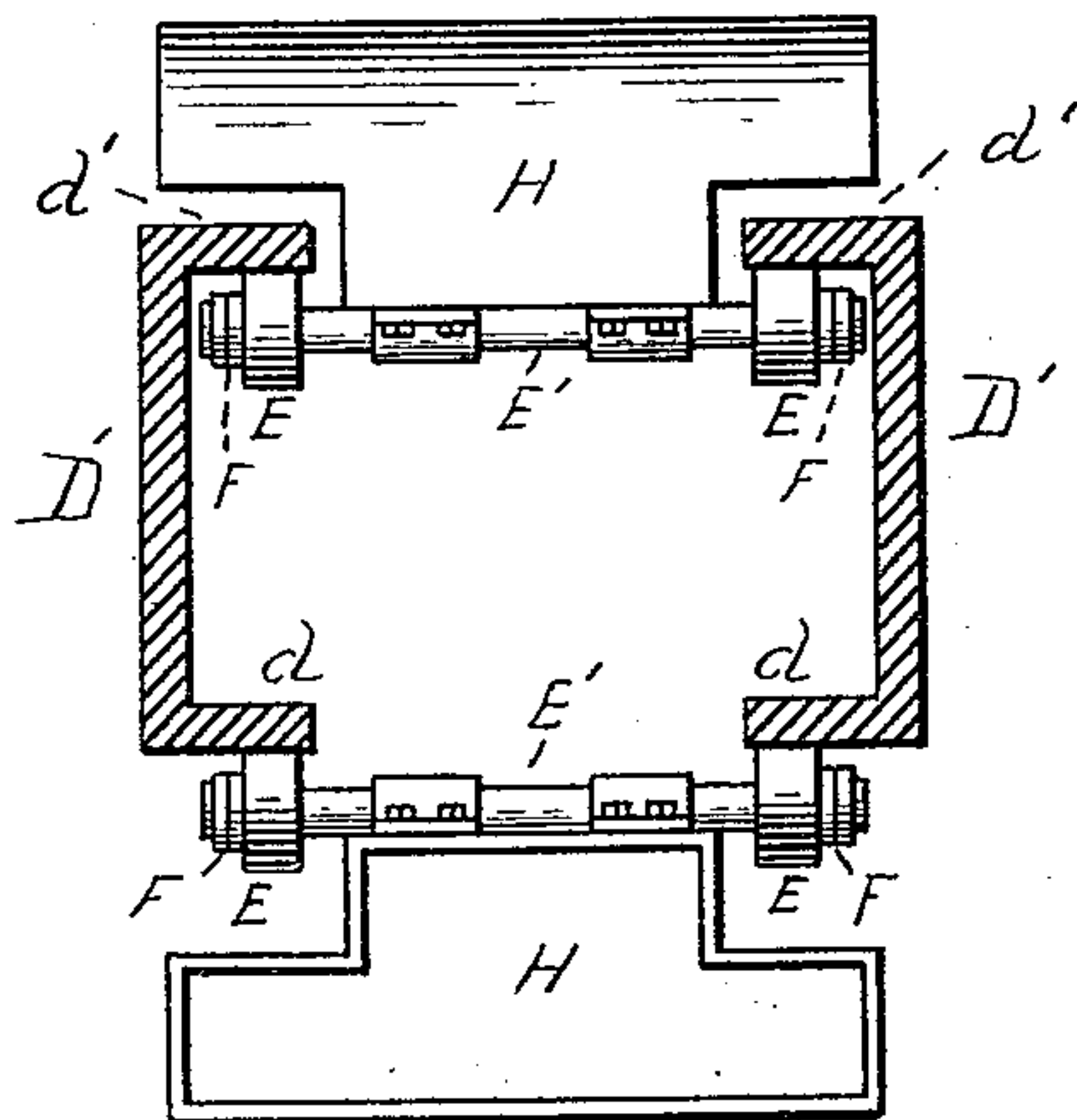
Theodore H. Lewis

By his Atty

Sperry Williams

3 Sheets—Sheet 3.

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Theodore H. Lewis
By his Atty
Henry Williams

UNITED STATES PATENT OFFICE.

THEODORE H. LEWIS, OF BOSTON, MASSACHUSETTS.

COAL-CONVEYER.

SPECIFICATION forming part of Letters Patent No. 460,643, dated October 6, 1891.

Application filed May 16, 1891. Serial No. 392,998. (No model.)

To all whom it may concern:

Be it known that I, THEODORE H. LEWIS, of Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Coal-Conveyers, of which the following is a specification.

This is a machine or apparatus for conveying coal from the hold of a vessel to a suitable receptacle on the shore; and it relates particularly to that class of conveyers in which the coal is lifted and removed from the vessel to the shore by means of buckets moved by endless chains. It is found in practice that the coal-conveyers now in use dig or burrow in the coal in one spot in the hold on a line with the hatchway, but leave large masses of coal untouched at the sides or wings.

The principal object of my improvement is to provide a conveyer which will take the coal from all parts of the hold, even next the sides, instead of merely digging a hole in a single spot. I accomplish this object by means of the improved apparatus below described, in which I show three conveyers, one, the main conveyer, being jointed and the other two auxiliary conveyers being pivotally and otherwise adjustable, all as below described, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my machine or apparatus, the hold of the vessel being shown in vertical section. Fig. 2 is a front elevation of the same, a small portion being broken out to show the pivotal construction of the frame of the auxiliary conveyers. Fig. 3 is a section taken on line *x*, Fig. 4. Fig. 4 is a vertical section on line *y*, Fig. 3. Fig. 5 is a horizontal section on line *z*, Fig. 4. Fig. 6 is a horizontal section on line *w*, Fig. 4.

Similar letters of reference indicate corresponding parts.

A represents the hold of a vessel which is being unloaded, and *a* is the coal lying in the hold and being conveyed to a suitable receptacle on shore.

B represents a wharf or landing.

C is the frame-work for supporting the apparatus, constructed in any suitable manner and resting on the wharf B.

D D' are the two portions of the jointed frame of the main or central conveyer. The upper portion D is pivotally connected with

the lower portion D' by the pivot or bolt *e*, (see Figs. 3, 4, and 5,) the two parts being kept in line and sufficiently rigid by means of the extensions or tongues D'' at the lower end of the portion D and the grooves or bifurcations D''' at the upper end of the portion D'. Suitable nuts *b b* keep the parts in position, but allow them to swing freely relatively on the bolt *e*. Each of the sides constituting the portions D D' of this conveyer is made with two inwardly-extending longitudinal flanges *d d'*, Fig. 6, formed at right angles with the sides. The upper (outer) surface of the flange *d* and the upper (inner) surface of the flange *d'* constitute tracks for the rollers or wheels F on the shafts E'. These shafts have their bearings in and are connected by links, which form the endless chains F, said chains being actuated by ordinary sprocket-wheels (broken lines E'', Fig. 1) within the conveyer at the upper end, fast on the shaft *f*, supported by the frame, and which has rigid with it a pulley *f'*, Fig. 2, actuated by the belt *f'*, which communicates with the power. Swinging freely on the shafts E' are the buckets H, constructed substantially as usual.

It will readily be seen that by means of this jointed conveyer, which can be swung back and forth in the hold, a greater quantity of coal can be reached than by a rigid conveyer, which can only reach a single point.

In order that the coal at the extreme sides or wings of the hold may be reached, I provide an auxiliary pair of conveyers, as follows: These conveyers consist, essentially, of the frames I I', the endless chains J J', provided with the rollers K K', which roll on the edges of the frames, and the buckets L L', carried by the spindles *l l'* of the rollers. Near the upper ends of the frames are the shafts *g g'*, which are actuated, as usual, by ordinary sprocket-wheels. (See broken lines *h h'*, Fig. 2.) The shafts *g g'* are supported by the hangers *m* and brace-rods *n*, secured to said hangers, and the hangers are secured at their upper ends to a cross-piece *o*, which, with the hangers, constitutes a frame. This frame is suspended from the vertical bolt L, Fig. 2, and is free to rotate horizontally thereon, and the bolt has an eye or hook L', which catches over the horizontal pin M, which is supported in the hanger or vertical bar N,

whose upper end is loosely hung by means of a strap N' on a rod N'', (see Fig. 1 and broken lines in Fig. 2) supported by the frame P. The rear end of this frame is hinged at 5 P'' to the main frame C, and its forward end is supported by the rope or chain R, which passes over a pulley r in the upper end of the frame C and thence down to a drum t, provided with an ordinary ratchet t' and crank 10 t''. By operating the crank t'' the frame P is swung up and down, the hanger N preserving a vertical position. Thus by grasping the handles u the conveyers may be swung by means of the strap N' or turned by means of 15 the pivot L or spread apart, as desired. The shafts g g', on which are fixed the sprocket-wheels which operate the endless chains J J', carrying the buckets K K', are actuated by the gear-wheels S S', which are fast on said shafts 20 g g'. The gear-wheel S is engaged by the gear-wheel S', and on the same shaft g' is fixed a pulley S'', connected by a band T with the pulley U, fast on the shaft P', supported by the swinging frame P. Fast on this same 25 shaft is the pulley U', Fig. 2, which is connected by the band T' with a pulley on the shaft W, supported by the main frame. A pulley T'' on the shaft W is connected by a band U'' with a pulley on the shaft W', and 30 the pulley Y on said shaft W' is connected

by a band V with the power. Thus it will be seen that by communicating motion to the bands f'' and V the buckets of all the conveyers are set in motion, and while the main conveyer may be swung back and forth by 35 means of its joint the auxiliary conveyers may be rotated, swung, and spread apart, so that all portions of the hold can be reached by the conveyers.

The coal raised by the auxiliary conveyers 40 is dropped into the buckets of the main conveyer, and the coal in the buckets of the main conveyer is dropped into a chute or inclined flume C', supported by the frame in any desired manner. 45

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

In a coal-conveying apparatus, the combination of a jointed conveyer supported by the 50 main portion of the frame, a pair of adjustable auxiliary conveyers arranged to be rotated, swung, and spread apart at their lower ends, and a frame hinged to the main frame for supporting said auxiliary convey- 55 ers, substantially as set forth.

THEODORE H. LEWIS.

Witnesses:

HENRY W. WILLIAMS,
J. M. HARTNETT.