

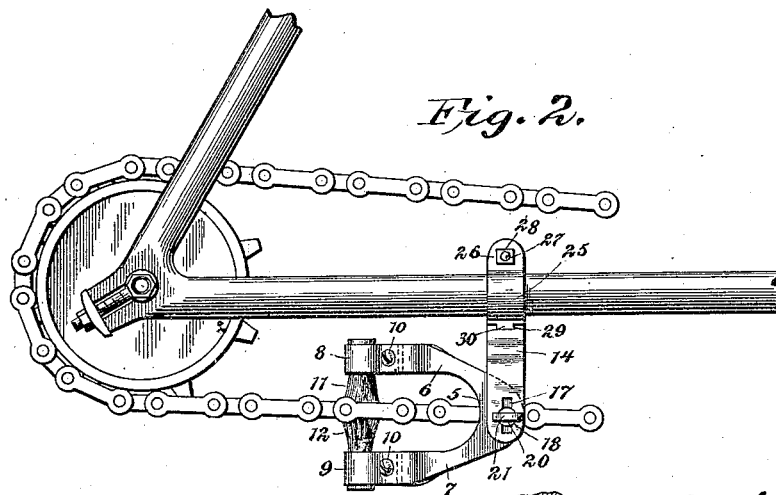
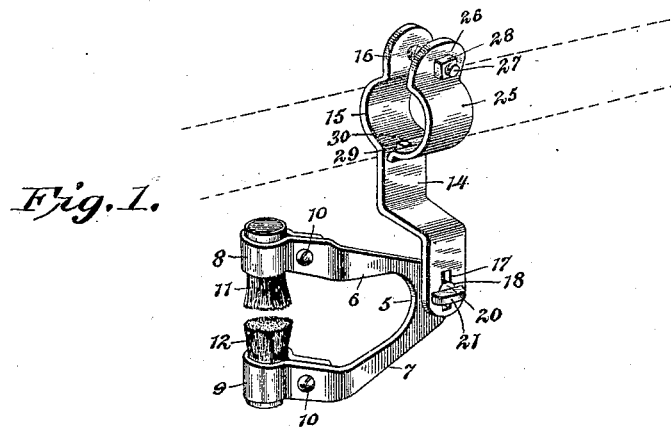
No. 648,866.

Patented May 1, 1900.

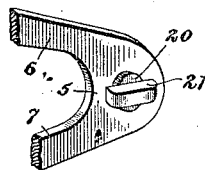
E. B. GIBFORD.  
BICYCLE CHAIN CLEANER.

(Application filed June 10, 1899.)

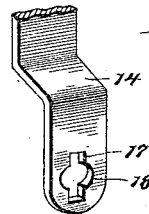
(No Model.)



*Fig. 3.*



*Fig. 4.*



Witnesses

Howard D. Orr.

Geo. H. Chandler

Edward B. Gibford, Inventor.

By his Attorneys,

C. A. Snow & Co.

# UNITED STATES PATENT OFFICE.

EDWARD BACON GIBFORD, OF ADRIAN, MICHIGAN, ASSIGNOR TO ALANSON M. KEENEY, OF SAME PLACE.

## BICYCLE-CHAIN CLEANER.

SPECIFICATION forming part of Letters Patent No. 648,866, dated May 1, 1900.

Application filed June 10, 1899. Serial No. 720,044. (No model.)

### To all whom it may concern:

Be it known that I, EDWARD BACON GIBFORD, a citizen of the United States, residing at Adrian, in the county of Lenawee and State of Michigan, have invented a new and useful Bicycle-Chain Cleaner; of which the following is a specification.

This invention relates to bicycle-chain cleaners; and it has for one object to provide a cleaner which will lie upon both sides of the chain and which will respond to the vertical movement of the latter to maintain a substantially constant pressure against the chain and prevent undue wearing of the cleaner.

A further object of the invention is to provide a simple and efficient attachment for connection with the tie-rod of a bicycle and through the medium of which the device may be quickly and easily adjusted.

The invention consists of a bifurcated plate, the extremities of the resultant arms being bent sidewise and parallel and carrying brushes which extend in the direction of each other and are adapted to lie on opposite sides of a bicycle-chain. Detachably connected with the base of the bifurcated plate through the medium of a keyhole-slot and headed stud is one element of a clamp adapted to lie upon one face of the tie-rod of a bicycle, the other element of said clamp being removably connected with the first element and adapted to cooperate therewith to hold the device in position.

In the drawings forming a portion of this specification, and in which like numerals of reference designate corresponding parts in the several views, Figure 1 is a perspective view of the cleaner, the position of an adjacent tie-rod being indicated in dotted lines. Fig. 2 is a side view of the rear portion of a bicycle-frame comprising a rear fork and tie-rods and the rear sprocket and adjacent section of sprocket-chain, my cleaner being shown in position upon the tie-rod. Fig. 3 is a perspective view of the base of the bifurcated plate and showing the headed stud carried thereby. Fig. 4 is a perspective view of the lower end of one of the clamping elements and showing the keyhole-slot therein.

Referring now to the drawings, in constructing a device in accordance with my invention

I form a bifurcated plate comprising a base 5 and divergent arms 6 and 7, the outer extremities of said arms being bent laterally in a common plane and parallel, the terminals of said lateral extensions being bent to form loops 8 and 9 in vertical alignment, the extreme terminals being bent to lie upon the faces of the arms 6 and 7 in the rear of the loops, and to which arms they are screwed or otherwise secured, as shown, although I prefer to employ a screw or bolt 10, through the medium of which the adjacent parts may be adjusted to clamp within the loops the bases of brushes 11 and 12, the operative ends of which extend toward each other. The adjacent ends of the brushes 11 and 12 are separated by an interspace substantially equal to the vertical thickness of a bicycle-chain in order to bear simultaneously upon the upper and lower faces thereof when in operation. It will of course be appreciated that through the medium of the bolts or screws 10 the clamping action of the loops 8 and 9 may be relieved to adjust the brushes mutually to compensate for wear.

In order to support the bifurcated plate and its elements upon the bicycle, I provide a clamp comprising a major element 14, provided adjacent one end with a semicircular arch 15, from the inner end of which arch said plate is continued outwardly and radially in the plane of the portion of the plate 16 lying at the opposite side of the arch, said plate being then bent outwardly and then downwardly and having at its lower extremity a keyhole-slot comprising a rectangular opening 17 and an intersecting circular opening 18, intermediate the ends of the rectangular opening. These intersecting openings are adapted to receive a stud 20 upon the base 5 of the bifurcated plate and also a rectangular web 21, arranged diametrically of the outer end of said stud and projecting beyond the faces thereof, the dimensions of said stud and web being such that they will fit the openings 17 and 18, above referred to, and that the web 21 will pass entirely through the opening 17 and may be then turned to lie transversely of said opening to prevent disengagement of the parts. The length of the stud 20 is slightly greater than the thickness of the base 5 of the

bifurcated plate, so that a close fit of the parts is maintained.

Coöperating with the clamping element or plate 14 is a second element comprising an arch 25, from one end of which is an extension 26 in alinement with the diameter of the arch, which arch is semicircular in cross-section, said extension 26 having a perforation in alinement with a similar perforation in the extension 16 of the major element of the clamp, and through which perforations is passed a clamping-bolt 27, provided with a nut 28.

In order to provide a pivotal connection between the clamping element, comprising the arch 25, and the major element 14, I form a slot 29 in the latter adjacent the lower end of the arch 15, and in which slot lies a tongue 30 upon the adjacent end of the minor clamping element. This tongue after being passed through the opening 29 is bent downwardly to lie upon the rear face of the major element, and thus prevents outward movement of the end of the minor element. While I have shown and described the arches of the clamping elements as semicircular, it will of course be understood that they may have any desired shape to adapt them for close contact with any body upon which it may be desired to fit them.

As shown in Fig. 2 of the drawings, in applying my device to a bicycle the clamping elements are engaged with the tie-rod of the frame on the side next the chain with the minor element upon the outer side of the tie-rod—that is, in this specific shape of clamp with the outwardly-extending portion of the major element projecting outwardly from the bicycle-frame and beyond the plane of the chain. The bifurcated plate is then adjusted to cause the brushes to lie on opposite sides above and below the chain, the clamping device being moved to that position on the tie-rod to effect this result when the major element of the clamp is in its pivotal engagement with the bifurcated plate. The nut 28 is then turned up to hold the device firmly in position. Thus it will be seen that because of the shapes of the stud 20 and opening 18 the bifurcated plate, and therewith the brushes, will have a free vertical swinging movement limited only by the chain, and thus as the chain is thrown vertical the brushes will maintain their contact therewith and their effectiveness.

It will be readily understood that I may employ any shape or style of brush, that I may employ any desired material for the different parts of the construction, and that in practice I may vary the specific construction and arrangement herein shown and described without departing from the spirit of my invention.

Having thus described the invention, what is claimed is—

1. In a bicycle-chain cleaner adapted for attachment to a bicycle, the combination with a clamp, of a bifurcated plate having arms equal in length and rigid with respect to each other, said plate being rotatably mounted upon the clamp, the ends of the bifurcations being bent upon themselves to form brush-holding clamps, brushes mounted in the clamps and in axial alinement, and means for operating the clamps to hold the brushes adj-

justably.

2. In a bicycle-chain cleaner adapted for attachment to a bicycle, the combination with a clamp, of a bifurcated plate mounted rotatably upon the clamp at the rear of the bifurcations and having arms which are equal in length and rigid with respect to each other, said arms having their outer ends bent to form brush-holding clamps, brushes disposed in the clamps in axial alinement and projecting toward each other, and means for operating the clamps to hold the brushes adj-

justably.

3. In a bicycle-chain cleaner adapted for attachment to a bicycle, the combination with a clamp having a keyhole-slot and an intersecting annular opening, of a bifurcated plate having removable and pivotal connection with the clamp through the medium of a stud adapted to play in said annular opening and provided with a web adapted to pass through the keyhole-slot, the bifurcations of the plate being equal in length and having their ends bent upon themselves to form clamps, brushes mounted in the clamps in axial alinement and projecting toward each other, and means for operating the clamp to hold the brushes adj-

justably.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

EDWARD BACON GIBFORD.

Witnesses:

OTTO KRUEGER,  
ELLIOTT JAY.