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Berg, Jr. et al.

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[54] **ELECTRIC FENCE INSULATOR FOR T-SHAPED POSTS**

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[52] **U.S. Cl.** ..... **256/10,** 174/163 F, 256/47

[51] **Int. Cl.** **A01k 3/00**

[58] **Field of Search** ..... 256/10, 52, 47, 48; 248/221; 174/158 F, 161 F, 163 F

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[57] **ABSTRACT**

Our all plastic insulator includes a body having means projecting forwardly therefrom for holding an electric fence wire with means at the rear thereof for resiliently gripping a T-shaped post. The post gripping means comprises a pair of resilient generally C-shaped portions extending laterally from the rear wall on the body. The rear wall is composed of two outwardly and rearwardly angling panels, a first leg section of each C-shaped portion forming a continuation of the rear wall panel to which it is connected. A wing panel projects at an angle from the free edge of a second leg section belonging to one of the C-shaped portions. The wing panel functions as a cam, enabling the installer to flex sufficiently the C-shaped portion to which it is connected to effect attachment of the insulator to a T-shaped post. The wing panel additionally serves as a handle or lever to facilitate removal of the insulator from the post should it become desirable to effect its detachment.

13 Claims, 6 Drawing Figures

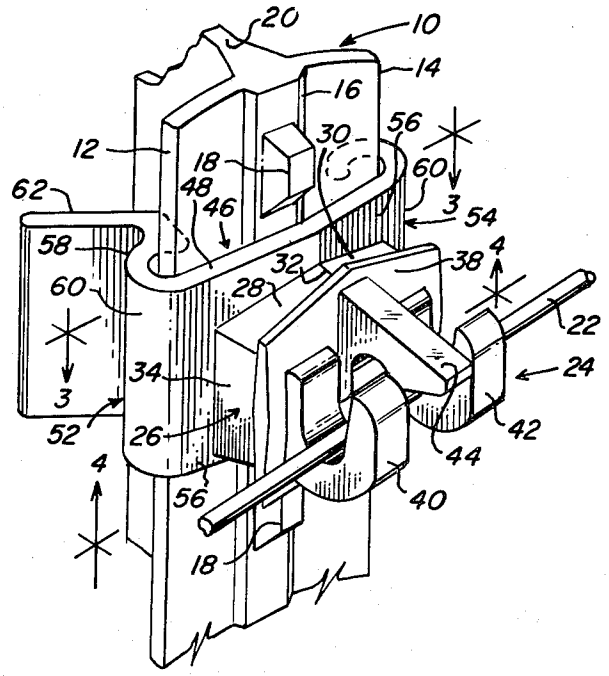


FIG. 1.

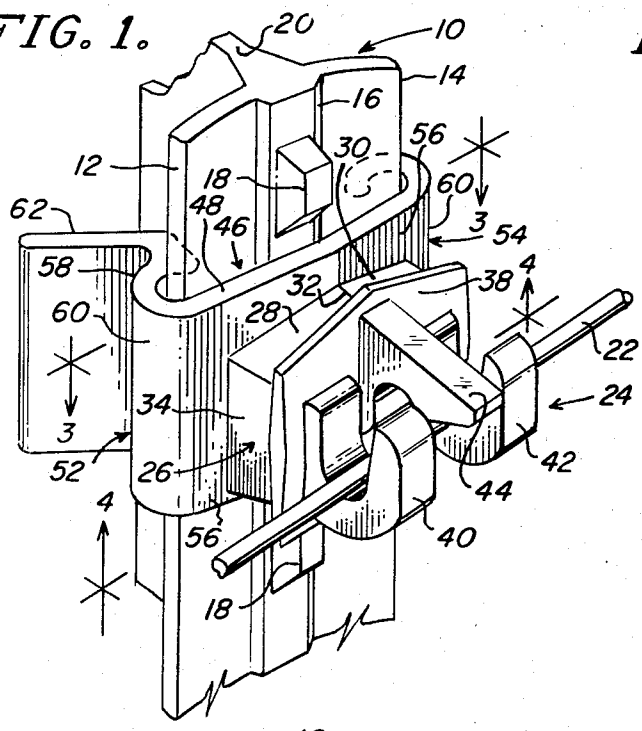


FIG. 3.

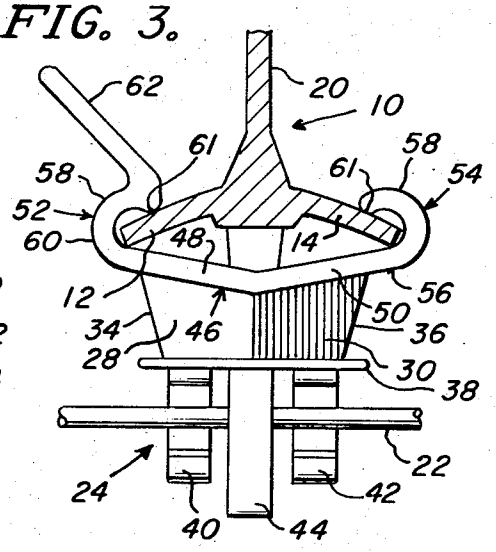


FIG. 2.

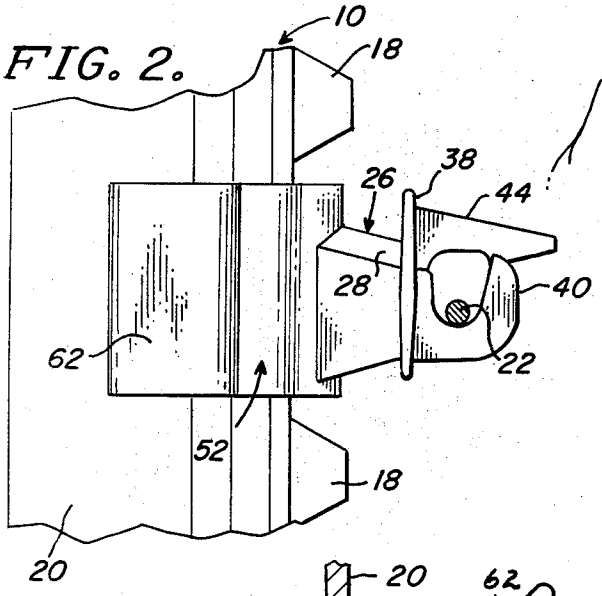


FIG. 6.

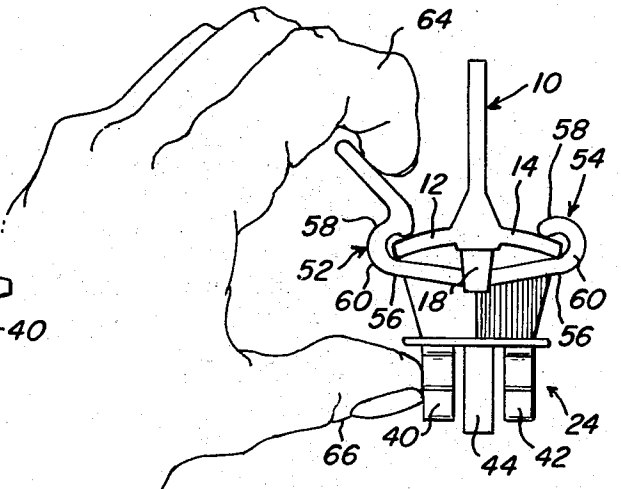


FIG. 5.

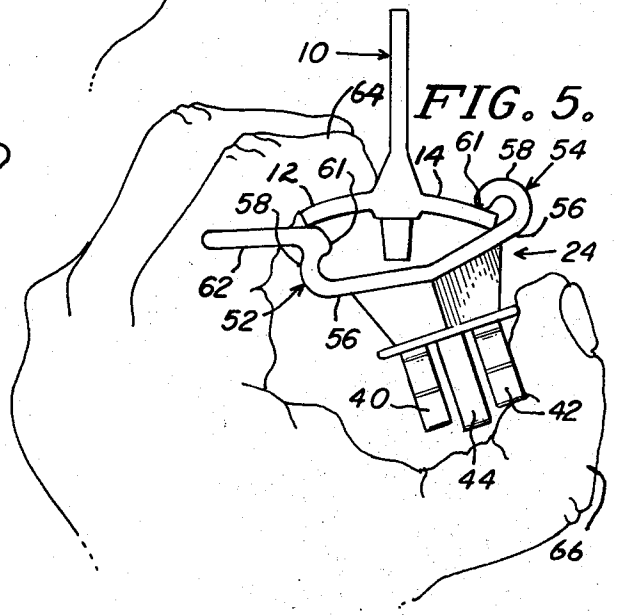
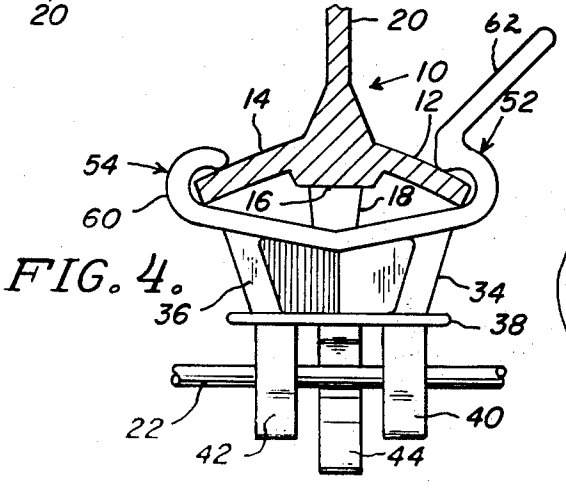


FIG. 4.



ELECTRIC FENCE INSULATOR FOR T-SHAPED POSTS

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to electric fence insulators, and pertains more particularly to an insulator that can be readily attached to a T-shaped post.

2. Description of the Prior Art

Various insulators have been designed for attachment to T-shaped posts. However, a number of such insulators require metallic fastening means, usually some form of metal clip that embraces a portion of the post. Others have resorted to various types of wire connections that must be used to mount the insulator. One other arrangement requires the forming of holes in a flange of the post so that the electric fence wire can extend therethrough, an insulating grommet being needed in each hole which encircles the wire in order to maintain a spacing between the wire and post. Attempts have also been made to provide all plastic electric fence insulators for the alluded type of fence posts, but these have proved to be quite complicated, frequently requiring elaborate molds in their fabrication, and/or some type of fastener tool or implement in order to mount the insulator on the post.

SUMMARY OF THE INVENTION

One object of the present invention is to provide a plastic electric fence insulator for T-shaped posts that is devoid of any metallic parts. In this regard, it is within the purview of the invention to not only form the insulator itself without metallic parts, but to obviate the need for any type of metallic fastening means when mounting the insulator. Further, it is an aim to provide an all plastic insulator in which any stresses are well distributed, both during its installation and thereafter, thereby virtually eliminating any breakage that might otherwise occur with respect to the post-engaging portions of our insulator.

Another object is to provide an electric fence insulator that can be attached to conventional T-shaped posts without requiring tools or implements.

A further object of the invention is to provide an electric fence insulator for T-shaped posts that will be of simple configuration and which will require only a simple mold construction in its fabrication. Hence, an aim of the invention is to provide an inexpensive insulator for T-shaped fence posts.

Another important object of the invention is to provide an insulator for T-shaped posts that will not become inadvertently detached, yet which can be readily detached if circumstances so dictate. More specifically, it is planned that an angled wing panel serve a dual purpose, functioning as a cam when our insulator is being attached and as a handle or lever to facilitate detachment.

Yet another object of our invention is to provide an insulator that can be used on T-shaped posts of differing sizes.

Still further, an object is to provide an electric fence insulator for T-shaped posts that will permit it to be used on posts made by different manufacturers, and also posts where there may be irregularities or deformities in a given post. More specifically, it is an aim of the invention to provide an insulator that will securely grip the edges of the two front flanges, even though the edges might differ somewhat in their spacing due to variations in flange width. Furthermore, where a vertically extending rib on the post is present, the facile mounting of our insulator is not adversely influenced. Also, the usual lugs which facilitate the anchoring of the fence to the post pose no interference problem.

Still another object is to provide a fence insulator for T-shaped posts that will possess excellent insulating characteristics, any tendency for arcing to occur between the fence wire and post being minimized by reason of the structural configuration imparted to our insulator.

Briefly, our insulator is of linear polyethylene and includes a body comprising sloping top panels and downwardly extending side walls. From the front of the body projects the wire-holding means which includes a pair of upwardly facing jaws and an intermediate wire-retaining tongue. At the rear of the body is an angulated vertical wall composed of two panels that extend upwardly and rearwardly. Generally C-shaped hook portions are carried at the edges of the rear panels, one leg section of each C-shaped portion constituting a continuation of the particular wall panel to which it is attached. The second leg section in each instance curves somewhat toward the first leg section, being connected to the first leg section by a semicircular bight section to provide virtually a line contact type of gripping edge. The leg sections are substantially of equal length. Further, the C-shaped portions are deliberately made resilient. The second leg section of one of the C-shaped portions has attached to its free edge a wing panel functioning as a cam by which that particular C-shaped portion can be flexed so as to enable the installer to effect a snap-type attachment of the insulator to the T-shaped fence post, this being done after the other C-shaped portion has been hooked on the flange edge opposite the edge that the winged C-shaped portion is to engage.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of our insulator mounted on a T-shaped fence post with a fence wire held thereby, both the post and wire being fragmentarily depicted;

FIG. **2** is a side elevational view of the insulator shown attached to the fence post of FIG. **1**;

FIG. **3** is a sectional view taken in the direction of line **3—3** of FIG. **2**, the line being just above the insulator;

FIG. **4** is a sectional view of our insulator taken in the direction of line **4—4** of FIG. **2**, the line being just below the insulator;

FIG. **5** is a plan view of the post as the insulator is being attached, and

FIG. **6** is a view somewhat similar to FIG. **5** but with the insulator being removed.

DESCRIPTION OF THE PREFERRED EMBODIMENT

A typical T-shaped metal fence post **10** has been fragmentarily illustrated in FIG. **1**. The fence post **10** has laterally extending front flanges **12, 14** which are somewhat arcuate or curved when viewed from the top. Usually there is a vertical rib **16** extending along the front juncture of the flanges **12, 14**, the rib **16** jutting forwardly to only a slight degree in the depicted instance; however, some T-shaped posts have a more

pronounced rib with still others having flanges **12, 14** that are in a single plane (no rib). Projecting forwardly from the depicted rib **16** are a plurality of vertically spaced lugs **18,** these lugs **18** enabling the regular fence wire to be attached to the post **10** so that it does not slip down. Also, as is typical with T-shaped posts, there is a perpendicularly oriented flange or web **20** that extends rearwardly from the juncture of the front flanges **12** and **14.** A fence wire **22** has been fragmentarily shown and is held in a spaced relationship with the front of the post **10** by reason of our insulator denoted generally by the reference numeral **24.**

Describing now in detail the fence insulator **24** exemplifying our invention, preferably of linear polyethylene, it will be observed that it comprises a plastic body **26** composed of two top panels **28, 30,** these panels inclining upwardly and rearwardly to form a peak or ridge **32.** Extending downwardly from the side edges of the sloping panels **28, 30** are side panels **34, 36.**

Integral with the forward edges of the various panels **28, 30, 34, 36** is a face plate or panel **38** having three wire-retaining members **40, 42** and **44** extending therefrom. The two members **40** and **42** are in the form of upwardly facing hooks. The remaining member **44** constitutes a resilient tongue that can be flexed upwardly sufficiently to permit insertion of the wire **22** into engagement with the hooks.

The rear edges of the panels **28, 30, 34** and **36** connect integrally with a rear wall **46** composed of two panels **48** and **50** which angle outwardly and rearwardly from the rear end of the previously mentioned peak **32.** From FIG. **2** it will be perceived that the wall panels **48** and **50** extend above the panels **28** and **30** constituting the top of the body **26.** The wall panels **48** and **50** extend only to the side panels **34** and **36.** Consequently, the wall means **40** composed of the angularly directed panels **48, 50** form a rigid wall, although of plastic (linear polyethylene), owing to the integral connection thereof with the panels **28, 30, 34** and **36.**

Playing an important role in the practicing of our invention are somewhat C-shaped portions denoted generally by the reference numerals **52** and **54.** Each portion **52, 54** includes a first leg section **56,** a second leg section **58** and a semicircular bight section **60.** By properly selecting the material and thickness of the portions **52, 54,** it will be appreciated at this stage of the description that each can be made somewhat resilient; more will be said hereinafter concerning the stress relieving or stress distribution that is realized. From FIG. **3** (and also from FIG. **4**) it will be discerned that the leg sections **56** constitute planar continuations of the panels **48, 50** forming the wall means **46.** It will be perceived that the first leg section **56** in each instance extends from the side walls **34, 36** and that the first and second sections **56, 58** are substantially the same length. Also, it will be noted that the second leg sections **58** reside in curved planes spaced from the planes in which the wall panels **48, 50** and first leg sections **56** reside, providing inturned gripping edges **61,** as best seen in FIGS. **3** and **4.**

In order to enable the installer or user to flex one C-shaped portion, the C-shaped portion **52** in the illustrated situation (more specifically the second or curved leg section **58** thereof), a wing panel **62** is connected integrally with the free end or edge of the second leg section **58** of this particular C-shaped portion **52.** It will be observed that the wing panel **62** is coextensive in height or vertical length with the leg section **58** and extends rearwardly at an angle of approximately 45° from the free end of this leg section **58** to accommodate, by reason of such width, virtually any size of T-post apt to be used for electrified fences. This affords the user, as best understood from FIG. **5,** with a cam means for flexing the C-shaped portion **52** so as to not only spread the leg sections **56, 58** apart but to shift the free end or edge **61** of the second leg section **58** in effecting hooked engagement of this particular C-shaped portion **52** with the edge of the flange **12** on the left of the T-shaped post **10.** It will be understood that the inherent resiliency of linear polyethylene, coupled with the selected thickness of the C-shaped portion **52,** provides the resiliency that permits such flexing to be achieved.

The foregoing is done after the other C-shaped portion **54** has been hooked or engaged over the edge of the flange **14** on the other side of the post **10.** Hence, the initially hooked C-shaped portion **54** reactively holds the insulator **10** in place when the wing panel **62,** which functions as a cam, rides over the edge of the flange **12** to spread the leg sections **56, 58** to achieve engagement of the C-shaped portion **52** at the left.

Having presented the foregoing information, it is believed evident that the insulator **24** can be readily attached to virtually any T-shaped post **10.** All that the user need do is grasp the insulator **24** with his hand, more particularly placing his index finger indicated by the reference numeral **64** against the back of the post flange **12.** The person's thumb **66** is placed against the jaw **42.** This initial relationship is pictured in FIG. **5.** He then proceeds to pull the jaw **42** to swing or fulcrum the insulator **24** about the edge of the post flange **14** with which the portion **54** is already hooked. Sufficient force applied to the jaw **42** furnishes enough leverage, that is provides a sufficient moment arm, to cam the wing panel **62** against the edge of the flange **12.** Owing to the angle, approximately 45° to the direction in which the wire **22** extends (and likewise approximately 45° with respect to the flange **20**) of the panel **62,** such action forcibly deflects the panel, simultaneously opening the C-shaped portion so that the edge **61** ultimately passes beyond the edge of the flange **12,** then literally snapping into its clamping condition illustrated in FIG. **3** (and also in FIG. **4**).

It is to be taken into account that the rib **16** (when present) will sometimes project a greater distance from the flanges **12, 14** than other times, this depending upon the manfuacturer of the particular post and to some degree on the casting tolerances adopted by a given manufacturer. The angulation imparted to the panels **48, 50** constituting the rigid wall **46** assures adequate clearance for virtually any thickness of rib **16** that might be encountered, as should be evident from FIG. **3.** It will also be observed that the insulator **24** fits readily between vertically adjacent lugs **18.**

Still further, if the insulator **24** is to be removed, it can be easily detached by the user by preferably placing his index finger **64** against the wing panel **62** and his thumb **66** against the end of the jaw **40** as shown in FIG. **6.** The user then rocks the insulator in a counterclockwise direction as viewed in FIG. **6** to complete the removal. In other words, the wing panel **62** would again be flexed so as to spread apart the leg sections **56, 58** of the C-shaped portion **52** and once sufficiently flexed apart, the insulator **24** can be swung in the above-

mentioned counterclockwise direction to completely detach and remove the insulator, the other C-shaped portion **54** then being readily disengaged or unhooked from the other flange **14** on the post **10** without difficulty.

We claim:

1. A plastic fence insulator comprising a plastic body for resiliently engaging the front flanges of a T-shaped post, means projecting forwardly from said body for holding an electric fence wire, relatively rigid plastic vertical wall means integrally connected to the rear of said body, a generally C-shaped plastic portion projecting laterally from each side edge of said wall means and being integral therewith, each C-shaped portion including a first leg section extending from said wall means, a bight section extending rearwardly from said first leg section and a second leg section extending forwardly from said bight section to provide a free vertical edge, at least one of said C-shaped portions being relatively resilient, whereby hooking engagement of said one C-shaped portion with a flange on a T-shaped post can be achieved so that only the said vertical free edge of said one C-shaped portion contacts the back of said flange on the T-shaped post after the other C-shaped portion has been hooked over an opposite flange edge.

2. A fence insulator in accordance with claim **1** in which said second leg sections correspond generally in length to the length of said first leg sections.

3. An electric fence insulator in accordance with claim **2** in which said second leg sections curve forwardly to provide said free vertical edges.

4. An electric fence insulator in accordance with claim **3** in which said wall means has a vertical height greater than said body and includes a pair of panels residing in planes angling outwardly and rearwardly from the horizontal center of said body, said first leg sections residing in the same general planes, respectively, as said wall panels.

5. An electric fence insulator in accordance with claim **3** in which said second leg sections provide inturned gripping edges in each instance so that both of said gripping edges contact the backs of the flanges on said T-shaped post.

6. An electric fence insulator in accordance with claim **5** including a wing panel coextensive in height with that of the second leg section of said one C-shaped portion.

7. An electric fence insulator in accordance with claim **6** in which said wing panel resides in a plane extending angularly and rearwardly.

8. An electric fence insulator in accordance with claim **7** in which said wing panel extends rearwardly at about 45° with respect to the axis at which the electric fence wire is held by said holding means.

9. An all-plastic fence insulator for use on a T-shaped post having oppositely directed front flanges comprising a plastic body, means projecting forwardly from said body for holding an electric fence wire, relatively rigid plastic vertical wall means integrally connected to the rear of said body, respective plastic C-shaped hook means projecting laterally from each side edge of said wall means and being integral therewith including first leg portions integral with said body and extending laterally with respect to said wall means, curved intermediate bight portions extending rearwardly from said first leg portions and second leg portions angling forwardly from said bight portions to provide forwardly disposed free vertical edges for contacting only portions of the backs of said T-shaped post flanges which flange portions are spaced inwardly from the free edges of said flanges.

10. An electric fence insulator in accordance with claim **9** in which said first leg portions angle rearwardly with respect to said body, said second leg portions angling forwardly at substantially the same angle that said first leg portions angle rearwardly.

11. In combination with a T-shaped post having laterally extending front flanges and a central flange or web extending rearwardly from the juncture of said front flanges, a plastic fence insulator comprising a plastic body, means projecting forwardly from said body for holding an electric fence wire, relatively rigid plastic wall means integrally connected to the rear of said body, a pair of generally C-shaped plastic hooks projecting laterally from each side of said wall means, each hook including a first leg section angling rearwardly so as to engage the forward corner of said flanges, a bight section curving rearwardly from said first leg section and a second leg section extending forwardly from said bight section to provide a forwardly disposed free edge engaging the backs of said flanges only at locations spaced inwardly from the rear corners of said flanges.

12. The combination defined in claim **11** in which said C-shaped hooks have a height greater than said body, and a wing panel integral with one of said free edges and having a height corresponding thereto, said wing panel angling rearwardly to initially function as a cam against one of the forward corners of said flanges to flex and spread the C-shaped hook having said one free edge thereon when attaching said insulator and to enable subsequent flexing and spreading of said last-referred to C-shaped hook when removing said insulator.

13. The combination set forth in claim **11** in which said insulator includes a wing panel angling rearwardly from one of said second leg sections for cammingly engaging one of said forward corners on said T-shaped post when the insulator is being attached thereto.

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