Nov. 19, 1963 H. W. WYLIE 3,111,094

RAIL TRACK CONSTRUCTION

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Fig. 1

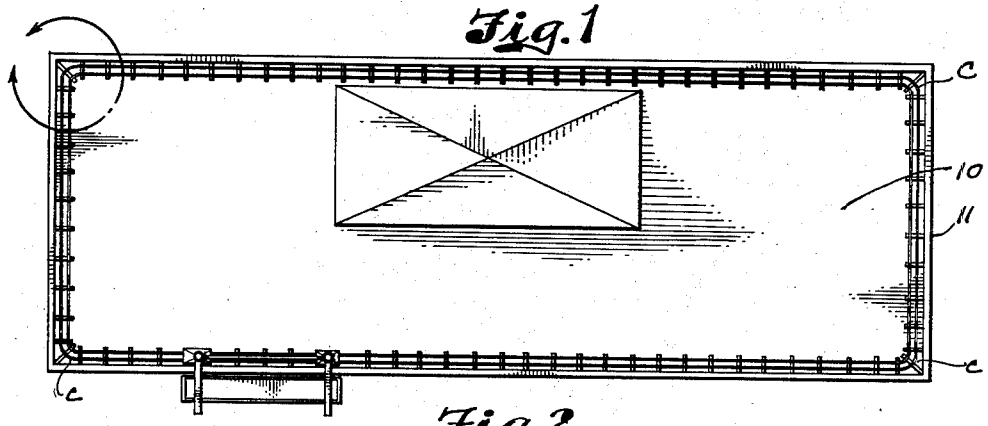
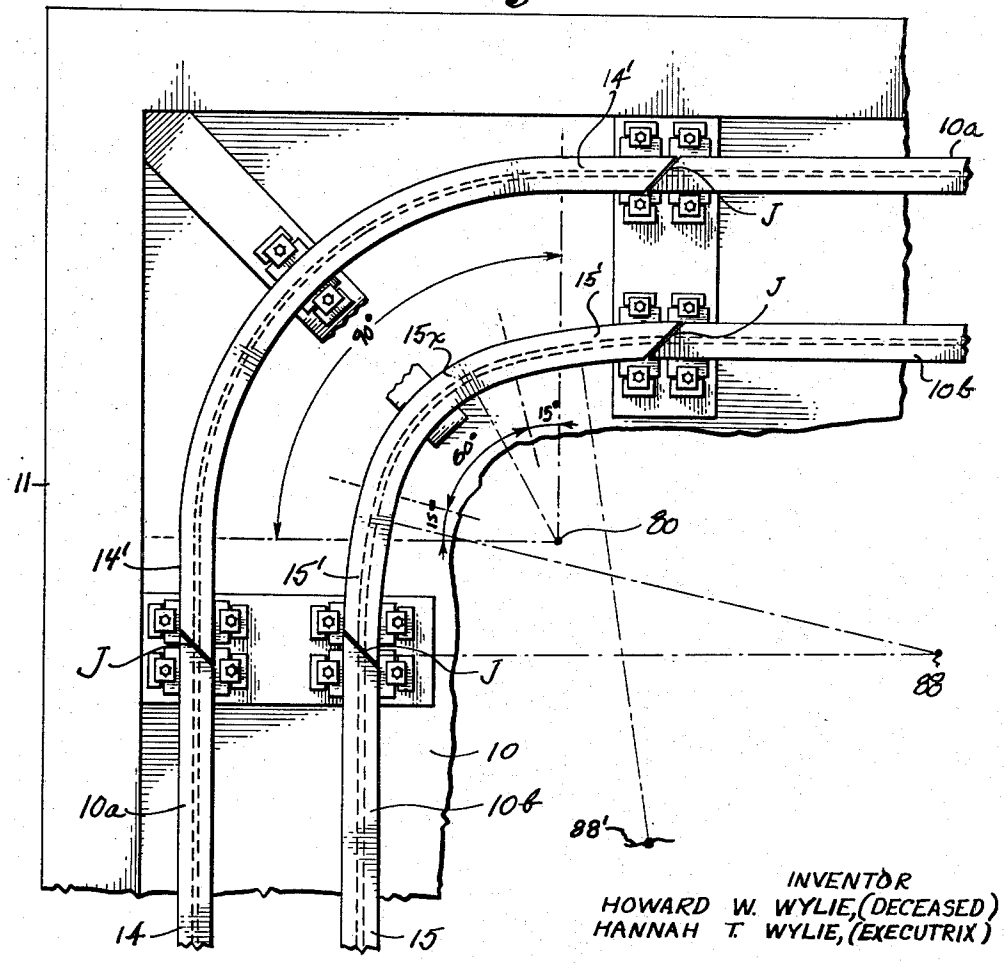


Fig. 2



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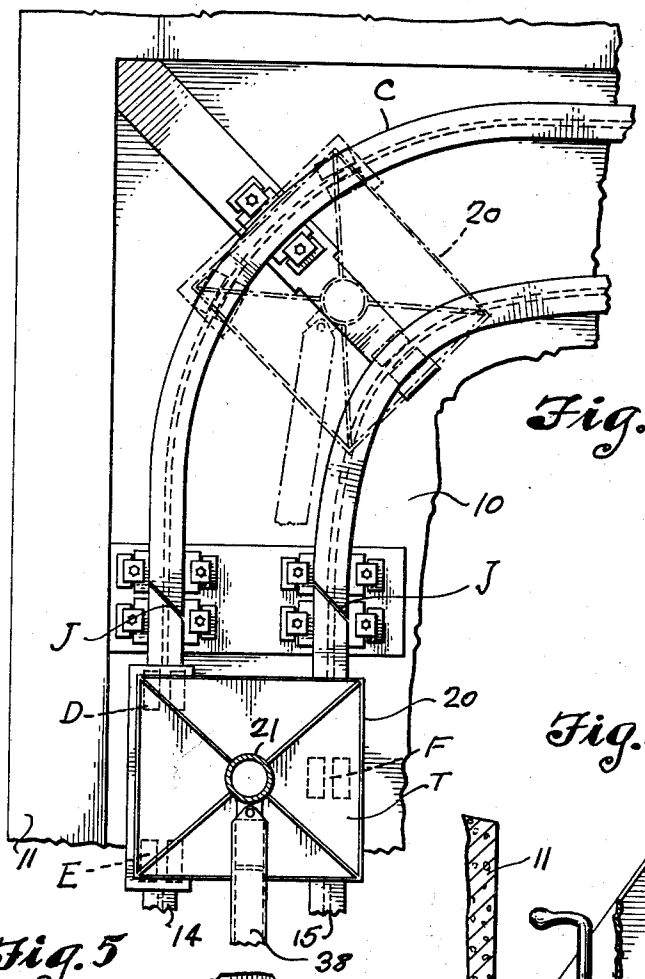


Fig. 4.

Fig. 5

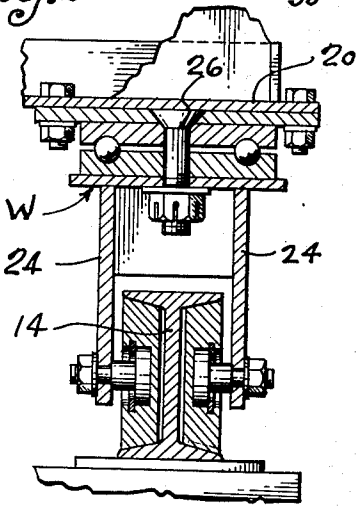
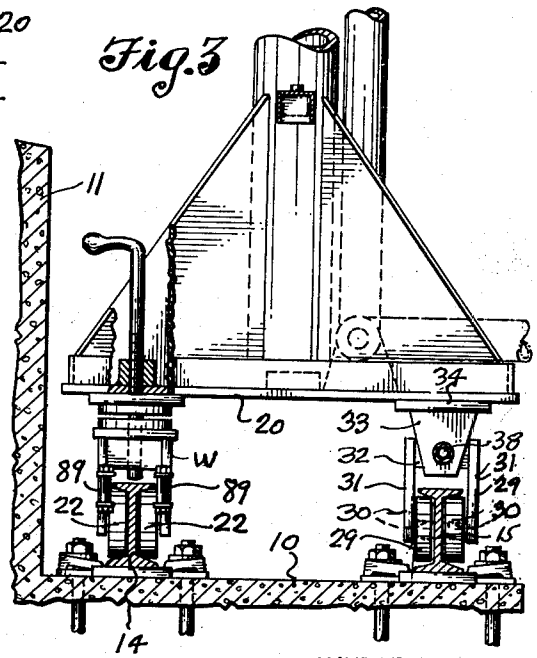


Fig. 3



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Fig. 6

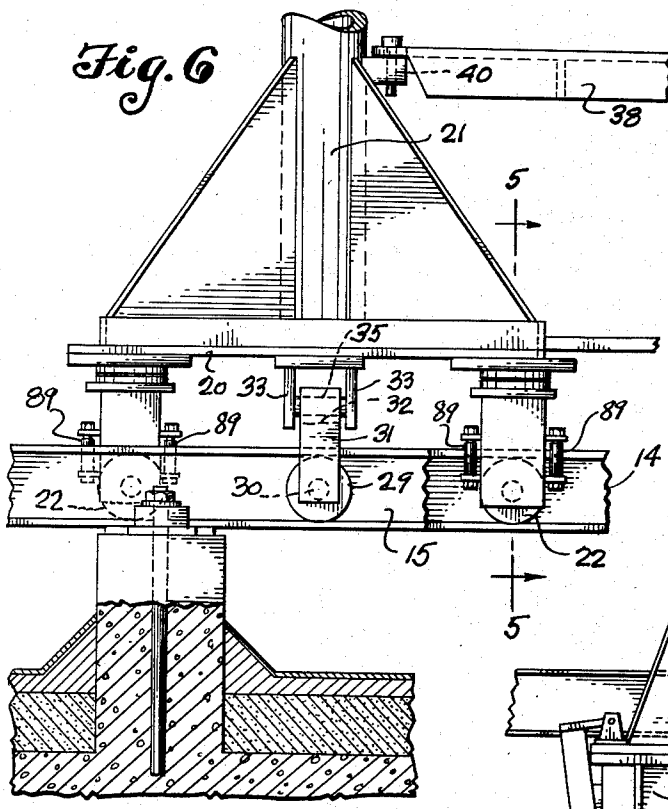


Fig. 7

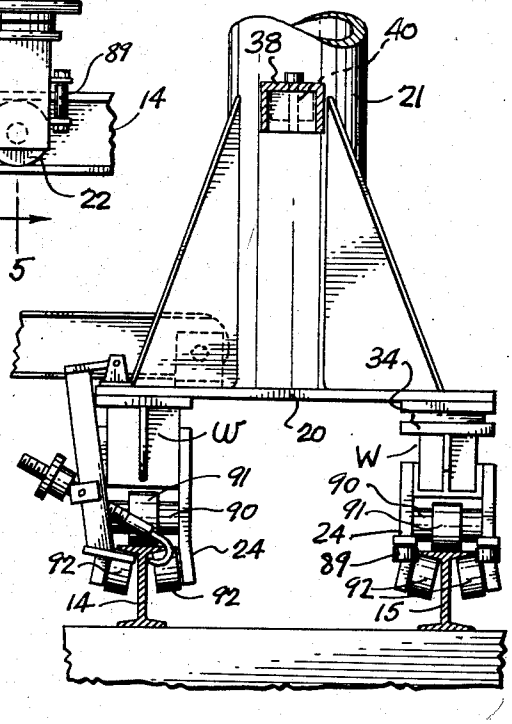


Fig. 8

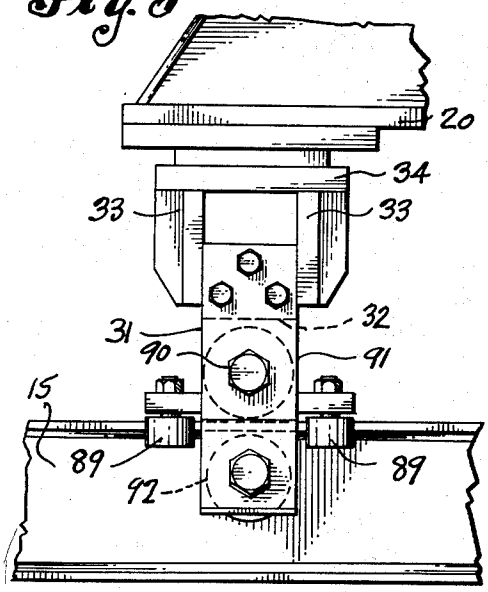
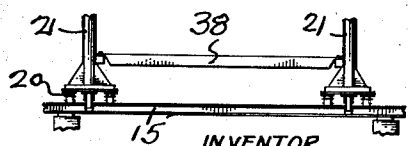


Fig. 9



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3,111,094
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3,111,094

RAIL TRACK CONSTRUCTION

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Filed July 23, 1962, Ser. No. 211,904
3 Claims. (Cl. 105—165)

This invention relates to improvements in rail trackway construction. More particularly, it relates to the design of a trackway that includes rather sharp turns along which carrier vehicles or cars, with wheeled mounting trucks at their opposite ends, are required to pass.

This application is a continuation in part of the allowed application of Howard W. Wylie, deceased, entitled "Motorized Staging and Adjusting Carrier" filed on July 6, 1959, under Serial No. 824,979, now abandoned, and it has for its principal object to provide a trackway comprising two parallel rails and which is especially designed for use on the top of a flat roofed building as a track and guideway for supporting a stanchion carrying vehicle that is equipped at each of its opposite ends with three sets of wheels in such relationship that the carrier vehicle can pass freely about the sharp corner curves of the trackway without binding.

Further objects and advantages of the invention reside in so locating the centers about which the inside and outside track rails are curved, as to avoid any binding of the sets of carrier wheels in the passing of the carrier vehicle about the corner curves of the trackway.

Other objects of the invention reside in various details of construction and combination of parts that will be herein described.

Before proceeding with the description of the invention, it will be recalled that in the parent application, the carrier vehicle mounted a pair of stanchions on its opposite ends, and from these stanchions, arms were extended outwardly for the suspension therefrom of a staging adapted to be used by workmen in doing work such as window washing, wall cleaning, painting and the like. The raising and lowering of the staging could be controlled by workmen thereon, and travel of the carrier along the trackway also could be controlled from the staging. In such an arrangement of parts, it is quite desirable that the staging may be moved around the the corners of the building. This is made possible by reason of the fact that the corner curves of the trackway are substantially sharp and closely approach the corners of the building as shown in FIG. 1.

The track rails for the carrier were mounted on cross-ties, that were secured to the roof structure by means not forming any part of this particular application. The length of the carrier vehicle was of such length that the sets of wheels, at its opposite ends, were not in the limits of any corner curve at the same time.

In accomplishing the stated objects of the invention, there are provided the improved details of trackway construction, the preferred forms of which are illustrated in the accompanying drawings, wherein:

FIG. 1 is a plan or top view of a building showing the trackway of this invention as built thereon, and on which trackway a carrier or car is mounted for travel; this view also showing, particularly, the sharp corner turns of the

trackway in which the novel features of this application are embodied.

FIG. 2 is an enlarged plan view of that portion of the trackway that forms the turn at one of the corner portions of the building, showing the location of centers about which the inside and outside track rails are curved.

FIG. 3 is an end view of the carrier vehicle as mounted for travel on the trackway; certain parts being broken away for explanatory purposes.

FIG. 4 is a plan view showing an end truck of a carrier vehicle mounted for travel on the trackway and equipped with a triangular arrangement of sets of paired wheels as mounted for travel on the rails of the trackway.

FIG. 5 is a sectional detail through the mounting elements of one of the sets of wheels of the truck, taken on line 5—5 in FIG. 6.

FIG. 6 is a side view showing the relationship of the three sets of wheels shown in FIG. 4 as mounted for travel on the trackway.

FIG. 7 is an end view of a carrier vehicle with mounting and guiding wheels of an alternative formation and relationship.

FIG. 8 is a side view of one of the wheel mountings of the device of FIG. 7.

FIG. 9 is a view, at a reduced scale, showing the manner of connecting the stanchions carrying trucks at opposite ends of the carrier vehicle.

Referring more in detail to the drawings:

In the following description the term "carrier" or "car" will be used to designate any wheeled vehicle such as shown in the lower left portion of FIG. 1, comprised by a horizontal, elongated frame structure that is supported at each of its opposite ends by three sets of paired wheels, as later described and as shown in FIGS. 4 and 6, mounted for travel on the present trackway. It will here be explained that the carrier vehicle is equipped at each end with two sets of wheels that are mounted for travel, in spaced relationship on the outside rail of a two rail trackway and a single set of wheels is mounted for travel on the inside rail; the triangular relationship of these three sets wheels of each truck is as shown in dash lines in FIG. 4, being best understood by reference to the truck T therein shown in full lines.

The trackway of this invention, as seen in FIG. 1, is continuous and is located on the flat roof surface **10** of the building, quite close to and just within the parapet wall **11** thereof. It comprises an outside rail, **14**, and an inside rail **15**; which rails are straight and are laid substantially in parallel spacing along opposite sides and across the ends of the building. These straight sections of the trackway are joined by the curved track sections at the four corners of the building roof area and designated in FIGS. 1 and 4 by reference character C.

The novel features of construction of the present trackway reside mainly in the curved corner sections C; one of which is shown in detail in FIG. 2, and is defined between the angular joints J at which its curved inner and outside rails join with the rails **14** and **15** of the straight end and side sections. In this particular view, it is to be observed that the curvature of the inside and outside rails is adjusted in such way as to cause a gradually increased spacing of the inside rail from the outside rail from its ends to its medial curvature.

In that specific 90° portion of the trackway curve shown

in FIG. 2, the curvature of the outside rail is centered in a point **80** that is located at a predetermined distance inside of the curved inside rail, and equally from the lines of the outside rails at the side and end of the building; the curvature of the rail **14** spans an arc of 90°, leaving the opposite end portions **14'** of this rail extending beyond the arc tangentially to the curve and in alignment with the straight rails with which they are joined at their ends by the angular joints J.

The inside track rail **15** as seen in FIG. 2 has opposite end portions **15'—15'** and a central portion **15x** curved about different centers with radii of different lengths. It is therein shown that the end portions **15'—15'** of this inside rail, are curved respectively about centers **88** and **88'**, located well within the area bounded by the straight side and end rails, and that each part **15'** extends through an arc of approximately 15°. The center portion of this curve of this rail is formed about the previously mentioned center point **80** and spans an arc of approximately 60°. The radii of these curvatures is such that the spacing of the inside rail from the outside rail, increases from the ends of the curve toward its central arc, thus to best accommodate the triangular arrangement of inside and outside sets of wheels of each carrying truck, in their travel about the corner curves.

The track rails of this particular construction are of I-beam formation as seen in cross-section in FIGS. 3 and 5 and the trucks at opposite ends of the carrier each comprises a flat, horizontally disposed metal plate **20** that mounts a stanchion **21** centrally thereon. On its under side, each plate **20** mounts three sets of supporting and guiding wheels to complete the truck. In FIG. 4 the three sets of paired supporting and guiding wheels are designated, respectively, by reference letters D, E, and F. Wheel sets D and E in spaced relationships and are positioned for travel along the outside rail, and each set comprises a pair of wheels or rollers **22—22** located respectively at opposite sides of the web of the rail between the rail flanges as in FIG. 3.

FIG. 4 also shows that the single set F of paired wheels **29—29** is mounted for travel along the inside rail at a point directly opposite and midway of the outside sets of wheels as shown in FIG. 6. The wheels of all sets are adapted for rolling contact individually with either the extending top or bottom flanges of the rails, as has been illustrated in FIG. 5. Furthermore, it is to be understood that the mountings of the three sets of rollers, as applied to each base plate **20**, are held against movement from the triangular relationship shown in FIG. 4.

The reason for the variation in spacing of the inside and outside rails in the corner curves will be understood by an inspection of FIG. 4 which shows, in dotted lines, truck base plate **20** at different positions in the passing of the carrier about the curve.

It is further to be noted that the paired sets of wheels D and E that follow the outside rail are each mounted, as in FIG. 5, by a wheel frame W including opposite side plates **24—24** and a top plate **25** that has a vertical mounting pin **26** therethrough securing the wheel frame to the mounting plate **20** for its pivotal turning about the bolt. This is to permit the wheels of these two sets to follow the curved outside rail. Also, each of these pivoted wheel carrier frames is equipped at front and rear edges, as observed in FIG. 6, with vertically directed rollers **89—89** positioned to engage in rolling contact with opposite edges of the top flange of the rail thus to guide each wheel frame in its travel along the rail and about the curves and hold its supporting wheels **24** substantially parallel with the web of the rail.

The set F of paired wheels that follow the inside rail are mounted for rotation on stub spindle bolts **30—30** that are fixed in and extend inwardly toward the rail web from the lower end portions of arms **31** that are fixed to and extend downwardly at opposite sides of the rail **15** from a mounting block **32**. The block **32** is disposed between downwardly directed vertical plates **33—33** fixed at their upper ends to a horizontal plate **34** that is bolted or otherwise rigidly fixed to the under face of plate **20**. This arrangement of parts for the mounting of wheels **29—29** is as shown in FIGS. 3 and 6 and in the latter view it is to be observed that the block **32** is mounted on a horizontal pivot pin **35** that extends between the plates **33—33**, thus the paired wheels **29—29** can rock as a unit on the pivot pin **35** transversely to the direction of the trackway rail. The wheel mountings for each truck provide a three point support at each end of the carrier.

It is further to be understood that the trucks at opposite ends of the carrier vehicle are pivotally joined in fixed spacing by a horizontal bar **38** ,as in FIG. 9, that has pivotal connection **40** at its ends with the stanchions thus to permit the required turning action of each truck as it enters and leaves a curved section C.

The alternative construction shown in FIGS. 7 and 8 applies to the wheel arrangement of the truck and not to the trackway. It is shown in these views that the wheel mounting frames W mount a horizontal axle **90** between the side bars **24—24** which axle is equipped with a truck supporting roller **91** for travel on the top of the rail, and that the lower end portions of the side bars **24—24** are angled slightly outwardly and each mounts a small roller **92** in position for rolling contact with the under sides of the extending top flange of the rail, thus to hold the carrier against lateral tipping. These wheel mounting frames W are equipped also with guiding rollers **89** for engaging the rail flanges for the same reason as explained in connection with the mountings W of FIG. 3.

The present trackway, with its increased spacing of rails at the corner curves permits the carrier to pass the curves without binding or tipping.

What is claimed is:

1. A two rail trackway designed for the travel thereon of trucks that are equipped with three sets of rail following wheels each including means to prevent it from moving laterally with respect to the rail of the trackway on which it moves and the wheels mounted in fixed, triangular relationship that provides for the travel of two of said sets of wheels, in tandem, on one rail and for the travel of the other set on the other rail opposite a point that is midway of the two sets of wheels; said trackway comprising substantially parallel rails providing two straight runs of trackway extending at right angles to each other, and which are joined, end to end, by a sharply curved corner section comprising an outside curved rail and an inside curved rail; the outside curve rail thereof being defined by a first radius pivoted about a center point that is located at the inside of the inside curved rail, said outside curved rail having its ends joined to and tangent to the ends of the outside rails of said straight runs, and said inside curved rail of the curved section having a medial portion defined by a second radius substantially shorter than said first radius and pivoted through an arc that is substantially smaller than the arc of the outside curved rail, said inside curved rail having a greater spacing from the outside curved rail than the spacing of the rails of the straight sections to accommodate the travel of three sets of wheels of the truck around the curve so that all the wheels of the truck stay in alignment with the trackway without binding; the inside curved rail including opposite end portions outwardly curved about longer radii than said second radius of the medial portion of the inside curved rail to merge gradually into alignment with and tangent to the ends of the inside rail of the two straight track sections.

2. A trackway according to claim 1, wherein the outside rail of the corner section is curved medially of its ends through an arc of 90°, and has straight opposite end portions that join in alignment with the outside rails of said straight runs, and wherein the inside rail has its medial portion curved about the same center of curvature of the outside rails through an arc of 60° and its opposite

end portions are curved about said longer radii into alignment with the ends of the inside rails of said straight runs of trackway.

3. A track according to claim 1, wherein said longer radii are longer than said first radius.

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