G. T. CHAMBERS.

TOOTH FOR POWER SHOVELS.

APPLICATION FILED JAN. 14, 1916.

1,220,186. **Patented Mar. 27, 1917.**

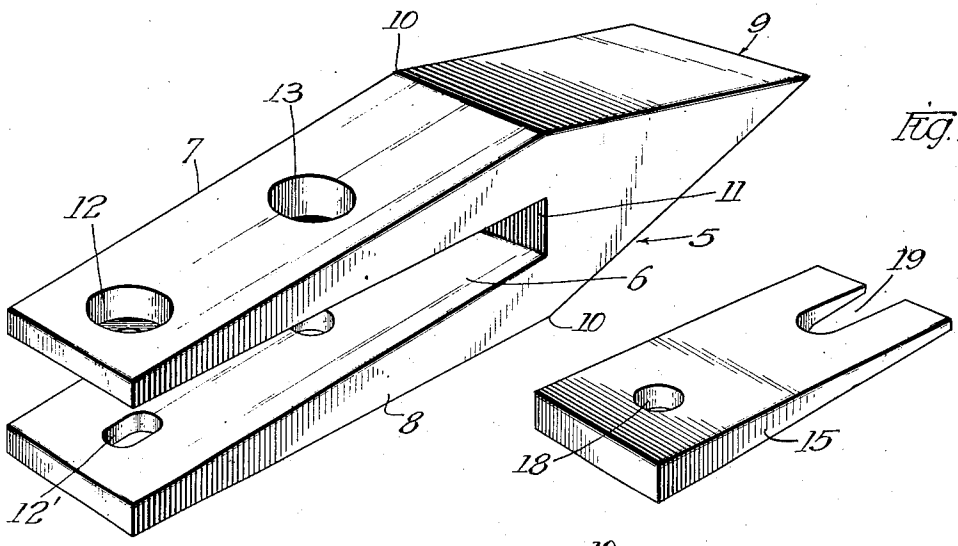


Fig. 1.

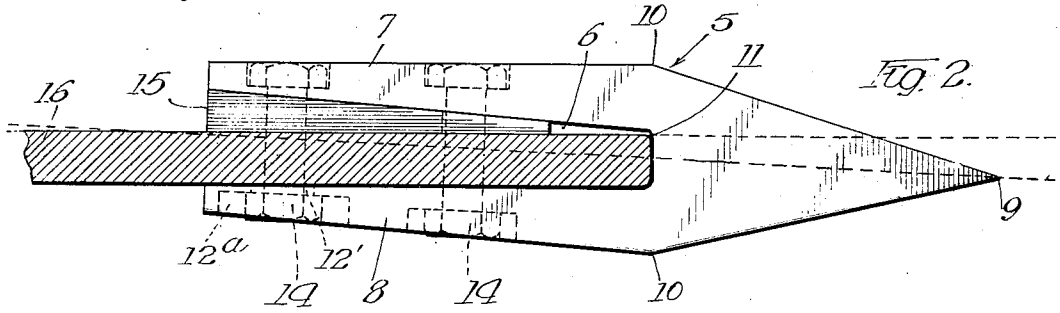


Fig. 2.

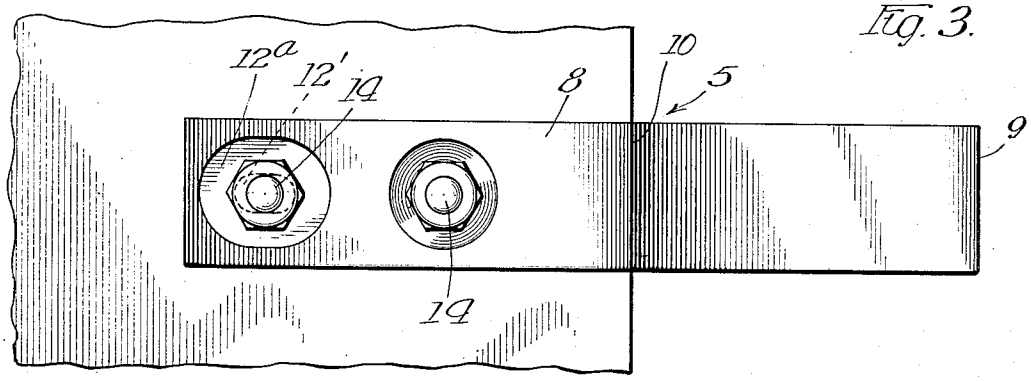


Fig. 3.

Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE T. CHAMBERS, OF LA GRANGE, ILLINOIS.

TOOTH FOR POWER-SHOVELS.

1,220,186. Specification of Letters Patent. Patented Mar. 27, 1917.

Application filed January 14, 1916. Serial No. 72,025.

To all whom it may concern:

Be it known that I, GEORGE T. CHAMBERS, a citizen of the United States, residing at La Grange, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Teeth for Power-Shovels, of which the following is a specification.

My invention relates to improvements in a tooth for power shovels and the like.

One of the objects of my invention is to provide a tooth for a power shovel, of relatively refractory material, such as manganese steel, or the like, and so arranged, with reference to a plane including the top surface of the bottom of the bucket, that its median plane will be inclined downwardly beyond the front and top edge of the bucket, thereby placing the point of the tooth in substantially the same horizontal plane as the bottom surface of the bucket plate, causit more positively to "bite" into the debris or soil to be handled by the bucket.

Another object of my invention is to make the teeth reversible so that the wear of the lower sides of the tooth, by use, will have the effect of sharpening the tooth, when the tooth is reversed.

Other and further objects of my invention will become readily apparent, to persons skilled in the art, from a consideration of the following description when taken in conjunction with the drawings, wherein:—

Figure 1 is a perspective view of the tooth and the wedge that inclines the tooth with respect to the bucket bottom.

Fig. 2 is a side elevation showing the bottom of the bucket in section.

Fig. 3 is a plan view of the tooth.

In all the views the same reference characters are employed to indicate similar parts.

In my copending application, filed August 6th, 1914, Serial No. 855,352 I have shown a tooth of the same general character as that described in this specification, but adapted to be bodily displaced with reference to the bottom of the bucket in order to lower the point of the tooth. While this manner of lowering the point of the tooth is advantageous to some extent, it has not the beneficial advantages that are obtained when the tooth is inclined with reference to the bucket bottom. I have found, from practical experience, that when the tooth is inclined, with respect to the bucket bottom, it will bite into or more positively engage the debris or material desired to be handled thereby. The downward inclination, or trend of the tooth, tends to hold the bucket to the work, to facilitate loading of the shovel, when pressure is applied to force the bucket into earth or loose stone or other similar material.

The tooth 5, of my present invention, is preferably cast in one piece, with a centrally disposed, longitudinally extending and outwardly flaring, or inclined slot 6, thereby providing tapering legs 7 and 8, one on each side of the longitudinal median plane. The point 9 of the tooth is symmetrically tapered rearwardly to the points 10—10 which points are in substantially the same transverse plane as the inner boundary 11 of the slot 6. Countersunk holes 12 and 13 are cast or otherwise made through the limbs 7 and 8 in the countersunk portion of which the heads and nuts of the attaching bolts 14 are adapted to be contained. One of the rear holes 12, as the hole 12′, is elongated, and in the same manner the countersunk portion 12^a of said hole is elongated, so as to provide for some lateral movement for the rear bolt 14, necessary as a result of the tapered slot, when the tooth is reversed. A tapered shim 15 is to be placed between the upper surface of the shovel bottom 16 and the inner surface of the upper leg, as the leg 7, shown in Fig. 2, to give the tooth the proper inclination, so that the point 9 will be below the plane including the top surface of the shovel bottom. The shim is provided with a rear hole 18 for the rear bolt 14 and with a slot 19 for the front bolt 14. The shim 15 may be made of some relatively softer material, as it is not subjected to wear, the principal office that it performs is having to hold the tooth in proper position. It also serves, however, for taking up any inequalities that may exist in the varying dimensions of the slot 6 in the cast tooth so that each tooth may be made to fit tightly upon the shovel bottom 16. Furthermore, owing to the fact that the shim 15 is tapered it may easily be driven from engagement with the tooth when it is desirable to reverse the tooth or to replace it with a new tooth.

When the salient point 9 of the tooth becomes worn, it thereby gradually approaches a plane including the top surface of the bucket to which it is attached, so that when the tooth is reversed, this sharp point, produced by wear, is below its normal position

when the tooth is new, to engage the material to be handled by the bucket, thereby the wear effectively sharpens the tooth, the point of the tooth following this taper upon the opposite side from which the wear occurs causes the point to effectively become lower and lower as the wear continues.

Having described my invention, what I claim is:

In combination with a power bucket having a flat bottom, of substantially uniform thickness, of a one piece reversible tooth of relatively refractory metal, having an integral point projecting beyond the front edge of the bucket and having a pair of integral, rearwardly tapering lugs separated by a tapering slot and transversely perforated near the outer end of the slot and intermediate said perforation and the inner end of the slot, the former perforations being longitudinally elongated to accommodate the securing bolt when the tooth is reversed; a wedge of relatively softer metal tapered at substantially the same angle as the slot, and having round and elongated openings registering with the respective perforations in the tooth to underlie the upper leg within the bucket and bolts passing through said bucket, tooth and wedge.

In testimony whereof I hereunto set my hand in the presence of two subscribing witnesses.

GEORGE T. CHAMBERS.

In the presence of—
FORÉE BAIN,
MARY F. ALLEN.