

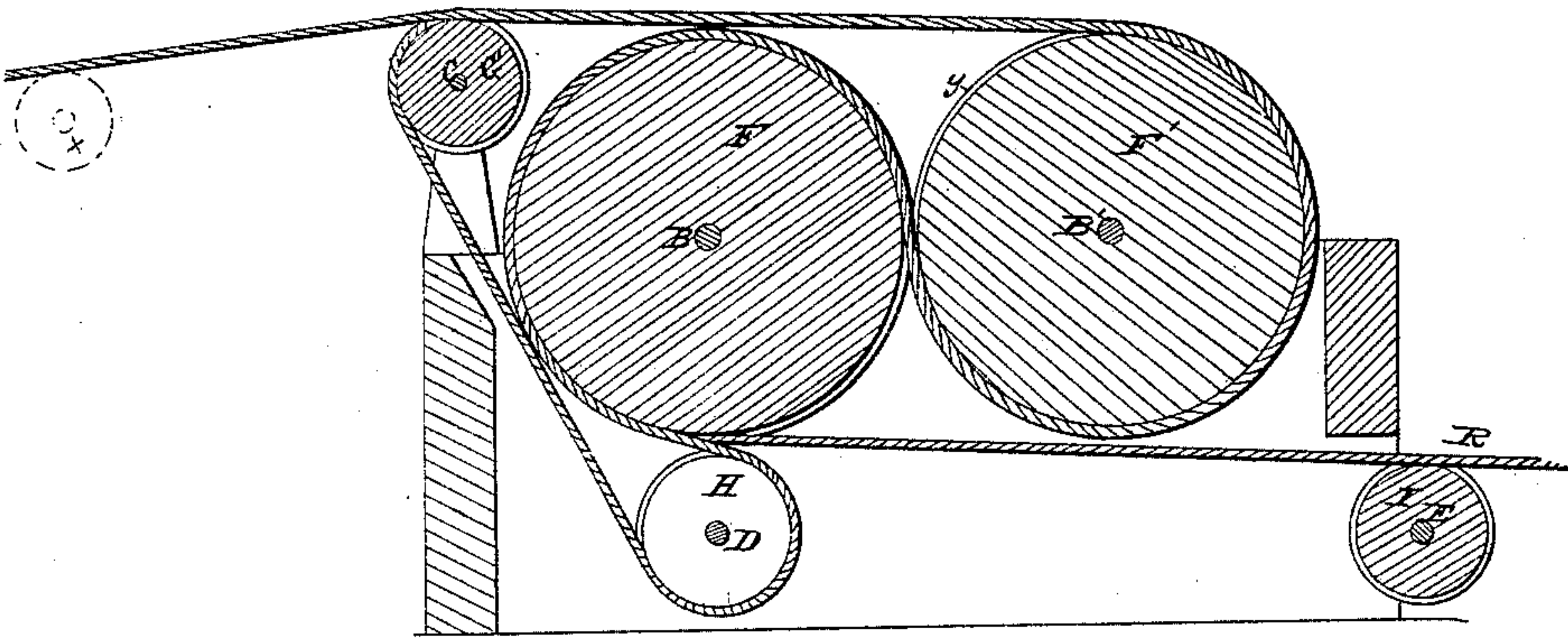
*J. E. Wootten,*

*Elevator,*

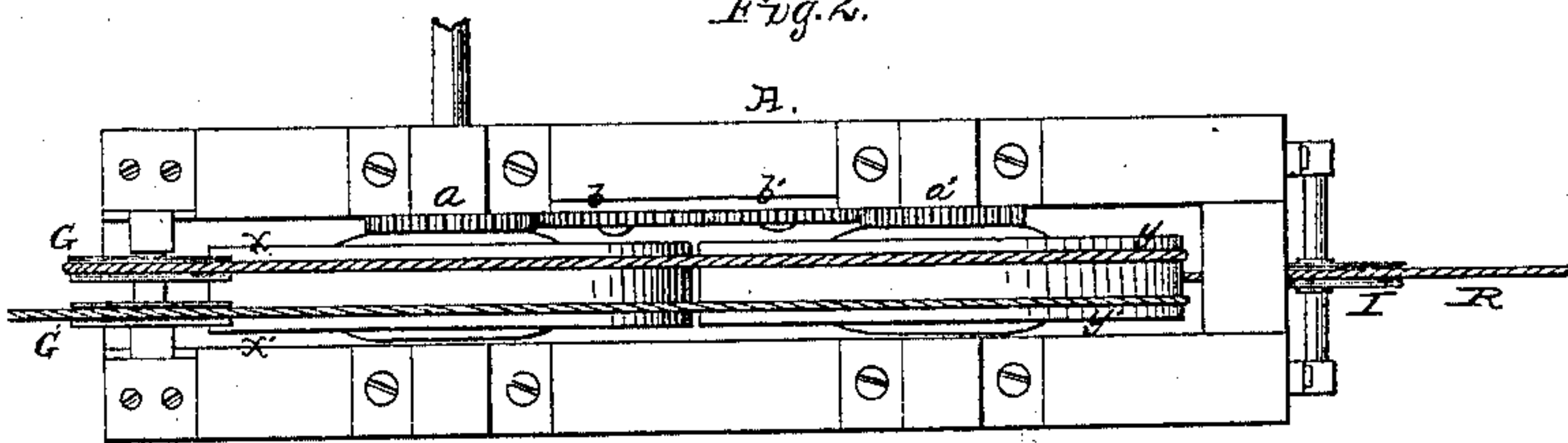
*N<sup>o</sup> 57,428,*

*Patented Aug. 21, 1866.*

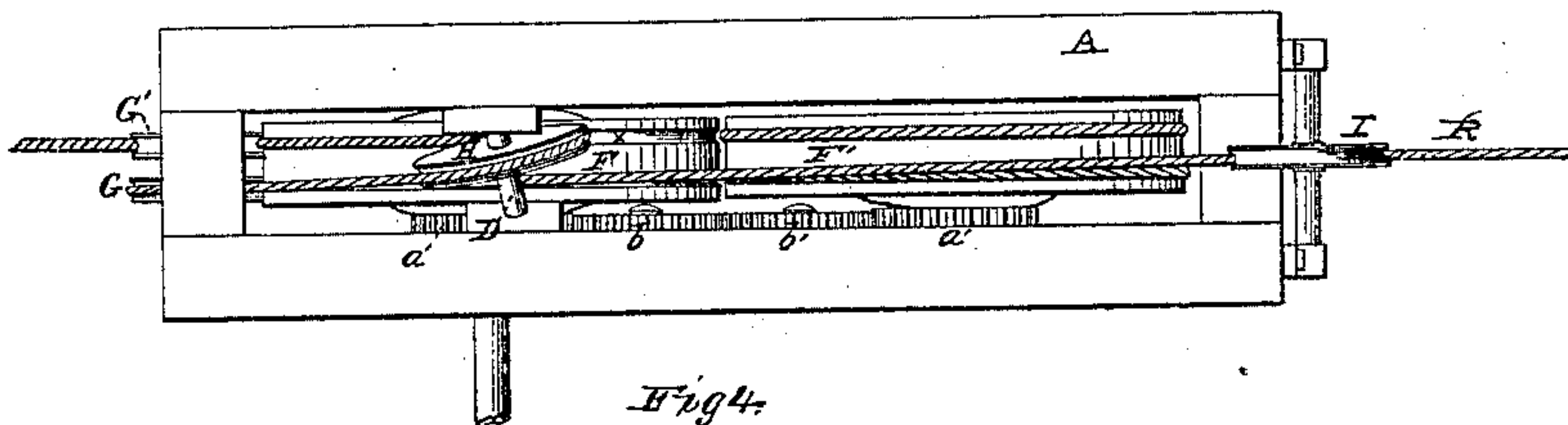
*Fig 1.*



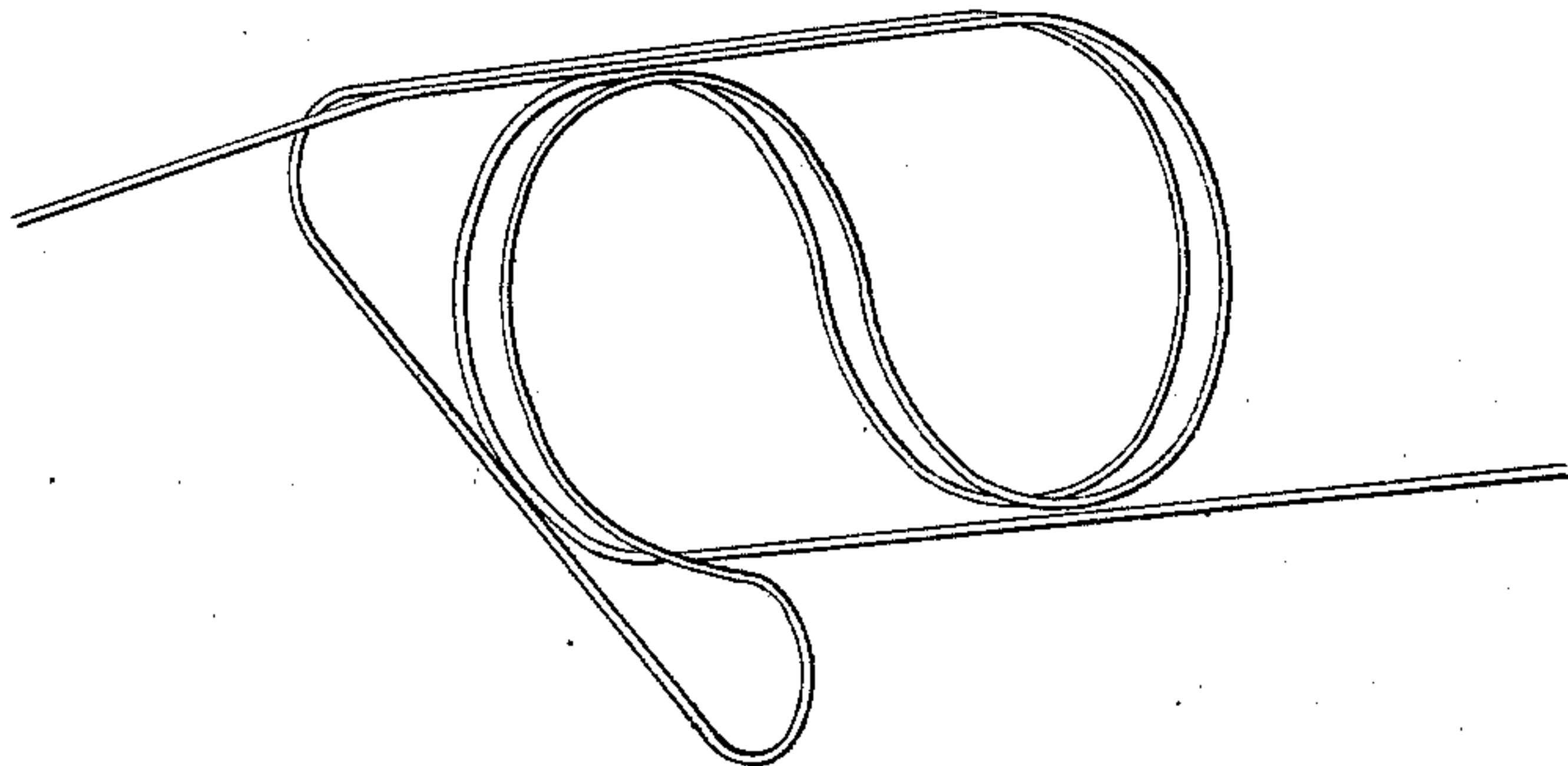
*Fig. 2.*



*Fig. 3.*



*Fig 4.*



*Witnesses.*

*W. H. Allen  
John Parker*

*Inventor  
J. E. Wootten  
By his attorney  
Henry H. Brown*



# UNITED STATES PATENT OFFICE.

J. E. WOOTTEN, OF CRESSONA, PENNSYLVANIA.

## IMPROVEMENT IN WINDING APPARATUS FOR INCLINED PLANES.

Specification forming part of Letters Patent No. 57,428, dated August 21, 1866.

*To all whom it may concern:*

Be it known that I, JOHN E. WOOTTEN, of Cressona, Schuylkill county, Pennsylvania, have invented an Improvement in Winding Apparatus for Inclined Planes; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to improvements in apparatus for drawing loaded cars up inclined planes and permitting empty cars to descend the same, or vice versa; and my invention consists of certain drums and pulleys arranged for the reception and guidance of a winding-rope, substantially as described hereinafter, so that additional frictional surface, preventing the rope from slipping in drawing heavy loads, may be obtained.

In order to enable others skilled in machinery of this class to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a sectional elevation of my improved winding-gear for inclined planes on railroads; Fig. 2, a plan view; Fig. 3, an inverted plan view, and Fig. 4 a diagram illustrating the course taken by the winding-rope.

A represents the frame-work, which may be varied in form and construction without departing from the main features of my invention, and in suitable bearings in this frame turn the shafts B, B', C, D, and E.

The driving-shaft B extends beyond the frame of the machine and derives its power from any adjacent steam-engine.

To the shaft B is secured the grooved drum F, and to the shaft B' a similar grooved drum, F', and to the shaft B is secured a cog-wheel, *a*, geared to a similar wheel on the shaft B' by means of similar intermediate wheels, *b* and *b'*, which are arranged to turn freely on pins secured to the frame.

On the shaft C are two guide-pulleys, G and G', on the shaft D a grooved pulley, H, and on the shaft E a similar grooved pulley, I.

The mechanism described above is situated beneath the track of a railroad, at the head of an inclined plane up which it is desired to draw the cars.

The continuous winding-rope R passes along the inclined plane over grooved pulleys, situated between the rails of two parallel tracks, and is passed round the drums and guide-

pulleys in the following manner: From the grooved pulleys on one track of the inclined plane the rope passes over the grooved guide-pulley G' above the periphery of the drum F, thence around the drum F', then around the drum F, around the grooved pulley H to the guide-pulley G, again around the pulleys F' and F, and from the latter over the guide-pulley I, whence it is guided by any appropriate system of pulleys to the second track on the inclined plane.

In ordinary winding apparatus used in connection with inclined planes, two drums, F and F', are used, the rope passing from one track around the pulleys G' and F, and thence, guided by suitable pulleys, to the adjacent track. In this the ordinary arrangement of winding-gear the rope is apt to slip, owing to its limited bearing-surface on the drums, and consequently the load which can be drawn up the inclined planes is limited.

By the aid of the pulleys G and H the rope is directed twice around each of the drums F and F'; hence the frictional surface is increased to a corresponding extent, and the tendency of the rope to slide is decreased in proportion. At the same time additional friction is obtained by the additional tension imparted to the rope in taking the course pointed out.

In the present instance each of the drums F and F' has but two grooves for the reception of the rope in passing twice around the said drums; but there may be additional grooves in the drums for permitting the rope to pass around them three or more times, thereby increasing the frictional surface and tension, the number of guide-pulleys G and H being increased in accordance with the number of coils around the drum.

It will be evident that in place of the drums F and F' separate pulleys with single grooves may be secured to the shafts B and B'.

I claim as my invention and desire to secure by Letters Patent—

The drums or pulleys F and F' and pulleys G and H, the whole being arranged for the reception and guidance of the rope in the course, substantially as described, for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

J. E. WOOTTEN.

Witnesses:

CHARLES E. FOSTER,  
JOHN WHITE.