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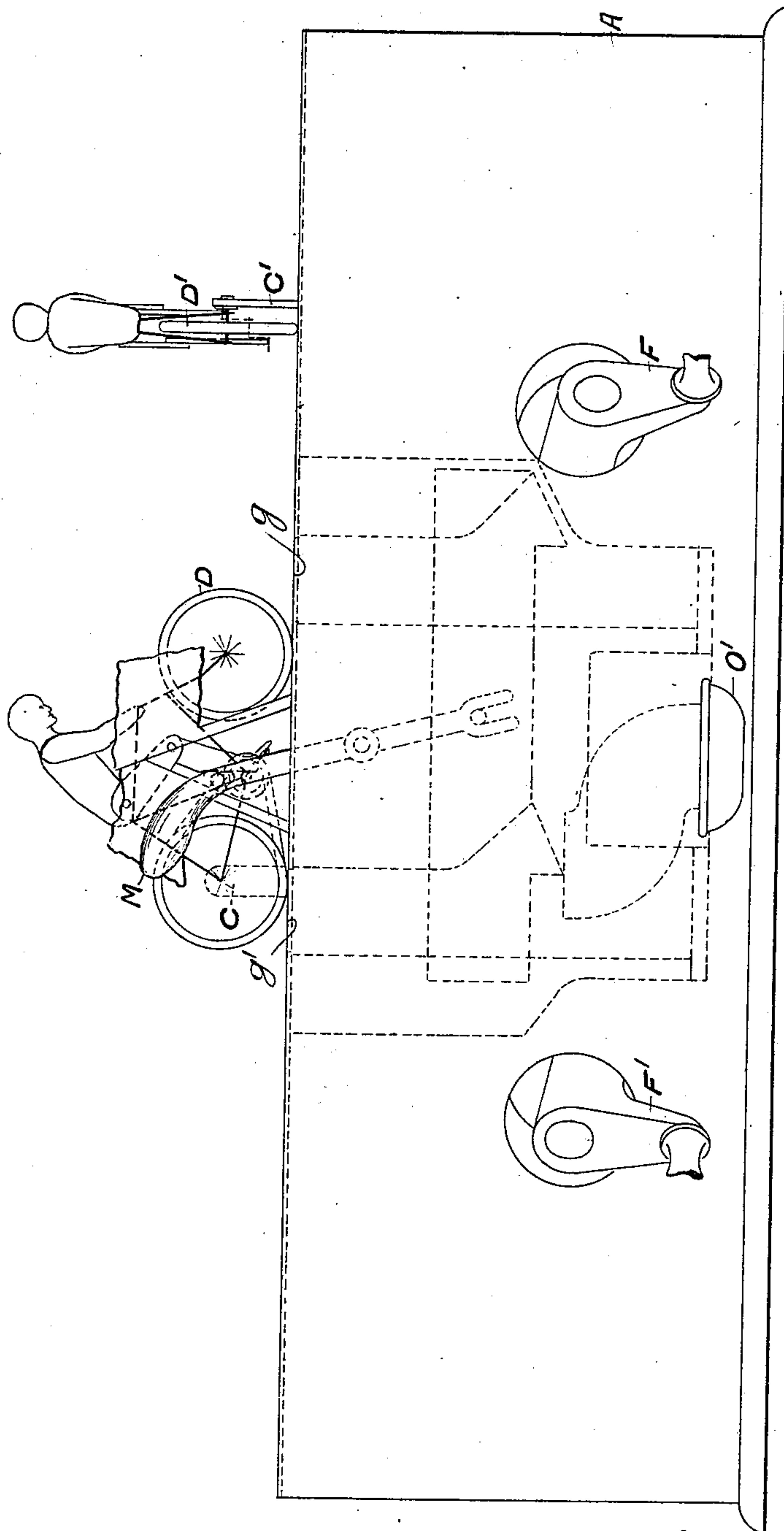
Patented Mar. 5, 1901.

G. D. PALMER & H. HARTLEY.  
COIN FREED MECHANICAL TOY.

(Application filed Apr. 10, 1900.)

(No Model.)

4 Sheets—Sheet 1.



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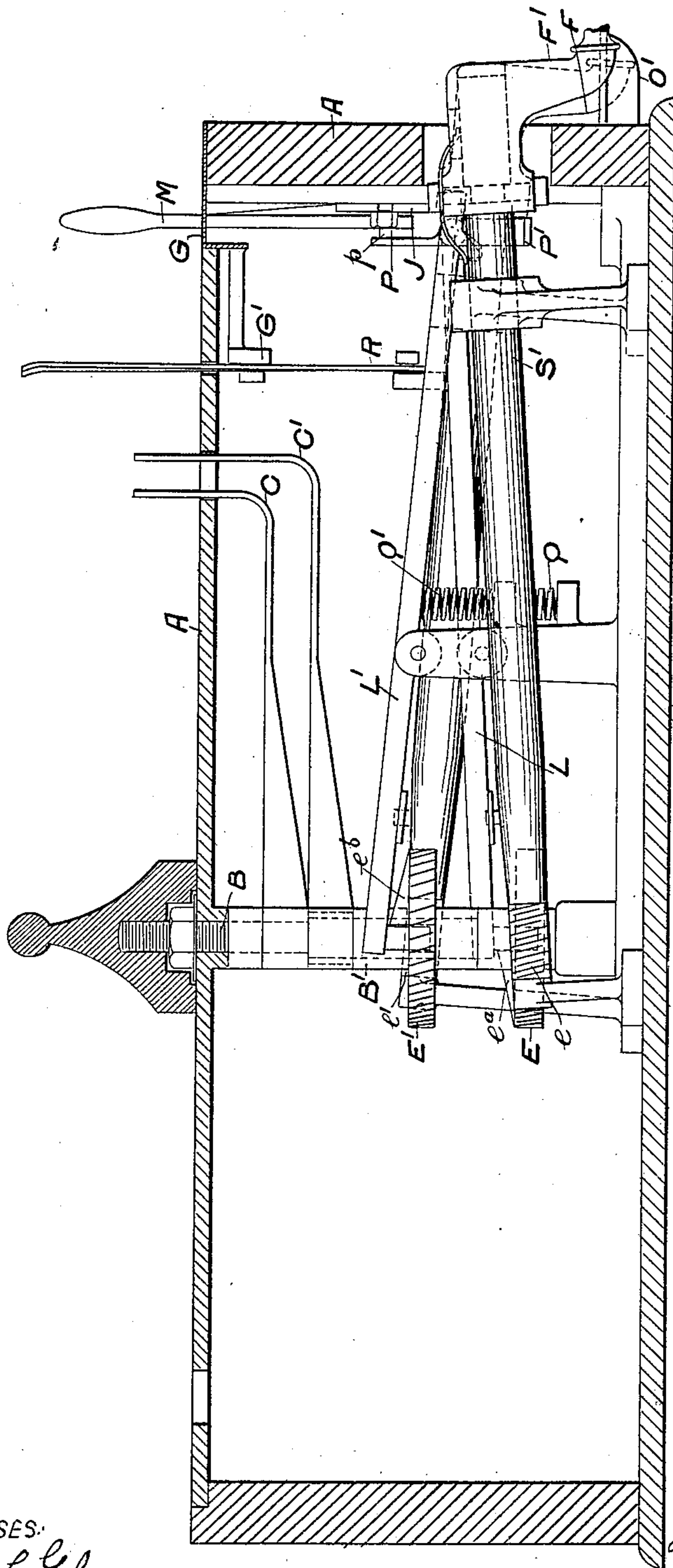
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4 Sheets—Sheet 2.



—FIG. 2—

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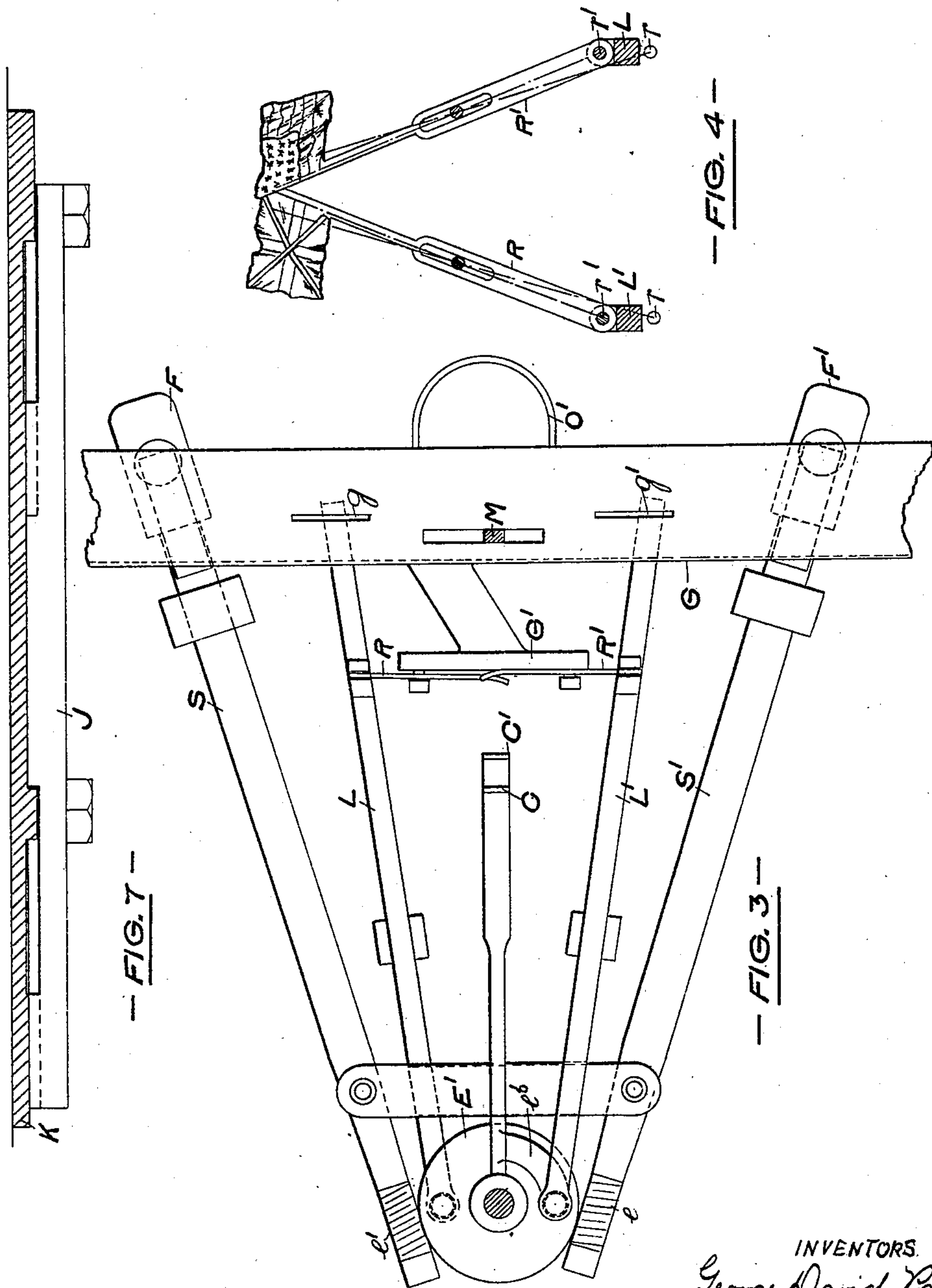
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4 Sheets—Sheet 3.



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**No. 669,206.**

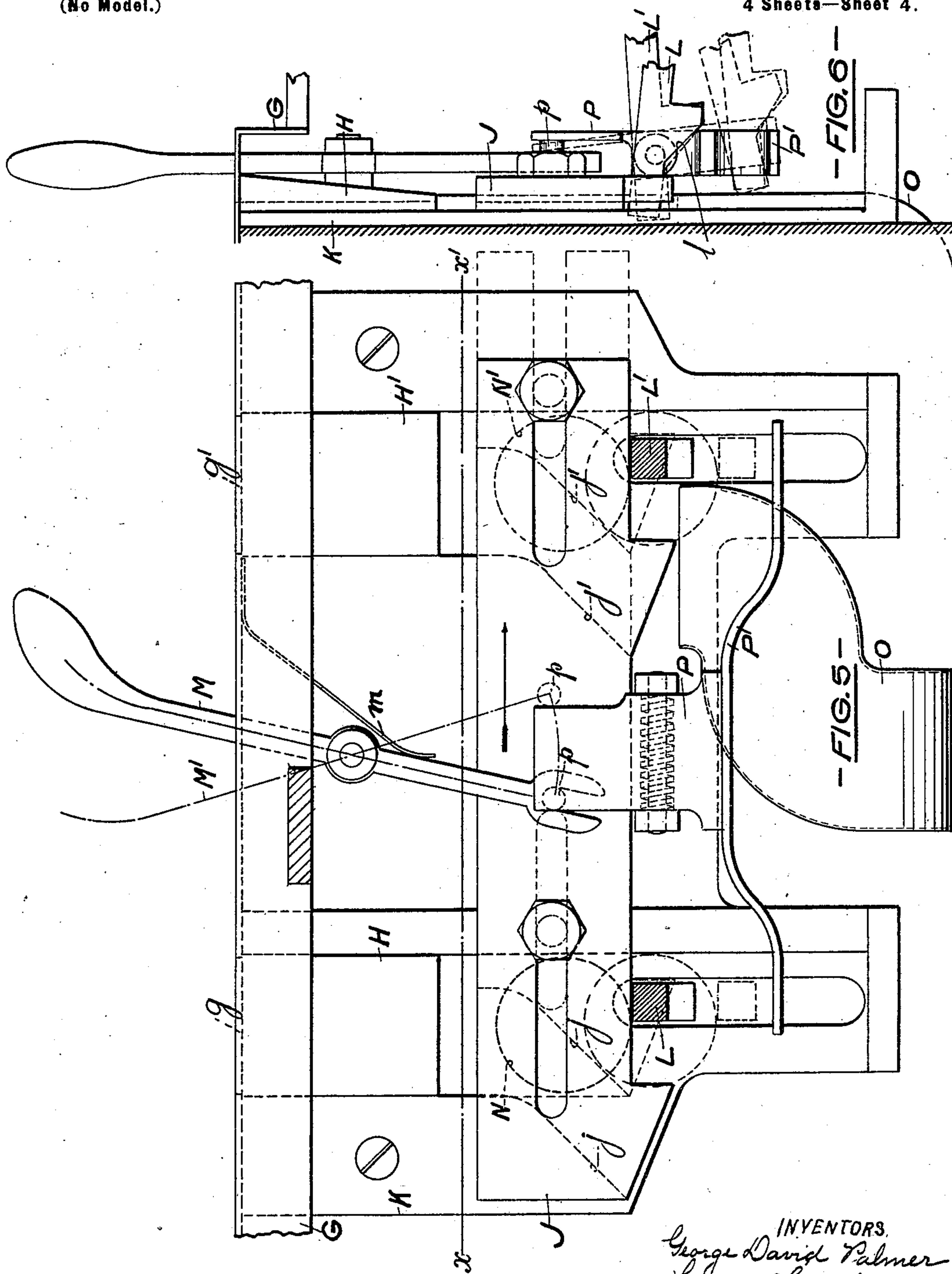
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(Application filed Apr. 10, 1900.)

(No Model.)

**4 Sheets—Sheet 4.**



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# UNITED STATES PATENT OFFICE.

GEORGE DAVID PALMER AND HENRY HARTLEY, OF BIRMINGHAM,  
ENGLAND.

## COIN-FREED MECHANICAL TOY.

SPECIFICATION forming part of Letters Patent No. 669,206, dated March 5, 1901.

Application filed April 10, 1900. Serial No. 12,323. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE DAVID PALMER and HENRY HARTLEY, subjects of the Queen of Great Britain and Ireland, and residents of Clarence Chambers, 39 Corporation street, in the city of Birmingham, England, have invented certain new and useful Improvements in Coin-Freed Mechanical Toys, (for which we have filed an application for patent in Great Britain, No. 18,395, bearing date September 12, 1899,) of which the following is a specification.

Our invention has for its object the construction of improved coin-freed mechanical cycle racing and other like toys.

In the accompanying sheets of explanatory drawings, to be hereinafter referred to, Figure 1 is a front elevation of a toy cycle racing apparatus constructed in accordance with our invention. Fig. 2 is a side elevation with a portion of the casing removed, showing the internal mechanism. Fig. 3 is a plan of the mechanism. Fig. 4 is an elevation showing the winning-posts or flagstuffs. Fig. 5 is a back or inner side elevation, Fig. 6 an end elevation, and Fig. 7 a sectional plan on the line  $x x'$ , Fig. 5, showing to a larger scale than in the preceding figures the coin-freed mechanism.

The same reference-letters in the different views indicate the same parts.

The upper part of the wood or other casing A forms a table or platform representing a cycle-racing track, beneath which and in the center of the casing we mount a stem or spindle B, supporting a pair of radial arms C C', each arm being arranged for rotation by a separate set of driving-gear. On the outer end of each arm C C' we mount a toy bicycle, as D D', having a metal or other figure representing a rider seated thereon. The inner end of the radial arm C is fixed directly to the aforesaid spindle B, while the inner end of the other arm C' is formed with or attached to a socket B', passing over the spindle B.

The spindle B and socket B' are each provided with a set of worm driving-wheels, as E e E' e', respectively, operated by separate handles F and F', arranged on the exterior of the machine casing or framing A. Thus on the rotation of the handles by the operators

or persons using the machine the toy cyclists travel around the track quite independently of each other and at speeds corresponding with the rate of rotation of the handles. As the bicycles move their wheels are caused to revolve, the spring of the arms C C' being sufficient to impose such a pressure of the bicycle-wheels against the table as will insure rotation of the said wheels. The jointed legs of the figure on each cycle are also caused to move with the pedals, the latter being driven by an endless belt from the cycle rear wheels.

The spindles of the operating-handles F and F' are normally locked or prevented from rotation by the coin-freed mechanism, which we will now describe.

Through a brass or other metal plate G, fixed to the top edge of the front of the casing, we form the coin-admission slots or apertures  $g g'$ . The coins inserted in the respective slots  $g g'$  after passing through the chutes or coin-guide channels H H' fall between the slide J and the back plate K until arrested by the respective locking-levers L L'. The back plate K is secured to the wood or other casing A of the machine, as illustrated. On moving the hand-lever M to the position indicated by the dotted center line M', after the two coins have dropped onto the levers L L', respectively, as hereinbefore described, the slide J is caused to move in the direction indicated by the arrow at Fig. 5. During such movement of the slide its inclined edge surfaces  $j$  and  $j'$ , by abutting against the coins N N', respectively, depress them from the upper to the lower positions, (shown at Fig. 5,) and as the ends of the locking-levers L L', supporting the coins, are likewise depressed the opposite ends of such levers are raised from their locking engagement with the worm-wheels E E', thus setting the latter free for rotation under a turning movement of the handles F F'. In the illustration Fig. 2 the levers L L' are shown in locking engagement with the worm-wheel E E', respectively.

The toy cyclists travel around the track at a speed dependent upon the rate of rotation of the respective handles F F'. In the course of their rotation the cams  $e^a e^b$  on the upper faces of the worm-wheels E E', respectively, pass under and raise the adjacent ends of



the levers  $L L'$  in order to depress the opposite ends of such levers sufficiently below the dotted-line positions (shown at Fig. 5) to allow the coin  $N$  to drop away clear of the inclined retaining edge  $j$  of the slide  $J$ , and thus fall into the bottom of the casing which serves as the exchequer, and also to allow the coin  $N'$  to fall clear of the edge  $j'$  of the slide and to pass down the chute  $O$  to the receptacle  $O'$ , outside the casing, for return to the winning operator.

After the hand-lever  $m$  has been moved to the position represented by the dotted line  $M'$ , as hereinbefore described, its return and also the return of the slide  $J$ , which moves with it, is prevented by the engagement of the spring abutment-piece  $P$  with the peg  $p$ , projecting from the slide  $J$ ; but on the final depression of the ends of the levers  $L L'$ , as hereinbefore described, an inclined edge surface, as  $l$ , formed on each of the said levers, acts upon the extremities of a wing-piece  $P'$ , attached to the abutment-piece  $P$ , and by thus causing the latter to turn slightly on its pivot against the action of the spring wound thereon withdraws it from the dotted to the full line and out-of-engagement position (shown at Fig. 6) to permit of the return of the lever  $M$  and slide  $J$  under the action of the spring  $m$ .

The apertures in the face of each of the worm-wheels  $E E'$  for the reception of the locking ends of the respective levers  $L L'$  are so disposed that on the arrival of each toy cyclist at the starting-point engagement of its worm-wheel with the proper locking-lever is immediately effected, the lever being depressed into the worm-wheel aperture under the action of a spiral spring.

$Q Q'$  represent the spiral springs for the respective locking-levers  $L L'$ . As the end of each lever drops into locking engagement with the worm-wheel its opposite end is raised and lifts with it the end of the winning-post or winning-flagstaff  $R$  or  $R'$  from the position indicated at  $r$  to the position  $r'$ . Each staff is pivoted upon a projecting bracket  $G'$  from the aforesaid plate  $G$ , and its lower end is pinned to the locking-lever, as illustrated. The upper edges of the flags or staffs are bent or curved laterally, as illustrated at Fig. 3, so that the second or last flag to ascend must pass at the

back of the other, and thus a clear indication is given of the winning toy cyclist. The toy figures on the cycles are distinctively colored, and the flags or winning-posts are colored to correspond therewith.

The handles  $F F'$  have each a spring-clutch connection of any convenient and well-known form with their respective spindles  $S$  and  $S'$ , so that if an undue torsional force is imposed upon the handle in an effort to turn them before the disengagement of the locking-levers  $L L'$  they will simply rotate independently of their spindles.

We inclose the complete machine with a glass frame or cover. (Not shown in the drawings.)

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

1. In coin-freed mechanical toys, the combination with independent rotatable radial arms  $C C'$  respective gear-wheels  $E e$  and  $E' e'$  and operating-handles  $F F'$  one for each of the radial arms, of toy bicycles  $D D'$  respectively mounted upon the outer ends of the said radial arms and running around the upper part of the machine-casing  $A$ , each bicycle having a toy rider seated thereon with pivoted legs which move with the pedals of the said bicycle, substantially as set forth.

2. In coin-freed mechanical toys having rotatable radial arms  $C C'$  and gear-wheels  $E E'$  detachably engaged by levers  $L L'$ , the combination with the said levers of springs  $Q Q'$ , and flags and staffs  $R R'$  pivoted upon a projecting bracket  $G'$  from the plate  $G$  and having their upper edges laterally curved, substantially as set forth.

3. In combination, the radial arms, the toy figures carried thereby, the gearing and handles, the locking devices, and the indicating means controlled by the locking devices, substantially as described.

In witness whereof we have hereunto set our hands in presence of two witnesses.

GEORGE DAVID PALMER.  
HENRY HARTLEY.

Witnesses:

EDWARD MARKS,  
HERBERT BOWKETT.