Sept. 28, 1948. W. H. THOMPSON 2,450,401

APPARATUS FOR ENGRAVING TOMBSTONES AND THE LIKE

Filed Oct. 7, 1944 2 Sheets-Sheet 1

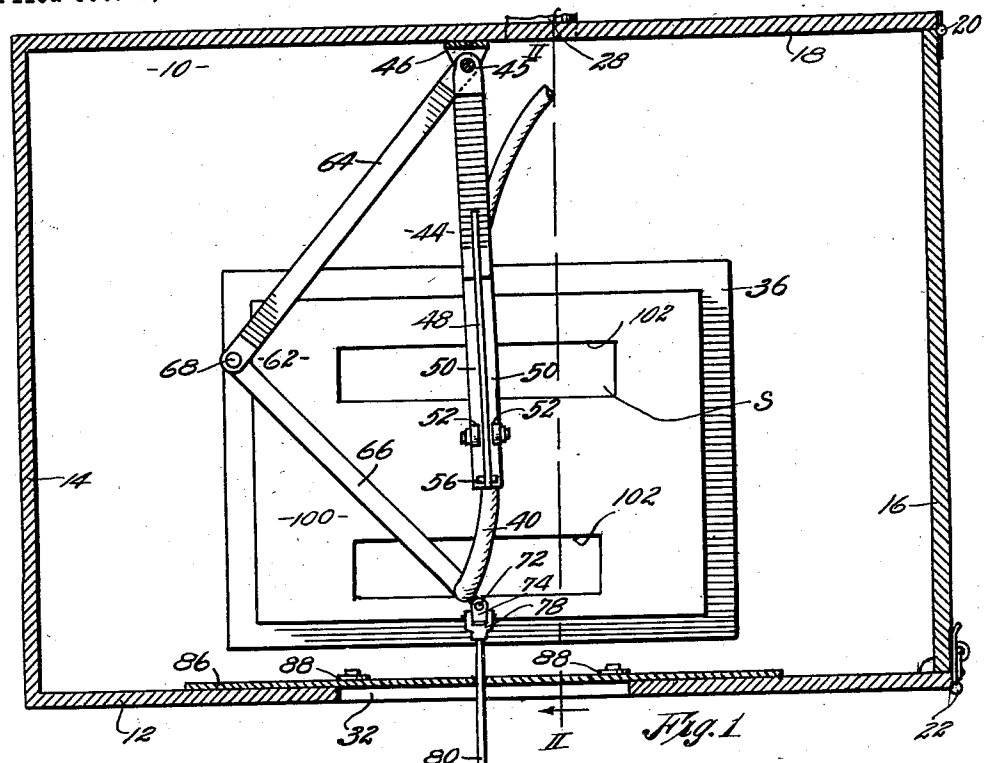


Fig. 1

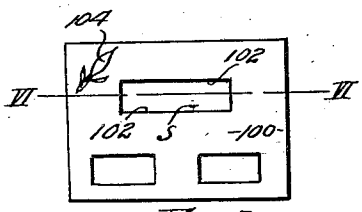


Fig. 5



Fig. 6

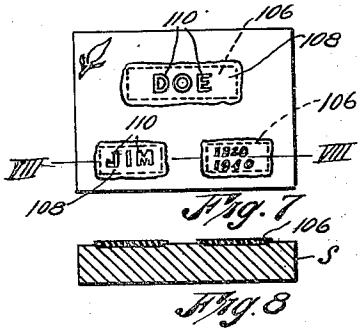


Fig. 7

Fig. 8

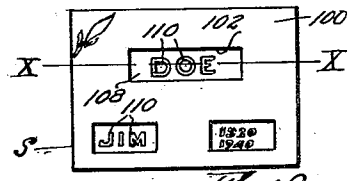


Fig. 9

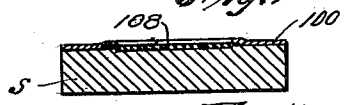


Fig. 10

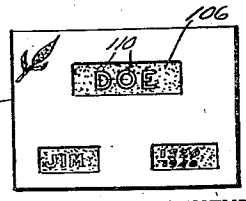


Fig. 11

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APPARATUS FOR ENGRAVING TOMBSTONES AND THE LIKE

Filed Oct. 7, 1944 2 Sheets-Sheet 2

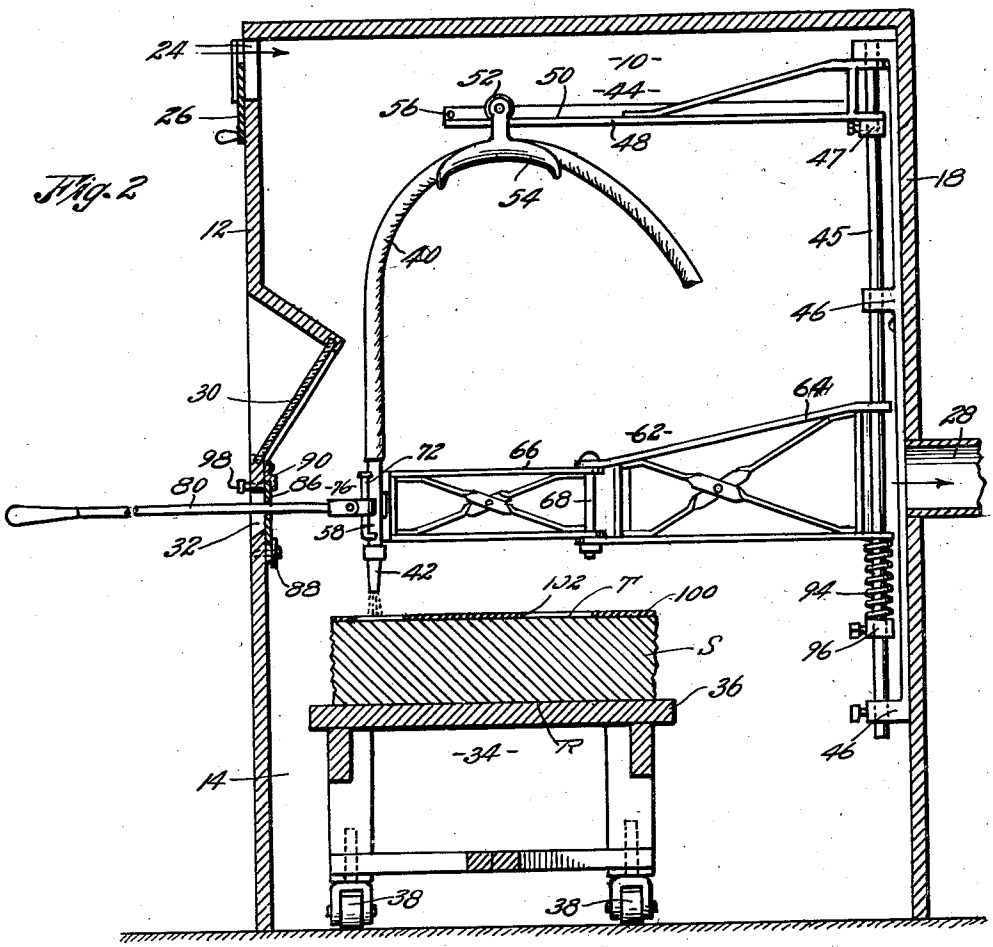


Fig. 2

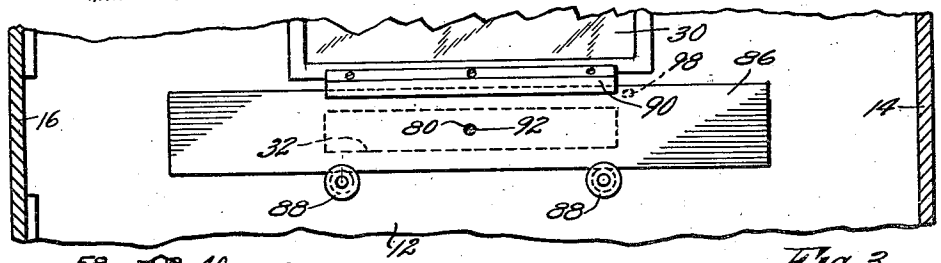


Fig. 3

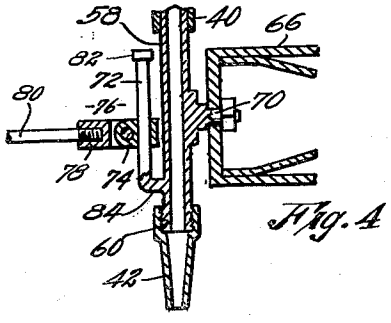


Fig. 4

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2,450,401

UNITED STATES PATENT OFFICE

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APPARATUS FOR ENGRAVING TOMBSTONES AND THE LIKE

William H. Thompson, Wilson, Kans.

Application October 7, 1944, Serial No. 557,695

3 Claims. (Cl. 51—8)

1

This invention relates to improvements in the method of and apparatus for decorating the surface of stone and other materials.

The present general method of decorating stones such as tombstones and the like consists of very expensive and laborious operations due to the fact that the stone must be handled several times. This handling of the stone is necessitated because of the fact that all of the sand blasting operations are now performed while the stone face to be decorated is in a vertical position, and furthermore, because between each of the blasting operations it is necessary to place the stone in position so that the face to be decorated is in horizontal position to receive the glue masks used to protect adjacent portions of the stone face from objectionable action of the sand blast. After these masks are in position, the stone is again moved to the vertical position for sand blasting.

It is the principal object of this invention to avoid these expensive operations and to maintain the stone surface to be decorated in a horizontal position on a wheeled bench throughout the various steps required in the decorating process.

This invention also contemplates the elimination of a large proportionate part of the glue masking now being used.

A further object of this invention is the contemplation of an apparatus wherein all the blasting operations are performed by a sand blast disposed in a substantially vertical line.

A still further object of the invention contemplates the blasting of panels, shape carvings, tracings, lettering and designs by a sand blast at extremely close range.

Another object of the present invention is the provision of a method of engraving the horizontally disposed surface of a stone by sand blasting and by the use of masks which may be glued, weighted or otherwise secured against accidental movement on the horizontal surface to be engraved.

A further object of this invention contemplates the sand blasting of stone surfaces within an enclosure, said sand blasting being performed by an operator positioned outside said enclosure.

Other objects are simplicity and economy of construction, ease and accuracy of operation and adaptability for use in blasting configurations of the various types in the horizontally disposed surface of any suitable material.

With these objects in view as well as further objects which will appear during the course of

2

the specification, reference will now be had to the drawings, wherein:

Figure 1 is a plan view of a stone blasting apparatus partly broken away and embodying this invention.

Fig. 2 is a sectional view taken on line II—II of Fig. 1 with some of the parts partially broken away.

Fig. 3 is a fragmentary sectional view of the inside of the front wall showing the window, operating spring and closure.

Fig. 4 is an enlarged vertical section through the sand blast nozzle and associated parts.

Fig. 5 is a plan view of a stone with a panel mask positioned thereon.

Fig. 6 is a sectional view taken on line VI—VI of Fig. 5.

Fig. 7 is a plan view of the stone having the panels etched and covered with a glue coating and with inscriptions formed in the glue coating.

Fig. 8 is a sectional view taken on line VIII—VIII of Fig. 7.

Fig. 9 is a view similar to that shown in Fig. 7 with the panel mask fitted on the stone surface.

Fig. 10 is a sectional view taken on line X—X of Fig. 9.

Fig. 11 is a plan view of the finished decorated stone.

Throughout the several views like reference characters refer to similar parts and the numeral 10 designates a blasting compartment having a front wall 12, end walls 14 and 16 and a back wall 18. End wall 16 constitutes a door hinged at 20 and secured in the closed position by member 22. This compartment has an air inlet 24 controlled by an adjustable valve member 26 and is also provided with an exhaust tube 28 by means of which the stone cuttings are exhausted from the chamber. The front wall 12 of the compartment is provided with a suitable window 30 through which the operator can observe the surface being decorated. Furthermore, this front wall is provided with a horizontally disposed slot 32 through which the sand blast operating means extends and is controlled.

A sturdy wheeled bench 34 having a substantially planar top 36 on which the stone S is supported, is provided with suitable caster wheels 38 to facilitate easy positioning of the wheeled bench relative to the sand blast nozzle. Usually the opposite side surfaces of a monument or tombstone are surfaced in planar parallel relation so that the surface T to be decorated will

always rest in a substantially horizontal position when the opposite surface is resting on bench top **36**. However, should surface R be irregular, the stone could be easily levelled by placing supports between the bench top and the stone. When the stone is to be decorated, it is carefully positioned on the planar top **36** of the wheeled bench with the face to be decorated disposed in a substantially horizontal position where it remains throughout all the operations required to produce the desired decoration. When so positioned on the wheeled bench, the stone may be easily moved about for masking, gluing, sand blasting, etc., and since all these operations are performed while the stone is in the horizontal position, it is never necessary to lift the stone and it may easily be moved about and into the sand blast chamber by one man.

The sand blast chamber contains certain equipment for supporting the sand blast hose **40** which necessarily must be moved so that the nozzle **42** carried thereby may be maintained in a substantially vertical position as it is moved about the surface of the stone. This equipment includes a horizontally swinging crane **44** which is pivotally mounted on vertically disposed rod or bar **45** which is rigidly carried by a bracket **46** supported on the back wall **18** of the compartment. A set collar **47** is provided on rod **45** to support the crane **44** in the desired vertical position. Crane **44** includes an inverted T-bar **48** presenting two side tracks **50** on which the rollers **52** which carry the suspended sand hose bracket **54** are supported for adjustment. It will be noted that bracket **54** is arcuate in form so as to support the hose in a manner that will preclude to a large degree, possible damage to the hose due to sharp bends. Pin **56** serves as a stop to prevent accidental movement of rollers off the tracks **50**. This support for the sand hose allows for a swinging movement of the hose and also a rolling movement of the bracket support lengthwise of the tracks, thus making it possible to conveniently position the operating nozzle at any desired point on the stone face.

The hose **40** is secured to one end of a tubular member **58** and the other end of **58** is threaded at **60** to receive the nozzle **42**. A nozzle carrying bracket **62** mounted on bar **45** for pivotal horizontal movement and also for vertical sliding movement, comprises two sections, **64** and **66**, section **64** being pivoted to the bar **45** for horizontal swinging and section **66** being pivoted to section **64** by means of pin **68** disposed in parallel relation to bar **45**, whereby the entire bracket will swing in a horizontal plane. The bearings of the brackets on the bar **45** and pin **68** are sufficiently long to produce free and easy movement of the parts. The tubular member **58** is provided with a transverse threaded stud **70** by means of which it is secured to bracket section **66** as clearly shown in Fig. 4. Tubular member **58** is also provided with an integral standard **72** disposed in spaced relation parallel with the member **58**, and adapted to receive for sliding movement thereon section **74** of a universal join **76** having a horizontal hinged joint **78** in which is securely mounted an operating handle **80** which extends through the slot **32** of the front wall **12**. The upward movement of member **74** on standard **72** is limited by an enlarged head **82** and the downward movement is limited by offset **84**.

Slot **32** is closed by a horizontally slidably mounted closure **86** mounted on two flanged rollers **88** carried by wall **12** and secured at its upper

portion by an over-hanging ledge **90**. It will be noted that closure **86** is sufficiently long to always close the opening **32** regardless of its adjusted position. An opening **92** is formed through the central portion of closure **86** to receive the operating rod or handle **80** for sliding movement therein. A compression spring **94** mounted on bar **45** is secured against the lower side of bracket member **64** by means of a set collar **96**. This spring normally supports the bracket and associated parts in a substantially fixed position; however, the operator may raise or lower the nozzle by tilting handle **80** vertically until member **74** contacts head **82** or offset **84** with the closure **86** acting as a fulcrum. This vertical adjustment of the nozzle serves to give a fine adjustment for producing the various sand blasting operations. When so mounted, the sand blast nozzle may be moved about the surface of the stone without varying the distance of the nozzle from stone face being decorated.

When doing certain operations in sand blasting, it is desirable to secure the closure **86** against movement so that the operator may use it as a stationary fulcrum for the operating handle for transverse movement of the nozzle. This is accomplished by providing a set screw **98** in wall **12** which may be adjusted inwardly against closure **86** to secure it in a fixed position.

The operation of the apparatus is substantially as follows:

The operator first places the stone S on the wheeled bench with the surface T to be decorated in a substantially horizontal position, as shown in Fig. 2. A mask **100** having suitable panel openings **102** formed therein is positioned on the stone surface to be sand blasted and is secured by weights, glue or any other suitable means. The operator now moves the wheeled bench with the stone positioned thereon into the sand blast compartment **10**. Since the stones vary in thickness, it is quite possible that it will be necessary for the operator to adjust set collar **96** so that the nozzle **42** will be at the proper position above the stone surface. In this type of sand blasting, it is found convenient to place the nozzle about three inches from the work, thus centralizing the blast to a relatively small area to facilitate better control and faster etching. The flow of sand and air through the sand blast hose **40** is controlled in the usual manner (not shown). The operator now grasps the operating handle **80** from outside compartment **10** and manipulates the nozzle **42** in such a manner as to etch surfaces of the stone exposed through panel openings **102**. This operation is viewed by the operator through window **30**.

During this operation certain shape carving such as **104** may also be produced. The mask or mat **100** is now removed and the etched panels **106** are covered with a coating of glue **108**. Either poured or sheet glue may be used. This glue usually laps over the etched panels so as to completely cover the same. The operator now forms the lettering or designs **110** in the panels by cutting away portions of the glue as shown in Fig. 7, thus exposing the stone surface in the panels so that they may receive the sand blast. In order to protect the unetched stone surface about the panels, the mask **100** is now positioned on the stone surface so that the panel openings register with the etched panels and lap the glue coating **108** as shown in Fig. 10. The stone is again sand blasted to etch the lettering or other designs into the stone surface.

After the etching is completed, the mask and rubber coating are removed and the stone is complete and ready for use. Attention is called to the fact that the stone is always maintained in the same horizontal position on the portable bench, thus eliminating the necessity of handling the stone for masking, gluing, etc., between the sanding operations which have always been performed with the stone face being sand blasted in a vertical position. Furthermore, due to the fact that the surface to be decorated is always maintained in a horizontal position, a large percentage of the former required gluing operations may be eliminated.

It is quite apparent that by the present apparatus and method, stones may be more quickly and easily decorated and that this decoration may be produced much more economically.

The term "stone" as used in the specification is intended to designate any article to be sand blasted such as marble, granite, stone or any other suitable material.

While an apparatus suitable for carrying out the sand blasting operation has been shown, yet it is apparent that many minor changes might be made in the structure without departing from the spirit of the invention.

The term "sand blast" as used in this application is intended to include the use of any of the various types of abrasive such as sand, fine steel shot, "carborundum," emery and kindred materials.

Having thus described the invention, what I claim as new and desire to be secured by Letters Patent is:

1. An apparatus of the class described comprising a compartment, a sand blast hose supported on a horizontally swingable crane and having a depending vertically disposed nozzle vertically carried by a horizontally swingable support whereby to direct a vertical stream of sand therefrom, means extending through the wall of said compartment whereby the position of said nozzle is controlled from outside the compartment, and means for supporting an article having a surface to be sand blasted in a horizontal position substantially parallel with the planar movement of said nozzle.

2. An apparatus of the class described comprising a sand blast compartment having a vertically disposed rod secured to its rear wall and an elongated horizontal slot in its front wall, a horizontally slidable closure for said slot, a horizontally oscillatable crane mounted on said rod and supporting a sand blast hose for universal horizontal movement, a vertically disposed nozzle communicating with said hose and supported on a jointed bracket pivoted on said rod for universal horizontal adjustment, and means extending through said sliding closure whereby the horizontal position of said nozzle is controlled from outside said compartment.

3. An apparatus of the class described comprising a sand blast compartment having a vertically disposed rod secured to its rear wall and having a front wall, an opening formed in its front wall and an elongated slot formed in its front wall below said front opening, a horizontally slidable closure for said slot, a horizontally oscillatable crane pivoted on said rod supporting a sand blast hose for universal, horizontal movement, a vertically disposed nozzle communicating with said hose and supported on a jointed bracket pivoted on said rod for universal horizontal adjustment and means universally interconnected with said nozzle and extending through said sliding closure whereby the horizontal position of said nozzle is controlled from outside said compartment.

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