

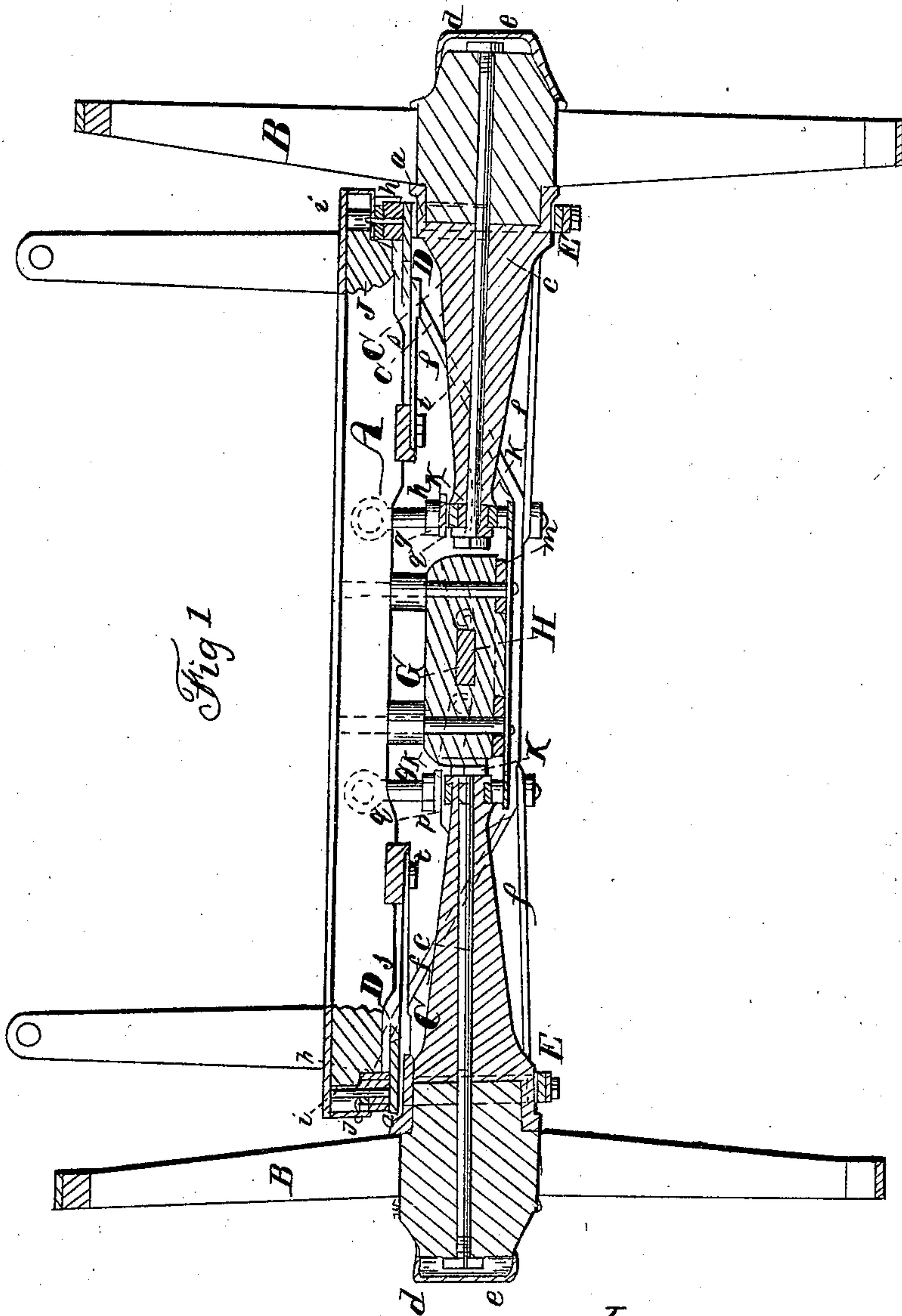
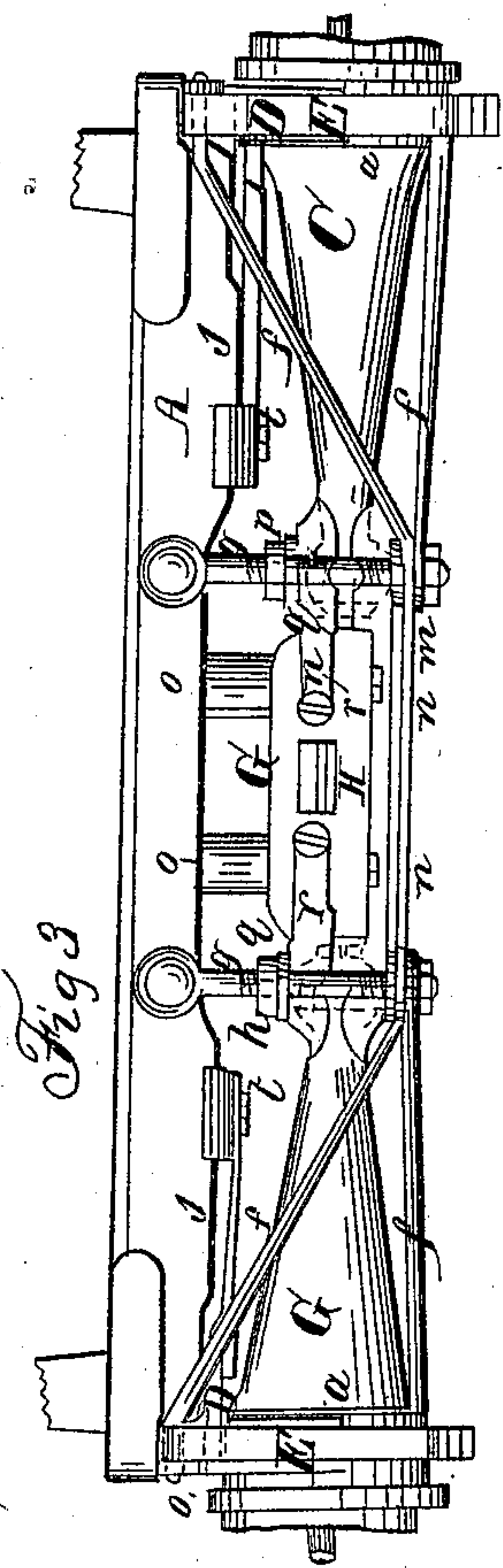
O. E. MILES.

2 Sheets—Sheet 1.

Axle.

No. 34,518.

Patented Feb. 25, 1862.



Witnesses.

J. W. Coombs
G. A. Reed

Inventor.

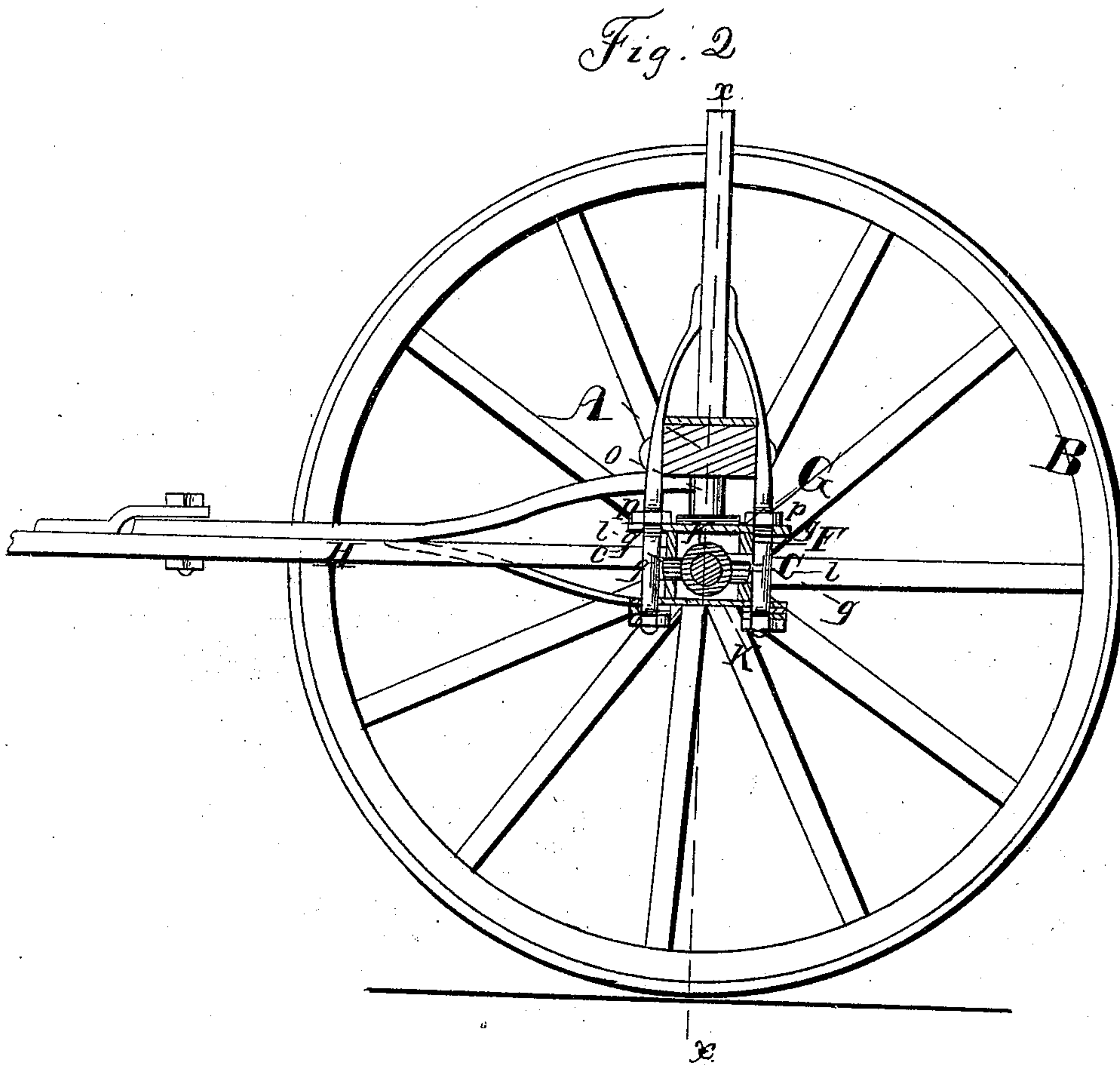
O. E. Miles
per Munn & Co
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UNITED STATES PATENT OFFICE.

O. E. MILES, OF AURORA, ILLINOIS.

IMPROVEMENT IN THE CONSTRUCTION OF WHEEL VEHICLES.

Specification forming part of Letters Patent No. 34,518, dated February 25, 1862.

To all whom it may concern:

Be it known that I, O. E. MILES, of Aurora, in the county of Kane and State of Illinois, have invented a new and useful Improvement in the Construction of Wheel Vehicles; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical section of the back running-gear of a four-wheel vehicle constructed according to my invention, *xx*, Fig. 2, indicating the line of section; Fig. 2, a section of the same, taken in the line *yy*, Fig. 1; Fig. 3, a back view of the back running-gear in elevation.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to a new and improved manner of hanging the wheels of the vehicle and arranging the same, as hereinafter fully shown and described, whereby it is believed that many advantages are obtained over the old mode of construction.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents the bolster, and B B the two wheels, of a vehicle. These wheels are each secured to a conical arm C as follows: The outer and larger parts *a* of the arms are of cylindrical form and are hollow, so as to receive the inner parts of the hubs *b* of the wheels, and the hubs are firmly secured in the parts *a* by screw-rods *c*, which pass longitudinally through the arms C and have their nuts *d* at the front ends of the hubs, the nuts being covered by caps *e* on the outer ends of the hubs. (See Fig. 1.)

The larger ends *a* of the arms C are fitted in boxes D, which are placed in cast-iron frames E, said frames being permanently attached to the ends of the bolster. The frames E are prevented from having any lateral motion or play in consequence of being well braced by steel rods *f* at their upper and lower ends, the lower rods having a horizontal position and the upper ones an inclined position and connected by vertical bolts *g* to the bolster A, as shown clearly in Fig. 3. Between the boxes D and the bolster A there are interposed india-rubber springs *h h*. These

springs *h* are retained in their places by vertical pins *i*, said pins being cast with the boxes and fitting in holes *j* in the bolster. In cases where other forms of springs are used the boxes D and their frames E may be cast in one piece and the rubber springs dispensed with.

The journals at the inner ends of the arms C have their bearings or boxes F cast in two equal parts *k k*, which, by means of trunnions *l l*, rest upon the ends of a cast-iron frame *m*, which is secured to the under side of a block G, said block being secured to the bolster A by bolts *n n*, that pass through pins or posts *o o*, interposed between the bolster and the block, the pins *o o* keeping the block a requisite distance below the bolster. (See Fig. 3.) The trunnions *l l* admit of the adjustment of the arms C to give the wheels a proper position. The block G receives the back end of the reach H. The leverage or weight downward upon the central part of the bolster A is counteracted by the rods *f* and bolts *g*, which form a truss and transmit the downward pressure to a lateral pull or draw upon the bolster, as will be fully understood by referring to Fig. 3.

The bolts *g*, of which there are four, have nuts *p* on them below the bolster A, said nuts bearing on plates *q*, which rest on levers *r r*, two being at each side of the block G. These levers *r* rest on the trunnions *l l* of the boxes F F and keep the same in proper position on the frame *m*. (See Fig. 3.)

The boxes D of the outer parts of the arms C are attached to the outer ends of flat springs *s s*, the inner ends of which are secured to the bolster A by bolts *t*. The springs *s* admit of a certain degree of yielding movement of the boxes D.

I would remark that the front gearing of a vehicle may be constructed and arranged like the back gearing herein described, slight modifications being only required to admit of the turning of the front axle.

The advantages of the invention are as follows: First, I am enabled to use a hub of small diameter possessing sufficient strength, as the hub is not weakened by the arm passing through it, as hitherto; second, I dispense entirely with the most fruitful source of injury to wheels—to wit, the loosening of the spokes in the hubs, caused by the lubricating ma-

terial finding its way into the mortises of the hub; third, the convenience of lubricating the arms, no parts requiring to be removed; fourth, the impossibility of a wheel becoming detached from the vehicle; fifth, no discrimination requires to be made in the manufacture of the arms between those used at the right and left sides of the vehicle, one and the same answering for either side, and a vast deal of trouble and expense is thereby saved to both the maker and user; sixth, the arrangement of the braces and bolts which form the truss combined with the bolster A gives great strength with lightness; seventh, the dispensing with the necessity of giving the arms of the wheels an oblique position, as is now required, in order to give the wheels, as they run or rotate, an inclination to press toward the shoulders of the axle. By dispensing with this much friction is avoided and a much lighter draft obtained.

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

The arms C C, having the wheels B B permanently attached to them and their inner journals fitted in boxes F, suspended on trunnions *l*, and their outer journals fitted in boxes D, placed in frames E, attached to the bolster, when said parts are used in combination with the rods *f*, arranged substantially as shown, for bracing the frames E, and with the frame *m*, in which the trunnions *l* are placed, and also with the levers *r r*, arranged substantially as shown, for securing the trunnions *l* on frame *m*, as and for the purpose set forth.

O. E. MILES.

Witnesses:

LYMAN BALDWIN,
S. J. HANCHETT.