No. 769,054. PATENTED AUG. 30, 1904.

G. W. BUFFORD.

CHAIN WRENCH.

APPLICATION FILED JULY 16, 1904.

NO MODEL.

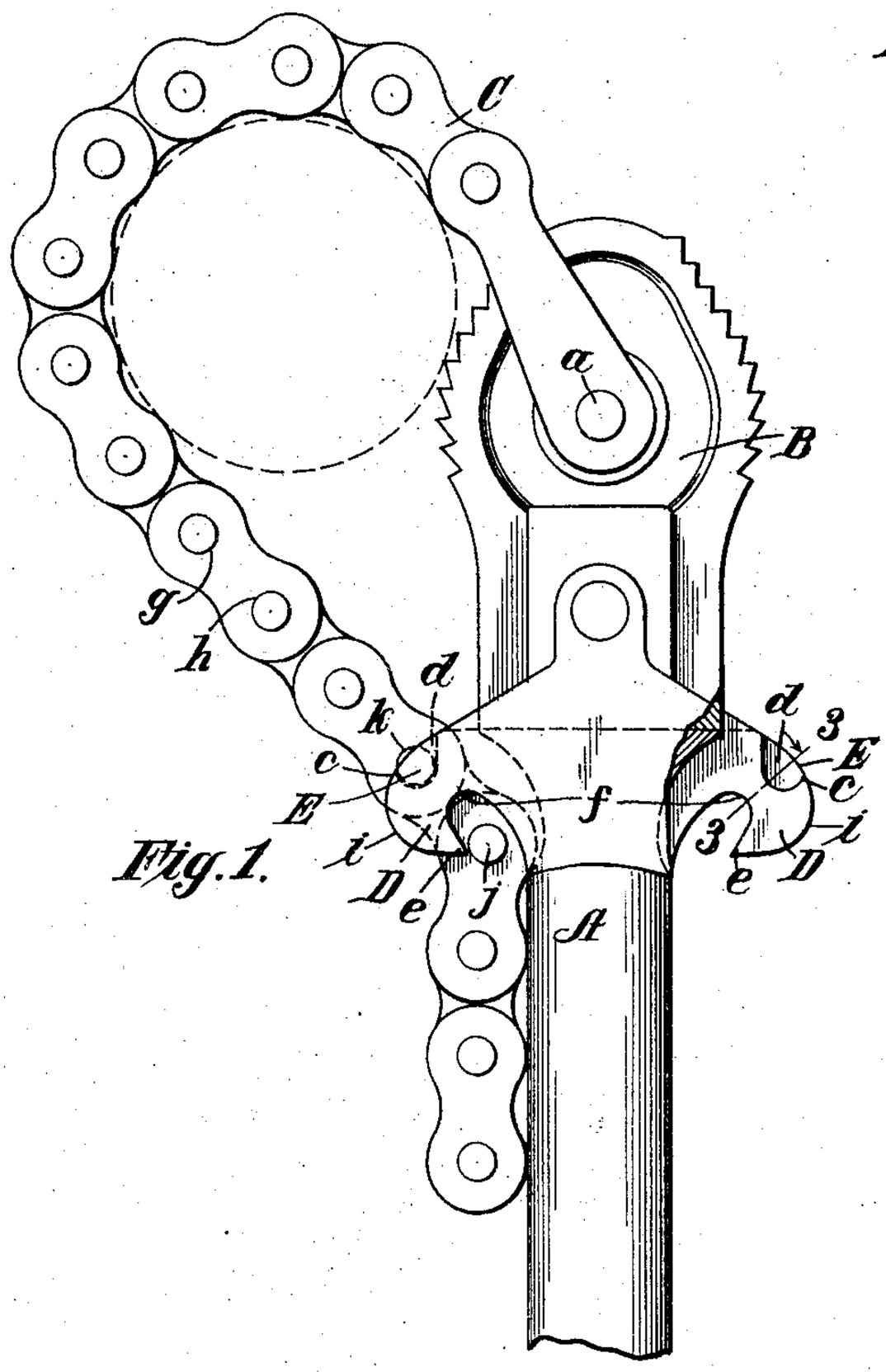

Fig. 1.

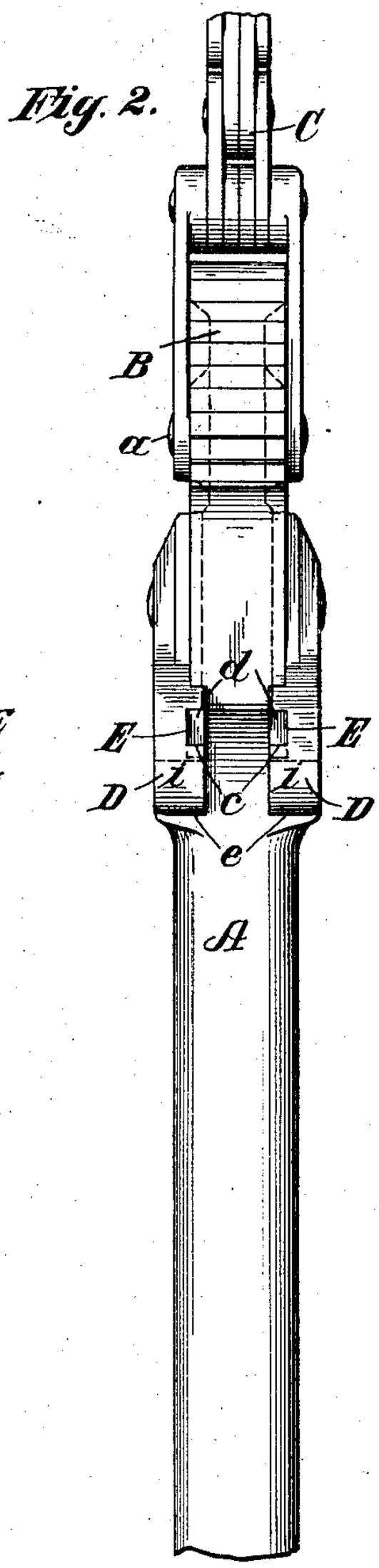

Fig. 2.

Fig. 3.

WITNESSES:

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No. 769,054. Patented August 30, 1904.

UNITED STATES PATENT OFFICE.

GEORGE WILLIAM BUFFORD, OF BROOKLYN, NEW YORK, ASSIGNOR TO J. H. WILLIAMS AND COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

CHAIN WRENCH.

SPECIFICATION forming part of Letters Patent No. 769,054, dated August 30, 1904.

Application filed July 18, 1904. Serial No. 217,124. (No model.)

To all whom it may concern:

Be it known that I, GEORGE WILLIAM BUFFORD, of the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Chain Wrenches, of which the following is a specification.

In the use of chain wrenches the chain becomes slack during the return movement of the wrench preparatory to taking a fresh grip on the article to be turned, and some provision is necessary to prevent the chain becoming unlocked at this time, particularly when the wrench is used in certain positions. The United States Patent of Booth and Redfield, No. 499,508, granted June 13, 1893, describes a construction for this purpose consisting of inclinations of the locks toward the handle which are efficient for the purpose with the type of wrench illustrated in said patent, wherein the wrench has a double head between which the chain swings and the chain being pivoted close to the locks. This construction to avoid the accidental disengagement of the chain has proven, however, to be unreliable in wrenches having a single head to which is pivoted a double-acting single-course chain which opposes the gripping-faces of the head so as to squarely embrace an article grasped between them, such a wrench, being shown, for example, in the United States Patent of Bufford, No. 743,058, granted November 3, 1903. The lock construction of the Booth and Redfield patent when applied to such a wrench as is shown in the Bufford patent does not effectively retain the chain, especially when the chain is used with the head up.

The particular object of the present invention is to provide effective means for preventing the accidental disengagement of the chain in wrenches having a single head to which a double-acting single-course grip-face opposing chain is pivoted. To this end the wrench is provided with retainers which engage a pintle of the chain adjacent to the one engaging the locks in such manner as to prevent the locking-pintle when the chain is slack dropping away by gravity so far from the lock as to become disengaged therefrom.

The present improvements are illustrated in the accompanying drawings, in which—

Figure 1 is a side view of the wrench, parts being broken away to show the construction. Fig. 2 is an edge or face view of the wrench, and Fig. 3 is a detailed section in the plane indicated by the line 3 3 in Fig. 1.

The illustrated wrench has a handle A, a single head B rigid with the handle, and a double-acting single-course flat-linked chain C, pivoted to the head at *a* in a manner similar to what is set forth in the above-mentioned Bufford patent, No. 743,058. The head is serrated on opposite faces, and the chain is squarely opposed to the faces, so as to squarely grip between the chain and the grip-face in use an article held between them. The chain, as usual, has projecting pintles which coöperate with locks D, which are rigid with the handle and head and on both sides of the wrench. Each lock is hook-shaped and is bifurcated, so as to permit the passage of the chain-links when the chain-pintle is engaged therewith. In all of these respects the illustrated wrench is or may be substantially like the wrench of the aforesaid Bufford patent.

The principal feature of the present improvements consists of the means for retaining the chain when locked from accidental disengagement when the wrench is used in such a situation that the locking-pintle might drop by gravity away from the lock in use when the chain is slackened on the reverse movement of the wrench. To this end a retainer E is provided on each side of the wrench cooperating with the corresponding lock and said retainer being rigid with the handle and head of the wrench. Each of these retainers E is located upon the outer side of the corresponding lock, and it includes an engaging point *c* and an adjacent recess *d*. These features of the retainer bear certain relations to the point *e* of the lock, to the locking-seat *f* of the lock, and to the distance between adjacent pintles of the chain which are of importance. These relations all have refer-

ence to the distance between the nearest portions of adjacent pintles, this distance being that indicated between the points *g* and *h* in Fig. 1 of the drawings, and for brevity this distance will be defined as the "inside pintle distance." The distance between the points *c* and *e* of the retainer and hook is greater than the inside pintle distance, the distance between the point *e* of the lock and any portion of the retaining-recess *d* is greater than the inside pintle distance, and the distance between the bottom of the locking-seat *f* and the two points *c* and *e* or any portion of the outside surface *i*, connecting the same, is less than the inside pintle distance. For convenience the particular pintle *j* which is for the time being in coöperation with the lock will be called the "locking-pintle," while the adjacent pintle *k* which is then in engagement with the retainer will be called the "retaining-pintle." As a consequence of the relations just stated between the lock-retainer and adjacent pintles it follows that the locking-pintle can never drop away from its lock far enough to become disengaged, because, as shown in Fig. 1, the retaining-pintle *k* seats in the retaining-recess *d* before the locking-pintle is free from the point of the lock. In order to lock or unlock the locking-pintle, it is necessary that it should be seated against the locking-seat *f*, at which time the retaining-pintle can be swung clear from the retainer. This necessitates a movement which is an upward one at any time when there is any danger of the locking-pintle dropping accidentally by gravity, and consequently there can be no accidental unlocking during the use of the wrench.

The principal utility of the present improvement is in connection with a wrench having a double-acting single-course chain pivoted to the head remote from the locks. The improvement can, however, be employed with other types of wrenches.

I do not herein claim any feature which is set forth in the companion application of George Amborn, the present invention being subordinate to that of Amborn.

I claim as my invention—

1. A chain wrench having, in combination, a handle; a single serrated head rigid with the handle; a double-acting single-course flat-link chain pivoted to the head and opposed to the serrated faces thereof, said chain having projecting pintles; a hook-shaped bifurcated lock furnishing a locking-seat for said chain on each side of the wrench rigid with the head and handle; and a retainer on each side of the wrench rigid with the head and handle comprising a retaining-recess on the opposite side of the lock from the locking-seat, the lock and retainer being adapted to both pass between a pair of adjacent chain-pintles, the point of the lock being at a greater distance from the point of the retainer and from the bottom of the retaining-recess than the inside pintle distance, and the locking-seat being at a less distance from the points of the lock and retainer than the inside pintle distance.

2. A chain wrench having, in combination, a handle; a head; a pivoted chain having locking-pintles; a lock furnishing a locking-seat for said chain; and a retainer comprising a retaining-recess on the opposite side of the lock from the locking-seat; the lock and retainer being adapted to both pass between a pair of adjacent chain-pintles, the point of the lock being at a greater distance from the point of the retainer and from the bottom of the retaining-recess than the inside pintle distance, and the locking-seat being at a less distance from the points of the lock and retainer than the inside pintle distance.

3. A chain wrench having, in combination, a handle; a single serrated head rigid with the handle; a double-acting single-course chain pivoted to the head and opposed to the serrated faces thereof, said chain having projecting locking-pintles; and a lock for said chain on each side of the wrench rigid with the head and handle, said lock having a locking-seat on one side and a retaining-recess on the opposite side, and the lock being adapted to pass between a pair of adjacent chain-pintles, thereby bringing the locking-seat into coöperation with one chain-pintle, and the retaining-recess into coöperation with an adjacent chain-pintle.

4. A chain wrench having, in combination, a handle; a head; a pivoted chain having locking-pintles; and a lock having a locking-seat for said chain on one side, and a retaining-recess on the opposite side, and the lock being adapted to pass between a pair of adjacent chain-pintles, thereby bringing the locking-seat into coöperation with one chain-pintle, and the retaining-recess into coöperation with an adjacent chain-pintle.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

GEORGE WILLIAM BUFFORD.

Witnesses:
MORTIMER J. TRAVIS,
JAMES H. SAN JULE.