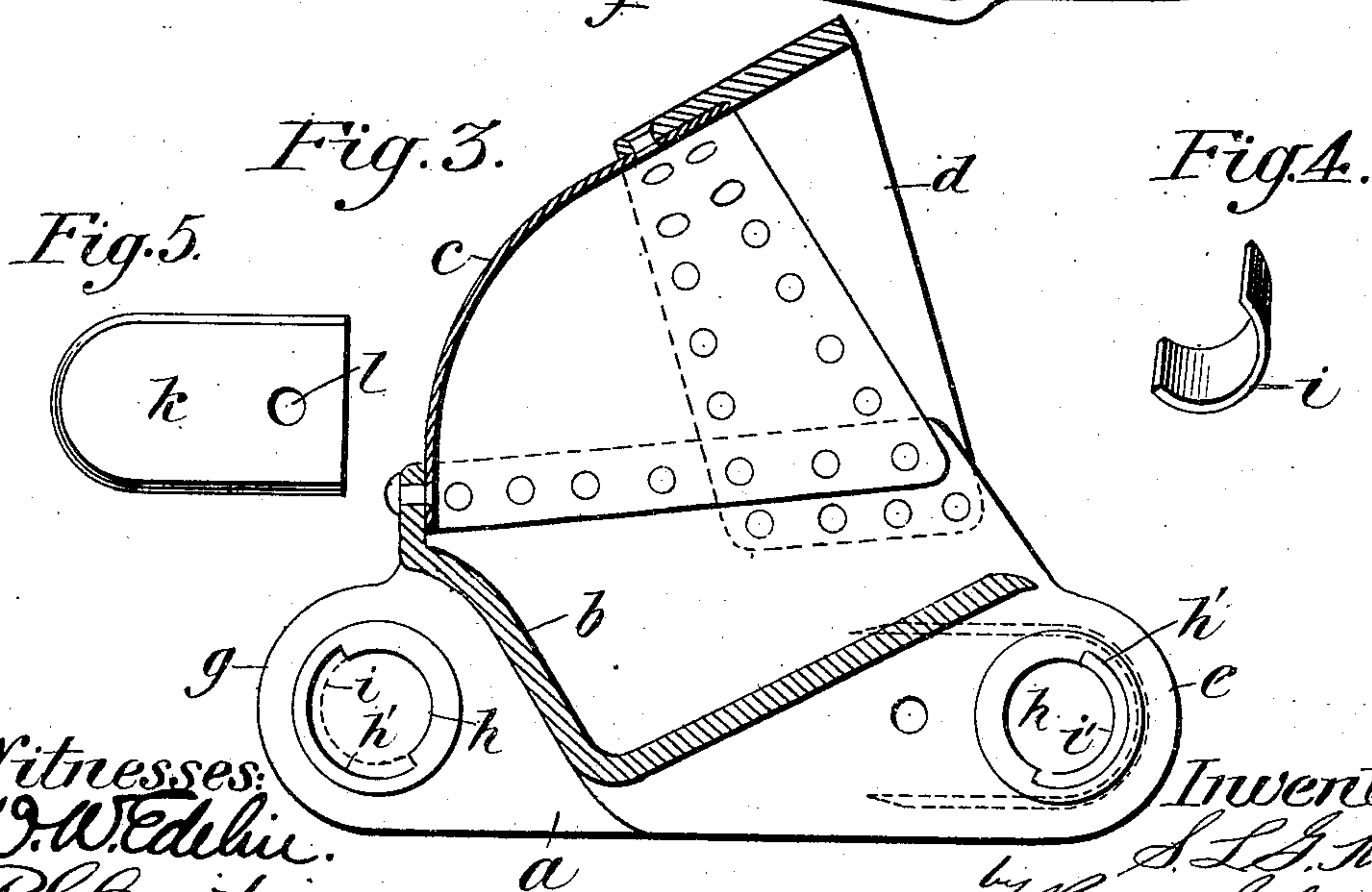
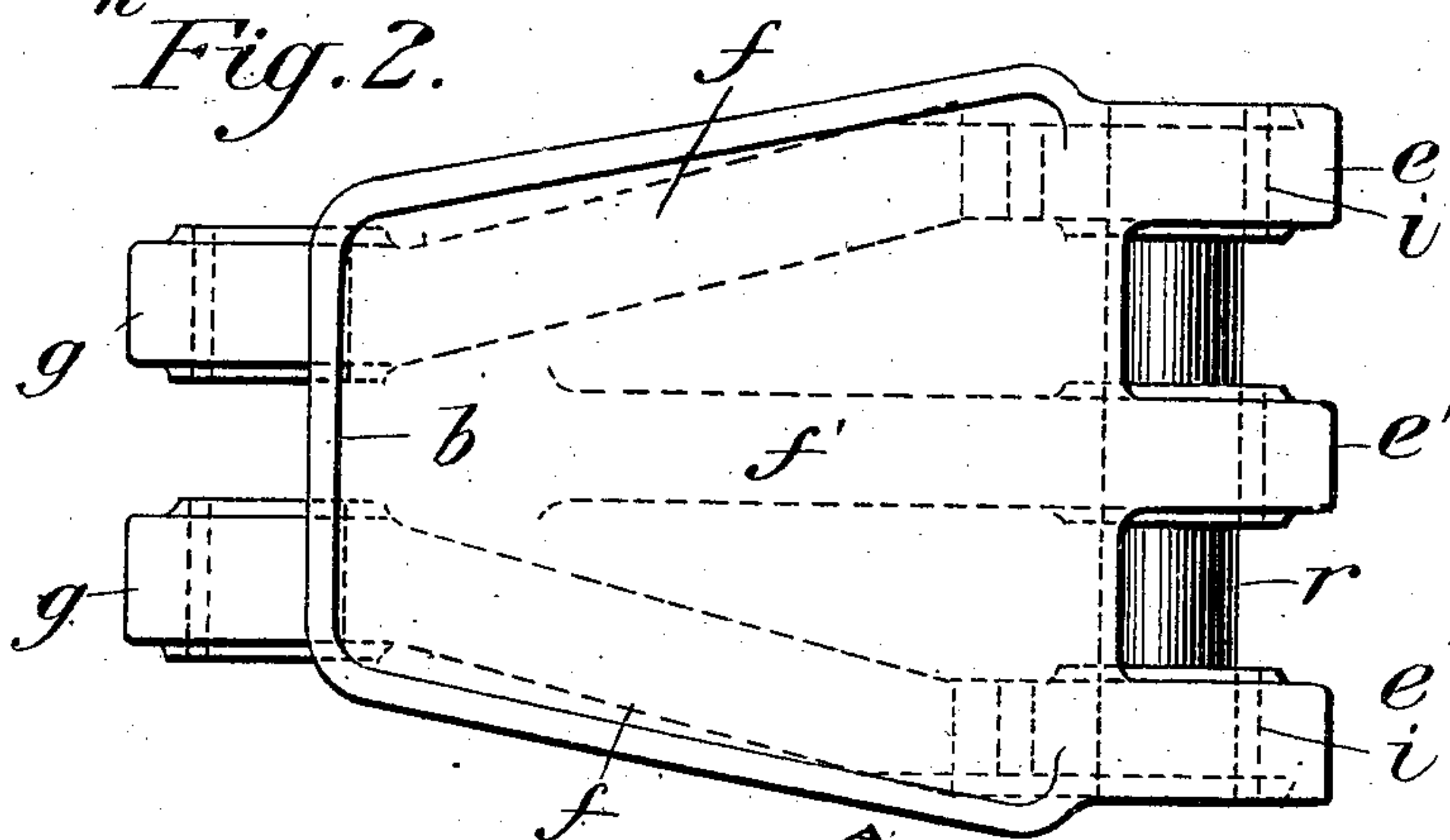
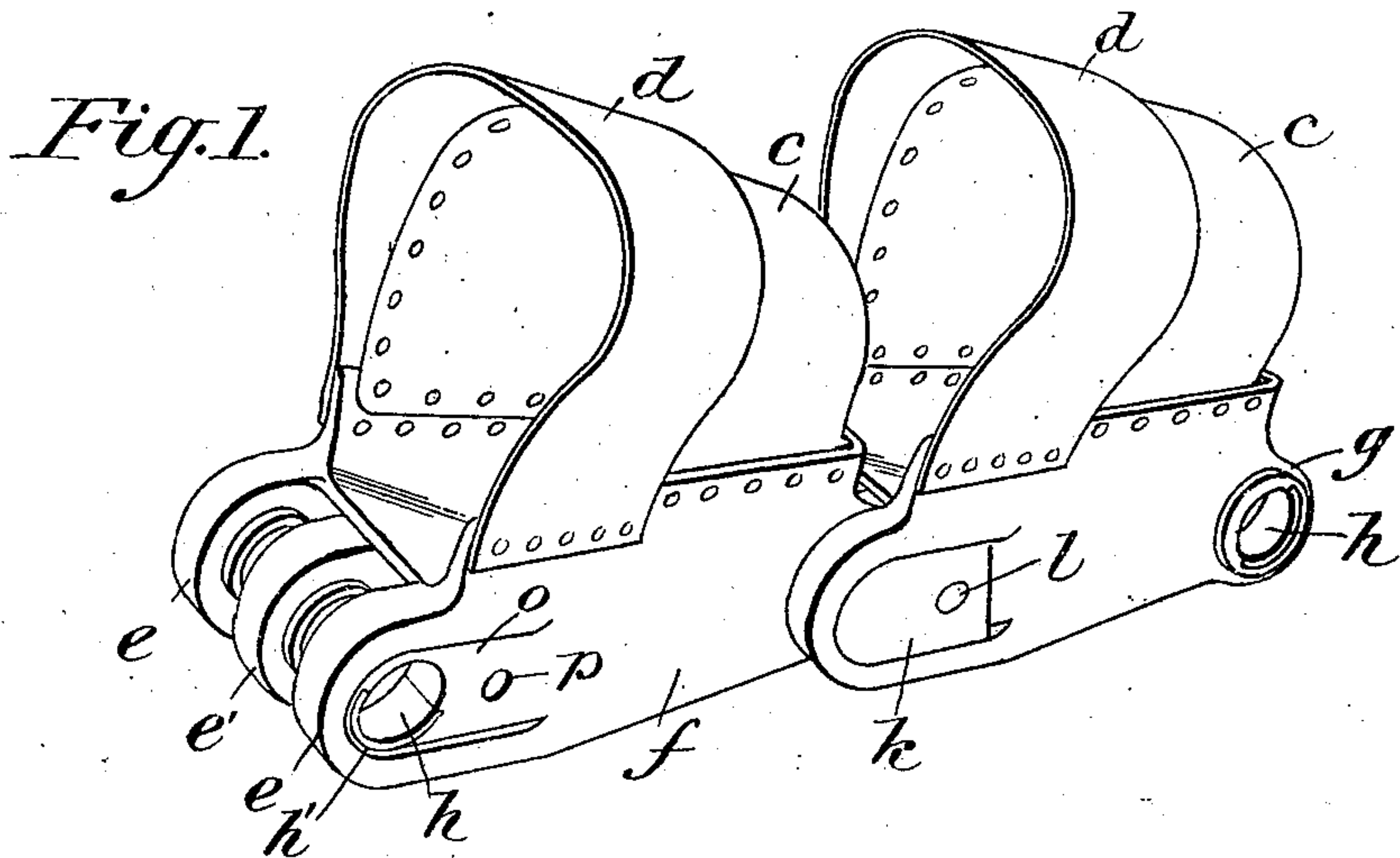


No. 877,345.

PATENTED JAN. 21, 1908.

S. L. G. KNOX.
DREDGE BUCKET.

APPLICATION FILED FEB. 21, 1906.



Witnesses:
W. W. Edlin.
R. C. Cunt.

Inventor:
S. L. G. Knox.
by H. M. Goldsborough
att'y

UNITED STATES PATENT OFFICE.

SAMUEL LIPPINCOTT GRISWOLD KNOX, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO THE BUCYRUS COMPANY, OF SOUTH MILWAUKEE, WISCONSIN, A CORPORATION OF WISCONSIN.

DREDGE-BUCKET.

No. 877,345.

Specification of Letters Patent.

Patented Jan. 21, 1908.

Application filed February 21, 1906. Serial No. 302,199.

To all whom it may concern:

Be it known that I, SAMUEL LIPPINCOTT GRISWOLD KNOX, a citizen of the United States, residing in the city and county of Milwaukee, State of Wisconsin, have invented certain new and useful Improvements in Dredge-Buckets; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to buckets for elevator dredges and the like, and has for its object to provide a simple and efficient construction of connection between the buckets, by means of which the usually heavy wear between the eyes on the bucket ends and the pintles connecting the buckets in series, will be largely obviated, and also to provide means by which a loose pin or pintle may be employed for connecting the buckets in series, so that said pin may rotate freely in the eyes to present different portions of its surface to those portions of the eyes upon which the heavy wearing strains are imposed.

To these ends, the invention comprises a dredge bucket which may be conveniently provided with a double eye at one end and a triple eye at the other, which eyes are adapted to register with the respective double and triple eyes of the adjacent buckets of the series, each of the eye sections being provided with a bushing, of wear resisting material, located in the particular portion of the eye which is subjected to the heavy strains while the bucket chain is in operation, and loose pins adapted to be threaded through the mating eyes of the buckets, which pins are held in position by cover plates, or other suitable holding devices, attached to the sides of the buckets and overlying the eyes laterally, and which prevent the pins from escaping but do not interfere with their free rotation within the eyes.

In the accompanying drawings; Figure 1 illustrates two connected buckets of a chain, involving the invention; Fig. 2 is a plan view of one of the buckets, the scoop portion thereof being omitted; Fig. 3 is a longitudinal section through one of the buckets; Fig. 4 is a perspective view of one of the bushings adapted to be inserted in the eye sections; Fig. 5 is a side elevation of one of the cover plates for securing the pin.

In the practice as heretofore followed in constructing dredge buckets, it has been customary to provide the bucket with a single eye at one end and a double eye at the other, the single and double eyes of adjacent buckets intermeshing and being secured together by cross pins or pintles, which are rigidly held in one of the eyes, in order to prevent the pins turning and wearing the machined holes in the eyes any more than necessary. To provide an accurate journaling of the pin in the eyes under such conditions, it was also necessary to accurately finish the pins to make a machine fit in the eyes. It is the purpose of the present invention to avoid the necessity of this extra machining of the eyes and pins, and also to provide a construction which will materially obviate the wear between the parts, and materially strengthen the individual buckets of the chain.

Referring to the drawings, *a* indicates the bottom casting of an individual bucket, which constitutes the link member and also a portion of the bucket proper, as indicated at *b*. To the latter, the pressed steel portion *c* is riveted, and likewise the lip or cutting edge *d*, which also overlaps and is secured to the portion *c*.

Upon one end of the bottom casting *a*, there is formed a triple eye, consisting of side sections *e*, *e*, and an intermediate section *e'*, the outside sections being carried backward in the form of ribs *f*, *f*, which terminate, at the other end of the bucket, in a double eye, consisting of sections *g*, *g*, and the intermediate section *e'* is strengthened by a rib *f'*, which merges into the bottom of the bucket. Each of the eye sections is provided with transverse perforations *h*, which aline in the several eyes to form bearings for the connecting pins, and each of the bearings is cut away on the side where the heavy strain is imposed, during the operation of the apparatus, for substantially 180°, as at *h'*, and in this cut away portion there is fitted a bushing *i*, which may be made of manganese steel, or any other wear resisting material, and which forms the anti-wearing bearing for the pins. It will be noted that these bushings are oppositely disposed in the eyes at the opposite ends of the bucket, for the reason that the strain is imposed upon the respective ends of the buckets in opposite directions.

As hereinbefore indicated, the successive

buckets of the chain are secured together by interlacing or fitting together the double eyes of one bucket with the triple eyes of the next bucket, so that the several openings *h* are in alinement, and passing through the alining eyes a pin or pintle *r*, which is generally cylindrical in form, but need not be carefully machined. This pin *r* is of a length substantially equal to the distance between the outer faces of the triple eye, and is preferably mounted in the eyes so as to be capable of free rotation, in order to present different wearing surfaces to the bearing in the eyes. In order to lock the pins in the eyes, when the buckets are assembled, any convenient means for sealing the bearing openings *h*, in the triple eye, may be provided, and in the particular form of the invention illustrated in the drawings, this sealing means comprises a sliding cover *k*, provided with beveled edges which engage a dove-tailed slot *o*, formed in the side of the eye, so as to overlies the openings *h* and prevent the pin *r* being accidentally forced out laterally. The cover plate may be secured in position by means of a rivet, pin, or bolt, set through an opening *l* in the cover plate and engaging a registering hole *p* in the base of the bucket.

It will be particularly noted, that with such construction as that hereinbefore described, the entire strain imposed upon the bucket chain is taken up by the hard metal bushings *h'* and the pins, that said pins are free to rotate in the eyes so as to continuously present new wearing surfaces, that neither the pins nor the eyes require accurate machining in order to serve the purpose for which they are intended, and that the pins may be quickly applied to or removed from position in the eyes by merely removing the cover plates *k* and backing the pins out.

What I claim as my invention and desire to secure by Letters Patent is:—

1. A bucket for elevator dredges and the like, provided with lugs or eyes at each end, bushings of wear resisting material in said eyes, and a loose pin adapted to be secured against endwise movement in the eye at one end.

2. A bucket for elevator dredges and the like, provided with lugs or eyes at each end, segmental bushings in said eyes interposed at the points of greatest strain on the bucket, and a loose pin adapted to be secured against endwise movement in the eye at one end.

3. A series of connected buckets for elevator dredges and the like, each bucket comprising a double eye at one end and a triple eye at the other, segmental bushings of wear resisting material mounted in the respective eye sections interposed at the points of greatest strain on the bucket, and a loose pin secured against endwise movement in the triple eye and adapted to engage the double eye in the adjacent bucket.

4. A bucket for elevator dredges and the like, provided with lugs or eyes at each end, segmental bushings in said eyes interposed at the points of greatest strain on the bucket, a loose pin adapted to be secured against endwise movement in the eye at one end, and cover plates removably secured to the sides of the bucket and adapted to overlies the eye openings to retain the pin against endwise movement therein.

5. A bucket for elevator dredges and the like, comprising a base casting having a double eye at one end and a triple eye at the other, semi-annular bushings located in the respective eye sections to receive the strains imposed on the buckets, a loose pin adapted to secure the triple eye of the bucket and the double eye of the next bucket in series, and means for locking said pin against endwise movement.

6. A pair of links, a pin free to turn in each link, and means to prevent end displacement of the pin.

7. A pair of links having a plurality of spaced, alined eyes, a pin in the eyes free to turn in each link, and means for locking the pin against end displacement.

In testimony whereof I affix my signature, in presence of two witnesses.

SAMUEL LIPPINCOTT GRISWOLD KNOX.

Witnesses:

FRED. W. KRUECK,
HARRY B. HAYDEN.