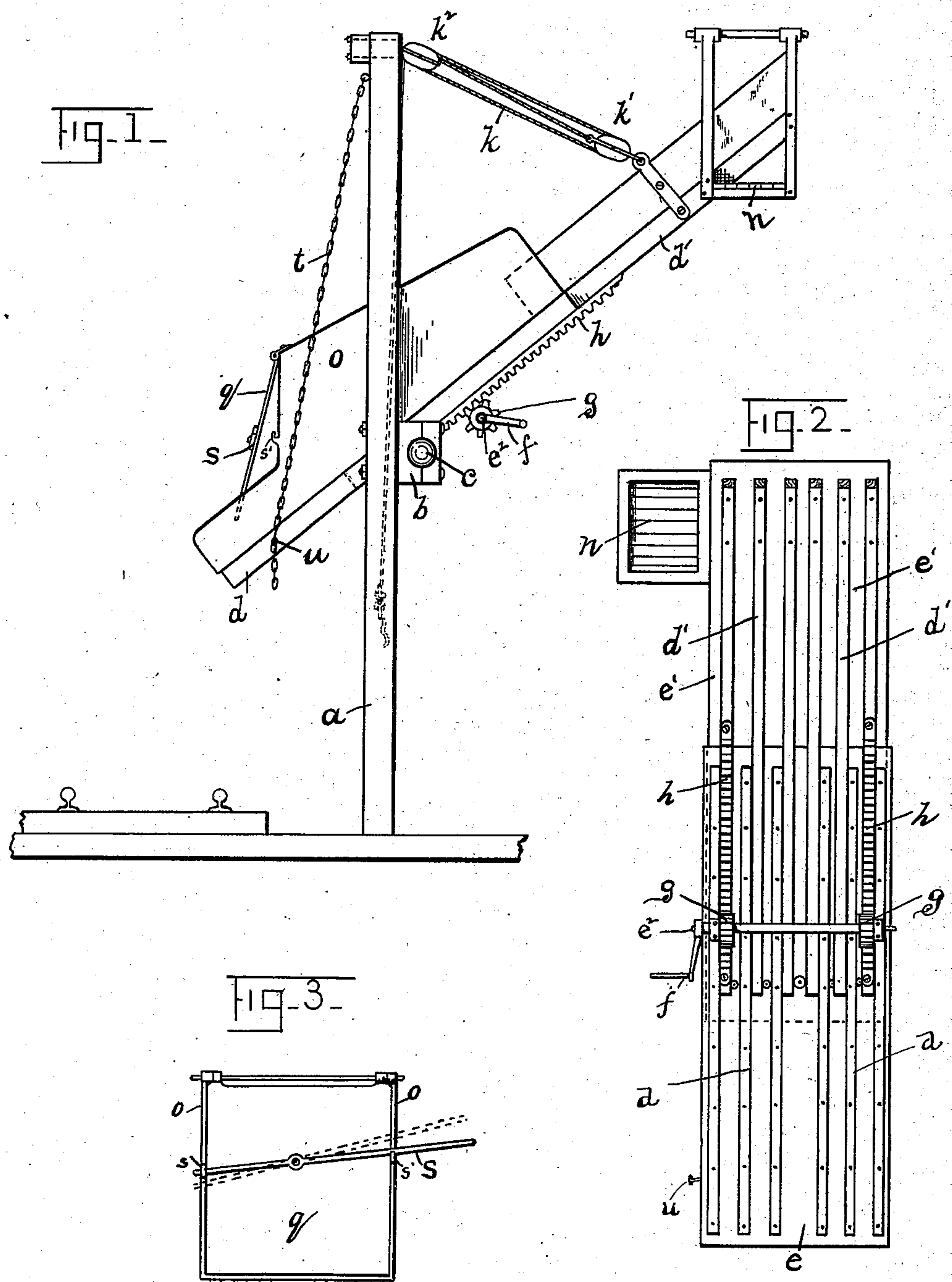


(No Model.)

E. F. LEWIS.
COAL CHUTE.

No. 381,147.

Patented Apr. 17, 1888.



Witnesses.

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EUGENE F. LEWIS, OF PRESTON, CONNECTICUT.

COAL-CHUTE.

SPECIFICATION forming part of Letters Patent No. 381,147, dated April 17, 1888.

Application filed December 12, 1887. Serial No. 257,726. (No model.)

To all whom it may concern:

Be it known that I, EUGENE F. LEWIS, a citizen of the United States, residing at Preston, in the county of New London and State of Connecticut, have made certain new and useful Improvements in Coal-Chutes, which improvements are fully set forth and described in the following specification, reference being had to the accompanying sheet of drawings, in which—

Figure 1 is a side elevation of my said chute, and Fig. 2 an under side plan of the same. Fig. 3 is an outer end view of the pocket or reservoir at the lower end of the chute, and illustrates the means employed to lock the gate of said pocket.

This invention is in the class of chutes commonly used in transferring coal from vessels to cars, and has for its object to so improve such chutes that an increased quantity of coal may be handled in a given time, also that the said chute may be more readily and quickly adjusted to any desired length or inclination than heretofore. In seeking to attain these desirable improvements I have also kept in mind the elements of strength and cheapness of construction.

My said device is usually located between the railway and the vessel to be unloaded. The coal is raised from the vessel's hold in buckets, and is dumped into a hopper at the upper end of the chute, and thence passes by gravity down said chute into the car, which is located beneath the delivery end of the chute. As soon as a car is loaded it is removed and an empty one takes its place beneath the chute.

Referring to the drawings, the letter *a* indicates an upright or post, which, with a companion post on the opposite side, supports my said chute. Secured to these uprights are journal-bearings *b b*, which receive trunnions *c c*, to which the chute proper is attached. Said chute is made in two principal sections, of joists *d d'*, which alternate and interlap each other at their inner ends, as plainly indicated in Fig. 2. These joists are floored and sided with heavy sheet-iron *e e'*, and the lower chute-section is securely fixed to the trunnions *c c* above referred to.

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side of the lower chute-section is a shaft, *e²*, which carries a crank, *f*, and gears *g*. Said gears mesh with racks *h*, secured one on each side of the upper chute-section. With the construction described it will be understood that by rotating crank *f* and its shaft *e²* and gears *g* the upper chute-section may be telescoped into the lower section. This means of shortening the chute allows the upper end to be readily adjusted to vessels of greater or lesser beam—a feature which is very desirable for the following reason:

In removing coal from vessels of narrow beam, if no adjustment of the chute is available, such vessels must be "breasted" away from the wharf a sufficient distance to bring the hatch-opening in line with the upper end of the chute, so that the bucket may rise within easy reach of the operator on said chute. When breasted out by poles or spars, considerable annoyance is frequently occasioned by rough water or by passing steamers, whose swash rocks the vessel until such spars become displaced. Work must then be suspended until she can again be breasted out and fastened.

The adjustment of the chute to different degrees of inclination is accomplished by means of a rope, *k*, and pulley-blocks *k' k²*, as illustrated in Fig. 1. Pulley *k'* is attached to the upper end of the chute, and the companion pulley *k²* to the upright *a*. Rope *k* is rove through said pulley-blocks, forming, preferably, a double fall, by which the free end of the chute may be easily elevated or adjusted by a single man.

The buckets of coal are received at the upper end of the chute by an attendant, who stands on a platform, *n*, secured to one side of said chute, and who dumps the bucket-loads in the upper end of the chute. The lower or discharge section of the chute is provided with elevated side-boards *o*, which have hinged to their lower ends a gate, *q*, which may be locked by a bolt or latch, *s*. (See Fig. 3.) Said latch, as here shown, consists of a lever-arm pivoted to the outer face of gate *q* and adapted to lock under projecting lugs *s s'*, formed on the side-boards *o*. The chamber thus provided forms an important feature of my invention, as it enables the process of unloading from the ves-

sel to proceed without interruption while the loaded cars are being removed and empty ones substituted.

In order to prevent the overloading of the discharge end of the chute, (which might result in its overbalancing the upper end,) I attach a chain, *t*, to the upper end of upright *a* and hook the lower end of said chain over a spike or pin, *u*, in the discharge end of the chute. The links of the chain allow me any desired adjustment, and the chain thus attached forms a guy to limit the downward movement of said discharge end.

The operation of my complete device may be briefly described as follows: Crank *f* is turned to the right hand to project the upper chute-section outward over the vessel to be unloaded, and the complete chute is adjusted to the desired inclination. The coal is then dumped into the upper end, and immediately passes thence through the chute and into the car. This operation is repeated until the car is filled, when the gate *g* is shut and locked. The coal now accumulates in the pocket formed by said gate and the side-boards *o* until an empty car is moved into position to load, when the gate is released and the accumulated coal passes into said car. Gate *g* is left unlocked and the coal continues to pass through freely until it again becomes necessary to shift the cars. This action permits the continuous discharge of coal from the vessel into the chute, and increases materially the amount of work accomplished by a gang of men in a given time.

When not in use, the complete chute may be swung into approximately a vertical position between its uprights *a* by releasing chain *t* and swinging the upper end of the chute inward toward said uprights.

I claim as new and wish to secure by Letters Patent—

1. In combination with uprights *a*, a two-part chute trunnioned in said uprights, one of said chute-sections being provided with racks and the companion section with engaging pinions, shaft and crank, as described, for adjusting said chute longitudinally, and a system of pulleys and a rope for varying the inclination of said complete chute, all being substantially as and for the objects set forth.

2. In combination with uprights *a*, a two-part chute trunnioned in said uprights, one of said chute-sections being provided with racks and the companion section with engaging pinions, shaft and crank, as described, for adjusting said chute longitudinally, a system of pulleys and rope for varying the inclination of the complete chute, a pocket formed on the lower chute-section, a gate at the discharge end thereof, and a latch for locking said gate, all being substantially as and for the object specified.

3. Uprights *a*, a two-part telescopic chute trunnioned between said uprights, mechanism for adjusting and supporting said chute at different degrees of inclination, a rack-and-pinion mechanism, as described, for adjusting longitudinally one end of the chute, a pocket at the lower end of said chute, a gate at the discharge end of said pocket, and a locking device for governing said gate, all of said elements being constructed and combined as herein described, and for the objects specified.

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Witnesses:

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