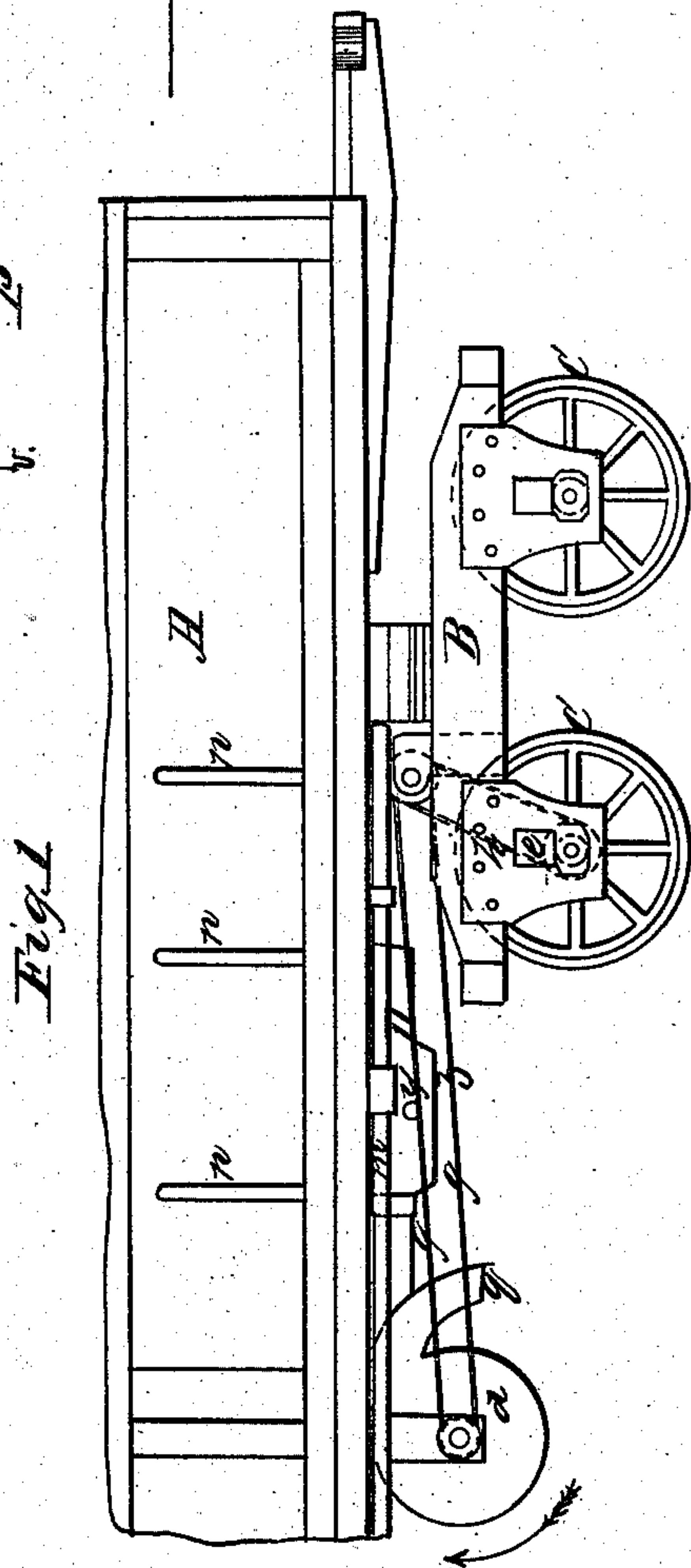
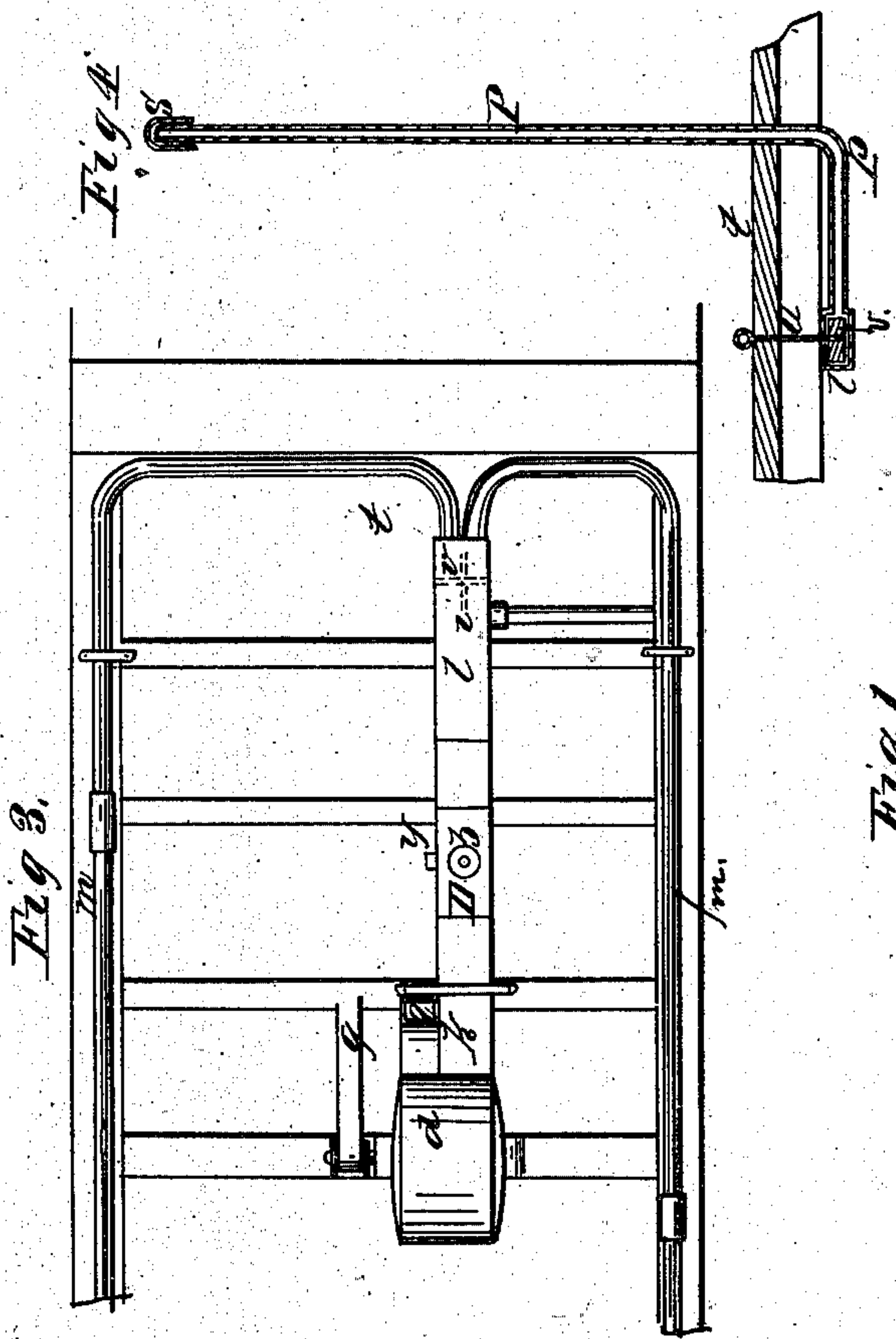
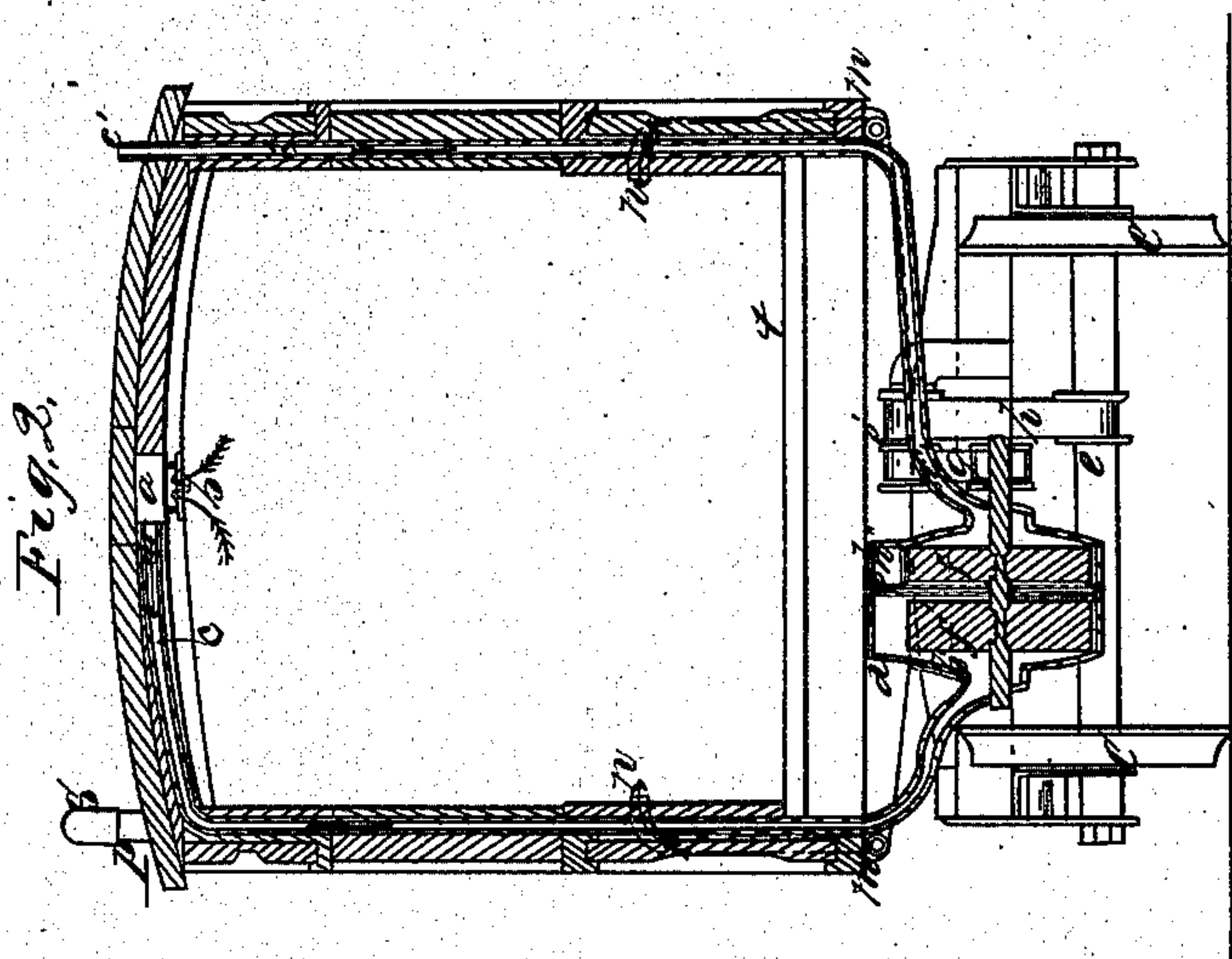


For & Fink, *Car Ventilator.*

N^o 12,818.

Patented May 8, 1855.



UNITED STATES PATENT OFFICE.

D. H. FOX AND JNO. FINK, OF READING, PENNSYLVANIA.

RAILROAD-CAR VENTILATOR.

Specification of Letters Patent No. 12,818, dated May 8, 1855.

To all whom it may concern:

Be it known that we, D. H. Fox and JOHN FINK, of Reading, in the county of Berks and State of Pennsylvania, have invented a new and useful Improvement in the Mode of Ventilating Railroad-Cars; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawing, forming part of this specification, in which—

Figure 1 is a side elevation of a portion railroad car, showing pipes, fan chamber and water tank. Fig. 2 is a vertical transverse section of railroad car taken through axis of fan shaft. Fig. 3 is an inverted view of car body showing connection of injecting tubes with tank. Fig. 4 is a view showing pipe P and its connection with passage l.

Similar letters denote the same part.

The design of our invention is the certain and effectual removal from the interior of the car of the vitiated air and dust, simultaneously with the injection of pure air; which we draw from the outside and force through water previous to its entering the car, by means of a small suction fan situated beneath the car and driven by suitable connection with one of the driving axles.

The invention consists in constructing in or on the roof of the car, a long shallow chamber, opening at several points to the interior of the car and communicating with a chamber of the fan case; so that by the revolution of the fan contained in said chamber and mounted on the same shaft as the fan drawing in the fresh air, the long shallow chamber on the top of the car will be kept in a partially exhausted state during the running of the car, creating upward currents through all the openings in the roof, and effecting a thorough removal of the dust and vitiated air; the details of construction, arrangement and operation being as set forth in the following description and annexed drawing.

In the drawing A is the body of the car, B the trucks and C the wheels. Constructed in the roof of the car is the shallow chamber *a*, closed at top and communicating with the interior of the car by the usual openings *b*, of which there are generally three, though more may be constructed if necessary; this chamber (*a*) running the entire length of the car. The sides of this chamber are close with the exception of the

mouth of the tube *c*, which tube passes along the roof and side of the car, and enters the chamber *h'* of the close fan case *d* as shown in Fig. 2. This fan case *d* is divided by the partition *e'*, forming two chambers *h'* *h''* containing the fans *f* and *f'* mounted on the same axle, and revolved from the axle *e* by bands *h* and *g* leading from double pulley *i* on the truck to axle *e* and fan shaft pulley.

Leading from the fan chamber *h''* is a passage *k* connecting it with the water chamber D from which issues the passage *l* terminating in the tubes *m*. These tubes *m* run longitudinally under the bottom of the car, as shown in Fig. 3, and at various points have branches *n*, leading to the interior of the car, where they terminate in rose heads. The chamber *h''* communicates with the open air by the tube *c'*.

The passage *l* communicates with the discharge pipe P as shown in Fig. 4, which pipe has near its top perforations *x*, covered by a cap *s*, and communicating with the external air when said cap is raised. Between the pipe P and tubes *m* the passage *l* is provided with a cut-off *v*, operated by rod *u*, passing through floor *t* to the interior of the car.

The water chamber has an ingress passage *y* to which hose is attached at water stations for supply, a screw plug *z* in the bottom serves to discharge the water that has been sufficiently used.

The operation of our mode of ventilation is as follows. The movement of the driving axles will produce the revolution of the fans *f* *f'* as shown by arrow Fig. 1, a suitable arrangement of the belting insuring the revolution of the fan shaft in the same direction, be the revolution of the axle *e* as it may. The revolution of the fan *f'* will by drawing the air through the passage *c* produce a partial vacuum in the chamber *a*, creating currents through the openings *b* as shown by arrows in Fig. 2, carrying off and discharging outside of the car by the mouth *q'*, the vitiated air and dust from the interior.

The fan *f* draws the air from the outside through tube *c'* and forces it through the water chamber, whence if the cut off *v* be open as shown by *v'*, it will pass by pipes *m* and *n* to the interior of the car. The valve *v* is only used when the current from the outside becomes too strong, as by turning it slightly across the passage *l* a por-

tion of the air will pass into pipe P and by raising cap s escape through perforations x.

We are aware that air has been passed through water and injected into railroad cars, such therefore we do not claim. Neither do we claim the mere employment of suction to produce a current. But

What we do claim as new and of our own invention and desire to secure by Letters Patent is—

The construction in or on the top of the car of a long shallow chamber (a) communicating at several points with the interior of the car and by a tube with a fan chamber beneath the car, whereby the par-

tial exhaust created in said chamber by the running of the car, produces a number of upward currents simultaneously, in various parts of the car, sufficient to carry off the vitiated air and dust from the same, as herein before set forth.

In testimony whereof, we have hereunto signed our names before two subscribing witnesses.

D. H. FOX.
JOHN FINK.

Witnesses:

MATTHIAS MENGEL,
W. Y. LYON.