No. 635,669. Patented Oct. 24, 1899.

H. W. DARBEY & L. E. TRANT.

BICYCLE BRAKE.

(Application filed May 19, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

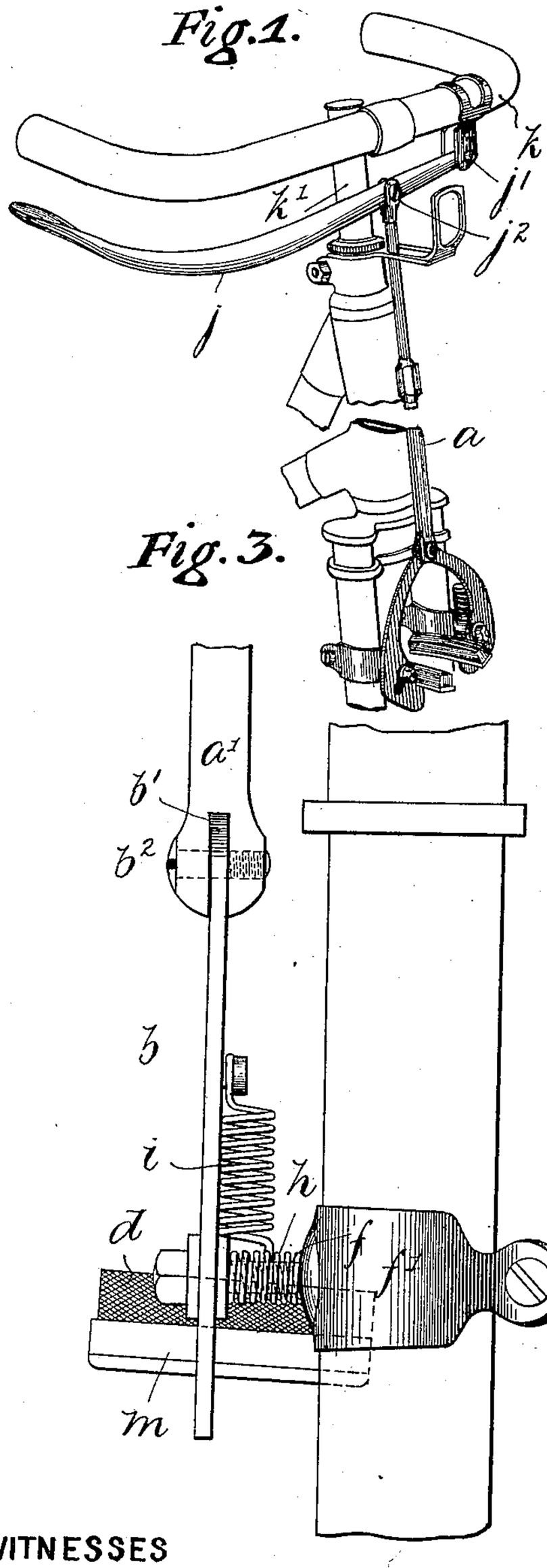


Fig. 2.

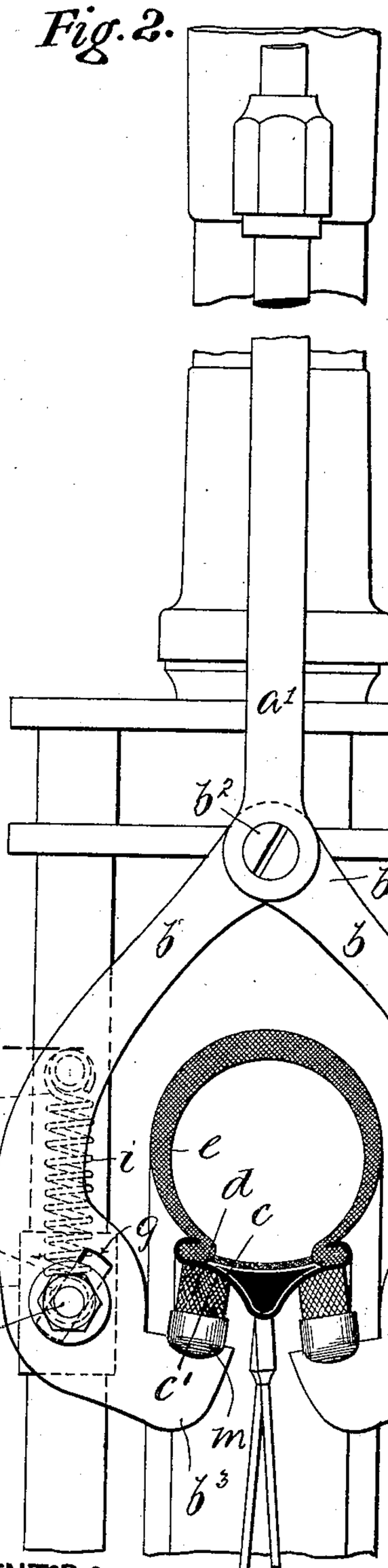


Fig. 3.

WITNESSES

O. N. Tilden

INVENTORS

Henry W. Darbey
Lewis E. Trant
by James L. Norris
Atty

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 635,669. Patented Oct. 24, 1899.

H. W. DARBEY & L. E. TRANT.

BICYCLE BRAKE.

(Application filed May 19, 1899.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 4.

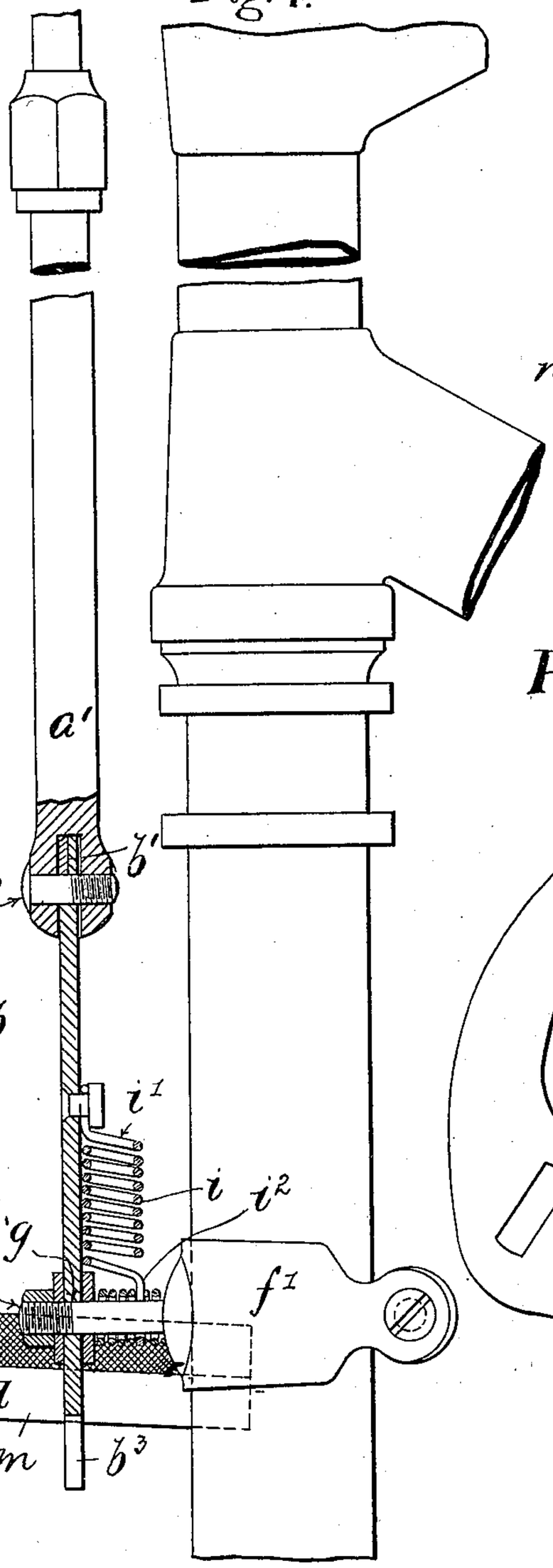


Fig. 5.

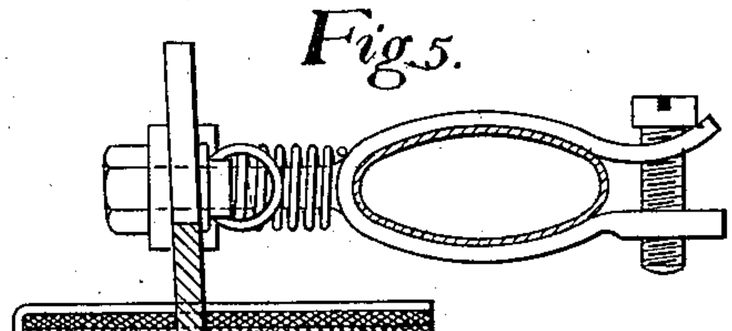
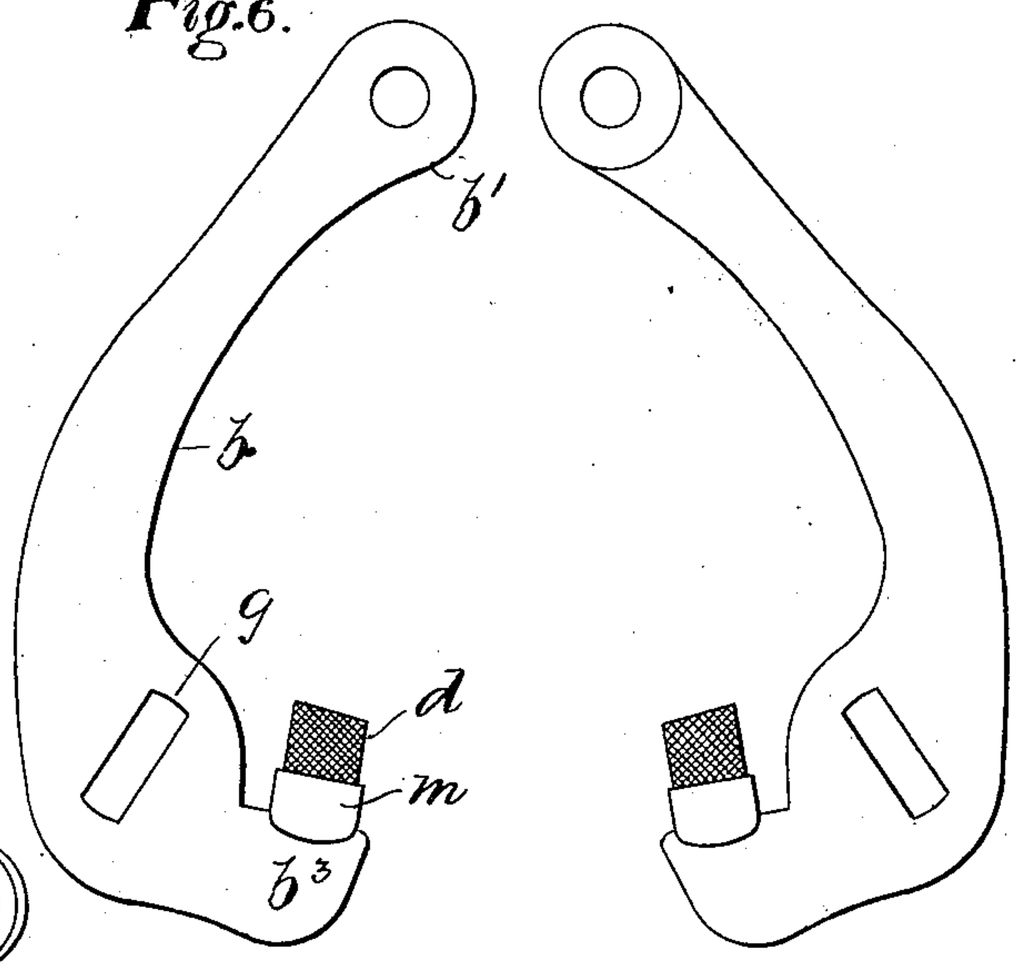


Fig. 6.



WITNESSES

W. B. Kerr

E. F. Gildow

INVENTORS

Henry W. Darbey

Lewis E. Trant

by James L. Norris

Atty

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HENRY WILLIAM DARBEY AND LEWIS EDWARDS TRANT, OF BIRMINGHAM, ENGLAND.

BICYCLE-BRAKE.

SPECIFICATION forming part of Letters Patent No. 635,669, dated October 24, 1899.

Application filed May 19, 1899. Serial No. 717,496. (No model.)

To all whom it may concern:

Be it known that we, HENRY WILLIAM DARBEY and LEWIS EDWARDS TRANT, manufacturers, subjects of the Queen of Great Britain, residing at 330 Coventry road, in the city of Birmingham, England, have invented certain new and useful Improvements in Cycle-Brakes, of which the following is a specification.

This invention relates to the brakework of cycles, and has for its object to provide a simple and efficient form of brake designed to act upon the rim of a wheel independent of the tire.

One form of the improved rim-brake is represented in the annexed drawings, in which—

Figure 1 represents a perspective view of the brake and its operating mechanism. Fig. 2 is a front elevation of the said brake, showing the brake shown "on" and with the shoes of it bearing, respectively, against the opposite sides of the inner periphery of the wheel-rim. Fig. 3 is a side elevation of the brake, showing more clearly the means by which it is mounted upon the front forks of a bicycle. Fig. 4 is a vertical section taken upon the dotted line x, Fig. 2; and Fig. 5 is a horizontal section of the said Fig. 2 upon the dotted line x', showing the shoes or acting parts of the brake in top side plan. Fig. 6 represents the pairs of levers which carry the shoes.

The same letters of reference indicate corresponding parts in the several figures of the drawings.

In carrying out this form of our invention, in connection with a rim-brake applied by giving a lifting movement to a sliding operating-rod, such as shown in Fig. 1 of the drawings and marked a, we provide the lower end a' of the said rod with a pair of curved or semicircular links or arms b, arranged in the form of a caliper-shaped frame, with their upper ends b' collectively jointed at b^2, by means of a common pivot, to the said rod, while the other and lower ends b^3, which are curved inward, so as to come underneath and be presented to the inner periphery c' of a wheel-rim c, are fitted with a pair of brake-shoes or contacts d, adapted to impinge upon the opposite edges of the said under side or inner periphery of the rim. The arms or link members of the brake-frame have sufficient curvature to clear the tire e, and the parts are so arranged that when the brake-operating rod is raised by the raising of the hand-lever the lower extremities of the pair of caliper-like arms are moved both inward and upward, thus causing their shoes or contacts, which are preferably mounted upon the top or inward edges of the lower ends of the arms, to impinge upon the sides of the wheel-rim and exercise an efficient braking action on the wheel. The means for insuring the closing together of the arms consists (in the arrangement shown in the drawings) of a pair of studs or pins f, carried by and projecting from clips f' or otherwise connected to the steering-fork sides and extending through upwardly and inwardly inclined slots g, made near the contact ends of the arms. Springs h are located upon the studs to exercise pressure against the backs of the arms to prevent rattling, while other springs i, made fast at their upper ends i' to the arms and at their lower ends i^2 to the pins f or to other convenient parts of the contiguous fork sides, are provided for the purpose of giving the return movement and taking the brake out of action by their contraction after having been distended by the lifting of the operating-rod for putting on the brake. This return movement may, however, be effected by a spring or springs in connection with either the brake-rod or the operating-lever, which latter may be of either a simple or compound character. Where the lever is of the simple order, it may consist, as shown in Fig. 1, of an arm j, fulcrumed at or near one end j' to the handle-bar k at a point beyond the stem k' thereof, and the brake-rod a is jointed to the lever at j^2 inward of its center j'. We do not wish to be understood as limiting ourselves to this particular operating mechanism for the rod a, for obviously other means may be employed without departing from the spirit of our invention.

The shoes or impingement-blocks at the inner ends of the curved arms may be fitted within boxes, such as m, or otherwise secured in position and may be made of felt or other suitable material. They may also be shaped and inclined at different angles or otherwise adapted to suit wheel-rims of various sections.

The operation of this brake is thus as follows: When the operating-rod is raised by raising the hand-lever, the curved arms or links of the caliper-like brake-frame are drawn up with it, and at the same time and by reason of the inwardly-inclined slots near their lower ends working over the fixed pins projecting from the fork sides the said arms are compelled to turn inward upon their common joint, and their lower ends are made to approximate, thus causing their shoes or impingements to bear, respectively, against and exercise an equalized pressure upon the opposite side of the inner periphery of the rim and exert the required braking action. This lifting movement distends the springs arranged between the fork sides and the links or members of the frame; but immediately the pressure upon the hand-lever is relieved the said springs in again contracting take off the brake and cause the parts to resume their normal positions.

We do not wish to be understood as limiting ourselves to the precise connection of the links and operating-rod as herein shown and described, for it will be obvious that other similar connections may be made to bring about the same result without departing from the spirit of the invention.

Having fully described our invention, what we desire to claim and secure by Letters Patent is—

1. A cycle-brake consisting of a pair of opening and closing links or arms having inclined slots near their lower ends, brake-shoes carried by said arms, an operating-rod to which the upper ends of said links or arms are connected, and fixed pins or projections passed through said inclined slots and arranged in such manner that when the operating-rod is raised the lower ends of the links are caused to approximate and their shoes to impinge respectively against the opposite sides of the inner periphery of the wheel-rim, substantially as described.

2. A cycle-brake consisting of a pair of opening and closing links or arms having inclined slots near their lower ends, brake-shoes carried by said arms and arranged to be presented to the inner periphery of a wheel-rim, an operating-rod to which the upper ends of said links or arms are pivoted by a common joint-pin, and fixed pins or projections extended through said inclined slots, the parts being arranged and coöperating, substantially as described.

3. A cycle-brake consisting of a pair of opening and closing arms having inclined slots near their lower ends, brake-shoes carried by said arms and arranged to be presented to the inner periphery of a wheel-rim, an operating-rod to which the upper ends of said arms are pivoted, a spring or springs normally acting to spread said arms, and fixed pins or projections extended through said inclined slots in the arms, the parts being arranged and coöperating, substantially as described.

4. A cycle-brake consisting of a pair of opening and closing arms having inclined slots near their lower ends, brake-shoes carried by the free ends of said arms and arranged to make contact with the inner periphery of a wheel-rim, clips secured to the contiguous members of a cycle-frame and carrying pins which project through the inclined slots in the said arms, springs secured at their opposite ends to the said pins and arms respectively and acting to normally spread the latter, and an operating-rod to which the upper ends of said arms are pivoted, substantially as described.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

HENRY WILLIAM DARBEY.
LEWIS EDWARDS TRANT.

Witnesses:
HENRY SKERRETT,
ARTHUR T. SADLER.