

New Patents.

Specially contributed by Messrs. Edward Evans & Co., Consulting Engineers, Chartered Patent Agents, and Enrolled Patent Attorneys of the United States, of 27, Chancery Lane, London, W.C., and 105, Colmore Row, Birmingham.

The undermentioned applications are all in the stage in which opposition to the grant of a Patent upon them can be made. Messrs. Edward Evans & Co. would be pleased to forward a copy of any of the specifications on request, and on remittance of a P.O. for 1/- to cover cost and postage. They would also be pleased to advise upon the novelty, subject matter, and value of any invention submitted to them by our subscribers.

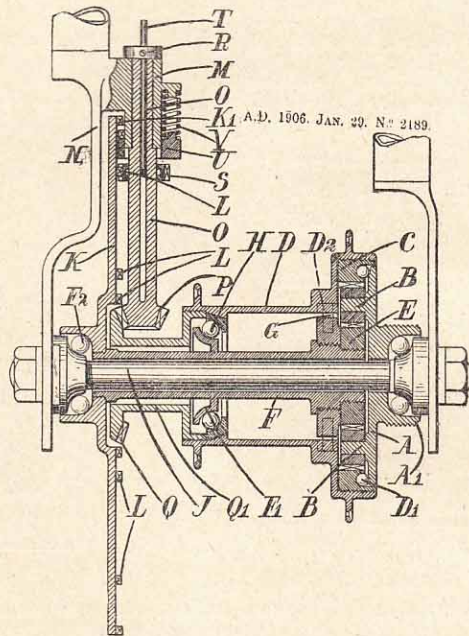
adjacent to the rim of the wheel to which the locking device is to be applied are mounted a pair of brackets A, A, each formed out of a piece of sheet metal folded to form a loop to embrace the member of the frame, the two ends forming lugs a through each of which are two holes a1 and a2, the former to receive the bolt or screw c for clamping the bracket to the member of the frame X and the latter to receive the locking bolt B. This bolt has a head b at one end and a hole b1 at the other end, which hole b1 is adapted to pass through the bow or hasp of the locking device so mounted that the bolt B passes through the hole b1 on the side of the bow or hasp of the locking device.

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by which the said brackets are attached to the members of the frame of the cycle.

Speed Gears, Particularly for Cycles and the Like.

2,189, '06. J. MARSTON, LTD., and J. MORGAN. This invention relates to speed gears particularly for cycles and the like, and has for its object to provide an infinitely variable gear, or one in which any desired number of changes can be obtained. On ball bearings at one end may be arranged the driving member A, which



comprises a sleeve A1, on which is adapted to screw a free-wheel or the like. This sleeve has fixed to it the planet carrying pins B. The internally toothed ring C is fixed to the hub shell D, which at that end may be mounted upon ball bearings D1 upon the planet pinion carrier A. The sun pinion E is fixed to a sleeve F hereinafter termed the sun pinion sleeve. Between the hub shell and this



sleeve are arranged pawls G, which engage a ratchet ring D₂ in the hub shell and prevent forward rotation of the sun pinion apart from the hub, as described in Letters Patent No. 6,683 A.D. 1904. At the other end the hub may be mounted upon ball bearings H between it and a suitable cone F₁ on the sun pinion sleeve. This sleeve F, at its extremity, is mounted on ball bearings F₂ lying between a cup formed in it and a cone on the spindle J. If desired this cup may be separate from the sleeve and may form the hub of the gear disc, as shown. This gear disc K consists of a circular or similar plate having on its face adjacent to the hub a number of circular gear tracks L. These may take the form of gear teeth, and any suitable number of tracks may be employed, each being concentric with the hub and its spindle. In a suitable bearing M, preferably formed on the fork lug N, radial to the hub, is arranged a shaft O, which has fixed to its end a bevel pinion P, engaging the similar pinion Q formed on the end of a sleeve Q₁ extending from the hub shell D. This shaft O is squared below its bearing, and this squaring prevents its longitudinal movement in one direction, whilst a suitable collar R on the other side of the bearing prevents movement in the opposite direction. On the squared or similarly formed portion of the shaft is adapted to slide a spur pinion S. This pinion is formed with teeth corresponding with those on the gear disc K, and can be slid by means of an actuating rod T, fork, or its equivalent, so as to engage any track L on the gear disc. The operation is as follows:— Rotation of the planet pinion carrier A by means of the free wheel clutch, or the like, tends to throw forward the hub shell D, and at the same time throw forward the sun pinion E. This throws around the gear disc K in the same direction, which, by its geared connection L, S with the shaft O rotates that in a corresponding direction, which by its bevel P rotates the hub at an increased speed in the forward direction. It will be seen that by sliding the spur pinion S towards or away from the centre of the gear disc the ratio of gearing between that disc and the shaft O, and consequently the ratio of angular velocity between the hub shell and chain sprocket can be varied, the variation being determined by the proportions of the epicyclic gear, the relations between the gear tracks and the pinion, and the ratios of the bevel pinions P and Q all or any of which may be varied as desired. It will be seen that by providing any number of gear tracks L on the gear disc any number of changes of gear can be obtained. When the spur pinion S is moved into a position out of gear with the gear tracks the pawls G adjacent to the epicyclic train come into operation, and the gear rotates solid, providing the normal or lowest gear. In gears not provided with a ratchet and pawl or automatic clutch device there may be a separate clutch for locking the two members of the gear or their extensions, when the spur pinion is out of engagement with any of the gear tracks. Sliding on a suitable part, say a square part of the bearing M of the shaft O, is a jaw clutch member U which can slide but not rotate, and this is adapted to engage projecting clutch dogs K₁ on the periphery, or other suitable part of the gear disc. A spring V normally keeps the sliding clutch member out of engagement, but extreme upward movement of the spur pinion draws this clutch member into engagement with the clutch dogs on the gear disc, and locks it. This results in the sun pinion being held, and the epicyclic train coming into normal operation, and giving a higher gear than those previously in use.

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