

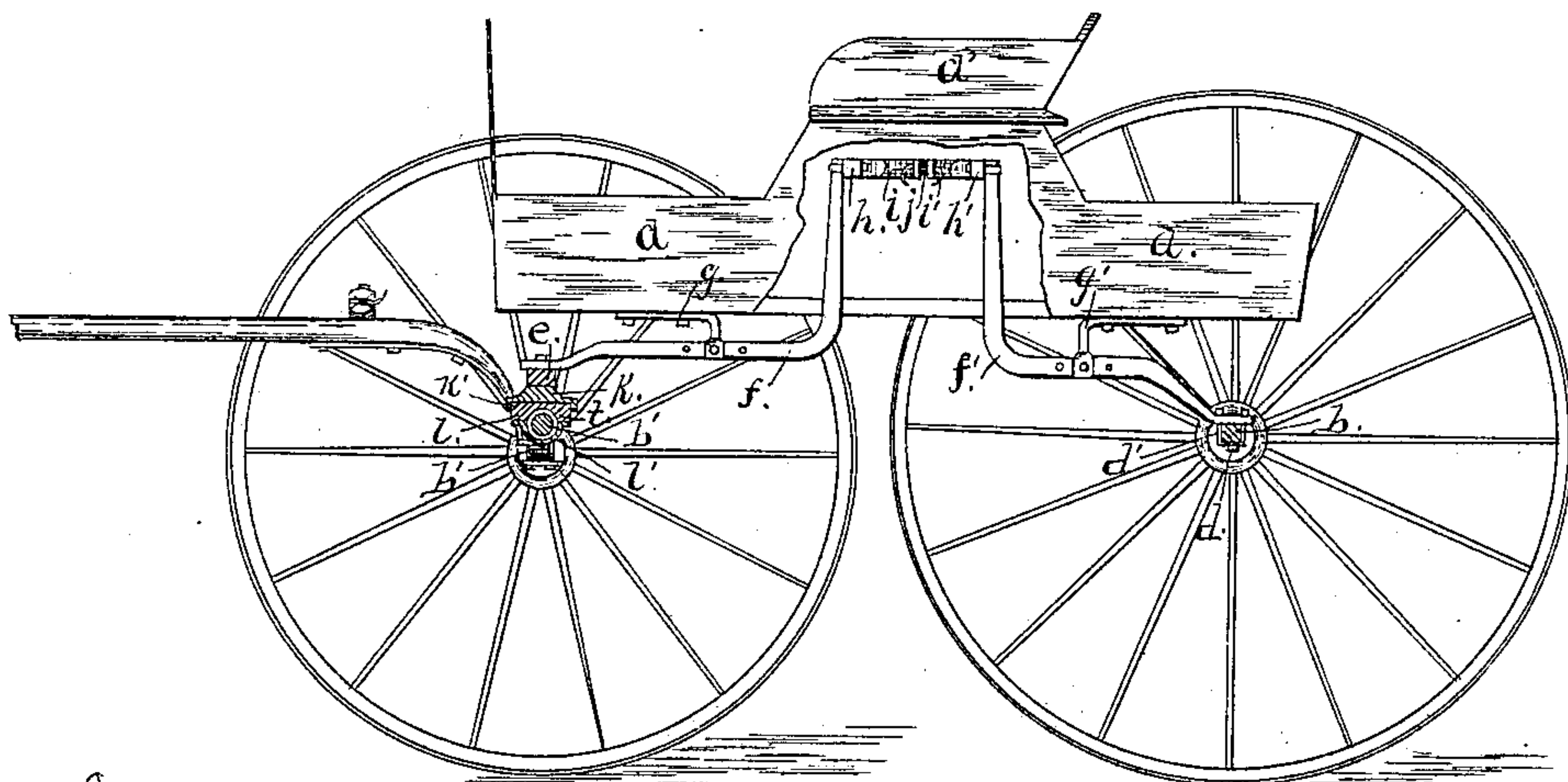
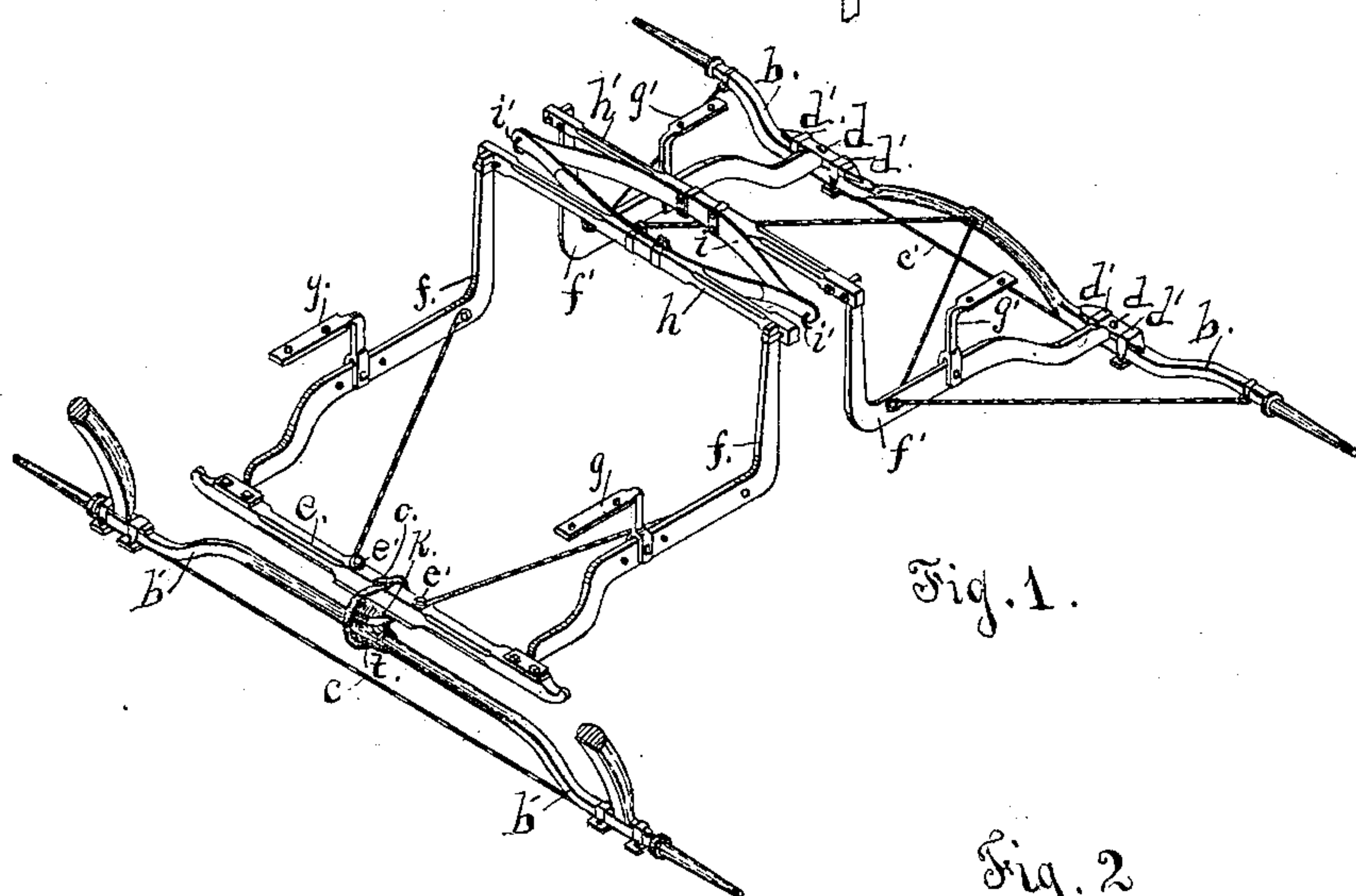
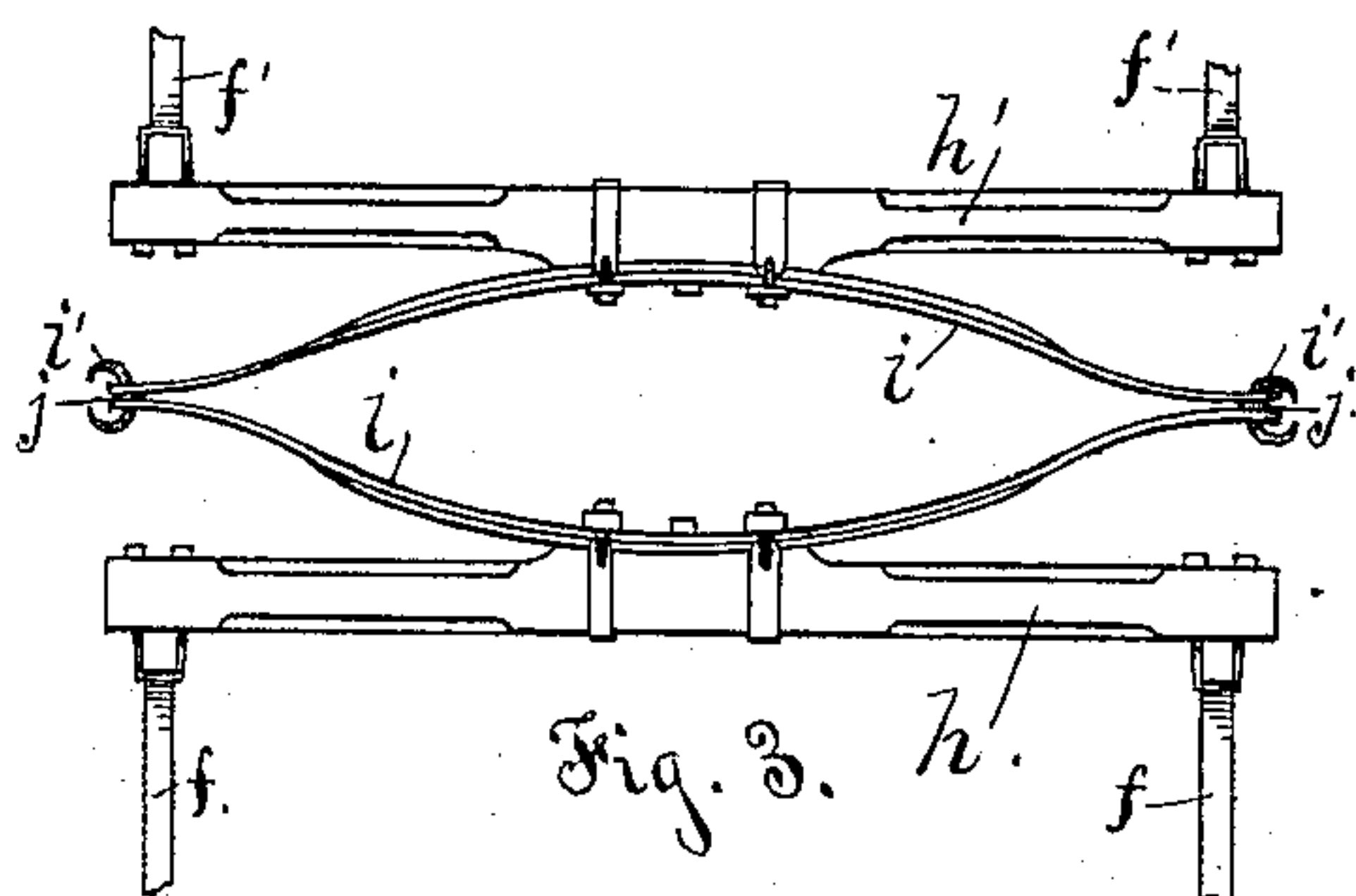
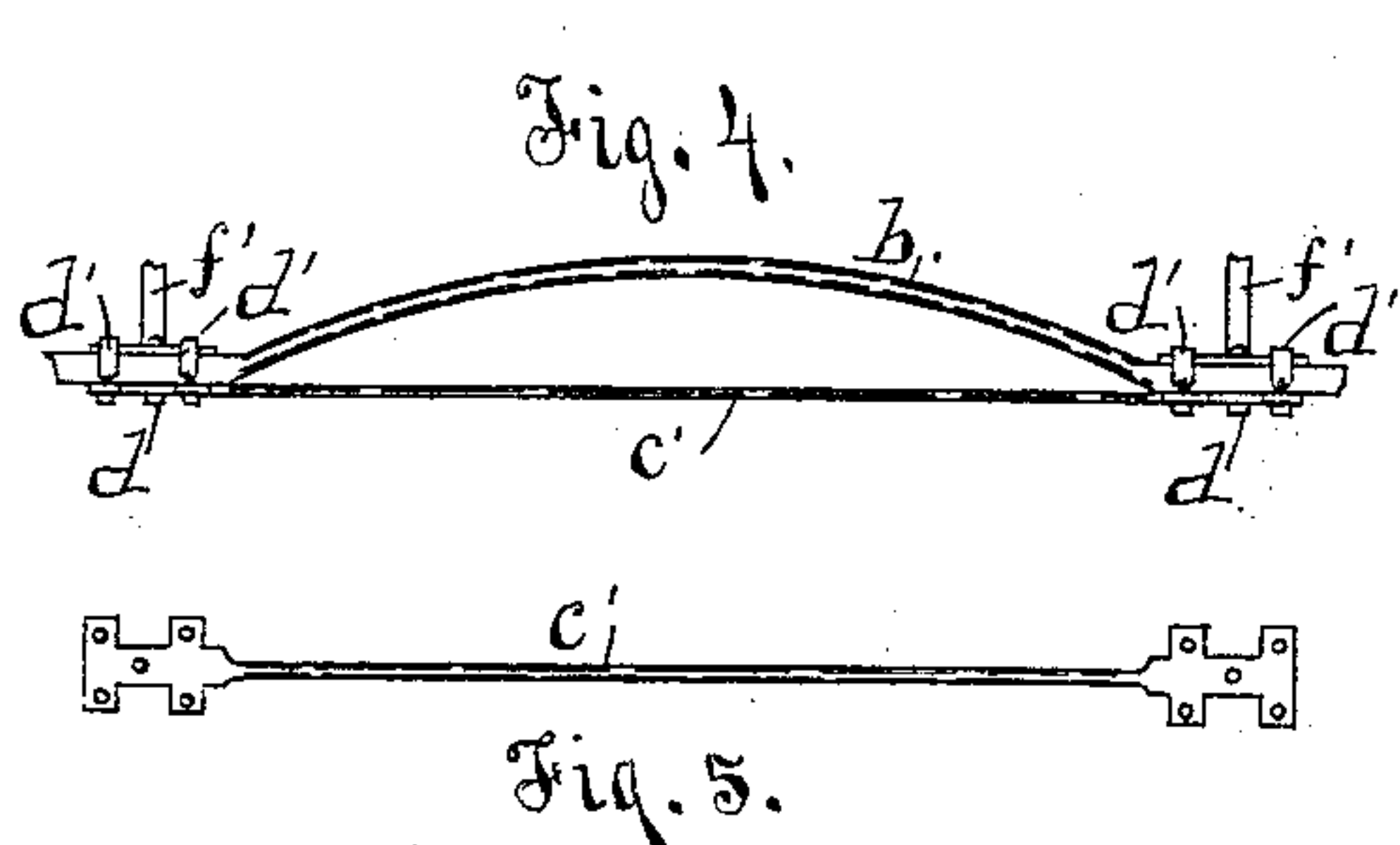
(No Model.)

2 Sheets—Sheet 1.

P. J. RICHTER.
WAGON GEARING.

No. 338,876.

Patented Mar. 30, 1886.



Attest:
W. H. Power
Frank Dargis

Inventor:
Peter J. Richter
By James E. Thomas Atty

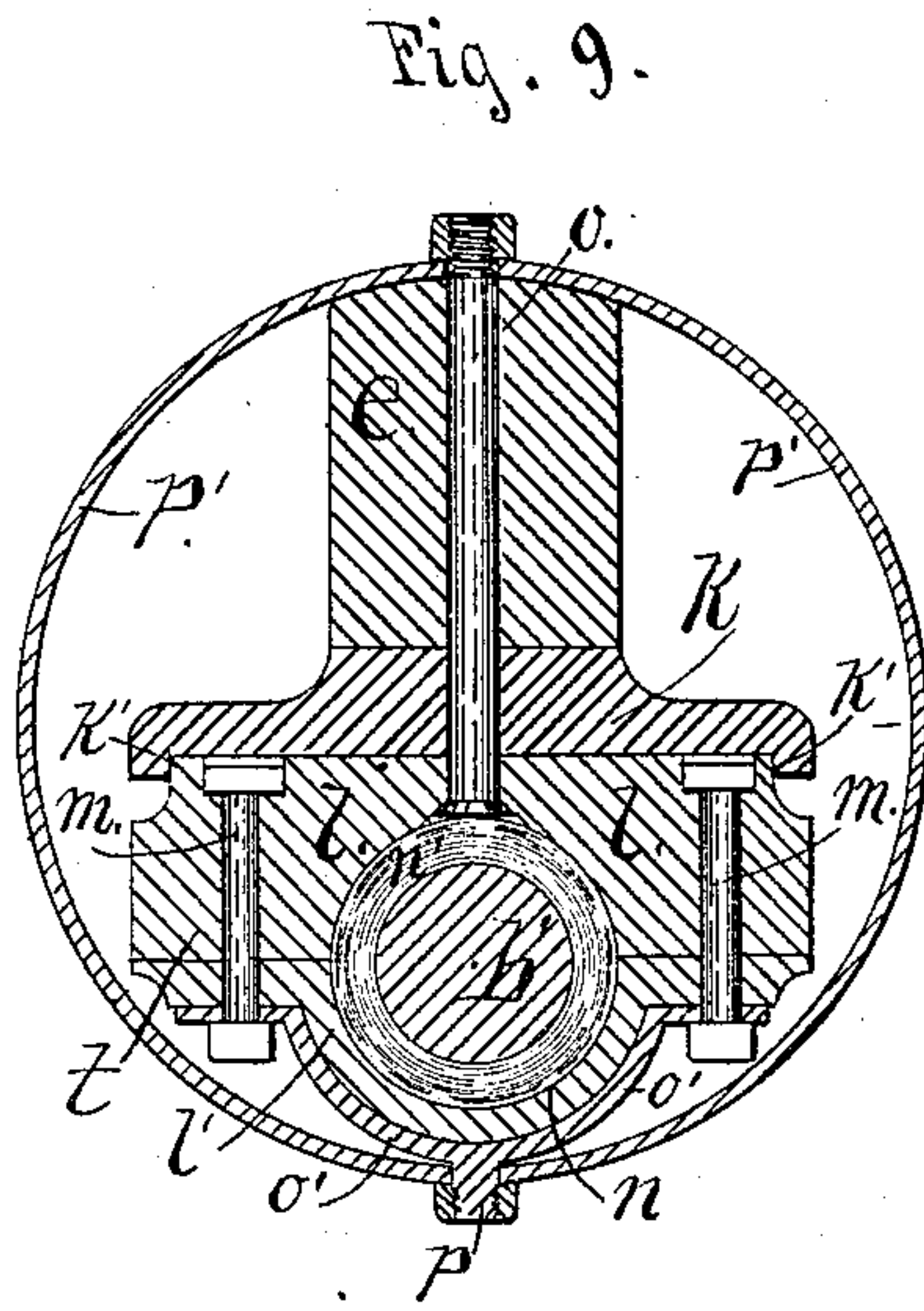
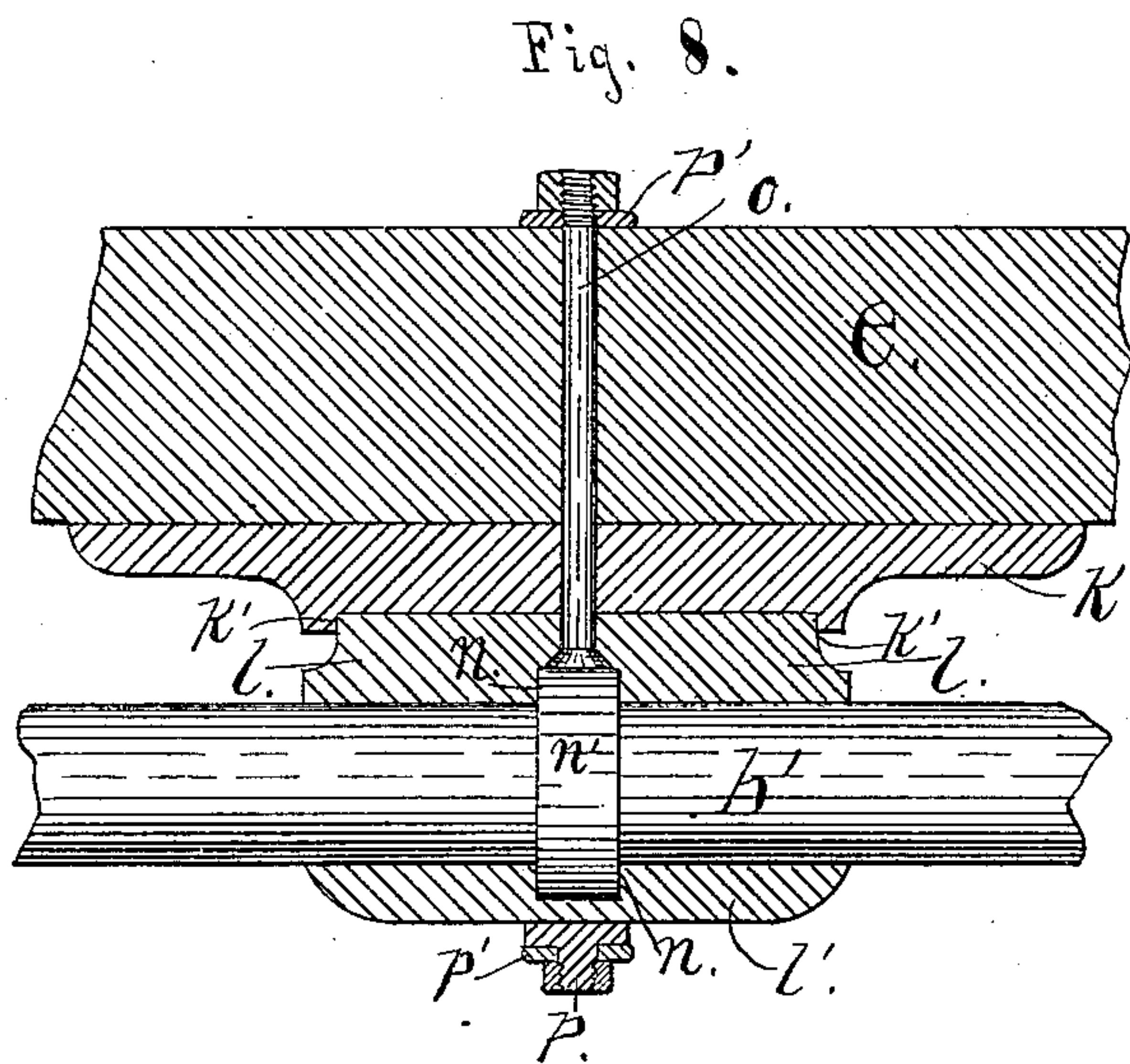
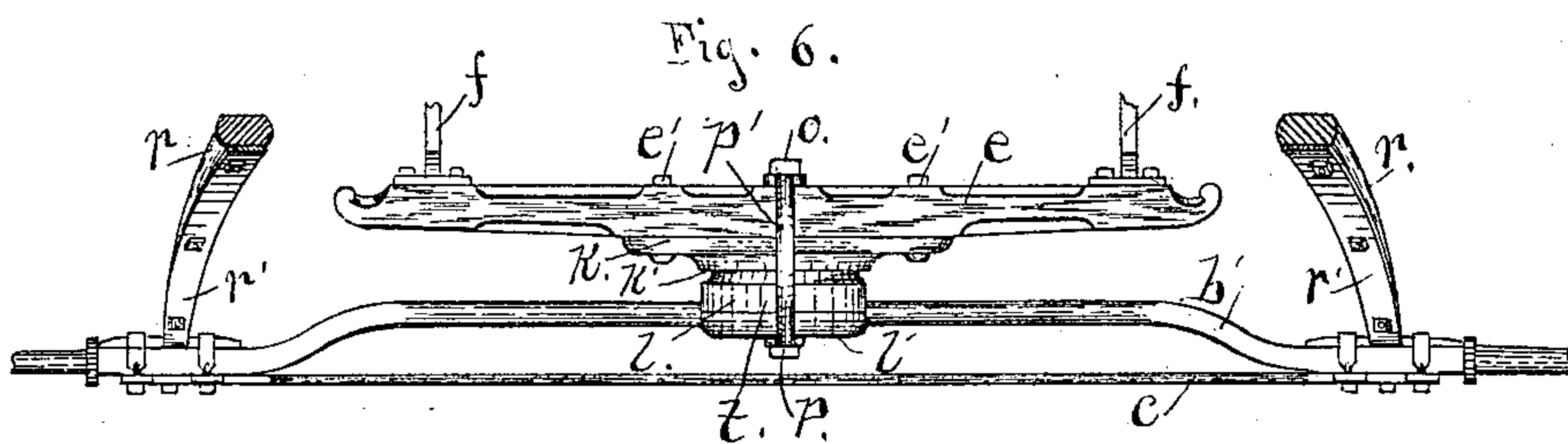
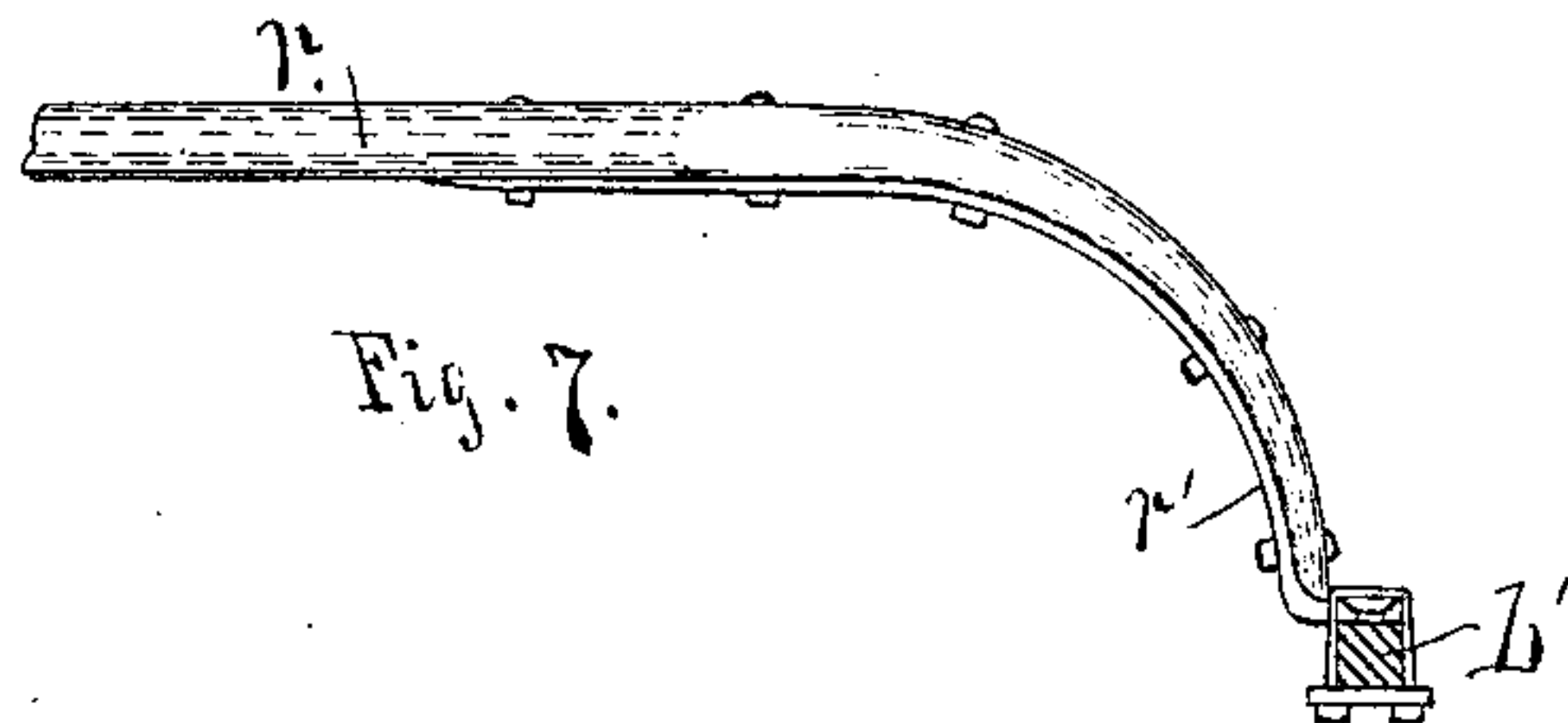
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2 Sheets—Sheet 2.

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Inventor:

Peter J. Richter
By—
James E. Thomas
Atty.

UNITED STATES PATENT OFFICE.

PETER J. RICHTER, OF BAY CITY, MICHIGAN, ASSIGNOR TO LEWIS T. WILCOX AND JAMES P. LIGHT, BOTH OF SAME PLACE.

WAGON-GEARING.

SPECIFICATION forming part of Letters Patent No. 338,876, dated March 30, 1886.

Application filed January 4, 1886. Serial No. 187,592. (No model.)

To all whom it may concern:

Be it known that I, PETER J. RICHTER, a citizen of the United States, residing in Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Wagon-Gearing, of which the following is a specification.

My invention consists in devices for attaching the forward axle to the bolster, and in the combination, arrangement, and construction of the several parts comprising the gearing, as I hereinafter more fully describe and claim; and the object of my invention is to reduce the cost of manufacturing wagons and to provide a device by means of which one spring only will be necessary to give the body the proper vertical movement, and by which the weight of the body and load is to a great extent supported independently of the spring, so that a much lighter and more sensitive spring may be used, whereby the weight of the wagon is greatly reduced. I attain these objects by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of my improvement detached from the body and wheels. Fig. 2 is a side view of a wagon, partly sectional, containing my improvement. Fig. 3 is a detached plan view of the spring. Fig. 4 is a view of a portion of the rear axle and the truss-tie. Fig. 5 is a view of the under side of the truss-tie. Fig. 6 is a front view of the front axle and section of thills. Fig. 7 is a side view of the thill attachment. Fig. 8 is a longitudinal vertical section of the bolster attachment. Fig. 9 is a transverse vertical section of the same.

Similar letters refer to similar parts throughout the several views.

a represents the body of a wagon, and *a'* the seat.

b is the rear axle, and *b'* is the front axle, each of which has its central portions curved upward, and is strengthened by a truss-tie rod, *c* and *c'*, which is secured by its ends to the axle by the bolt *d*, and also by the clips *d'*.

e is a bolster pivoted in its center to the front axle, and to the ends of the bolster are rigidly secured the levers *f*. These levers *f* are pivoted near their central portion to the lower end of the supports *g*, while the upper ends of the supports are rigidly secured to the under side

of the body *a*. The inner ends of these levers *f* are turned upward in a suitable position, so that the upturned ends will be located beneath the seat *a'*, where they are firmly secured to the opposite ends of a spring-bar, *h*. Similar levers, *f'*, are secured to the rear axle and pivoted to the supports *g'*, and have their inner upturned ends secured to the ends of the spring-bar *h'*, which is located at a short distance in rear of the bar *h*, so that a spring, *i*, may be placed between and secured to the central portion of the bars *h* and *h'*. This spring *i* is composed of two portions curved in opposite directions, and their ends are secured together by an open link, *j*, passing loosely through holes in the ends of the half-springs, and having in its central portion a solid collar, *j*, against which each portion of the spring bears and which admits of a free winding movement of the parts of the spring when necessary. The levers are also provided with suitable side braces, which serve to hold them in a rigid position in relation to the axle and bolster. The operation of this arrangement is that the body *a* and its load are carried by the levers *f* and *f'*, the supports *g* and *g'* being attached thereto in such a position as to leave the outer ends of the levers considerably shorter than the inner upturned ends, which gives the spring a great advantage and allows a much lighter spring to be used, while the wheel rising over an obstruction or inequality of the road acts to move the lever to the required distance without greatly moving the body, and the recoil of the spring upon the long arm of the lever acts to bring the levers gently to their former position without a sudden recoil, as in the vertical springs usually used.

Secured to the under side and in the center of the bolster *e* by the bolts *e'* is the bolster-plate *k*. The under side of this plate *k* is circular in form and is provided with a recess, *k'*, into which is fitted the upper portion, *l*, of a box, *t*, which surrounds the front axle, *b'*. The lower portion, *l'*, of this box *t* is secured to the upper part, *l*, by the bolts *m*, and a chamber, *n*, is arranged in the central portion of the parts *l* and *l'* to receive a collar, *n'*, which is welded to the axle in the middle of its length, and which prevents an end movement of the axle in the box, and also permits the axle to revolve within the box. A king-bolt, *o*, passes

from the chamber *n* through the part *l* and through the bolster-plate and bolster *e*, securing the parts together and allowing the part *l* to turn within the recess *k'*. In order to give
 5 greater strength to this connection of the parts, I secure by the bolts *m*, beneath the part *l'*, a clip, *o'*, which is provided at a point directly opposite the king-bolt *o* with a stud, *p*, to which is secured the lower part of the braces *p'*, while
 10 the upper portion of the braces are secured to the upper end of the king-bolt above the bolster.

The thills *r* are secured in position to the axle *b'* rigidly by the usual thill-iron, *r'*, provided at its lower end with a T-extension,
 15 which rests upon and is held to the axle by the clips *d'* and the bolt *d*, the clips and bolt passing through side lugs on the truss-rod as well. This rigid attachment of the thills to the axle
 20 causes the axle to turn in the box *t* when the thills are raised up or lowered, and is easily constructed and avoids all looseness and noise caused by the usual mode of attachment, besides being stronger and more durable.

25 Suitable holes are provided in the levers *f* and *f'*, with which the proper weight may be brought to bear upon the spring *i*, as by moving the supports *g* and *g'* to a point nearer the outer ends of the levers a greater portion of
 30 the load is carried by the axles, the fulcrum being changed to lengthen the inner arms of the levers, and thereby giving the spring a greater advantage.

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

1. In a wagon-gearing, the levers *f*, secured by their outer ends to the bolster and by their inner upturned ends to the spring-bar *h*, the levers *f'*, secured by their rear ends to the rear axle and by their inner upturned ends to the spring-bar *h'*, the supports *g* and *g'*, secured to the body by one end and pivoted to the levers *f* and *f'* by their opposite ends, and the spring *i*, secured between the bars *h* and *h'*, in combination with an open link, *i'*, passed through openings in the ends of the spring-sections, and having a solid collar, *j*, upon its central portion and between the spring-sections, substantially as herein described, and for the purpose set forth.

2. In a wagon-gearing, the combination, with the axle *b'*, provided with a rigid collar, *n'*, of a box, *t*, consisting of the parts *l* and *l'*, secured together by the bolts *m*, and surrounding the axle, and having the chamber *n*, inclosing the collar *n'*, and the bolster-plate *k*, and bolster *e*, secured to the part *l* by the king-bolt *o*, substantially as set forth.

In witness whereof I affix my signature in presence of two witnesses.

PETER J. RICHTER.

Witnesses:

I. E. THOMAS,
 HENRY GWYNNE.