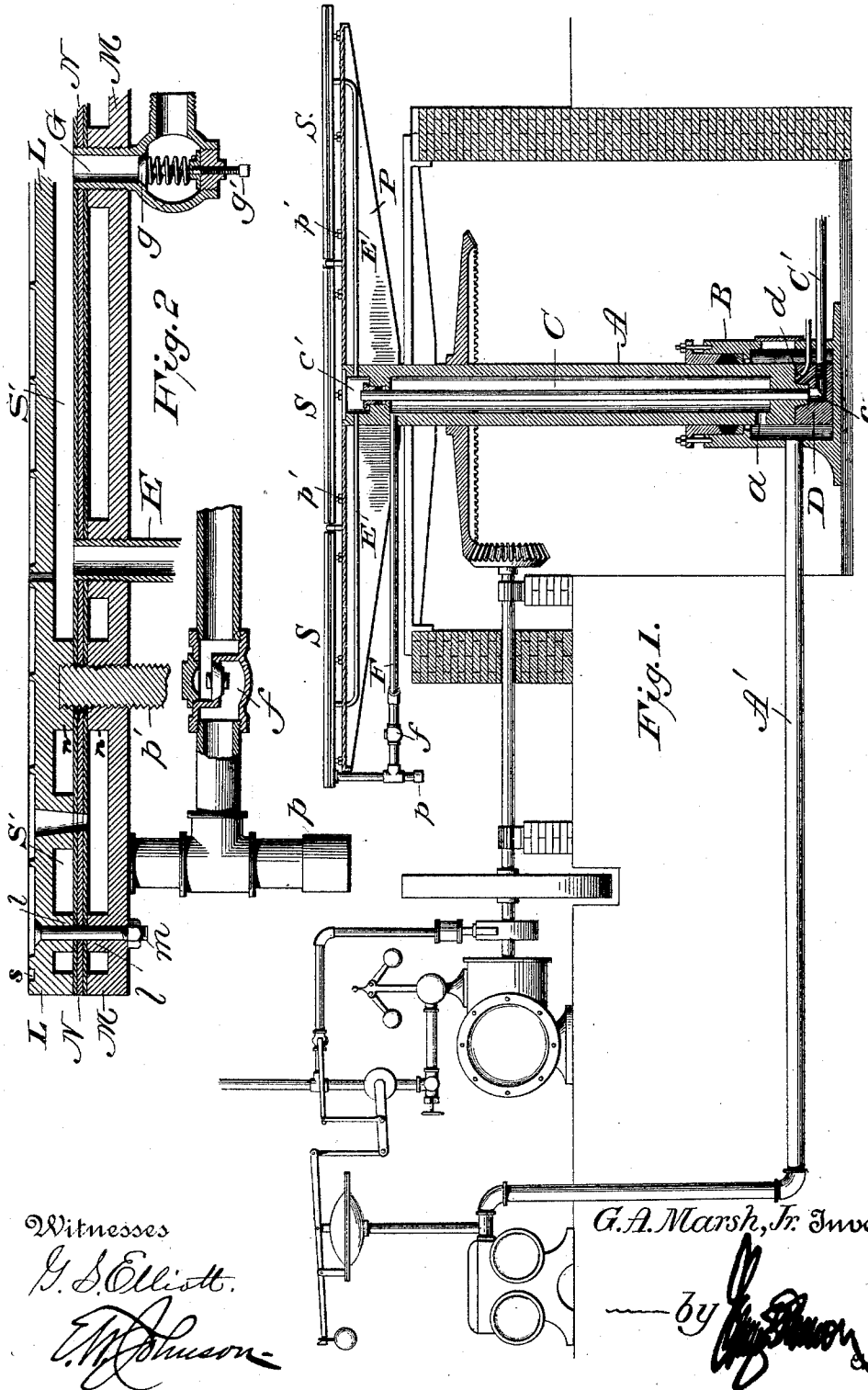


G. A. MARSH, Jr.

GRINDING, SMOOTHING, AND POLISHING GLASS.

No. 488,925.

Patented Dec. 27, 1892.



Witnesses

G. S. Elliott.

J. M. Johnson.

G. A. Marsh, Jr. Inventor

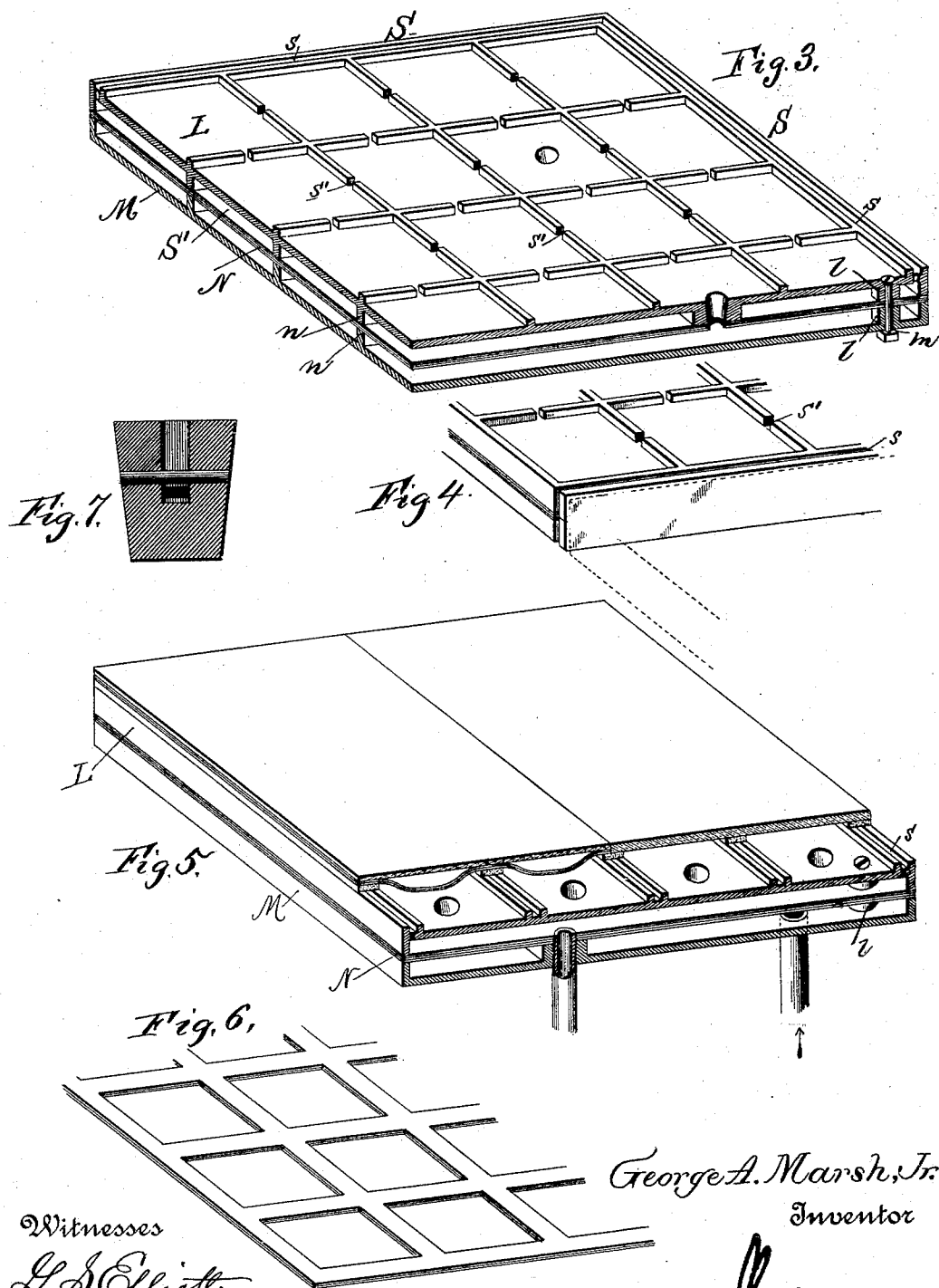
by

J. M. Johnson Attorney

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George A. Marsh, Jr.
Inventor

by - *[Signature]*
Attorney

UNITED STATES PATENT OFFICE.

GEORGE AUGUSTUS MARSH, JR., OF SANDUSKY, OHIO.

GRINDING, SMOOTHING, AND POLISHING GLASS.

SPECIFICATION forming part of Letters Patent No. 488,925, dated December 27, 1892.

Application filed June 18, 1892. Serial No. 437,123. (No model.)

To all whom it may concern:

Be it known that I, GEORGE AUGUSTUS MARSH, Jr., a citizen of the United States of America, residing at Sandusky, in the county of Erie and State of Ohio, have invented certain new and useful Improvements in Apparatus for Grinding, Smoothing, and Polishing Glass; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in apparatus for grinding, smoothing, and polishing plate glass, and more particularly to the construction of the table and sections which form or make up the table top, as well as means for exhausting the air therefrom and supplying a liquid thereto; the present application being designed as an improvement upon my previous applications, which were filed February 12, 1891, Serial No. 381,190; September 7, 1891, Serial Nos. 405,009 and 405,010, and September 30, 1891, Serial No. 407,346.

In the accompanying drawings, forming part of this specification: Figure 1 is a vertical section of a table for grinding, smoothing and polishing glass, said table being constructed in accordance with my invention. Fig. 2 is an enlarged sectional view of a part of one of the sections used in forming the top of the table. Fig. 3 is a perspective view, partly in section, of one of the sections of the top of the table. Fig. 4 is a detail perspective view of one corner of a section of the table, showing a portion of one of the lifting bars. Fig. 5 is a detail perspective view of a section of the table showing glass plates of different thickness placed thereon. Fig. 6 is a perspective view of the reticulated packing, and Fig. 7 is a sectional view of the stopper such as is used to closed the apertures in the sections.

The table, preferably a rotary one, is provided with a hollow standard or support, A, the lower end of which enters a suitable box or casing B having a space to receive a packing which can be clamped around the stand-

ard in any suitable manner. This standard at a short distance above its lower end and within the box B has an aperture *a* which forms communication between the hollow standard and air exhaust pipe A'. Longitudinally through the standard passes a water supply pipe C, the lower end of which is secured to the base of the standard, which at this point is provided with a downwardly projecting conical portion adapted to fit within a conical depression formed in a block or step D, located within the box or casing B, said step having an aperture *c*, which connects with the pipe C and into which is passed the water-supply C' which passes without the casing. This block or step may also have an aperture *d* connected with a pipe for supplying a lubricant to the bearing of the standard. The water supply pipe C passes into a chamber *c'* at the upper end of the standard, a packing being provided between this chamber and the hollow part of the standard; and connecting with said chamber are a series of distributing pipes E, leading therefrom to the different sections S which make up the table top.

To the hollow part of the standard is connected a pipe F which is connected to the air chambers in each of the sections by branch pipes, and these branch pipes are provided with suitable check-valves *f*, and with depending extensions having removable caps *p*; these extensions forming traps to catch any gritty or foreign substance which may be drawn into the pipes by the air-exhaust mechanism.

The water chambers S' in the sections S, which receive their supply from the distributing pipes E are each provided with a discharge pipe G having a valve *g* which is spring actuated in one direction, so that the water which is fed to the chamber under pressure will be discharged when it attains a certain pressure, the operation of the valve being adjusted by means of a set-screw *g'*.

The table top, as before stated, is made up of a number of sections S, and each section is composed of upper and lower parts L and M, which are separated or divided into two compartments by a plate of metal N upon the upper and lower sides of which a suitable

packing is placed. On their inner sides the parts L and M have suitable ribs n, n , which are arranged to be one above the other when the parts are brought together, and also with suitable blocks l which are apertured for the passage of bolts m used to clamp the parts to each other. The upper part is also provided with downwardly projecting portions which are apertured to connect with the lower part, and the lower part is provided with similar portions through which the distributing pipes E enter, and at a distance therefrom this construction is repeated for the attachment of the discharge pipe G. The bed plate P of the table, as well as the major portion of said table is made of iron or other suitable metal, and said bed-plate at intervals is provided with set screws p' , which enter apertures in the sections S and form supports therefor. Each section S is provided adjacent to its edge with a water channel s , which connects with the liquid chamber adjacent to the top wall of each section, and the top wall of each section is provided with raised ribs or supports upon which the glass to be operated upon will rest indirectly, as in practice a packing is laid over the top of the sections before the plates of glass are placed thereon. Spaces s' are formed between the raised walls so that the air can be exhausted from each section through a single aperture.

From the foregoing description the construction of my present improvement will be fully understood.

In grinding, smoothing or polishing plate or sheet glass with the hereinbefore described apparatus my method of operation is as follows: A suitable packing is placed over each section of the table top and the glass is then placed thereon; water or liquid in suitable quantities is admitted into the water chamber, which is the upper chamber of each section, and passes through the apertures in the channels to the packing adjacent to the margin of each section. When the air is exhausted from beneath the glass it will be held upon the top of the table by atmospheric pressure; the pressure of the water in the upper chamber may be ten pounds, more or less, and ordinarily there is not a material circulation of said water in the sections until the pressure is increased beyond the normal resistance of the spring valves. The structure being made of metal has great conductive powers, and especially in polishing glass it is necessary that the proper temperature should be given to it by slow friction before the polishing can be carried on rapidly. By my improved structure I can proceed at once with the rapid grinding, smoothing or polishing of the glass, as the temperature of the liquid can be regulated for such purpose. By supplying cool water to the chamber when the glass is too much heated by friction the water will absorb the heat. When it is desired to heat the

glass so that rapid polishing may be proceeded with at once, hot water, or other heating medium, as steam, may be supplied to the upper chamber of the table.

I claim:

1. A glass holding table having a top made up of a plurality of sections, which are composed of upper and lower portions divided horizontally into chambers, the upper chamber having induction and eduction openings, the lower chamber having an opening connected with air exhaust mechanism, and means for connecting the parts of the sections to each other and to a support, substantially as shown, and for the purpose set forth.

2. A section for a glass holding table made up of upper and lower portions having an intervening plate, the parts being connected with each other and provided with passages which connect with liquid supply pipes and air exhaust pipes, substantially as shown, and for the purpose set forth.

3. A section for a glass holding table made up of upper and lower portions having an intervening plate, the parts being connected to each other and provided with passages which connect with liquid supply pipes and air exhaust pipes, the exterior of the upper part having raised supports, substantially as shown.

4. A section adapted to form a part of a glass holding table having registering inner projecting walls, a dividing plate and packing therefor, and means for connecting the parts of each section to each other and to a support, substantially as shown, and for the purpose set forth.

5. In a glass holding table, the combination of a hollow shaft the lower end thereof being apertured and inclosed in a suitable chamber to which an air exhaust pipe is connected, a liquid supply pipe located within the hollow standard and connected with a liquid supply, substantially as shown, and for the purpose set forth.

6. In an apparatus for grinding, polishing and smoothing glass, the combination of a table top and mechanism for holding the glass thereon by atmospheric pressure, a liquid supply pipe leading to the table top and adapted to convey liquid thereto for the purpose set forth, the eduction openings of the sections having spring actuated valves for permitting a circulation of water in the glass holding table when forced therein beyond a predetermined pressure, for the purpose set forth.

7. A glass holding table made up of a series of hollow sections supported so that the upper surfaces thereof will be on the same plane, each section having marginal walls with a water channel and intermediate projecting portions with spaces between them, and an air exhaust opening common to each section, substantially as shown, and for the purpose set forth.

8. In a glass grinding and polishing table, the combination of a support maintaining a top in position, said top being divided horizontally into air and liquid chambers, pipes
5 connecting said chambers with a shaft, and pipes leading from the shaft, for the purpose set forth.

9. A glass grinding and polishing table having a chamber adjacent to its upper surface,
10 said chamber being connected with a heating or cooling source, whereby the glass placed on

the table can be cooled or heated, substantially as set forth.

10. A glass grinding or polishing table having a chamber, said chamber being connected 15 with a heat supply.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE AUGUSTUS MARSH, JR.

Witnesses:

LINN W. HULL,
L. H. GOODWIN.