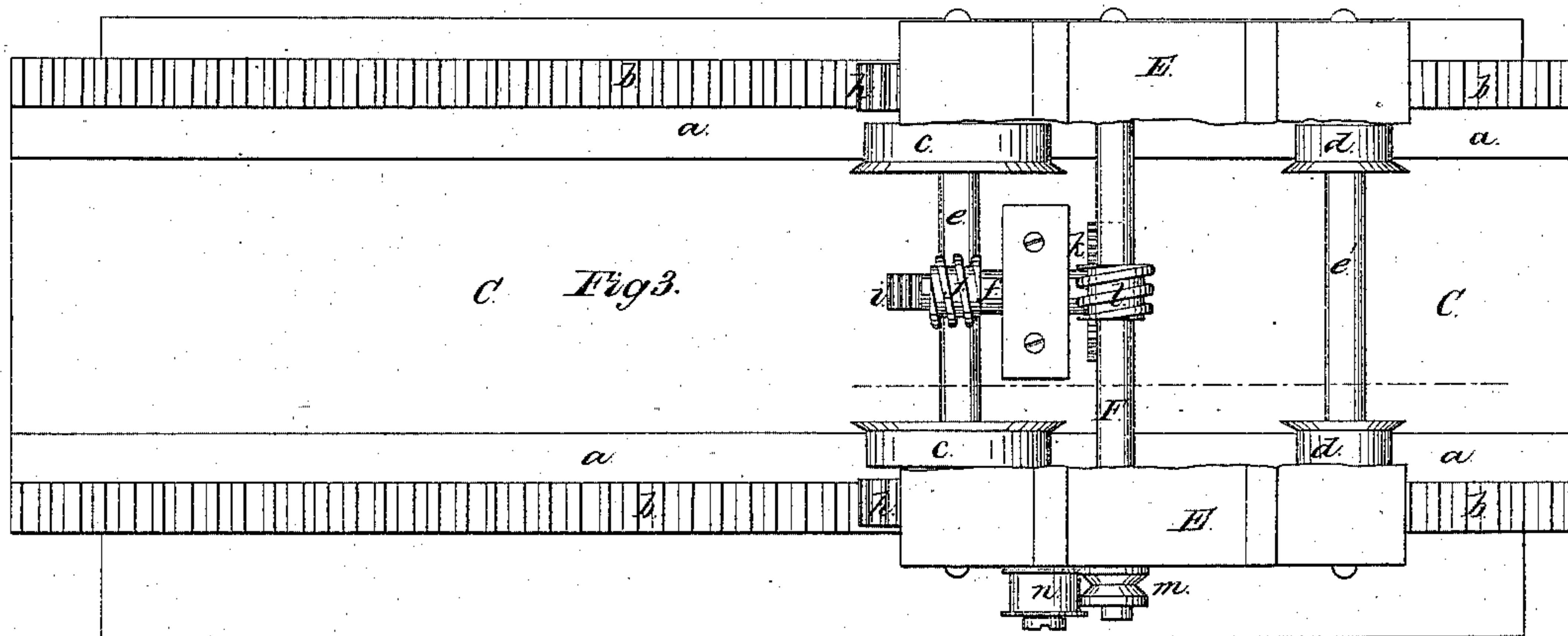
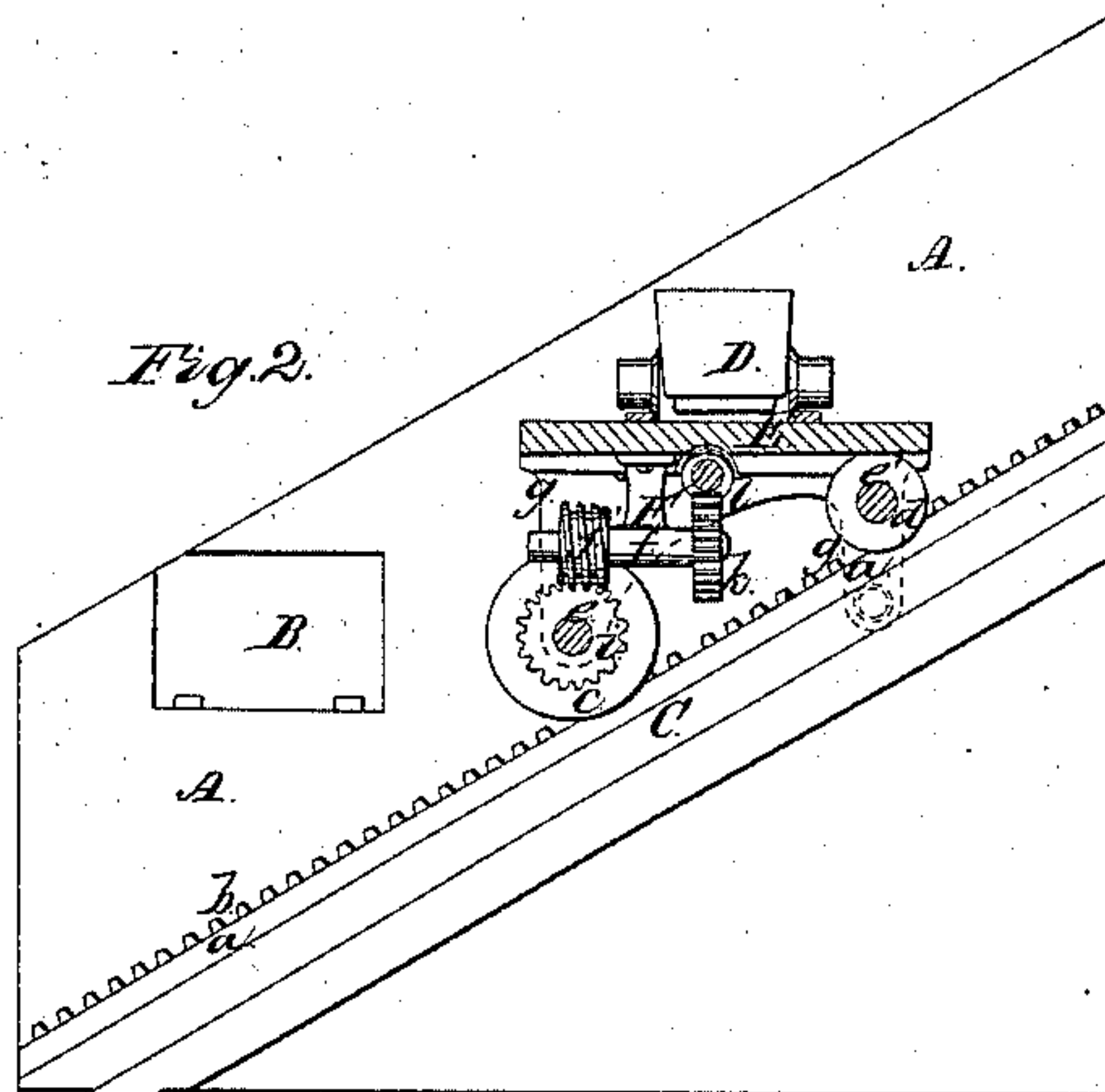
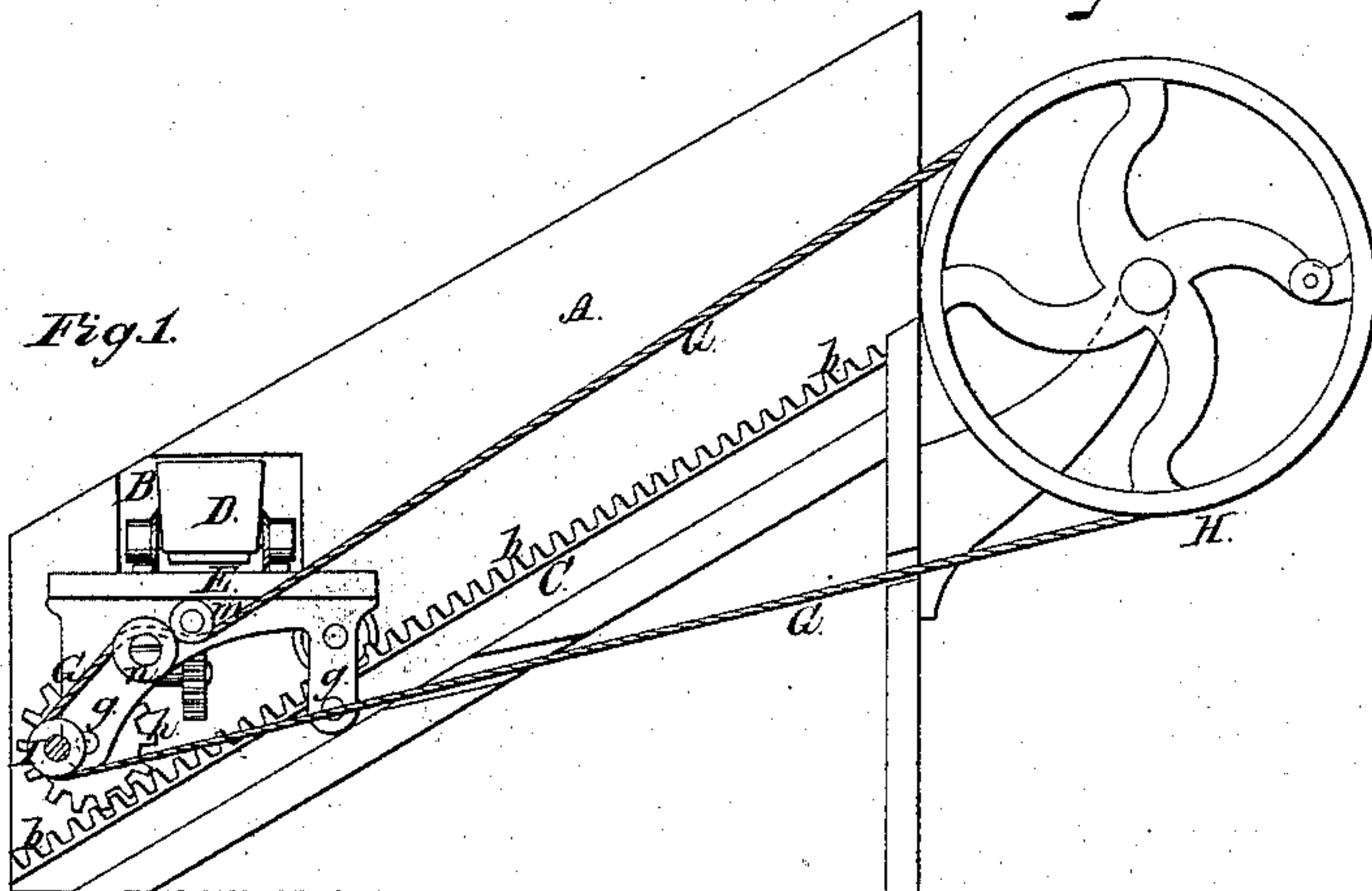


B.H. Jenks,

Elevator,

No 56,947,

Patented Aug. 7, 1866.



Witnesses.
W. Campbell,
Henry Horster.

Inventor.
B. H. Jenks
by his Agent
Wm. Smith & Co.

UNITED STATES PATENT OFFICE.

BARTON H. JENKS, OF BRIDESBURG, PENNSYLVANIA.

IMPROVEMENT IN HOISTING APPARATUS.

Specification forming part of Letters Patent No. 56,947, dated August 7, 1866.

To all whom it may concern:

Be it known that I, BARTON H. JENKS, of Bridesburg, in the county of Philadelphia and State of Pennsylvania, have invented a new and Improved Hoisting Apparatus for Mines and other purposes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side elevation of the improved apparatus. Fig. 2 is a vertical section of the same. Fig. 3 is a plan view, a portion of the elevating-carriage being broken away.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to a new and improved hoisting apparatus, which is particularly designed for use in coal and other mines for elevating the products thereof through the inclined passage-ways, and for preventing those lamentable accidents which frequently occur in mines in consequence of the parting of the ropes or chains during the operation of elevating heavy loads.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings, A represents an inclined passage-way leading from a horizontal gallery, B, to the surface of the earth, or to an upper tier of galleries, and C represents a rail-track composed of two plain rails, *a a*, and two toothed rails, *b b*, which latter are arranged outside of the rails *a a*, and constructed with an overhanging flange, as will be further mentioned hereinafter. These tracks are suitably secured down and tied upon the floor of the inclined passage, so as to form a safe and substantial support for the carriage, upon which the cars D are elevated or lowered.

The carriage consists of a platform, E, which is mounted upon four flanged wheels, *c c d d*, that are of such sizes as to support the platform upon the rails *a a* in a horizontal plane, as shown in Figs. 1 and 2. The flanged wheels are applied to axles *e e'*, that have their end bearings in pendants *g g*, and which are free to turn as the carriage is moved up and down the inclined plane. To the axle *e* three spurred wheels, *h, h*, and *i*, are keyed. The two wheels *h* engage with the teeth of the rails or racks *b b*, and the intermediate wheel, *i*, engages with a

worm-screw, *j*, which is on a longitudinal shaft, *f*. This shaft *f* carries a spur-wheel, *k*, which engages with a worm-screw, *l*, that is on a transverse shaft, F, which has its end bearings in the pendants *g g*. One end of the shaft F projects beyond the pendant *g* a short distance, and carries a grooved pulley, *m*, under which an endless rope or chain, G, passes.

The flanged drum-pulley *n*, which is located near the pulley *m*, and in the same vertical plane therewith, is intended for receiving over it the rope G and causing this rope to act with sufficient friction upon the grooved pulley *m* to turn its shaft F, and thus move the carriage either up or down the inclined passage.

The endless rope or chain G passes over a drum, H, at the highest point of the inclined passage A, and also over a drum, I, at the lowest point of this passage. The drum H may be rotated by any convenient prime mover.

It will be seen from the above description that comparatively little power will be required to move the carriage up the inclined track when heavily loaded, as the multiplication of gearing which is applied to move said carriage will communicate to it a slow motion. The intermediate screw-gearing, which I employ in conjunction with the spur-wheels, not only enables me to obtain a slow and steady motion of the carriage, but also prevents the carriage from moving of itself down the grade. There will be no undue strain brought upon the rope G, and even should this rope break during the hoisting of a heavy load the carriage will remain in a fixed position upon the track, for the reason that this carriage can only be moved by rotating the shaft F.

In order to provide against the accidental running off of the carriage-wheels, the uppermost pendants *g* carry small rollers, which are shown in dotted lines in Figs. 1 and 2, that project under the outer edges of the rack-rails *b b*, and hold the carriage-wheels down upon their track. The pendants of the smallest wheels *d* also serve to prevent any lateral thrust of the carriage.

By my invention I provide against the sudden descent of a loaded carriage should the hoisting-rope part. I also provide for keeping the carriage upon the inclined track and preventing it from tilting backward during the raising or lowering of a load.

I do not confine my invention exclusively

for use in mines, for, while it is found very valuable for this purpose, it may also be applied to carriages moving upon inclined planes in factories, warehouses, and other places where heavy loads require to be raised or lowered upon very steep grades.

The principle of my invention is also applicable to perpendicular shafts of coal-mines, factories, warehouses, &c.

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

1. Providing for raising or lowering a carriage which is mounted upon an inclined track or perpendicular shaft by means of ropes or

chains, and at the same time to so construct the devices which act upon and move the wheels of said carriage that, should the hoisting rope or chain break, the carriage will remain in a steady and safe position upon the track, substantially as described.

2. The means, substantially as herein described, for holding the upper end of the carriage down upon the inclined track and preventing lateral displacement.

BARTON H. JENKS.

Witnesses:

WILLIAM DOBSON,
EDWARD ONYX.