Nov. 21, 1950 J. T. HECK ET AL 2,530,877

PORTABLE SCREEN STAND

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FIG. 5

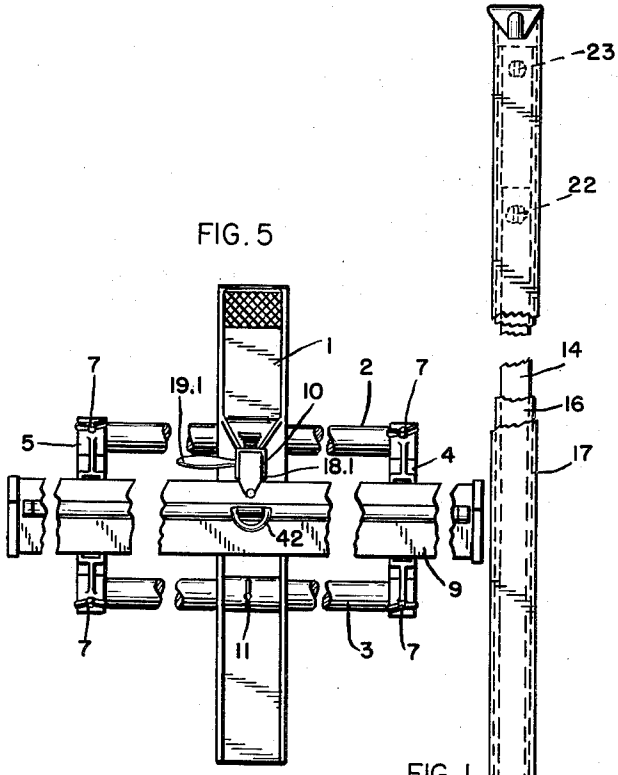


FIG. 6

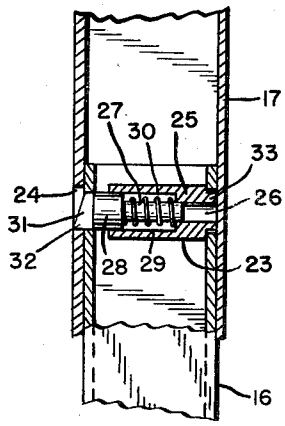
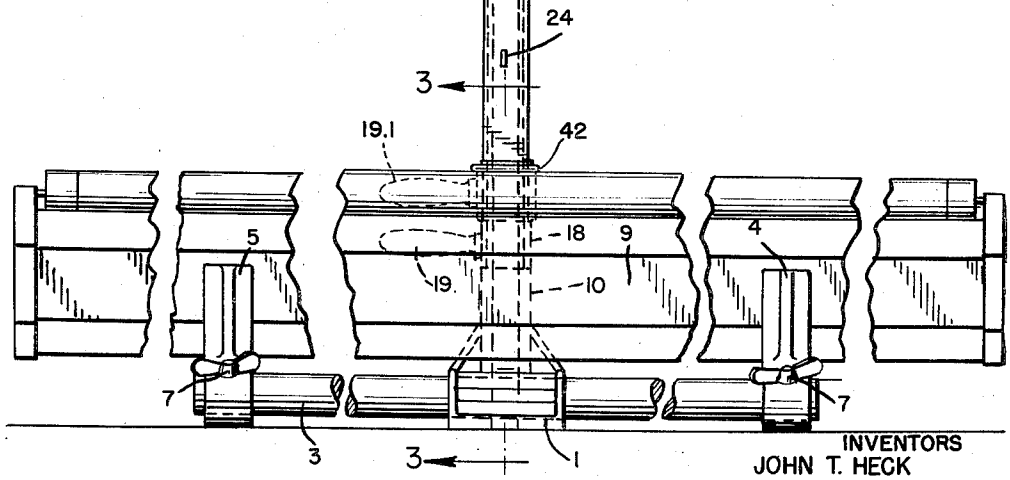


FIG. 1



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FIG. 2

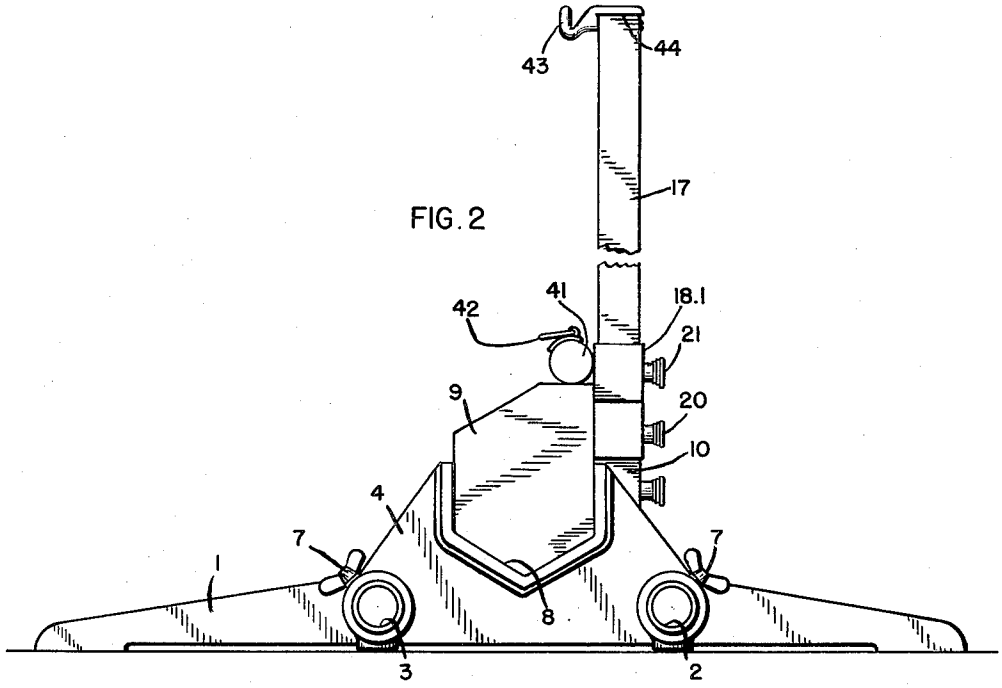


FIG. 3

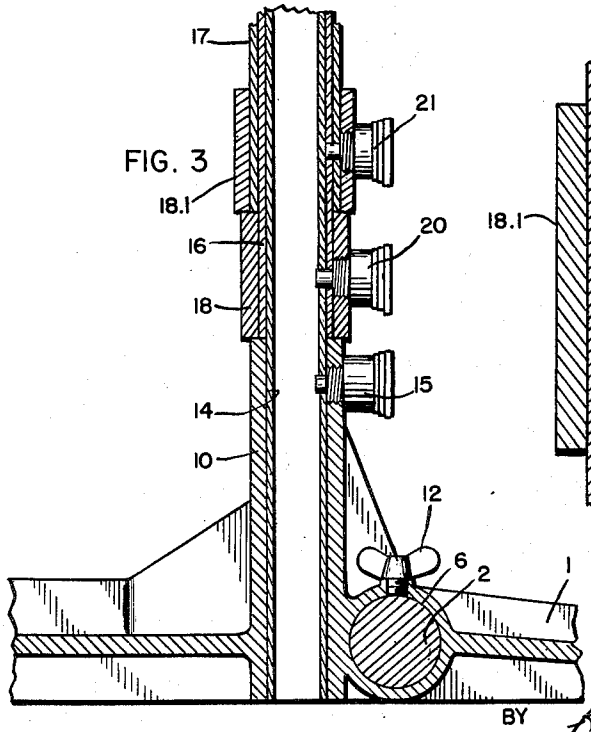
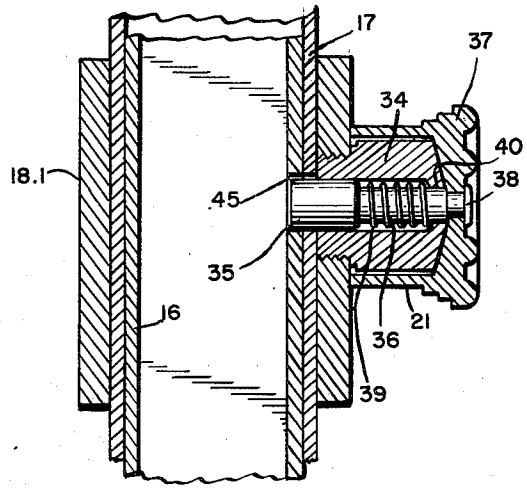


FIG. 4



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PORTABLE SCREEN STAND

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12 Claims. (Cl. 160—24)

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This invention relates to portable projection picture screens and particularly to improvements in collapsible stands for portable screens of relatively large size.

The main objects of this invention are to provide an improved collapsible picture screen stand; to provide such a device that is particularly adaptable for large relatively heavy screens; to provide an improved telescoping screen support having a simplified arrangement for extending the same; to provide an improved picture screen base and stand of simple and sturdy construction for supporting portable screens of large size; to provide such a picture screen stand that can be readily operated by a person standing at base level; to provide such a stand that can be extended with lifts substantially no higher than the level of the operator's waist; and to provide such a device that can be readily disassembled and stowed in a relatively small space.

A specific embodiment of this invention is shown in the accompanying drawings in which:

Figure 1 is a broken view in front elevation showing the improved base and picture screen stand.

Fig. 2 is a broken side elevation of the same.

Fig. 3 is a fragmentary sectional view as taken on line 3—3 of Fig. 1.

Fig. 4 is a sectional view showing details of the spring lock construction.

Fig. 5 is a top plan view of the picture screen base and stand, and

Fig. 6 is a fragmentary sectional view showing details of an automatic stop latch for preventing inadvertent separation of the stand sections.

In the form shown the improved picture screen stand comprises a horizontally extending base arranged to receive and support a picture screen casing and a vertically disposed screen hanging means mounted on the base and composed of a plurality of extensible telescoping elements adapted to be extended to hold a picture screen in vertical operative position. The improved stand is particularly designed for relatively large and heavy picture screens of a size 6 ft. x 8 ft. and larger, and, as will be seen, is constructed to provide a sturdy, stable, easily operated support therefor.

The base for the improved stand comprises an elongate center member 1, disposed normal to the plane of the screen and adapted to rest on the floor or other supporting surface, having a pair of spaced transversely extending bracket arms 2 and 3, the ends of which are secured in end brackets 4 and 5 also adapted to rest upon

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the floor or other supporting surface. The bracket arms 2 and 3, which are preferably hollow tubes to minimize weight, extend parallel with the plane of the screen through horizontally transverse openings formed in the center member 1, such as the openings 6 shown in Fig. 3, and are preferably arranged to project an equal distance from either side of the center member. The ends of the arms 2 and 3 extend into similar openings formed in the end brackets 4 and 5 respectively. The bracket arms 2 and 3 are secured in the respective bracket members by means of suitably positioned wing screws 7, or the like, which extend through the sidewalls of the bracket arm openings to engage and clamp the respective bracket arms.

As shown in Fig. 2, the end brackets 4 and 5 are each formed to provide a saddle or seat 8, shaped to receive the body of a screen casing 9, the screen casing being disposed horizontally and parallel with the bracket arms 2 and 3 substantially midway therebetween. The saddle 8 in each of the end brackets is preferably conformed to the outside shape of the screen casing 9 so as to snugly hold the same against lateral displacement. The casing is held gravitationally against vertical unseating or displacement.

The center member 1 is formed near its center portion to provide a hollow upstanding neck or socket 10 which is formed as an integral part of the center bracket and which is adapted to receive and securely hold one of the vertical members of the extensible screen supporting stand. Also, each end of the center member is formed to provide a foot or pad which sets flatly on the supporting surface. Thus the base not only provides a firm quadrifoot support for the screen casing and the vertical stand by means of which the screen is held in unrolled or operative position, but the base is also readily demountable by simply loosening the wing screws 7 and sliding the parts out of engagement with each other. When assembled, the center bracket is held in position midway between the end brackets 4 and 5 by means of wing screws 11 and 12 which are threaded through the sidewalls of the openings of the center bracket in which the bracket arms 2 and 3 are inserted.

The vertical standard for the improved screen support comprises three tubular elements telescoped one over the other in nested relation. The inner or bottom member 14 is seated and held in the hollow upstanding neck portion 10 of the center bracket and is releasably locked in place by means of a spring lock 15 which is of a con-

struction like that shown in Fig. 4 and which is threaded into the sidewall of the neck or vertical support portion 10. A second or center tube 16 is telescopingly fitted over the bottom member 14 and in the collapsed or telescoped position the bottom end of the center tube 16 rests on the top end of the neck or support 10. An outer or top tube 17 is then telescopingly fitted over the center tube 16, the several tubes all being slidable relative to each other and arranged so that the standard can be extended by shifting the center tube and the outer or top tube upwardly relative to the bottom member and to each other.

To effect convenient shifting of the center tube and the top tube when extending the screen standard, a pair of handles 18 and 18.1 are fixedly mounted on the lower ends of the center tube 16 and the top tube 17 respectively, each handle having a hand grip 19 and 19.1, respectively, projecting outwardly therefrom, by means of which each tube can be readily shifted vertically. Also, a spring lock 20, like the spring lock 15, is screwed into the sidewall of the handle 18 and arranged to be engaged with the bottom member 14 to lock the center tube at the desired position thereon.

A third spring lock 21 is mounted on the handle 18.1 at the lower end of the top or outer tube 17 and, as shown in Fig. 4, this spring lock is arranged to engage with the center tube 16, the spring locks 20 and 21 serving the function of holding and locking the telescoping members in either collapsed or telescoped position, or in extended position, as may be desired.

In order to prevent inadvertent separation of the several telescoping members, when the same are being extended for use, a pair of spring actuated stop latches 22 and 23 are provided, one being located adjacent the upper end of the bottom member 14 and the other being adjacent the upper end of the center tube 16. These stop latches are arranged to automatically limit the upward sliding movement of the center tube and the top tube respectively and are preferably located to operate just beyond the position of normal maximum extension of the tubes 16 and 17.

Details of the stop latch 23 located in the upper end of the center tube 16 are shown in Fig. 6 and the device is arranged to engage in an aperture 24 formed near the lower end of the top or outer tube 17 when the top tube is in its furthermost position of safe extension relative to the center tube 16. The stop latch 22 located adjacent the upper end of the bottom member 14 is of the same construction and is adapted to engage in a suitable aperture, not shown, formed in the sidewall of the center tube 16 adjacent its lower end.

As shown in Fig. 6, the stop latch comprises a hollow body 25 having a passage 26 therethrough adapted to receive the shank 27 of a latch pin 28, the hollow body 25 being counterbored as at 29 to provide space for a coiled compression spring 30 which surrounds the shank 27 and bears between the latch pin 28 and the bottom of the counter-bore in the latch body 25. The latch pin 28 is of cylindrical form and has a projecting tongue 31 that is rectangular in section and of triangular shape in side elevation, thereby providing a lip or projecting corner 32 which will engage on the edge of the aperture 24 in the top tube 17.

The stop latch is secured within the tube 16 by means of an axially projecting collar 33 which fits into an opening in the side wall of the tube 16 and by means of the tongue 31 which projects through a rectangular aperture in the opposite sidewall of the tube 16 with the end of the pin 28 flush against the inner surface of the tube. The spring 30 tends to urge the body 25 and the latch pin 28 axially away from each other and thus the device is securely held within the tube 16 through the engagement of its end projections in the diametrically opposite wall openings.

The triangular shape of the tongue 31 permits the outer tube 17 to cam its way past the latch when the tubular elements are being telescoped together and the corner portion 32 serves as a catch or limit stop to prevent the outer tube 17 passing beyond the desired limit when the tubes are being extended.

The spring lock 21, illustrated in Fig. 4, comprises a body 34 which is mounted in the sidewall of the handle 18.1, secured to the outer or top tube 17, by means of threaded engagement with the handle body. The body 34 is hollow to receive a pin 35 having a shank 36 of reduced diameter which extends through the body 34 and through a cap member 37 where the end of the shank is swaged or peened, as at 38, over to fasten the pin to the cap member. A coiled compression spring 39 surrounding the shank 36 is housed within the body 34 between the inner end of the pin 35 and the outer end 40 of the body where the shank 36 passes through the body. This spring tends to normally keep the pin urged inwardly toward the center of the tube 17.

The spring locks 15 and 20 are of the same construction as the spring lock 21 and in each case the spring locks are arranged to engage the tube next inward of the member on which they are respectively mounted.

In the operation of the improved projection screen stand, assuming that the base and the vertical stand have been assembled, the top slat 41 of the picture screen is lifted upwardly and the bale 42 is hooked over the hook 43 projecting outwardly and upwardly from a top cap 44 mounted at the upper end of the outer tube 17. Thus the picture screen is partially extended from the casing 9. Then the top tube 17 is unlatched or released by pulling the spring lock 21 outwardly, and the handle 18.1 together with the top tube 17 is lifted upwardly, the top tube sliding on the outside of the center tube 16 and carrying with it the top slat 41 of the screen so as to further extend the screen from the casing 9.

The top tube is thus lifted along the center tube 16 to its maximum position of extension at which point the spring lock 21 will engage in a suitably located aperture 45 in the upper portion of the center tube 16 whereby the top tube 17 will be locked and held in extended position.

The handle 18 at the bottom of the center tube 16 is then lifted, shifting the center tube upwardly until the center tube has reached its maximum extended position at which point the spring lock 20 engages a suitable opening located near the upper end of the bottom tube 14 and locks the center tube 16 in its extended position. During this last operation the screen is again extended from its casing 9 and is in fully extended position.

During these operations, the screen standard is extended substantially twice the length of the standard when in folded or telescoped position and the screen is, at the same time, fully ex-

tended and unwound from the screen casing 9. Thus in three simple operations, namely, first hooking the bale 42 onto the hook 43 and then successively lifting the handles 18.1 and 18 a distance substantially the length of the bottom tube 14, the screen becomes fully extended and the extended parts of the screen standard are automatically latched in projected position. The telescoping elements of the standard are preferably so proportioned that each lift, by means of the handles 18.1 and 18, upwardly from the base of the standard, need be no higher than the waist of an operator of average height. Thus, though the screen may be large and heavy, a single operator can erect it without danger of undue strain or physical injury.

Also, the stop latches 22 and 23 serve as a positive limit to the upward movement of the sliding stand members and the operator is relieved of any concern that the exertion of a heavy lift may cause the parts to become inadvertently separated.

The principal advantages of this invention reside in an improved screen standard, for relatively large and heavy screens, which can be quickly set up and extended to maximum height without the user having to lift any considerable weight above his waist. Another advantage resides in the provision of a firm and stable base, for a screen of large size, which can be readily knocked-down and stored in a relatively small space.

Still another advantage is to be found in that the invention provides for a portable screen standard, for large screens, which is of simple construction and which can be readily and safely erected by a single operator.

Although but one specific embodiment of this invention is herein shown and described, it will be understood that details of the construction shown may be altered or omitted without departing from the spirit of this invention, as defined by the following claims.

We claim:

1. A portable picture screen support comprising a base having a center member for holding a screen standard in vertical position and a pair of laterally spaced brackets each for receiving and holding one end portion of a picture screen casing, said center member and brackets being in a common plane and connected together by transversely extending arms, an extensible standard having a plurality of telescoping elements one of which is mounted on said center member, a lifting handle fixedly mounted on each of the other telescoping members, and releasable means to lock said other telescoping members in extended position respectively.

2. A portable picture screen support comprising a base having a center member for holding a screen standard in a vertical position and a pair of laterally spaced brackets each for receiving and holding one end portion of a picture screen casing, said center member and brackets being in a common plane and connected together by transversely extending arms, a standard having three telescoping elements fitted one over the other and slidable therealong, the innermost element being mounted at its bottom end on said center member, a handle mounted on each of the upper two elements, and releasable means for holding the upper two elements in extended position respectively.

3. A portable picture screen support comprising a base having a center member for holding a screen standard in a vertical position and a pair of laterally spaced brackets each for receiving and holding an end portion of a picture screen casing, said center member and brackets being in a common plane and connected together by transversely extending arms, a standard having three telescoping elements slidably fitted one over the other in nested relation, the innermost element being mounted at its bottom end vertically on said center member, handle means normally disposed adjacent said base for shifting the upper two of said elements respectively to extended position relative to each other and said center member, and releasable means for holding said upper elements respectively in extended position.

4. A portable picture screen support comprising a base having a center member for holding a screen standard in a vertical position and a pair of laterally spaced brackets each for receiving and holding an end portion of a picture screen casing, said center member and brackets being in a common plane and connected together by transversely extending arms, a standard having three telescoping elements slidably fitted one over the other in nested relation, the innermost element being mounted at its bottom end vertically on said center member, a handle fixed adjacent the lower end of the middle one of said telescoping elements, a second handle fixed adjacent the lower end of the outermost telescoping element, and releasable means on each of said handles for holding said center element and said outermost element respectively in extended position.

5. A portable picture screen support comprising a base having a center member provided with means for holding the lower end of a vertically disposed screen standard, a pair of laterally spaced bracket members each for receiving and holding one end portion of a screen casing, said casing being mounted in horizontal position, and transversely extending means rigidly connecting said center member and said bracket members, said center member and bracket members having their bottom surfaces in a common plane.

6. A portable picture screen support comprising a base having a center member for holding a vertically disposed screen standard, a pair of bracket members disposed one on each side of said center member and in a common plane therewith, and transversely extending means rigidly connecting said center member and said bracket members, each of said bracket members having a saddle in its upper surface for receiving and holding one end portion of a horizontally mounted picture screen casing.

7. A portable picture screen support comprising a base having a center member for holding a vertically disposed screen standard, a pair of bracket members disposed one on each side of said center member and in a common plane therewith, and transversely extending means rigidly connecting said center member and said bracket members, each of said bracket members having a saddle in its upper surface for receiving and holding one end portion of a horizontally mounted picture screen casing, and said center member having foot portions projecting beyond each side of said transversely extending connecting means.

8. A portable picture screen support comprising a base having an elongate center member, a pair of spaced parallel bracket arms extending transversely through said center member, a pair

of bracket members disposed one on each side of said center member, each of said bracket members having a pair of transverse openings therethrough and the ends of said bracket arms extending into respective ones of said openings, releasable means to clamp said bracket members respectively onto said bracket arms, an upwardly opening saddle in each of said bracket members for receiving and holding the body of a picture screen casing, said casing being mounted parallel with said bracket arms, and a socket means on said center member for receiving and holding a vertically disposed screen standard, said center member and bracket members being adapted to rest upon a common plane surface.

9. A portable picture screen support comprising a screen standard having a fixed vertical bottom member and a plurality of slidably telescoping elements mounted thereon, handle means mounted on each of said slidable elements adjacent the lower end thereof to shift said elements successively to extended position, releasable means for holding said elements respectively in extended position, and a base for supporting said screen standard vertically.

10. A portable picture screen support comprising a screen standard having three telescoping elements slidably disposed one over the other, a base for holding the innermost element in vertical position, a handle mounted on the center element adjacent the bottom end thereof, a second handle mounted adjacent the bottom end of the outermost element, said elements being individually shiftable to extended position by said handles, and means for locking said elements respectively in extended position relative to each other.

11. A portable picture screen support comprising a screen standard having three telescoping elements slidably disposed one over the other in nested relation, a base for holding the innermost element in vertical position, a handle mounted on the center element adjacent the bottom end thereof, a second handle mounted adjacent the

bottom end of the outermost element, releasable lock means on each of said handles having a plunger extending through the element on which the handle is mounted and engaging the next inward element respectively, and spring actuated stop means for limiting the upward sliding movement of said outermost element and said center element respectively.

12. A portable picture screen support comprising a screen standard having three telescoping elements slidably disposed one over the other in nested relation, a base for holding the innermost element fast in vertical position, a lifting handle mounted on the center element adjacent the bottom end thereof, a second lifting handle mounted adjacent the bottom end of said outer element, a releasable lock pin on each of said handles for engaging the next inward element respectively and holding the respective sliding elements in extended position, and a spring actuated stop means mounted in the upper end of said innermost element and said center element, each of said stop means having a pin normally urged outwardly from the element in which it is mounted, and said center element and said outer element each having a sidewall aperture adjacent its lower end for receiving the stop means pin of the innermost element and the center element respectively when said center element and said outer element are in maximum extended position.

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