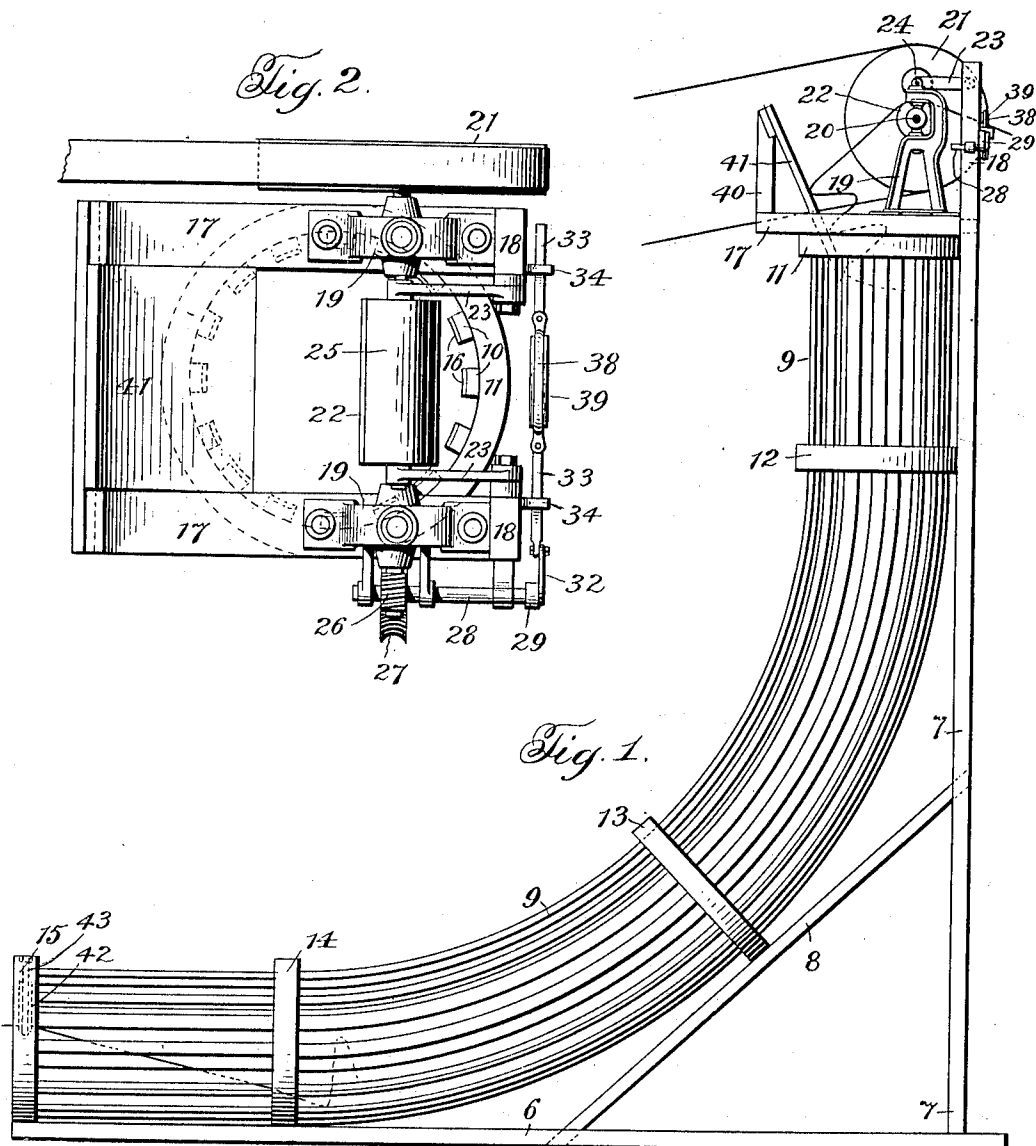


1,041,031.

H. L. CRAIG.
 PILING BOX.
 APPLICATION FILED OCT. 30, 1911.

Patented Oct. 15, 1912.

2 SHEETS-SHEET 1.



Witnesses:

James Hutchinson
Carrie A. Krey

Inventor:

Harry L. Craig
 By *Regal B. Bunker*, Attorney:

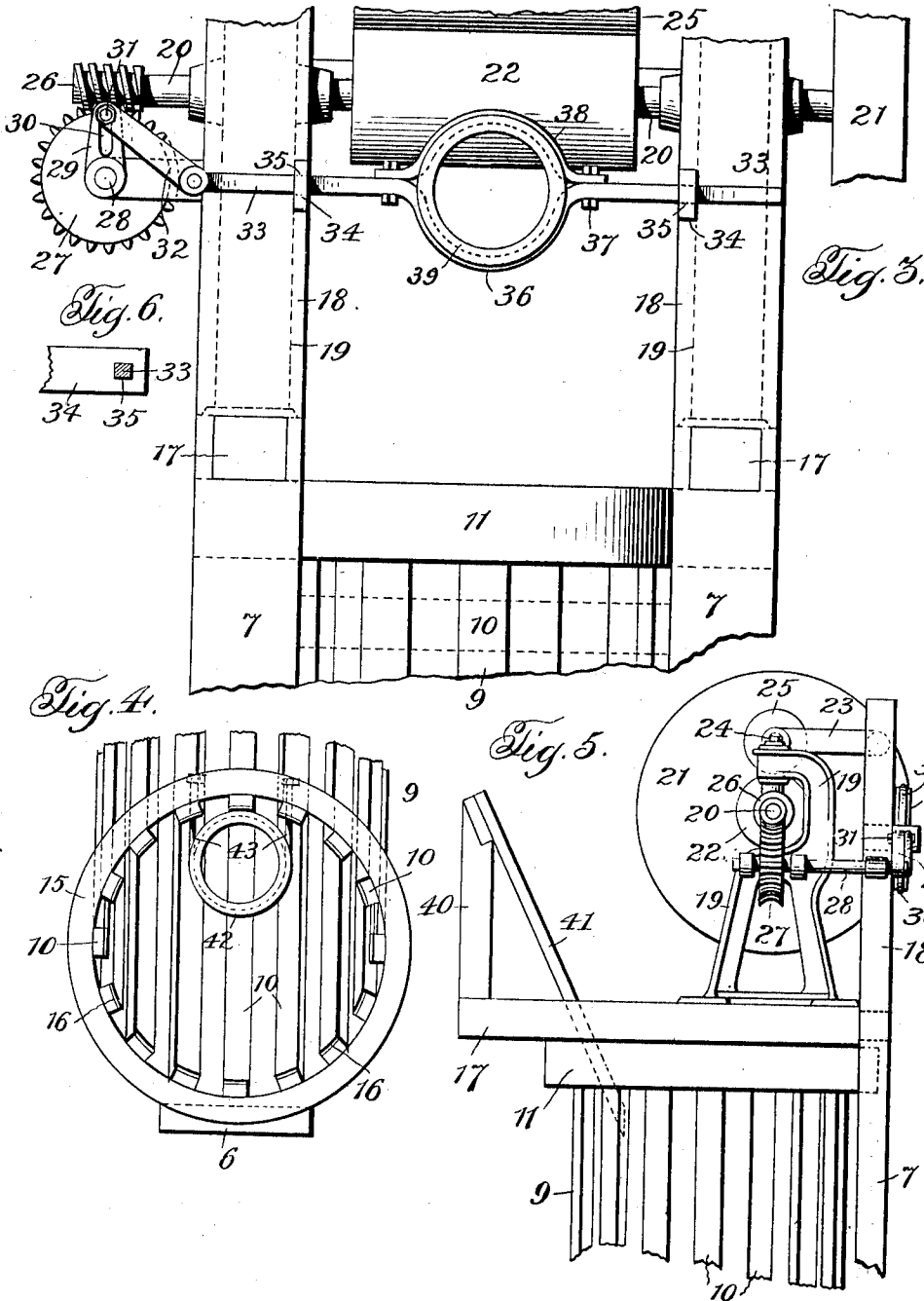
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UNITED STATES PATENT OFFICE.

HARRY L. CRAIG, OF WILMINGTON, DELAWARE.

PILING-BOX.

1,041,031.

Specification of Letters Patent.

Patented Oct. 15, 1912.

Application filed October 30, 1911. Serial No. 657,447.

To all whom it may concern:

Be it known that I, HARRY L. CRAIG, a citizen of the United States, residing at Wilmington, in the county of Newcastle and State of Delaware, have invented certain new and useful Improvements in Piling-Boxes, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a structure for receiving and holding fabric and the like in the interval between operations to which the material is subjected, as, for example, between its treatment in the sour-box of a bleach-house and in the machine for washing it.

The invention contemplates a piling-box in which the movement of fabric or other material therethrough may be continuous; that is, one in which the fabric is piled in at one end and gradually works down to the other end where it can be withdrawn, it being unnecessary to reverse the direction of movement of the material to take it from the box.

It is also an object of the invention to provide a piling-box so formed that the material therein may be acted upon to a certain extent by the atmosphere, whereby there is a tendency to oxidize the bleaching-fluid remaining in the material and increase the degree of whiteness thereof. Further, there is associated with this box means whereby the material is evenly piled into the mouth of the box, so that it will not become entangled as it settles to the exit end and so that it may be withdrawn at the exit without difficulty and without undue strain on the material.

When read in connection with the description herein, the details of construction and arrangement of parts contemplated by the invention will be apparent from the accompanying drawings, forming part hereof, wherein an embodiment of the invention, adapted for use in bleach-houses, is disclosed, for purposes of illustration.

While the form of the invention shown in the drawings is preferred, it is to be understood that it is not the intention to be necessarily limited to the precise delineation herein in interpretation of claims hereinafter, as it is obvious that various changes within the scope of the invention can be made in the structure shown and described.

Like reference-characters refer to corre-

sponding parts in the views of the drawings, of which—

Figure 1 is a side view; Fig. 2 is a top view; Fig. 3 is a back view; Fig. 4 is a view of the exit end; Fig. 5 is a side view of the mechanism at the top of the piling-box; and Fig. 6 is a fragmentary detail view of one of the brackets that carry the slide-rod.

Having more particular reference to the drawings, 6, 7, and 8, respectively, designate base, upright, and diagonal frame members forming supports for a piling-box 9. The piling-box is formed of a series of continuous staves or slats 10, preferably of wood, held spaced apart and in circular disposition by rings or hoops 11, 12, 13, 14 and 15, to which they are secured by screws or other suitable fasteners, the rings or hoops being arranged at suitable intervals and supported by the frame members, and the staves forming a continuous chute from the intake end at the top to the exit end at the bottom. The inner surfaces of the staves are polished, or they may be covered with hard polished rubber 16 if desired, to facilitate movement of material through the box. The box has vertical disposition in its top portion, say between hoop 11 at the top and the next hoop 12, which are secured to the upright frame members 7, and thence it curves gradually to the bottom end portion which has substantially horizontal disposition between hoops 14 and 15 supported upon the base frame members 6. The diameter of the box gradually increases from its upper portion to its lower end portion.

Carried by the uprights 7 over and immediately above the upper or intake end of the box are sill members 17, and the uprights 7 are extended above the sills to form standards 18, the sills and standards serving as supports for the mechanism for delivering and distributing material to the piling-box.

Rising from each of the sills 17 are standards 19 in which is journaled a horizontal shaft 20 rotated by any suitable driving element, such as a pulley 21 at one end of the shaft, and on this shaft between the standards 19 and directly over the intake end of the piling-box is a draw-roll 22. Arms 23 are pivoted on the standards 18, extend over the draw-roll 22, and have journaled thereon a shaft 24 on which is a draw-roll 25 which coöperates with the roll 22, when the latter is rotated, to deliver material to the piling-box, the weight of the roll 25 and its arms

23 being sufficient to press the material against the draw-roll 22 to cause it to pull in the material.

The end of the shaft 20 opposite to the 5 driving element is formed with a worm 26 with which meshes a pinion 27 on a shaft 28 disposed at right angles to shaft 20 and journaled on one of the standards 19. The other end of the shaft 28 carries a crank 29, 10 having a diametrically-disposed slot 30 therein, and a bolt 31, adjustable in this slot, pivotally connects the crank to one end of a pitman 32. The other end of the pitman is pivotally connected to a slide-rod 33 car- 15 ried by brackets 34 on standards 18 and reciprocable in a line substantially parallel to the draw-rolls. The rod is angular in cross section and slides in correspondingly angular bearings 35 in the brackets, whereby ro- 20 tary movement of the rod is prevented. The slide-rod intermediate its ends between standards 18 has a depressed semi-circular portion 36, over which is clamped by bolts or the like 37 a raised semi-circular strap 25 38, and these semi-circular portions clamp and hold therein an eye or ring 39, of porcelain or other material which will not be corroded by bleaching or other substances which has been absorbed by the material 30 under treatment.

Uprights 40 rise from the outer ends of the side sills 17 and support a deflecting-board 41 which slopes into the intake end of the piling-box opposite to the draw-rolls. 35 An eye 42, of porcelain or other material not susceptible of corrosion by bleaching or other substances with which fabric is treated, is held at the lower or exit end of the piling-box by a strap 43 passing through 40 the end ring or hoop 15.

The material to be deposited in the piling-box, which in the case of fabric or other textile materials it is the practice to handle in ropy form, is drawn by the draw-rolls 45 from a sour-box or other place through the eye 39 and delivered to the box at the top, and the material is prevented from overreaching the top by the deflecting-board 41, the material contacting with the board when 50 it has a tendency to overreach and sliding down into the box. The eye 39, through which the material is drawn, is reciprocated through the instrumentality of the worm and pinion, shaft 28, crank 29, pitman 32, 55 and slide-rod 33. The eye in its movement operates to guide the material from end to end of the draw-rolls and thereby distributes it from side to side of the piling-box. The material, when first delivered to the box, 60 will start to pile in the curved portion between the vertical and horizontal portions,

and as it continues to be delivered the weight of the material at the top will cause that toward the bottom to work down to the discharge end at the bottom, whence it can be 65 pulled out, when desired, through the eye 42 by any suitable means and delivered to a washing-machine or otherwise disposed. It will be seen that the movement of the material through the box is continuous, the 70 portion first delivered at the intake end being the first to be removed from the discharge end, and that, therefore, it is not necessary to reverse direction of movement of the material to remove it from the box. 75 The curve of the box continues from the vertical only to the horizontal, is gradual between the end portions, and the box is devoid of an upturned discharge end. Therefore, the material piled therein, as it works 80 by gravity to the discharge end, is not subjected to undue friction in the chute which the box forms, as is the case when a box with an upturned discharge end is employed and which causes the material to be packed and 85 entangled at the bottom of the upturned end and rendered difficult of removal. The formation of the box with spaced slats permits access of air to the material in the box, which is of advantage in some processes on account 90 of the oxidizing effect upon some kinds of material-treating substances employed.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is— 95

1. The combination, with a piling-box, of mechanism for delivering material to said box, comprising a driven shaft journaled near the intake end of the box, a draw-roll 100 on said shaft, a worm on said shaft, a pinion meshing with said worm, a shaft rotated by said pinion, a crank on said shaft, a slide-rod having a material-guiding eye thereon reciprocable in a line substantially parallel to said draw-roll, and a pitman connecting 105 said crank and slide-rod.

2. The combination, with a piling-box, of mechanism for delivering material to said box, comprising a driven shaft journaled near the intake end of the box, a draw-roll 110 on said shaft, a slide-rod having a material-guiding eye therein reciprocable in a line substantially parallel to said draw-roll, and operating means between the shaft and slide-rod whereby the latter is reciprocated. 115

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

HARRY L. CRAIG.

Witnesses:

HERBERT COLLINS,
SUSANNA M. COLLINS.