

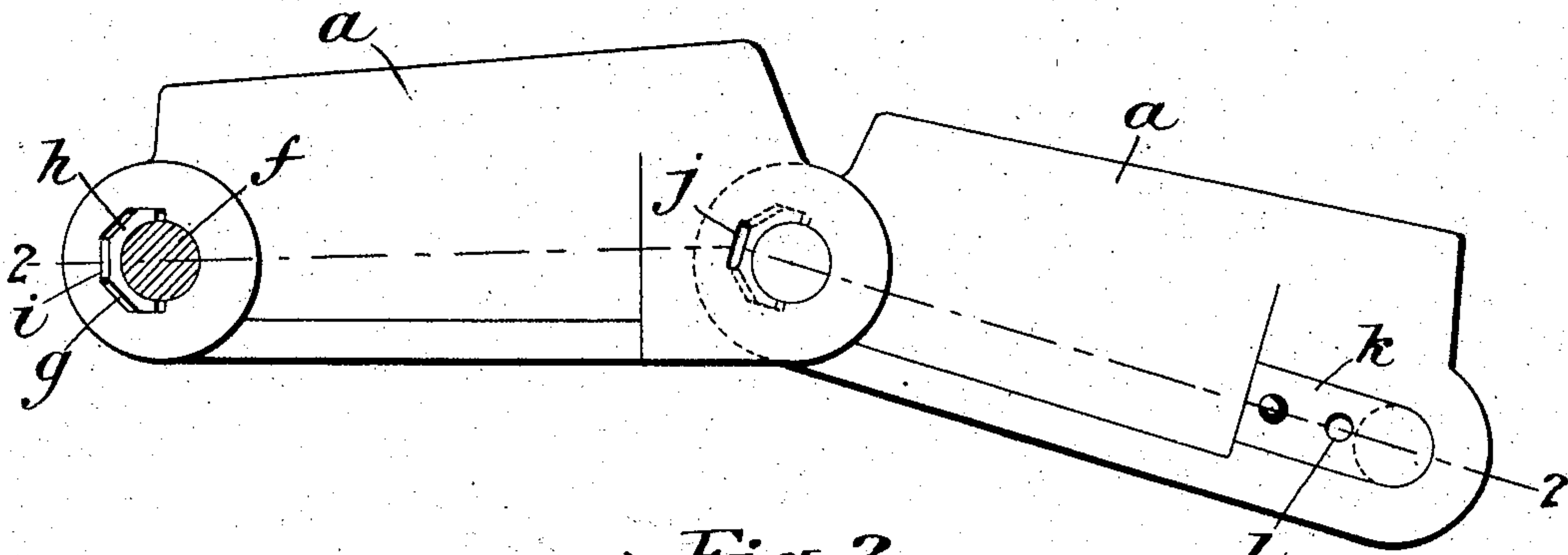
No. 790,211.

PATENTED MAY 16, 1905.

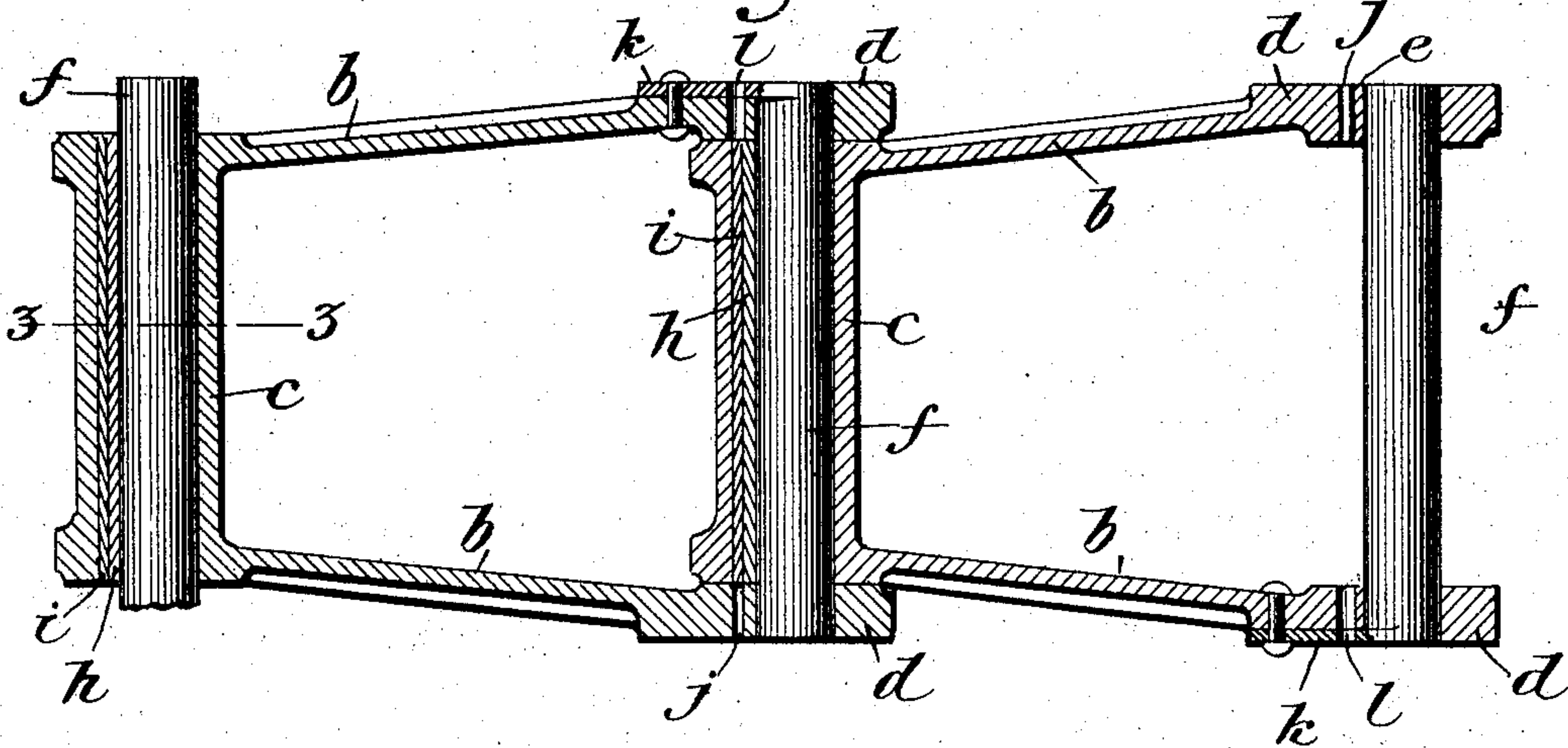
S. L. G. KNOX.  
DREDGE BUCKET.

APPLICATION FILED AUG. 17, 1904.

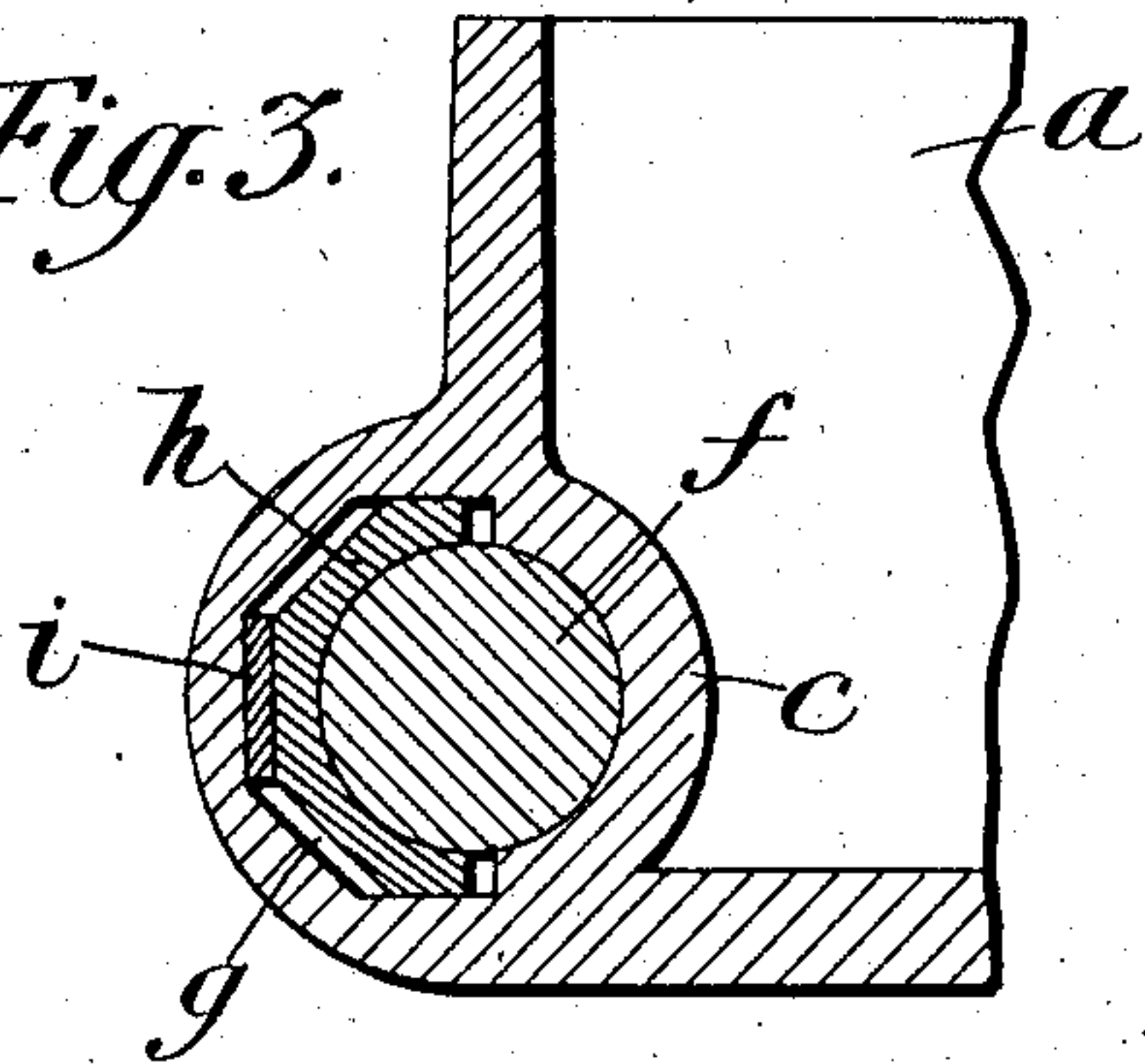
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Witnesses:  
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By his attys  
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# UNITED STATES PATENT OFFICE.

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## DREDGE-BUCKET.

SPECIFICATION forming part of Letters Patent No. 790,211, dated May 16, 1905.

Application filed August 17, 1904. Serial No. 221,081.

*To all whom it may concern:*

Be it known that I, SAMUEL L. GRISWOLD KNOX, a citizen of the United States, residing at Milwaukee, 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 the construction of the buckets of endless-chain-elevator dredges, and particularly to the hinged-joint connection between the buckets.

The invention has for its object to provide means for taking up the wear between the joint-pin and its bushing, so as to compensate for loose motion between the buckets and prevent looseness in the joints from increasing the pitch of the buckets.

The invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation of a couple of elevator-dredge buckets connected together.

Fig. 2 is a section on the line 2 2 of Fig. 1, and Fig. 3 is a section on the line 3 3 of Fig. 2.

Except in so far as the connection of the buckets together is concerned there is no particular novelty in the construction herein illustrated.

The buckets *a a* have their bottoms or frames *b b* constructed in the usual manner to form the links of the elevator-chain. At one end of each bucket bottom or frame there is a sleeve *c*, and at the other end of the frame there are lugs *d*, which are provided with the usual eyes *e* for receiving the joint-pin *f*. The sleeve *c* of each bucket-frame fits between the lugs *d d* of each adjacent frame, and the pin *f* passes through the sleeve and forms the hinge-joint between the buckets. As heretofore usually constructed the sleeve *c* has been provided with a half-bushing on the side where the strain comes; but this bushing has not been adjustable, and it has been necessary to remove it altogether and put in a new one in order to compensate for wear. The present invention contemplates making this bush-

ing adjustable, and to this end the recess *g*, which is made in the sleeve for the bushing, is made polygonal in cross-section, and the bushing *h* has a polygonal exterior surface. The interior of the bushing is of course circular, so as to fit the joint-pin closely; but by making the exterior of the bushing with square, angular, or polygonal surfaces and seating it in a correspondingly-shaped recess in the sleeve the bushing may be adjusted from time to time to compensate for wear by the interposition of a shim or liner *i*, which may be driven into the socket *g* behind the bushing, as best illustrated in Fig. 3, and as the shim is easily removable the bushing may be adjusted from time to time by substituting larger shims.

In order to permit the shims to be inserted or a new shim to be substituted after the buckets have been connected together and without disconnecting them, one of the lugs *d* of each bucket-frame is provided with a slot or opening *j* adjacent to the eye *e* and in line with the bottom of the socket *g*, which carries the bushing. When the buckets have a certain relation to each other, a shim or liner may be inserted in the slot *j* and will pass in between the bottom of the socket *g* and the back side of the bushing, as indicated in Fig. 2. The opening *j* is located at a different radial angle with respect to the sleeve *c* than the bottom of the socket *g*, and it is only when the buckets are out of line with each other, at an inclination of about fifteen degrees, that the opening *j* corresponds with the bottom of the socket *g*, and it is only when the buckets are at this position that the shim can be inserted or removed.

The joint-pins *f* are provided, as usual, with lugs *k* at one end, and these lugs are bolted or riveted in the usual manner in recesses provided for them in the ends *d* of the bucket-frame. The lugs are also provided with openings *l* adjacent to the eyes *e* and in line with the slots *j* in the lugs of the opposite sides of the bucket-frames. The purpose of these openings is to permit the insertion of a nail or other instrument for driving the shims out through



the openings *j* when it is desired to substitute larger ones. The openings *j* and *l* at opposite sides of the bucket-frames are immediately adjacent to and in line with the bearing  
5 for the joint-pin, and when the buckets are turned into the position indicated in Fig. 1 both openings *j* and *l* will be in line with the bottom of the bushing-socket *g*, so that a liner or shim may be inserted or driven out. When  
10 the buckets are straightened out in operative position in line with each other, the bottom of the socket where the shim is placed does not register with the slot *j*, but is covered up by the solid part of the lug *d* of the adjacent  
15 bucket-frame. It is therefore impossible for the shim to accidentally get out of place.

Having thus described my invention, what I claim, and desire to secure, is—

1. A dredge-bucket, having a sleeve at one  
20 end of its bottom or frame with a polygonal socket for the bushing of the joint-pin, a polygonal bushing fitting the socket, and an insertible and removable shim to adjust the bushing to the pin.

2. The combination of a dredge-bucket hav- 25  
ing a sleeve at one end of its bottom or frame with a socket containing a bushing for the joint-pin, an insertible and removable shim in the socket behind the bushing to adjust the  
30 latter, and an adjacent bucket having a joint-pin at its opposite end to fit in the bushing of the first-mentioned bucket, and an opening through which the shim may be driven end-  
wise, said opening being out of line with the shim when the buckets are in working position. 35

3. A dredge-bucket having eyes at one end of its bottom or frame, a joint-pin fitting said eyes and having a lug secured in a recess adjacent to one of the eyes, and an opening through  
40 the lug and the corresponding side of the bucket-frame through which a tool may be inserted to reach the bushing of the pin.

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

SAMUEL L. GRISWOLD KNOX.

Witnesses:

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