Feb. 24, 1953 A. J. BRIGGS 2,629,160

WATER APPLICATOR FOR POTTERY WARE JIGGERS

Filed Aug. 18, 1949 2 SHEETS--SHEET 1

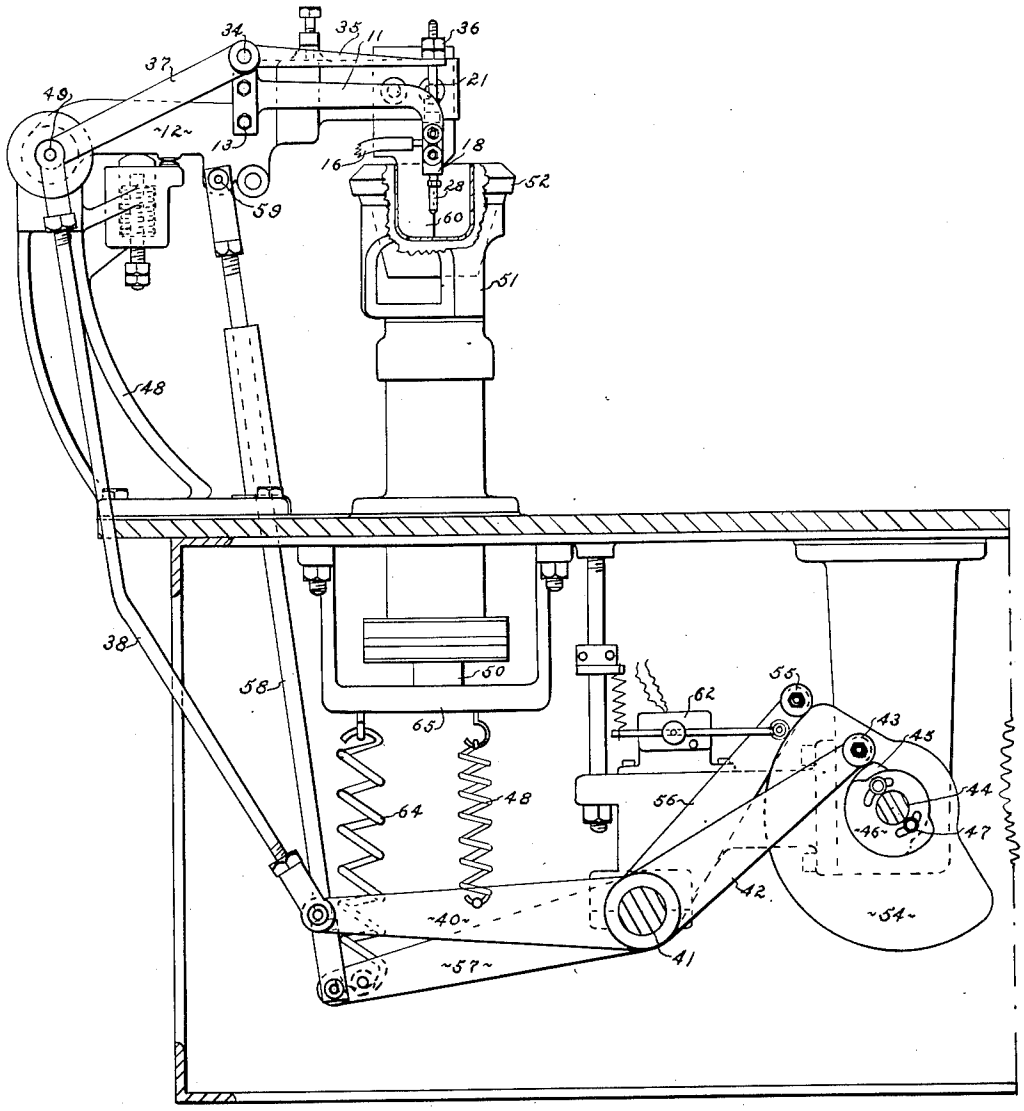

Fig. 1

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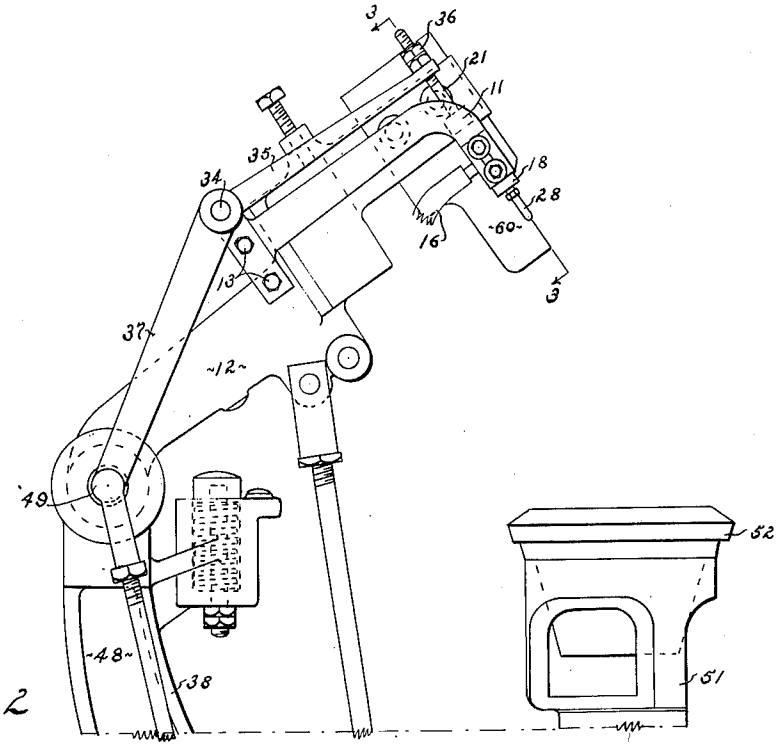

Fig. 2

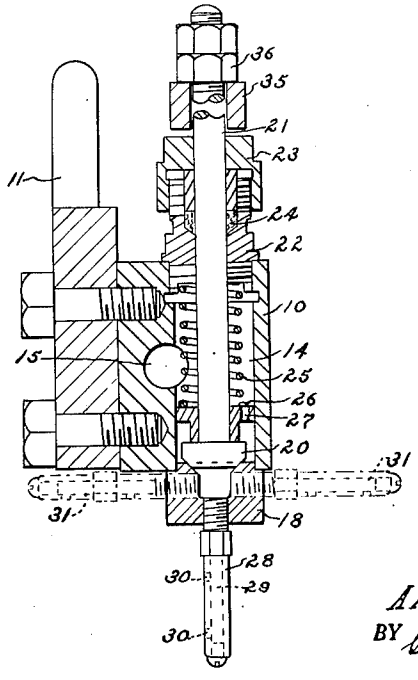

Fig. 3

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Patented Feb. 24, 1953 2,629,160

UNITED STATES PATENT OFFICE

2,629,160

WATER APPLICATOR FOR POTTERY WARE JIGGERS

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Application August 18, 1949, Serial No. 111,033

2 Claims. (Cl. 25—24)

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This invention relates to an applicator for applying lubricant, such as water, to clay or plastic, material while the same is being formed in a pottery ware jigger machine.

The invention has as an object a water applicator embodying a structure which is particularly economical to build and which functions over long periods of operation without maintenance.

The invention has as a further object a water applicator embodying a structure which functions to prevent any dripping of the water after the applicator is closed off.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

In the drawings:

Figure 1 is a side elevational view, with parts in section, of a jigger machine illustrating the arrangement of an applicator embodying my invention.

Figure 2 is a side elevational view of the upper portion of the machine shown in Figure 1 with the forming tool shown in raised position.

Figure 3 is a vertical sectional view of the applicator taken on a line corresponding to line 3—3, Figure 2.

In general, the applicator consists of a body member 10 attached to a bracket 11 which in turn is mounted upon the tool arm 12, as by screws 13. The body 10 is formed with an axially extending bore 14 which forms a chamber for a supply of water fed thereto through an aperture 15 to which is connected a flexible conduit 16. One end of the body 10 is provided with a closure 18 formed with a passage, the upper end of which is tapered to provide a valve seat for a valve 20. The valve 20 is mounted upon the lower end of a stem 21 slidably mounted in a top closure 22 on which a gland nut 23 is threaded for the retention of suitable packing 24. A helical compression spring 25 encircles the valve stem 21 and acts between the top closure 22 and a collar 26 seated against the valve 20. The collar 26 is apertured as at 27 to permit water to pass from the chamber 14 to the valve 20.

A discharge nozzle 28 extends from the body 10 and is formed with a bore 29 extending axially of the nozzle, and one or more apertures 30 extending laterally from the bore 29. The nozzle 28 is attached to the body as by a threaded connection, as shown in Figure 3, and for the tooling

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of hollow ware, as illustrated in Figure 1, the nozzle 28 depends downwardly from the lower end of the body. For tooling flat ware, one or more nozzles may be employed in horizontal arrangement, as shown by dotted outline at 31, Figure 3.

It will be apparent that when the valve 20 is moved upwardly from its seat, water under pressure is admitted to the bore 29 of the nozzle and is discharged through the apertures 30 onto the material being tooled. The stem 21 is actuated by a lever pivoted to the bracket 11, as at 34, and having a forwardly extending arm 35 bifurcated at its outer end to receive the stem 21 and acting against lock nuts 36. The arm has a rearwardly extending portion 37 pivotally connected to a link 38, the lower end of which is connected to an arm 40 of an angle lever journalled on a shaft 41 and having an arm 42 provided with a roller 43 riding upon the periphery of a cam secured to a cam shaft 44. The cam consists of sections 45, 46, one section being secured to the cam shaft 44 and the other section being adjustable about the shaft and secured to the fixed section, as by screws 47. As shown in Figure 1, the arm 42 is in raised position, the arm 37 having been moved downwardly through link 38 and the arm 40 and the arm 35 being moved upwardly to lift the valve 20 off from its seat. In this position, water is discharged from the apertures 30.

In Figures 1 and 2, the applicator is illustrated as applied to a conventional form of pottery ware jigger wherein the tool arm 12 is pivotally mounted to a supporting bracket 48, as at 49, the bracket being supported on a framework in which a jigger spindle 50 is vertically journalled and provided at its upper end with a mould chuck 51 for the reception of a mould 52. The tool arm 12 is actuated from raised position, shown in Figure 2, to lowered position, shown in Figure 1, by a cam 54 also mounted on shaft 44. The periphery of the cam 54 is engaged by roller 55 carried by an arm 56 of a bell crank lever also journalled on shaft 41 and having a rearwardly extending arm 57 connected to a link 58 which at its upper end is connected to the tool arm, as at 59.

The cams 45, 46, and the cam 54 are so adjusted that during the engagement of the forming tool 60 with the clay, or during a portion of that period, the valve 20 is lifted from its seat and the water lubricant is discharged upon the clay. It will, of course, be understood that during this period the chuck 51 and the mould carried thereby are rotated by a motor, or other

source of power, not shown, and controlled by a switch **62** also actuated by the cam **54**, as shown in Figure 1. The tool arm is activated to raised position by a tension spring **64** connected to the arm **57** and a housing **65** enclosing the lower end of the spindle **50**. The arm **40** is likewise urged upwardly by a spring **48**.

In the tooling of pottery ware, it is very important that the piece of tooled ware has a uniform moisture content. Otherwise, in drying strains will develop in the ware and upon subsequent firing, these strains will develop into cracks. Accordingly, in the application of lubricant during the forming operation, if such application is not uniform, these difficulties develop and this is especially true if, after the application of the water has ceased, any drops of water fall upon the piece of tooled ware.

The structural arrangement of the applicator above described prevents any discharge of water in the nature of drops, or otherwise, after the valve **20** has been closed. This is accomplished by forming the discharge apertures **30**, or having them so proportioned relative to the dimensions of the bore **29** that when the pressure from the supply chamber **14** is cut off, the head of water remaining in the bore **29** will not be sufficient to cause the water to exude through the apertures **30**. This is brought about by positioning the cut-off valve **20** in proximity to the inner end of the nozzle **28**, whereby there is a minimum amount of water contained within the bore **29** after the valve has been closed and in forming the discharge apertures **30** with a dimension such as not to permit the passage of water when the pressure from the supply chamber has been cut off from the nozzle.

It will be observed that with this arrangement, the use of expensive atomizing nozzles and the employment of compressed air is avoided and likewise, the dripping which occurs when that type of applicator is shut off.

My applicator is economical to construct, and is adapted to any conventional power operated type of jigger machine, and I have found that it will function over long periods of time without maintenance.

What I claim is:

1. A pottery ware jigger comprising a frame, a mould chuck rotatable about a vertical axis, a tool arm pivotally mounted on the frame, a forming tool carried by said arm, means operable to move said arm about its pivot to move said tool into and out of engagement with material on a mould carried by said chuck, a water applicator mounted on said arm in juxtaposition to the tool, said applicator including a valve stem operable when moved axially to open and close the applicator for the discharge of water on the material being formed, actuating linkage carried by said arm and actuating means operable to actuate said linkage while the tool is in engagement with the material.

2. A pottery ware jigger comprising a frame, a mould chuck rotatable about a vertical axis, a tool arm pivotally mounted on the frame, a forming tool carried by said arm, means operable to move the arm about its pivot to move the tool into and out of engagement with material on a mould carried by said chuck, a water applicator mounted on said arm in juxtaposition to said tool, a lever pivotally mounted intermediate its ends on said arm, one end of said lever being cooperable with said applicator upon movement of said arm about its pivot to open and close said applicator and thereby control the discharge of water from the applicator, the opposite end of said lever terminating in proximity to the pivotal axis of said arm, whereby pivotal movement of the arm does not effect pivotal movement of said lever, and actuating means operable to move said lever about its pivot to open and close said applicator during engagement of the tool with the material on the mould.

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