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No. 857,577. PATENTED JUNE 25, 1907.

A. L. BECKER.

DIPPER MOUNTING.

APPLICATION FILED DEC. 26, 1906.

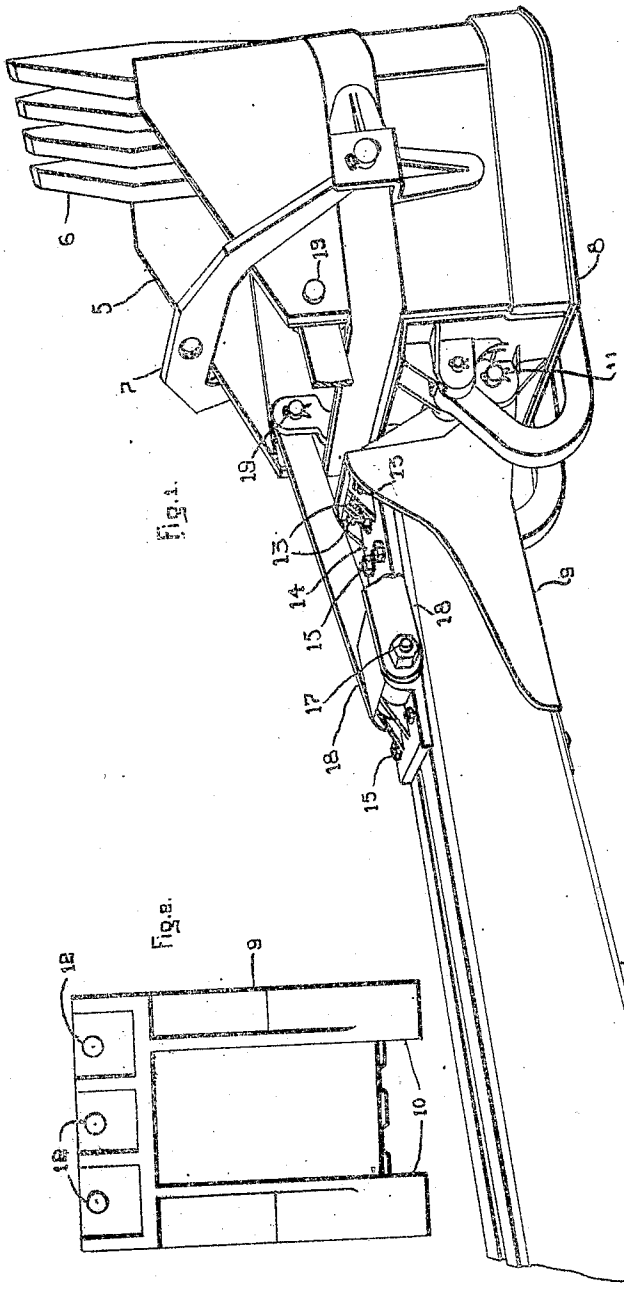


Fig. 4.

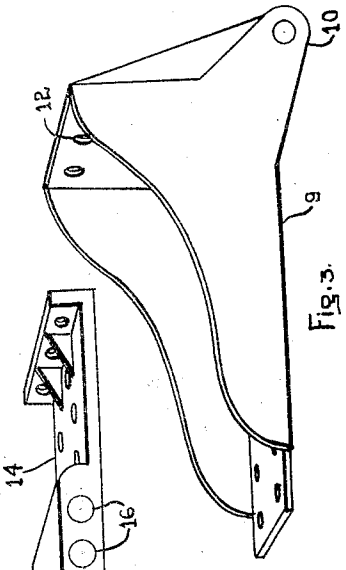


Fig. 3.

Fig. 4.

Fig. 8.

WITNESSES
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ARCHIBALD L. BECKER, OF TOLEDO, OHIO, ASSIGNOR TO THE VULCAN IRON WORKS COMPANY, OF TOLEDO, OHIO, A CORPORATION OF OHIO.

DIPPER-MOUNTING.

No. 857,577. Specification of Letters Patent. Patented June 25, 1907.

Application filed December 26, 1906. Serial No. 349,463.

To all whom it may concern:

Be it known that I, ARCHIBALD L. BECKER, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented a new and useful Dipper-Mounting, of which the following is a specification.

This invention relates to mounting a working member, and more particularly to such a rigid mounting of a working member subjected to alternate and unusual strains as will take up these strains or stresses within itself.

This invention has utility when employed in excavators. As therein adopted, its action as a torsional unit mounting effectually prevents the several connections to the dipper from working against each other and thereby loosening the dipper from its mounting on the directing member or handle.

Referring to the drawings: Figure 1 is a perspective view, with parts broken away, of an embodiment of the invention in an excavator working member or dipper; Fig. 2 is an elevation of the end of one of the mounting members which faces toward the dipper; Fig. 3 is a perspective view of the mounting member shown in Fig. 2, this view being of the pocket side in which the handle or directing member rests; and Fig. 4 is a perspective view of the second member of this unified two-piece mounting, being so placed relative to Fig. 3 that but slight movement would bring them in their assembled relation.

On the fragment of the boom 1, is mounted the bearing box 2, which box is broken away to show the pinion 3, mounted on the shaft carried by the box 2. By rotation of pinion 3, the directing member or dipper handle 4 is reciprocated. The excavator working member or dipper 5 has the operating portion or teeth 6. Intermediate this operating portion 6 and directing member 4, there is attached to the dipper the power connection 7 whereby the teeth are pulled into the material to be excavated, which material may be discharged from the dipper 5 by opening movement of swinging end 8.

The mounting member 9 has a pair of ears 10 pivotally connected by pin 11 to the dipper 5. In the end of the member 9 adjacent the dipper are bolt holes 12 somewhat larger than bolts 13. Accordingly when assembling the second member 14 of the mounting device about the directing member 4, the holes 12 permit of uniting members 9 and 14 by the detachable connection or bolts 13 to snugly fit the member 4, to which this unified two-piece pocket is firmly held by bolts 15 extending through member 4. The bolts 13 afford an independent connection, so far as the directing member is concerned, between the pieces of the unified mounting device, while bolts 15 constitute the sole means, in addition to the configuration of the parts to fit the directing member, for holding the device to the directing member.

In the member 14 are a plurality of transverse holes 16. By inserting the locking bolt 17 in different holes the rake or working angle of the dipper 5 may be varied, through the links 18 connected to pivot pins 19, to move dipper 5 about pin 11.

Operation: In excavating, the changes in depth of cut, the variations in hardness of material, as well as the actions due to the working member entering and leaving the material, set up alternate strains and stresses which the dipper transmits to its mounting, there, when separate or loose, acting as reversing torsions about the end of the directing member. Rigidity in dipper mounting to the directing member is sought by a plurality of connections to the dipper, which connections in these torsional actions against each other undergo severe treatment. With these mountings independently carried by the directing member, notwithstanding there are bolts through the member to the separate mountings, a disastrous shearing action results. In the construction herein disclosed, the mounting is unified and in itself takes up these relative strains without transmitting them to the handle 4, for by being so united the dipper connections to the mounting cannot work against each other. Therefore, there is produced by the union of directing member and dipper a true and rigid lever. Considering the fulcrum as at pinion 3, the power as at bail 7, and the weight or work at teeth 6, this is a lever of the third class. The unified mounting results in the overlapping power and weight arms acting as one piece and being subjected only to shear and bending. The bolts 13 holding the members of the unified mounting together are not subjected to shear, but to tension as are bolts 15 holding the members of the unified mounting into firm position on the directing mem-

ber 4, and are non-shear-sustaining, for the pocket formation of the mounting precludes such result.

The structure disclosed is simple, of few parts, and moreover effective as a torsion absorbing mounting.

The idea of the invention herein disclosed is not to be limited by the drawings and description to any greater extent than the ordinary meaning of the terms of the claims demand. In other words, the elements set forth in the claims are to be interpreted broadly, giving me the advantage of equivalents in the protection of my idea.

What is claimed and it is desired to secure by Letters Patent is:

1. A dipper, a directing member therefor, an intermediate mounting device comprising two pieces both directly engaging the member, a detachable connection uniting the pieces of the device independently of the directing member, and a plurality of connections from the dipper to the device.

2. A dipper, a directing member therefor, an intermediate unified mounting device adjustable to directly clamp surfaces of the directing member lying in planes perpendicular to the working of the dipper, and a plurality of connections from the dipper to the device.

3. A dipper, a directing member therefor, an intermediate unified mounting device comprising two pieces both directly engaging the member, means for connecting the two pieces, additional devices constituting the sole means for holding the device on the directing member by extending into the directing member, and a plurality of connections from the dipper to the device.

4. A dipper, a directing member therefor, an intermediate mounting device having a wall abutting the end of the directing member, a second wall extending along one side of the member from said end, and a third wall detachably connected to the abutting wall, said second and third walls directly engaging the member and adjusting means mounted on one of the walls for varying the working angle of the dipper.

5. A pivotally mounted excavator working member having an operating portion, a directing member, a power applying connection intermediate the operating portion and the directing member, a unified mounting device for the working member, on the directing member and having opposing walls parallel to the pivotal mounting of the working member, and means for drawing the walls directly into engagement with the directing member.

6. A dipper, a directing member therefor, a mounting device having a plurality of connections to the dipper, said mounting device eliminating torsion between the connections and the member, and non-shear-sustaining tension bolts constituting the sole additional means for holding the device to the directing member.

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

ARCHIBALD L. BECKER.

Witnesses:

GEO. E. KIRK,

FRED SCHWINREVERS.