

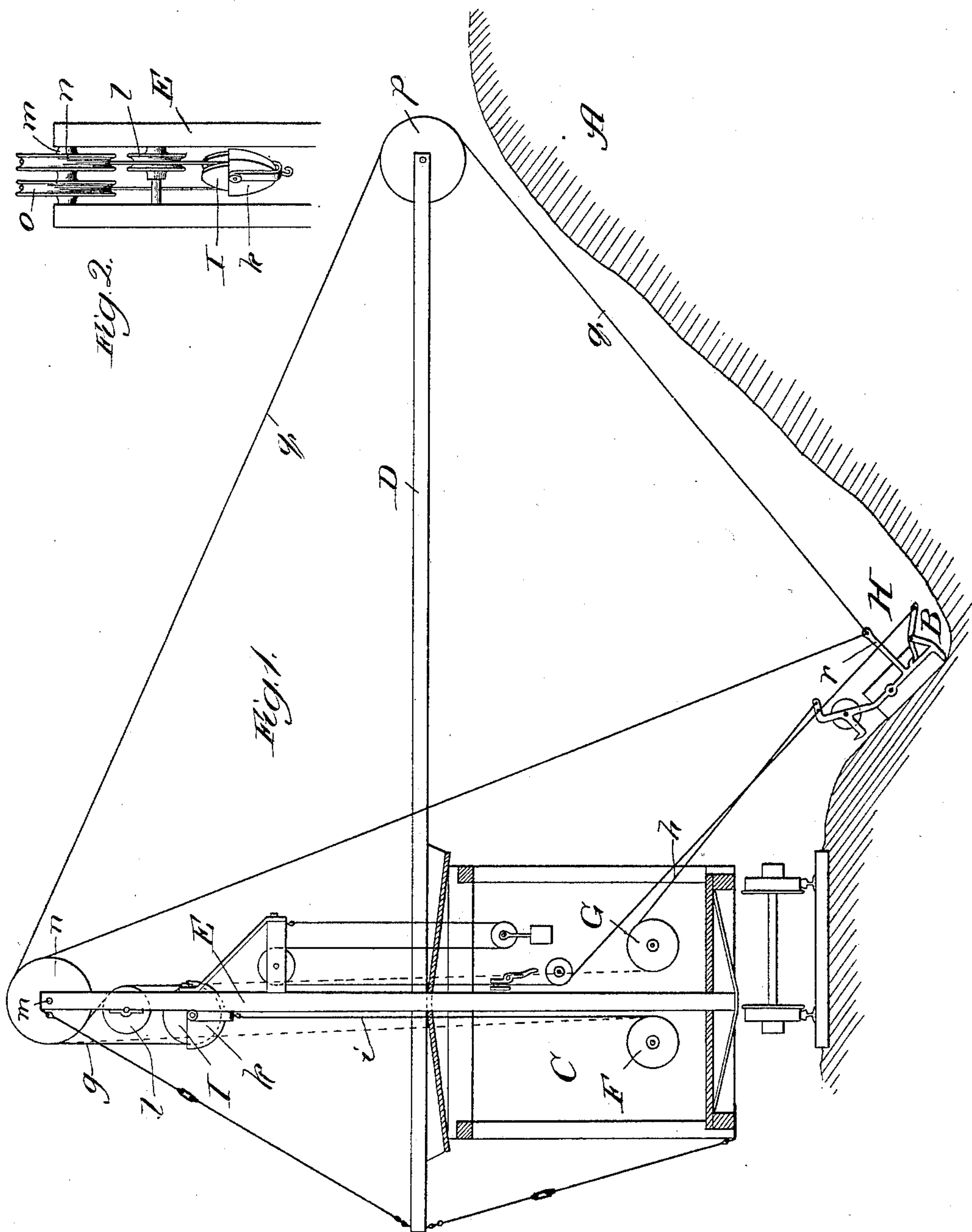
(No Model.)

H. G. BUTLER.

FEEDING APPARATUS FOR USE IN BURNING CLAY TO MAKE BALLAST, &c.

No. 462,427.

Patented Nov. 3, 1891.



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# UNITED STATES PATENT OFFICE.

HENRY G. BUTLER, OF KENOSHA, WISCONSIN.

FEEDING APPARATUS FOR USE IN BURNING CLAY TO MAKE BALLAST, &c.

SPECIFICATION forming part of Letters Patent No. 462,427, dated November 3, 1891.

Application filed March 3, 1891. Serial No. 383,582. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY G. BUTLER, a citizen of the United States, residing at Kenosha, in the county of Kenosha and State of Wisconsin, have invented a new and useful Improvement in Feeding Apparatus for Use in Burning Clay to Make Ballast, &c., of which the following is a specification.

My present invention is in the nature of an improvement upon the apparatus for a like purpose set forth in Letters Patent of the United States No. 413,361, granted jointly to W. Davy and myself on the 22d day of October, 1889, and like the aforesaid patented apparatus its use is not limited to the particular purpose of scraping clay from the side of a trench and carrying it to and dumping it upon the burning pile or "fire," but it is useful for other purposes as well.

The object of my improvement is materially to simplify the scoop-actuating mechanism set forth in the said patent to quicken the action and save in the wear of the cable employed.

In the accompanying drawings, Figure 1 presents my improved apparatus in sectional elevation as operatively applied in feeding clay to a ballast-burning pile. Fig. 2 is a broken view in rear elevation showing pulley details of the construction.

A denotes the fire, and B is a trench along one side thereof formed by the apparatus in scooping clay therefrom to carry it to and dump it upon the fire, all as set forth in the aforesaid patent.

C is the support for the apparatus, preferably in the form of a car movable on a track extending along the side of the trench farthest from the fire, and from which extends a boom D, suitably braced, and a mast E.

On the support C is suitable winding mechanism having drums F and G.

H is a scoop, preferably of the construction set forth in the aforesaid patent. I suspend the scoop from its bail *r* on a practically endless cable *q*, secured to the bail, passing thence over a sheave *p* at the outer end of the boom, around a pulley *n*, loosely supported on a stationary axis *m* at the upper end of the mast E, thence about a guide-pulley *l* on the mast around a loose pulley I, journaled in a block *k*, and from which the cable passes around a

pulley *o* loose upon the axis *m* to the scoop, at which it is fastened to the bail *r*. A cable *i* connects the pulley-block *k* with the winding-drum F, and the scoop is connected from its forward or scraping and filling end by a cable *h* with the drum G.

The operation is as follows: With the scoop in the position illustrated it is being drawn up the side of the trench B nearest the car to fill it with clay by winding the cable *h* upon the drum G. When the scoop has been filled, the cable *h* is allowed to pay out, and the drum F is turned to wind the cable *i* upon it and thereby lower the loose pulley I. Thus obviously the scoop is raised out of the trench, and the travel of the cable *q*, consequent upon lowering the loose pulley I, (whereby, as will be seen, the two pulleys *o* and *n* are turned in the same direction,) carries, by the effect of the difference in height between the pulleys *n* and *p*, the scoop outward by gravity toward the end of the boom and upward to the desired point on the fire, where the scoop is dumped in the usual manner. To lower the scoop for another operation into the trench, the drum F is freed to allow the cable *i* to pay out and the pulley I to rise by the gravity of the scoop, which entails travel of the endless cable *q* in the opposite direction and consequent turning of the pulleys *o* and *n*. As will be seen, the action of the pulley I in its position in the cable *q* is to haul in or pay out a length of the latter, in descending or rising, twice the length of the distance of the movement of the pulley, thereby hastening the transfers of the scoop and enabling the shortest possible length of cable to be used. The weight of the pulley I should be sufficient almost to counterbalance the scoop H when empty, to lessen, accordingly, the requirement as to hoisting-power.

If, instead of passing about a loose pulley I, the cable *q* were extended to winding drums, as indicated by dotted lines in Fig. 1, (when the cable *h* would have to be controlled from winding mechanism behind the drum G,) the scoop could be controlled in its transfer movements in a manner somewhat analogous to that described by winding one drum while unwinding the other, thereby enabling the pulley I to be dispensed with; but such arrangement is not so desirable as that in-



cluding the vertically-movable pulley, since, though affording simplicity and economy of construction, it prevents the attainment of the important advantages of quickness in the operation and counterbalancing of the scoop.

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

1. In an apparatus substantially for the purpose set forth, the combination, with a suitable support having a boom and mast, of pulleys *o* and *n*, supported on the mast, to be independently revoluble, winding mechanism, a scoop *H*, and an endless cable *q*, on which the scoop is hung, passing over the boom near its outer end and over the pulleys *o* and *n* and controlled from the winding mechanism, substantially as described.

2. In an apparatus substantially for the purpose set forth, the combination, with a suitable support having a boom and a mast, of pulleys *o* and *n* supported on the mast to be independently revoluble, winding mechanism, a scoop *H*, an endless cable *q*, on which the scoop is hung, passing over the boom near its outer end and over the pulleys *o* and *n*, and a loose pulley *I*, hung in a loop of the endless cable below the pulleys *o* and *n* and connected by a cable *i* with the winding mechanism, substantially as and for the purpose set forth.

3. In an apparatus substantially for the purpose set forth, the combination, with a

suitable support having a boom and a mast, of pulleys *o* and *n*, supported on the mast to be independently revoluble, winding mechanism, a scoop *H*, an endless cable *q*, on which the scoop is hung, passing over the boom near its outer end and over the pulleys *o* and *n*, and a loose pulley *I*, hung in a loop of the endless cable below the pulleys *o* and *n* and sufficiently heavy almost to counterbalance the scoop, and connected by a cable *i* with the winding mechanism, substantially as and for the purpose set forth.

4. In an apparatus substantially for the purpose set forth, the combination, with a suitable support having a boom and a mast, of pulleys *o* and *n*, loosely supported on a common axis on the mast, winding-drums *F* and *G*, a scoop *H*, an endless cable *q*, on which the scoop is hung at its bail *r*, passing over the boom near its outer end and over the pulleys *o* and *n*, and a guide-pulley *l* on the mast, a loose pulley *I*, hung in a loop of the endless cable below the pulleys *o* and *n* and connected by a cable *i* with the drum *F*, and a cable *h*, connecting the scoop from its filling end with the drum *G*, substantially as and for the purpose set forth.

HENRY G. BUTLER.

In presence of—

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