No. 653,445. Patented July 10, 1900.

H. GARLAND.

CHAIN LUBRICATOR FOR BICYCLES, &c.

(Application filed Sept. 9, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1

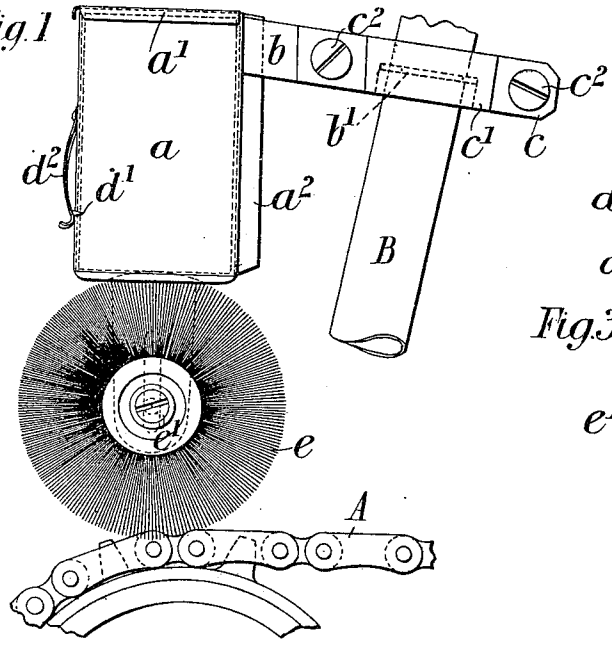


Fig. 3

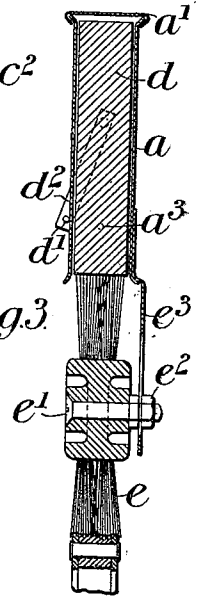


Fig. 2

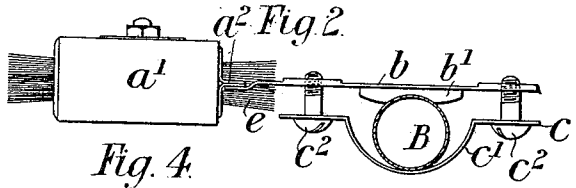


Fig. 4

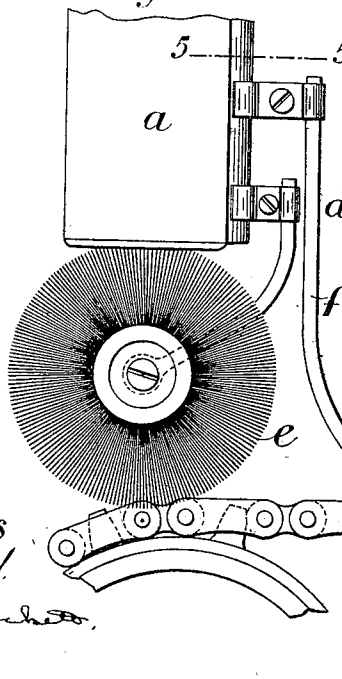


Fig. 5

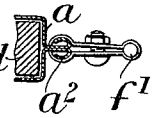
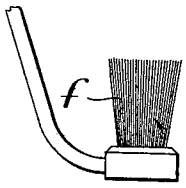


Fig. 6



Witnesses
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No. 653,445. Patented July 10, 1900.

H. GARLAND.

CHAIN LUBRICATOR FOR BICYCLES, &c,

(Application filed Sept. 9, 1899.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 7.

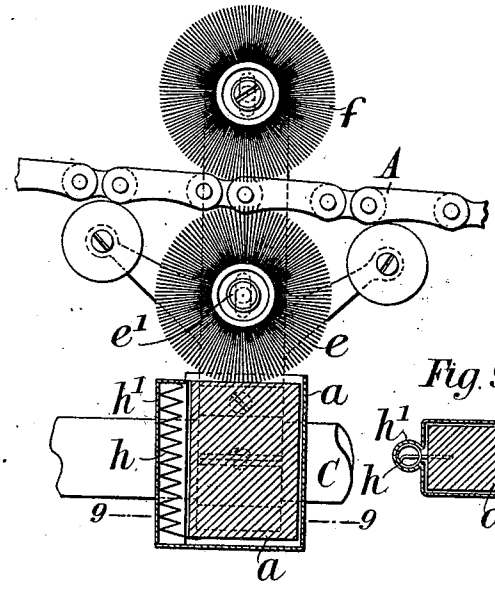


Fig. 8.

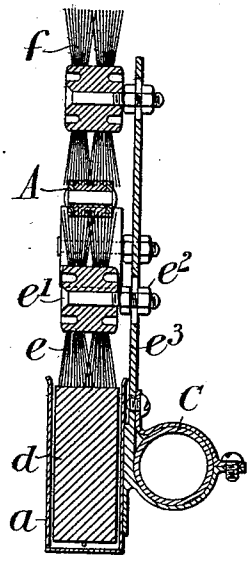


Fig. 9.

Fig. 10.

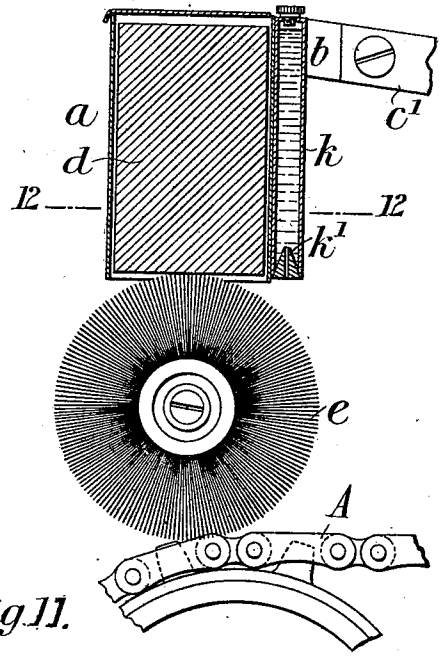
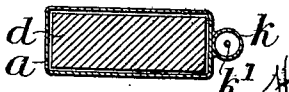


Fig. 11.



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UNITED STATES PATENT OFFICE.

HERBERT GARLAND, OF WEST KIRBY, ENGLAND, ASSIGNOR OF TWO-THIRDS TO GEORGE WOOLLISCROFT, OF SAME PLACE, AND HENRY REDDIN, OF CHURCH STRETTON, ENGLAND.

CHAIN-LUBRICATOR FOR BICYCLES, &c.

SPECIFICATION forming part of Letters Patent No. 653,445, dated July 10, 1900.

Application filed September 9, 1899. Serial No. 729,954. (No model.)

To all whom it may concern:

Be it known that I, HERBERT GARLAND, a subject of the Queen of Great Britain, residing at 35 South road, West Kirby, in the county of Chester, England, have invented new and useful Improvements in Chain-Lubricating Apparatus for Bicycles and other Velocipedes, Motor-Vehicles, and the Like, of which the following is a specification.

This invention relates to apparatus for lubricating the chains of bicycles and other velocipedes, motor-vehicles, and the like.

According to the invention I employ apparatus comprising a box or case for containing the lubricant, which may be solid or liquid, as desired, the said box or case being secured—for example, by means of a clip—to a suitable stay or tube of the cycle-frame. The apparatus also comprises a circular brush rotatably mounted upon an arm or bracket secured to the said box or case. The brush is so arranged that it makes contact both with the chain to be lubricated and with the surface of the lubricant, so that as the chain revolves it rotates the brush which rubs against the lubricant, and thereby transfers a portion thereof to the chain. In the case of a solid lubricant I may employ means, such as a spring-pin which projects through a hole in the box or case, to hold the lubricant in an inoperative position when desired. I may also employ in conjunction with the rotary lubricating-brush a second brush arranged to make contact with the chain on the other side thereof, the said auxiliary brush being designed to remove any dust which may accumulate upon the chain. This brush is advantageously mounted upon an arm which can be detachably and adjustably secured to the box or case containing the lubricant. Furthermore, instead of using either a solid or liquid lubricant I may employ solid and liquid lubricants in conjunction with one another.

To enable my invention to be fully understood, I will describe it by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of apparatus made according to the invention and having a solid lubricant. Fig. 2 is a plan thereof. Fig. 3 is a central vertical section of the same. Fig. 4 is a side elevation of a modified construction of apparatus provided with the auxiliary brush. Fig. 5 is a section on the line 5 5, Fig. 4. Fig. 6 is a view of a fixed auxiliary brush. Fig. 7 is a sectional side view of apparatus, showing an arrangement wherein the lubricant is arranged underneath the chain. Fig. 8 is a central vertical section thereof. Fig. 9 is a section on the line 9 9, Fig. 7. Fig. 10 is a similar view of apparatus having both solid and liquid lubricants; and Fig. 11 is a section on the line 12 12, Fig. 11.

Similar letters of reference refer to the same or corresponding parts in all the figures.

Referring to Figs. 1, 2, and 3, A is the chain to be lubricated.

a is the box or case for the lubricant, and a' is the lid thereof. The said case or box a is secured to one of the back-fork stays B of the frame of a cycle by means of a clip comprising the plate b, which is rigidly secured to a projecting rib a^2, formed upon the case a, and is provided with a recessed inturned lip b' and the movable plate c, which is provided with the curved part c' and is adapted to be screwed to the plate b by means of the screws c^2 c^2, as clearly shown in Fig. 2, so that the box or case a can be securely held in position by clamping the said tube B between the grooved lip b' and the curved portion c' of the plate c by tightening up the screws c^2.

d is the lubricant, which is here shown as a stick or bar of suitable material, such as plumbago, and d' is the pin, which is mounted upon the free end of a spring d^2, secured externally upon the case a, the said pin d' projecting through a hole a^3 in the said case, so that it can, when desired, be caused to penetrate the lubricant and hold it in an inoperative position—for example, in wet or damp weather.

e is the circular rotary brush, the said brush being loosely mounted upon a screw pin or pivot e', which is adjustably fixed by a nut e^2 in a slotted arm or bracket e^3, fixed to the case or box a. The slot is employed for en-

abling the wear of the brush to be compensated for.

Lubricating apparatus constructed as above described operates as follows—that is to say, the movement imparted to the chain A in the usual manner by the cyclist rotates the brush *e*, which is in contact with it, the said brush (which is held, as above described, in contact with the under face of the lubricant) constantly supplying the moving chain with lubricant, which it removes from the stick *d* in the case or box *a* as it passes under the same and transfers to the chain.

In the arrangement shown in Figs. 4, 5, and 6 a device is shown having an additional detachable and adjustable brush *f* for removing any dust or dirt which may accumulate on the inside of the chain. This brush *f* may be a rotary one, as shown in Fig. 4, or fixed, as shown in Fig. 6, and is mounted upon an arm *f'*, having upon its upper end a clip of any suitable construction, but preferably a spring-clip of the kind shown in Fig. 5, which is adapted to grip the projecting rib a^2, formed upon the case *a*, the said rib being made with a head, as shown, to better receive the clip. It is also advantageous in this case to secure the main brush *e* to the rib by a similar clip and arm instead of in the manner illustrated in connection with the preceding construction of apparatus.

Figs. 7, 8, and 9 show an arrangement wherein the lubricant is applied to the under side of the chain. In this form of apparatus the case *a* is arranged inside the loop of the chain and is clamped to one of the bottom stays C of the cycle. Both the main or lubricating brush *e* and the auxiliary or cleaning brush *f* are adjustably mounted upon the projecting arm e^3, secured to the box or case *a*. As the lubricant in this case must rise as it is worn away, I provide a spring *h*, which is fitted in a tubular recess *h'*, formed in connection with the case or box *a*, and one end of which is connected to the upper end of the said recess, while the lower end extends underneath the lubricant and holds it in contact with the brush which rubs against its upper face.

Figs. 10 and 11 illustrate apparatus wherein both solid and liquid lubricants are employed. The solid lubricant is contained in the case *a* in the manner above described, while the liquid lubricant is held in a tubular reservoir *k*, secured to one end of the said case *a*, and escapes through a nozzle *k'* in the lower end of the said case, so as to drop onto the brush as it revolves.

Although I have described my apparatus as applied to a cycle, it will be obvious that it can also be used in connection with motor-vehicles and the like.

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

1. In a driving-chain-lubricating apparatus, the combination with a case adapted to receive a solid block of lubricant and having its end adjacent to the chain entirely open, of a revoluble chain-engaging brush adjacent to said open end of said casing, means for feeding said block of solid lubricant toward said brush and means for holding said block of lubricant out of contact with said brush when desired, substantially as described.

2. In a driving-chain-lubricating apparatus the combination with a case adapted to receive a solid block of lubricant, and having its end adjacent to the chain entirely open, of a revoluble chain-engaging brush adjacent to said open end of said casing, and an auxiliary reservoir for liquid lubricant provided with a discharge-aperture adjacent to said brush, substantially as described.

HERBERT GARLAND.

Witnesses:
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SAMUEL BIRCH.