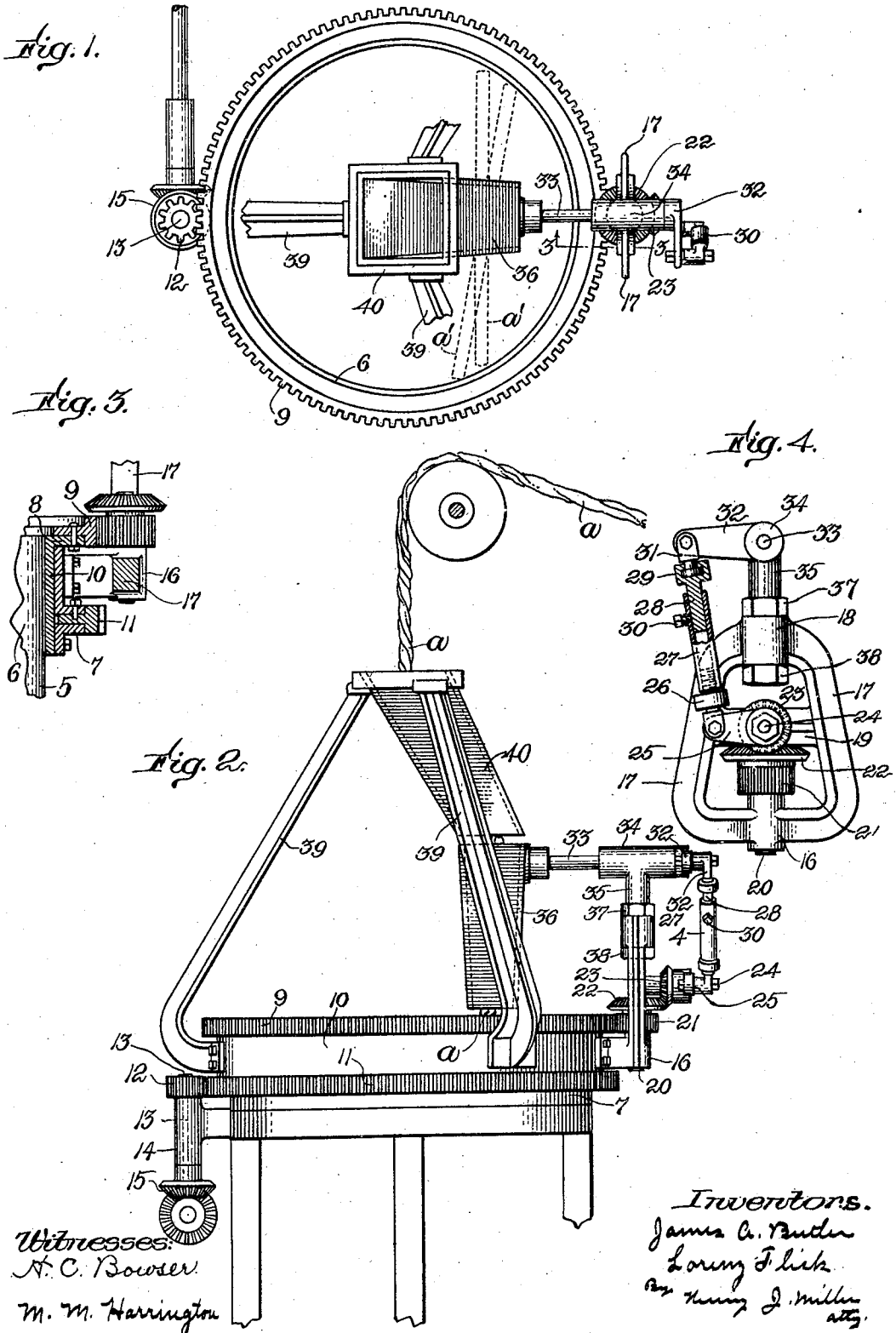


J. A. BUTLER & L. FLICK.
FABRIC FOLDING AND PILING MECHANISM.
APPLICATION FILED FEB. 6, 1909.

937,566.

Patented Oct. 19, 1909.



Witnesses:
N. C. Bowser.
M. M. Harrington

Inventors.
James A. Butler
Loring Flick
By Henry J. Miller
att'y.

UNITED STATES PATENT OFFICE.

JAMES A. BUTLER, OF WINTHROP, MASSACHUSETTS, AND LORENZ FLICK, OF SAYLESVILLE, RHODE ISLAND.

FABRIC FOLDING AND PILING MECHANISM.

937,566.

Specification of Letters Patent.

Patented Oct. 19, 1909.

Application filed February 6, 1909. Serial No. 476,581.

To all whom it may concern:

Be it known that we, JAMES A. BUTLER, of Winthrop, in the county of Suffolk, State of Massachusetts, and LORENZ FLICK, of Saylesville, in the county of Providence, State of Rhode Island, have invented certain new and useful Improvements in Fabric Folding and Piling Mechanisms, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

This invention has reference to improvements in machines for arranging textile fabric or other flexible material in folds and for combining a series of such folds to form a pile of said fabric or material.

The object of the invention is to so construct a folding and piling machine of this nature that the fabric may be regularly folded in series of laps forming peculiarly arranged layers which are not liable to entanglement whereby the fabric, so piled, can be readily drawn from said pile.

Another object of the invention is to so construct a machine of this nature that said machine may be adjusted to change the direction in which the laps or folds of fabric are to be laid.

Another object of the invention is to improve the construction of machines of this nature.

The invention consists in such peculiar features of construction and combination of parts as shall hereinafter be more fully described and pointed out in the claims.

Figure 1, represents a plan view of the improved folding and piling machine, parts being broken away. Fig. 2, represents a side elevation of the same, portions of the supporting standards being broken away, the fabric being shown as delivered to the machine by one of the well known fabric carrying pulleys usually employed in bleacheries for carrying forward the fabric, in rope form, from one process to another. Fig. 3, represents a sectional view taken on line 3—3 Fig. 1, some of the parts being omitted. Fig. 4, represents a detail view of parts of the folder actuating mechanism taken from the right of Fig. 2, with a partial sectional view of the connecting rod taken on line 4—4 Fig. 2.

Similar characters of reference designate corresponding parts throughout.

Mechanisms of this general nature are de-

signed particularly to receive textile fabric, fed forward to the machine in rope form, and to progressively arrange said fabric in regular folds or reaches whereby layers of said folds ultimately form a pile of fabric adapted to be subjected to chemical treatment or adapted to be transported in such piled form to another point for treatment; the regular piling of the fabric preventing entanglement of its folds and permitting the drawing off of said fabric lengthwise from said pile.

As shown in the drawings in its preferred form 5, 5, designates supports or standards on which the movable parts of the mechanism are supported. These standards 5, 5, may represent portions of the framework of a bleaching keir or dye vat, into which it is desired to pile the fabric, or said standards may represent portions of an open frame into which a suitable car or truck can be positioned to receive the pile of fabric. Mounted on said standards 5, 5, is the annular frame 6 having or provided with the flanges 7 and 8, of which, flange 8 carries the annular rack 9. Rotatably mounted on the annular frame 6 and supported by the flange 7 is the circular carrying member 10 having the peripheral rack 11 which is driven by the pinion 12 having its shaft 13 journaled in the bearings 14 and having the pinion 15 adapted to be driven by any well known means.

Secured to the carrying member 10 is the bracket 16 having the upwardly extending arms 17, 17, meeting in the vertical bearing sleeve 18, and the cross arm 19. Journaled in a vertical bearing of bracket 16 is the shaft 20 having the pinion 21, meshing with rack 9, and the bevel gear 22 which drives the bevel pinion 23 of shaft 24 journaled in a horizontal bearing in the cross arm 19 and having the crank arm 25. Pivotally connected with the crank arm 25 is the swivel joint 26 of the tubular connecting rod 27 in which the shank 28 of the upper swivel joint 29 is received, and is secured by set screw 30. Pivotally connected with the joint member 31 is the arm 32 which is mounted on the shaft 33, journaled in the bearing 34 of the stud 35, and having or provided at its end with the trough or funnel 36 preferably rectangular in cross section. The stud 35 is rotatably mounted, for adjustment, in the bearing sleeve 18 and

is secured in the adjusted position by the nuts 37 and 38.

Mounted on the carrying member 10 is a frame comprising the upwardly extending arms 39, 39, which support the guide chute 40.

The operation of the machine will be readily understood by reference to the drawings. If it is understood that shaft 33 extends radially with respect to the axis of member 6, as shown in Fig. 1, and motion is imparted to the mechanism through pinion 12 then the rotation of the carrying member 10 will be effected by said pinion 12 meshing with rack 11, the speed of said carrying member 10 depending upon the relation in diameter by said pinion and said rack. During the rotative movement of member 10 bracket 16 and the parts carried thereby will travel in a circular path around the rack 9 and, as said rack is stationary, the pinion 21, by engagement with said rack, will be caused to rotate whereby gears 22 and 23 are driven to effect the rotation of shaft 24 thus, through arm 25, and connecting rod 27, causing arm 32 to rock shaft 33 and vibrate the trough or funnel 36, in a direction at right angles to the extension of shaft 33. If now fabric *a, a*, is delivered to chute 40 such vibration of the funnel 96 will cause the said fabric to be laid in laps across the chord of the circle represented by members 6 while the direction in which said laps are laid will change constantly with the movement of the shaft 33 around the axis of the circular member 6, approximately as indicated in dotted lines *a', a'*, in Fig. 1 the relative direction of said laps *a', a'*, depending largely upon the relative diameters of the pinions 12, 21, 22 and 23 and of the racks 9 and 11. It being generally preferred to vibrate the funnel 36 quite rapidly while the bracket 16 and the mechanism carried thereby moves slowly around the rack 9.

Adjustment of the shaft 33 may be effected by loosening the nuts 37 and 38 and swinging the sleeve 34 on its stud 35 to the desired degree whereby the shaft 33 is swung

to an angle with the radius of the circle indicated by the member 6, while the members 27 and 28 of the connecting rod may be adjusted as to length and the swivel joints 29, 29 will accommodate themselves to such adjustment.

By the use of this piling mechanism the fabric is arranged in the series of cross laps above referred to and said laps ultimately form spiral layers which are given a certain stability by the arrangement of their laps *a', a'*, without danger of the entanglement of said laps so that the fabric may thereafter be drawn from the pile formed of said layers.

Having thus described our invention we claim as new and desire to secure by Letters Patent.

1. A fabric piling machine comprising means for delivering fabric in laps and operating means for said delivery means mounted to traverse around the pile of fabric formed by said laps.

2. The combination with a fixed annular rack, a member movably mounted with respect to said rack, a support mounted on said movable member, a vibratory fabric feeding device carried by said support and means for driving said movable member, of driving means for said vibratory means in engagement with said annular rack, and connections between said driving means and said fabric delivering means.

3. The combination with a fixed annular rack, an annular member rotatably mounted with respect to said rack, means for driving said member, a bracket mounted on said member, a shaft journaled in said bracket and having a pinion meshing with said annular rack, a vibratory fabric delivering device having a shaft rotatably supported by said bracket, and connections between said pinion and the shaft of said vibratory device as and for the purpose described.

JAMES A. BUTLER.
LORENZ FLICK.

Witnesses:

HAROLD WHALLEY,
M. OLIVIA WEBSTER.