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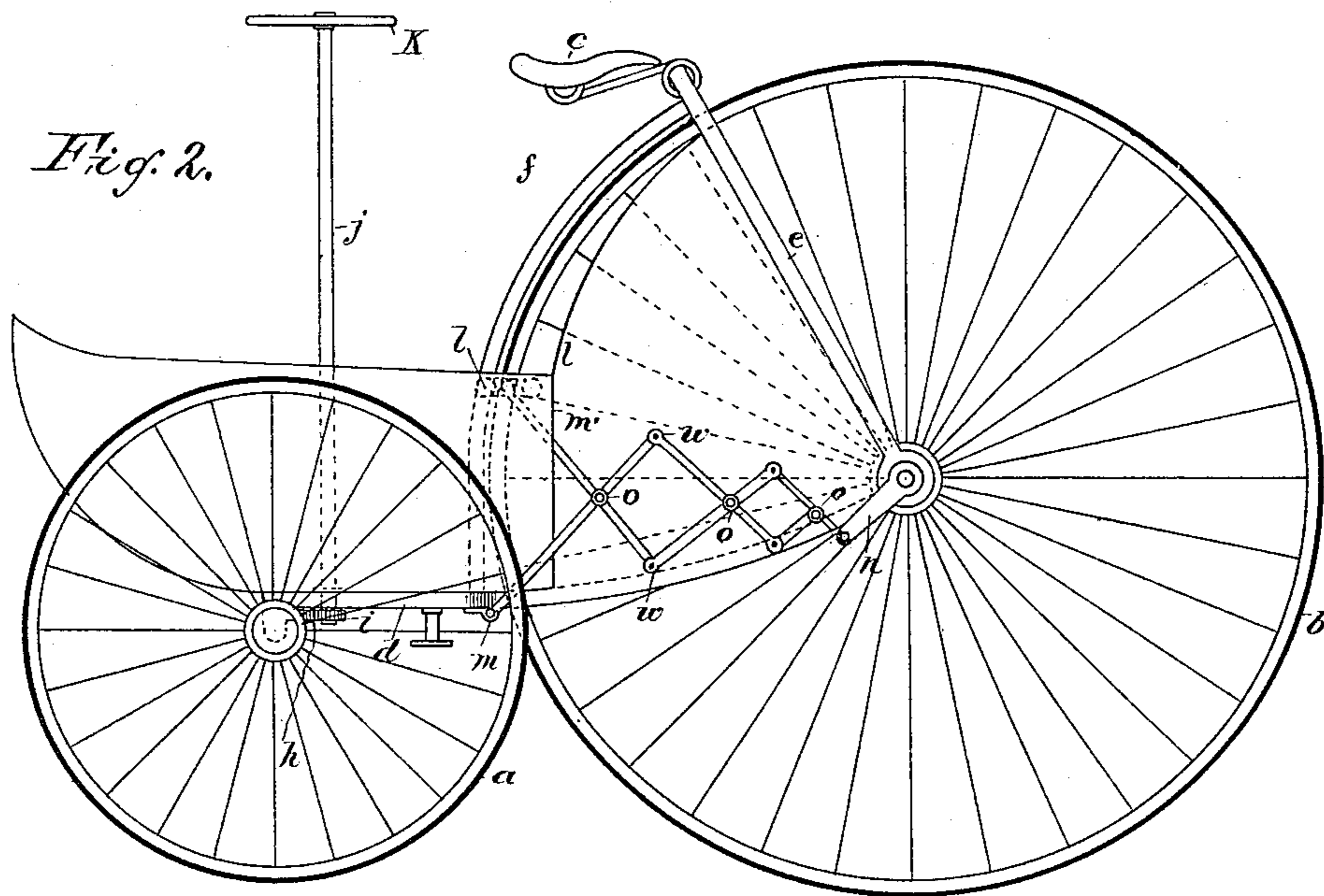
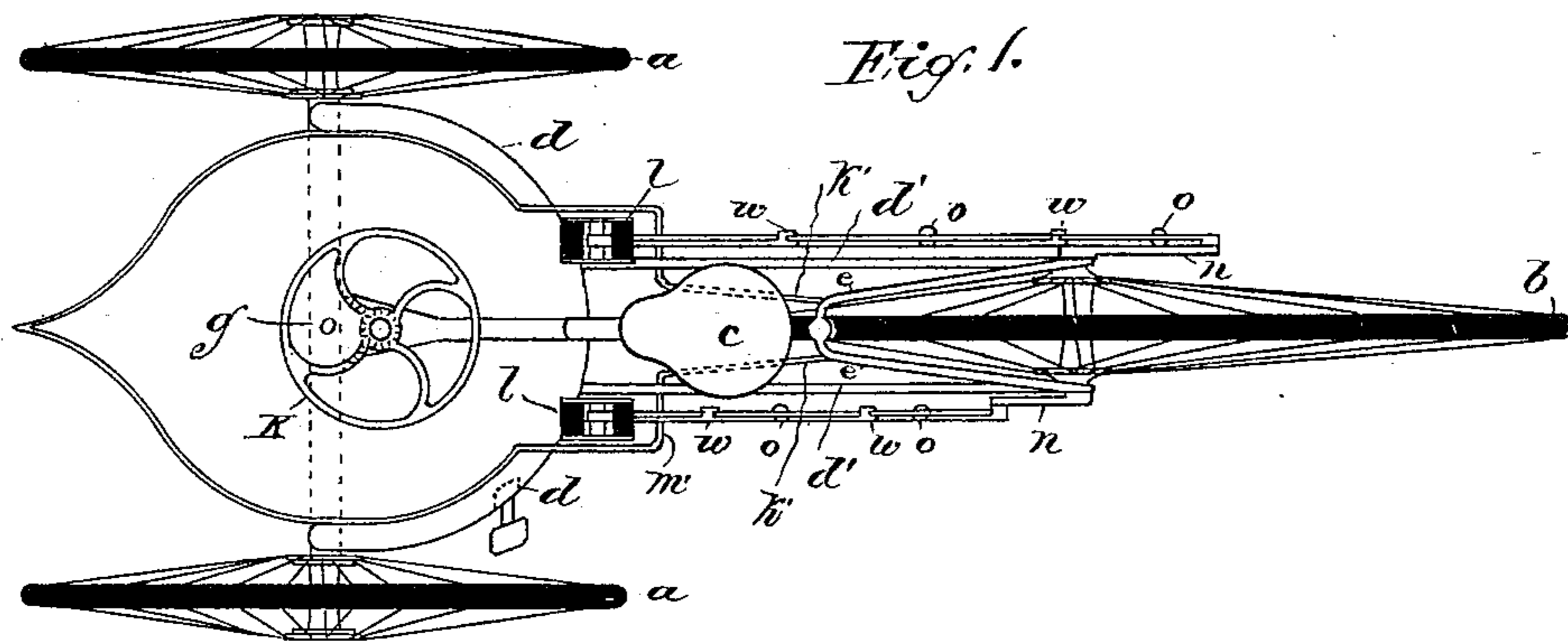
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T. W. MOORE.

VELOCIPÈDE.

No. 365,015.

Patented June 14, 1887.



WITNESSES:

*W. B. Benjamin*  
*W. J. Morgan*

INVENTOR

*Thos. W. Moore*

BY

*A. P. Thayer*

ATTORNEY

(No Model.)

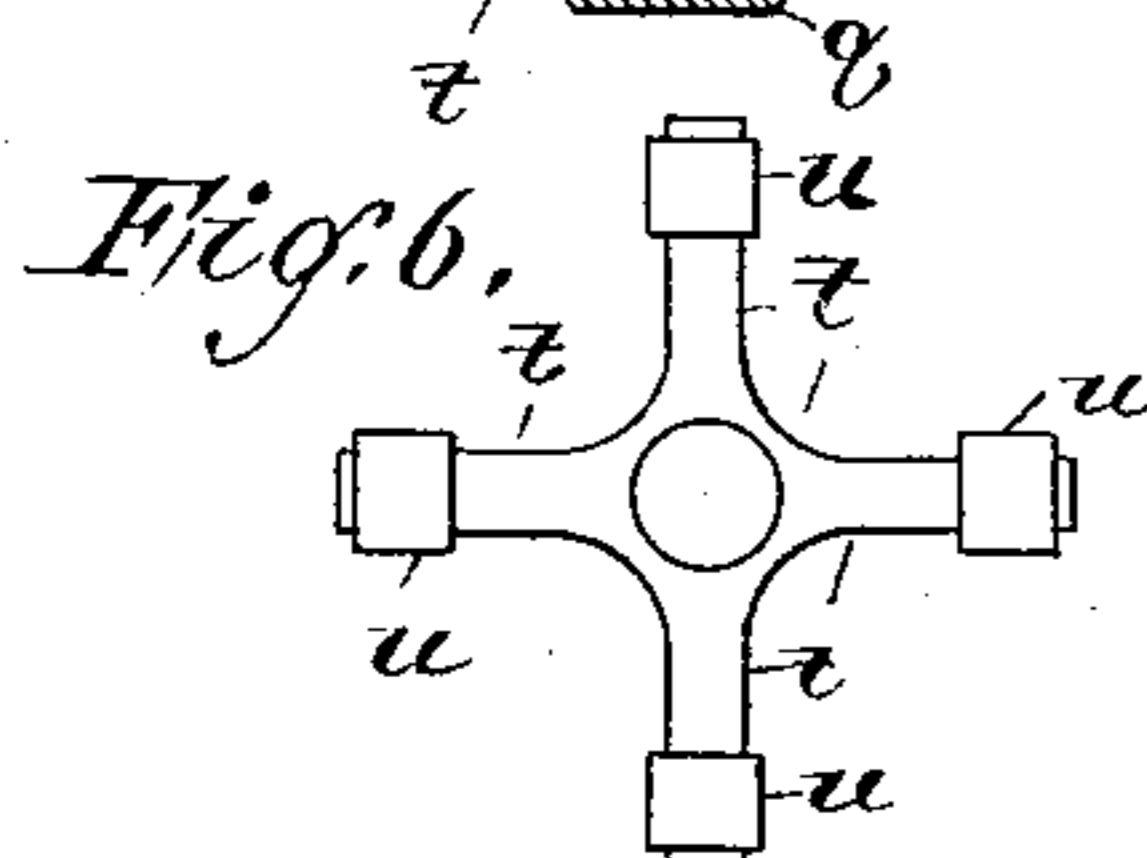
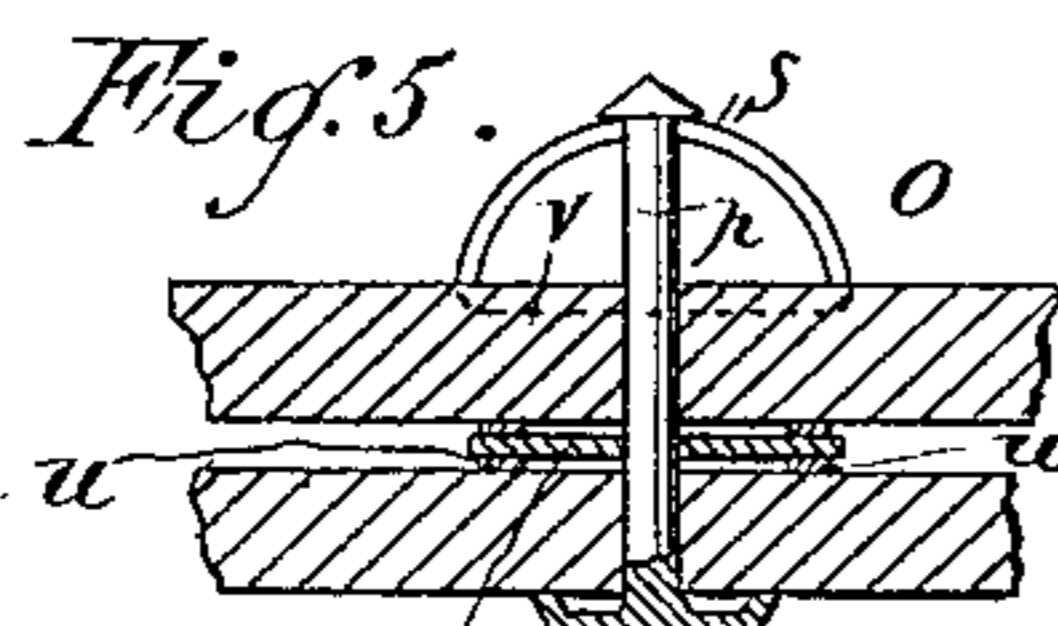
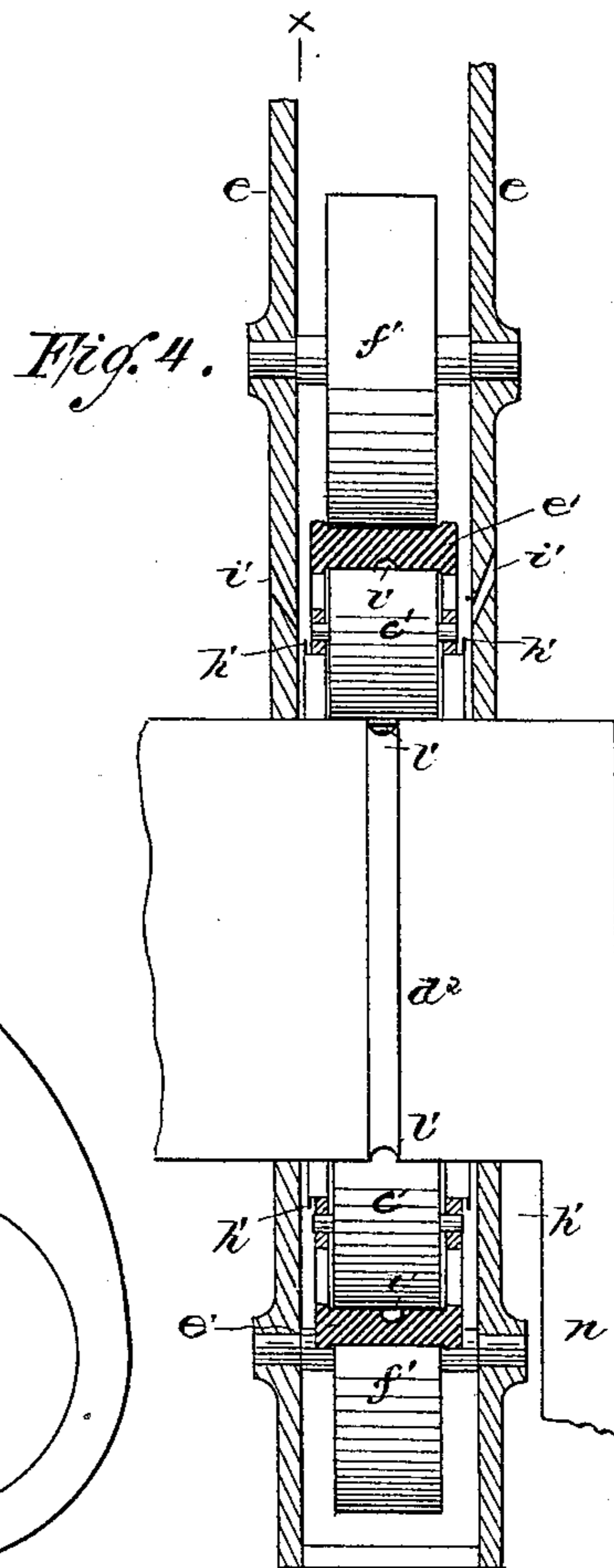
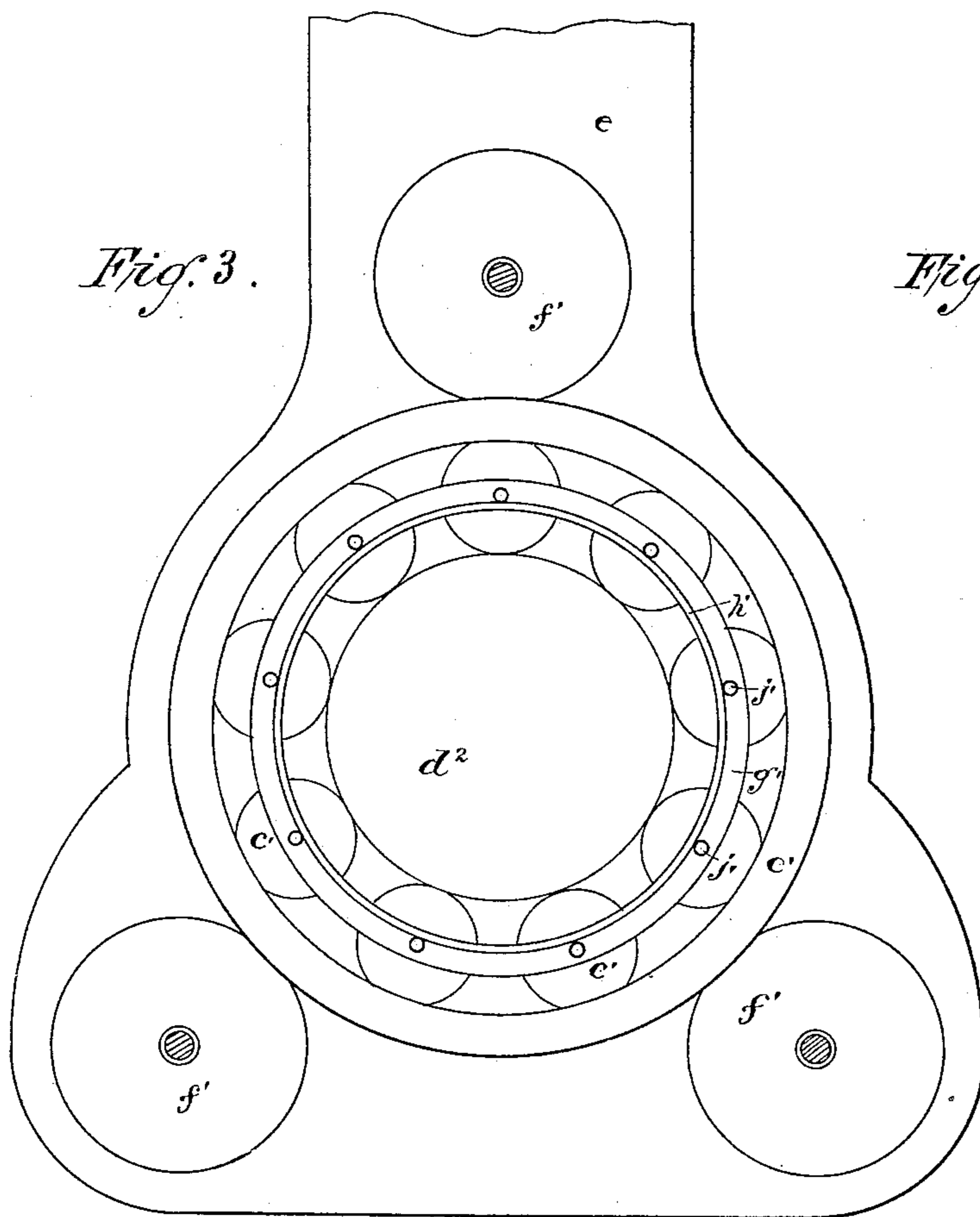
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T. W. MOORE.

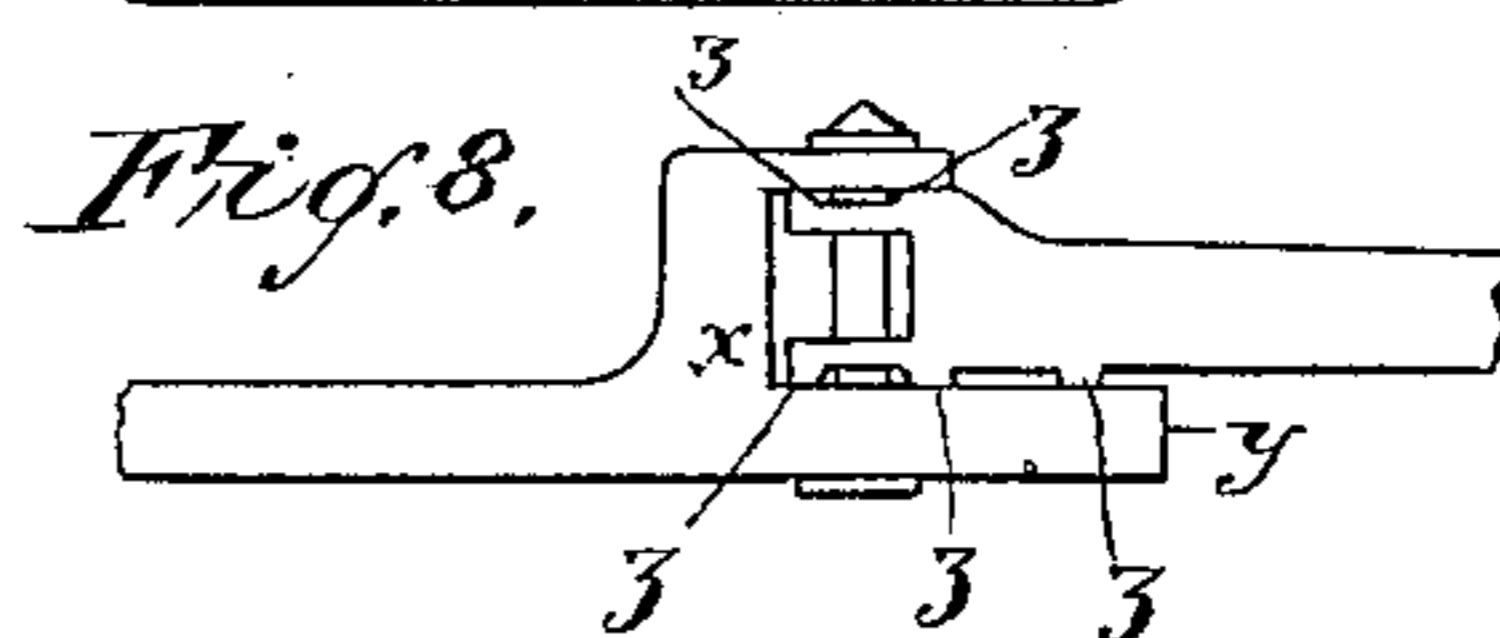
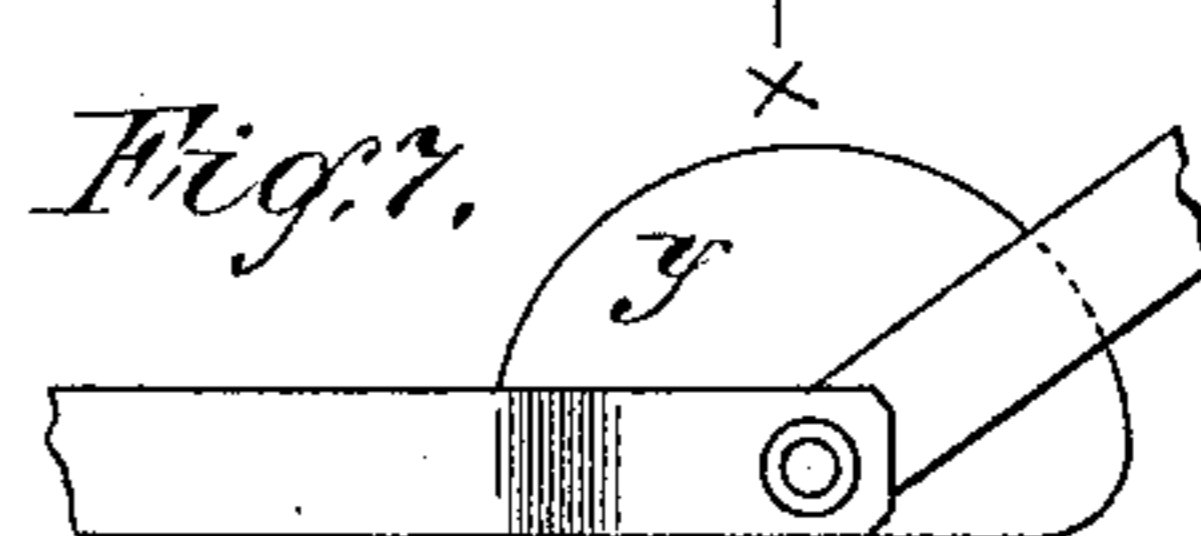
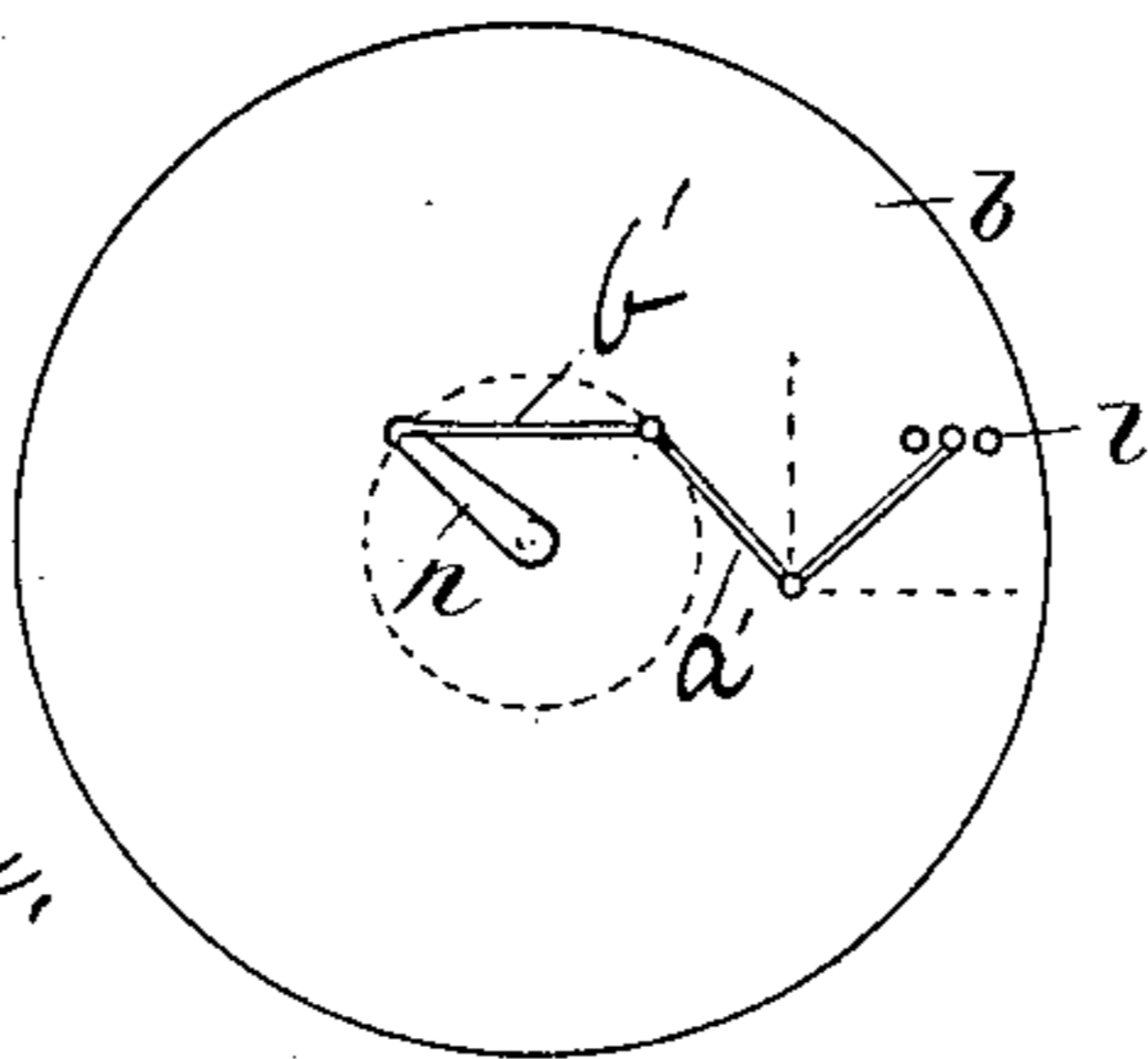
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*Fig. 9.*



WITNESSES:

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# UNITED STATES PATENT OFFICE.

THOMAS W. MOORE, OF PLAINFIELD, NEW JERSEY.

## VELOCIPEDÉ.

SPECIFICATION forming part of Letters Patent No. 365,015, dated June 14, 1887.

Application filed February 21, 1887. Serial No. 228,257. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS W. MOORE, of Plainfield, Union county, New Jersey, have invented a new and useful Improvement in Tricycles, of which the following is a specification.

My invention consists of improvements in tricycles, whereof the essential features are, first, a contrivance of the same in the general appearance of and so that the operator rides it substantially in the manner of the bicycle; second, in improved contrivance of treadle mechanism for working the cranks; third, in improved anti-friction gear for the main wheel; and, fourth, in a guard attachment for concealing the feet and protecting the dresses of the riders, all as hereinafter fully described, reference being made to the accompanying drawings, in which—

Figure 1 is a plan view of my improved tricycle. Fig. 2 is a side elevation. Fig. 3 is a detail of the anti-friction gear of the main axle in sectional elevation on line *x x*, Fig. 4, and on an enlarged scale. Fig. 4 is a vertical transverse section of Fig. 3. Figs. 5 to 8, inclusive, are details of the joint contrivances of the treadle mechanism, and Fig. 9 is an outline of a modified form of treadle mechanism that may be employed.

Together with two small balancing and guiding wheels, *a*, placed in front of the main wheel *b*, I locate the seat *c* above said main wheel and suitably forward of its axis, substantially like the bicycles of that class in which the small wheel is placed in front, and thus I make a tricycle in which the operator's position is the same as, and the whole general appearance is like that of, the bicycle, which brings these two kinds of machines into much greater similarity and closer alliance than as heretofore constructed, and is a matter of importance, in that it enables ladies to ride them and men unskilled in the bicycle to enter into more intimate association and competition with the bicycle-riders than heretofore.

In carrying out this part of my invention a suitable bed-frame, *d d'*, seat-stanchions *e*, and fore bar, *f*, are provided, in which the main wheel *b* is mounted at the rear, in the usual way, and the axle of the guide-wheels is coupled to the front end of said frame by the

usual joint, *g*, for steering purposes, with a toothed segment, *h*, on the axle and a pinion, *i*, or it may be any equivalent means for working and controlling the guide-wheels with a steering-shaft, *j*, and wheel *k*, suitably located in front of the operator.

For the treadle-gear, I propose to mount each treadle *l* on one arm of the first joint of a lazy-tongs system of transmitting-levers, of which the other arm is pivoted at *m* to the bed-frame for a fulcrum, and the other extremity of the system is connected to the crank *n*, the fulcrum and treadles being so placed relatively to the main wheel that the treadles are located at the front of said wheel, so that ladies may work them from the seat located in the position of the bicycle-seat. In the construction of these lever systems, I arrange each pair with about two to one (more or less) of leverage in favor of the treadle, whereby I increase the force on the crank and attain greater speed.

To avoid lateral vibration in the joints of these lever systems, and at the same time to provide easy joints that will not wear slack, I construct the joints *o*, uniting the lever of each pair, with a pivot, *p*, having a wide head, *q*, for firm seating laterally against the side of the lever, and much longer than the thickness of the two levers, with an arched washer, *s*, under the head of the projecting end, and fit a washer, *t*, with friction-rollers *u*, on said pivot between the levers. The base of washer *s* is flanged over the edges of the lever to which it is fitted, as shown by dotted line *v*, for substantial seating.

For the joints *w*, connecting the ends of the levers, I make a wide fork, *x*, in the end of one of said levers, with a face-plate extension, *y*, of one of the members of the fork, and fit the sides of the other lever snugly between the forks, with bearing-ribs *z* in the forks and on the face-plate, insuring the desired lateral stability. The terminal lever connecting with the crank is extended beyond the joint *o*, and thus the crank and levers of the lever system will not be on centers at the same time, especially if the extension be bent up or down; or it may be the crank will then be at an angle affording leverage while the treadle-levers are passing centers. This lever system of treadle

mechanism is alike applicable to bicycles as well as tricycles.

I may use the elbow-lever treadle  $a'$  and connecting-rod  $b'$ ; (represented in Fig. 9,) instead of the above-described extension-lever system, in some cases.

For an anti-friction contrivance of the axle-bearings of the main wheel for an easy and fast-running machine, I fit the anti-friction rollers  $c'$ , commonly used on the journals  $d^2$ , within an outer ring,  $e'$ , which is carried on the rollers  $f'$  on fixed pivots in the stanchions  $e$ , connecting said anti-friction rollers  $c'$  with rings  $g'$  at each end, which keep them properly spaced. The ring  $e'$ , thus combined with the anti-friction rollers  $c'$  of the axle and rollers  $f'$  of the stanchion, materially lessens the friction and enables the machine to run lighter and faster. With the slight grooves in the axle and ring indicated at  $l'$ , balls may be used instead of the rollers  $c'$ , and I propose to use them when preferred. I construct the rings  $g'$  with a little flange,  $h'$ , projecting outwardly from the inner edge, and slightly offset from the outside, to form a slight groove for conducting oil, which may be poured into said grooves through oil-holes  $i'$  in the stanchions, along the rings to the pivots  $j'$  of rollers  $c'$ , for lubricating them. The guard  $k'$ , of woven wood or wire, is applied to the bed-frame and stanchions to conceal the feet and ankles of the operator and protect the dress from the wheel  $b$ , said guard being made with openings at  $m'$  for the treadle-levers to work through when the guard is preferably turned into the spaces between the levers and the wheel.

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

1. The extension-lever treadle mechanisms fulcrumed by one arm and fitted with a treadle on the other arm of the first pair of levers, and connected by the other terminal of the system with the crank, substantially as described. 40

2. The combination, with the treadle-levers, of the anti-friction-roller washers interposed between the levers and fitted on the lever-pivots, substantially as described. 45

3. The combination, in the treadle-lever joints  $o$ , of the extension-pivot, bow-washer, and the anti-friction-roller washer interposed between the levers, substantially as described. 50

4. The combination of the face-plate extension  $y$  of the joint-fork  $x$  and the bearing-ribs  $z$  of the lever fitted in the fork, substantially as described. 55

5. The combination of the ring  $e'$  with the anti-friction rollers  $c'$ , or their equivalents, on the journal, and the rollers  $f'$  in the stanchions, substantially as described. 60

6. The combination of the oil-channels in the rings  $g'$  with the roller-pivots fitted in said rings, substantially as described.

7. The combination, in a tricycle, of a pair of guiding and balancing wheels located forward of the main driving-wheel, the operator's seat located over the front portion of the driving-wheel, treadles extended to the front of the main wheel, or thereabout, and a basket guard located between the guiding-wheels and surrounding the treadles at the front and the sides back of said guiding-wheels, so as to conceal the feet of the operator both at the front and sides, substantially as described. 70

THOMAS W. MOORE.

Witnesses:

JOHN WOLF,  
W. J. MORGAN.