

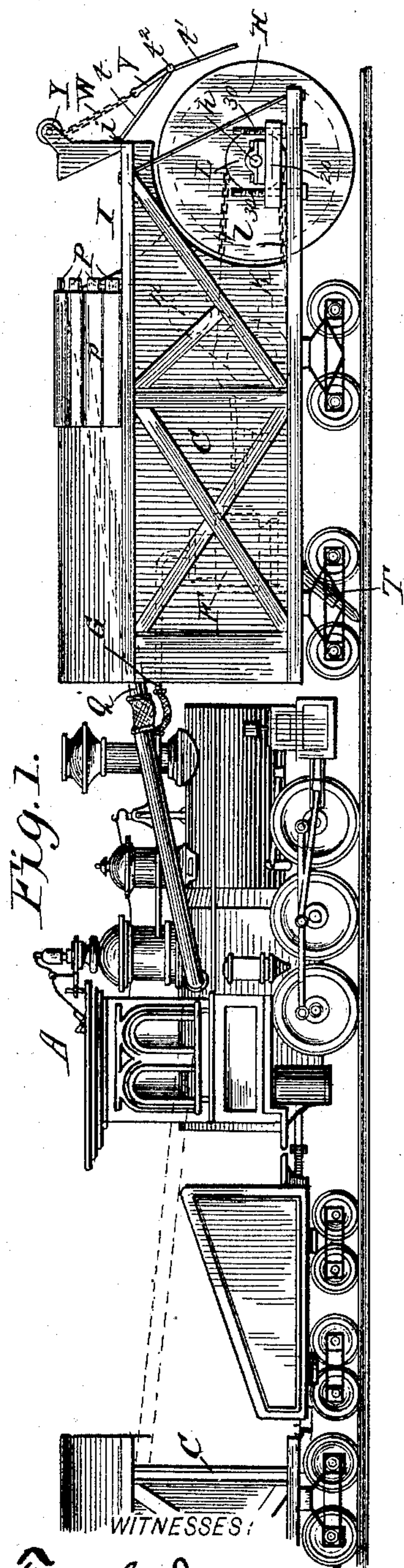
(No Model.)

3 Sheets—Sheet 1.

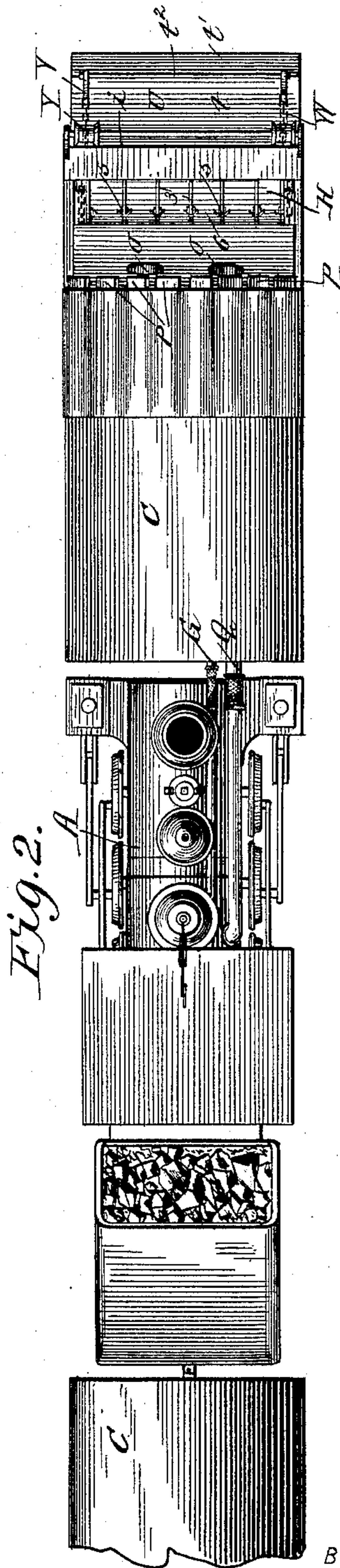
J. H. PIELERT.  
SNOW PLOW.

No. 436,636.

Patented Sept. 16, 1890.



*Fred G. Duterich*  
*W. D. Blondel.*



INVENTOR:  
*J. H. Pielert.*

BY *Man Le*

ATTORNEYS



(No Model.)

3 Sheets—Sheet 2.

J. H. PIELERT.  
SNOW PLOW

No. 436,636.

Patented Sept. 16, 1890.

Fig. 3.

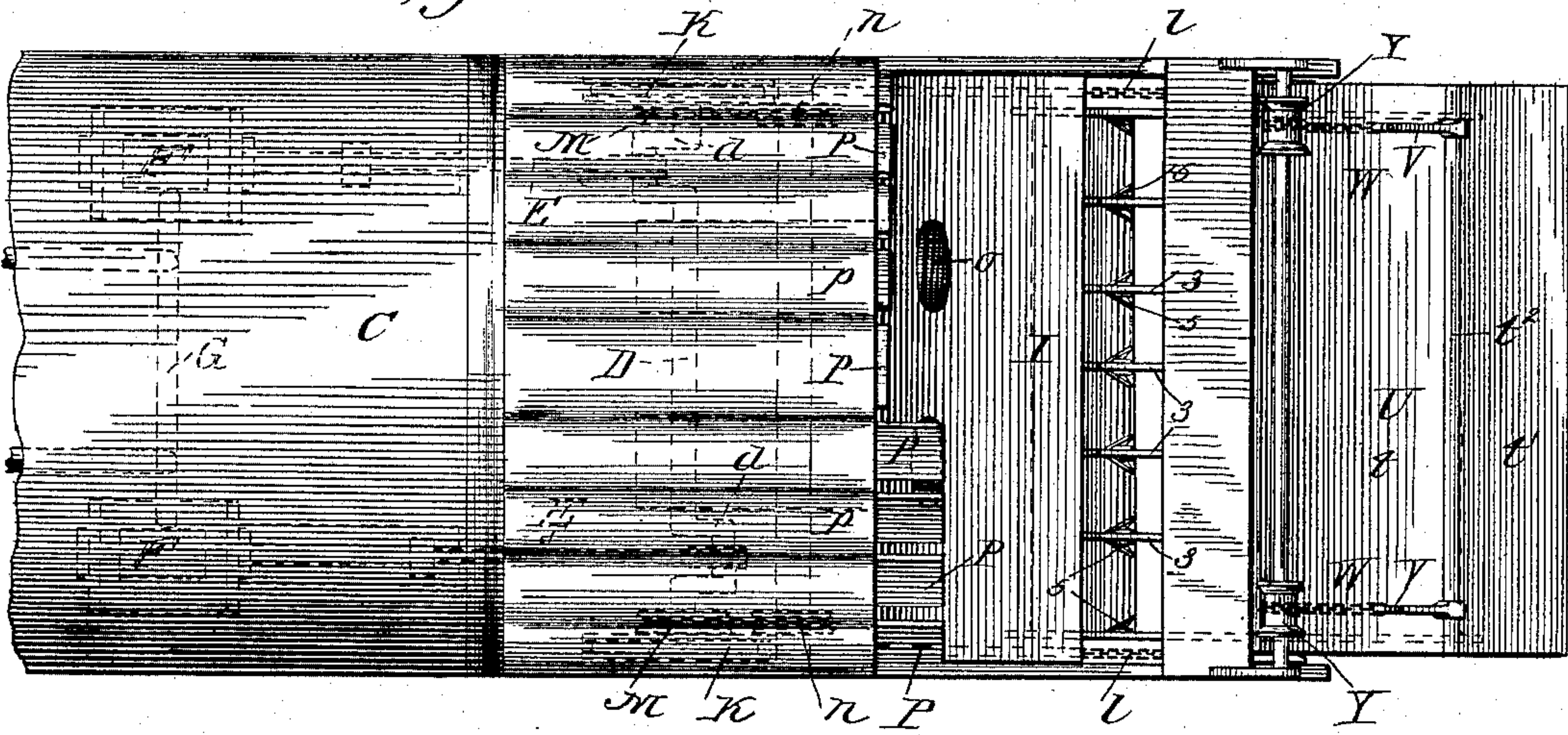
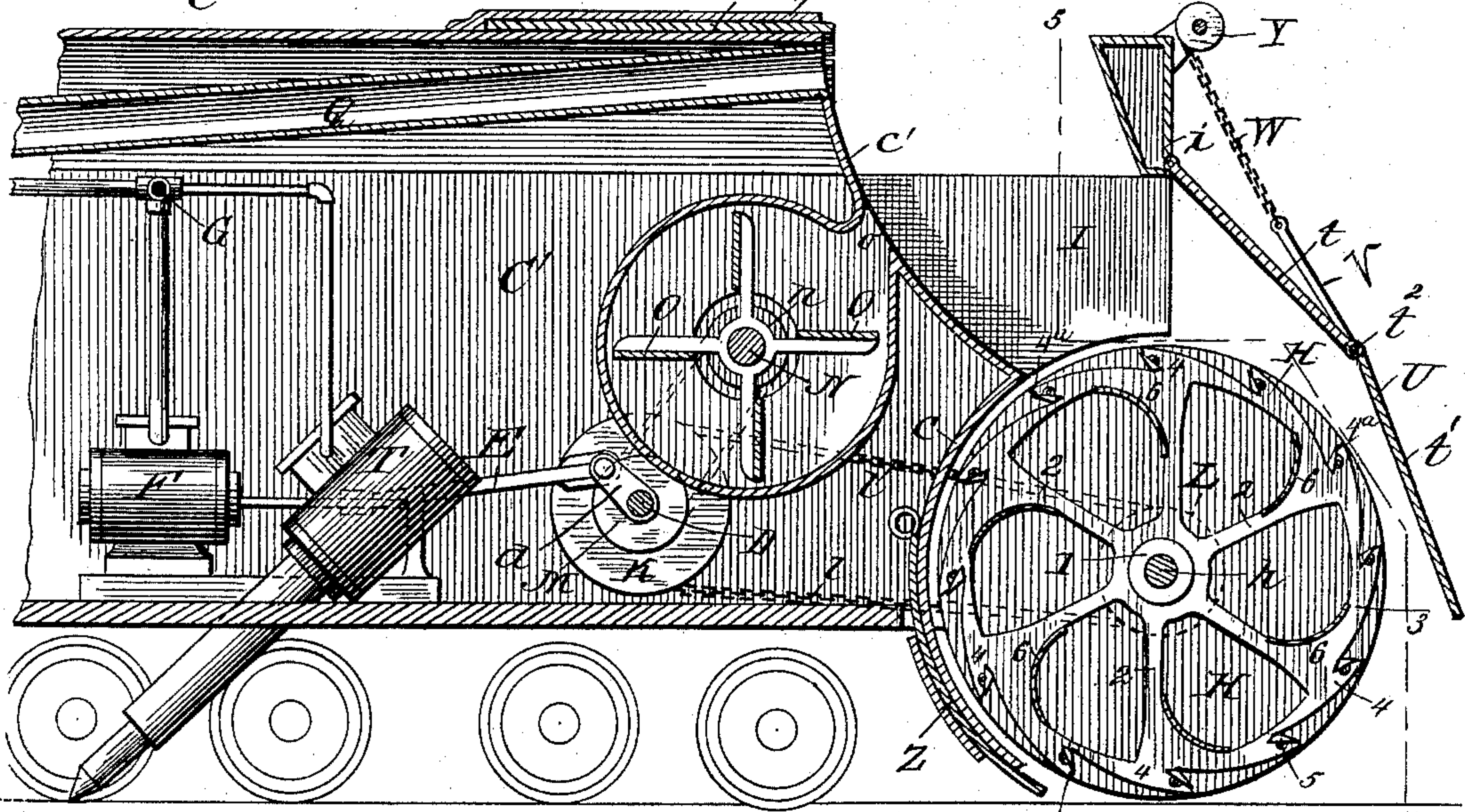


Fig. 4. P P



WITNESSES:

Fred G. Dieterich  
M. D. Bloude

INVENTOR:

J. H. Pielert.

BY

Munn & Co

ATTORNEYS



(No Model.)

3 Sheets—Sheet 3.

J. H. PIELERT.  
SNOW PLOW.

No. 436,636.

Patented Sept. 16, 1890.

Fig. 5.

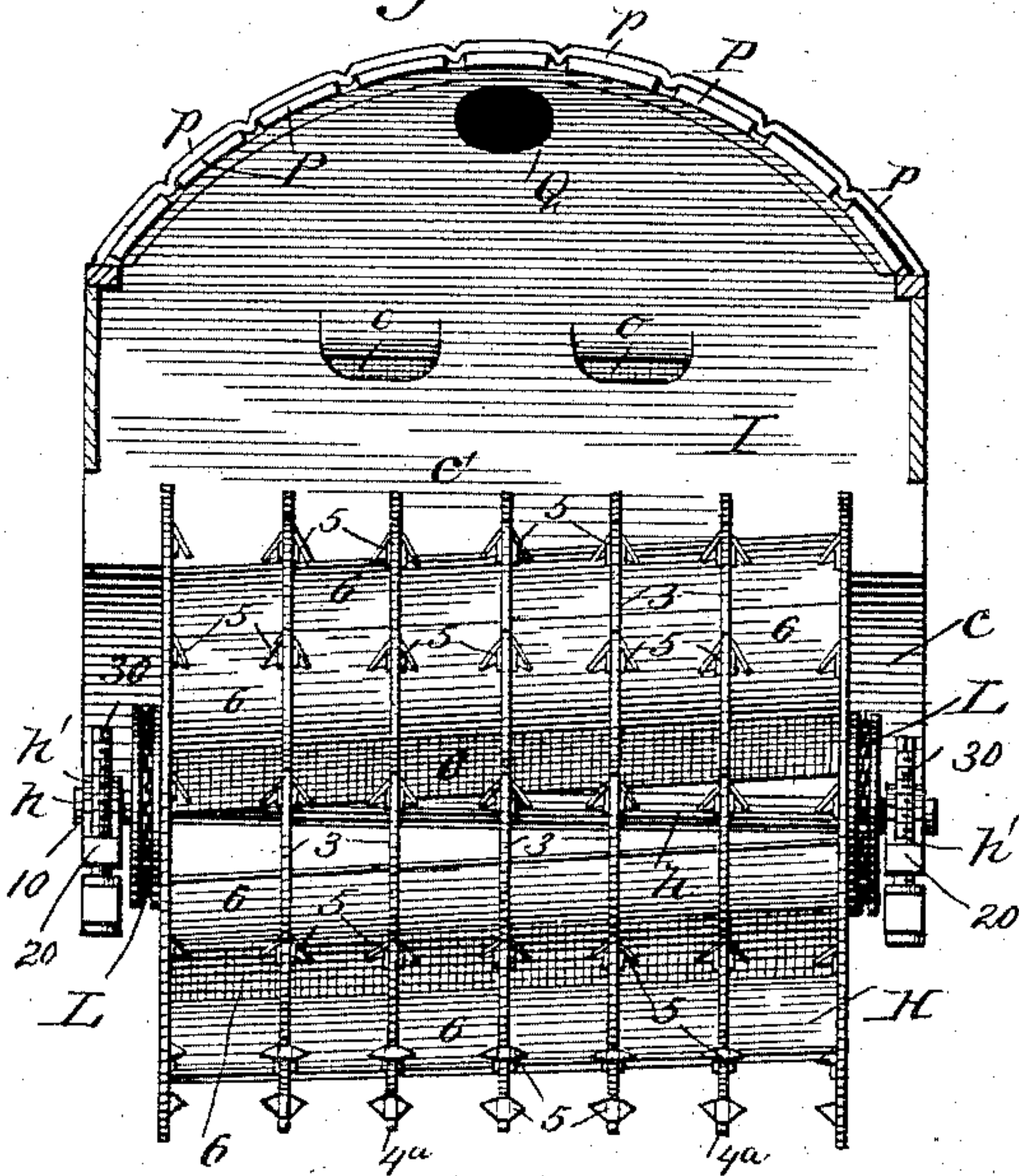


Fig. 6.

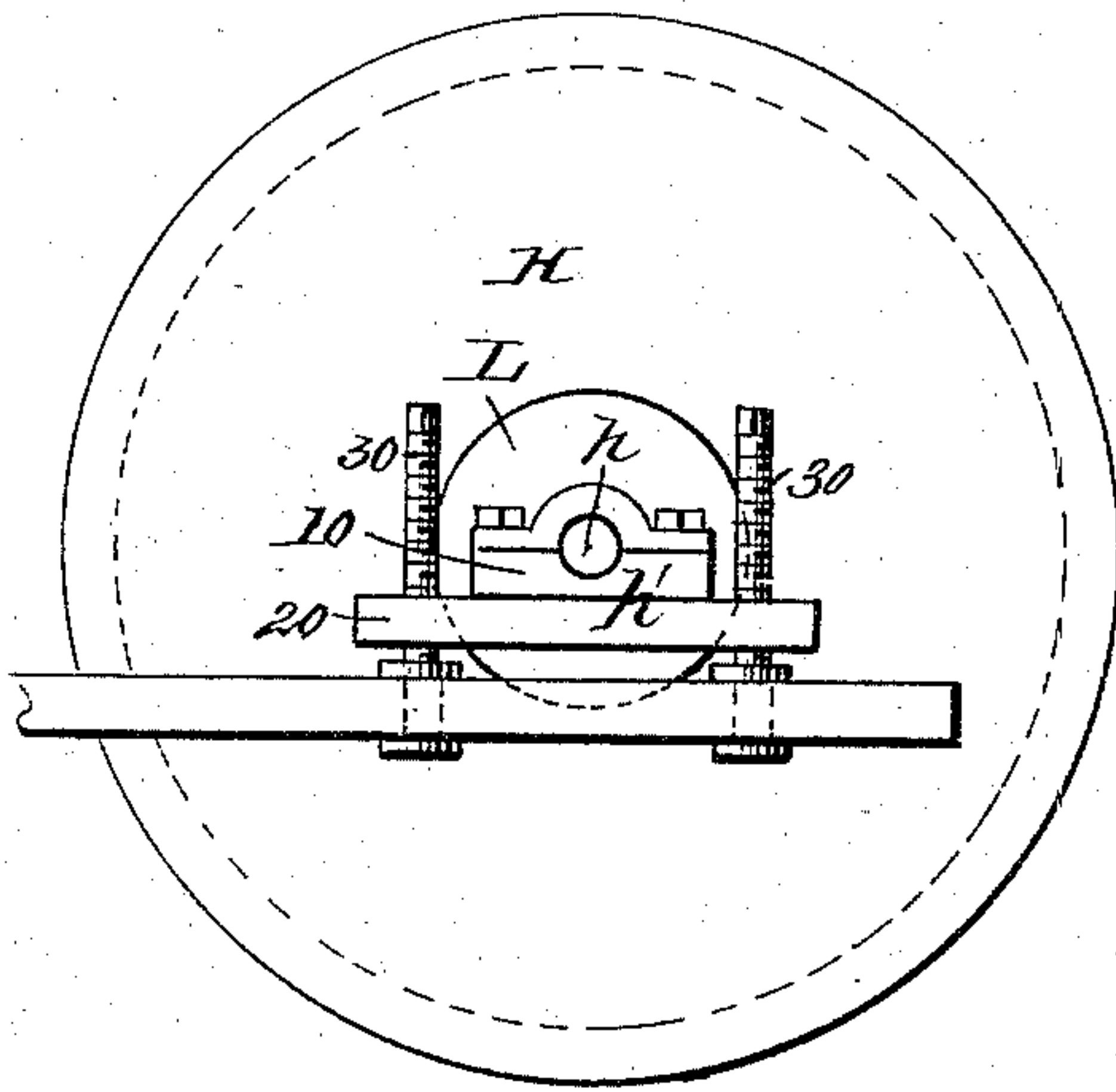
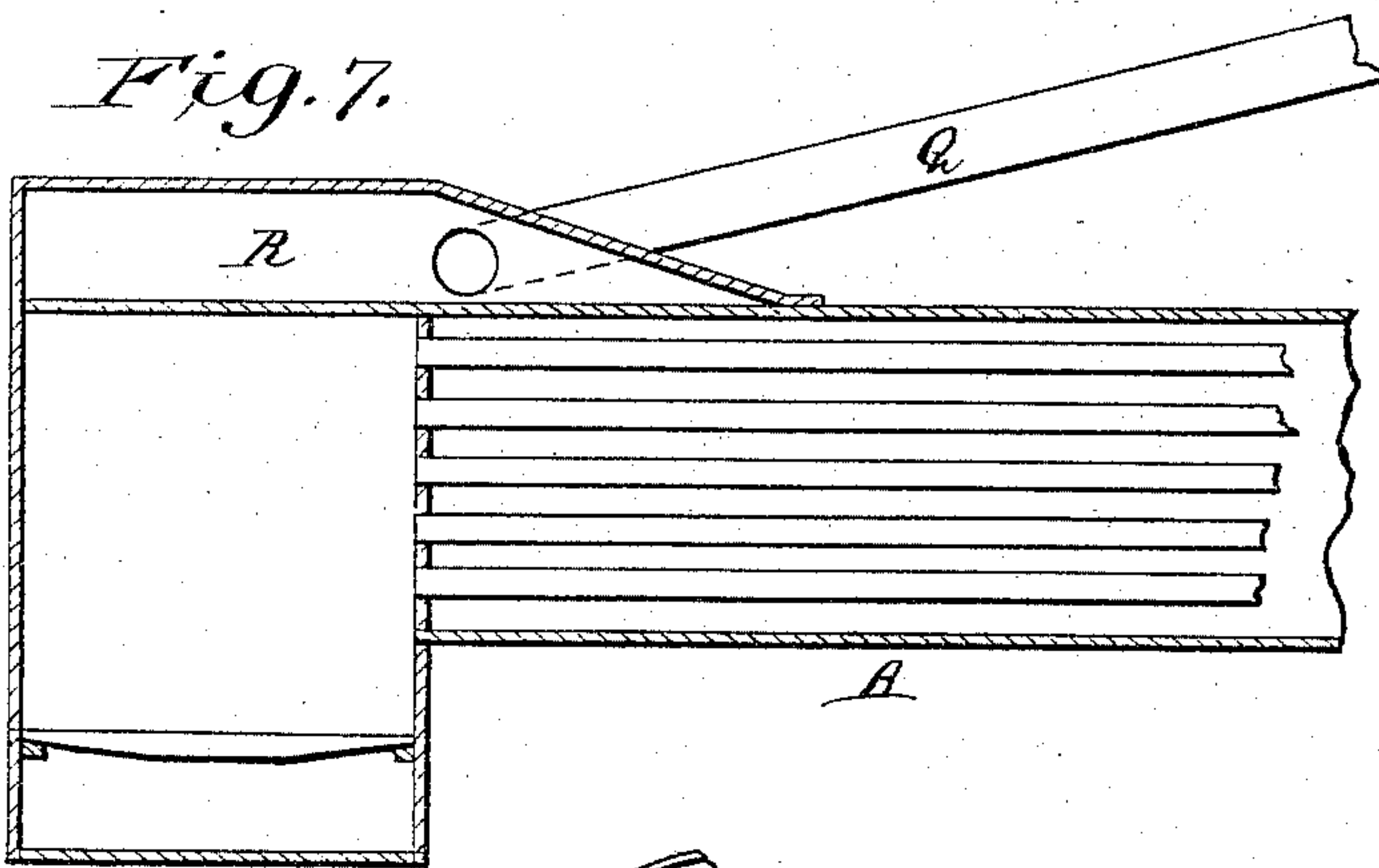
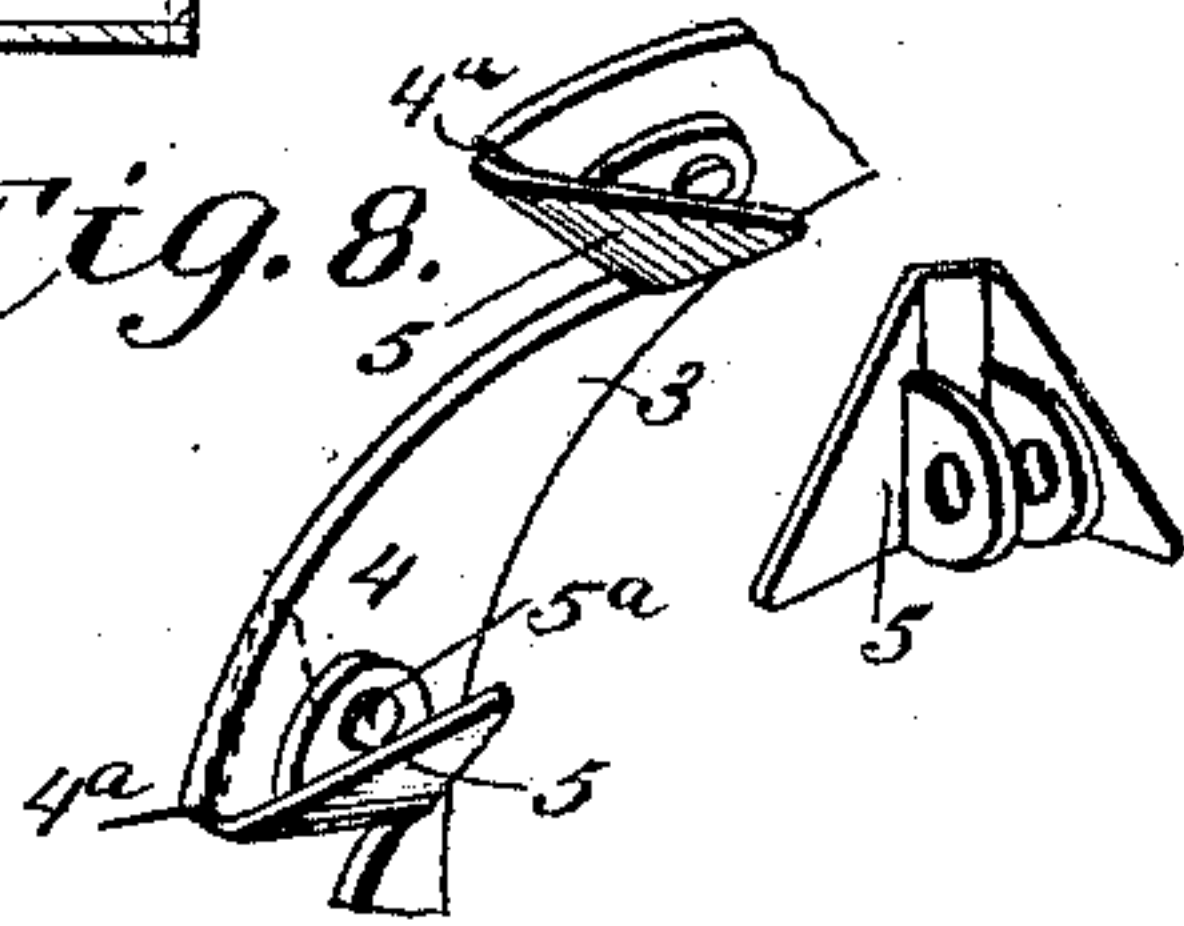


Fig. 7.



WITNESSES:

Fred G. Duterich  
M. D. Blondel.



INVENTOR:  
J. H. Pielert.

BY *Mann & Co.*

ATTORNEYS



# UNITED STATES PATENT OFFICE.

JOHN H. PIELERT, OF TRIUMPH, MARYLAND.

## SNOW-PLOW.

SPECIFICATION forming part of Letters Patent No. 436,636, dated September 16, 1890.

Application filed April 19, 1890. Serial No. 348,738. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN H. PIELERT, residing at Triumph, in the county of Baltimore and State of Maryland, have invented certain  
5 new and useful Improvements in Snow-Plows, of which the following is a specification.

My invention relates to a machine adapted to remove snow from railroad-tracks by the action of a suitably-constructed excavating  
10 apparatus arranged to be fitted to a locomotive-engine; and it has for its object to provide such a machine which will be in the nature of a double-ender, which will be of powerful capacity, and which will serve to cut into the  
15 snow banks or drifts and throw the snow to the sides of the track.

It has also for its object to provide means whereby so much of the snow as may be required can be led to the water-tank of the  
20 locomotive to always keep a full supply of water on hand for boiler use.

Furthermore, it has for its object to provide suitable means whereby the snow can be discharged to either or both sides of the road-  
25 way, as desired.

My invention consists in certain novel features of construction and peculiar combination of parts, all of which will hereinafter be fully described in the annexed specification,  
30 and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved snow-plow as applied for use. Fig. 2 is a top  
35 plan view thereof. Fig. 3 is a plan view of one of the plow-carrying cars. Fig. 4 is a longitudinal section of the same. Fig. 5 is a transverse section on the line 5 5, Fig. 4. Fig. 6 is a detail view, hereinafter referred to.  
40 Fig. 7 is a diagrammatic view illustrating the manner of connecting the snow-discharging pipe and the water-tank of the locomotive; and Fig. 8 is a detail view of a portion of one of the cutting-rings, showing the manner of  
45 connecting the laterally-extended cutting-teeth thereto.

In the accompanying drawings, A indicates the locomotive of the type known as "shift-  
ing-engines," which are provided with large  
50 consolidation-boilers, and C indicates the plow-trucks, of which one is attached to the rear and one to the front of the locomotive.

As the construction and operation of both plow-trucks and plows are the same, I only describe and illustrate one of such trucks 55 and plows.

Referring to Figs. 3, 4, and 5, it will be observed that the plow-car C is formed with a chamber C' of suitable dimensions, in the forward end of which is journaled a transverse  
60 operating-shaft D, provided with crank-arms *d d*, to which are connected pitman-rods E, each driven by an engine F F, said engines being supplied by steam from a pipe G, connected with the steam-chamber of the loco-  
65 motive-boiler. The front end of the chamber C' is curved inward at *c* and inclined upward at *c'*, as shown, and in advance of the curved portion *c* is disposed the plow or excavator-  
wheel H, the ends of the shaft *h h* of which 70 are journaled in movable bearings *h' h'*, hereinafter particularly referred to.

The plow or excavator-wheel H consists of a hub portion 1, a series of radial steel arms 2, and a series of circumferential steel rings 75 3 3, which are provided with a number of cutting-teeth 4, the base of such teeth being formed with lateral triangular extensions 5 5, secured to said rings by bolts 5<sup>a</sup> 5<sup>a</sup>, as shown, to increase their efficiency as individual ex-  
80 cavators, the said teeth 4 4 being, however, projected above said extensions, as at 4<sup>a</sup> 4<sup>a</sup>, whereby a positive cutting-edge will be presented to open the channels or furrows in the snow-bank, the triangular extensions serving  
85 to increase the width of said furrows as the teeth enter into the bank.

6 6 denote a series of transverse blades or scoops secured upon the outer ends of the arms 2 2, which serve as conveyers when the  
90 wheel is revolved.

By reference to the drawings it will be seen that the relation of the cutting-teeth 4 4 and the scoops 6 6 is such that when the wheel H is pushed up against a snow drift or bank 95 the teeth 4 4 will cut into the bank and form a series of longitudinal channels, thereby reducing the solidity of the face of such bank, and the scoop-blade 6 6, following, will serve to cut transversely across the said channels 100 and will carry the snow upward to the mouth I, from whence it is discharged in a manner presently described.

To reduce the force of the blow of the



scoops 6 6 when they come into contact with hard frozen snow, they are set obliquely, as most clearly shown in Fig. 5 of the drawings, such construction allowing for a shear-cutting operation of the scoops on the face of the frozen snow.

K denote chain-pulleys secured upon the shaft D, which are connected by chains *l* with pulleys L L on the excavator-wheel shaft *h*, and M indicate similar pulleys on the shaft D, which are geared with pulleys *n n* on a transverse shaft N, located below the mouth or chute I, upon which are mounted the fans O O, the discharging ends of the fan-chambers opening into the chute I at *o o* in such a manner as to get a direct upper blast, which mingles with the snow as it is brought up by the scoops 6 6 and forces it out to the sides of the track.

To provide suitable means whereby the snow may be deflected to either side of the car C or to both sides at the same time, I arrange a series of slats P, held to slide in ways *p*, formed on the semicircular top of the car, said slides being adapted to be operated independently, whereby when desired to discharge the snow to the right the slides on the left-hand side can be slid out over the chute I or the right-hand slides slid out in case it is desired to discharge the snow to the left. When the top slides only are slid out over the chute, the snow will be discharged to both sides of the car. By this construction it will be observed that in case of high winds the slides can be so adjusted over the discharge end of the chute as to prevent the snow being blown back into the chute.

To provide a simple and effective means whereby the locomotive-boiler will always have the required supply of water on hand, I employ a conveyer-tube Q, the mouth of which opens into the chute I near its upper end and just below the slides P, the rear end of such tube connecting with the tank R of the boiler. (See Fig. 7.) By this arrangement it will be seen that a quantity of the snow will enter the tube Q, and passing down the same will become gradually heated and melted at the time it reaches the tank R. If desired, the slides P can be adjusted over the mouth of the chute, so as to cause a greater or less amount of snow to enter the said chute.

T T denote propelling-jacks of any well-known construction, which are driven by suitably-constructed engines located in the chamber C', and which are supplied with steam from the locomotive-boiler, as shown. The object of providing the jacks is to obviate the necessity of providing additional locomotives in case great power to move the machines is needed, also to act as a means for forcing the locomotive and the excavator forward in case the rails become so slippery that the drivers will not travel thereon.

By arranging the jacks T and the engines for operating them as shown all power required is concentrated in the chamber C',

and said jacks having, say, a stroke of ten feet can be alternated as rapidly as the excavator can reduce a snow-bank to such a degree.

From the foregoing description, taken in connection with the drawings, it will be seen that by arranging my improved excavator devices as described, in connection with a heavy shifting-engine having a tank on top of the boiler, which with plenty of steam for both cylinders for operating the excavator, as well as keeping a full capacity of steam-pressure on the drivers for holding the excavators against the snow, and also to keep an engine operating the propelling-jacks in case their use is desired, I am enabled to penetrate and remove any high or solidly-frozen snow-bank.

The object of making the machine a double-ender is mainly to afford relief in case of a heavy snow-slide in the rear after having cleared the track, or, if from change of wind or otherwise, the drifting snow should have again blocked the road.

To provide for guiding the snow to the discharge-chute I, in case only shallow drifts are to be removed, I provide an adjustable metal shield or apron U, formed of the sections *t t'*, hinged together at *t<sup>2</sup>* and pivotally connected at its upper end to the front wall *i* of the chute I.

V denotes bars, connected at their lower ends to the apron, their upper ends being connected to chains W, connected to a winch Y. By this construction the apron may be raised or lowered, as the size of the snow-bank may require.

Z denotes a scraper arranged on the inner side of the concave part *c* of the front end of the chamber C', which can be adjusted from the interior of such chamber, said scraper serving to clear the track of the loose snow left by the excavator. The ends *h h* of the excavator-shafts are journaled in movable bearings 10 10, as shown in Fig. 6, said bearings consisting of the block 20, held on jack-screws 30 30, secured in the frame of the machine, by adjustment of which the said bearings and the excavator-wheel can be raised or lowered, as may be desired.

When not desired for operation, the excavators can be readily uncoupled from the engine and stored in the sheds, the several parts of the excavator in practice being connected by means of bolts and nuts, whereby they may be easily disconnected.

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

1. In an apparatus for removing snow from railroads, the combination, with a car-body provided with excavator devices at its front end adapted to discharge the snow over the top of said car and a locomotive-engine, of a chute or pipe located in the top of said car and connected with said engine, its receiving end over the upper edge of the excavator and



in the path of the discharging snow, whereby it is adapted to receive a portion of such snow and lead same to the engine, substantially as and for the purpose described.

5 2. In an apparatus for removing snow from railroads, the combination, with a car-body provided with excavator devices at its front end adapted to discharge the snow over the top of the car and a locomotive-engine, of a  
10 chute or pipe located in the top of the said car, its rear end connected with the water-tank of said engine, its mouth arranged in the path of said discharging snow, whereby it is adapted to receive a portion of said snow, and  
15 adjustable devices arranged above the mouth whereby the snow will be deflected so as to feed a less or greater quantity of snow to said chute, substantially as and for the purpose described.

20 3. In a snow - plow, a rotary excavator formed with a series of radial flanges having cutting-edges, the edges of which are extended laterally and inclined from the base to the point, whereby V-shaped teeth will be pro-  
25 vided, substantially as and for the purpose described.

4. In a snow - plow, a rotary excavator formed with a series of radially-disposed cut-

ting-teeth and transversely-arranged cutting-scoops, substantially as shown and described. 30

5. In a snow-plow, a rotary excavator-wheel formed with a series of radially-disposed cutting-teeth projected beyond the periphery of said excavator-wheel and a series of trans-  
35 versely and obliquely disposed cutting-scoops arranged at the base of said teeth, substantially as shown and described.

6. In a snow-plow, the combination, with the car-truck C, the excavator-wheel mounted thereon, the motors mounted in the car-body  
40 adapted to operate the excavator-wheel, and a locomotive-engine for driving said motors, of propelling-jacks mounted on the car-truck C, substantially as and for the purpose de-  
45 scribed.

7. The combination, with the excavator-wheel and the discharge-chute I, of an adjustable apron held in advance of the wheel H and an adjustable scraper disposed to the  
50 rear of said wheel H, adapted to gather up the loose snow left by the said wheel H, substantially as and for the purpose described.

JOHN H. PIELERT.

Witnesses:

THOS. KEEN BRADFORD,  
HOWARD K. BROWN.