

No. 645,947.

Patented Mar. 27, 1900.

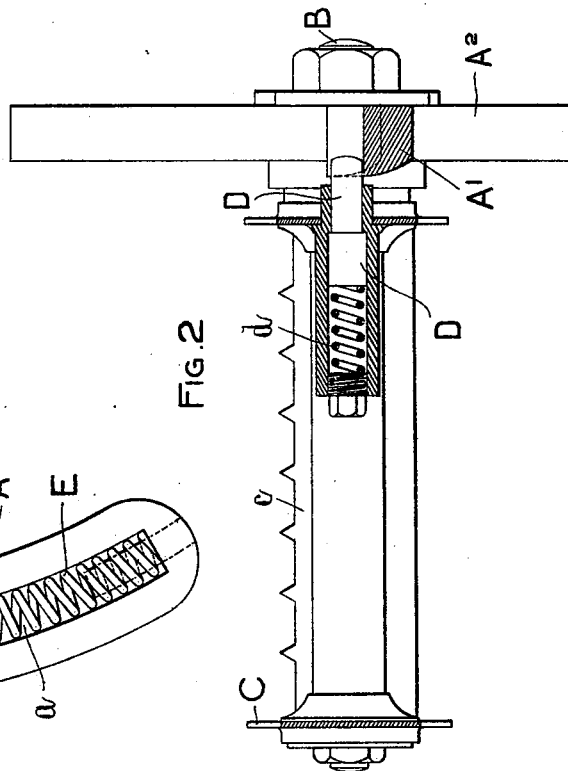
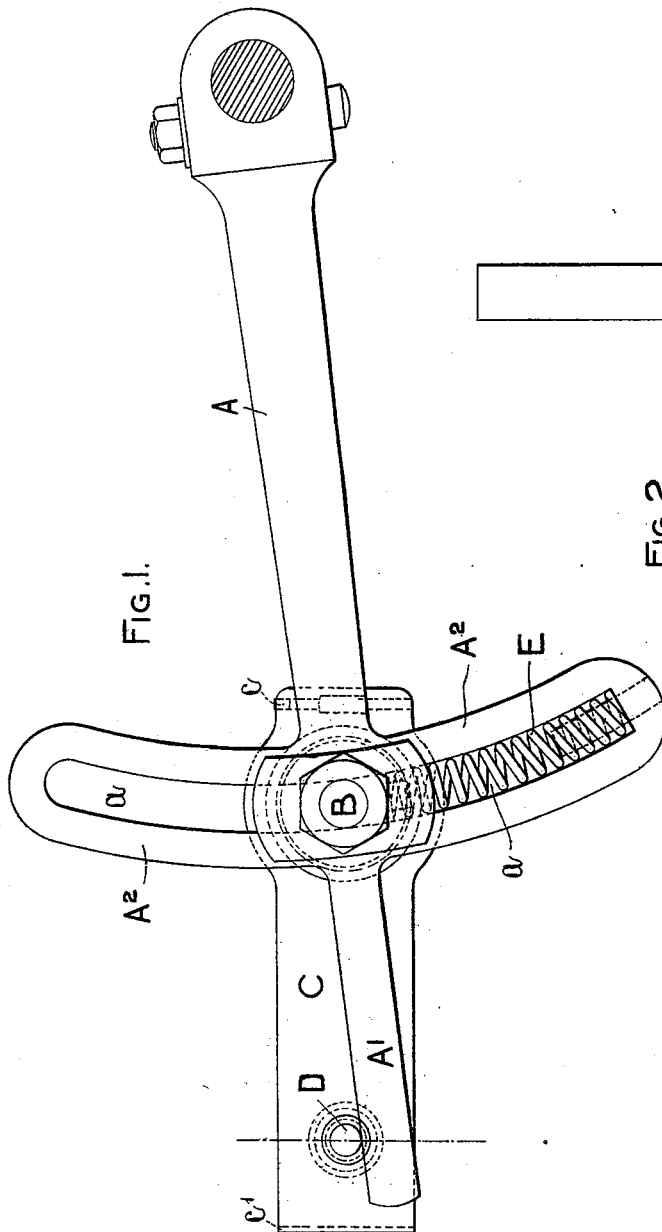
C. I. FAULKNER.

PEDAL DRIVING GEAR FOR VELOCIPEDES.

(Application filed Aug. 8, 1899.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES.

H. Knight broad.

A. Mulward Flack.

INVENTOR.

Charles Irvine Faulkner.

per.

Robert S. Phillips
Attorney.

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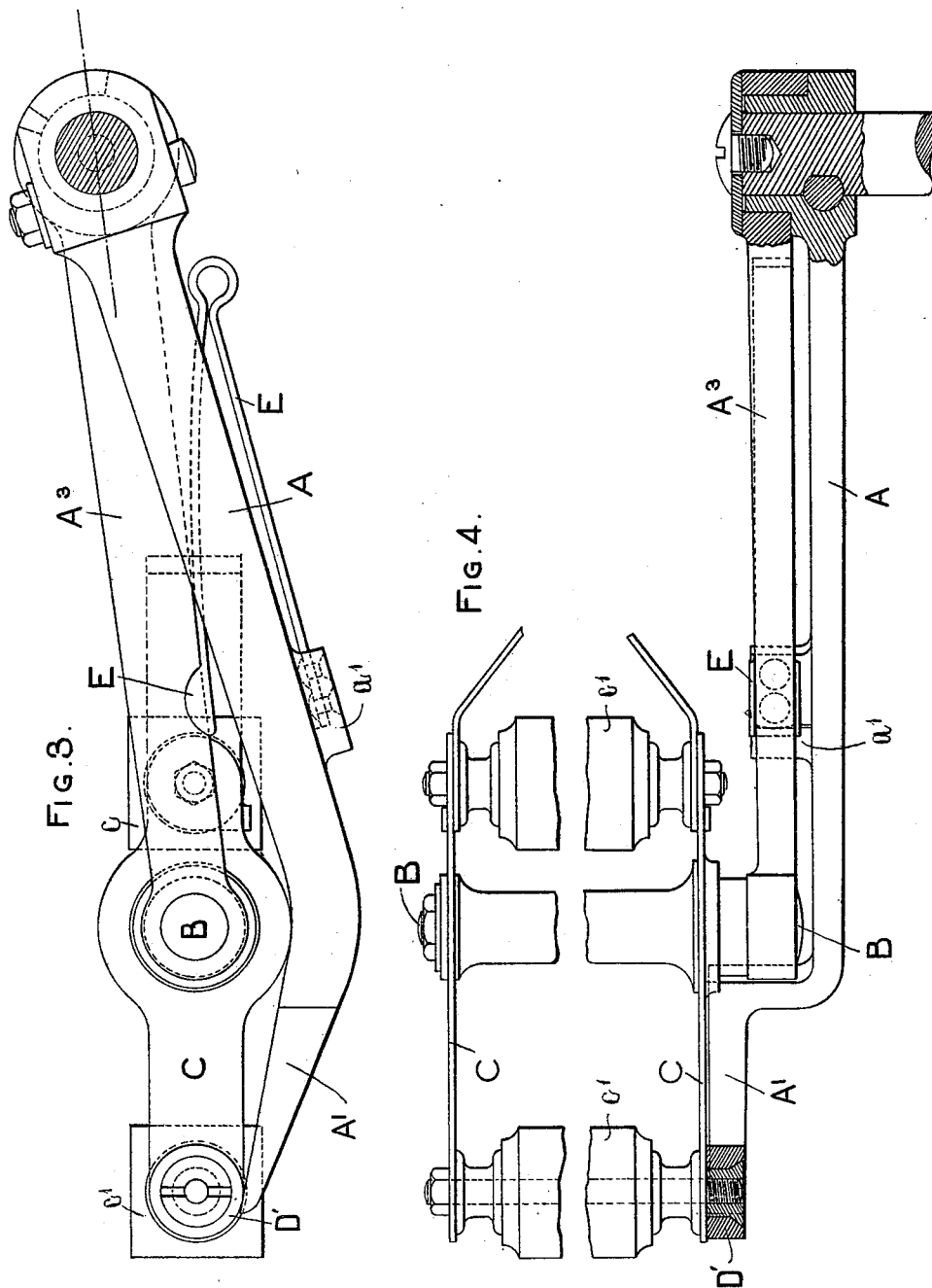
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INVENTOR.

Charles Irvine Faulkner.

per. Robert B. Phillips
Attorney.

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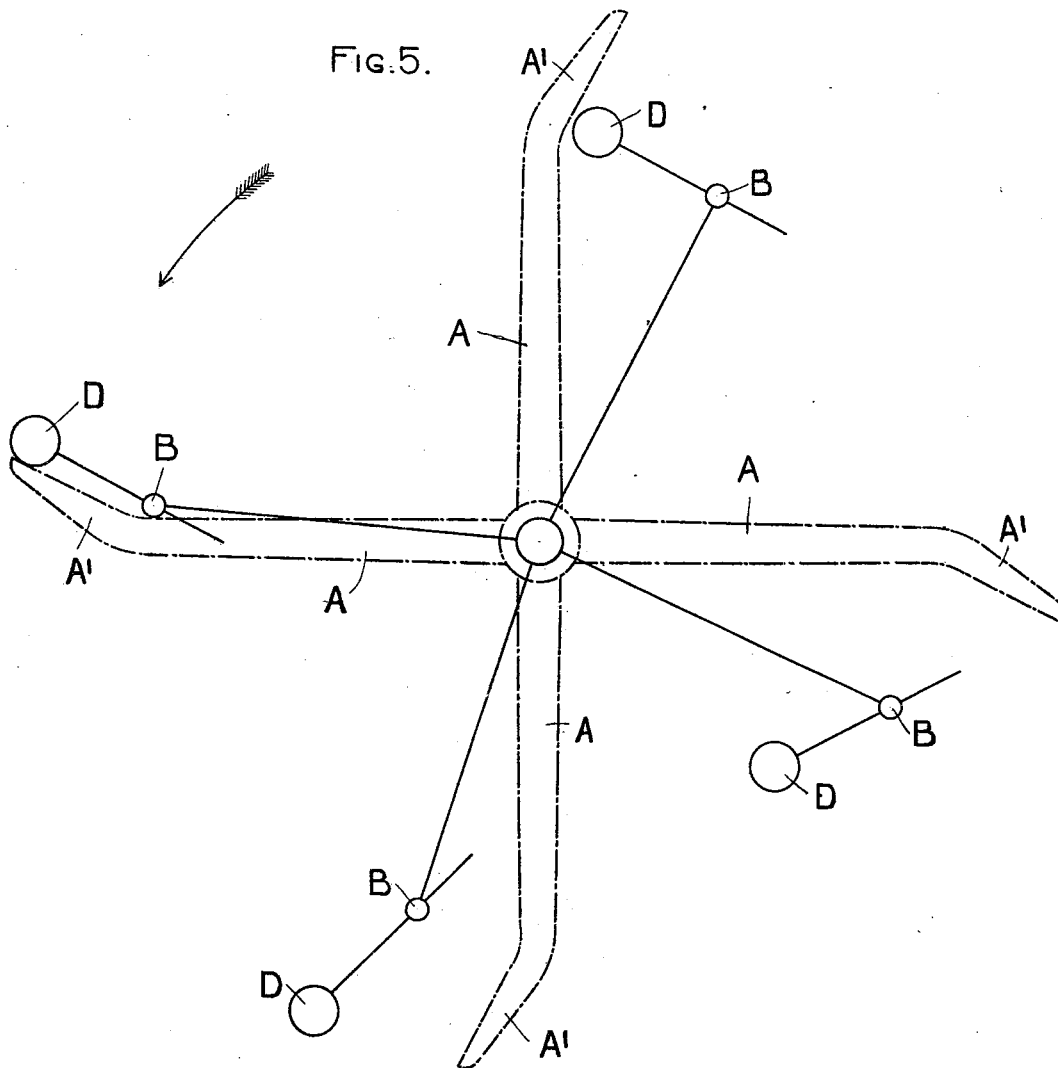
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3 Sheets—Sheet 3.



WITNESSES.

A. Knight broad.

A. Milward Flack.

INVENTOR.

Charles Irvine Faulkner.

per.

Robert E. Phillips

Attorney.

UNITED STATES PATENT OFFICE.

CHARLES IRVINE FAULKNER, OF ESCRICK, ENGLAND.

PEDAL DRIVING-GEAR FOR VELOCIPEDES.

SPECIFICATION forming part of Letters Patent No. 645,947, dated March 27, 1900.

Application filed August 8, 1899. Serial No. 726,602. (No model.)

To all whom it may concern:

Be it known that I, CHARLES IRVINE FAULKNER, a subject of the Queen of Great Britain, residing at Escrick, in the county of York, England, have invented a new and useful Improvement in Pedal Driving-Gear for Velocipedes, (for which I have obtained Letters Patent in Great Britain, No. 624, bearing date the 10th of January, 1899,) of which the following is a full and complete specification.

This invention relates to an improved pedal driving-gear for velocipedes; and it consists in extending the crank beyond the point at which the crank-pin is attached and in causing the forward part of the pedal to engage the said extension during the whole or part of the operative part of the stroke of the crank, the object being to automatically increase the leverage of the crank during the said part of its stroke.

In the accompanying drawings, which show some methods of carrying this invention into practice, Figure 1 is a view in side elevation, and Fig. 2 is a view in front elevation, of one form the invention may assume. Fig. 3 is a view in side elevation, and Fig. 4 is a view in plan, showing another form the invention may assume. Fig. 5 is a diagrammatic view showing the position of the pedal at four points in one complete revolution of the crank.

Similar letters refer to similar parts throughout the several views.

According to my invention the cranks A are extended beyond the points at which the crank-pins B are attached, and the pedals C, mounted on the said pins, carry at their front ends stops or projections D, which are adapted to engage the extensions A' of the cranks during the down or operative parts of their strokes.

In order to obtain the greatest amount of increased leverage without unduly increasing the length of the pedal, I prefer to mount the pedal on its pin B in such a manner that the said pin is nearer its rear bar or edge *c* than its front bar or edge *c'*, but this is not obligatory.

It will be seen that when the stop or projection D comes into contact with the extension A' of the crank the leverage of the crank is increased by the distance between the front bar or edge *c'* of the pedal and the center of

the pedal-pin B. In order that the stop or projection D shall remain in contact with the extension A' of the pedal during the effective part of the stroke of the crank, it is necessary to provide that the rear part of the pedal shall drop with respect to the front part during the first half of the down or operative part of the stroke of the crank and rise again during the remainder of the said part of the stroke, which is attained by mounting the pedal-pin on a spring or spring-arm carried by the crank.

In the construction shown by Figs. 1 and 2 of the accompanying drawings the crank-pin B is mounted to slide in a slot *a*, formed in transverse enlargements A² of the crank, and rests upon a spiral or other suitable spring E, mounted in the said slot, the position shown in Fig. 1 being approximately that the pedal will occupy when the crank is half-way through the down or operative part of its stroke.

In the construction shown by Figs. 3 and 4 of the accompanying drawings the crank-pin B is mounted on an arm or secondary crank A³, pivoted to the crank A as near as possible to the point of its attachment to its axle or preferably at such point of attachment as shown, the movement of the arm with respect to the crank being limited by interstepping the abutting faces of their bosses and controlled by any suitable spring, such as E. A stop, such as *a'*, is provided on the crank A to engage the arm A³ should the spring E break or the pressure exerted on the rear bar *c* be greater than the spring E can sustain.

In order to allow the stop or projection D to pass the extension A' of the crank during the upward or non-effective part of the stroke, the said stop or projection is so mounted on the pedal that it is free to slide transversely with respect thereto and is kept in its extreme outward position by a spring, such as *d*, so that while it engages the extension of the crank during the down or operative part of the throw it is pushed aside by the extension of the crank when it meets it during the up or non-operative part of the stroke, the under side of the said extension being chamfered or beveled for the purpose. As an alternative construction the stop or projection on the forward end of the pedal C may be a fixed one,

preferably provided with a bowl or roller D', and the extension A' of the crank be set off, as shown by Fig. 4, so that it only engages the projection or roller D' on the down or operative part of the stroke of the crank.

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

1. A pedal driving-gear for velocipedes consisting of a crank having an extension beyond the point of attachment of the pin carrying the pedal, of a crank-pin so attached to the crank that it has a transverse movement with respect thereto which movement is controlled by a suitable spring, of a pedal mounted on the crank-pin and of a stop or projection mounted on the forward end of the pedal and adapted to engage the extension of the crank during the down or operative part of its stroke, as and for the purpose set forth.

2. A pedal driving-gear for velocipedes consisting of a crank having a radially-arranged slot across it and an extension beyond the said slot, of a crank-pin adapted to slide in the said slot, of a spring acting on the crank-pin so as to keep it against the upper end of

the said slot, of a pedal mounted on the said crank-pin, of a stop or projection carried by the forward end of the pedal and adapted to engage the extension of the crank during the operative part of its stroke, as and for the purpose set forth.

3. A pedal driving-gear for velocipedes consisting of a crank having a radially-arranged slot across it and an extension beyond the said slot, of a crank-pin adapted to slide in the said slot, of a spring acting on the crank-pin to keep it against the upper end of the said slot, of a pedal mounted on the said crank-pin, of a spring-controlled stop or projection carried by the forward end of the pedal and adapted to engage the extension of the crank during the down or operative part and to pass by the said extension during the up or non-operative part of its stroke, as and for the purpose set forth.

CHARLES IRVINE FAULKNER.

Witnesses:

ARTHUR V. HUDSON,
W. H. CLOSE.