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Morris et al.

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[54] **RELIEVABLE HANGER FOR CLOTHING AND THE LIKE**


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[52] **U.S. Cl.** ..... **248/294,** 403/94, 74/584

[51] **Int. Cl.** ..... **F16n 13/00**

[58] **Field of Search** ..... 248/291, 293, 294, 475 A, 248/475 B; 74/519, 584; 403/94



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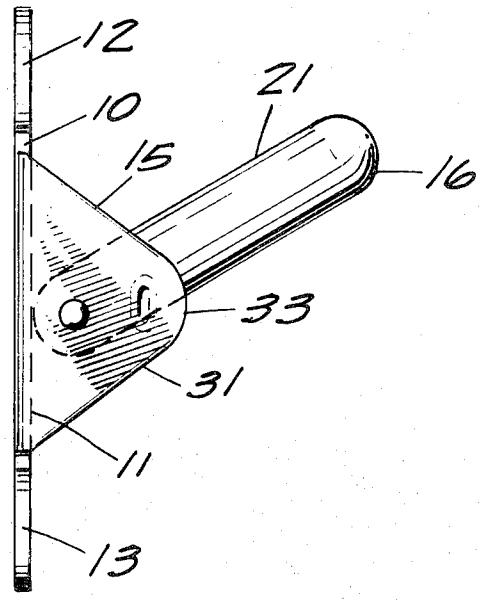
*Attorney, Agent, or Firm*—Ben E. Lofstedt



[57] **ABSTRACT**

A relievable hanger having an article supporting arm pivotally attached to a journal pin mounted in a pair of holes in a pair of bracket flanges, and rigidly fixed to the edge of one hole and slidably disposed within the other hole, the bracket further having a base plate which is attachable to a vertical support structure. One or more inwardly projecting shoulders on the inside face of the flange serves to support combined weight of the arm and clothing and the like. A substantially heavier weight hung on the arm, such as the weight of an adult, will force the arm between the shoulders causing the bracket flanges to flex outwardly thereby allowing the arm to pass completely beyond the shoulders to relieve the arm of the substantial weight as the arm comes to rest into substantial parallelism with the lower portion of the base plate.


**3 Claims, 4 Drawing Figures**



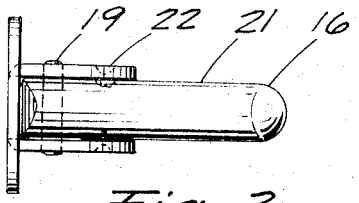



Fig. 3

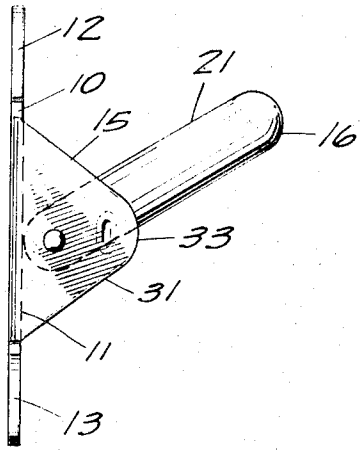



Fig. 1

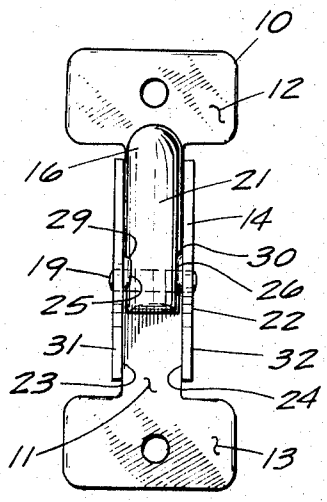



Fig. 2

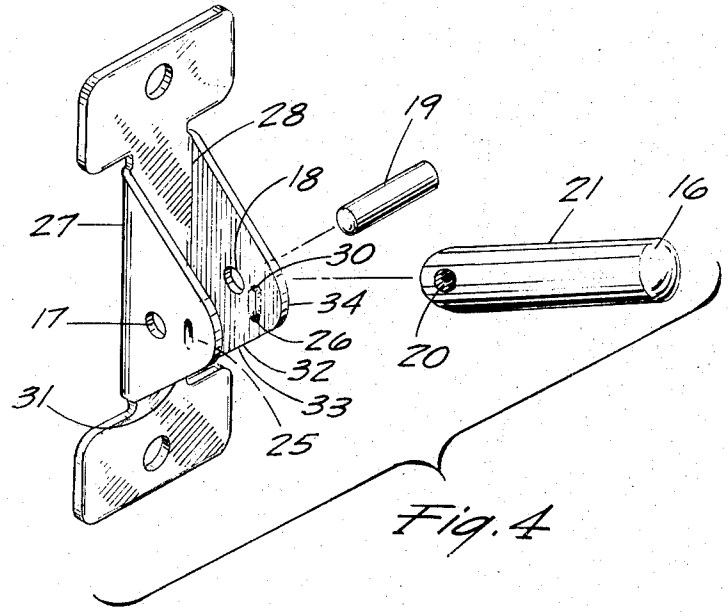



Fig. 4

# RELIEVABLE HANGER FOR CLOTHING AND THE LIKE

## SUMMARY OF THE INVENTION

1. Field of the Invention

This invention relates to improvements in self-relieving hangers for articles of clothing and the like.

2. Description of the Prior Art

Hangers which are mountable to vertical supports such as walls for supporting the weight of articles of clothing and the like may be broadly classified as either fixed or relievable. While the fixed hangers find wide use and application in many commercial and residential installations, such are not as suitable for use in institutional facilities where the danger of suicide may be quite high. Persons so confined in penal and mental institutions and the like are prone to become so depressed as to attempt to terminate their lives by committing suicide. It frequently occurs that persons so confined attempt to commit suicide by hanging themselves by the use of any tensile object near at hand, as for example, a torn-up bed sheet or other similar object. The person then must seek out a suitable support structure to which such tension element may be attached, such as a clothes hook. Such a fixed clothes hook is frequently found to be easily capable of supporting hundreds of pounds of weight, such as the body weight of the person confined to the institution, and, therefore, poses a potential hazard for would-be suicide victims.

It is consequently highly desirable to incorporate in the design of such a clothes hook for institutional use a means for permitting the hook to yield or release under the force of excess load, and, once released, allow the clothing articles and the like to fall clear of the hook or arm and bracket as well so that none of them will remain hanging on the arm or bracket.

Such a device has been previously described in U.S. Pat. No. 2,901,207. However, it should be noted that in such designs where the holding force is governed by the compression of fibrous frictional material that the holding force may be varied independently of said journal pin adjustment. The functional characteristics may be varied by the prolonged compression of such material which tends to produce a permanent compression of such material covering the value of the pre-set holding force. Additionally, the introduction of fluids, such as water, saliva, urine, and other similar fluids will generally initially reduce the frictional holding force. Thereafter, however, such fluids can produce a swelling and expansion of the frictional material thereby increasing the holding force. This effect will, of course, be even greater should the material be heated with a match or the like.

Further, some fibrous frictional materials are combustible and could be partially or fully destroyed by the application of fire or excessive heat. Should this happen, the arm would not be sustainable in its article-holding position.

In addition, such units which utilize a threaded journal pin for adjusting the holding force must be either riveted or peened on the end opposite to the adjusting head in order to retain it in a fixed position so as to not disturb the pre-set holding force. Once accomplished, if re-adjustment is required, extensive modification to the unit is required, and maybe even removal from the vertical support in order to accomplish this modification.



And still further, the use of a teat to limit the upswing of the arm in order to maintain the arm in a position which is substantially perpendicular to the vertical support requires that the installation be made only one way. For if the unit should be installed upside down, the teat would then limit the down swing of the arm, thereby creating a non-relievable arm which could be used to commit suicide — exactly what it was designed to prevent.

## SUMMARY OF THE INVENTION AND OBJECTS

The present invention relates to improvements in relievable hangers for articles of clothing and the like. The hangers contemplated by this invention are those which are generally supported on the wall, and are of such design so as to carry or sustain a predetermined load, such as articles of clothing and the like, but which will yield or relieve in the event that a load in excess of this predetermined amount is placed on the hangers. In the event that such a hanger yields, the support hook or arm will turn downward towards a vertical position, thereby assuming a position in which the object producing the excessive loading is forced to slide off the arm. To ensure that such an object will slide off the arm, the hook or arm is of such design that once it has relieved and assumed a downward-directed vertical position, it will not present any portion which will support any object.

It can be appreciated that such relievable hangers embodying the foregoing features are, and may be, usefully applied in many locations. Locations in which such hangers find wide usefulness and meet an important need are jail or prison cells, as well as other housing facilities created for the safe confinement of prisoners and other persons. As previously discussed, persons so confined in such institutions attempt to commit suicide by hanging themselves. Typically, under such distraught or abnormal mental aberations, such persons will attempt to make use of any tensile object at hand, such as a torn up sheet, towel, or pillowcase. Following the acquisition of such a tensile object, the person will seek out a suitable object to which the tensile object may be attached, such as a fixed, non-relievable clothes hook or the like. Such is frequently found to be suitable for securely supporting the entire weight of the human body.

It is a primary object of the present invention to provide a wallattachable clothes hook which will support the weight of such articles as clothing and the like but in the event that the weight of a person, which generally exceeds **100** pounds, is impressed thereon, such a weight will be sufficient to cause the arm to relieve downwardly sufficiently far to cause the tension element, such as previously described, to slide off the arm, thus thwarting the attempt to commit suicide.

Additionally, it is an object of the present invention to form such a releasable arm that the tensile element will not be further restrained or caught on the arm in its downwardly projecting position; such, of course, would defeat the purpose of the yielding or releasing feature.

In considering the invention in very broad terms, it can be said that my invention comprises a bracket element for attachment to a wall or other vertical structural element, in conjunction with an arm or the like,

herein also, for the sake of convenience, called a hook, wherein the arm is pivotally connected via a journal pin to the bracket element to enable the arm to pivot about a horizontal axis, in order to enable the arm to slant downwardly at an angle sufficient to permit the tension element to slide off the arm and thereby defeat the attempt to commit suicide. In order to retain its functional utility as a clothes carrying hook, the yieldable means is so designed as to support both the hook in an outwardly projecting position and a load which is substantially smaller than that produced by the weight of a human, in order that the device might perform its normally intended function and yet not permit the arm to be used to support the weight of an intended suicide victim.

To accomplish this, the load at which the hook should release does not generally exceed thirty pounds. Generally, the weight of a person who might attempt to commit suicide is one hundred pounds or greater. Consequently, it is possible to separate the functional utility of a clothes supporting hook and that of a wall-anchoring device capable of supporting much larger weights such as the human body, and with reasonable assurance that the force yielding point of the hook would occur before the suicide becomes effective.

The restraining force normally sustaining the unloaded hook or clothing-loaded hook must be produced by a means of such a form and nature that its adjustment cannot be so changed by the confined person that would produce a hook capable of supporting the weight of a human for any appreciable length of time so as to allow said person to commit suicide.

An important feature of the present invention is to provide a convenient means of adjusting the hook's holding force and to limit said adjustment so that it cannot sustain the weight of a human so confined in an institution, and with the assurance that it cannot be tampered with to change its adjustment. Such interference might be in the form of a wedge or other foreign object inserted into the unit at a location such as would increase the holding force of the arm beyond that which is desirable. The present invention is so designed and constructed that no such jamming or interferring with the full releasing movement can be effected.

A further important feature of the present invention is to provide a vandalproof relievable clothes hook. Such is accomplished by permanently joining one end of the journal pin to one of the bracket flanges. The opposite end is free to move within the hole in the other bracket flange. By eliminating any threaded adjustment means and permanently affixing the journal pin as hereinbefore described, in addition to the structural arrangement described herein, the unit is rendered vandalproof.

Another important object of this invention is to provide a relievable hook which may be installed in either of the two vertical positions. Such devices found in the prior art similar to the invention, disclosed in U.S. Pat. No. 2,901,207, may be installed in only one of the two possible vertical positions. If installed upside down from its normal position, the hook will not operate as a relievable hook but instead operate as a non-relievable hook.

An even further object of the present invention is to provide a relievable hanger of such design and construction which may be readily and inexpensively produced from a sheet metal die cut and formed into a flanged bracket with such few additional low-cost elements that can be easily produced by conventional shop operations.

Another purpose and object of this invention is to provide a releasable hanger which will comply with the multitudinous safety regulations and requirements of those authorities having charge of the design and construction of penal institutions, juvenile homes, hospitals for the insane, jails, reformatories, and such facilities as those for retarded and feeble-minded persons.

Other objects and uses of the invention will appear from a detailed description of the invention, which consists in the features of construction and combinations of parts hereinafter described and claimed.

## BRIEF DESCRIPTION OF DRAWING

In the drawing:

FIG. **1** shows a side elevational view of a typical form of my improved relievable hook unit, with the arm extending outwardly at an angle of greater than **45** degrees, but not in a substantially horizontal fashion for the normal or intended use of the unit.

FIG. **2** shows a front elevational view corresponding to FIG. **1.**

FIG. **3** shows a plan view corresponding to FIGS. **1** and **2.**

FIG. **4** is an isometric exploded assembly view of the relievable hook unit as previously shown in FIGS. **1, 2,** and **3.**

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings, the bracket element **10** is formed conveniently, from sheet metal such as mild steel, or preferably stainless steel, to provide the elongated vertical plate **11,** and having the enlarged end portions **12** and **13** which are perforated to receive attaching bolts or other vandal-proof elements for attachment to the wall. The central portion of face or base plate **11** is conveniently formed narrower than such end portions, **12** and **13,** as clearly shown in the drawings.

The central portion of the face plate **11** has its side portions formed at substantially right angles, or greater, to provide the two companion bracket flanges **14** and **15.** These bracket flanges **14, 15** are disposed in a substantially parallel relationship to each other, and are separated by slightly more than the thickness of the arm or hook element **16** to be set between them. In addition, these flanges **14** and **15** are of generally triangular form to provide near their apices the openings **17** and **18** through which is passed a securing and journalling pin **19.**

The arm or hook element **16** includes a hub portion **20,** and an elongated arm portion **21.** This element is generally formed of cylindrical stock and of metal material similar to identical to that used to form the bracket element **10,** typically stainless steel.

The locking and journalling pin **19** is seated within the openings **17, 18** and extends through both such bracket flanges **14, 15** and the hub portion **20** of the arm element **16.** Such pin is fixed to the bracket flange **14** by bonding it to the periphery of said opening **18** typically by welding or brazing and thereafter is polished smooth so as to be flush with the outer surface **22** of the bracket flange **14.** The spacing between the opposing faces **23, 24** of the bracet flanges **14, 15** is

greater than the thickness of the hub portion **20** so that said hub portion **20** may freely pivot about the journal pin **19** axis and such that it would be practically impossible for the confined person to insert a wedge therebetween so as to substantially interfere with the releasable hook's down rock when said hook **16** is impressed with a load in excess of that intended to be carried or supported thereby.

The arm or hook element **16** is supported in its normal position for supporting clothes and the like at an angle of greater than **45** degrees from the upper vertical portion of the bracket element **10**, namely, the enlarged end portion **12**, by means of two, oppositely disposed, inwardly directed elongated shoulders **25, 26**, located on the inside of said bracket flanges **14, 15** respectively. Said shoulders **25, 26** extend sufficiently inward so that the space between them is slightly smaller than the diameter of the arm **16**. Consequently, as the arm **16** is pivoted about the journal pin **19**, away from the vertical plate **11** of the bracket element **10**, the elongated arm portion **21** will come to rest upon the shoulders **25, 26**.

When a force is applied to the outer end of said hook **16** which is sufficiently great to force the bracket flanges **14, 15** outward and away from the elongated arm portion **21**, the arm **16** will continue its downward rock until either the force is removed by sliding off the arm **16** or until the body of the elongated arm portion **21** passes between the shoulders **25, 26**. When the arm **16** clears the shoulder **25, 26**, the arm **16** will rapidly drop downwardly into substantial parallelism with the base plate **11**.

In order to reset the arm **16** which has been previously relieved, the confined person merely pushes the arm **16** upwardly forcing it to pivot about its journalling pin **19** until the arm **16** once again contacts the shoulders **25, 26** and forces the bracket flanges **14, 15** apart until the arm **16** has passed completely therebetween. Thereafter, the arm **16** is released and, once again, comes to rest upon said shoulders **25, 26**.

It should be noted, however, that a single shoulder would perform the same or similar function as that previously described using two or more shoulders. Said single shoulder would extend sufficiently inward from the inside face of the flange bracket either **15** or **14** so that the distance between the outer surface of said shoulder and the opposite bracket is smaller than the diameter of the arm **16**. Again, as the arm **16** is pivoted downwardly about the journal pin **19**, away from the vertical part of the elongated arm portion **21**, it will come to rest and be supported by the single shoulder.

The spring-force by which the shoulders **25, 26** are returned to their former positions so that the arm **16** may rest thereon and be supported thereby is the spring-force inherent in the metallic sheet metal material forming said brackets flanges **14, 15** which rise outwardly from the base plate **11**.

The force at which the arm **16** will relieve is determined gy the spring-force of the bracket flanges **14, 15**, as hereinbefore described. To increase said force, a pair of pliers or other similarly suitable adjusting tool is used to grip the outwardly-projecting ends of the bracket flanges **14, 15** and to squeeze them closer together so as to bend the base of the bracket elements slightly. On the other hand, the holding force is decreased by spreading said bracket flanges **14, 15** apart.

The spring-force of the bracket flanges **14, 15** is determined by both the gauge of the metal used to form the bracket flanges **14, 15** and by the characteristics of the particular metal itself. The force applied to the bracket flanges **14, 15** along the sheet metal bend lines **27, 28**, from which said bracket flanges **14, 15** project outwardly from the base plate **11** is generally impressed as follows.

When the arm **16** is impressed with an excessive load, such as the weight of a human body, it is pulled downwardly into intimate contact with the rounded edge portions **29, 30**, of the shoulders **25, 26**. The two curved surfaces of the arm and the shoulders form two essentially point contacts which minimize the frictional area of contact thereby reducing the frictional forces created therebetween. In addition, the rounded surfaces do not present such projecting surfaces which would prevent the down rock of the arm **16** when such arm **16** is impressed with an excessive load. Consequently, this design is inherently self-relieving and cannot support an excessive load such as the weight of an average adult human body which is normally 90 pounds or greater.

It should be noted that said rounded shoulders **25, 26** are typically and conveniently formed by impressing or dimpling the outer surfaces of the bracket flanges **14, 15** in between the outermost-projecting edge and the openings **17, 18** and thereby permanently displace the sheet metal material so as to form rounded and inwardly projecting shoulders **25, 26** on the opposite or inner faces of said bracket flanges **14, 15**.

Further, while it has been found to be generally more suitable for use in the application and use previously described, to form the shoulder or shoulders in between the outermost-projecting edge and the opening **17, 18**, for ease of adjustment and to establish a lower minimum relieving force, said shoulder or shoulders may be disposed in any location on the inside face of the brackets as long as said shoulder or shoulders support the arm **16** outwardly in its clothes-supporting position of from 45° to 90° from the upper vertical plane of the base plate **11**. Consequently, the shoulder or shoulders could be disposed in between the opening **17, 18**, and the base plate **11**. However, for the arm **16** to contact the shoulder, the hub portion **20** would be moved closer to the center of the elongated arm **21**. This is necessary to provide a further rearward projection of said arm to permit said arm to contact the shoulder and be supported thereby.

However, as previously mentioned, it would be generally anticipated that by disposing the shoulders in this position closer to the bend lines **27, 28**, the spring-force and effect would be greater than if said shoulders were disposed farther away from said bend lines. Consequently, the force at which the arm would relieve would be greater than the relieving force established when the shoulders are disposed in between the outermost-projecting edge and the opening **17, 18**. This, of course, assumes that all other factors are equal.

As the excessive weight forces the arm downwardly, the elongated arm portion **21** of the arm **16** will be forced in between the shoulders **25, 26** which will, in turn, cause the ends of the bracket flanges **14, 15** to be forced slightly apart from each other. As the arm portion **21** of the arm **16** exits between the two shoulders

25, 26 and its down rock is no longer influenced thereby, the arm 16 will freely fall far enough to allow the excessive weight to slide from the arm 16 and to be discharged therefrom. These operations will generally occur in very quick succession, once the imposed force on the arm 16 has exceeded that force to which the bracket flanges 14, 15 spring-force has been adjusted.

As clearly illustrated in the drawings, the relievable hanger may be installed in either of its two possible vertical positions without impairing its relieving function.

Examination of the drawings will show that the bracket flanges 14, 15, are of such configuration that at no point of down rock of the arm 16 would it be possible to insert an interferring object horizontally beneath the arm 16 and resting against the bracket flanges 14, 15 to stop or prevent the down rock of the arm 16 prior to its achieving such a down slant of the arm 16 as would discharge the tension element sustained thereby. This important result is achieved by virtue of the steepness of the lower edges 31, 32 of the bracket flanges 14, 15. Should any interferring object be placed across sald edges 31, 32 just beneath the arm 16, when in a horizontal or down-slanting position, such would fail to catch on said bracket edges 31, 32, and would be driven down as the arm 16 descended, thereby preventing any interference with the intended operation of the device. In this connection, it is pointed out that such edges 31, 32 are formed at an angle of substantially 45 degrees to the vertical plate 11 and connect at their outer ends with the circular arc portion 33, 34, of the flanges 14, 15.

While this invention has been shown and described in a particular arrangement merely for illustration and explanation, it will be readily apparent that the invention may be widely varied without departing from the scope and spirit of this invention.

We claim:

1. A relievable hanger for supporting articles of clothing or the like, comprising:

an article-supporting arm having a rounded, elongated body and a hole therethrough adjacent one end thereof disposed substantially transverse to the axis of said body;

a bracket element including a base plate for attachment to a vertical structural element and including a pair of forwardly-projecting, substantially parallel bracket flanges, the distance between said bracket flanges being greater than the cross section of said arm so as to place said bracket flanges in contiguous relationship to said arm to permit said arm to move freely therebetween, and the top and bottom edges of said bracket flanges being formed at angles of not less than substantially forty-five degrees to said base plate and further having a hole in each bracket flange, the centers of which lie on the same centerline, said centerline being disposed substantially transverse to said base plate;

a journal pin for said arm said pin having a diameter smaller than said hole in said arm and freely movable therein and further being smaller in diameter than said holes in said bracket flanges, one end of said pin being disposed within one of said bracket flange holes and fixedly joined to said bracket flange and the other end being disposed within the other of said bracket flange holes and having a uniform cross-section from within the hole to the extremity of said pin end whereby said pin end is freely movable in longitudinal coaxial relationship to said hole;

a first blunted shoulder on the inside face of one of said bracket flanges upon which said arm may rest; and

a second blunted shoulder oppositely disposed from said first blunted shoulder on the inside face of the other of said bracket flanges upon which said arm may rest, wherein said first and second blunted shoulders are rounded and elongated and are substantially parallel to said base plate.

2. A relievable hanger as claimed in claim 1 wherein said shoulders are an integral part of the bracket flange material being formed by dimpling or impressing the outside face of the bracket flanges.

3. A relievable hanger for supporting articles of clothing or the like, comprising:

a bracket element including a base plate for attachment to a vertical structural element, and further including a pair of substantially symmetrical, forwardly projecting bracket flanges disposed in spaced-apart, parallel relationship, said flanges having a pair of oppositely disposed openings therein, the central axis of said openings lying transverse to said base plate and disposed adjacently thereto, the top and bottom edges of said bracket flanges being formed at an angle of not less than substantially 45° to said base plate;

a journal pin disposed within said flange openings and extending between said bracket flanges, one end of said pin being fixedly secured to one of said flanges and the other end of said pin being freely movable in a coaxial fashion within said hole of the other of said flange openings along the centerline of said other opening;

an elongate, cylindrical, article-supporting arm, said arm including a hub portion adjacent one end of said arm, said hub portion adjacently disposed in spaced apart relationship to said base plate and freely journaled for rotation on said pin disposed between said bracket flanges, the end of said arm adjacent to said hub portion having a radiused portion thereon, the center of said radiused portion substantially coinciding with the central axis of said hub portion and said journal pin, said radiused portion serving to dispose of said arm in contiguous relationship to said base plate and bracket flanges of said bracket element restricting the passage of rope-like articles or the like therebetween, and a blunt, hemispherically contoured surface about the other end of said arm, said arm further having a diameter less than the spaced-apart distance between said pair of bracket flanges;

an elongate, semi-cylindrically shaped shoulder projecting inwardly from said bracket flange in which said pin is fully movable, said shoulder disposed intermediate said opening in said bracket flange and the forwardmost edge of said bracket flange with its major axis disposed in parallel relationship to said base plate, the distance between the inwardlymost surface of said shoulder and said opposite bracket flange being less than the diameter of said article-supporting arm.

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