Feb. 11, 1964 J. MAHANA ETAL 3,120,895

DRAPERY ACCESSORY AND COMBINATION OF TRAVERSE ROD THEREWITH

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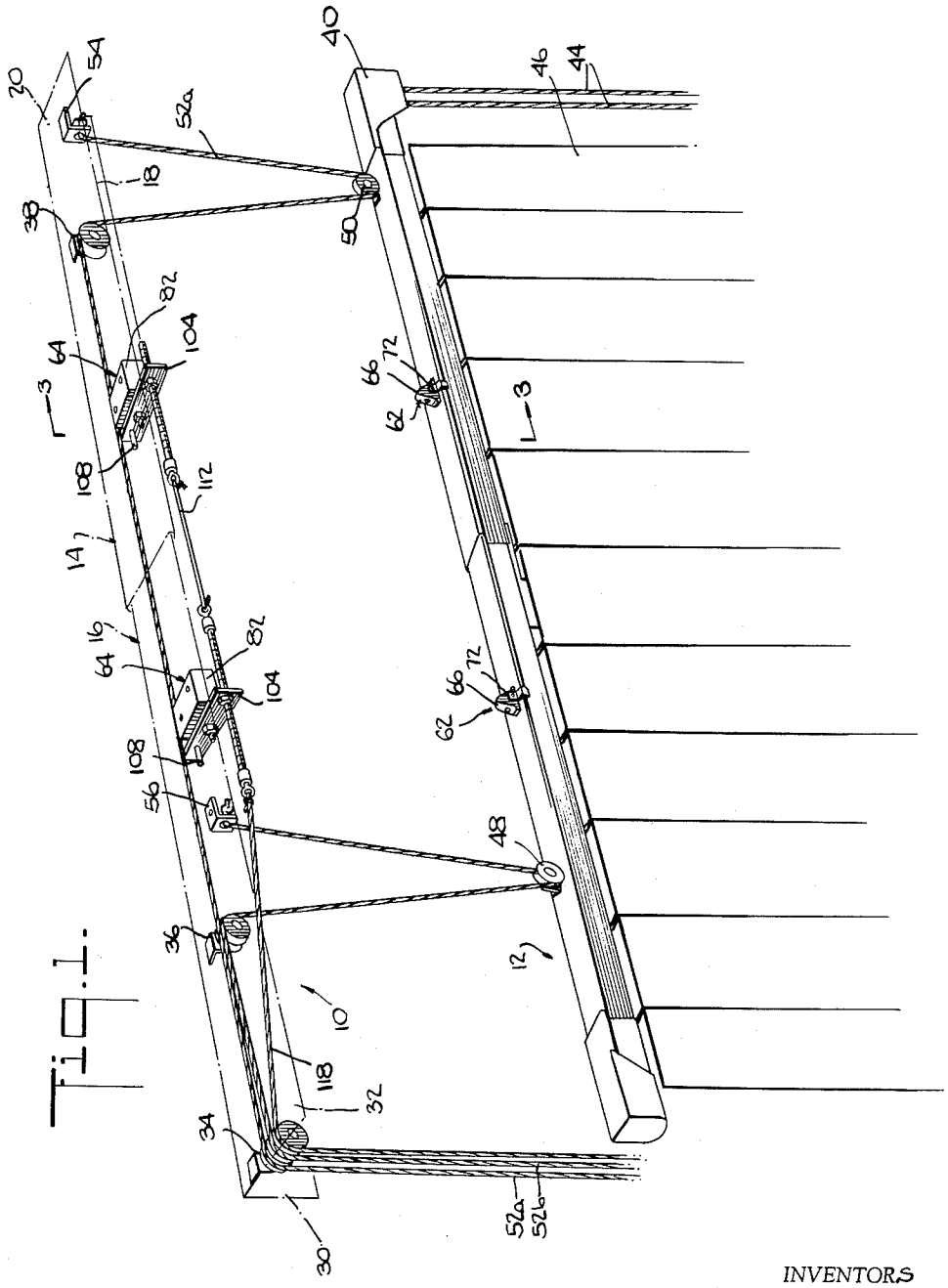


Fig. 1.

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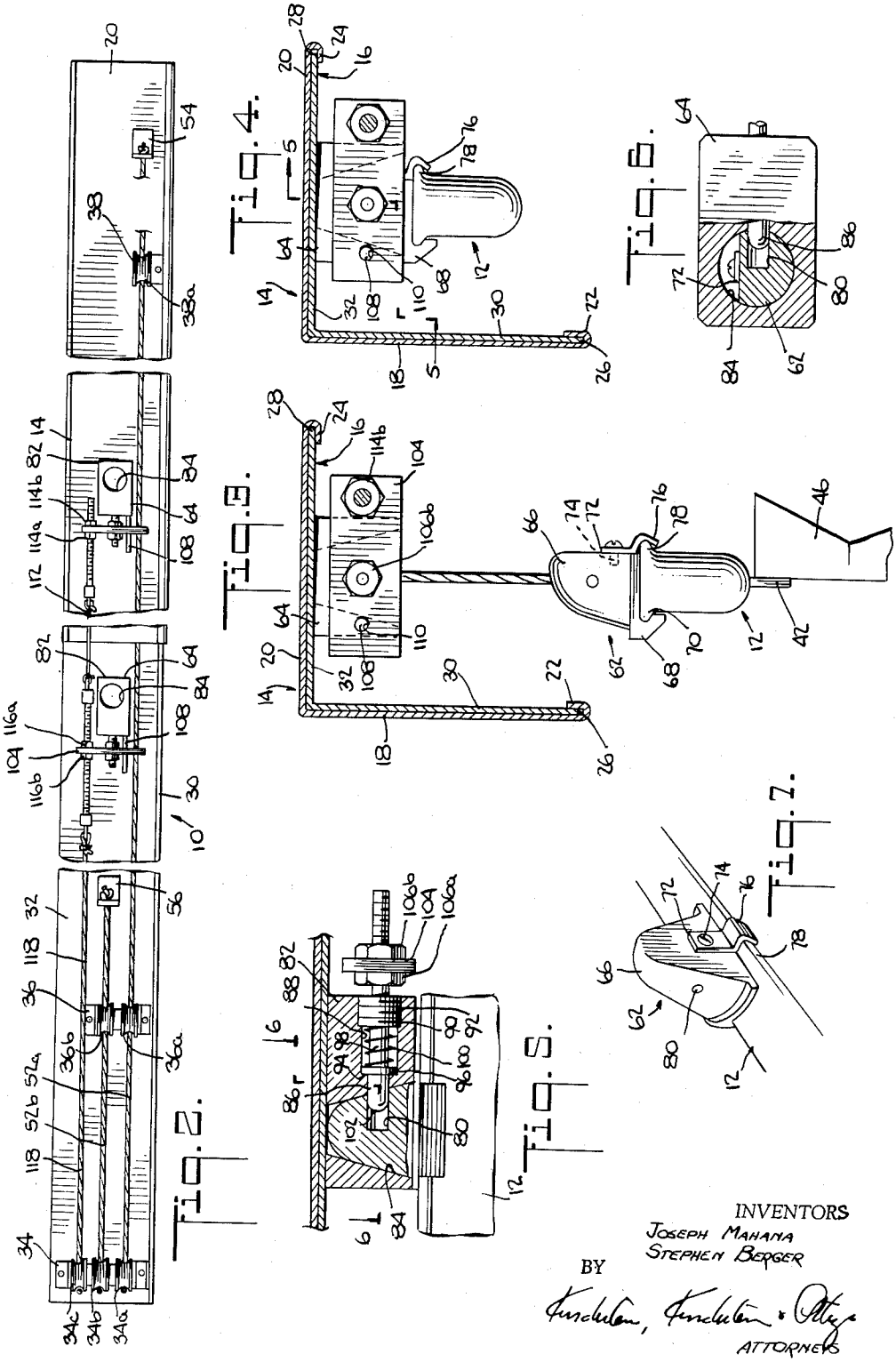
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DRAPERY ACCESSORY AND COMBINATION OF TRAVERSE ROD THEREWITH

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This invention relates to drapery fixtures and, more particularly, to a novel elevating and lowering accessory for conventional traverse rods, as well as to a novel combination of said accessory and traverse rod.

The ordinary means provided for hanging drapes so that they can be opened and closed is a traverse rod. Such rods usually are mounted on a ceiling or wall considerably above the reach of an average person, and to secure drapes thereto or remove them therefrom, it is necessary to climb upon a ladder, chair or similar means in order to reach the connections (drapery hooks or the like) between the drapes and the rod. This arrangement constitutes a recurrent inconvenience since it is necessary from time to time to take down the drapes for cleaning, adjustment or other reasons. And, of course, when it is desired to put them back up, the user must again climb up to reach the traverse rod. Climbing up to reach the traverse rod for the foregoing purposes is not only highly inconvenient, it is also dangerous and a common cause of household accidents. This is particularly so because in many cases the drapes are quite heavy so that it is difficult for the average user to hold and attach them to the rod and maintain his balance while standing on a ladder or the like.

Accordingly the provision of a means permitting a person to reach the traverse rod without having to climb in order to do so would be highly useful and desirable.

It is a principal object of the present invention to provide an elevating and lowering accessory for a traverse rod and a combination of such accessory and a traverse rod whereby the rod can be easily and conveniently manually lowered from its elevated place on a wall or ceiling to any desired lower level within the reach of a user by a simple operation performed by the user while standing at floor level.

It is another object of the present invention to provide an accessory of the character described which can be used with conventional traverse rods by means of a simple and inexpensive modification thereof.

It is another object of the present invention to provide an accessory of the character described which can be manufactured in several sizes each of which is adaptable to be used with many different sizes of conventional traverse rods.

It is another object of the present invention to provide an accessory of the character described from which the associated traverse rod can be simply and easily manually unlocked from floor level in order to permit the traverse rod to be lowered.

It is another object of the present invention to provide an accessory of the character described which does not require any modifications to the wall or ceiling for use.

It is another object of the present invention to provide an accessory of the character described which can be easily assembled, installed and used by an unskilled consumer without the application of any appreciable mechanical skill.

It is another object of the present invention to provide an accessory of the character described which can be simply and inexpensively mass produced.

It is another object of the present invention to provide an accessory of the character described which is rugged, durable and unobtrusive in appearance.

Other objects of the invention in part will be obvious and in part will be pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements, and arrangements of parts which will be exemplified in the device hereinafter described, and of which the scope of application will be indicated in the appended claims.

In the accompanying drawings, in which is shown one of the various possible embodiments of the invention,

FIG. 1 is a rear perspective view showing an elevating and lowering accessory for traverse rods and combination of said accessory and traverse rod, constructed in accordance with the present invention, the rod being shown in lowered position;

FIG. 2 is an enlarged fragmentary bottom plan view of said accessory;

FIG. 3 is an enlarged sectional view taken substantially along the line 3—3 of FIG. 1;

FIG. 4 is a view similar to FIG. 3, but showing the traverse rod locked in its extreme upper position;

FIG. 5 is a fragmentary sectional view taken substantially along the line 5—5 of FIG. 4;

FIG. 6 is a sectional view taken substantially along the line 6—6 of FIG. 5; and

FIG. 7 is a plan view showing a detail of the locking and centering pin.

Generally, the objects of the invention are carried out by providing an accessory which is permanently mounted on a wall or ceiling and which includes means cooperating with associated means provided pursuant to the present invention on a traverse rod for raising and lowering the latter between an extreme upper position at which the rod is above the user's reach and a lower position within the user's reach. The invention also includes the provision of means for automatically, manually-unlockably, locking and horizontally leveling the traverse rod and centering the same lengthwise and laterally in the extreme raised position thereof while holding the same against lengthwise, lateral and twisting movement. Still further, the invention includes provision for manually unlocking the traverse rod from its extreme upper position, said unlocking being carried out by a user standing at floor level.

The raising and the lowering of the traverse rod is achieved by pulleys on the accessory which cooperate with pulleys provided on the traverse rod. The locking-leveling-centering-holding operation and the manual unlocking are accomplished by cooperating means secured to the accessory and the traverse rod.

Referring now in detail to the drawings, the reference numeral 10 denotes an elevating and lowering accessory of the character described fabricated from a strong light material such, for example, as sheet iron or aluminum. The accessory is used in combination with a traverse rod 12, also made of metal, which is conventional except for the added members to be pointed out hereinafter.

The accessory is an elongated object which includes a first angle iron 14 in which a second angle iron 16 is telescopically (extensibly) received. Angle iron 14 comprises a front vertical web 18 and a horizontal web 20, said webs respectively terminating in retroverted bends 22, 24 at the free edges thereof. The corresponding free edges 26, 28 of the vertical and horizontal webs 30, 32 of angle 16 are slidably receivable in said bends with the associated webs of the angle irons juxtaposed.

The accessory may be secured to a wall or ceiling in any conventional manner, as by brackets, screws, nails, toggle bolts or the like. These are not illustrated in the drawings.

The accessory is provided with pulleys 34 and 36 near the left end thereof as viewed in FIG. 1 and a pulley 38

near the right end thereof. The block of pulley 34 has three sheaves, 34*a*, 34*b*, and 34*c*, the block of pulley 36 has two sheaves, 36*a* and 36*b*, and the block of pulley 38 has one sheave, 38*a*. Said pulleys are made of any suitable material such, for example, as plastic or metal; the pulley blocks are secured in any conventional manner, as by screws, to the undersurface of the horizontal webs of the accessory, the blocks of pulleys 34 and 36 being secured to web 32 and the block of pulley 38 being secured to web 20. The pulley sheaves are mounted to rotate about parallel horizontal axes, said axes being perpendicular to the longitudinal axis of the accessory.

The traverse rod 12 is an elongated object including end caps 40 and a conventional draw mechanism for opening and closing drapes hung therefrom. The latter mechanism is not shown except for draw cords 44 illustrated in FIG. 1 and one of the carriers for the drapes which is shown in FIG. 3 and denoted by the reference numeral 42. Drapes 46 are illustrated attached to the traverse rod.

Pursuant to the present invention, a conventional traverse rod is additionally provided with single pulleys 48, 50 located on the top surface of the rod a short distance in from each end, pulley 48 being on the left and pulley 50 on the right as viewed in FIG. 1. The sheaves of said pulleys are journalled in blocks to rotate about parallel horizontal axes which are perpendicular to the longitudinal axis of the rod. The traverse rod is elevated and lowered by draw cords 52*a* and 52*b* which are threaded through the aforesaid pulleys of the accessory and traverse rod in a conventional manner. The threading set up is best seen in FIG. 1. An end of cord 52*a* is secured in an anchoring bracket 54 attached, as by rivets, to the undersurface of the horizontal web 20 of angle iron 14 between pulley 38 and the adjacent right end of said angle iron. The cord is trained under the heave of pulley 50 on the traverse rod, then over the sheave of pulley 38 of the accessory, next over one sheave (36*a*) of pulley 36, then over one sheave (34*a*) of pulley 34, and finally hangs down toward the floor; the cord is long enough to be within the reach of a user when the rod is in lowered position. The aforesaid sheaves are aligned to facilitate proper tracking of the cord. An end of cord 52*b* is secured to an anchoring bracket 56 attached, as by rivets, to the undersurface of the horizontal web 32 of angle iron 16 near and to the right of pulley 36 as viewed in FIG. 1. Cord 52*b* is trained under the sheave of pulley 48, over the other sheave (36*b*) of pulley 36, over a second sheave (34*b*) of pulley 34 and then hangs down in the same manner as cord 52*a*. Cords 52*a* and 52*b* preferably are cross connected, e.g. by being tied together, at a point remote from the accessory while the traverse rod is in longitudinal position so as to assure level raising and lowering of the same. Additionally, the distances between bracket 54 and pulley 38, and bracket 56 and pulley 36, are substantially equal, also to facilitate horizontal orientation of the traverse rod during raising and lowering thereof.

Pursuant to the instant invention, cooperating means are provided on the traverse rod and the accessory for automatically, manually-unlockably locking the traverse rod to the accessory at the extreme upper position of the rod, while at the same time horizontally leveling the rod and centering the rod lengthwise and laterally in the locked position and holding the same against lengthwise, lateral and twisting movement. The aforesaid means comprises at least two spaced pilot locks; two such locks are shown in the drawings, one being located a short distance in from the left ends of the accessory and traverse rod and the other a short distance in from the right ends thereof, as viewed in FIG. 1.

Each pilot lock comprises a male half 62 disposed on the traverse rod and a female half 64 located on the accessory. The male half 62 comprises an upwardly tapering pin (plug) 66 (see FIGS. 3 and 7) which may be die cast or molded. The pin includes an attaching flange 68 at the bottom and front thereof, the inner contour of said flange being provided with a hook that is adapted to receive the conventional longitudinal, forwardly facing protrusion 70 at the front of the traverse rod adjacent the top thereof. By "forward," "front" or the like is meant the side of the accessory or rod facing into a room, and by "rearward," "back" or the like is meant the side facing the wall. The pin 66 is provided with a clamp 72 secured to the back surface thereof by a headed screw 74 the shank of which passes through an opening in the clamp and is threadably received in a tapped opening in said back surface. The clamp includes a concave lower tip 76 the inner contour of which is adapted to receive a horizontal protrusion 78 on the traverse rod corresponding to protrusion 70 but located at the back of the traverse rod adjacent the top thereof. The pin is detachably but firmly secured on the top of the traverse rod by means of flange 68 and clamp 72.

The exact shape of the pins is not critical, but they must be upwardly tapered. In the embodiment illustrated, the rear surfaces of the pins are flat and vertical and the pins taper rearwardly as well as upwardly so as to have curved front faces tapering into curved tops. In other words, each pin is in the shape of an upwardly converging cone with a rounded apex and with a segment of the rear thereof truncated by a vertical plane. Each pin is provided with an elongated blind opening 80 in the left side thereof as viewed from the rear, the longitudinal axis of each said opening being parallel to the longitudinal axis of the traverse rod.

The female half of each pilot lock constitutes an element such as a rectanguloid block 82 secured, as by rivets or nuts and bolts, to the undersurface of the horizontal web of a different angle iron. Each block 82 includes a downwardly facing well 84 the inner contour of which is tapered rearwardly and upwardly and is adapted to slidably and matchingly receive the conical shape of the associated pilot pin. The blocks and pilot pins are so disposed on the accessory and traverse rod, respectively, that each well is matchingly aligned with the associated pilot pin. As a result of the aforedescribed construction of the wells and pilot pins and the location thereof with respect to one another, the pilot pins will be cammed into the associated wells when the traverse rod is raised sufficiently towards its extreme upper position, and after full entry of the pins into the wells the rod will be centered lengthwise and laterally with respect to the accessory and, furthermore, will be leveled (assuming that the angle irons are leveled). Moreover, after such entry, lengthwise, lateral and twisting movement of the rod with respect to the accessory will also be prevented because of the presence of at least two locks and the matching engagements of the two halves of each thereof.

To detachably retain the halves of the locks in engagement with one another, each pilot lock includes a spring-loaded latch 86 mounted in a block 82 and adapted to be cammed into the blind opening 80 of the associated pilot pin 66. The latch assembly is shown in detail in FIGS. 2, 5 and 6 and will now be described. The block includes an elongated circular through horizontal opening 88 communicating with the well 84 thereof and longitudinally coaxial with the blind opening 80 of the associated pilot pin when the latter is fully received in the well. Said opening 88 includes a tapped mouth 90 (remote from the well) in which a threaded bushing 92 is received. A seat 94 between the mouth 90 and the well is formed in opening 88. The latch is of such diameter as to pass through opening 88 of the block and be receivable in the blind opening 80 of the pilot pin. Secured to it is a collar 96 which abuts seat 94, the collar in turn being secured to a spindle 98 projecting through bushing 92 and out of opening 88 at the end thereof remote from the well. A helical spring 100 is held under compression between the collar and the end of the bushing facing the collar and biasses the latch 86 into the well. The end 102 of

the latch extending into the well is smoothly rounded to facilitate entry into the blind opening 80 of the associated pilot pin as described hereinafter.

Each spindle is threaded at its outwardly projecting end and extends through an opening in a flat rectangular bridle 104, said opening being coaxial with opening 88 of the block. The spindle is secured to the bridle by nuts 106*a* and 106*b* threaded onto the spindle on opposite sides of the bridle. The position of the spindle and thus of the latch can be adjusted by means of said nuts. Each block includes an integral elongated guide pin 108 slidable in an opening 110 in the bridle; the longitudinal axes of said pin and opening are parallel to the longitudinal axis of opening 88. Said pin is of such length that even when the bridle is moved away from the block a sufficient distance for the latch 86 to be fully retracted from the well, said pin is still within the opening 110.

The bridles are biassed toward their associated blocks by the helical springs 100, so that the latches will normally be located within the wells when the pilot pins are not recevied therein. When the pilot pins enter the wells, the tapered sides thereof abut the rounded ends of the latches and cam the latches out of the wells until the blind openings 80 of the pilot pins become aligned with the openings 88 of the associated blocks at which point the latches snap into said blind openings thereby locking the pilot pins in the walls.

The means for manually unlocking the pilot pins from the blocks operates by retraction of the latches. Said means comprises a standard wire cable 112 anchored to the bridle of one block and adjustably secured to the bridle of the other block (see FIG. 1). As shown in FIGS. 1 and 2, the cable is anchored in the bridle of the block on the right side of the drawing in the following manner: The end of the cable is attached to a threaded pin which extends through an opening in said bridle, said opening desirably being disposed on the opposite side of the spindle opening from the guide pin opening 110. The pin is held to the bridle by nuts 114*a* and 114*b*. The other end of the cable likewise is attached to a threaded pin that is passed through an opening in the bridle of the other block, i.e., the one on the left side, and is secured thereto by nuts 116*a* and 116*b*. A cord 118 is secured to the free end of the latter pin and extends over sheave 34*c* of pulley 34 and hangs down to within a user's reach. By pulling on cord 118 the bridles are moved away from their associated blocks whereby the latches are retracted. In this way the pilot pins can be unlocked from the blocks. The user then lowers the traverse rod by allowing cords 52*a* and 52*b* to be pulled upwardly by the weight of said rod.

A given size of accessory can be used with various sizes of traverse rods by sliding of angle iron 16 relative to angle iron 14 prior to securement of the accessory to a wall or ceiling. The length of cable 112 will, of course, have to be adjusted to accommodate the degree of telescoping of the angle irons so that the bridles of both blocks will re retracted simultaneously away from their associated blocks and the asscoiated latches will be simultaneously retracted from the openings 80 of the associated pilot pins.

It will thus be seen that there has been provided a device which achieves the several objects of the invention and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described the invention, there is claimed as new and desired to be secured by Letters Patent:

1. In combination,

(*a*) a flat horizontal elongated member adapted to be secured to a ceiling,

(*b*) an elongated traverse rod for hanging drapes and the like,

(*c*) two blocks secured to the undersurface of the flat member and spaced apart from one another along the length of said member, each block having a downwardly facing well the closed end of which is immediately adjacent the flat member,

(*d*) two squat pilot pins secured to the top surface of the traverse rod and spaced apart from one another the same distance as the wells in the blocks, said pilot pins being receivable in, so as to substantially fill, said wells,

(*e*) two first pulleys secured to the undersurface of the flat member for rotation about parallel horizontal axes perpendicular to the length of said member, said first pulleys being spaced from the blocks,

(*f*) two anchors secured to the flat member, each anchor being associated with a different first pulley and being spaced from the block and from the associated first pulley, each anchor and associated first pulley forming a lifting pair which is located to one side of a different block,

(*g*) two second pulleys secured to the top surface of the traverse rod for rotation about horizontal axes parallel to the axes of rotation of the first pulleys, each second pulley being associated with a different lifting pair and being located beneath and midway between the first pulley and anchor of such lifting pair,

(*h*) two cords each associated with a different lifting pair and second pulley, each cord having one end fastened to an anchor and being trained about a first pulley and a second pulley so as to provide a reach between the anchor and the second pulley and a reach between the second pulley and the first pulley, the other end of each cord being adapted to be pulled by hand,

(*i*) whereby when with the traverse rod in a position remote from and below the flat member said other ends of the cords are pulled the two pairs of reaches the shortened to lift the traverse rod until the pilot pins enter the wells, and whereby as the reaches shorten the centering of each second pulley between the associated lifting pair becomes more accurate and the traverse rod is more greatly restrained against longitudinal and lateral movement so that the pilot pins are guided toward the wells, and further whereby with the pulleys and reaches displaced longitudinally of the flat member from the wells and pilot pins when the pilot pins enter the wells the traverse rod is spaced from the flat member only by the height of the squat pilot pins,

(*j*) at least the pilot pins or the wells being tapered to facilitate coupling thereof as the pilot pins enter the wells,

(*k*) cooperating means on the flat member and the traverse rod for automatically locking the member and rod together when the pins enter the wells, and

(*l*) means for manually releasing said locking means.

2. A combination as set forth in claim 1 wherein the wells and pilot pins are matchingly tapered.

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