

(No Model.)

2 Sheets—Sheet 1.

H. B. HART.
VELOCIPÈDE.

No. 339,765.

Patented Apr. 13, 1886.

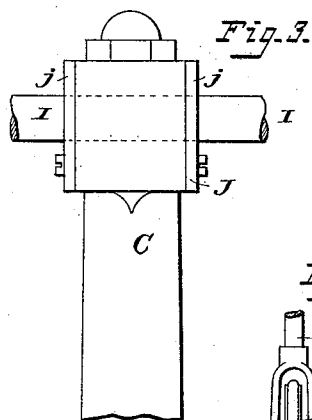
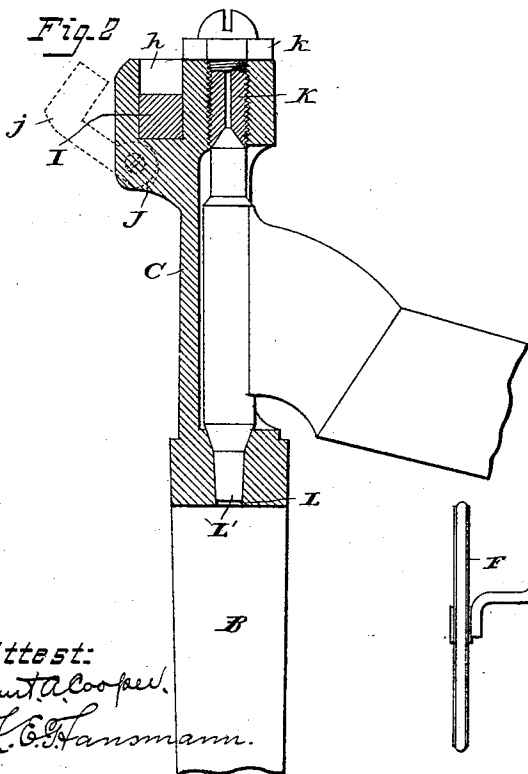
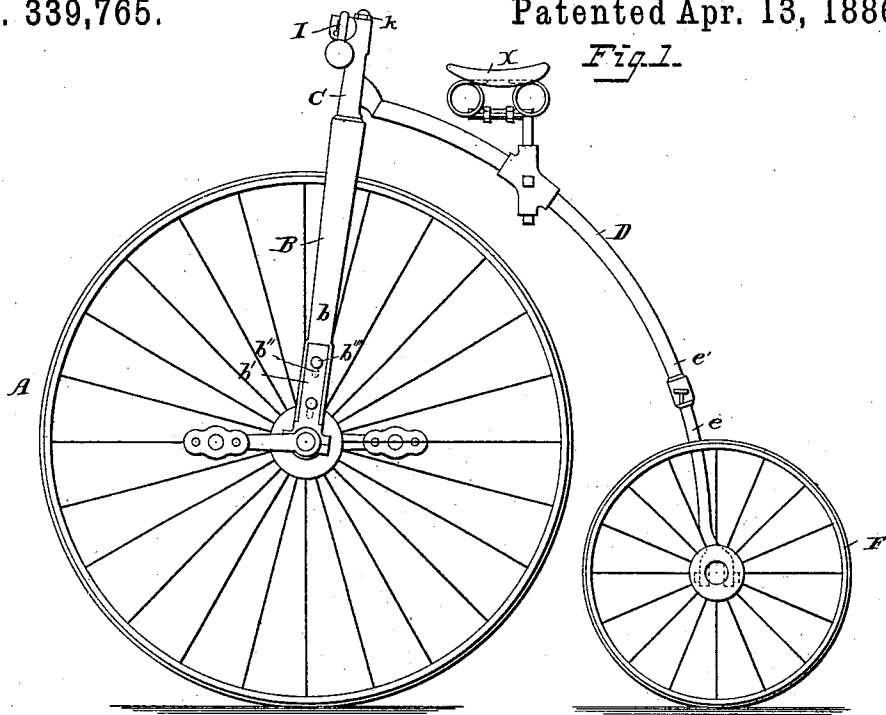


Fig. 16.

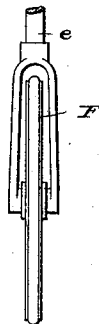
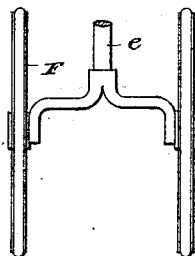


Fig. 15.



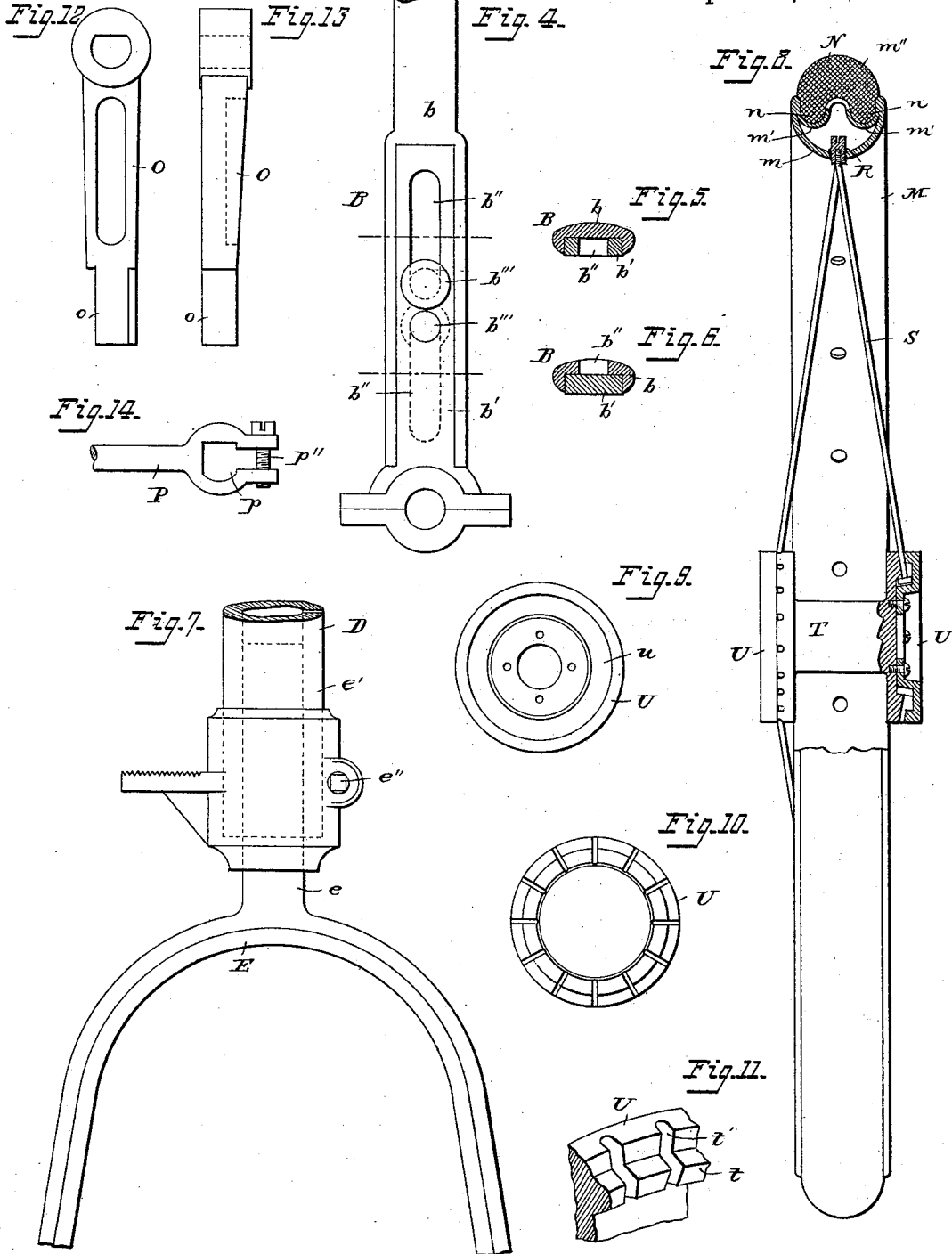
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UNITED STATES PATENT OFFICE.

HARRIE B. HART, OF PHILADELPHIA, PENNSYLVANIA.

VELOCIPED.

SPECIFICATION forming part of Letters Patent No. 339,765, dated April 13, 1886.

Application filed August 26, 1885. Serial No. 175,393. (No model.)

To all whom it may concern:

Be it known that I, HARRIE B. HART, a citizen of the United States, and resident of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Velocipedes, of which the following is a specification.

The object of my invention is to provide a light, durable, and comparatively cheap velocipede, with its various parts readily adjustable to adapt the machine to the peculiarities of different riders, and to generally improve its construction and efficiency, all as fully hereinafter set forth.

To these ends my invention consists in a velocipede constructed substantially as hereinafter set forth, whereby these objects may be attained.

Referring to the accompanying drawings, forming part of this specification, Figure 1 is a side view of a velocipede embodying my invention. Fig. 2 is a sectional view of the head of the machine. Fig. 3 is a front view of the head. Fig. 4 is a side view of part of the front fork. Figs. 5 and 6 are cross-sections of Fig. 4. Fig. 7 is a rear view of part of the rear fork, showing the means of connecting it with the backbone. Fig. 8 is an elevation of the wheel partly in section. Figs. 9, 10, and 11 are detail views of parts of the hub. Figs. 12 and 13 are front and side views, respectively, of the crank. Fig. 14 is a side view of a portion of the pedal-pin, and Figs. 15 and 16 show the rear detachable wheel-section.

The main or driving wheel A is supported in journal-bearings on either side of the wheel in the fork B, each member of which is shown as consisting of two parts, *b b'*, overlapping each other, and one or both being provided with slots *b''*, whereby the parts may be adjustably secured together in any desired position by a bolt and nut, *b³*, thus allowing the head C and backbone D, secured to the forks in any usual manner, to be raised or lowered by extending or contracting the length of the forks. The rear end of the reach or backbone, which connects with the fork E, carrying the small wheel or wheels F, is also made adjustable in a similar manner, or by passing one end, *e*, into the hollow end of the larger section, *e'*,

which is slotted on one or more sides, and compressing the parts together by a clamp and screw, *e''*, as shown. By this construction the entire frame may be raised and lowered and its relation to the pedals changed to allow proper adjustment for various sized riders to be able to operate the machine to the best advantage.

The simple means shown of securing the parts in adjustment are found to be efficient and practical, being readily operated, and producing a rigid connection.

The velocipede can be quickly and easily converted into a bicycle by simply substituting a fork, E, provided with a single wheel between the members of the fork for one having the members of the fork extended, and each provided with an exterior wheel, the upper end of the fork being adapted to fit the recess in the end of the backbone, and the two being clamped together by a split lug and screw or a ring clamp; or the end of the backbone and the yoke may be made of cast metal and placed side by side and clamped or otherwise secured together.

The saddle X is secured to the backbone, and can be adjusted thereon in the usual manner.

It is desirable to have the handle-bar arranged in the proper relation to the backbone of the machine, and to be able to remove the bar when necessary; and to attain this object I provide the head C of the front fork with a lug on its forward side near the top, and form a recess, *h*, therein to receive the handle-bar I, which is accurately fitted to said recess, which is open at the top so that the bar can be readily lifted out. Some means are required, however, to secure the bar in the slot of the lug, and I have provided a locking device, J, consisting of two hooks, *j*, pivoted to the side of the lug, and having angularly-projecting ends adapted to fit tightly over the bar and secure it in the slot. This I have found to be a very simple and cheap construction and well adapted for the purpose intended.

In order to connect the backbone securely and durably with the head of the fork, and at the same time admit of free movement of the fork in guiding the velocipede, the neck of the

backbone D has been provided with tapered ends fitting into sockets in the head, one of which may be formed in the end of a screw-bolt, as K, provided with a suitable lock-nut,

5 k, to allow of proper adjustment.

I have found that by boring out the head of the fork, so as to form an extended bearing, L, and providing the lower end of the neck of the backbone D with a projecting center
10 or guide pin, L', extending below the bevel and into the bearing L, great steadiness may be attained, and the parts are much more durable and less liable to disarrangement. This center or guide pin may be straight or
15 slightly tapered, and fits the extended bearing accurately.

Great difficulty has been experienced in securing and holding the usual rubber tire in its place on the periphery of the wheel; and
20 to overcome this objection I form the rim or felly M of the wheel with a rounder inner side, m, and the outer side is formed with a depression, m', on either side of a central rib, m''. The rubber tire N being properly shaped,
25 the central rib, m'', enters a central groove therein, and the edges n of the tire fit into the depressions m' of the rim. Thus the tire is secured against side pressure and is not liable to be displaced.

30 To readily and securely attach the pedal-shaft and retain it in the proper position, the crank-arm O is made with its outer end, o, curved or rounded on one side and flattened on the opposite side, and intermediate sides,
35 if desired. The pedal-shaft P is provided with a forked end, p, adapted to fit the crank, and this is secured in position by the bolt or screw p'', passing through the ends of the fork.

In order to provide a strong and light wheel
40 and to permit the insertion and removal of the spokes without taking off the tire, spoke-thimbles R, having external threads, are screwed into the inner part of the rim or felly. These thimbles are also threaded laterally for
45 the reception of the screw ends of the spokes S. The hub T is formed with flanges t, having radial grooves t'. Fitted to the flanges are caps or plates U, having internal annular grooves u, fitted over the flanges t, and
50 so formed as to leave a channel or recess when the cap is secured to the flange, by screws or otherwise, for the reception of the headed ends of the spokes S. By this construction not only may the wheel be cheaply made and rigidly
55 braced, but any one or more of the spokes may be removed by removing the cap-plate U, withdrawing the head of the spoke from

the groove in the flange, and unscrewing the threaded end of the spoke in the thimble.

To regulate the tension of the spokes, it is
60 only necessary to remove the tire from the rim, and by means of a screw-driver the thimbles R may be turned to adjust the tension on the spokes.

Having thus described my invention, it will
65 be understood that I do not limit myself to the exact construction shown, as it is evident the main feature of my invention—an extensible velocipede—may be carried out in various forms without departing from the spirit of
70 my invention, and it is also evident that the details of construction set forth may be used together or separately or combined with other equivalent constructions.

What I claim is—

1. The combination, in a velocipede, of a
75 front fork each member of which is made in sections, one of said sections being provided with a longitudinal slot and adapted to a recess in the side of the other section, and a set-
80 screw extending through said slot and clamping the parts adjustably together, essentially as set forth.

2. The combination, with the head of a velocipede, of a lug slotted on its upper side for
85 the reception of the handle-bar, and retaining-hooks pivoted to the sides of the lug and adapted to fit over said bar, substantially as described.

3. In a velocipede, a crank-arm having its
90 outer end curved or rounded on one side, combined with a pedal-shaft having a forked end adapted to be adjustably secured to said crank-arm, substantially as described.

4. The combination, with the rim of a wheel,
95 of spoke-thimbles screwing into threaded openings in said rim and provided with interior-threaded recesses; substantially as described.

5. The combination, with a hub having
100 grooved flanges, of caps fitting said flanges, headed spokes fitting the grooves in the flanges, and exteriorly-threaded thimbles, adapted to threaded openings in the rim of the wheel, and provided with recesses into which
105 the threaded ends of the spokes are secured, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HARRIE B. HART.

Witnesses:

ANDREW ZANE, Jr.,
S. SPENCER CHAPMAN.