

(No Model.)

3 Sheets—Sheet 1.

A. TAITTE.
VELOCIPÈDE.

No. 488,745.

Patented Dec. 27, 1892.

FIG. 1.

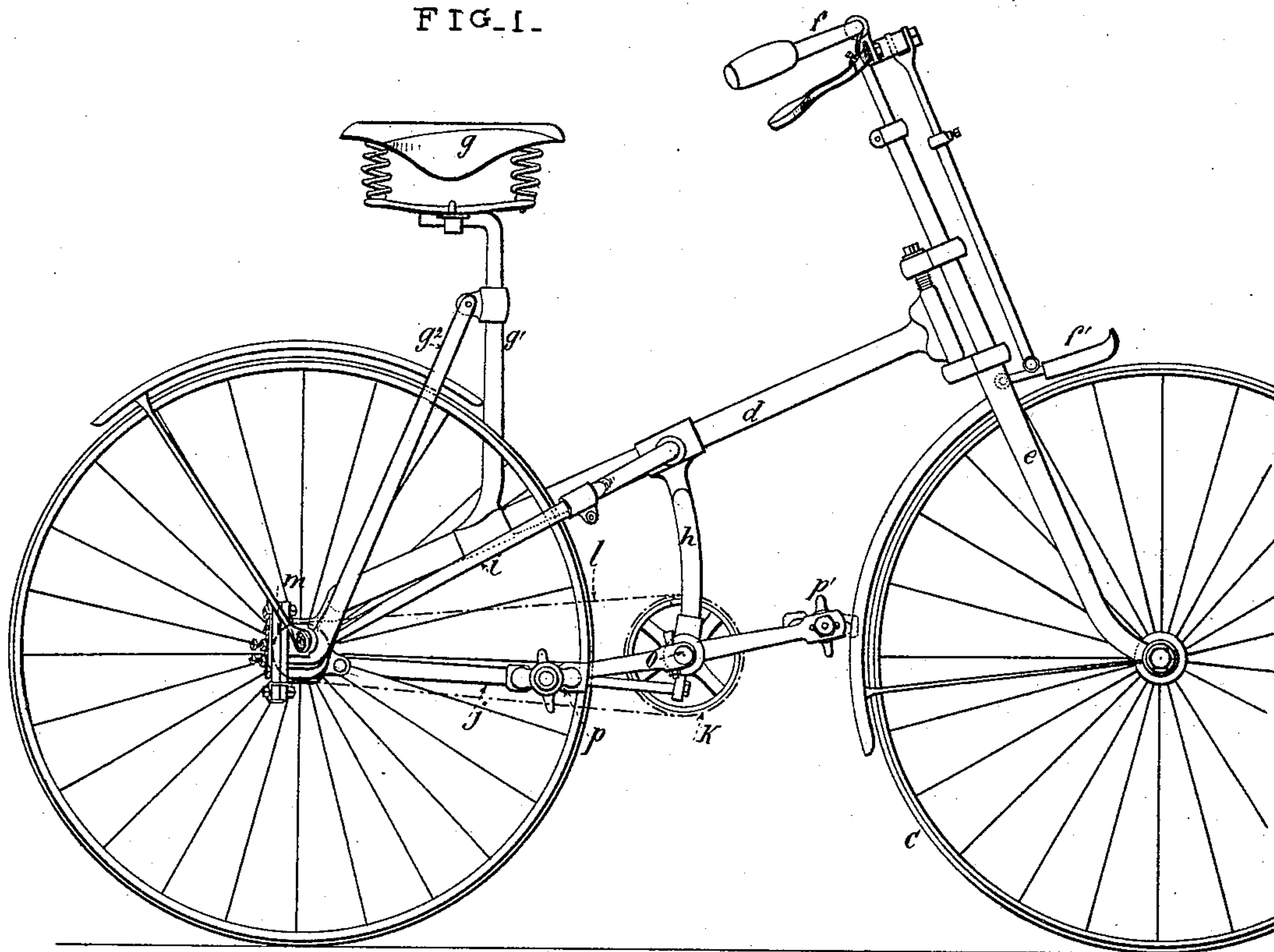
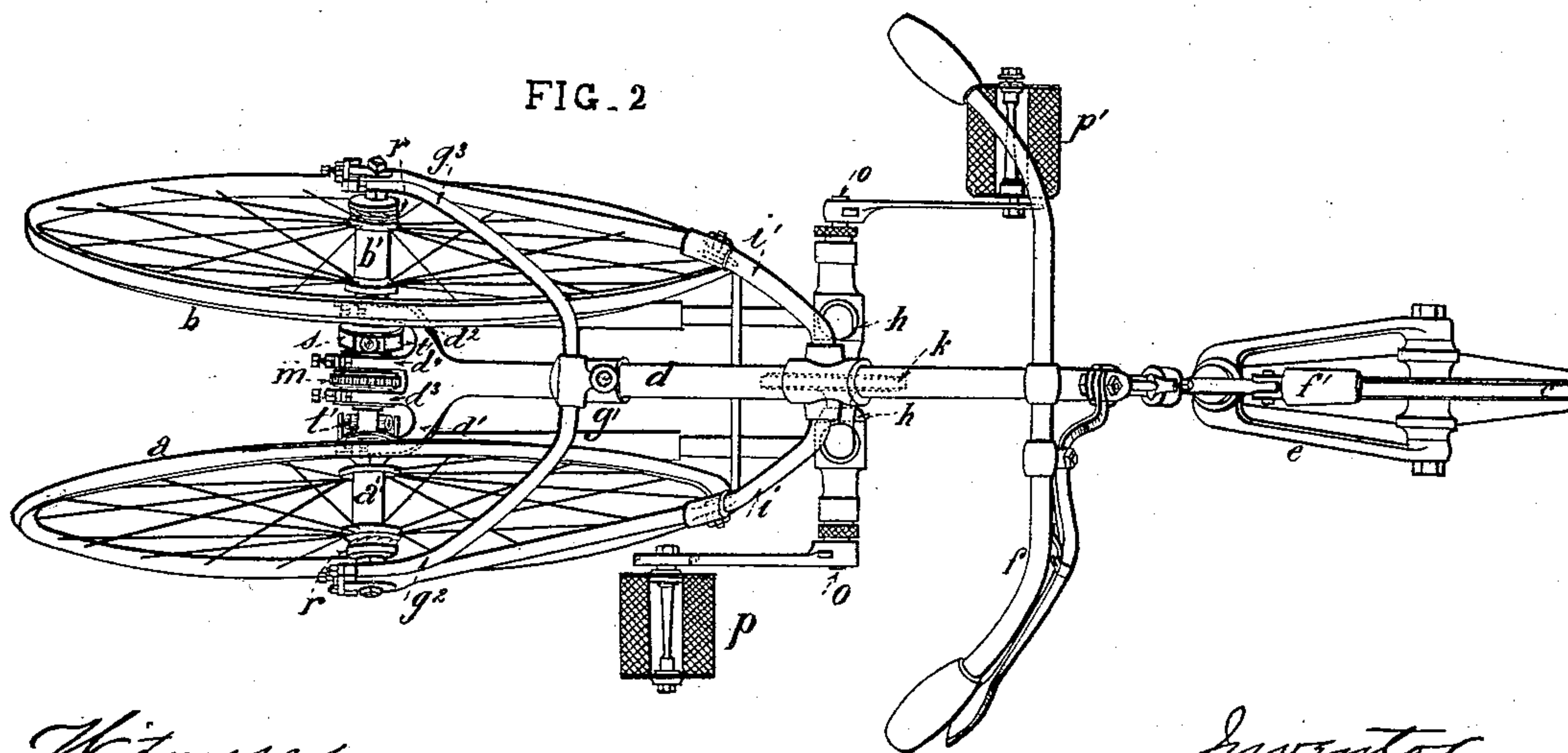


FIG. 2.



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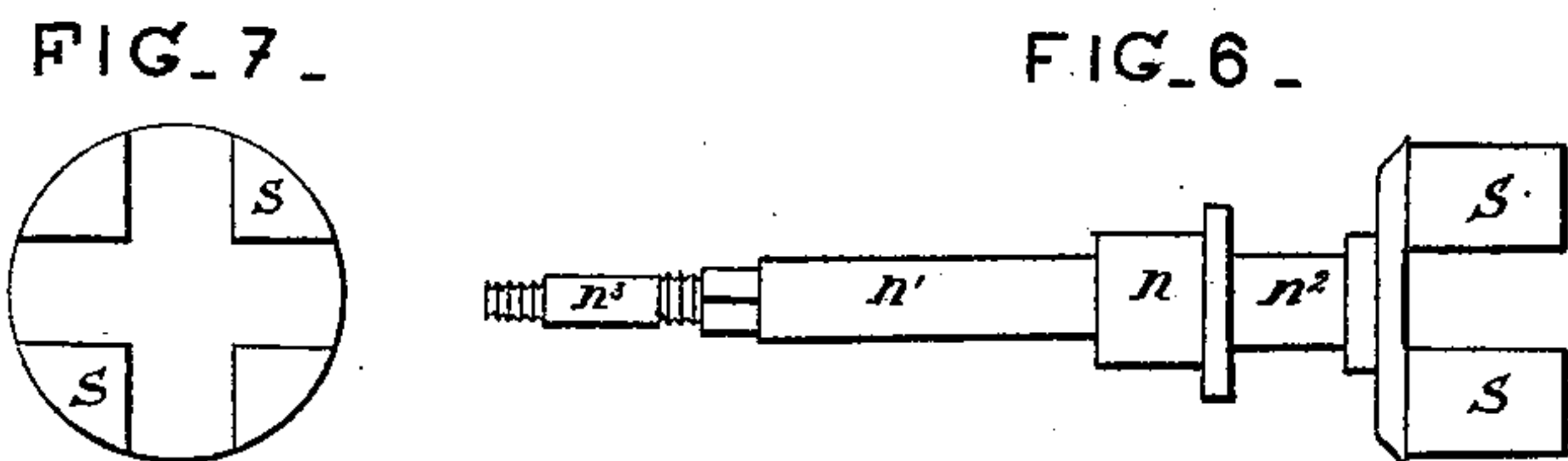
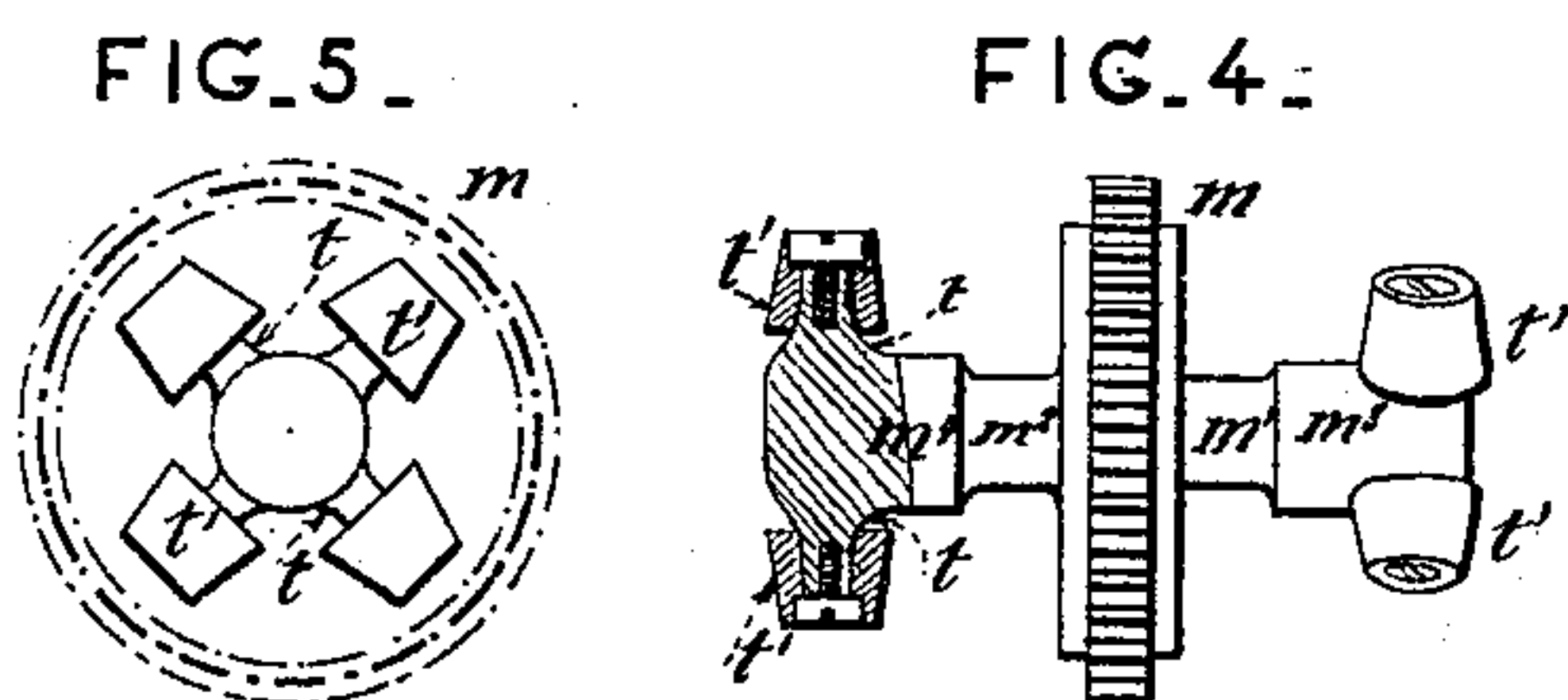
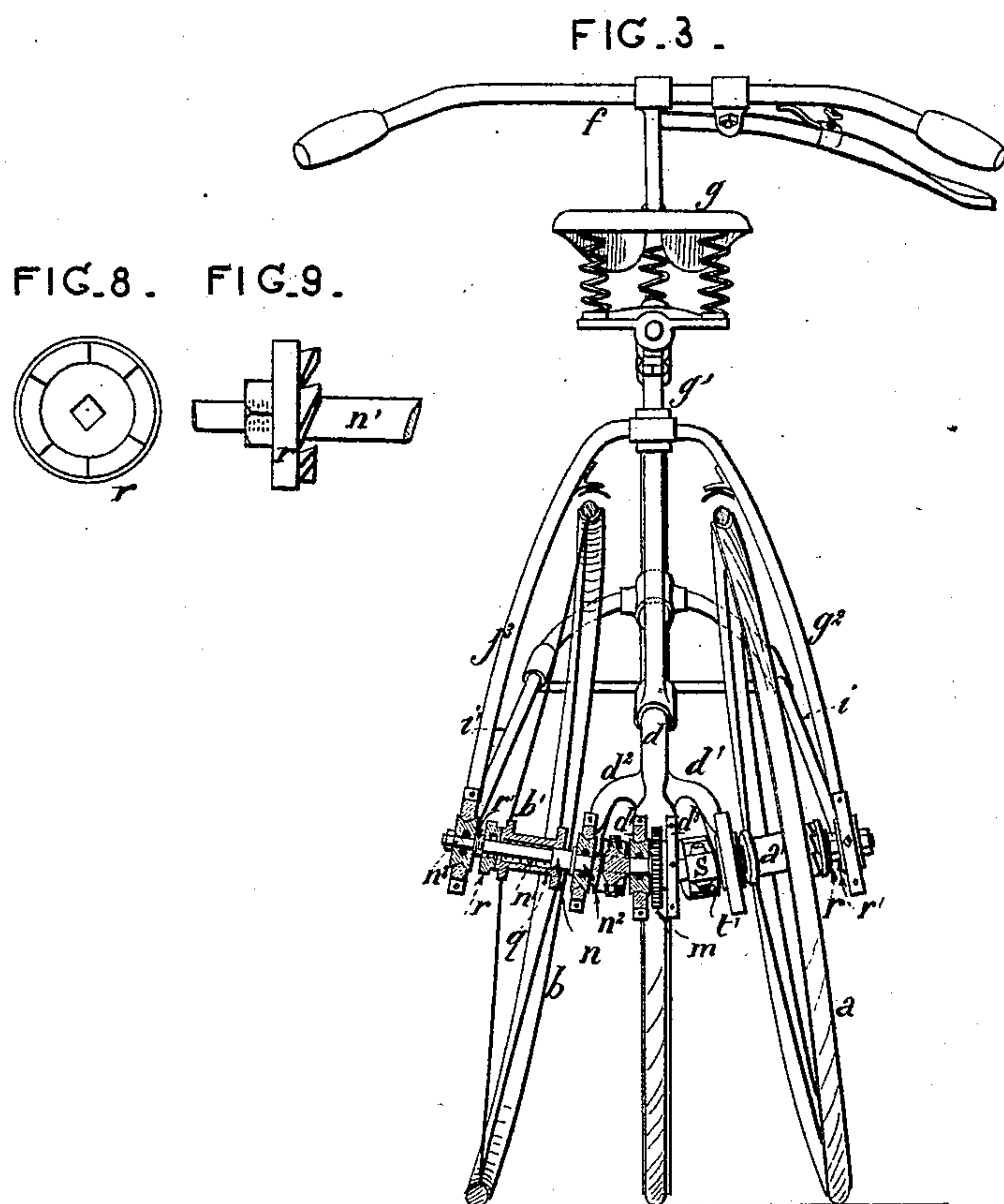
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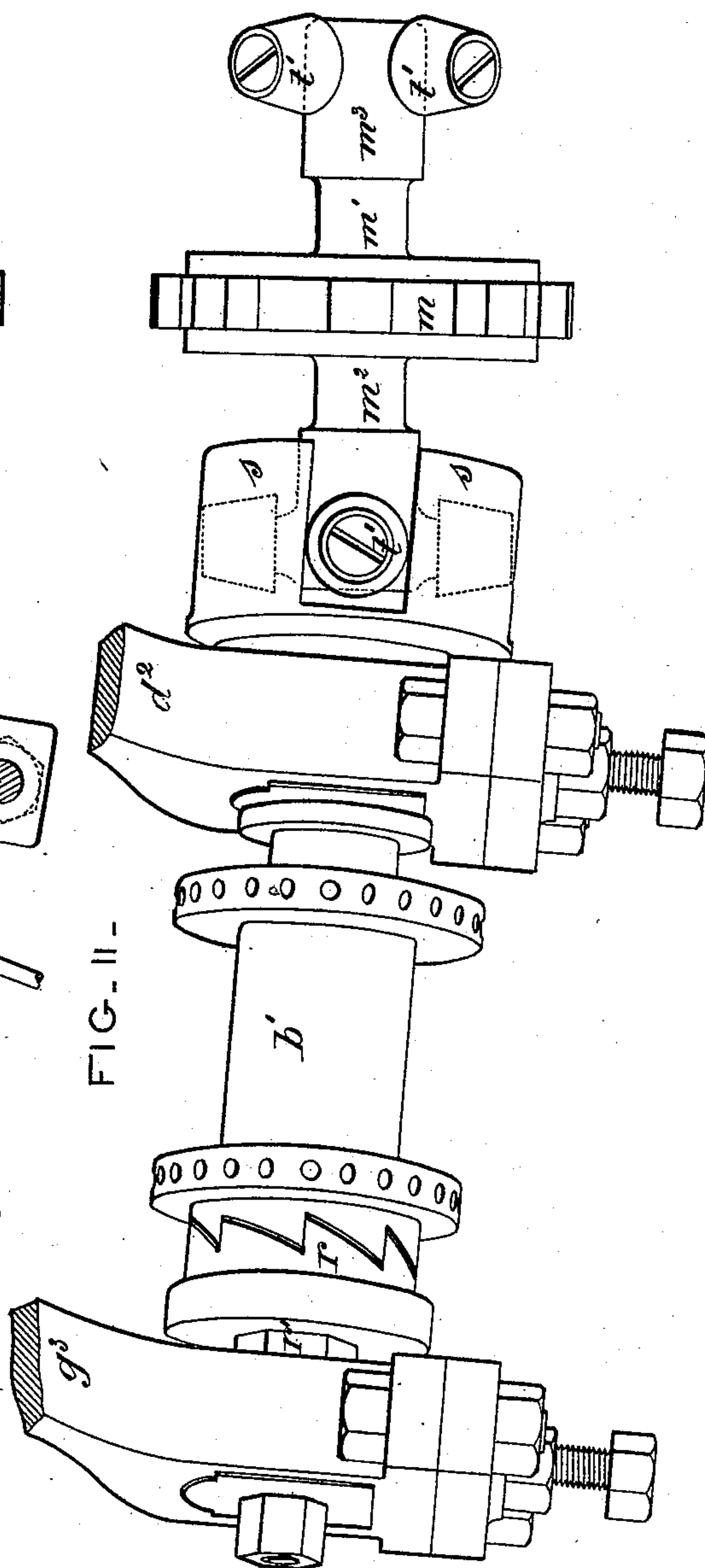
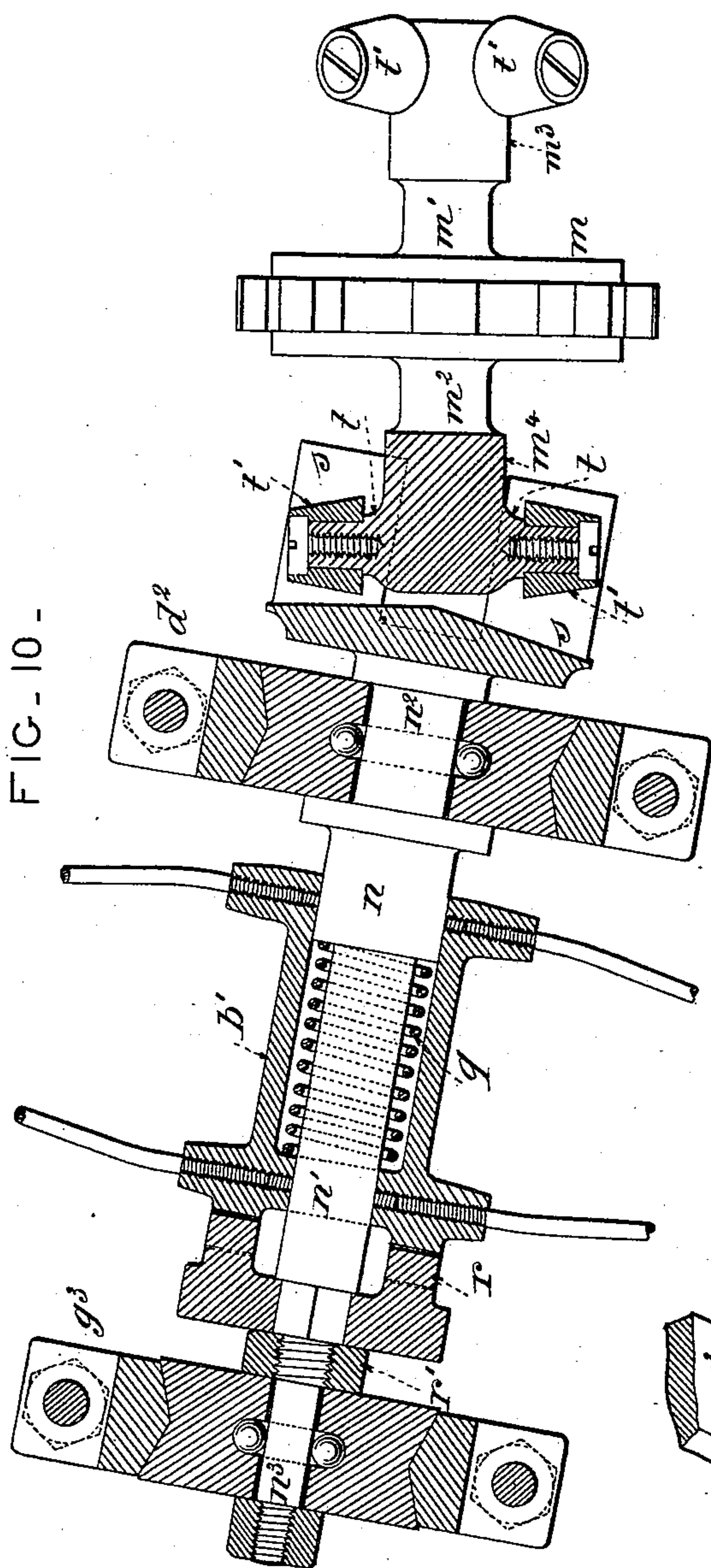
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UNITED STATES PATENT OFFICE.

ANNET TAITTE, OF LEIGNEUX, FRANCE.

VELOCIPÈDE.

SPECIFICATION forming part of Letters Patent No. 488,745, dated December 27, 1892.

Application filed July 23, 1892. Serial No. 440,985. (No model.)

To all whom it may concern:

Be it known that I, ANNET TAITTE, a citizen of the Republic of France, residing at Leigneux, Department of the Loire, in the Republic of France, have invented certain new and useful Improvements in Velocipedes, of which the following is a specification.

This invention relates to a tricycle the driving wheels of which are arranged comparatively close to each other, and situated in two inclined planes, diverging toward the ground, being at an angle both to the vertical and to the longitudinal axes of the machine. This novel arrangement of closely connected driving wheels, inclined toward each other, insures the stability of the mechanism, while enabling the wheels to turn between the pedals; so that the rider is seated over the wheels, which move or may move between his legs. This tricycle, therefore, shares the principal advantages of bicycles. It enables the rider, as does also the bicycle, very readily to get on the saddle and to alight from it, by simply passing his leg over the wheels. Owing to the arrangement of the axles of the driving wheels, moreover, the machine is capable of easily turning at the smallest possible radius or angle, practically without moving from the spot, and this by reason of the short distance between the wheels, which need not exceed about thirty-five centimeters. The risk of the tricycle being upset is exceedingly remote; but should it happen to be, the rider need in no case become entangled in the wheels or pedals. As this improved tricycle will stand upright firmly, the most inexperienced persons may safely use it. Its operation is exceedingly easy and requires little or no special practice.

In the accompanying drawings, Figure 1 is a side elevation of a tricycle constructed according to my invention. Fig. 2 is a plan thereof, and Fig. 3 is a rear end elevation of the machine, with a portion on the left in section through the bent axle of the driving wheels. Figs. 4 and 5 are detail views of the central driving mechanism of the bent axle of the driving wheels. Figs. 6 and 7 are detail views of the end of the joint which connects the central portions of the bent axle. Figs. 8 and 9 show one of the toothed clutches for coupling the driving wheels with the cen-

tral joint of their bent axle. Fig. 10 is a longitudinal sectional view, on an enlarged scale, along the axis of the bent axle of the driving wheels. Fig. 11 is a ground plan or top view of Fig. 10.

The tricycle comprises driving wheels *a b*, a steering wheel *c*, a frame *d*, a fork *e* with the handle bar *f*, a saddle *g* on its support *g'* starting from the back-bone *d* and connected by two arms *g² g³* to the outer ends of the axles of the wheels *a b*. A suspended bracket *h* secured at a suitable point of the backbone *d* carries the crank-shaft *o* to which the pedals are attached. Tubular or other rods or stays *i i'* and *j j'* connect the bracket and frame with the jointed axle or axles of the driving-wheels, imparting increased rigidity to the machine. The steering-wheel *c*, handle-bar *f*, brake *f'* and other accessory parts are of the ordinary construction. The saddle also may be arranged in any suitable way. The cranks *p p'* are secured to the ends of the crank-shaft *o* upon the center of which is keyed the chain wheel *k* which by means of a chain *l* is adapted to drive a pinion *m* integral with the central portion of the jointed axle of the driving-wheels, *a, b* or these parts may be otherwise suitably connected. These wheels and their jointed axle may be constructed as follows:

Ordinary wheels may be used the hubs being loose upon the respective portions *n n'* of a special axle which, at *n²* and *n³* respectively is adapted to turn in ball-bearings provided at the supporting ends of the arms *d' d²* of the back-bone or frame, and also at the ends of the two stays *g² g³* already mentioned. A spring *q* located within each of the driving wheel hubs *a' b'* is compressed between the hub and a shoulder limiting the portions *n n'* of the axles. The hubs *a' b'* are provided with coupling-teeth adapted to fit similar teeth formed upon a clutch *r* mounted on the square portion of the axle *n* and retained in position by means of a nut *r'*. Beyond *r'* the axle *n* of the wheel is extended and forms a cylindrical portion which enters, trunnion-like, the bearing of the corresponding arm or stay *g² g³*, and a nut screwed onto the axle prevents any longitudinal displacement thereof. Within the space between the hubs *a'* and *b'*, the axles *n n'* are journaled in the bearings provided on the respective arms *d' d²* of the

framing d . The said axles then farther extend inwardly and terminate each in arms or lugs s Figs. 6 and 7 together constituting a universal joint. The driving pinion m which
 5 receives motion from the pedals is integral with two journals $m^1 m^2$ terminating in shoulders $m^3 m^4$ respectively, which carry the lugs t at their ends. These journals $m^1 m^2$ are adapted to turn in ball-bearings, provided in
 10 the arms $d^3 d^4$ of the frame d , and the projections or lugs t , set crosswise at the ends of the portions $m^3 m^4$ of the axle, are provided with small rollers t' . These crosses have their arms situated in different planes so that two
 15 opposite arms of one cross face two empty spaces in the other cross. The rollers t' of these crosses respectively fit between the lugs s with which the ends of the portions $n n'$ of the axles of the wheels $a b$ are provided as
 20 before stated. In this manner is formed the central operating universal joint $m m^1 m^2 m^3$ and m^4 which serves to form the jointed axle n of the driving-wheels of this improved tricycle. The pedals $p p'$ impart motion to the
 25 pinion m whose motion in its turn is conveyed through the medium of the central joint to the double axle n and its respective couplings or clutches r . As these, under the action of the springs q within, are coupled with the teeth
 30 of the hubs $a' b'$ the motion is necessarily transmitted also to the wheels. This provision for the transmission of motion by means of clutches enables the rider to set the pedals in motion whatever their position and to steer
 35 in all directions, describing curves with very short radii at turnings and if necessary turning even on the spot, without either difficulty or danger of overturning. When it is desired to change the direction the hub a' or b' , as the
 40 case may be, participating in the turning movement moves nearer to the center of the machine owing to the inclined position of the corresponding wheel a or b , with the result that the hub a' or b' compresses its internal spring
 45 sufficiently to disengage from its clutch, and as therefore the coupling is for the time being severed, that wheel, a or b , will not be driven. After turning the spring q immediately throws the hub back into engagement
 50 with its clutch r .

The distance to which the inclined wheels $a b$ diverge should be such as to prevent any cutting or scraping action on the ground.

The arrangement of the central pinion m , axles n , with clutches r , hubs $a' b'$ with internal springs q and external coupling teeth corresponding to those of the clutches $r r'$ are the important features of this invention, and may also be applied to other apparatus besides cycles, such as toy-vehicles, and the like. 60

Mud-guards or network of light texture may be provided for protecting the wheels, the network covering part of the wheels in front and underneath the saddle. Above the mudguard there may be arranged a support or carrier 65 of light construction for carrying luggage if required.

I claim,—

1. A tricycle the driving wheels of which are inclined toward each other and forwardly 70 toward the longitudinal axis of the machine and thus brought close to each other the saddle being placed above them so that the rider is seated astride of the said wheels and operates the pedals mounted upon a shaft arranged in front and adapted to move externally. 75

2. In a tricycle such as characterized in the preceding claim the construction of the bent or double axle of the driving-wheels consisting of 80 three parts or sections viz. the central section which through the medium of a chain and suitable gearing receives motion from the pedals and two other symmetrical and identical portions connected to the said central part by 85 universal joints and upon each of which is loosely mounted the hub of one of the wheels in addition to which each carries a rigidly secured clutch adapted to engage with the corresponding hub while the machine is in normal motion while when it is to be turned at a small radius this connection is severed substantially as described. 90

In testimony whereof I have hereto set my hand in the presence of the two subscribing 95 witnesses.

ANNET TAITTE.

Witnesses:

ALEXANDRE HUBANT,
ROBT. M. HOOPER.