

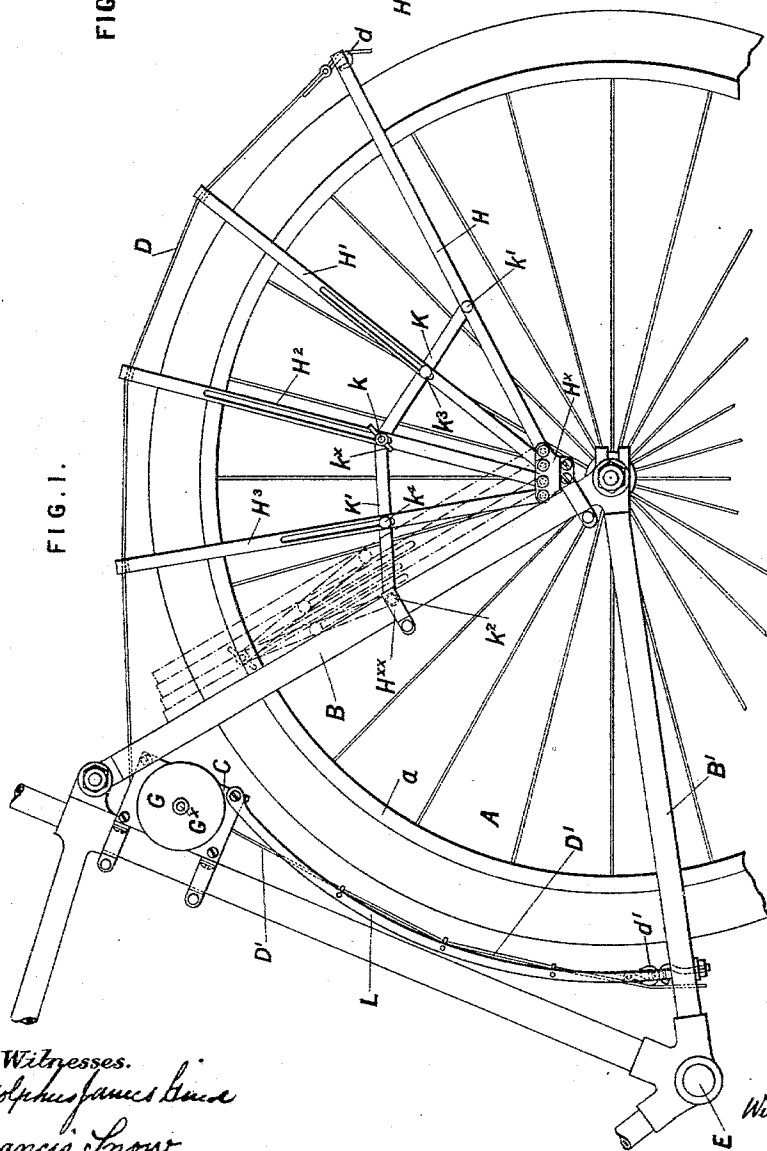
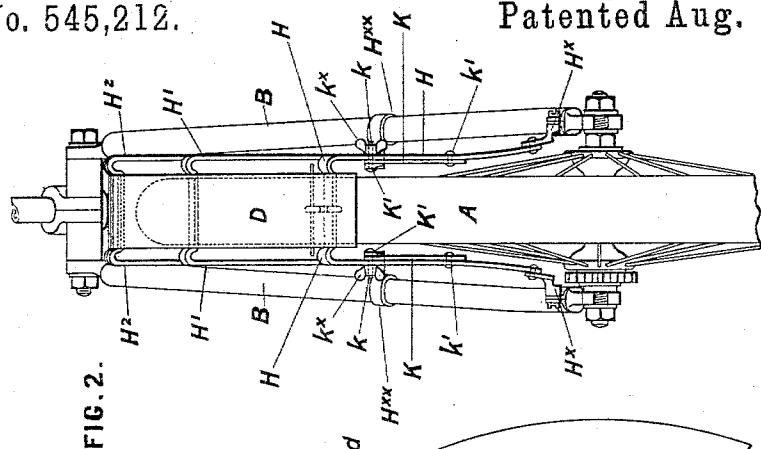
(No Model.)

2 Sheets—Sheet 1

W. H. SNOW.  
MUD GUARD FOR CYCLES.

No. 545,212.

Patented Aug. 27, 1895.



Witnesses.  
Adolphus James Snow  
Francis Snow

Inventor.  
William Henry Snow

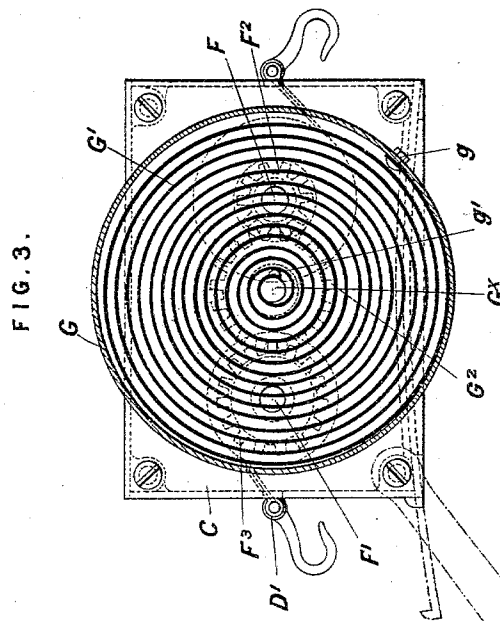
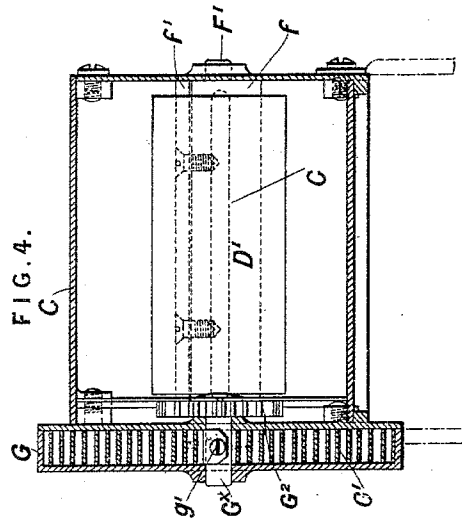
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# UNITED STATES PATENT OFFICE.

WILLIAM HENRY SNOW, OF WIRKSWORTH, ENGLAND.

## MUD-GUARD FOR CYCLES.

SPECIFICATION forming part of Letters Patent No. 545,212, dated August 27, 1895.

Application filed September 8, 1894. Serial No. 522,441. (No model.) Patented in England December 18, 1893, No. 24,346.

*To all whom it may concern:*

Be it known that I, WILLIAM HENRY SNOW, a subject of the Queen of Great Britain and Ireland, residing at Alderwasley, Wirksworth, in the county of Derby, England, have invented certain new and useful Improvements in and in Connection with Mud-Guards for Cycles and other Vehicles, (for which I have obtained Letters Patent in Great Britain, No. 24,346, dated December 18, 1893,) of which the following is a specification.

This invention relates to mud-guards for cycles and other vehicles, its objects being to provide a mud-guard which, when not in use, is rolled up and occupies very little space on the machine, but which, when extended, is sufficiently firm and rigid to serve its purpose with efficiency.

In order that my invention may be readily understood, I will describe, with reference to the accompanying drawings and by way of example, the manner in which I prefer to apply my improved mud-guard to an ordinary chain-driven bicycle of the open diamond-frame type.

Figure 1 is a view showing in side elevation the rear portion of the frame of the bicycle, a portion of the driving-wheel, and the improved mud-guard and its appurtenances. Fig. 2 is a corresponding end elevation. Fig. 3 is a view drawn to an enlarged scale, representing, partly in side elevation and partly in vertical section, the box wherein the rolled-up mud-guard is contained. Fig. 4 is a corresponding longitudinal section.

Above the driving-wheel A and between the arms B of the upper fork of the diamond-frame I fix a box C, in which the mud-guard DD', when rolled up, is contained. The mud-guard is made in two lengths D and D', the rear length D covering the upper portion of the wheel A and the forward length D' reaching from the box C to a point near the pedal-shaft E. Each length is attached to and rolled upon a separate roller, the rollers being mounted on spindles F and F', which rotate in bearings in the box C. In Fig. 4 the roller ff', for the length D', is in two parts, the inner end of the length being placed between and held by these parts, which are connected together and tightened by screws, as indi-

cated in dotted lines. A similar roller is employed for the length D. On one side of the box there is a barrel G, containing a coiled spring G', one end of which is connected to the barrel by a bolt g and the other end by means of a screw g' to a spindle G<sup>x</sup>, which rotates in bearings in the ends of the barrel. The inner extremity of the spindle G<sup>x</sup> is furnished with a spur-wheel G<sup>2</sup>, which gears with spur-pinions F<sup>2</sup> and F<sup>3</sup> on the roller-spindles F and F'. The roller-spindles are thus made to rotate faster than the central or driving-spindle, so that a considerable length of mud-guard can be quickly drawn into the box. If the two portions of the mud-guard be unequal in length, as shown in the drawings, the spur-pinions F<sup>2</sup> and F<sup>3</sup> must vary in size to correspond, as indicated in Fig. 3.

The outer end of the rear length D of the guard is attached by a hook d to a supporting-fork H, jointed to pieces H<sup>x</sup> at the lower part of the frame, as represented, or on the spindle of the driving-wheel. The supporting-fork H is connected on each side of the machine to a piece H<sup>xx</sup> on the fork B of the frame by a pair of rods, such as K and K', having their inner ends jointed together by a pin k, the outer end of one rod K being jointed at k' to the supporting-fork, and the outer end of the other rod K' to the fork of the frame at k<sup>2</sup>. There are also intermediate supporting-forks H<sup>1</sup>, H<sup>2</sup>, and H<sup>3</sup> attached to the rear length D of the mud-guard, these forks being jointed at intervals to the pieces H<sup>x</sup>. These intermediate supporting-forks are slotted, pins, such as k<sup>3</sup> on the bars K, engaging in the slots of the fork H<sup>1</sup>, the pins k passing through the slots of the fork H<sup>2</sup>, and pins, such as k<sup>4</sup> on the bars K', engaging in the slots of the fork H<sup>3</sup>.

The forward length D' of the mud-guard passes over a permanent support composed of two flat wires, such as L, running parallel to the rim a of the wheel A, and attached at one end to the box C and at the other end to the arms of the lower fork B' of the frame. The outer extremity of the forward length D' of the mud-guard may be secured by a hook d' either to the wire support or to the frame of the machine. Instead of the open hooks d d' any other suitable devices—such as snap-hooks, for instance—may be employed. The

slots in the box for the passage of the mud-guard D D' may be straight, as shown by the dotted lines C in Fig. 4.

To extend the mud-guard, both lengths D and D' are drawn out until the bars K and K' have been moved from the position indicated in dotted lines in Fig. 1 to that represented in full lines in that figure. The thumb-nuts  $\frac{1}{2}^x$  are then tightened, the supporting-forks being then firmly held in their extended positions.

The drawing out of the mud-guard causes the spur-pinions F<sup>2</sup> and F<sup>3</sup> to turn the central spindle G<sup>x</sup> and compress the coiled spring G'. The extended mud-guard D D' is kept taut by the compressed spring G' acting through its spindle G<sup>x</sup> and spur-wheel G<sup>2</sup> on the spur-pinions F<sup>2</sup> and F<sup>3</sup>. Immediately the nuts  $\frac{1}{2}^x$  have been unscrewed or the inner ends of the jointed rods between the supporting-fork and the frame slightly raised in order to unlock them and the outer end of the forward length D' of the mud-guard has been released, the compressed spring G', acting through its spur-wheel G<sup>2</sup> on the spur-pinions F<sup>2</sup> and F<sup>3</sup>, draws both lengths D and D' of the mud-guard into the box C and brings the supporting-fork H up to the frame, the bars K and K' and the intermediate supporting-forks H', H<sup>2</sup>, and H<sup>3</sup> being at the same time folded up, as indicated in dotted lines.

The mud-guard for the front wheel may be mounted on a roller contained in a box furnished with a coiled spring connected directly to the roller-spindle, as gearing might in this instance be dispensed with. The supports for the extended guard would be similar to those employed for holding the rear length of the mud-guard pertaining to the driving-wheel.

Having now particularly described and ascertained the nature of this invention, and in what manner the same is to be performed, I claim—

1. For cycles and other vehicles, a mud-guard comprising two lengths of flexible material secured to rollers contained in a suitable box or casing, the roller-spindles being furnished with pinions gearing with a wheel on a central spindle which when rotated causes the rollers to turn in opposite directions so as to permit the withdrawal of or wind up both

lengths of the mud-guard simultaneously, substantially as herein described.

2. For cycles and other vehicles, a mud-guard comprising two lengths D and D' of flexible material secured to rollers, such as  $f f'$ , mounted on spindles F and F' rotating in bearings in a box or casing C, spur-pinions F<sup>2</sup> and F<sup>3</sup> on the spindles F and F' gearing with a spur-wheel G<sup>2</sup> on a spindle G<sup>x</sup> actuated by a spring G', the lengths D and D' being supported when extended by suitable framework, substantially as herein described.

3. In cycles and other vehicles, the improved means for supporting the extended mud-guard, comprising a supporting fork jointed to the frame of the machine, and intermediate slotted forks also jointed to the frame of the machine; the said forks being maintained equidistant from one another by means of two bars one of which is pivoted upon the frame of the machine and the other upon the outer fork their inner ends being coupled together and working in a slot in the central fork, each bar being moreover provided with a central stud which works in a slot in one of the intermediate forks and serves to insure the proper relative position thereof.

4. In cycles and other vehicles, the combination, with a length of flexible material acting as a mud-guard, of a collapsible framework comprising a supporting fork jointed to the frame of the machine, intermediate slotted supporting forks also jointed to the frame of the machine, a bar having one end jointed to the supporting fork, another bar having one end jointed to the frame of the machine, the other ends of the bars being connected with a pin which passes through the slot in one of the intermediate supporting forks, this pin being furnished with a thumb-nut, and pins on the bars working in the slots in the other intermediate supporting forks, so that, after the thumb-nut has been released, the extended framework can be collapsed and caused to lie against the frame of the machine, the tightening of the thumb-nut keeping the framework in its collapsed position, substantially as herein set forth.

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Witnesses:

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