June 18, 1935. L. W. VAN BUSKIRK 2,005,016

DIGGING TOOTH

Filed June 27, 1932

FIG. 1.

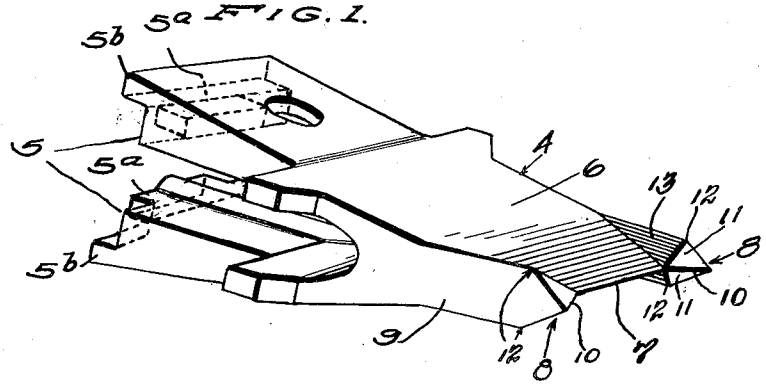


FIG. 2.

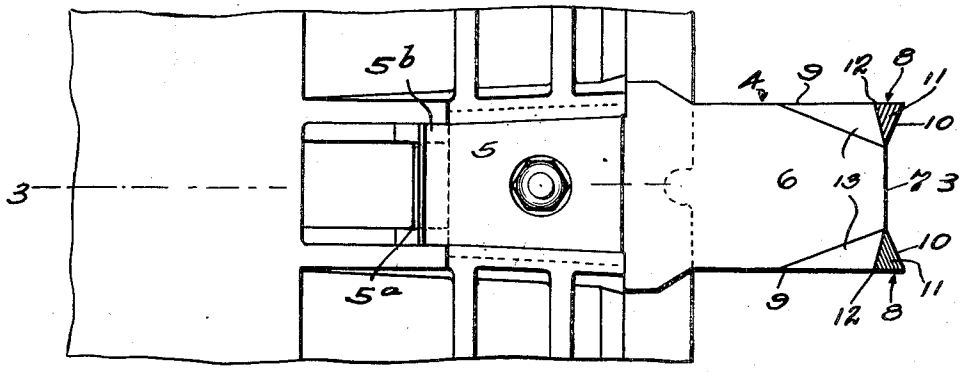
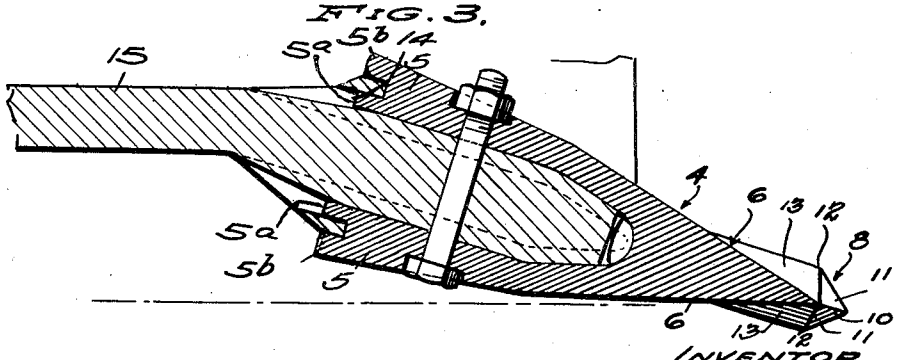


FIG. 3.



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2,005,016

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DIGGING TOOTH

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Application June 27, 1932, Serial No. 619,561

9 Claims. (Cl. 37—142)

My invention relates to digging teeth and particularly to a cutting edge for teeth used on power operated shovel dippers, the present invention being a continuation in part of my Patent No. 1,959,847, patented May 22, 1934.

It is well known in the art that the cutting edges of digging teeth wear rapidly, especially at corners. Efforts have been made to overcome this difficulty by using teeth having a heavier, thicker, or otherwise re-inforced cutting portion, but so far no cutting portion for this purpose has been designed which has not lessened the digging efficiency of the dipper bucket.

It is the object of this invention to provide a cutting portion for a digging tooth which will give a maximum of service without its digging efficiency being impaired.

A further object is to provide a digging tooth, the cutting edge of which increases in cross-section at the corners.

A further object is to provide an improved tooth holding arrangement.

The invention also resides in certain novel features of construction and design which will be readily apparent to those skilled in the art.

In the accompanying drawing, forming a part of this specification, and in which like numbers are used to designate like parts throughout the same,

Figure 1 is a perspective view of a tooth embodying my invention;

Figure 2 is a top view of the same; and

Figure 3 is a central longitudinal section through the tooth.

Referring to the drawing, the numeral 4 designates a wedged-shaped tooth having the rearward projecting jaws 5 of increasing rearward cross-section for securing it to the tooth base on the dipper front. It is to be understood, however, that the cutting edge which is formed with the body 4, may be either detachably secured to a tooth base as illustrated in the accompanying drawing, or may be formed integral therewith.

The upper and lower surfaces 6 of the wedge-shaped body come together to form a central cutting edge 7 at the outer extremities of which are formed similar thickened wedge-like points generally designated by the numeral 8. To form each of these points 8 the central cutting edge 7 is extended in the same horizontal plane but forwardly until the lines of the sides 9 of the tooth are reached, thus forming the cutting edges 10. Each of the angular cutting edges 10 have similar wedge-like faces 11.

From the points 12 at the back outer corners of the faces 11, the added metal forming the portions 8 is carried backward until it reaches the main faces 6 of the tooth, thus forming similar upper and lower side faces 13 sloping toward and meeting surfaces 6.

The fact that these sides 13 slant away from each of the main sides 6 tends to prevent foreign material, such as dirt and rocks from becoming packed or wedged behind the cutting edges, and also provides a very strong construction.

The body portions of the wedge points 8 brace and materially stiffen the forward portion of the tooth body and embody sufficient strength and rigidity therein, so as to prevent breakage or fracture of the tooth in service; furthermore, these points extending as they do beyond the main cutting edge 7 stand the brunt of the wear and tend to break the resistance of the material being dug for the thinner main edge 7. The edges 10 of points 8 being angularly disposed with respect to the intermediate edge 7, as shown in the drawings, have a slicing effect which facilitates the cutting ability of the tooth, especially in hard material, and greatly increases the efficiency of the tooth and dipper bucket as a whole due to the maintenance of a square, rather than a rounded cutting edge.

When the cutting edge has been made of maximum service, it becomes more necessary to provide the balance of the tooth with such qualities that its life and service is correspondingly increased, and if possible provide a tooth that will in addition protect its holding mechanism for prolonged use.

Similar digging teeth with constant contour cutting edge are now made with small tongues 5^a that are a continuation, smaller in area, of the top and bottom wings 5 and fit into pockets 14 on the front 15 but which wear thin and break out. It is, therefore, of marked improvement to protect these pocket surfaces from this wear by extending the top surface of these top and bottom wings as 5^b, best shown in Figure 1.

It is to be understood that changes may be made in shape, size, and arrangement of parts may be made without departing from the spirit of the invention, or the scope of what is claimed.

Having thus described my invention, what I wish to claim by Letters Patent is:

1. A digging tooth having a cutting edge having an increase in cross-section at its outer edges, providing forwardly jutting cutting portions extending from the cross-sectionally increased side portions beyond said cutting edge.

2. A digging tooth providing a front cutting edge of increased cross-section at its corners, and providing forwardly jutting cutting portions extending from the cross-sectionally increased corners beyond said cutting edge, and the thickness of said cutting portions adjacent their outer ends being greater than the thickness of said tooth adjacent the intermediate portion of the cutting edge.

3. A digging tooth providing a front cutting edge of increased cross-section at its corners, and providing forwardly jutting cutting portions extending from the cross-sectionally increased corners beyond said cutting edge, and the thickness of said cutting portions adjacent their outer ends being greater than the thickness of said tooth adjacent the intermediate portion of the cutting edge, and each of said forwardly jutting portions providing a cutting edge tapered in the direction of the intermediate portion of the cutting edge, and providing a continuation thereof.

4. A digging tooth having a wedge-shaped body, a cutting edge, and thickened reinforcements at the corners of the cutting edge, each of the said reinforcements having cutting edges angularly disposed in relation to the main cutting edge, and the cutting edges of said reinforcements forming a continuation of the main cutting edge of the tooth.

5. A digging tooth having a wedge-shaped body, a cutting edge having forwardly extending points at its corners, each of the points having a wedge-shaped face and a cutting edge disposed at an angle to the main cutting edge, and side faces formed on the inner sides of the forwardly extending points, the said sides sloping into sides of the wedge-shaped tooth body.

6. A digging tooth comprising a body having a digging forward edge portion and providing rearwardly extending lip-engaging wings, seating tongues carried by said wings, and said wings being of increased cross-section in the direction of their rear ends whereby to provide thickened extensions overlying and protecting said tongues.

7. A digger tooth having a entrant edge and side flange like portions of increased cross-section with respect to said edge whereby to provide a cross-sectionally increased entrant edge at each side in substantial continuation of the intermediate portion of the cutting edge.

8. As a new article of manufacture, a digging tooth of increased cross-section at the outer corners of its cutting edge, said tooth having diverging rearward wings of increasingly larger cross-sectional area, rearwardly extending tongues projecting from substantially upper and lower surfaces of said wings, one tongue being adapted to engage in a pocket of a bucket front and the other tongue to overlie and protect a wall of said pocket.

9. As a new article of manufacture a digging tooth having a body providing an entrant edge and rearwardly extending wings providing vertically spaced tongue extensions, one tongue being adapted to seat in a dipper-front-provided pocket and the other tongue being adapted to overlie and protect a wall of said pocket.

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