Feb. 5, 1935. R. S. WEIMER 1,989,776

TOOTH BASE FOR EXCAVATING BUCKETS

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Fig. 1.

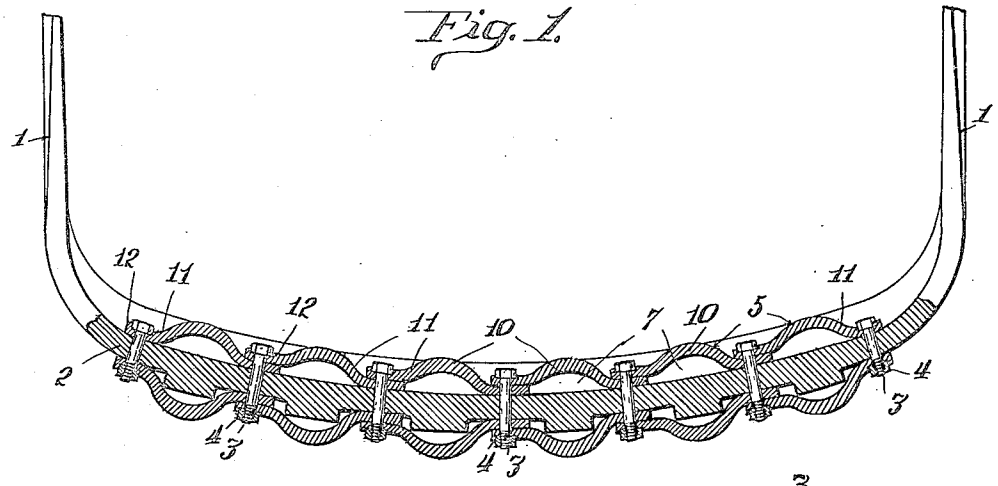


Fig. 2.

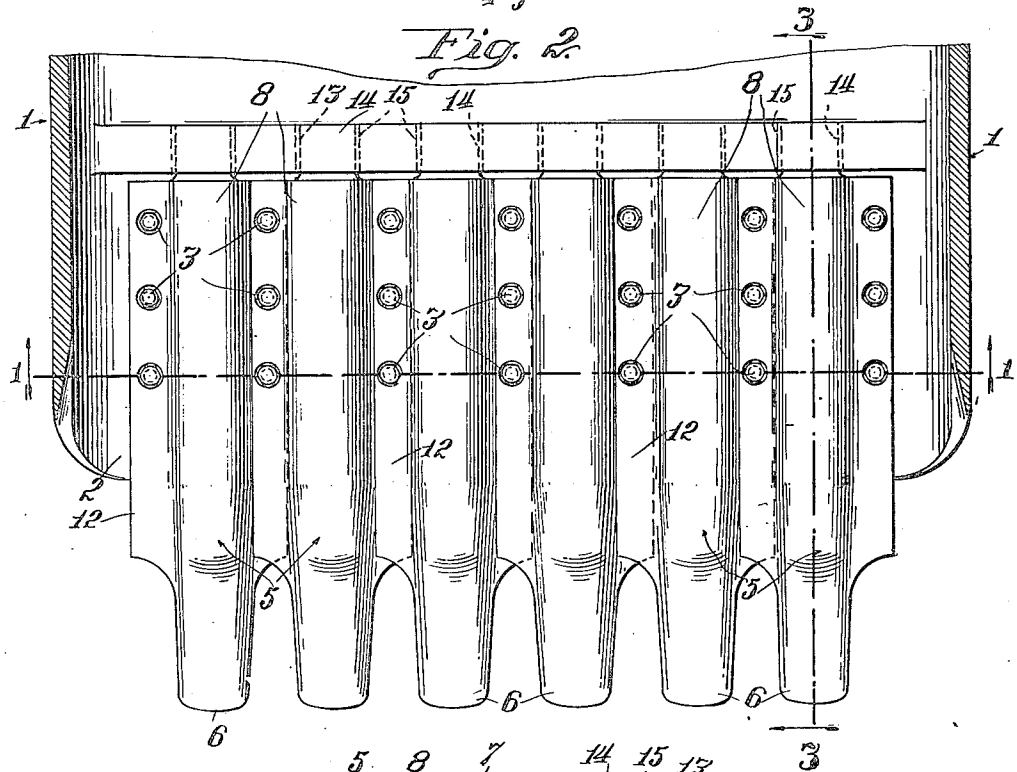
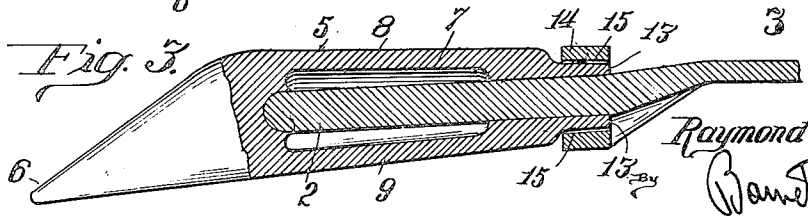


Fig. 3.

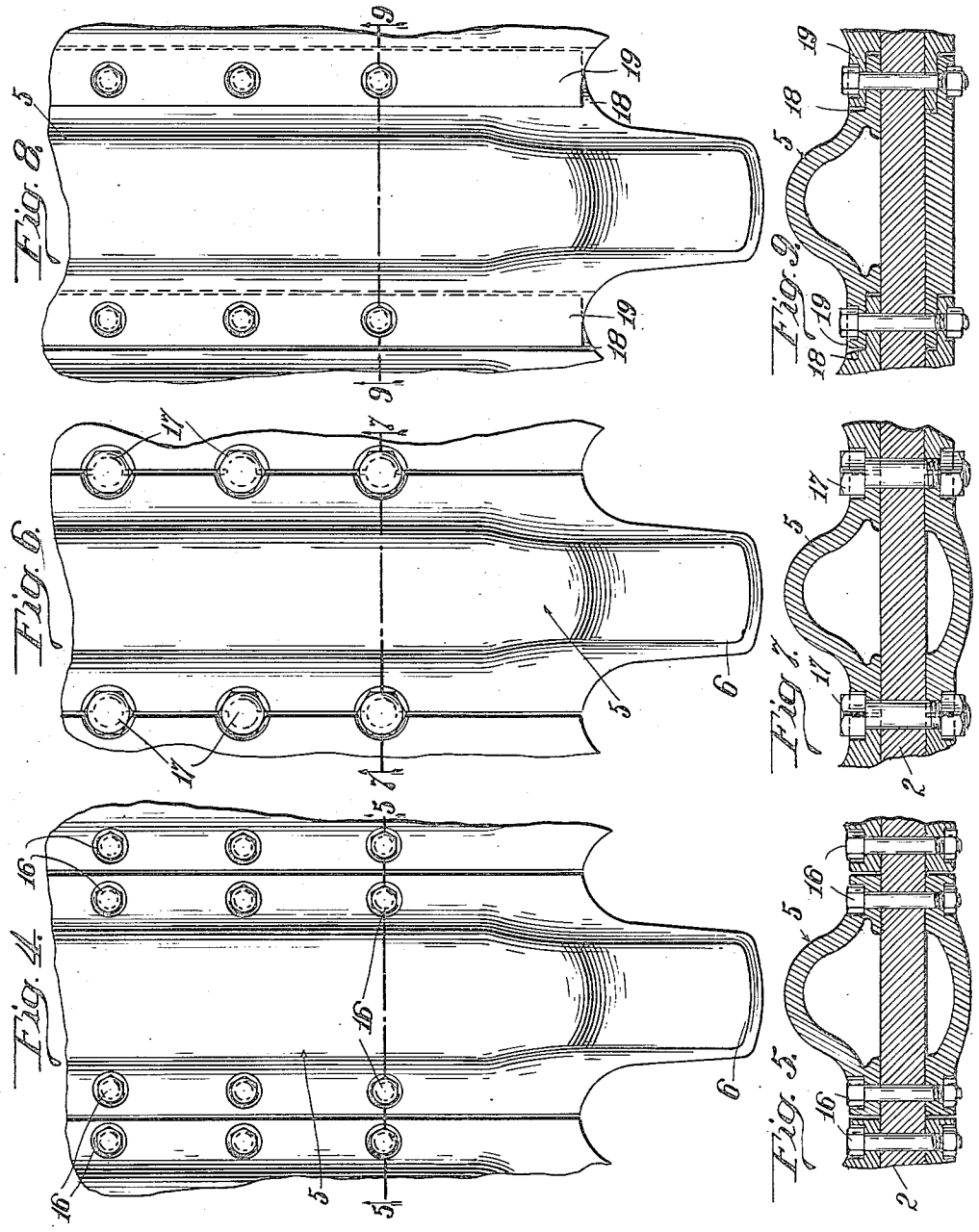


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TOOTH BASE FOR EXCAVATING BUCKETS

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TOOTH BASE FOR EXCAVATING BUCKETS

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Fig. 12.

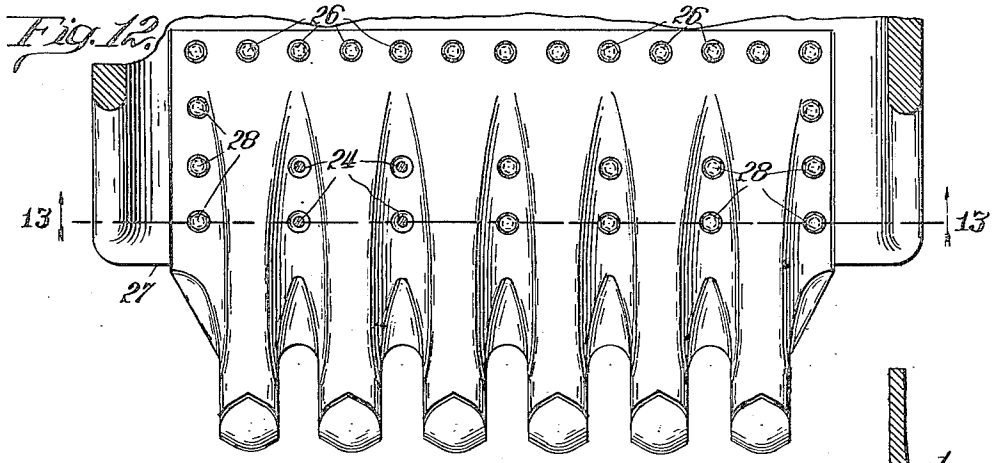


Fig. 13.

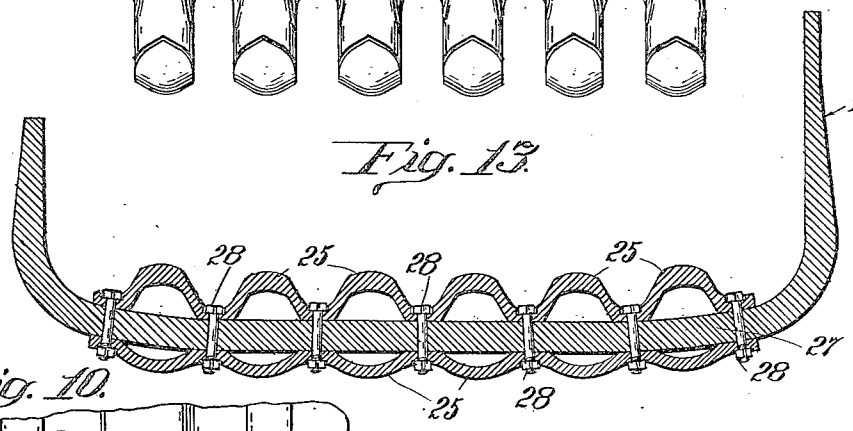


Fig. 10.

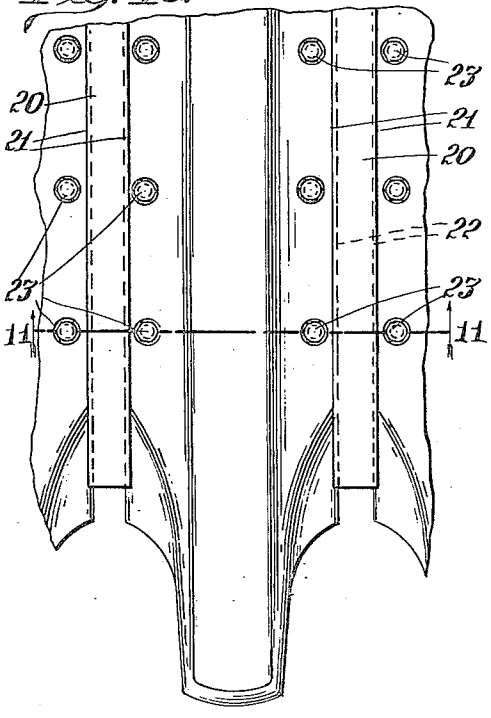
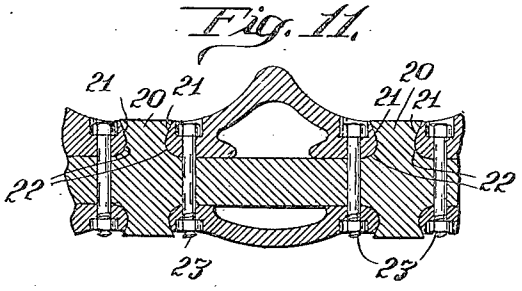


Fig. 11.



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1,989,776

TOOTH BASE FOR EXCAVATING BUCKETS

Raymond S. Weimer, Wilmington, Ill.

Application April 14, 1933, Serial No. 666,138

18 Claims. (Cl. 37—141)

This invention relates to new and useful improvements in tooth base for excavating buckets and is directed particularly to bases constructed along stream lines, adapted to brace adjacent bases against lateral tilting or movement and be secured to the front of the bucket in a strengthened manner.

The primary object is to provide inter-related bases of stream line contour adapted to resist the accumulating or caking of dirt in the bucket.

Another object is to provide bases interlocked with one another and secured to the front by means positioned between the ribbed portions of the bases.

Still another oject is to provide a strengthened base construction adapted to lengthen the life of the front and bases by distributing the stresses and strains.

A further object is to provide a base construction which will facilitate the positioning and fastening of bases on the part of a bucket and assure a uniform assembly.

Another object is to provide a base construction which when assembled will protect the front from wear.

Still another object of my invention is to provide a novel base construction that will reduce the weight of an assembled bucket unit.

A still further object is to produce such a base construction that will permit the utilization of worn bucket fronts which hitherto have been useless because of their condition.

Other objects will be apparent from the following description and drawings.

Fig. 1 is a sectional view taken along line 1—1 of Fig. 2.

Fig. 2 is a plan view of a portion of a bucket showing bases and teeth assembled on a front.

Fig. 3 is a section along line 3—3 of Fig. 2.

Fig. 4 is a plan view of a partial base and front assembly showing a slightly different embodiment of my invention.

Fig. 5 is a section taken along line 5—5 of Fig. 4.

Fig. 6 is similar to Fig. 4 showing another embodiment.

Fig. 7 is a section taken along line 7—7 of Fig. 6.

Fig. 8 is also similar to Fig. 4 showing another embodiment.

Fig. 9 is a section taken along line 9—9 of Fig. 8.

Fig. 10 is also a plan of a partial base and front assembly illustrating still another embodiment.

Fig. 11 is a cross section taken on line 11—11 of Fig. 10.

Fig. 12 is a plan view of a portion of a bucket disclosing another form of base mounted on the front.

Fig. 13 is a cross section on line 13—13 of Fig. 12.

In detail 1 represents the sides of an excavating bucket and 2 the front on which are mounted and secured by bolts 3 and nuts 4 a plurality of bases 5 on the extending ends of which are mounted points or cutting members 6. The bases 5 are bifurcated as at 7, Fig. 3, so as to be slipped on to the front 2 with the upper portion 8 positioned above the top surface of the front and the lower portion 9 below the bottom surface of the front. A cross section taken through one of the bases at its bifurcated portion shows that the upper and lower portions 8 and 9 respectively are each constructed in the form of a concavo-convex bulge 10 terminating in gradual reverse curves 11 to substantially parallel side portions 12 which merge in approximately the same plane with adjoining side portions of adjacent bases. The surface of the forward or cutting end of the base follows the same general external contour. The rear of upper and lower portions of the base terminates in tongues 13 aligned with the bulged portions. Across the upper and lower surfaces of the front are formed rib members 14 provided with lateral slots 15 adapted to receive the tongues 13 when the bases are in assembled position. The lower surface of the front 2 is formed with a plurality of longitudinally extending ribs 13 and in positioning the bases on the front, the side portions 12 are placed between these ribs. The side portions 12 are adapted to overlap and underlie the similar side portions of adjoining bases so as to support and brace each other and enable a single bolt and nut to be passed through the side portions 12 of two adjacent bases so that a minimum of such fastening means need be used in securing a plurality of bases to a front. The bases overlap to a point beyond the edge of the front 2, as is clearly shown in Fig. 2, so that the front is entirely protected and is not subjected to any wear by contact with the earth. By constructing the bases of the above described contour, an assembled unit presents a stream lined effect of gradual reverse curves, thus minimizing sharp angles which tend to catch and hold dirt, clay and the like and this interferes with the efficient operation of the machine. The aggregate weight of such an assembly is less than similar ones heretofore commonly used and the

strength is greater, due to the concavo-convex and interlocking construction.

The forms shown in Figs. 4 to 9 inclusive are merely illustrative of different ways of securing the bases to the front.

In Figs. 4 and 6 the bases do not overlap each other, terminating at their sides adjacent the next base. Such forms may be secured to the base either severally, as shown in Figs. 4 and 5, by means of separate bolts 16 for each base, or jointly, as shown in Figs. 6 and 7 by means of common bolts 17 adapted to fasten two adjacent sides at the same time.

Figs. 8 and 9 illustrate a form in which the sides 12 are morticed and tenoned, as at 18 and 19, so as to dovetail together and are secured by bolts in the same manner as the form shown in Figs. 1 and 2.

In Figs. 10 and 11 is shown a form of assembly in which longitudinally extending ribs 20 are formed on the top and bottom surface of the front at spaced intervals and provided with grooves 21. The width of each base is slightly less than the space between the ribs, and the edges are curved as at 22 so as to fit within the grooves 21. In this manner the bases are each separately slid onto the front fitting between the opposed grooves 21 of the ribs 20 and then are individually secured by bolt means 23.

Figs. 12 and 13 illustrate still another form of my improved base construction in which a plurality of bases of the general stream line and bifurcated construction heretofore described are formed together as a unit 22. The unit is provided with holes 24 positioned between the concavo-convex bulges 25 in the portions corresponding to the side portions 12 of the structure shown in Figs. 1 and 2 and along the rear edge of the unit, as at 26. The front is provided with corresponding holes so that when the unit is slid onto the front 27, means 28 may be inserted through said holes to secure it in position.

I claim:

1. In a tooth base construction for excavating buckets, a plurality of bifurcated bases mounted on the front of a bucket, the upper and lower portions of each of said bases presenting in cross section concavo-convex bulges terminating in gradual reverse curves to substantially parallel side portions, the side portions of each base adjoining side portions of adjacent bases and means for securing said bases to the bucket front positioned through said side portions.

2. In a tooth base construction for excavating buckets, a plurality of bifurcated bases mounted on the front of a bucket, the upper and lower portions of each of said bases presenting in cross section concavo-convex bulges terminating in gradual reverse curves to substantially parallel side portions, the side portions of each base interlocking with the side portions of adjacent bases and means for securing said bases to the bucket front passing through said interlocked side portions.

3. In a tooth base construction for excavating buckets, a plurality of bifurcated bases mounted on the front of a bucket, the upper and lower portions of each of said bases presenting in cross section concavo-convex bulges terminating in gradual reverse curves to substantially parallel side portions, the side portions of each base merging with the side portions of adjacent bases to present an unbroken stream lined contour.

4. In a tooth base construction for excavating buckets, a plurality of bifurcated bases mounted on the front of a bucket, the upper and lower portions of each of said bases presenting in cross section concavo-convex bulges terminating in gradual reverse curves to substantially parallel side portions, the side portions of each base merging with the side portions of adjacent bases to present an unbroken stream lined contour, said base construction being formed as a unit.

5. In a tooth base construction for excavating buckets, a plurality of bifurcated bases mounted on the front of a bucket, the upper and lower portions of each of said bases presenting in cross section concavo-convex bulges terminating in gradual reverse curves to substantially parallel side portions, the side portions of each base merging with the side portions of adjacent bases to present an unbroken stream lined contour and means positioned through said side portions for securing said construction to said front.

6. In a tooth base construction for excavating buckets, a plurality of bases mounted on the front of a bucket, the contour of a part of each of said bases being a convex bulge terminating in reverse curves to substantially parallel side portions joining in substantially the same plane with the side portions of adjacent bases.

7. In a tooth base construction for excavating buckets, a plurality of bases mounted on the front of a bucket, the contour of a part of each of said bases being a convex bulge terminating in reverse curves to substantially parallel side portions, one of said side portions overlapping the side portion of its adjacent base, the other underlying the side portions of its adjacent base.

8. In a tooth base construction for excavating buckets, a plurality of bases mounted on the front of a bucket, the upper contour of each of said bases being a convex bulge terminating in reverse curves to substantially parallel side portions joining in substantially unbroken plane with the side portions of adjacent bases and means for securing said bases to said front positioned between said bulges.

9. In a tooth base construction for excavating buckets, a plurality of bifurcated bases mounted on the front of a bucket, the contour of each of said bases being a pair of opposed convex bulges terminating in reverse curves to substantially parallel side portions joining in substantially unbroken line with the side portions of adjacent bases commencing at a point in advance of the front.

10. In a tooth base construction for excavating buckets, a plurality of bases, the contour of each base in cross section being an upper and lower convex bulge terminating in reverse curves to substantially parallel side portions, tongues formed on the rear of each base, slotted ribs extending across the top and bottom surfaces of the front, said tongues positioned within slots in said ribs, the side portions of each base adjoining the side portions of adjacent bases, and means for securing said bases to said front positioned through said side portions.

11. A tooth base for excavating buckets, comprising a longitudinally and horizontally bifurcated member presenting in cross section contour an upper and lower convex bulge merging in reverse curves with substantially parallel side portions, said member adapted to be secured to the front of a bucket by means positioned through said side portions.

12. In a tooth base construction for excavating buckets, a plurality of bases mounted on the front of a bucket each of said bases having substan-

tially parallel side portions joining in substantially the same plane with the side portions of adjacent bases.

13. In a tooth base construction for excavating buckets, a plurality of bases mounted on the front of a bucket, each of said bases having substantially parallel side portions, one of said side portions overlapping the adjoining side portion of its adjacent base, the other underlying the adjoining side portion of its adjacent base.

14. In a tooth base construction for excavating buckets, a plurality of bases mounted on the front of a bucket, each of said bases having substantially parallel side portions, said side portions being interlocked with the side portions of adjacent bases.

15. In a tooth base construction for excavating buckets, a plurality of bases mounted on the front of a bucket, each of said bases having substantially parallel side portions, said side portions furnishing lateral support to adjacent bases, and means for securing said bases to the front positioned through said side portions.

16. A tooth base construction for excavating buckets comprising a single bifurcated unit, the upper surface presenting in contour a plurality of convex bulges joining each other in reverse curves, the lower surface having a similar contour, the lower bulges being aligned with the upper ones and means for securing said unit to a bucket front.

17. In a tooth base construction for excavating buckets, teeth, a plurality of bifurcated bases mounted on the front of a bucket, the upper surface presenting in lateral contour a plurality of convex bulges joined by reverse curves, the under surface presenting a similar contour the bulges being aligned with those of the upper surface, and means for securing said bases to said front comprising a plurality of bolts positioned between said bulges, each one adapted to secure a portion of the sides of two adjacent bases.

18. In a tooth base construction for excavating buckets, a plurality of bases mounted on the front of a bucket, the contour of one surface of each of said bases being a convex bulge terminating to substantially parallel side portions joining in unbroken plane with the side portions of adjacent bases, said construction being formed as a unit and means for securing said unit to said front.

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