April 2, 1963 C. L. HAINES 3,083,806

ADJUSTABLE WORK SUPPORT

Filed Jan. 3, 1961 2 Sheets-Sheet 1

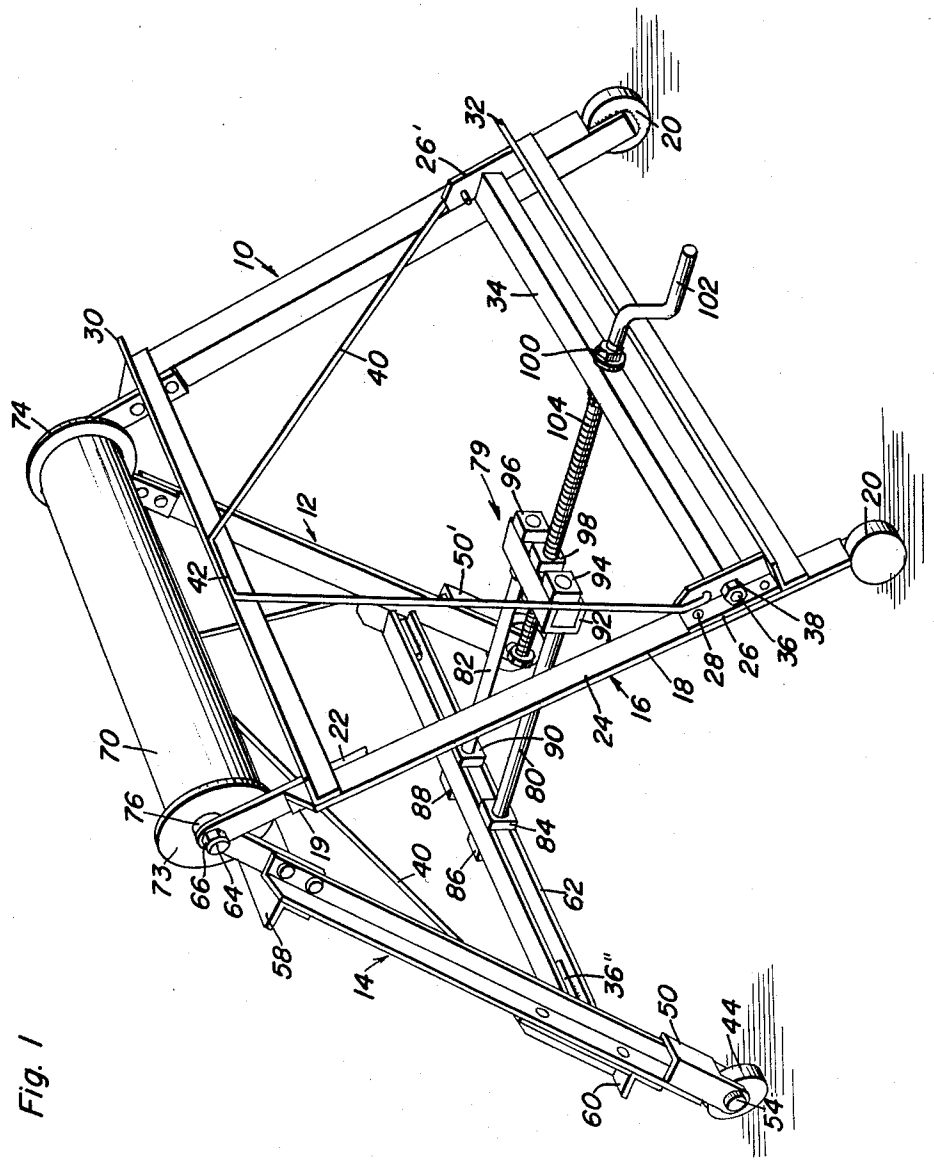



Fig. 1

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Filed Jan. 3, 1961 2 Sheets-Sheet 2

Fig. 2

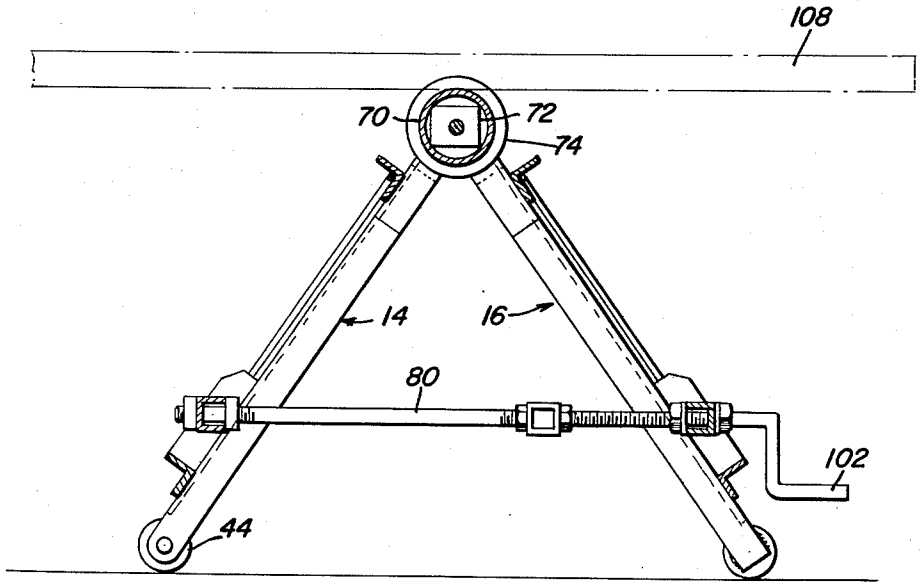
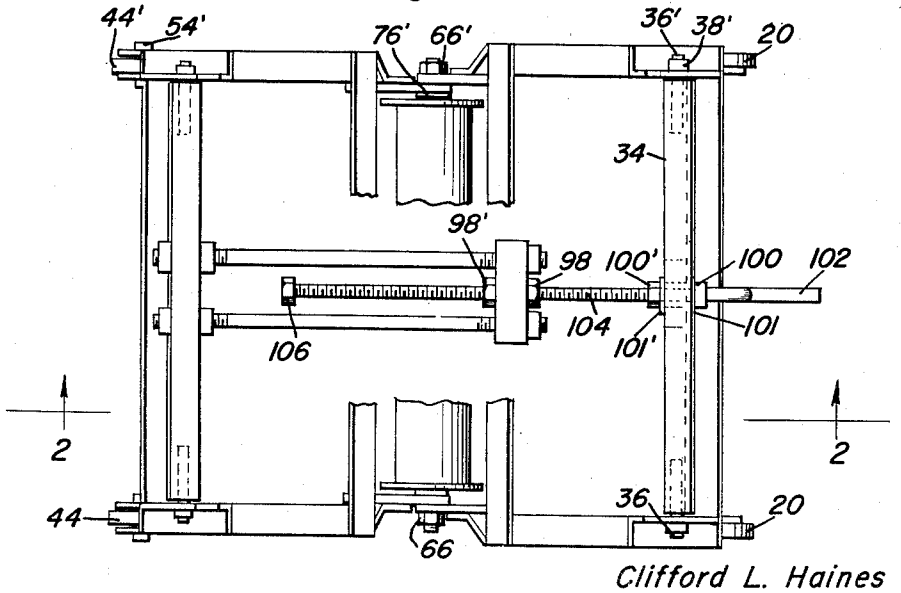



Fig. 3




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# ADJUSTABLE WORK SUPPORT

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This invention relates to an adjustable support means, and more particularly to a horse having adjustable height.

Another object of the invention is to provide a device for holding heavy bar stock during cutting, drilling or other processing thereof, and having a roller thereon for supporting the bar stock and permitting easy movement thereof.

It is still another object of the invention to provide the ends of the roller with radially projecting annular flanges whereby the bar stock being processed contacts the rotating flanges when it is moved rather than rubbing against a stationary flange on the frame of the device as is conventional.

Another object of the invention is to provide a horse for supporting bar stock having a roller with a flange thereon for supporting the stock whereby the stock may be easily maintained in alignment during processing.

Still another object of the invention is to provide a horse having a roller for supporting bar stock wherein the roller is of relatively large size thereby permitting heavy stock to roll thereon more easily than where smaller rollers are used.

Another object of the invention is to provide an adjustable horse which is economical to manufacture, durable in use and easy to maintain.

Still another object of the invention is to provide a horse having a novel adjustment means thereon mounted laterally between the legs thereof.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view of the invention;

FIGURE 2 is an elevational cross sectional view taken substantially on the plane of line 2—2 in FIGURE 3; and

FIGURE 3 is a plan view of the invention partially in section.

Referring to the drawings, particularly FIGURE 1, it can be seen that the horse comprises four sloping legs 10, 12, 14 and 16 which are substantially identical in size and construction. Since the legs are substantially identical in construction, only the leg 16 will be described in detail.

The leg 16 comprises an angle member 18 which may be formed of stock angle iron cut to the desired length. The angle member 18 has an inside flange 19 which extends vertically and has a circular disk 20 cut from two and one-half inch round stock welded thereto. Bolted to the upper end of the flange 18 is a roller support plate 22. The upper flange 24 of the angle member 18 has a bracket comprising a short piece of angle iron 26 bolted thereto adjacent its lower end by means of bolts 28.

The leg 10 is a mirror image of the leg 16 and constructed in an identical manner.

The upper ends of the legs 16 and 10 are fixed together by means of a horizontally extending angle member 30 welded thereto. Mounted between and welded to the lower end of the legs 10, 16 is a second horizontally extending angle member 32.

Parallel to the angle member 32 and spaced slightly thereabove is a horizontally extending channel member 34 having studs, 36, 36' welded within its end portions



and projecting slightly therebeyond. The ends of these studs are threaded and extend through apertures in the brackets or angle members 26, 26' and are locked to the angle members by means of the nuts 38, 38' threaded on the studs.

An inverted V-shaped handle member 40 has horizontally extending lower ends projecting through apertures in the upper ends of the brackets 26, 26' and thereby pivotally supporting the handle on the legs. The handle has an upper integral horizontally extending portion 42 that normally snaps under and is retained by the upper flange of the angle member 30.

The legs 12, 14 are substantially identical to the legs 10, 16 except the lower ends of the legs have rotatable wheels mounted thereon. The lower ends of these legs have short angle pieces 50, 50' and welded thereto so as to form a box section. Recesses are formed between the lower ends of the legs and the angle pieces 50, 50' so as to receive rotatable wheels 44, 44' also formed by cutting from two and one-half inch round stock. The horizontally extending pins 54, 54' fix the wheels rotatably to the legs.

The parallel legs 14, 12 are also rigidly held together by means of two horizontally extending angle members 58 and 60 and a channel member 62. The members 58, 60, and 62 are secured to the legs 14 and 12 in the same manner in which the members 30, 32 and 34 are secured to the leg members 16 and 10.

The four roller support plates 22 have holes drilled in the upper ends which are in line so as to receive a rod 64 threaded on its ends and retained on the legs by nuts 66, 66'.

The rod 64 is preferably one inch in diameter and the cylindrical tubular roller 70 is preferably four and a half inches in outside diameter. As shown in FIGURE 2, a one inch thick square plate or block 72 is welded within the roller 70 at each end thereof. The block 72 is preferably welded at its corners to the inside of the roller. After the plates 72 are welded in place, the flanges 73 and 74 which are preferably of three-eighth inch stock are also welded adjacent the plates 72 and onto the ends of the roller 70. Holes are then formed in the blocks 72 and flanges 73 and 74 which are just large enough to permit the roller 70 to rotate freely on the rod 64. Mounted between the ends of the blocks or roller and the plates 22 are washers 76, 76'.

The operating mechanism 79 comprises two parallel horizontally extending rods 80 and 82 having both of their ends threaded. As viewed in FIGURE 1, the left ends of the rods are rigidly attached to the horizontally extending channel member 62 by means of nuts 84, 86, 88, 90 which tightly grip the channel member. After the nuts are tightened, they are then welded in place. A box member 92 is formed by welding together two short pieces of angle iron. This box member has three parallel horizontally extending passages drilled therethrough. The rods 80 and 82 are then extended through the two outer holes in the box member 92 and then have nuts 94 and 96 respectively threaded thereon. These nuts are then welded to the rods and to the box member 92 thereby rigidly connecting the rods to the box member. Two nuts 98, 98' are then welded over each end of the central bore through the box member 92. A crank 102 has a threaded extension 104 which extends through an aperture or horizontally extending bore in the center of the channel member 34. The threaded extension 104 is screwed through the nuts 98 and 98' and then has a stop nut 106 threaded on and welded to its end. The nuts 100, 100' are threaded on the extension 104 so as to snugly embrace each side of the channel member 34. After these nuts 100, 100' are properly located they are rigidly welded to the extension 104. The washers 101,

101' are inserted between these nuts and the channel member.

In operation, the roller 70 supports bar stock 108 and permits longitudinal movement thereof since the roller can rotate freely on shaft 64. Also, the flanges 73, 74 on the roller prevent the bar stock from falling off the roller when it contacts the flanges, very little friction is produced between the flanges and the bar stock as in conventional devices wherein the flanges are fixed.

To adjust the elevation of the roller 70, it is only necessary to operate the crank 102 whereby the threaded extension 104 screws into or out of the non-rotatable nuts 98, 98' to force the lower ends of the legs either together or apart. Since the circular plates 20 on the lower ends of legs 16 and 10 are fixed to the legs, these legs do not move, however, legs 12 and 14 are free to move on rollers 44 and 44'. The fixed circular plates 20 also act as a brake for the entire assembly and prevent unnecessary movement thereof. However, by pulling down handle 42 from beneath flange 30, the entire device can be pulled to any desired location since plates 20 may slide or be lifted from contact with the ground by the handle.

Due to the mechanical advantage obtained by the operating device 79, the bar stock 108 may be easily lowered or raised to any desired elevation.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. An adjustable work support comprising, in combination, upwardly converging pairs of parallel legs pivotally connected at their upper ends, a workpiece-receiving roller journaled between the upper end portions of the pairs of legs, spaced parallel upper and lower angle bars extending between the parallel legs, pairs of brackets on the lower portions of the legs, generally V-shaped pulling handles having their end portions journaled in the pairs of brackets for vertical swinging movement between operative and inoperative positions, said handles including generally straight, horizontal apex portions yieldingly engageable under tension in the upper angle bars for frictionally retaining said handles in inoperative position, and means for adjusting the lower ends of the pairs of legs toward or away from each other for vertically adjusting the roller.



2. The combination of claim 1, said adjusting means including rockable channel members journaled between the pairs of brackets, a pair of spaced, parallel rods mounted on one of the channel members and extending inwardly therefrom, a box member mounted on the inner end portions of the rods, a screw shaft journaled in the other channel member and extending inwardly therefrom and having its inner end portion threaded through the box member, and an operating crank on the outer end of said screw shaft.

3. The combination of claim 2, together with a fixed rod connecting said upper end portions of said legs, said roller including a cylindrical tube and square plates fixed in said tube and journaled on the rod.

4. The combination of claim 3, said roller further including flanges integral with the ends of the tube for retaining a workpiece thereon.

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