March 29, 1932. A. G. WORRALL 1,851,028

VACUUM TABLE

Filed Dec. 11, 1929

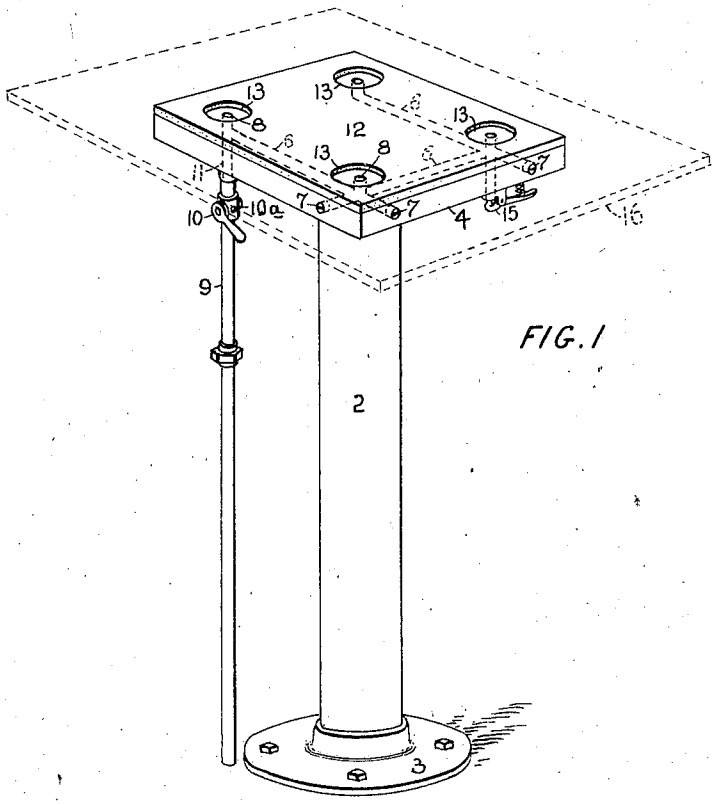


FIG. 1

FIG. 3

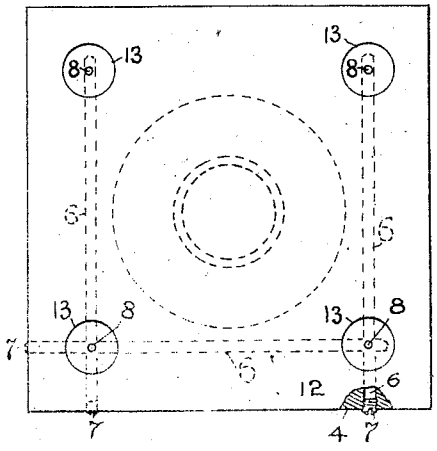
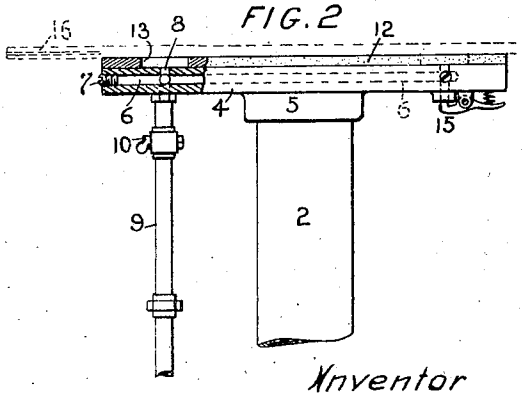


FIG. 2



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UNITED STATES PATENT OFFICE

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VACUUM TABLE

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The object of my invention is to provide a construction of table or support upon which an article in sheet or other form may be conveniently and positively held in a manner to expose part or all of its edges and upper surface, whereby mechanical or other operations may be performed upon said edges and surface, either or both, without fear of displacing the articles so operated upon.

My invention consists of a support for holding an article during manipulation thereof which comprises a sustaining portion shaped to receive the article to be treated and having its surface formed with a recess opening through the support for the article, and also having controlling means in communication with the recess whereby the article may be held in position upon the support by the suction exerted through the recess.

My invention also comprises a suitable stand or pedestal having at its upper part one or more suction cups (preferably four) so arranged in a substantially horizontal plane, whereby the article resting upon the cups will be held in position by suction produced therethrough and acting upon the undersurface of the article, the device being further provided with valve controlled communication between a source of vacuum and the respective suction cups.

My invention further includes means for venting the suction cups when it is desired to release the article held upon the table through the agency of said cups.

For small articles, my invention may comprise simply of one such cup and the necessary supporting and controlling means, and the cup may be circular or other shape, as may be found satisfactory for the use to which the device is to be applied.

My invention also comprehends details of construction which, together with the features above specified, are more fully described hereinafter and pointed out in the claims.

Referring to the drawings: Fig. 1 is a perspective view illustrating one form of my improved suction table; Fig. 2 is a side elevation of the upper portion of the same, and with part in section; and Fig. 3 is a plan view of the same.

2 is a pedestal and provided at the base with an extended flange 3 suitable to be bolted to the floor. 4 is a table portion having a central hub 5 at its lower part for attachment to the top of the pedestal 2. The top of the table 4 is made flat. The table is provided with three communicating passages 6 which may be bored into the body of the table and their outer ends plugged as at 7. Holes 8 are bored downward through the top of the table and into communication with the passages 6. The passages 6 are connected by a downward passage 11 with a suction pipe 9 communicating with any suitable source of partial vacuum, said pipe provided with a manually operable valve 10 for controlling the suction in the passages 6 and 8.

12 is a pad of rubber or other suitable yielding material cemented or otherwise attached to the top of the table 4 and is provided with openings through it in alinement with the several suction passages 8 so as to form, in effect, a cup 13 about and above said passages. The particular shape of these cup openings 13 is immaterial.

15 is a spring actuated valve for controlling communication between the atmosphere and the air condition within the passages 6 and for relieving the extent of suction desired.

The operation of my improved vacuum table may now be understood. A sheet of glass or other material 16 to be held for treatment for whatever purpose may be desired is placed upon the pad portion 12 of the table. The valve 10 is then opened to allow the suction exerted through the pipe 9 to extend into the passages 6 and through the apertures 8 into the cups 13. The effect of this suction is exerted upon the sheet of glass or other material 16 within the areas of the cups and holds it in frictional contact with the rest of the pad 12. The glass or article 16 is thus held against shifting or accidental displacement during any reasonable pressure put upon it and, moreover, the construction is such that the entire upper surface and edges of the said sheet are fully exposed for manipulation.

To release the glass or sheet 16, the valve

10 may be shut off and valve 15 opened and, in that manner, break the suction or vacuum within the cups. If an ordinary self-draining valve 10 be employed which when shutting off communication with the pipe 9 will open communication between the passage 11 and the atmosphere, then the ordinary act of closing the valve 10 will relieve the vacuum in the cups. 10*a* represents such venting orifice of the valve 10. Where the valve 10 is thus provided with the usual draining or venting aperture, the auxiliary valve 15 may be dispensed with. On the other hand, said valve 15 may be employed when the vacuum is on to vent the cups to such an extent that the glass or other sheet 16 may be shifted upon the table without wholly releasing the suction.

While I have shown 4 suction cup portions 13, it will be understood that one or more of said cups may be employed according to the character of the work to be done, and I, therefore, do not limit myself to any particular number of suction cups in connection with a single table portion.

It will now be apparent that I have devised a novel and useful construction which embodies the features of advantage enumerated as desirable, and while I have in the present instance shown and described the preferred embodiment thereof which has been found in practice to give satisfactory and reliable results, it is to be understood that I do not restrict myself to the details as the same are susceptible of modification in various particulars, without departing from the spirit or scope of the invention.

I claim:

1. A support for holding a sheet-like article which consists of a rectangular stationary flat table having a plurality of suction apertures upon its surface, said suction apertures being in communication with a common suction main, combined with a flat pad fastened upon the surface of the table and provided with a plurality of apertures extending entirely through it respectively in alignment with the aperture portions of the table and each greatly larger than the said aperture portions which it surrounds, and said pad acting as a continuous and extended support for the sheet-like article between adjacent suction aperture portions.

2. The invention according to claim 1, wherein further, manually operable means independent of the suction means are provided for insuring communication between the recesses and the atmosphere, whereby the suction may be released sufficiently to permit adjustment of the sheet-like plates upon the recessed surface.

In testimony of which invention, I hereunto set my hand.

ARTHUR G. WORRALL.