(No Model.) 2 Sheets—Sheet 1.

T. B. JEFFERY.

VELOCIPEDE HANDLE.

No. 366,775. Patented July 19, 1887.

Fig. 1.

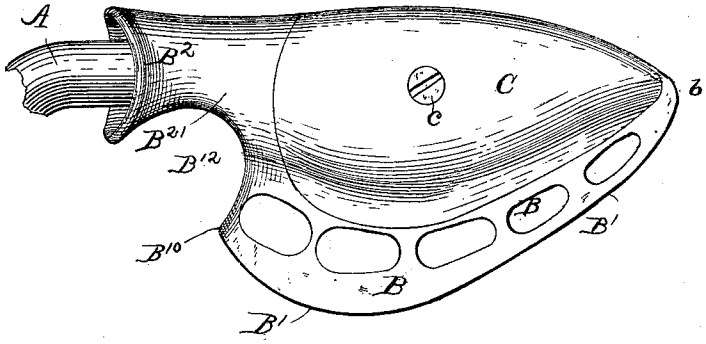


Fig. 2.

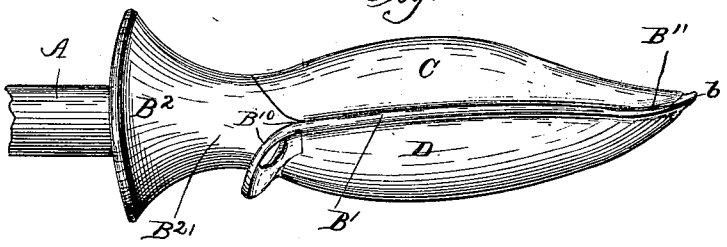


Fig. 3.

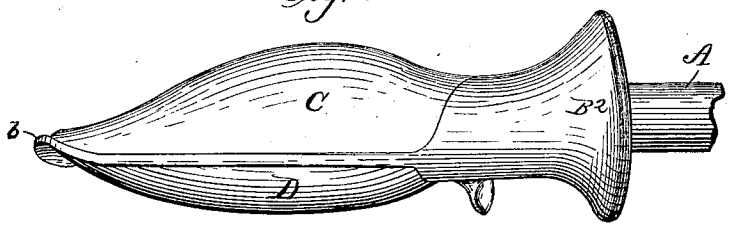
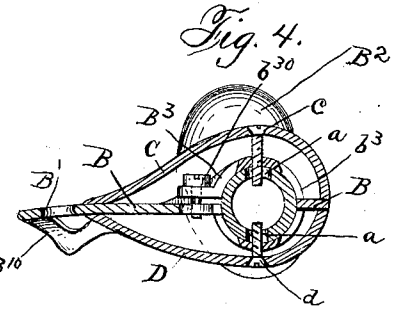


Fig. 4.



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(No Model.) 2 Sheets—Sheet 2.

T. B. JEFFERY.

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Fig. 7.

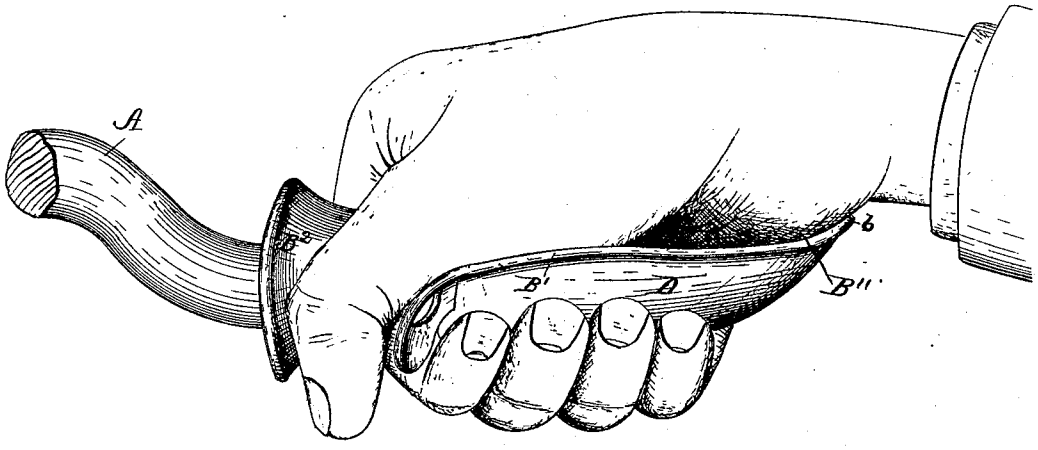


Fig. 5.

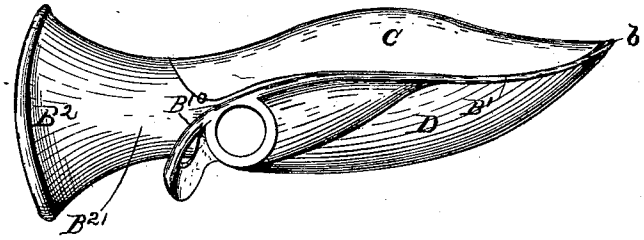
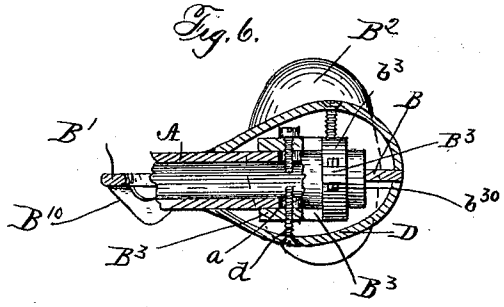


Fig. 6.



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UNITED STATES PATENT OFFICE.

THOMAS B. JEFFERY, OF CHICAGO, ILLINOIS.

VELOCIPEDE-HANDLE.

SPECIFICATION forming part of Letters Patent No. 366,775, dated July 19, 1887.

Application filed March 8, 1887. Serial No. 230,287. (No model.)

To all whom it may concern:

Be it known that I, THOMAS B. JEFFERY, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Velocipede-Handles, which are fully set forth in the following specification, reference being had to the accompanying drawings.

The purpose of this invention is to provide a handle for a velocipede of such form that it shall afford convenient and secure grasp for the hand of the rider in such position that the strength of the thumb may be utilized not only for grasping but for turning the handle in guiding, so that it shall not be necessary to grasp the handle so firmly by the hand in order to obtain secure hold upon it and prevent the hand slipping and turning thereon, the shape of the handle being such that it re-enforces the hand in all directions and for the purpose of all the movements necessary in guiding the machine.

In the drawings, Figure 1 is a plan. Fig. 2 is an inner side elevation. Fig. 3 is an outer side elevation. Fig. 4 is a section through X X of Fig. 1. Fig. 5 is an elevation of a form in which the handle is connected to the bar at the side instead of at the front. Fig. 6 is a transverse vertical section of the form shown in Fig. 5. Fig. 7 is a view of the handle in the grasp of the hand, showing its position relative to the several parts of the hand in operation.

A is the handle-bar.

B is a metal skeleton which forms the framework of the handle.

c is an upper cheek-piece secured upon the frame B and adapted to fit into the palm of the hand, and for that reason it will be hereinafter referred to as the "palm cheek-piece."

D is a cheek-piece secured upon the lower side of the frame B and adapted to receive the pressure of the fingers when the handle is grasped, and for that reason it will be hereinafter referred to as the "finger cheek-piece." The frame B comprises a diaphragm to which the cheek-pieces are secured, and which extends horizontally beyond them at the inner side, forming the flange B′. The part at the front side of the frame is expanded into a bell-shaped guard, B^2, through the center of which, in the form shown in Figs. 1 to 4, inclusive, the handle-bar A is inserted. The interior part of the frame B is formed into the clamp B^3, by means of which the handle is secured to the handle-bar, said clamp having sufficient spring in the yoke b^3, so that the clamp-screw b^{30} will draw the two parts thereof together upon the handle-bar inserted through the bell shaped guard B^2 and entering between the half-yokes of the clamp. The cheek-pieces C and D are secured to the frame most conveniently by means of the screws *c d*, which enter the bows of the upper and lower halves, respectively, of the clamp. The handle-bar, which is preferably tubular, has apertures *a*, (or, if solid, has one aperture extending vertically through it,) into which the ends of the screws *c d* protrude, having been screwed entirely through the yokes of the clamp, in which they obtain hold. The holes *a* are of somewhat greater diameter than the screws *c d*, the reason for which will be hereinafter explained.

The peculiar merit of this handle depends, chiefly, upon the form as indicated by reference to the several curves of its outline, as will be now pointed out. The handle is designed to be grasped in the manner indicated in Fig. 7. The bell-shaped guard B^2 thus re-enforces the index-finger and the thumb and prevents the hand from slipping forward on the handle. In this position the palm cheek-piece C fills the hollow of the palm of the hand and re-enforces the entire hand, tending to prevent slipping in all directions, and in like manner the finger cheek-piece D causes the fingers in grasping the handle to be arranged in slightly-curved position, forming a hollow between the first and fourth fingers, so that said cheek-pieces re-enforce the grasp of the hand in a manner which tends to prevent slipping back or forward. The curves of these cheek-pieces which perform this function are convex outward—that is to say, the curve of the palm cheek-piece is convex upward and that of the finger cheek-piece is convex downward. The flange B′, extending horizontally inward beyond the cheek-pieces, affords a rest for the base of the thumb, and at the same time forms a stop for the ends of the fingers underneath it, whereby the entire hand is re-enforced in such a man-

ner as to prevent the hand slipping around upon the handle, and, by affording bearing for the muscular part of the hand toward the wrist, permits the operator, with less expenditure of force in grasping the handle, to operate it by the use of the muscles of the arm, as either in the rolling of the wrist or the flexing of the elbow or shoulder joints. Viewed from the inner side in direct elevation, this flange B′ will be seen to curve downward in the portion B^{10}, being at that point convex upward, and to curve upward in the portion B^{11}, being at that point concave upward, making thereby a double circumflex curve, and this curve, it will be seen, agrees with the curve of the hand to the base of the wrist when the hand is closed, as in grasping the handle. The purpose of this adaptation is that at all points the thumb shall be fully supported and re-enforced by the flange, so that the muscular action of the grasping shall be effective to the highest possible degree. Furthermore, it will be seen that the flange at the forward end curves quite abruptly downward and has at the forward end, as seen in plan view, an outline curved concavely forward and merging in the concaved outline of the bell-shaped guard B^2. This hollow is indicated in the drawings by the letter B^{12}, and is adapted to receive the thumb as it is flexed downward and around the neck B^{21}, which connects the bell-shaped flange B^2 with the body of the frame B, and by means of the concavely-bounded forward portion of the flange B′ the hand is absolutely prevented from slipping rearward so long as the thumb is flexed around the neck B^{21}.

It will be seen that the general form of the body of this handle is ovoidal, but that it curves upward slightly at the rear end, and that the point *b* thus extends up slightly behind the fleshy part of the palm of the hand toward the wrist. By this means it is adapted to afford support to that part of the hand and to prevent wearying the muscles unduly when exerting rearward or downward pressure on the handle.

In addition to the adaptation of the handle to the hand by means of its peculiar conformation, it is rendered easy and the tendency to fatigue the hand is diminished by the circumstance that its position on the handle-bar may be slightly varied at the will of the operator by turning it on the bar, the clamps, although they may be set so firmly as to absolutely prevent movement, being usually set less firmly, so that a firm pressure being employed the handle will turn. The limit of this turning is the limit of the play which the screws *c* and *d* have in the apertures *a*, as described. This movement is not made so easy as to prevent the handle from affording firm support for the hand, nor is the play made so great that the handle can at either extreme of its adjustment be in an undesirable position for guiding the vehicle; but it is only designed to make it possible to change the position sufficiently to afford rest to the wrist, which will result from a very slight change of angle at which it will be flexed in grasping the handle. When, in guiding the vehicle or operating the handle for any other purpose, the same movement is used which would turn the handle on the handle-bar if the force required to be exerted is enough to turn the handle on the bar, the limit of that movement being soon reached and positively stopped by the contact of the stop-screws *c d* against the side of the apertures *a*, that movement will not interfere with or prevent the proper guiding movement being communicated to the handle-bar.

This handle may be attached to the handle-bar at the side as well as at the front. It is shown thus attached in Figs. 5 and 6. When thus attached, it becomes necessary, of course, to turn the clamp B^3 around ninety degrees, and it is most convenient to let the handle-bar enter under the curve B^{10} of the flange B′, and it is so shown in said figures.

I claim—

1. A handle having a lateral flange, as B′, extending along the inner side from front to rear to support the base of the thumb, substantially as set forth.

2. A handle having a lateral flange extending along its inner side from front to rear and curved downward at the forward end, substantially as set forth.

3. A handle having a lateral flange extending along the inner side from front to rear and curved upward at the rear part, substantially as set forth.

4. A handle having a lateral flange extending along its inner side from front to rear, and curved downward at the front part and upward at the rear part, substantially as set forth.

5. A handle of which the body or portion to be grasped by the hand is in the general form of a flattened ovoid, and which has a flange-like rib or projection extending along its inner side from front to rear, projecting substantially in the plane of the greatest length and breadth of the ovoidal body, for the purpose of re-enforcing the base of the thumb, substantially as set forth.

6. A handle whose body portion is in general of ovoidal form, but which is curved upward at the rear part, substantially as and for the purpose set forth.

7. A handle of which the body portion is in general of ovoidal form, but flattened and produced laterally at the inner side, forming a concavity at the inner part of the transverse outline of its upper surface, substantially as set forth.

8. A handle whose transverse outline consists of a swell whose convex curves merge in each other at the outer side and merge in approximating concave curves at the inner side, substantially as set forth.

9. A handle whose general form is a flattened ovoid whose convex surfaces merge in each other at the outer side and at the inner side merge, respectively, in transversely con-

cave and approximating surfaces, substantially as set forth.

10. A handle having a flange projecting from the body at the inner side and merging at the forward end in an expanded or flaring guard, as B^2, substantially as set forth.

11. A handle having a flange which projects laterally from its inner side, and which has its upper surface curved downward at the forward part, and has its lower or forward edge merging in the surface of an expanded or flaring guard, said guard tapering back and merging in the surface of the body of the handle, substantially as set forth.

12. A handle of which the body has the general form of a flattened ovoid, but which merges at the forward part in a flaring or bell-shaped guard, substantially as set forth.

13. A handle comprising the frame B, provided with means, substantially as shown, for securing it to the handle-bar, and the cheek-pieces C and D, covering the securing devices, substantially as set forth.

14. A handle comprising the frame B, which terminates forwardly in the flaring or bell-shaped guard B^2, through which the handle-bar is inserted, and which has in its medial part suitable devices for securing the handle-bar, substantially as set forth.

15. In combination with the handle-bar, the handle comprising the clamp B^3, into which the handle-bar is inserted, said bar and handle being provided with co-operating stops to limit the turning of the handle on the bar, substantially as set forth.

16. In combination with the handle-bar, the handle comprising the clamp B^3, a stop, as the screw *c*, set through the bow or yoke of the clamp and entering the handle-bar, said bar having an opening to receive such stop larger than the stop, whereby the handle may have a limited rocking motion on the bar, substantially as set forth.

17. In combination with the handle-frame B, having at its medial part the clamp B^3, the handle-bar housed in such clamp and having an aperture, *a*, the cheek-pieces secured to the frame covering the clamp, the screws which effect such securement entering also the aperture *a*, and being of less diameter than such aperture, whereby they serve the double purpose of securing the cheek-pieces and affording a stop for the rocking movement of the handle on the handle-bar, substantially as set forth.

In testimony whereof I have hereunto set my hand, in the presence of two witnesses, at Chicago, Illinois, this 5th day of March, A. D. 1887.

THOS. B. JEFFERY.

Witnesses:
CHAS. S. BURTON,
IRA R. STEWARD.