Dec. 6, 1966 C. O. LARSON 3,289,789

FOLDING SAWHORSE BRACKET

Filed Sept. 5, 1963 2 Sheets-Sheet 1

FIG. 1

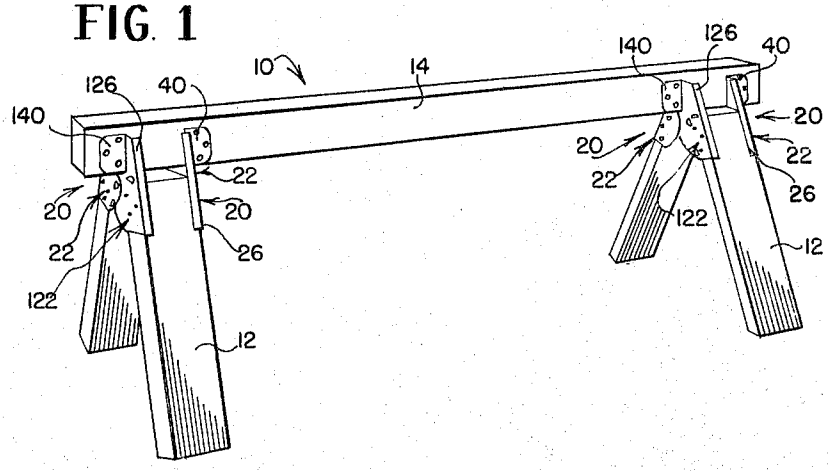


FIG. 2

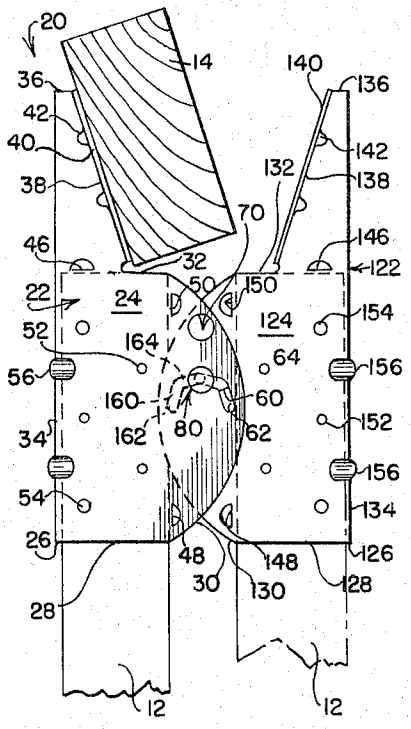
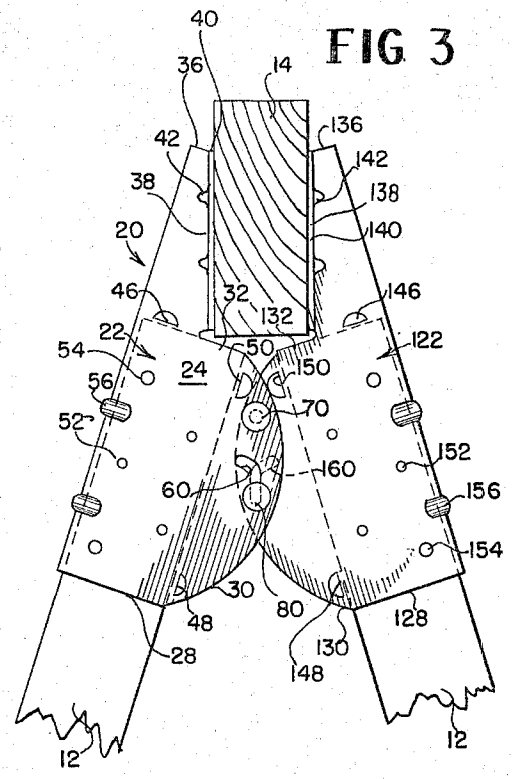


FIG 3



INVENTOR.
CHARLES O. LARSON

BY

Brangley, Baird, Clayton, Miller & Vogel
Attys.

Dec. 6, 1966 C. O. LARSON 3,289,789

FOLDING SAWHORSE BRACKET

Filed Sept. 5, 1963 2 Sheets-Sheet 2

FIG. 5

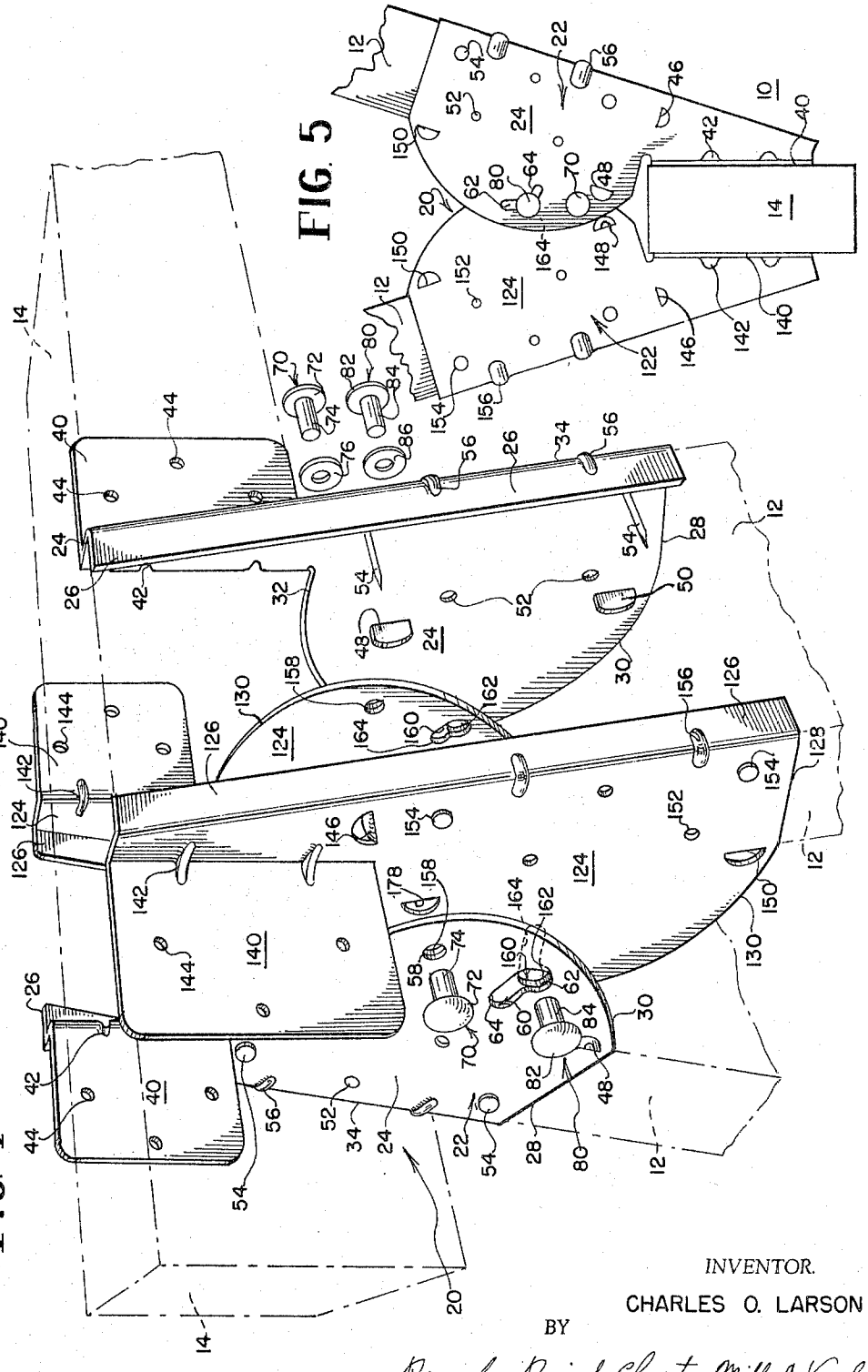


FIG. 4

INVENTOR.
CHARLES O. LARSON
BY
Prangley, Baird, Clayton, Miller & Vogel.
Attys.

United States Patent Office 3,289,789 Patented Dec. 6, 1966

3,289,789

FOLDING SAWHORSE BRACKET

Charles O. Larson, Sterling, Ill., assignor to Chas. O. Larson Co., Sterling, Ill., a corporation of Illinois

Filed Sept. 5, 1963, Ser. No. 306,724
1 Claim. (Cl. 182—226)

The present invention relates to sawhorses, trestles, and the like, and particularly to a sawhorse bracket assembly for making folding collapsible sawhorses and the like.

Although sawhorses are fundamentally used in carpentry, they are also widely used as barriers, temporary fences, or other obstacles and many of these possible uses are temporary in the sense that the sawhorses may be utilized only for a short period of time, such for example, as a temporary barrier along a road under construction, after which the sawhorses are either stored or transported to another place of use.

Therefore, it is desirable that the sawhorses be adapted to have the legs thereof folded or collapsed between periods of use and during the transportation thereof so that the sawhorses will occupy the least possible space. It furthermore is desirable that the sawhorses be foldable or collapsible with a minimum expenditure of time and energy and also that the sawhorses be readily erectable again when a demand therefor arises. Finally, when erected, the sawhorses must be strong and rigid in order to accomplish the desired end purpose thereof.

Accordingly, it is an important object of the present invention to provide an improved sawhorse bracket assembly which can be utilized quickly to assembly a sawhorse from standard lumber such as 2" x 4" lumber, the sawhorse being easily and quickly folded or collapsed for transportation or storage thereof.

Another object of the invention is to provide an improved sawhorse bracket assembly of the type set forth in which the legs of the sawhorse are firmly held in the operative position with the associated crosspiece when it is desired to erect the sawhorse, and which can be readily collapsed by folding the legs toward each other without the use of any tools whatsoever.

Still another object of the invention is to provide in an improved sawhorse bracket assembly of the type set forth improved structure for securing the upper ends of the legs to the sawhorse brackets and for securing the crosspiece to the sawhorse brackets.

A further object of the invention is to provide an improved sawhorse bracket assembly of the type set forth which is simple and economical to manufacture and which may be readily and economically assembled with standard lumber to provide a completed sawhorse assembly.

Further features of the invention pertain to the particular arrangement of the parts whereby the above-outlined and additional operating features thereof are attained.

The invention, both as to its organization and method of operation together with further objects and advantages thereof, will best be understood by reference to the following specification taken in connection with the accompanying drawings, in which:

FIG. 1 is a perspective view of a sawhorse of the type which can be constructed utilizing the improved bracket assembly of the present invention, two of the bracket assemblies being utilized to secure one set of legs in converging relationship with each other and one end of a crosspiece and two of the bracket assemblies being utilized to secure a second set of legs in converging relationship with each other and the other end of the crosspiece;

FIG. 2 is an enlarged view of the sawhorse of FIG. 1 with certain portions broken away, the parts being shown in the position assumed when the sawhorse legs are in the folded position thereof;

FIG. 3 is a view similar to FIG. 2 showing the parts of the sawhorse assembly in the operative position thereof wherein the sawhorse legs diverge outwardly and downwardly from the crosspiece;

FIG. 4 is a further enlarged and exploded view of the parts of two bracket assemblies utilized to secure a pair of sawhorse legs to the sawhorse crosspiece; and

FIG. 5 is a fragmentary view of an end of the sawhorse assembly with the parts in the unfolded position in which they are placed more easily to move the legs and associated parts from the operative position to the folded position thereof.

There is shown in the drawings a sawhorse, generally designated by the numeral **10**, which has been assembled utilizing four of the bracket assemblies made in accordance with and embodying the principles of the present invention, the bracket assemblies having been designated by the numeral **20**. More particularly, the sawhorse **10** includes four legs **12** arranged in pairs at the opposite ends of a crosspiece **14**, the upper ends of the legs **12** converging toward each other and toward the adjacent end of the crosspiece **14**, the legs **12** and the crosspiece **14** being formed of standard size lumber such as 2" x 4" lumber. The bracket assemblies **20** at each end of the sawhorse **10** are identical, and accordingly, only one set of parts will be described in detail, like reference numerals being applied where appropriate to like parts in the other bracket assemblies.

Each of the sawhorse bracket assemblies **20** includes a pair of separate and independent brackets **22** and **122**, the brackets **22** and **122** being mirror images one of the other but being otherwise identical. The bracket **22** includes a main wall **24** which is susbtantially flat and planar and a side flange **26** formed integral therewith and extending the length of the outer edge thereof. There is formed on the bottom of the main plate **24** a bottom edge **28** which has a length substantially equal to the thickness of the associated leg **12** and more particularly extends from the flange **26** inwardly to the opposite side of the leg **12** and there joins a curved side edge **30** which extends outwardly beyond the associated leg **12** and then inwardly toward the adjacent side of the leg **12** and terminates in an upper or top edge **32** which is generally parallel to the bottom edge **28**. A cutout is formed in the upper portion of the main plate **24**, the cutout being defined by the top edge **32** and an edge **38** extending upwardly and to the left therefrom as viewed in FIG. 2, the upper end of the edge **38** joining another edge **36** that is parallel both to the bottom edge **28** and the top edge **32**. The other edge **34** of the main plate **24** has the flange **26** extending therefrom and disposed substantially perpendicular thereto as has been described above.

The upwardly extending edge **38** on the main plate **24** has a crosspiece flange **40** formed integral therewith and disposed substantially perpendicular thereto and extending therefrom in a direction opposite to the flange **26**, the flange **40** being generally rectangular in shape and of substantial extent. A plurality of reinforcing ribs **42** is provided at the junction between the main plate **24** and the crosspiece flange **40** along the edge **38**. In order to attach the crosspiece **14** to the bracket **22** if desired, three circular holes **44** are formed therein, the holes **44** being arranged in a generally triangular relationship as viewed in FIGS. 1 and 4 of the drawings, it being understood that the holes **44** are adapted to receive nails, screws or other fasteners for securing the crosspiece **14** to the sawhorse bracket **22**.

In accordance with the present invention, structure is also provided more firmly to mount and position the adjacent upper end of the associated leg **12** with respect to the sawhorse bracket **22** and to this end an abutment flange **46** is formed in the main wall **24**, the abutment flange **46**

being substantially semi-circular in shape and struck from the main body **24** and disposed substantially perpendicular thereto and extending therefrom in the same direction as the side flange **26**. The lower surface of flange **46** is preferably formed in alignment with the top edge **32** to insure that the upper end of the associated leg **12** will not interfere with the upper positioning of the crosspiece **14**. There further are provided two guide flanges **48** and **50** in the main wall **24** of the bracket **22**, both of the guide flanges **48** and **50** being semi-circular in shape and disposed substantially perpendicular to the main plate **24** and extending therefrom in the same direction as the side flange **26** and the abutment flange **46**. The surfaces of the guide flanges **48** and **50** disposed toward the side flange **26** are spaced therefrom a distance such as to receive therebetween the thickness of a typical associated leg **12**, which preferably is formed of a standard 2" x 4". Accordingly, the upper end of the associated leg **12** is restrained between the side flange **26** and the guide flanges **48** and **50**, the side flange **26** contacting one of the broad side faces of the leg **12** and the guide flanges **48** and **50** contacting the other broad face thereof. The upper end of the leg **12** abuts against the abutment flange **46** as has been explained above. In order further to position the leg **12** with respect to the bracket **22**, a plurality of circular holes **52** is formed in the main plate **24**, the holes **52** being five in a number as illustrated in FIG. 2 and being staggered but all confined within the area bounded by the side flange **26**, the bottom edge **28**, the abutment flange **46** and the guide flanges **48** and **50**. The holes **42** are adapted to receive any suitable fastener such as nails, screws or the like useful in securing the bracket **22** to the upper end of the leg **12**, nails **54** being shown disposed in two of the holes **52** in FIG. 2 of the drawings. There further is provided a pair of reinforcement ribs **56** at the junction of the main plate **24** and the side flange **26** to maintain these parts in the proper angular relationship with respect to each other.

In order pivotally to connect a pair of brackets to form an assembly **20**, the bracket **22**, and more particularly, the main plate **24** thereof, is provided with a pivot aperture **58** therein (see FIG. 4) which is circular in shape and is disposed toward the top edge **32** thereof but outside of the line defined by the guide flanges **48** and **50**. There also is provided in the main plate **24** a generally L-shaped slot **60** including a first arm **62** and a second arm **64**, the first arm **62** being arranged with the longitudinal axis thereof in alignment with the pivot aperture **58** and disposed therebelow toward the bottom edge **28**, the second arm **64** being arranged to extend from the upper end of the arm **62** with the longitudinal axis thereof disposed at an obtuse angle with respect to the longitudinal axis of the first arm **62** and extending toward the side flange **26**.

As has been pointed out above, the bracket **122** is formed as the mirror image of the bracket **22** but is in all other respects identical therewith, and accordingly, the parts of the bracket **122** corresponding to the parts in the bracket **22** have been assigned the same reference numerals except with the number "100" added thereto. More specifically, the bracket **122** includes a main plate **124** having formed along one of the longitudinal edges thereof an integral side flange **126** disposed substantially perpendicular thereto and extending therefrom. The lower end of the bracket **122** as viewed in FIG. 2 has a bottom edge **128** disposed substantially perpendicular to the flange **126** and joining with a curved edge **130** extending upwardly to the left and then inwardly to a top edge **132**, the top edge **132** being substantially parallel to the bottom edge **128**. The junction between the main plate **124** and the side flange **126** is along an edge **134** which joins the bottom edge **128** at the bottom thereof and joins another top edge **136** at the top thereof. A cutout to receive the crosspiece **14** is provided in the upper portion of the main plate **124**, the cutout being bounded by the top edge **136** and an inclined edge **138** extending upwardly and to the right in FIG. 2. Formed integral with the main plate **124** along the edge **138** is a crosspiece flange **140** that is essentially rectangular in form and is disposed perpendicular to the main plate **124** and extends therefrom in a direction opposite to the side flange **126**. A pair of reinforcing ribs **142** is provided between the main plate **124** and the flange **140** and a plurality of circular holes **144** is provided in the flange **140** to receive suitable fasteners for securing the bracket **122** to the crosspiece **14**.

There further is provided in the main plate **134** an abutment flange **146** disposed perpendicular to the main plate **124** and extending therefrom in the same direction as the flange **124**, the lower surface of the flange **146** being in substantial alignment with the top edge **132**. A pair of guide flanges **148** and **150** is also provided in the main plate **124**, the guide flanges **148** and **50** being disposed substantially perpendicular to the main plate **124** and extending therefrom in the same direction as the side flange **126** and spaced from the side flange **126** a distance to receive the upper end of a leg **12** therebetween. In order to interconnect the bracket **122** and the associated leg **12**, five circular holes **152** have been formed in the main plate **124** for the reception of fasteners such as the nails **154**. The junction between the main plate **124** and the side plate **126** is also reinforced by a pair of ribs **156**.

In order pivotally to interconnect the brackets **22** and **122**, the main plate **124** is provided with a pivot aperture **158** therein which is circular in shape and is disposed upwardly toward the top edge **132** but outwardly with respect to the guide flanges **148** and **150**. There also is provided a generally L-shaped slot **160** including a first arm **162** and a second arm **164**, the first arm **162** being arranged with the longitudinal axis thereof in alignment with the pivot aperture **158** and disposed therebelow toward the bottom edge **128**, the second arm **164** extending from the upper end of the arm **162** with the longitudinal axis thereof disposed at an obtuse angle with respect to the longitudinal axis of the arm **162** and extending toward the side flange **126**.

In the bracket assembly **20**, the brackets **22** and **122** are arranged with the main plates **24** and **124** in mutually overlapping relationship and a pivot pin generally designated by the numeral **70** is provided including a head **72** and a shank **74**, the shank **74** extending through the aligned pivot apertures **58** and **158** with the head **72** engaging the main plate **24**. The end of the shank **74** extending through the brackets carries a washer **76** held thereon by peening over the outer end of the shank **74** so that the main walls **24** and **124** are held in assembled pivotal relationship between the head **72** and the washer **76**.

There is also provided a lock pin which extends through the L-shaped slots **60** and **160** in the brackets **22** and **122**, respectively, the lock pin being generally designated by the numeral **80** and including a head **82** and a shank **84** extending through aligned portions of the L-shaped slots **60** and **160** with the head **82** bearing against the outer surface of the main plate **24**. The other end of the shank **84** carries thereon a washer **86** which bears against the outer surface of the main wall **124** of the bracket **122** and is held thereagainst by peening over the outer end of the shank **84**. The pivot pin **80** is free to move within the slots **60** and **160** between a non-locking or folded position illustrated in FIG. 2 and a locking or extended position illustrated in FIG. 3, the non-locking position of FIG. 2 illustrating the positions of the parts when the legs **12** of the sawhorse **10** are folded toward each other, and the locking position of FIG. 3 illustrating the positions of the parts when the legs **12** diverge outwardly and downwardly with respect to the crosspiece **14**, the crosspiece flanges **40** and **140** being disposed toward and against the longitudinal and vertical edges of the crosspiece **14**.

In mounting the bracket assembly **20** upon the legs **12** and the crosspiece **14**, the bracket assembly **20** pref-

erably has the parts thereof pre-assembled before the attachment thereof to the legs **12** and the crosspiece **14**. Once the parts of the assembly **20** have been connected as described above, the ends of the legs **12** are inserted into the channels defined by the side flange **26** and the guide flanges **48** and **50** in the case of the bracket **22** and the side flange **126** and the guide flanges **148** and **150** in the case of the bracket **122**, the legs **12** being moved upwardly until the ends thereof are abutted against the abutment flanges **46** and **146**, respectively. The nails **54** and **154** are then inserted into the respective holes **52** and **152** and are driven home, thereby to assemble the assembly **20** upon the associated legs **12**. The crosspiece **14** is then placed between the opposed crosspiece flanges **40** and **140** and the bracket plates **22** and **122** moved to the open position thereof, i.e., with the lower ends of the legs **12** diverging outwardly and downwardly with respect to each other. In many installations no further connection between the bracket assembly **20** and the crosspiece **14** is required. However, if it is desired to attach the crosspiece **14** to the bracket assembly **20** while still permitting folding of the legs **12**, fasteners may be inserted through only one of the crosspiece flanges, such, for example, as the crosspiece flange **40**, thereby fixedly to attach the crosspiece **14** to the bracket assembly **20**. With the parts so connected it is still possible to fold the legs **12** between the positions illustrated in FIGS. 2 and 3 of the drawings. If on the other hand it is not necessary to fold the legs **12** or if the legs **12** are folded only infrequently, then the fasteners may also be inserted through the openings **144** in the crosspiece flange **140** so as firmly to lock the parts in the position illustrated in FIG. 3 of the drawings.

Once the parts are assembled as illustrated in FIG. 2 of the drawings, i.e., with the crosspiece **14** secured only to the crosspiece flange **14**, for example, the lock pin **80** is utilized and serves to hold the legs **12** in the outer supporting and operative position thereof when the parts are arranged as illustrated in FIG. 3, i.e., with the lock pin **80** disposed ih the lower ends of the aligned L-shaped slots **60** and **160**. Any movement of the legs **12** toward each other will be prevented since the edges of the slots **60** and **160**, and particularly the edges of the first arms **62** and **162** thereof, respectively will engage the lock pin **80** and prevent such movement of the legs **12**, whereby the lock pin **80** serves to hold the parts of the sawhorse assembly **10** in the erected and operative position thereof.

When it is desired to fold the legs **12** toward each other and into the position illustrated in FIG. 2, this can be most readily accomplished by first placing the sawhorse **10** in the inverted position diagrammatically illustrated in FIG. 5. The placing of the sawhorse **10** in the position of FIG. 5 will permit the lock pins **80** to be readily moved, sometimes only under the urging of gravity, along the aligned slots **60** and **160**, and particularly along the arms **62** and **162** thereof, respectively, to the aligned portions thereof nearest the pivot pin **70** and further into the aligned portions of the second arms **64** and **164** of the slots **60** and **160**, respectively. The legs **12** can now be moved toward each other thereby to move the pivot pin **80** into the slot arms **64** and **164** until the parts reach the position illustrated in FIG. 2. When it is desired again to spread the legs **12** to place the parts in the operative position, it is necessary only to place the sawhorse **10** in the upright position thereof and move the outer ends of the legs **12** away from each other, whereby to cause the lock pin **80** to move along the slot arms **64** and **164** toward the junctions thereof with the slot arms **62** and **162**; and when the pivot pin **80** arrives in the slot arms **62** and **162**, these slot arms will be in vertical alignment with each other, whereby the lock pin **80** can readily fall downwardly under the urging of gravity to the locking position illustrated in FIG. 3. Accordingly, it will be seen that the legs **12** and the various parts of the bracket assembly **20** can be moved between the operative and folded positions thereof without the use of any tools and quickly and conveniently by simply turning the sawhorse **10** upside down and then rightside up, or vice versa, as required.

Although the invention has been described for illustrative purposes as applied to sawhorse assemblies wherein the legs **12** and the crosspiece **14** are formed of 2" x 4" lumber, it is to be understood that other standard sizes of lumber may be used. More specifically, the legs **12** may be made of lumber having a thickness of 1" rather than 2" and the width of the lumber may be 2", 6" or 8" rather than 4". Likewise, the crosspiece **14** may be formed of 2" x 6" lumber or 2" x 8" lumber rather than a 2" x 4" lumber described above.

It will be seen that there has been provided an improved collapsible sawhorse bracket assembly which fulfills all of the objects and advantages set forth above. More particularly, an improved sawhorse bracket assembly has been provided which gives a more firm connection between the crosspiece **14** and the bracket assembly **20** through the broad expanse of the crosspiece flanges **40** and **140**. There likewise is an improved connection between the legs **12** and the bracket assemblies **20** provided by the cooperation among the side flange **26**, the abutment flange **46** and the guide flanges **48** and **50** on the bracket **22**, and the cooperation among the side flange **126**, the abutment flange **146** and the guide flanges **148** and **150** on the bracket **122**.

While there has been described what is at present considered to be the preferred embodiment of the invention, it will be understood that various modifications may be made therein, and it is intended to cover in the appended claims all such modifications as fall within the true spirit and scope of the invention.

What is claimed is:

A collapsible sawhorse bracket assembly for interconnecting a crosspiece and a pair of legs in converging relationship with each other and to the crosspiece, comprising a pair of separate and independent brackets, each bracket including a main wall adapted to be fixedly secured to one edge of an associated leg at one end thereof and a side flange formed integral with said wall and disposed substantially perpendicular thereto and along the outer face of the associated leg at the one end thereof, said main wall and said side flange extending beyond the adjacent end of the associated leg and said main wall having a cutout therein on the edge opposite said side flange for receiving a supporting crosspiece therein, an abutment flange integral with said main wall and disposed substantially perpendicular thereto and extending in the same direction as said side flange and being adapted to lie against the upper end of the associated leg, a guide flange integral with said main wall and disposed substantially perpendicular thereto and extending therefrom in the same direction as said side flange and placed therefrom a distance to receive the associated leg therebetween, a plurality of openings in said main wall in the area thereof defined by said side flange and said abutment flange and said guide flange for receiving fasteners therethrough to secure said bracket to the associated leg, a crosspiece flange integral with one edge of said main wall defining said cutout and disposed substantially perpendicular thereto and extending therefrom in a direction opposite to said side flange and adapted to lie along the side of an associated crosspiece, said crosspiece flange having an opening therein for receiving a fastener therethrough to secure said bracket to the associated crosspiece, said brackets being overlapping and having aligned pivot apertures therethrough, a pivot pin disposed in said aligned pivot apertures and pivotally interconnecting said brackets to provide an axis for pivoting the legs with respect thereto between a folded position wherein the outer ends thereof are adjacent to each other and an operative position wherein the outer ends thereof are spaced apart, each of said brackets having an L-shaped

slot in the main wall thereof including first and second arms, the first arm of each of said L-shaped slots being arranged with the longitudinal axis thereof in alignment with said first arm of the other L-shaped slot when the legs are in the operative position thereof, the second arm of each of said L-shaped slots being arranged at the end of the associated first arm thereof disposed toward said pivot pin and extending therefrom outwardly toward the associated leg, and a lock pin disposed in said L-shaped slots and movable therealong in the aligned portions thereof between a lockng position and a non-locking position as the legs move between the operative and the folded positions thereof, said lock pin in said locking position being disposed at the ends of the aligned first arms disposed away from said pivot pin with the legs in the

operative position thereof, said lock pin in said non-locking position being disposed in aligned portions of said second arms with the legs in the folded position thereof.

References Cited by the Examiner

UNITED STATES PATENTS

2,330,766	9/1943	Walstrom	182—224
3,078,957	2/1963	Larson	182—226

FOREIGN PATENTS

482,953	5/1952	Canada.

REINALDO P. MACHADO, *Primary Examiner.*
HARRISON R. MOSELEY, *Examiner.*