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E. J. CARLSON
MASON'S LEVELING TABLE

2,686,095

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2 Sheets-Sheet 1

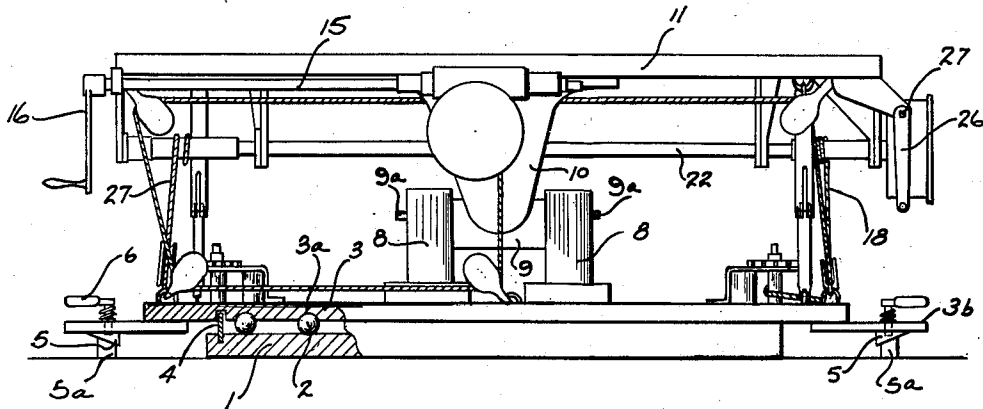


FIG 1

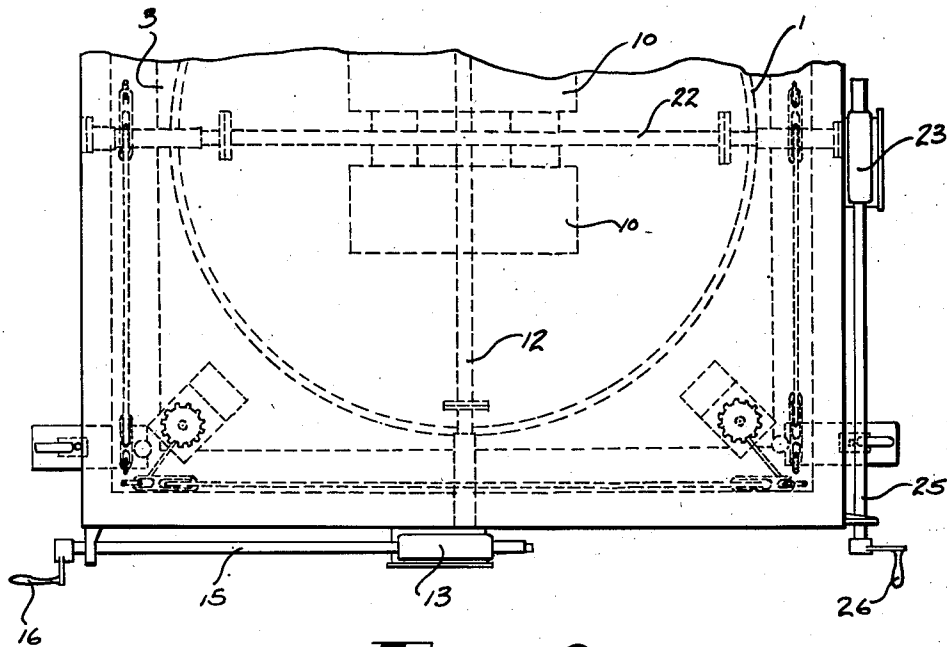


FIG 2

INVENTOR.
ERNEST J. CARLSON
BY

William J. Ruano
ATTORNEY

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E. J. CARLSON

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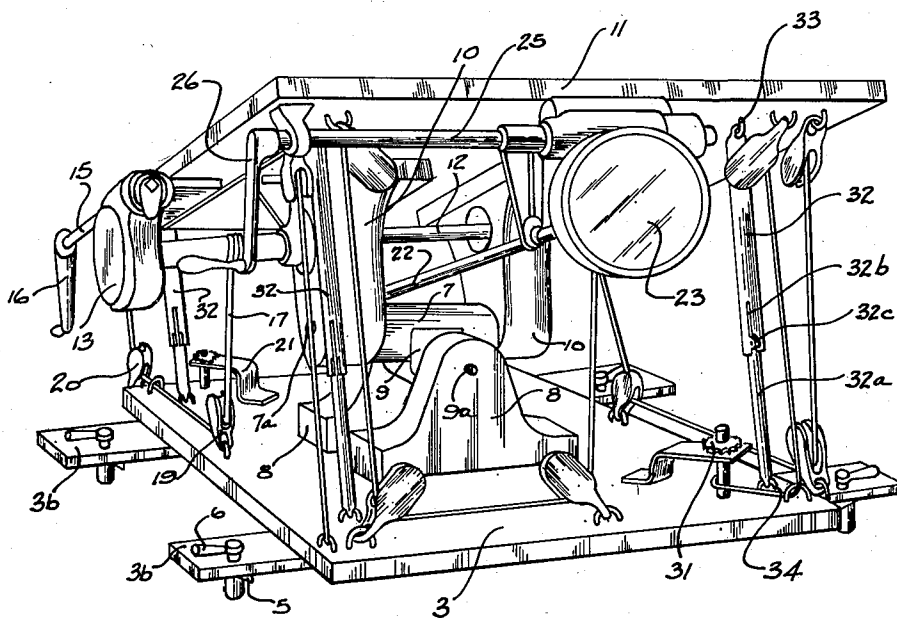


FIG 3

INVENTOR.
ERNEST J. CARLSON
BY
William J. Ruano
ATTORNEY

UNITED STATES PATENT OFFICE

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MASON'S LEVELING TABLE

Ernest J. Carlson, Reading, Pa.

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3 Claims. (Cl. 311—38)

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This invention relates to a mason's leveling table which is particularly useful for handling heavy objects, such as stones, whose position is to be adjustably tilted, universally so as to permit cutting, grinding, and other operations so as to form either level or angular surfaces on such object.

It is known in the art to provide a mason's leveling table with a universal ball and socket mounting and with cable means for tilting the table in any desired direction, such as shown in my earlier Patent 1,820,436 dated August 25, 1931. However it has been found that such universal ball and socket mounting provides an unstable support for very heavy objects, such as large stones, particularly when the outer or corner portions of such stones are being cut or ground by separate machines to form either flat or bevelled surfaces. That is, the weight of the stone, coupled with the vibrational forces of the cutting or grinding machine, tends to overcome the resistance of the support, particularly at the corners which prevents maintaining the table in a predetermined plane and thus causes irregular cuts or surfaces which may spoil a stone.

An object of my invention is to provide a universal mounting for a mason's leveling table which provides unusual stability of support so that even heavy objects may be supported and subjected to cutting, grinding and polishing machine tools without disturbing the adjusted position of the table.

A further object is to provide a mason's leveling table which can be rotated in a horizontal plane to any desired position, and which may be universally tilted along vertical planes disposed at right angles to any desired tilted position and which includes a system of cables and slack take-up means which will keep the cables taut at all times to insure rigidity and stability of the support. Other objects or advantages of my invention will become apparent from a study of the following description taken with the accompanying drawings wherein:

Figure 1 is a front elevational view, partly in cross section, of a mason's leveling table embodying the principles of my invention.

Figure 2 is a fragmentary plan view of the table shown in Figure 1 and,

Figure 3 is a perspective view of the table shown in Figures 1 and 2.

Referring more particularly to Figures 1, 2 and 3 of the drawing, numeral 1 denotes a stationary base in the form of a disk on which is mounted anti-friction balls 2 which are held within grooves shaped in the form of spherical segments in the underside of a turntable 3 which is adapted to turn about a pivot at the center of base 1 (not shown).

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To prevent entry of stone particles and dirt, a shield 4, preferably of brass, is rigidly secured along the peripheral portion of base 1 and its top portion is adapted to slide in a circular groove formed in the underside of turntable 3. If desired, grease nipples may also be provided on turntable 3 or on shield 4 to introduce lubricant under pressure into the vicinity of the anti-friction balls.

The turntable 3 is shown as having a rectangular shape (although it may be disk-shaped if desired) and is provided with integral extensions 3b on which are mounted wedges 5 which are engageable with stationary posts 5a onto which are clamped the wedges by the turning of spring braced handles 6 which have a screw threaded shank threadably engaging the extension 3b. Thus the turntable after being turned to any desired position, may be held firmly in place by merely screwing down of handles 6.

A universal type mounting is provided on turntable 3, which mounting includes pedestal bearings 8, 8 rigidly secured to turntable 3 and which rotatably support a cylindrical sleeve 9 through which extends a pivotal shaft 9a for turning sleeve 9 about the axis of bearings 8, 8. A second pair of pedestal bearings 10, 10 are provided and which are rigidly secured to the underside of table 11. A sleeve 7 is pivotally supported, by shaft 7a extending therethrough, on pedestal bearings 10, 10. Thus the table 11 will tilt about the axis of sleeve 9 and will also tilt at right angles thereto about the axis of sleeve 7 as will appear more clearly hereinafter.

Table 11 may be tilted about the axis of pedestal bearings 8, 8, that is, about the axis of sleeve 9, in one direction or in an opposite direction by merely rotating spindle 12 in one direction or in an opposite direction. Spindle 12 rigidly secures at one end, a worm wheel (not shown) which is enclosed within a worm wheel housing 13 and which is driven by a worm (not shown) at the end of worm driving shaft 15 which is rotated by turning a crank 16. Wrapped around one end portion of spindle 12 is a cable 17 which is led through pulleys 19 and 20 and has a terminal portion which is wrapped about the shaft of a ratchet wheel, slack take-up device 21. A cable portion similar to 17 is also wrapped on the opposite end portion of spindle 12 but in an opposite direction. Therefore, when crank 16 is turned in one direction to cause the worm to drive the worm wheel and shaft 12 secured thereto in one direction, cable 17 will wrap up around the left end portion of spindle 12, as viewed in Figure 3 so as to lower the left end due to shortening of the depending cable, and at the same time the cable portion which wrapped on the opposite end of spindle 12 will pay off the spindle

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so as to increase the length of the depending cable. This will cause tilting of table 11 so that its left end will be lowered and its right end lifted as the pedestal assembly is turning about the axis of sleeve 9. To tilt the table in an opposite direction but about the same axis of sleeve 9 it is merely necessary to turn crank handle 16 in an opposite direction to wind up the cable on the right end and pay off on the left end of spindle 12.

A similar arrangement is provided for tilting the table in a direction at right angles to the above described direction of tilt. A spindle 22 is provided which extends at right angles to spindle 12 and which has rigidly secured to one end a worm wheel (not shown) enclosed in a worm wheel housing 23, which is rigidly supported on the underside of table 11. A worm (not shown) contained within the housing is rigidly secured to one end of the worm wheel drive shaft 25 and may be turned by turning the crank 26. A cable portion 27, as shown more clearly in Figure 1, is wrapped around one end portion of spindle 22 as another cable portion 28 is unwrapped about the other end portion of the spindle. Therefore, as crank 26 is turned in one direction so as to drive the worm and worm wheel in one direction, as well as shaft 22, cable 27 will wrap around the left end of spindle 22 causing lowering of the left end of the table as viewed in Figure 1 while the cable portion 28 which is wrapped about the right end will pay off, thereby cause raising of the right end, about the axis of sleeve 7 as a center. The cable is passed through pulleys and one end is securely anchored by attachment to the shaft of a ratchet wheel of a ratchet take-up device 31.

Thus table 11 can be tilted universally, that is, in opposite directions along two axes disposed at right angles to each other so as to obtain any desired inclination of tilt of the table.

To further assure rigidity of the corners of the tables, particularly in cases where a very heavy stone overhangs the corners and is being machined or cut, four corner posts 32 are provided in the form of sleeves whose upper ends are secured by a hook and eye connection 33 to the underside of the table. Telescoping rods 32a are provided, having hook and eye connection 34 to the turntable 3. The lower ends of sleeves 32 are provided with cut out or slot portions 32b having integral projecting ears through which are extended bolts 32c so that upon tightening of the bolts the diameter of the lower sleeve portion 32 will decrease and effect tight clamping of such lower sleeve portions about rod 32a. Bolts 32c are originally loosened and table 11 is adjusted to the right tilt by turning of cranks 16 and 26. After the desired position of tilt is obtained all four of the bolts 32c are tightened so as to make sleeves in effect rigidly secured members and thus provide four solid legs for providing a stable support at all four corners of table 11.

Thus it will be seen that I have provided an efficient and highly reliable mason's leveling table which is universally adjustable to any desired position of tilt as well as being rotatably adjustable about a turntable support, and the four corners of which table are very rigidly supported so as not to be yieldable even when a very heavy stone overhangs the corners and is being worked upon by a grinding or other rotary tool.

While I have illustrated and described a certain specific embodiment of my invention, it will be apparent that this is by way of illustration only, and that various changes and modifications

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may be made within the contemplation of my invention and within the scope of the following claims.

I claim:

1. A leveling table, comprising a turntable support including a base having anti-friction means thereon for allowing rotation of the support on said base in a horizontal plane, means for rigidly fastening said turntable support in any adjusted rotatable position, a pedestal bearing rigidly mounted on said turntable support and including a pivotal axis parallel to the plane of said support, a table including pivotal supporting means which includes said pedestal bearing and which also includes a second pedestal bearing rigidly secured to the underside of said table and including an axis at right angles to said first mentioned axis, whereby said table is pivotally movable about both of said axes, a pair of spindles rotatably mounted underneath said table and disposed at right angles and parallel to said axes, cable means including a cable portion which is adapted to wrap around one end portion of each of said spindles while a second cable portion unwraps about the other end portion to hold said table in any tilted position, and driving means for each of said spindles, including a worm drive operated by a crank, for tilting said table in either of two directions about said axes.

2. A mason's leveling table, comprising a support, a pedestal bearing rigidly mounted thereon, a table, a second pedestal bearing secured underneath said table and having a pivotal axis disposed at right angles to that of the first pedestal bearing whereby the table is pivotally movable about either of said axes, a pair of spindles rotatably mounted underneath said table and disposed at right angles to each other, each spindle being parallel to one of said axes, cable means having a portion anchored to said support and having a cable portion wound upon one end of each spindle in one direction and another cable portion on the other end of each spindle in an opposite direction for holding the table in any tilted position, drive means for separately rotating said spindles in either direction, and telescoping leg portions extending between the corner portions of the table and said support and including clamping means for rigidly holding the telescoping leg portions in any desired relative position, whereby the corners of the table may be rigidly supported on said support to prevent yielding as the result of heavy overhanging weights on said table.

3. A mason's leveling table as recited in claim 2 together with a base including anti-friction balls disposed between said base and said support to permit the support to rotate in a horizontal plane as a turntable, means for rigidly securing said turntable support in any desired angular position, and shielding means disposed about the perimeter of said base and slidably mounted relative the underside of said support for preventing entry of dust particles into the vicinity of said anti-friction balls.

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