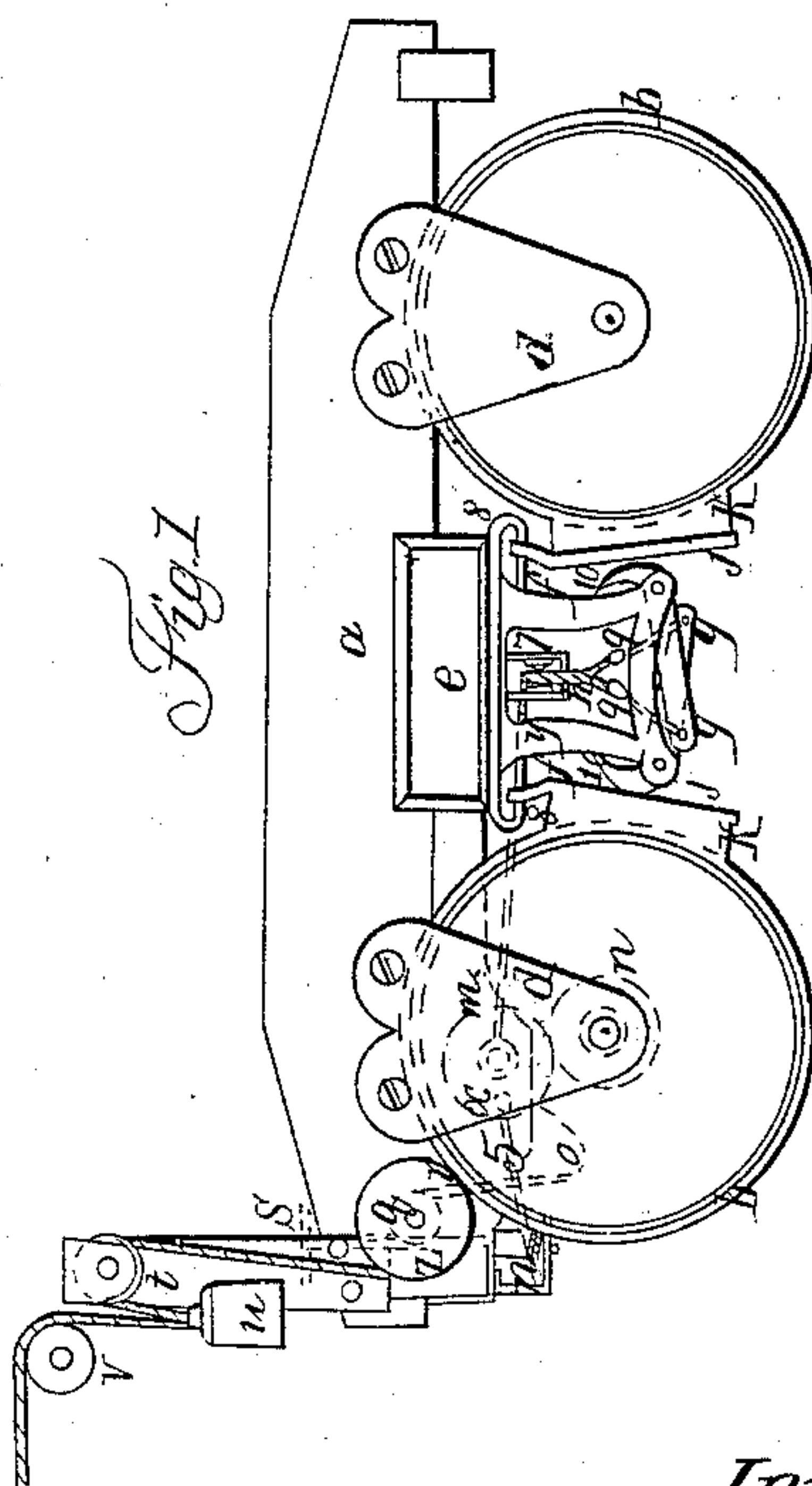
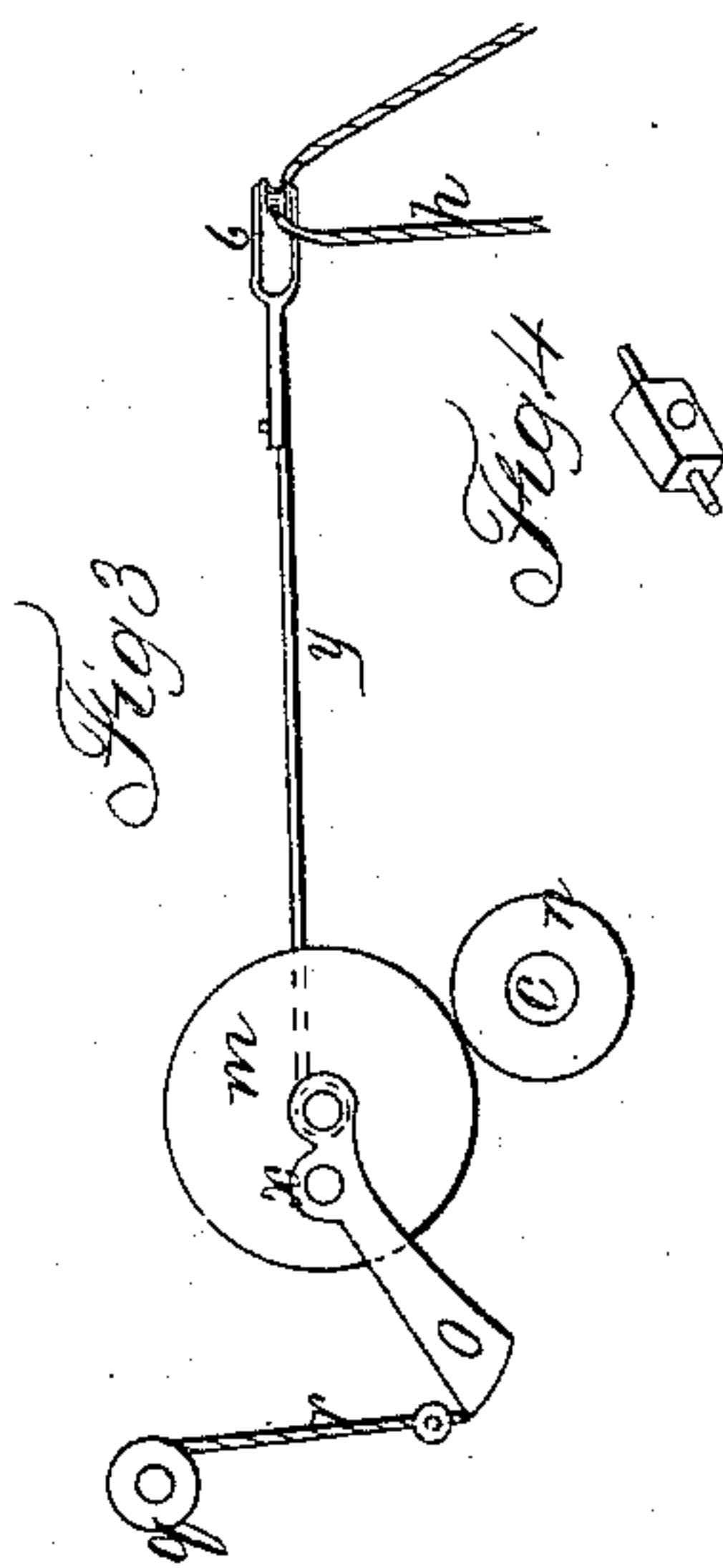
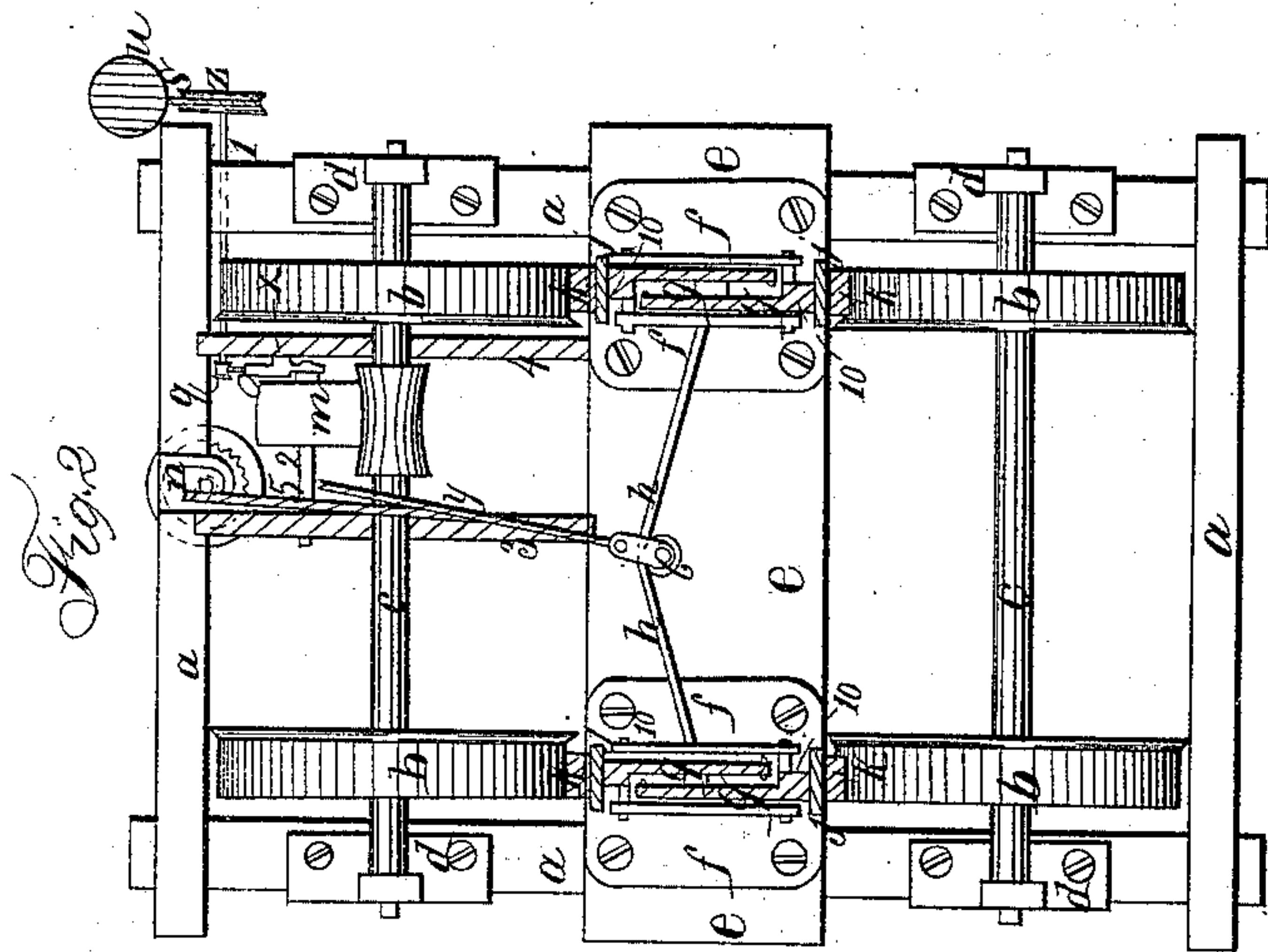


O. J. HARRINGTON.

## Car Brake.

No. 42,189.

Patented Apr. 5, 1864.



Witnesses;  
James J. Johnston  
John Davis

Inventor;  
O J Harrington

# UNITED STATES PATENT OFFICE.

O. I. HARRINGTON, OF MANCHESTER, PENNSYLVANIA.

## IMPROVEMENT IN RAILROAD-CAR BRAKES.

Specification forming part of Letters Patent No. 42,189, dated April 5, 1864.

*To all whom it may concern:*

Be it known that I, O. I. HARRINGTON, of Manchester, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Brakes for Railroad-Cars; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in the combination and arrangement of pulleys, friction-pulley, drum, levers, chains, wire ropes or rods, constructed, arranged, and operating in the manner hereinafter described.

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

In the accompanying drawings, Figure 1 represents a side view of an ordinary truck furnished with my improvement in brakes. Fig. 2 represents a bottom view of the same. Fig. 3 represents the friction-pulley, drum, chains, and the lever, chain, and pulley used for making the friction-pulley operative or inoperative, and also represents the relative position of the friction-pulley to the drum. Fig. 4 represents a swivel journal-box, which is used in connection with the lever *o* for the shaft 2 of the friction-pulley *m*.

In the accompanying drawings, *a* represents the frame of the truck. *b* represents the wheels. *c* represents the axles of the wheels. *d* represents the pedestals or bearings of the axles. The frame, wheels, axles, and pedestals are constructed in the ordinary or well-known manner.

Across the center of the frame *a* is placed a timber, *e*, which is secured in a firm manner to the side pieces of the frame. To this timber *e* is secured the hangers *f*, the form of which is clearly shown in Figs. 1 and 2. To these hangers *f* are secured levers *g*, which are furnished with cams 10. To the hangers *f* are secured bent rods 8, which are used for supporting the brake *k* and their back-straps *j*.

It will be observed that the back-straps *j* are bent so that the upper end of the strap extends over the upper end of the brakes *k*. This will cause the brakes by their own weight and gravity to swing back on the rods 8 from the wheels when relieved from the pressure of the levers *g* and cams 10. By this arrange-

ment of the rods 8 and back-straps *j* the brakes *k* will always be brought up against the wheels so that the whole face of the brakes will have a uniform and equal bearing, thereby obtaining the full force of the brakes and causing them to wear evenly and uniformly, which is the great desideratum in brakes.

The levers *g* are attached by means of links 9 to the chain *h*, which passes over pulleys 7 and through pulley-block 6, which is attached to the chain or wire rope *y*, which is connected to the shaft 2 of the friction-pulley *m*. One end of the shaft 2 of the friction-pulley *m* has its bearing in one end of the lever *o*, the axis or fulcrum of which is secure to the bar 4 at the point marked *x*. The other end of the shaft 2 is placed in a swivel-bearing placed in bar 3. The form of the swivel-bearing is clearly represented in Fig. 4. The arrangement of the swivel-bearing in bar 3, and its operation, will be readily understood by the skillful mechanic.

To the forward end of lever *o* is attached a chain or rope, *r*, which is attached to pulley *q* on shaft 1, on the outer end of which is placed a pulley, *z*, to which is attached a rope or cord, *s*, which passes over a pulley, *t*, placed on the side of the car body, and is connected to the rope *s* on the next car having like arrangement, and so on through the whole train, thereby placing the brakes of the entire train under the control of the engineer, or they may be worked by brakemen for each car.

The weight *u* and pulley *v* are used for making the brakes self-acting. I propose making this device the subject of another application for a patent.

On one of the axles *c* is placed a drum, *n*, which is used for imparting motion to the friction-pulley *m*. To the chain or rope *y* is attached another chain or rope, *5*, which is attached to the ordinary hand-lever and ratchet *p*, the operation of which is well known and understood in connection with brakes.

The operation of my improvement is as follows: Having all things constructed and arranged as herein described and represented, with the long end of the lever *o* made heavy enough to raise one end of the shaft 2, so that the friction-pulley *m* will be relieved from contact with the drum *n*, when I desire to "put on the brakes," I draw forward the cord *s*, which will turn the pulley



$z$ , which will turn the shaft 1, which will revolve the pulley  $q$ , which will wind up the chain or rope  $r$ , which will raise up the long end of the lever  $o$  and throw down its short end, which will bring the friction-pulley  $m$  in contact with the drum  $n$ , which will revolve the friction-pulley  $m$  and its shaft 2, which will wind up the chain or wire rope  $y$ , which will draw forward the chain or rope  $h$ , which will draw up the levers  $g$  by means of links 9, and cause the cams 10 to press against the back-straps  $j$  and force the brakes  $k$  against the wheels  $b$ . The brakes are taken off by simply releasing the hold on the rope or cord  $s$ , which will cause the long end of the lever  $o$  to drop down, which will relieve the pulley  $m$  from contact with the drum  $n$ , and the tension of the chains or ropes  $y$  and  $h$  will suddenly reverse the motion of the friction-pulley  $m$  and shaft 2, which will slacken the chains or ropes  $y$  and  $h$ , and the levers  $g$  will drop down by their own weight, which will relieve the cams 10 from the back straps  $j$  and brakes  $k$ .

The manner of operating the brakes by means of the hand-lever and ratchet will be readily understood by reference to Fig. 2 and the operation as hereinbefore described. It will be observed that the pulley-block 6 will adjust itself on the chain  $h$ , so that the force will be equally divided on the brakes. I wish it clearly understood that I do not confine myself to any particular form or size, or mode of constructing the various parts herein described and represented. These things I leave to the good judgment and skill of the mechanic.

The advantages of my improvement are as follows: First, I avoid the use of brake-beams, which are a source of many accidents, by becoming disconnected from the cars and falling across the track and thereby throwing the train off the track; second, the action of each brake is independent, which is accomplished by fur-

nishing a lever for each brake; third, the brakes for each car of the train are independent, so that if one brake or one whole set of brakes on a car become inoperative, it will not effect the brakes of any other car of the train; fourth, the brakes of the entire train can be placed under control of the engineer, thereby avoiding the expense of keeping brakemen; fifth, equal and uniform pressure of the entire face of the brakes on the wheels, and also regularity and evenness in the wear of the brakes; sixth, simplicity of construction and durability of the various parts, and also ease and facility in making repairs; seventh, cheapness in construction.

I wish it clearly understood that I do not claim, broadly, the use of a friction-wheel or pulley for operating brakes, for I am aware that such device has been patented and is now in use; but

What I do claim as of my invention is—

1. The combination of the friction-pulley  $m$  and shaft 2, lever  $o$ , drum  $n$ , pulley  $q$ , and chains  $r$  and  $y$ , when used in connection with car-brakes, arranged and operating in the manner herein described and set forth.

2. The use of the chain  $y$ , adjustable pulley-block 6, and chain  $h$ , when used in combination with a lever for each brake, and so arranged that the brakes will act independent of each other, as herein described and set forth.

3. The arrangement of the pulleys  $t$ ,  $z$ , and  $q$ , chain or cord  $s$ , chain  $r$ , lever  $o$ , shaft 2, friction-pulley  $m$ , drum  $n$ , chains  $y$  and  $h$ , adjustable pulley-block 6, levers  $g$ , furnished with cams 10, and brakes  $k$ , arranged and operating substantially as herein described, and for the purpose set forth.

O. I. HARRINGTON.

Witnesses:

JAMES J. JOHNSTON,  
JOHN DAVIS.