

July 19, 1932.

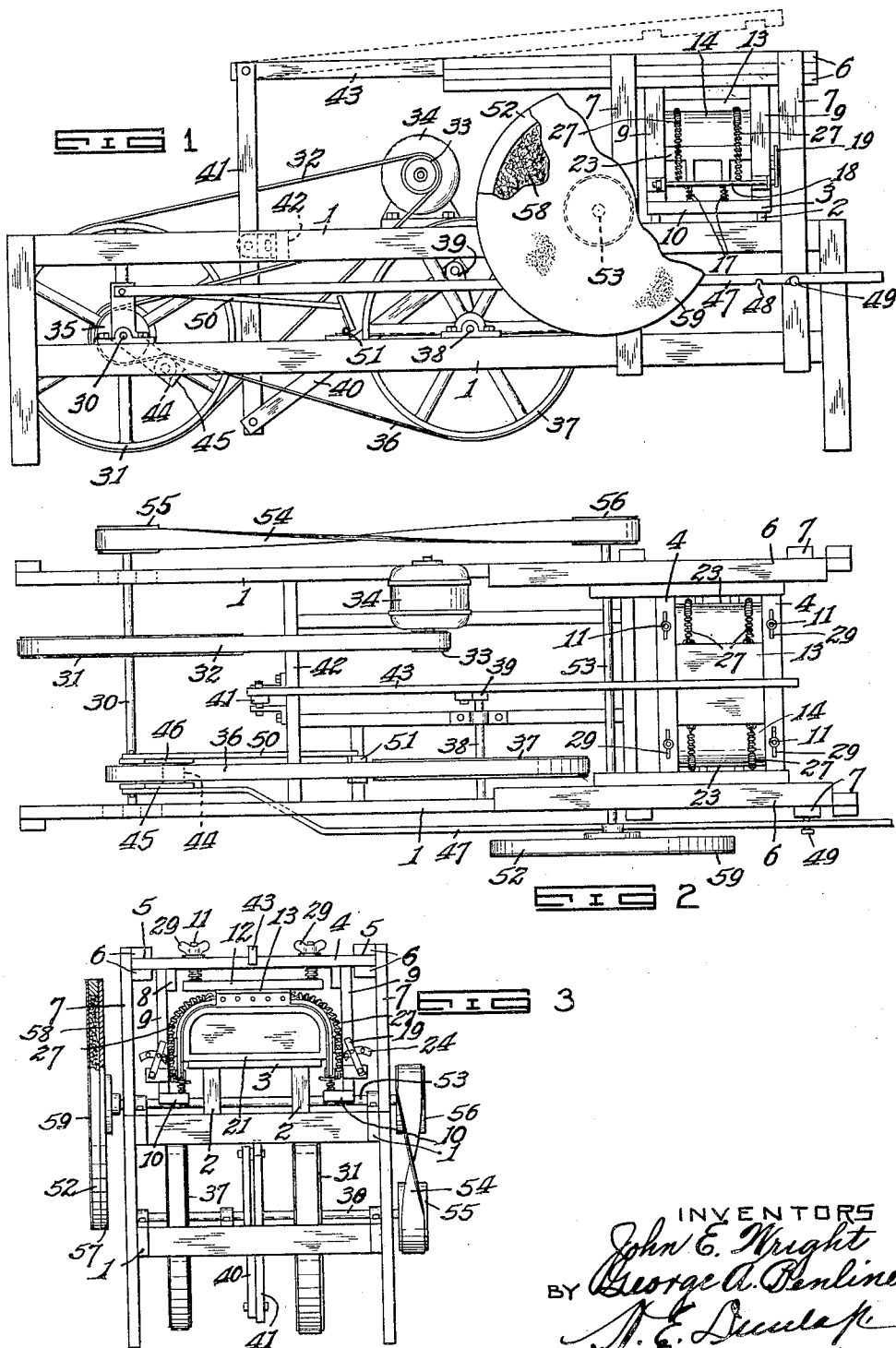
J. E. WRIGHT ET AL

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MACHINE FOR FINISHING ARTICLES OF POTTERY WARE

Filed Aug. 18, 1930

2 Sheets-Sheet 1



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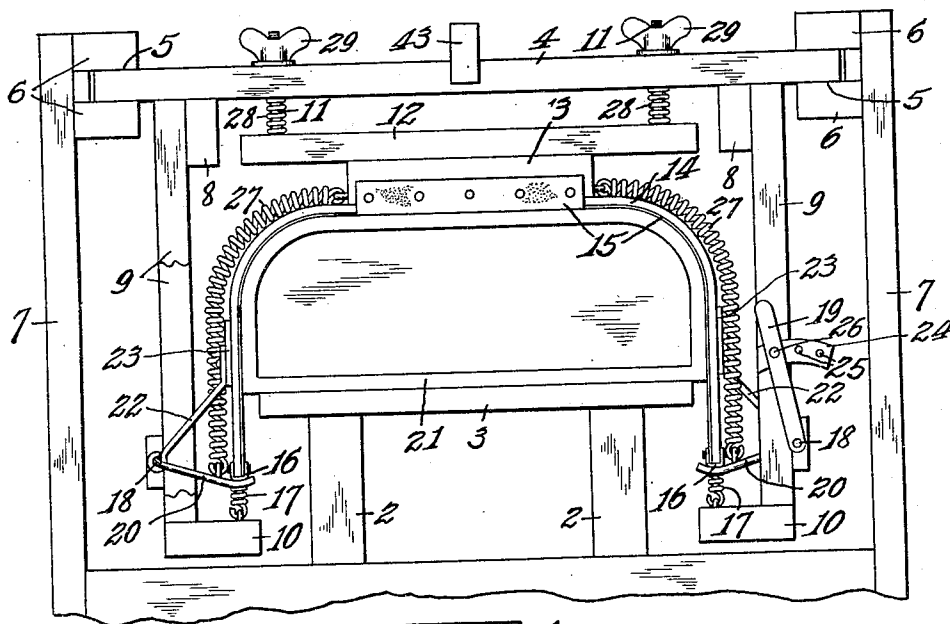


FIG 4

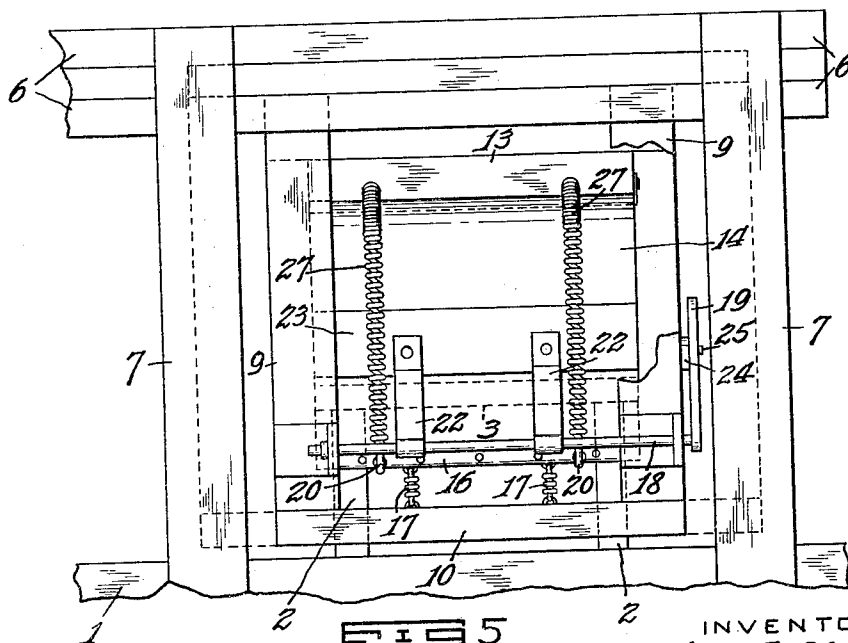


FIG 5

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MACHINE FOR FINISHING ARTICLES OF POTTERY-WARE

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This invention relates broadly to machines for finishing articles of potteryware either in their green or subsequent unfinished state, and it has for its primary object to provide a mechanism whereby various articles of potteryware, as closet tanks and their covers, may be abraded to provide a uniform and smooth surface, removing surface inequalities, preparatory to applying thereto the usual coating or glaze.

A further object is to provide mechanical means for sanding, or finishing, the ware prior to applying the surface glaze, removing all roughness and unevenness and producing a superior finish, and, at the same time, greatly reducing the time required to complete the finishing operation over that consumed in the hand finishing heretofore employed, and, consequently, effecting a substantial reduction in the manufacturing cost.

A still further object is to provide a surface abrading mechanism adapted for use in finishing manufactured products, castings and materials of various kinds wherein sandpaper or other similar sheet material is employed as the abradant and is so applied that buckling thereof is prevented and that a substantially uniform pressure is maintained, thus producing a uniformly finished surface.

With these and other objects in view, the invention resides in the features of construction which will hereinafter be described, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the invention, a portion of the sanding wheel being shown broken away;

Figure 2 is a top plan view of the same;

Figure 3 is a front end elevation;

Figure 4 is an enlarged front end elevation of the ware support, the reciprocable abrasive carrier and the upper part of the frame; and

Figure 5 is a side elevation of the same.

Referring to said drawings, 1 designates the opposite side members of a substantially

rectangular frame having mounted thereon at or adjacent to its front end a suitable ware support which, as herein shown, comprises upright supports 2 surmounted by a bed 3.

Overhanging the ware support at a suitable elevation is an abrasive carrier designed to be horizontally reciprocated back and forth relative to the ware which rests upon the bed 3. Said carrier comprises cross bars 4 mounted for horizontal travel on a trackway consisting of ways 5 provided between parallel longitudinally disposed bars 6 which are mounted upon posts or standards 7 carried by the sides 1 of the frame, the ends of said bars being received in and movable along said ways 5. Said bars are rigidly connected by longitudinally extending bars 8, and attached to and depending from said bars 8 are upright frame members 9. Rigidly connecting the members 9 at each of the opposite sides of the ware support are longitudinally extending bars 10 located at a level below that of the bed 3 of the ware support.

Projecting upward through and vertically movable in the cross bars 4 are the threaded ends of upright rods 11 which carry upon their lower ends transverse horizontal bars 12, and rigidly mounted on the under sides of said bars is a flat rectangular plate 13 which constitutes a support for an intermediate portion of the length of a sheet-like pad 14 of flexible and readily yieldable material, as printers' flannel. Said pad, which is designed as a backing for a suitable sheet 15 of sandpaper or like abrading material, has its opposite end portions depending on opposite sides of the ware support, as shown, and has the facing of sandpaper attached thereto along the terminal edges of its ends, as by means of sheet-metal channel members 16 within which said ends of the pad and of the sandpaper are received. Retractable coil springs 17 interposed between said channel members 16 and the adjacent bars 10 of the reciprocable carrier frame serve to maintain

the pad and its facing of sandpaper in place under slight yielding tension.

Suitably journaled for rotary movements at opposite sides of the frame of the reciprocable carrier are longitudinally extending shafts 18 which have fixed on their front ends levers 19 whereby they may be shifted manually, as will hereinafter be explained. Fixed to and extending inwardly from each of said shafts are arms 20 which underlie the adjacent channel member 16 and which, upon the application to the lever 19 of outwardly directed shaft-rotating force, are rocked upward for elevating, against the tension of the springs 17, the end portion of the abrasive sheet and its backing, thus to permit the unobstructed introduction or removal of the article of ware, as the closet tank 21 herein shown, relative to the bed 3 of the ware support.

Fixed to each shaft 18 are other arms 22 which incline upward and inward and carry upon their ends a plate 23. In the normal working position of the parts of the mechanism, these plates 23 seat against and exert inwardly directed pressure upon the pendent end portions, or sides, of the pad for holding the latter pressed into operative position relative to the sides of the closet tank 21. When the lever 19 is swung outward for elevating the end portions of the abrasive sheet and its backing, as above described, the plate 23 is swung away from pressure applying relation to said backing, allowing the latter to become bowed outwardly away from the bed of the ware carrier. Suitable means is provided for securing each lever 19 in adjusted position, the means herein shown for illustrative purposes comprising a quadrant 24 carried by an adjacent part of the ware carrier, as a member 9, spaced pins 25 carried by said quadrant being receivable in a hole 26 provided therefor in the lever.

As an additional means of applying inwardly directed pressure to the backing for the abrasive sheet, a plurality of light flexible coil springs 27 are attached at their upper ends to each of the lateral edges of the plate 13 of the carrier and have their lower ends suitably attached to the arms 20 of the adjacent shaft 18. These springs normally rest in seated pressure applying relation to the outer face of the opposite end portion or sides of the pad or backing 14. When said arms 20 are elevated, as hereinbefore described, for withdrawing said backing relative to the ware or the ware support, the tension on said springs is released and their pressure upon the backing is consequently removed.

Coil compression springs 28 are carried by the rods 11 between the bars 12 which carry the plate 13 and the supporting bars 4 of the carrier, thus to render said plate 13 readily yieldable with respect to the underlying article of ware which is acted upon. Wing nuts

29 threaded upon said rods provide means whereby the elevation of said plate 13 may be adjusted.

The mechanism whereby the carrier for the abrasive material is reciprocated relative to the ware which rests upon the ware support comprises a transverse shaft 30 journaled in the opposite sides of the main frame adjacent to the rear end of the latter. A pulley wheel 31 fixed on said shaft is connected by a belt 32 to a pulley 33 carried by the rotor of a suitably located electric motor 34. A second pulley wheel 35 carried by the shaft 30 is, in turn, connected by a belt 36 to and drives a pulley wheel 37 fixed on a suitably journaled transverse shaft 38. A crank arm 39 fixed on an end of said shaft 38 has pivotally attached thereto an end of a link 40 which has its opposite end pivoted to the lower end of a substantially upright lever 41 which is pivoted intermediate its ends on a transverse member, as 42, of the main frame. Pivoted to the upper end of said lever 41 is the rear end of a bar-like pitman 43 which is designed for attachment to, or interengagement with, the carrier for the abrasive material, notches 44 being provided in the under side of its front end portion adapted to engage the bars 4 of said carrier.

Manifestly, rotary movement imparted to the shaft 38 by the motor through the intermediate pulleys and belts described is converted into reciprocating movement of the pitman 43 through the intermediacy of the crank arm 39, link 40 and lever 41, the latter constituting a rocker. Actuation of the pitman 43, when the latter is operatively engaged with the carrier, produces reciprocation of the latter with respect to the ware, which latter is thus subjected to the finishing action of the abradant borne by said carrier, as described.

The means herein disclosed for starting and stopping reciprocation of the carrier consists of means whereby the belt 36 is tightened and slackened with respect to the pulleys 35 and 37. Said means comprises an idler pulley 44 which is shiftable to and away from a position with respect to the belt 36 wherein the latter, which normally connects said pulley 35 and 37 so loosely that it is inoperative for rotating the pulley 37, is caused to assume such close frictional engagement with the pulley 35 that the latter will function to effect driving thereof. Said idler is journaled for rotation on the ends of a pair of parallel bell cranks 45 and 46 which have their angle portions loosely mounted on the shaft 30 on opposite sides of said pulley 35. One of said bell cranks, as 45, has pivoted to its opposite end an end of a manually shifted bar or lever 47 which extends laterally of the main frame to a point adjacent to the front end of the latter and which has therein rela-

tively spaced notches 48 engageable with a pin 49 fixed on said frame.

The other bell crank 46 has pivoted to its opposite end an end of a lever 50 which is suitably attached, as through the intermediacy of a hinge 51 to a suitable part of the main frame, as shown in Figs. 1 and 2. Shifting of the idle, or belt-tightening, pulley 44 to and from its operative position is effected by longitudinal shifting of the lever 47. At the same time that the pulley 44 is shifted to its idle position, the upper leaf of the hinge 51 seats upon the periphery of the wheel 37 and acts as a brake, stopping the latter instantly and without drift.

To adapt the machine also for buffing, or finishing, the surfaces of covers for closet tanks, a buffing wheel 52 is provided, said wheel being fixed on an end of a suitably located transverse shaft 53 journaled on the main frame. For driving said wheel, a twisted belt 54 connects pulleys 55 and 56 carried on corresponding ends of the shafts 30 and 53, respectively, as shown.

Said wheel 52 comprises a rigid disk 57 which constitutes a backing for a suitable resilient material 58, as printers' flannel, upon which is mounted a facing 59 of sand-paper or other appropriate abrading material. The cover or other article to be finished is manually held in engagement with the facing 59 as the wheel 52 is rotated.

While we have herein described in detail a simple form of our invention, it will be understood that numerous structural changes in the forms and arrangement of some of the parts may be resorted to without departing from the spirit or scope of the invention as defined in the appended claims.

What is claimed is—

1. Apparatus for finishing closet tanks and the like comprising a stationary tank support, a carrier frame reciprocable relative to the tank which rests on said support, said frame including a plate-like part located for travel adjacent to the face of the tank, an abrasive sheet, a flexible resilient sheet forming a backing for said abrasive sheet, said sheets being attached intermediate their ends to said plate-like part of the carrier frame and being held by the latter in contact with the top face of said tank, resilient means between the ends of said sheets and the frame for maintaining the latter in conformably seated relation to the sides of said tank, and means applying inwardly directed pressure to said sheets.

2. Apparatus for finishing closet tanks and the like comprising a stationary tank support, a carrier frame reciprocable relative to the tank which rests on said support, said frame including a resiliently supported member disposed in facing relation to the front face of said tank, an abrasive sheet, a flexible pad forming a backing for said sheet,

intermediate portions of said sheet and its said backing being carried by said member in operative relation to the adjacent face of said tank, means attached to the ends of said sheet and its backing for maintaining the same taut adjacent to the sides of the tank, and means seated against and applying yielding pressure to the end portions of said sheet and its backing.

3. Apparatus for finishing closet tanks and the like comprising a stationary tank support, a carrier frame reciprocable relative to the tank which rests on said support, said frame including a resiliently supported member disposed in facing relation to the front face of said tank, an abrasive sheet, a flexible pad forming a backing for said sheet, intermediate portions of said sheet and its said backing being carried by said member in operative relation to the adjacent face of said tank, and means including retractile coil springs disposed in engagement with said backing exerting yielding pressure whereby said sheet is maintained in conformable relation to the adjacent sides of said tank.

4. In apparatus for finishing the surfaces of closet tanks and the like, a stationary tank support, an abrasive sheet having a readily yieldable backing, said sheet being disposed to conformably embrace the face and sides of a tank borne by said support, springs normally seated in pressure applying relation to the opposite end portions of said sheet whereby the latter is held against the sides of the tank, means pressing an intermediate portion of said sheet upon the face of the tank, a carrier for said sheet and said pressure applying means, and means for reciprocating said carrier.

5. In apparatus for finishing the surfaces of closet tanks and the like, a stationary tank support, an abrasive sheet having a readily yieldable backing, said sheet being disposed to conformably embrace the face and sides of a tank borne by said support, a carrier for said sheet and its backing, said carrier comprising a member having an intermediate portion of said sheet and its backing attached thereto and whereby said portion is yieldingly pressed against the face of the tank, said carrier also embodying side members, resilient means connecting the ends of said sheet and its backing to said side members and normally maintaining the opposite end portions of the sheet and its backing taut, means borne by said carrier for maintaining said end portions yieldingly pressed against the sides of the tank, and means for reciprocating said carrier relative to said tank.

6. In apparatus for finishing the surfaces of closet tanks and the like, a stationary tank support, an abrasive sheet having a readily yieldable backing, said sheet being disposed to conformably embrace the face and sides of a tank borne by said support, a carrier for

said sheet and its backing, said carrier comprising a member having an intermediate portion of said sheet and its backing attached thereto and whereby said portion is yieldingly pressed against the face of the tank, said carrier also embodying side members, resilient means connecting the ends of said sheet and its backing to said side members and normally maintaining the opposite end portions of the sheet and its backing in taut embracing relation to the sides of said tank, means borne by the carrier whereby said end portions may be elevated against the tension of said resilient means to permit introduction and removal of tanks with respect to said support, means borne by said carrier whereby yielding pressure is applied to said end portions for seating the same against the ends of the tank, and means for reciprocating said carrier.

7. In apparatus for finishing the surfaces of closet tanks and the like, a stationary tank support, an abrasive sheet having a readily yieldable backing, means joining the terminal edges of the sheet and the backing, said sheet being disposed to conformably embrace the face and sides of a tank borne by said support, a reciprocable carrier for said sheet and its backing, resilient tension means connecting said joining means to said carrier for normally maintaining the opposite end portions of said sheet pressed into closely seated relation to the sides of the tank, and separate means yieldingly maintaining the intermediate portion of said sheet in like relation to the face of the tank.

8. In apparatus for finishing the surfaces of closet tanks and the like, a stationary tank support, an abrasive sheet having a readily yieldable backing, channel members connecting the adjacent terminal edges of said sheet and said backing, said sheet being disposed to conformably embrace the face and sides of a tank borne by said support, a reciprocable carrier for said sheet and its backing, means connecting said channel members to a part of said carrier for normally maintaining the opposite end portions of said sheet yieldingly pressed into closely seated relation to the sides of the tank, other means yieldingly maintaining the intermediate portion of said sheet in like relation to the face of the tank, and lever operated means for shifting the first mentioned means to release the thereby applied pressure.

9. In apparatus for finishing the surfaces of closet tanks and the like, a stationary tank support, an abrasive sheet having a readily yieldable backing, said sheet being disposed to conformably embrace the face and sides of a tank borne by said support, a carrier for said sheet and its backing, yieldable means connecting the opposite end portions of said sheet and its backing to said carrier whereby the latter are normally maintained in taut

condition, means borne by said carrier whereby pressure is applied for holding said sheet in seated contact with the sides of the tank, separate means borne by said carrier yieldingly holding an intermediate portion of said sheet in seated contact with the face of the tank, and rotary means whereby the end portions of said sheet and its backing are elevated to unseated position against the tension of the first mentioned yieldable means, and means for reciprocating said carrier.

In testimony whereof we affix our signatures.

JOHN E. WRIGHT.
GEORGE A. BENLINE.

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