June 30, 1964 L. E. HAMEL 3,139,260

SUPPORT FOR DETACHABLE HANGER

Filed Oct. 5, 1961 2 Sheets-Sheet 1

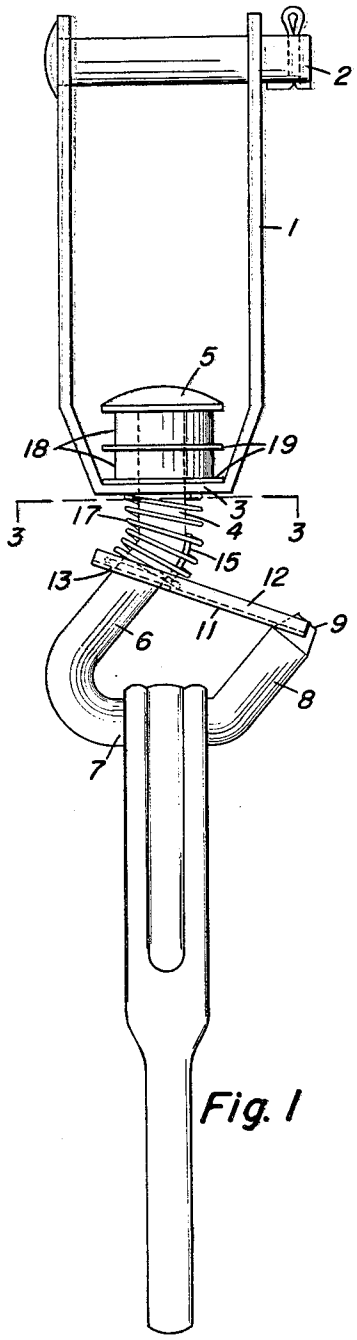


Fig. 1

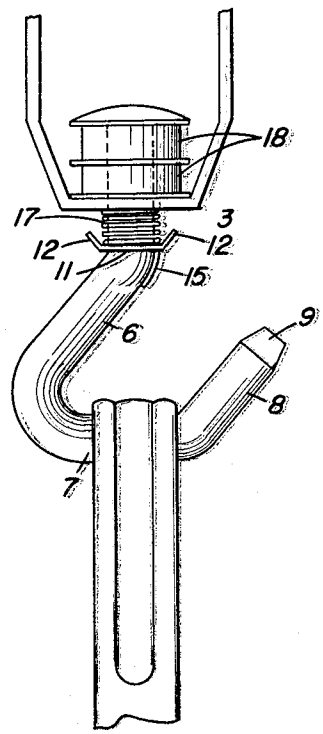


Fig. 2

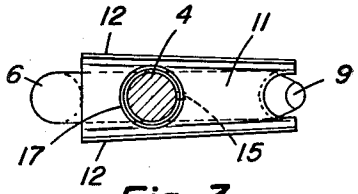


Fig. 3

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SUPPORT FOR DETACHABLE HANGER

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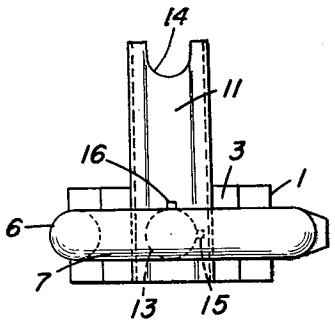


Fig. 4

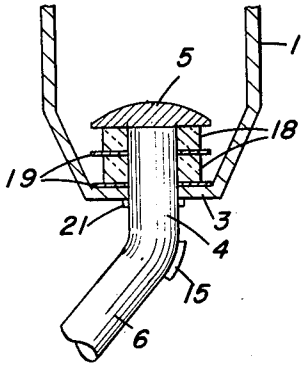


Fig. 5

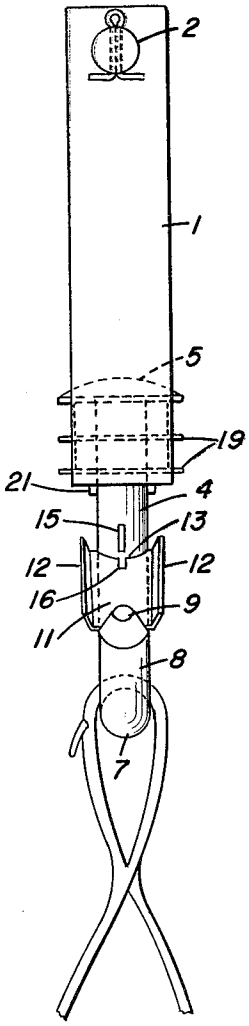


Fig. 6

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SUPPORT FOR DETACHABLE HANGER

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4 Claims. (Cl. 248—340)

This invention relates to a support for a detachable hanger such as employed in holding beef halves, beef quarters and other heavy meat units in freight cars during transportation, and it has for its purpose to provide a permanent support in the car to which the detachable hanger can readily be applied, and easily removed when necessary.

A particular purpose of the invention is to afford as part of the support a hook to which the detachable hanger can readily be applied and which has a locking device that securely holds the hanger in place on the hook without chance of accidental displacement and removal.

Still another object of the invention is to provide in conjunction with such a hook a locking device that can readily be moved upwardly out of locking position and which when in its unlocking position can be swung out of the way to afford ample space for easy insertion or removal of a hanger.

An additional purpose is to afford a hook of the character mentioned which is adapted to support one or two detachable hangers with their respective loads, and in which the load is always in vertical alinement with the point of support of the hook.

Another object of the invention is to provide a locking device such as described above, and which when in its unlocking position can be turned to a predetermined point at which it is released and automatically returned by a spring to locking position to hold a hanger or hangers on the hook, the locking device being guided to its locking position by means provided on the hook for this purpose and cooperating with the locking device.

A further purpose of the invention is to provide a hook such as mentioned with resilient cushioning means which permits slight downward movement of the hook when a sufficient load is exerted, and which cushioning means will function indefinitely with just the proper degree of tension and resilience and will always insure returning the hook with its suspended weight to normal position without affecting the resilient means due to tension changes.

To these and other ends the invention consists in the construction and arrangement of parts that will appear clearly from the following description when read in conjunction with the accompanying drawings, the novel features being pointed out in the claims following the specification.

In the drawings:

FIG. 1 is a side elevation showing a preferred embodiment of the support, with a hanger in position on the hook and the locking device in its lowered and locking position on the hook;

FIG. 2 is a similar view with parts broken away and showing the locking device in its upper or unlocking position, and turned on the hook to permit insertion or removal of a hanger;

FIG. 3 is a detail sectional view showing the locking device in plan engaged with the hook in locking position;

FIG. 4 is a bottom plan view of the locking device in its unlocking position, showing the guide on the hook for governing movement of the locking device to its locking position;

FIG. 5 is a detailed sectional view through the center of the upper part of the hanger, and

FIG. 6 is a side elevation looking from right to left of FIG. 1.

The invention is illustrated herein in conjunction with a detachable hanger such as employed for carrying quarters and halves of beef and other meat products, as disclosed in my pending United States patent application Serial No. 86,742, filed February 2, 1961, now Patent 3,007,666, granted November 7, 1961. Referring more particularly to the drawings in which like reference numerals refer to the same parts throughout the several views, **1** designates a clevis provided with a roller pin **2** and adapted to be fixedly attached in any suitable fashion at the top of a refrigerator car.

The bottom of the clevis which is indicated at **3** has an opening therein that receives the upper vertical portion **4** of the hook which is preferably of stainless steel, and the upper end of the portion **4** is provided with an integral head **5**.

Extending downwardly from the vertical portion **4** of the hook at an approximate 45° angle thereto is the inclined portion **6** which terminates in a relatively wide horizontal bottom portion **7** which connects with an upwardly inclined terminal portion **8**, the inner edge of which is substantially parallel to the inner edge of the downwardly inclined portion **6** of the hook, while the terminal portion **8** is provided at its outer end with a tapered extremity **9** for a purpose that will appear presently.

11 designates a locking member or plate having upwardly inclined sides **12**, and an opening **13** which surrounds and is slidable on the portions **4** and **6** of the hook, while at its outer end the locking plate is provided with a cutout portion or recess **14** which engages the tapered outer end **9** of the hook and is thereby held against further downward movement.

When in such locking position, the plate **11** is in engagement with the inclined portion **6** of the hook at such a point, as shown in FIG. 1, that it cannot be dislodged from locking position by an upward motion of the outer end of the plate, but can only be moved out of locking position by the operator initially taking hold of the inner end of the locking plate and moving it upwardly in line with the inclined portion **6** of the hook. This movement releases the locking plate from the outer end of the hook and permits it to be moved to the vertical portion **4** of the hook, where it can be turned through an angle of 90° as shown in FIG. 2. In this position it is lifted above and out of the path of the open part of the hook which is then free to permit removal or positioning of a hanger on the hook.

When turned through such 90° angle, the locking plate is held in its upper position by a rib **15** formed on the hook, while **16** is a slot in the locking plate adjacent to the opening **13** and functioning to guide the plate in its upward and downward movement along the rib **15**. **17** is a spring surrounding the hook and located between the locking plate **11** and the bottom of the clevis, the spring acting to force the locking plate downwardly into locking position when the plate **11** is turned to the predetermined point for engagement of slot **16** with the rib **15**. Thus, when the locking plate is in its uppermost position and turned through a 90° angle, it is held against downward movement by the rib **15** on the hook and the locking plate cannot move downwardly until it is turned to its original position where the rib **15** is alined with the slot **16** in the locking plate. In such position, the spring **17** actuates the locking plate downwardly.

In order to permit a slight yielding relation between the hook and the clevis with a resilient action that always insures return of the hook to its initial uppermost position when the weight is released and will resist constant usage without deformation of the resilient means, the upper vertical portion **4** of the hook is provided with a washer **18** of urethane, overlying a thin metal washer **19**, which is

of somewhat greater diameter than the urethane washer **18**. The upper washer **18** lies between the metal washer **19** and the integral head **5**, the outer diameter of which is approximately the same as the metal washer **19**, while the lower urethane washer **18** is supported on a thin metal washer **19**.

The urethane washers are preferably made from molding powder #58029, supplied by B. F. Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. This is a resilient material withstanding about 50% compression, and while recovering its original shape when released, it will stand up longer and more efficiently than any metal or rubber spring. The metal or steel washers **19** are preferably about 1/16" thick and somewhat wider than the urethane washers which are about 1/4" thick. By making the steel washers of greater diameter than the urethane washers, the latter are prevented from being squeezed and cut when subjected to the pressure resulting from the weight hanging on the hook.

In assembling the structure, the hook with the urethane and steel washers arranged thereon is first inserted with the outer tapered end **9** and outer inclined portion **8** through the opening in the bottom of the clevis, until the integral stainless steel head **5**, and the urethane and steel washers **18** and **19** are in place as shown in FIG. 1. Projections **21** are then swaged on the vertical portion **4** of the hook to hold the latter against upward movement, and the rib **15** is also swaged thereon, following which spring **17** and locking plate **11** are successively introduced over the outer end of the hook. The hook can then be moved to its uppermost position above the rib **15**, or turned and released into locking position, as shown in FIG. 1, after a hanger with its load is positioned on the hook.

The hanger cannot then be removed until the operator first lifts the inner end of the locking plate to release it and permit its removal to its uppermost position surrounding the upper part **4** of the hook, as shown in FIG. 2. The hanger with its load can then be removed and another hanger placed in position resting on the bottom horizontal portion **7** of the hook, which is shaped sufficiently wide so as to accommodate at the same time two hangers with their respective loads resting on the portions **7** and **8** of the hook, if this be desirable.

When the hanger or hangers are in place, the locking plate **11** is turned back to its initial position with its slot **16** in alignment with the rib **15** on the hook, and when the locking plate reaches this position, the spring **17** automatically acts to move it downwardly to locking engagement with the inclined part **6** of the hook and the tapered outer end **9**, the tapered character of which facilitates engaging the hangers on the hook.

While the invention has been described with reference to a particular embodiment, it is not so limited and this application is intended to cover such modifications as may come within the purposes of the improvement or the scope of the following claims without departing from the spirit of the invention.

I claim:

1. A support for a detachable hanger including a clevis having an opening in its bottom wall, a hook supported on said bottom wall and consisting of a vertical portion extending through said opening, said vertical portion of the hook connecting with a downwardly inclined portion terminating in a horizontal portion connecting with an upwardly inclined portion the inner edge of which is substantially parallel to the inner edge of said downwardly inclined portion, said horizontal portion of the hook being of substantial width and in conjunction with said upwardly inclined portion acting to accommodate one or more detachable hangers, said upwardly inclined portion having a tapered end, and a locking plate having an opening in one end engaging and movable on the vertical and downwardly inclined portions of the hook, and a recess at its outer end engageable with said end of the hook, said locking portion having a slot adjacent to said opening, a guiding rib on the vertical and downwardly inclined portions of the hook engageable with said slot, and a spring surrounding the hook and located between the bottom of the clevis and said locking plate, the hook having an integral head resting upon an assembly of washers including spaced metal washers and intermediate washers of a material that is resilient and capable of resuming its original shape when pressure is released, the metal washers being of larger diameter than the intermediate washers, and the lowermost metal washer being supported on the upper surface of the bottom of the clevis, the hook being movable downwardly through said opening in the bottom wall of the clevis when weight is suspended on the hook, and a lug on the vertical portion of the hook adjacent to the bottom surface of the clevis and limiting upward movement of the hook.

2. A support for a detachable hanger including a clevis having an opening in its bottom wall, a hook supported on said bottom wall consisting of a vertical portion extending through said opening in the bottom wall, said vertical portion of the hook connecting with a downwardly inclined portion terminating in a horizontal portion connecting with an upwardly inclined portion, and a locking plate having an opening engaging the hook and movable on said vertical portion and a part of said downwardly inclined portion, the locking plate having a slot adjacent to said opening and a rib on the vertical and downwardly inclined portions of the hook engageable with said slot and acting to guide the movements of the locking plate on the hook, the locking plate having a recess at its outer end engaging with the free end of the hook when in locking position and being in an inclined position in relation to the bottom wall of the clevis when in such locking position, the locking plate being retained in its uppermost position by said rib when rotated away from its locking position and being in a substantially horizontal position when held in such uppermost position, the vertical portion of the hook having an integral head, and yieldable resilient means located between said integral head and the bottom of the clevis and comprising relatively thin metal washers and relatively thick urethane washers interposed between the metal washers, the metal washers being of greater diameter than the urethane washers and acting to permit downward movement of a hook when a weight is suspended thereon, the urethane washers resuming their normal position when the weight is released, and a lug on the vertical portion of the hook engaging the bottom of the clevis and acting to limit upward movement of the hook.

3. A hook assembly for detachably supporting a meat hanger in a transport vehicle, said assembly comprising a generally U-shaped clevis adapted to be supported within the vehicle, said clevis having an approximately horizontal bottom wall portion with an opening therethrough, a hook member having a hook shaped lower portion adapted to engage and support a detachable meat hanger, said hook member having an upper portion including a substantially vertical shank extending upwardly through said opening in the bottom wall portion of said clevis and an enlarged head on said shank above said bottom wall portion of said clevis, said assembly being characterized by

(*a*) a plurality of washers of highly resilient urethane material surrounding said shank between said bottom wall portion of said clevis and said enlarged head on said shank, and

(*b*) a plurality of metallic washers also surrounding said shank, one of said metallic washers being beneath and in contact with the bottom face of each of said resilient urethane washers, each of said metallic washers being of substantially larger diameter than the adjacent face of a resilient urethane

washer, so that during jolts and jars of travel of the vehicle, while a heavy load of meat is suspended from said hook member, said resilient urethane washers may temporarily compress vertically to a substantial extent in absorbing shocks, with consequent lateral expansion of their diameters, and so that the diameters of the resilient urethane washers, even when thus expanded, will not exceed the diameters of the adjacent metallic washers, thereby preventing the edges of the metallic washers from cutting into the adjacent faces of the resilient urethane washers.

4. A construction as defined in claim 3, further characterized by

(c) a coil spring surrounding the shank of said hook member below said bottom wall portion of said clevis and reacting upwardly against said bottom wall portion and downwardly against said hook member, thereby tending to keep said washers under slight vertical compression and to keep said washers from bouncing upwardly away from said bottom wall portion of said clevis during jolts and jars of travel of the vehicle.

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