

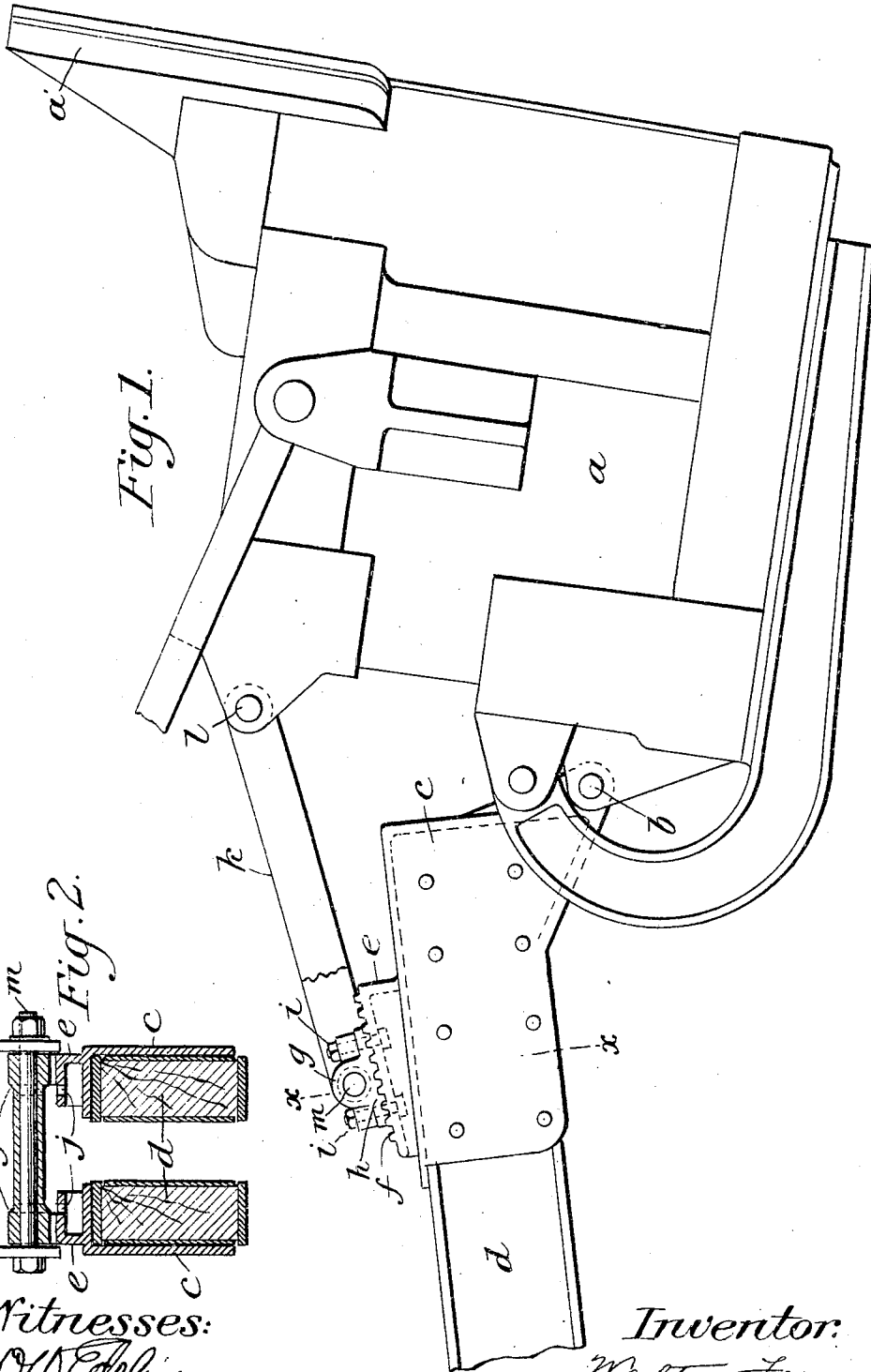
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W. FERRIS.

DIPPER FOR DREDGES, EXCAVATORS, AND THE LIKE.

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Witnesses:
O. W. Edlin
Chas. J. O'Neill

Inventor:
Walter Ferris
by Lemie & Goldsborough,
attys.

UNITED STATES PATENT OFFICE.

WALTER FERRIS, OF SOUTH MILWAUKEE, WISCONSIN, ASSIGNOR TO THE
BUCYRUS COMPANY, OF SOUTH MILWAUKEE, WISCONSIN, A CORPO-
RATION OF WISCONSIN.

DIPPER FOR DREDGES, EXCAVATORS, AND THE LIKE.

No. 809,436.

Specification of Letters Patent.

Patented Jan. 9, 1906.

Application filed April 14, 1905. Serial No. 255,538.

To all whom it may concern:

Be it known that I, WALTER FERRIS, a citizen of the United States, residing at South Milwaukee, county of Milwaukee, Wisconsin, have invented certain new and useful Improvements in Dippers for Dredges, Excavators, and the Like; 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 dippers for steam shovels, dredges, and the like, and has for its object to provide an adjustable connection between the dipper-brace and the handle to permit the rapid and accurate adjustment of the cutting-angle of the dipper.

In the accompanying drawings, Figure 1 is a side elevation of a common form of excavator-dipper and its supporting-handle, having the invention applied thereto. Fig. 2 is a section on line *x x* of Fig. 1.

Referring to the drawings, *a* indicates an excavator-dipper of the usual form employed on steam shovels, dredges, and the like, said dipper being pivoted to the end of the handle *d* upon a horizontal pintle *b*, passing through suitable lugs on the rear of the dipper and corresponding lugs formed upon the usual knuckle-pieces *c*, attached to the ends of the handle-beams *d*. It is customary to tilt the dipper on its pivotal connection with the handle to vary the cutting-angle of the teeth *a'*, so that the excavator may be worked to best advantage, as the material to be excavated varies in hardness or resistance to the cutting action of the teeth. In order to permit this adjustable tilting of the dipper, suitable brace-rods are employed to connect the upper rear corners of the dipper with the handle, and it has been proposed to make connection between the braces and the handle adjustable to a certain extent. In all prior constructions, however, the interposition of such an adjustable connection between the braces and the handle has resulted in materially weakening the braces or in making the parts unnecessarily heavy and cumbersome.

It is the purpose of this invention to provide a simple and efficient connection between the brace-rods and the dipper-handle that will enable the dipper to be tilted to secure a ready and accurate adjustment of the

cutting edge of said dipper and at the same time subserve the requirements of strength and rigidity between the connected parts.

Mounted upon the upper face of the knuckle-pieces *c* and preferably formed integral therewith are hollow lugs *e*, provided on their upper faces with a series of teeth or serrations *f*. Coöperating with the lugs *e* are journal-bearings *g*, having foot-pieces provided with teeth or serrations *h*, adapted to engage the corresponding serrations *f* on the lugs *e*. In order to stiffen the journal-bearings and secure their accurate and simultaneous adjustment upon the lugs *e*, bearings *g* are preferably connected by an integral intermediate sleeve. To securely lock the respective journal-bearings to the lugs *e*, the former are provided with bolts *i*, which pass through slots *j* in the upper wall of the lugs *e*, as more particularly shown in Fig. 2.

The mode of applying and operating the invention may be briefly described as follows: Should it be desired to increase the cutting-angle of the teeth *a'* of the dipper *a*, the bolts *i* are slackened and the journal-bearings *g* are lifted, so that the teeth *h* thereon disengage the corresponding teeth on the lugs *e*. The journal-bearings are then advanced along the top surface of lugs *e* until the braces *k* tilt the dipper to the desired angle. The journal-bearings then are lowered until teeth *h* again engage the teeth *f* on the lugs *e*, but in an advance position, after which the bolts are set up and the parts rigidly locked together. To reduce the cutting-angle of the teeth *a'*, the journal-bearings are released from engagement with the lugs *e* as before and move backward thereon until the braces *k* pull the dipper into the desired adjustment, after which the journal-bearings are again locked by the bolts *i* in rigid engagement with the lugs *e*.

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

1. The combination of a dredge-dipper, a handle to which said dipper is hinged, a brace pivotally connected to the dipper, a journal-bearing in which the other end of said brace is pivoted, and means for adjustably securing said bearing to the dipper-handle; whereby the cutting-angle of the dipper may be varied.

2. The combination of a dredge-dipper, a

handle to which said dipper is hinged, a brace
pivotally connected to the dipper, a serrated
lug on the handle, a journal-bearing in which
the other end of the brace is pivoted and hav-
5 ing serrations meshing with those on the lug,
and means for adjustably securing said bear-
ing to the lug.

3. The combination of a dredge-dipper, a
handle to which said dipper is hinged, a brace
10 pivotally connected to the dipper, a serrated
lug on the handle, a journal-bearing in which

the other end of the brace is pivoted and hav-
ing serrations meshing with those on the lug,
and bolts carried by said bearing and engag-
ing a slot in said lug to adjustably secure said 15
bearing to the lug.

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

WALTER FERRIS.

Witnesses:

HARRY B. HAYDEN,
RIDGELY FLETCHER.