A. SLOCUM.

APPARATUS FOR SIZING AND SHAPING HATS AND THE LIKE.

APPLICATION FILED JULY 15, 1916.

1,343,887.

Patented June 15, 1920.

3 SHEETS—SHEET 1.

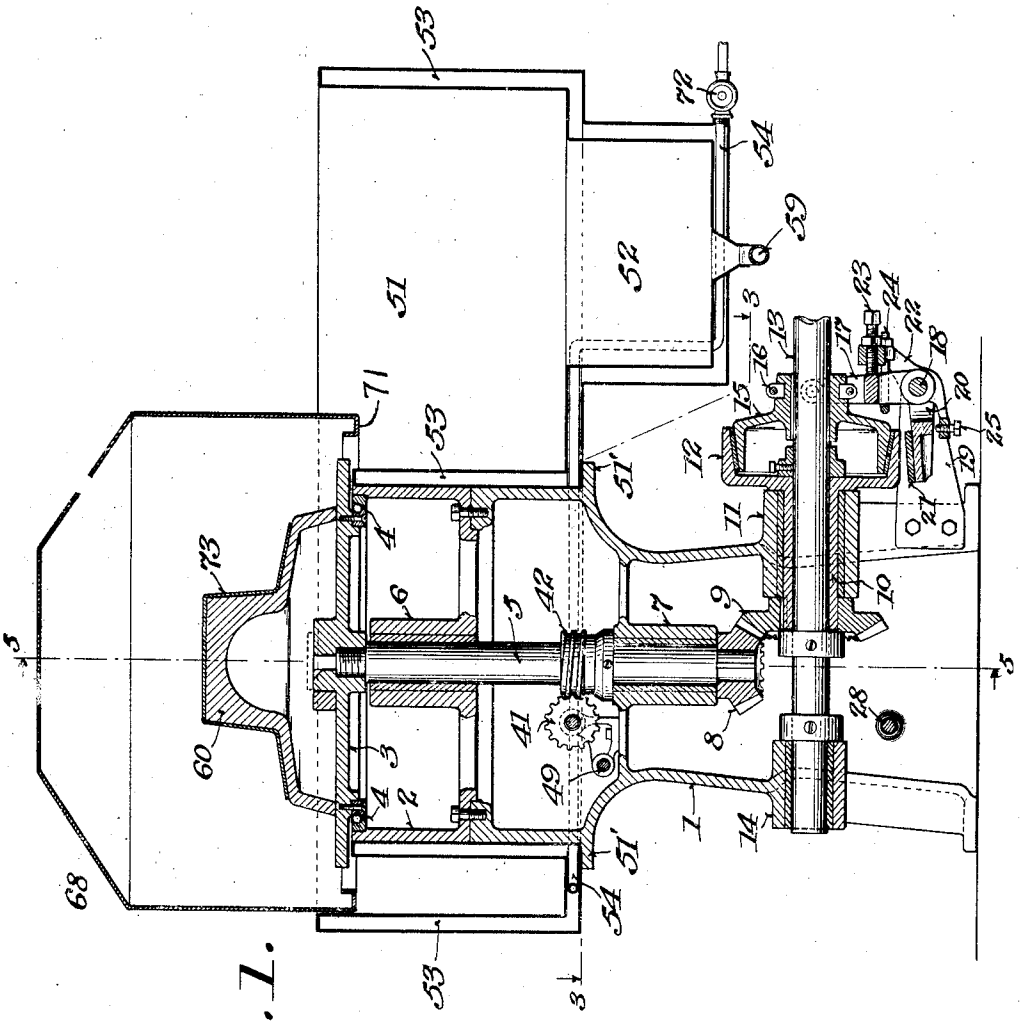


Fig. 1.

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3 SHEETS—SHEET 2.

Fig. 2.

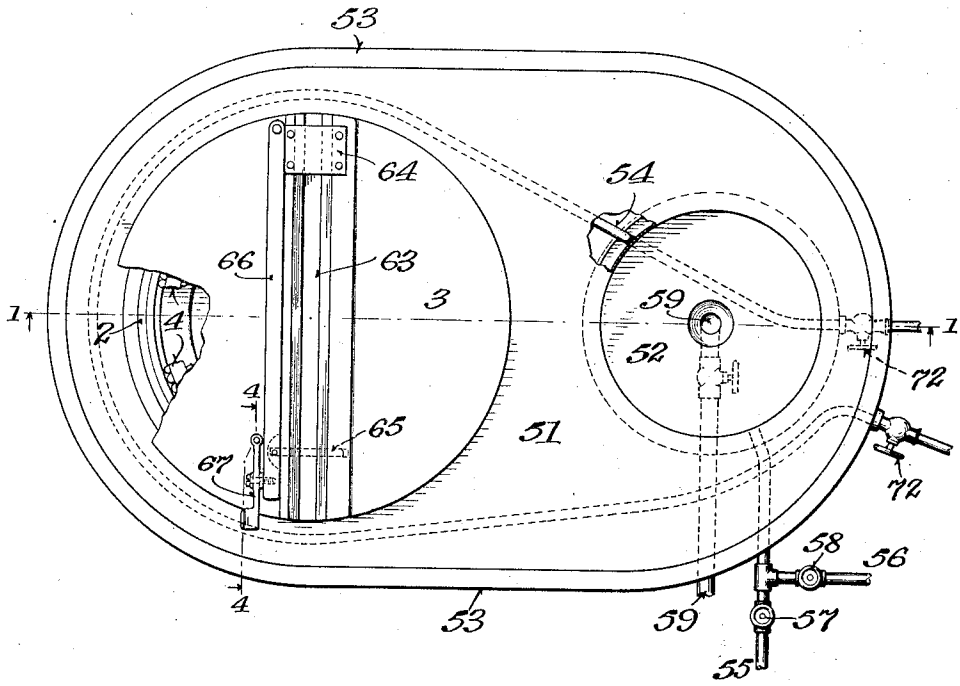


Fig. 3.

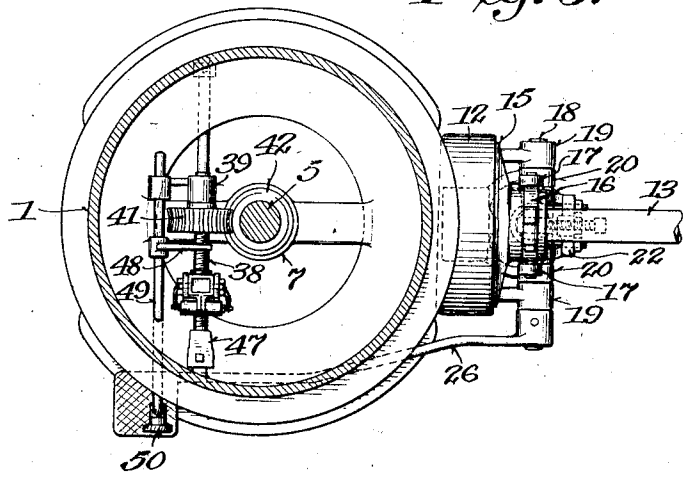
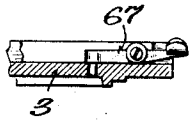


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 6.

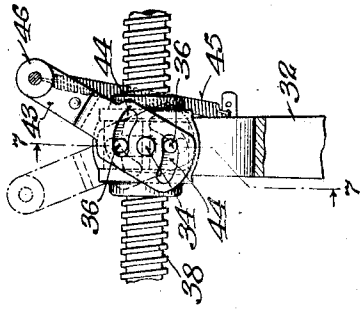


Fig. 8.

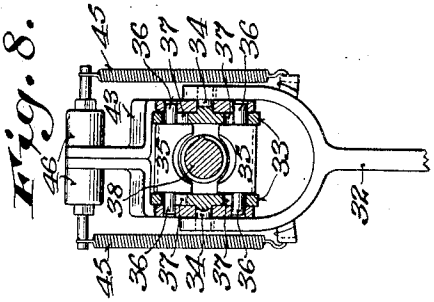


Fig. 7.

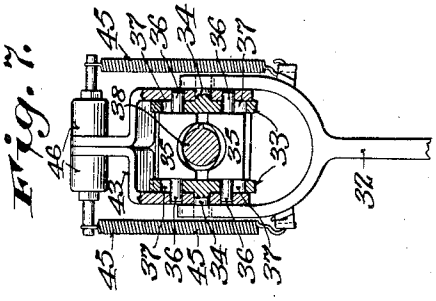
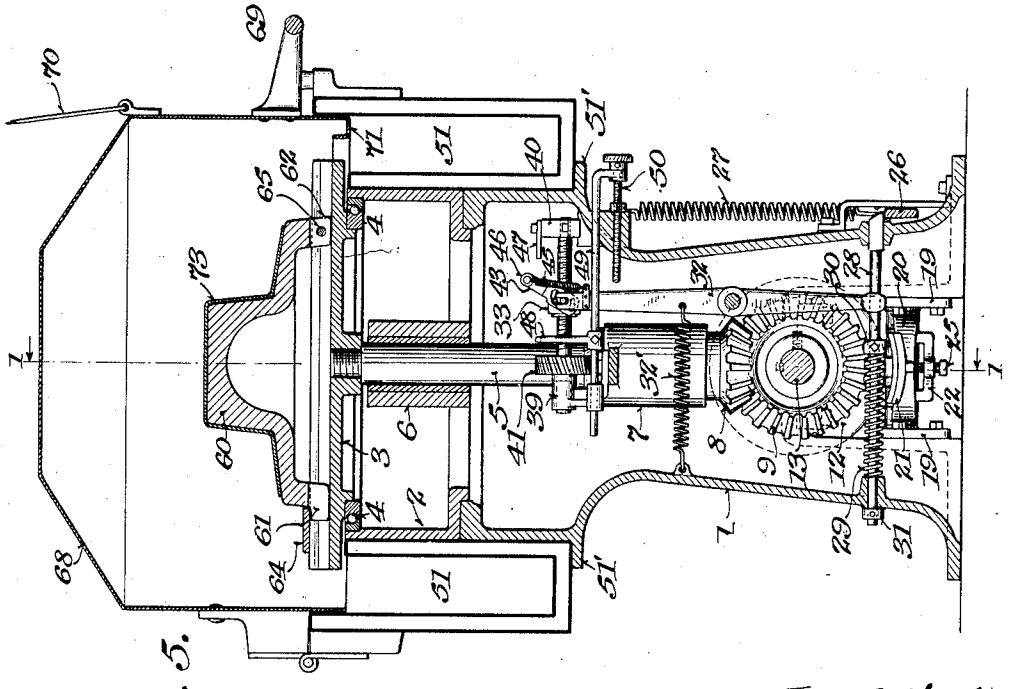


Fig. 5.



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UNITED STATES PATENT OFFICE.

ALBERT SLOCUM, OF MILWAUKEE, WISCONSIN.

APPARATUS FOR SIZING AND SHAPING HATS AND THE LIKE.

1,343,887. Specification of Letters Patent. Patented June 15, 1920.

Application filed July 15, 1916. Serial No. 109,412.

To all whom it may concern:

Be it known that I, ALBERT SLOCUM, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Apparatus for Sizing and Shaping Hats and the like, of which the following is a specification, reference being had to the accompanying drawing, forming a part thereof.

The main objects of this invention are to facilitate sizing fabrics and particularly woven, braided or textile fabrics and articles made therefrom, such as hats; to eliminate certain operations and to save time, labor and expense in the production of sized articles such as hats; to obtain a more even and uniform distribution of size and hence a more uniform and better product.

The invention consists in the construction, arrangement and combination of parts of the apparatus, as hereinafter particularly described and pointed out in the claims.

In the accompanying drawing, illustrating an embodiment of the invention, Figure 1 is a vertical section on the line 1—1, Figs. 2 and 5, of a machine or apparatus especially designed for sizing hats and the like, made of sewed braid such as straw and various kinds of fiber used in the manufacture of hats; Fig. 2 is a plan view of the machine, the hood or cover being omitted and a part of the rotary table or support being broken away; Fig. 3 is a horizontal section on the line 3—3, Fig. 1; Fig. 4 is a section on the line 4—4, Fig. 2, showing a detail of the machine; Fig. 5 is a vertical section on the line 5—5, Fig. 1; Fig. 6 is an enlarged detail view in side elevation of a part of the automatic timing and stopping device with which the machine is provided; Fig. 7 is a section on the line 7—7, Fig. 6; and Fig. 8 is a similar section showing the parts in different positions.

The machine comprises a hollow standard preferably made as shown in Figs. 1 and 5, in two sections, a base section 1, and a cylindrical top section 2.

A circular table or rotary work support 3, is mounted on the top of the standard, with its margin projecting over and beyond the upper edge of the standard. Ball bearings 4, are preferably provided between the table and standard, to partially support and keep the table true. The table is fastened to the upper end of a vertical shaft 5, which has bearings 6 and 7, in the standard, and is provided at its lower end with a bevel gear or pinion 8. The pinion 8 meshes with a bevel gear 9, which is fixed on a sleeve 10, having a bearing 11 in the base of the pedestal, and provided at its outer end with a friction clutch member and brake wheel 12. A horizontal driving shaft 13, passing loosely through the sleeve 10, which affords a bearing therefor, and having another bearing 14, in the opposite side of the base 1, is connected in any suitable manner, as by a belt pulley (not shown) with a motor or source of power. A conical friction clutch member 15, fitting into the member 12, is splined on the shaft 13 and formed with a grooved hub, which is provided with a fork collar 16. The collar 16 is pivotally connected with the upper end of a forked arm 17, loosely mounted on a horizontal shaft 18, which is supported below and transversely to the shaft 13 by bearings in brackets 19, attached to the base 1. A forked arm 20, loosely mounted on the shaft 18 next to the bracket bearings 19, is provided with a brake shoe 21, which is adapted to coöperate with the lower side of the driven clutch member and brake wheel 12. A double lever 22, fixed on the shaft 18 between the clutch shifting arm 17 and the forked brake arm 20, is provided with an adjustable screw 23, arranged to engage with the arm 17, for shifting the driving member 15 into engagement with the driven member 12 of the clutch. A U-bolt 24, adjustably connects the arm 17 with the lever 22, and serves to shift the clutch member 15 out of engagement with the clutch member 12. The lever 22 is provided at its opposite end with an adjustable bolt 25, adapted by engagement with the brake arm 20 to raise the brake shoe 21 into engagement with the driven clutch member and brake wheel 12 when the driving clutch member 15 is shifted out of engagement therewith. A treadle or foot lever 26, is fastened to one end of the shaft 18. A spring 27, shown in Fig. 5, connecting the lever 26 with the base or standard, tends to shift the driving member 15 out of engagement with the driven member 12 of the clutch and to lift and hold the brake shoe 21 against the driven clutch member and brake wheel 12.

To secure the best results and uniformity of product, as well as to facilitate the operation of the machine and relieve the oper-

ator from close attention and constant care, the machine is provided with automatic timing and stopping mechanism, which is made adjustable for varying the duration of the operation on hats or the like of different materials, requiring different treatment according to varying conditions. To this end a sliding latch bar 28, having bearings in opposite sides of the base 1, as shown in Fig. 5, is adapted to lock and hold the foot lever 26 in its depressed position, with the clutch members 12 and 15 in engagement with each other. A spring 29, interposed between a collar 30 on the bar and its rear bearing, tends to thrust the bar forward and hold it in engagement with the lever 26, its forward movement being limited by a collar 31. The front or latch end of the bar is beveled to permit the lever 26 to pass below it. A vertically disposed lever 32, fulcrumed in the base 1, is forked at its lower end, which straddles the latch bar 28 between its front end and the collar 30, and is connected with the base by a retracting spring 32'.

A box or nut holder 33, is pivotally mounted in the upper forked end of the lever 32, as shown in Figs. 6, 7 and 8, the box being formed or provided on opposite sides thereof with pivot pins 34, engaging notches or slots in the fork of the lever. In the box or holder 33, a split nut composed of sections 35, is fitted. The nut sections 35 are provided on opposite sides with pins 36, guided in slots 37, formed in the sides of the box or holder transversely to the axis of the nut, which is fitted to work with a horizontal screw 38, journaled at its ends in bearings 39 and 40 inside of the base section 1 of the standard. The screw 38 is provided adjacent to one end with a worm gear 41, meshing with a worm 42 on the shaft 5. The split nut is opened and closed by a forked lever 43, fulcrumed on the pins 34 between the upper fork arms of the lever 32 and the box or holder 33. The fork arms of the lever 43 are formed with cam slots 44, which engage with the pins 36 on opposite sides of the nut sections, and are adapted to shift them toward each other, closing the nut on the screw 38 when the lever is turned to the right on the pins 34 into the position in which it is shown in full lines in Fig. 6, and to separate them, opening the nut to clear the screw when said lever is turned to the left into the position indicated by dotted lines. The lever 43 is connected with the lever 32 by springs 45, and is provided with weights 46, which tend to hold it in either of its extreme positions and the split nut closed or opened. In the position indicated by dotted lines in Fig. 6, for opening the nut, the springs 45 pass but slightly to the left of the pins 34, so that a little movement of the lever toward the right is sufficient to enable the springs to complete their movement in that direction for closing the nut on the screw 38.

A fixed trip stop 47, is attached to the front screw bearing 40, in the path of the lever 43, and an adjustable trip stop 48, is mounted in the path of said lever on a sliding rod 49, parallel with the screw 38. The rod 49 projects through the front wall of the base 1, in which it is guided, and is formed with an offset eye or collar in which an adjusting screw 50 is swiveled, the screw being threaded parallel with the rod in the base and provided with a knurled head for adjusting the stop 48 backward or forward, to vary the duration of rotation of the table 3.

A size receptacle 51, which may be made of sheet metal, surrounds the upper portion of the standard, resting on an outwardly projecting flange 51', formed on the base section and extends at the top to about or a little above the level of the rotary table 3. At one side of the machine the size receptacle is extended as shown in Figs. 1 and 2, and formed with a sump or well 52, to facilitate dipping up the size with a ladle or dipper and pouring it upon a hat or other article placed on the table 3.

The receptacle 51, including the sump or well 52, is formed with a water or heating jacket 53, which is provided with a steam or heating coil or pipe 54.

Water and steam for preparing size in the receptacle 51 are supplied through pipes 55 and 56, connected with the well and provided with valves 57 and 58. A drain pipe 59 provided with a valve, as shown in Figs. 1 and 2, is connected with the bottom of the sump or well 52, for drawing off the size and emptying the receptacle 51 and the sump or well whenever it is necessary or desirable to do so.

For sizing hats or the like, the machine is provided with blocks or forms 60 of the desired shape or shapes, which are removably fitted to the table 3, as shown in Figs. 1 and 5. These blocks or forms, which are preferably made of metal, such as aluminium, are provided on the under side with tongues or lugs 61 and 62, which are fitted in a groove or channel 63, extending diametrically across the table 3, between two parallel ribs, as shown in Figs. 2 and 5. The groove or channel 63 is bridged adjacent to one end thereof, by a cross piece 64, and the tongue or lug 61 of each block or form 60 is hooked or extended to pass underneath and engage with this cross piece, which also serves as a stop to facilitate placing the blocks or forms in proper position on the table. The tongue or lug 62 on each block or form has a hole which registers with corresponding holes in the ribs on opposite sides of the groove or channel 63, to receive a locking pin 65 pivotally connected with a bar 66, which is

pivoted to the table 3 and is provided with a latch 67 for holding it in locking position against and parallel with one of the ribs on the table, as shown in Figs. 2 and 4.

To catch the size thrown by centrifugal force from the table 3 and the hat or other article thereon, the size receptacle is provided with a hood or cover 68, hinged thereto on the back side, as shown in Fig. 5, and fitting into the top of said receptacle over and around the table 3. On the front side the hood or cover is provided with a handle 69 and a stop for supporting it in its closed position.

To facilitate lifting and opening the hood or cover, a counterweight (not shown) may be connected therewith by a cord 70, as shown in Fig. 5.

To catch and prevent size thrown against the inside of the hood or cover from dripping upon a sized hat or other article upon the table 3 when the hood or cover isi opened, an inwardly projecting gutter 71, is formed around the lower edge of the hood or cover, and terminates or is formed with an opening on the back side adjacent to the hinge for the size to drain back into the receptacle 51.

The heating coil 54 is provided with valves 72 for regulating and controlling the supply of steam to the jacket 53 of the size receptacle 51 and well 52.

In the operation of the machine, for sizing hats, the hats 73 are placed on and shaped to blocks 60, as shown in Figs. 1 and 5, and the blocks are then fastened in place one at a time on the rotary table or support 3, the hood or cover 68 being thrown back or removed for this purpose. The operator, while the table or support 3 is at rest, dips size from the side extension of the receptacle 51 or from the well 52 when the supply runs low, and pours it over the hat on the block. The hood or cover 68 is then closed and the machine is started by depressing the foot lever 26, which is automatically locked by the latch 28 in the position to hold the driving member 15 in engagement with the driven member 12 of the clutch and to hold the brake shoe 21 out of engagement with the driven clutch member and brake wheel 12. The block 60, with the hat 73 thereon, being rapidly rotated with the table or support 3, surplus size is thrown by centrifugal force from the hat against the surrounding hood or cover 68, within which it flows down into the gutter 71, draining back therefrom through the opening in the rear side of the gutter into the annular part of the size receptacle 51 surrounding the standard below the table. The remaining size with which the hat is saturated or completely coated, is evenly distributed.

When the rims of the hats are to be made stiffer than the crowns, requiring size of greater consistency, the crowns and rims are sized by separate operations, as in hand sizing, the crowns being covered and protected by a shield of rubber or the like, when the heavier size or size of greater consistency, is applied thereto.

When the machine is started, the split nut being closed on the screw 38 next to the adjustable trip stop 48, is gradually shifted to the right, as seen in Fig. 5, until the trip lever 43 engages the front trip stop 47 and is turned backward far enough to disengage the nut sections 35 from the screw 38 and carry the springs 45 a little past the pivot pins 34, whereupon the lever 32, being thus released, is instantly retracted by the spring 32′ to its initial position. Just before the split nut is opened by the engagement of the trip lever 43 with the stop 47, the lower end of the lever 32 by engagement with the collar 30, withdraws the latch 28 from engagement with the lever 26, thereby releasing the same and permitting the spring 27 to shift the driving clutch member 15 out of engagement with the driven member 12 and to apply the brake shoe 21 to said driven member, which promptly stops the machine. When the lever 32 is turned back to its initial position by the retracting spring 32′, the trip lever 43, by engagement with the back stop 48, is thrown forward, and the springs 45 coöperating with the weights 46, close the split nut on the screw 38, ready for operation on another hat. With the retraction of the lever 32 by the spring 32′, the lower end of the lever is shifted out of engagement with the collar 30 and the latch 28 being thus released, is returned by the spring 29 to its normal position in the path of the foot lever 26.

The duration of rotation of the table 3 after it is started is thus determined by the time required for the split nut with the trip lever 43 to traverse the screw 38 from the stop 48 to the stop 47, and with any given adjustment of the back stop 48, every hat sized on the machine will be subjected to centrifugal action for exactly the same length of time. Each hat can thus be evenly and properly sized, and any number of hats sized uniformly or alike by an unskilled operator, in an expeditious manner without special care or attention except to saturate or completely and copiously coat them with the proper size taken from the receptacle 51, in which it is kept at the required temperature by the heating coil or pipe 54 in the jacket 53.

Hats or parts of hats of different sizes, shapes and materials, requiring different kinds of size or size of different consistencies, may be subjected to the centrifugal action of the machine for longer or shorter

periods by adjusting the back stop 48 toward or from the front stop 47.

With this machine and by the process herein described, sewed braid hats of the various materials of which such hats are made, are sized on the same blocks on which they are shaped or formed, and after being dried are ready for steaming or moistening and pressing, so that within a day or two at most, from the time they are sewed, they may be properly finished, whereas by the methods heretofore employed in the production of such hats, from five to seven days were required to obtain like results. The slow and tedious operations, as heretofore practised, of sizing by hand preliminary to blocking, and of blocking requiring skill and experience, are eliminated, and a uniform and much better product is obtained with the machine and by the process herein described.

Various changes in the construction and arrangement of parts of the machine and variations in the process may be made without departure from the principle and scope of the invention as defined in the following claims.

I claim:

1. In sizing apparatus the combination of a rotary support, means for rotating said support, a form on which the article to be sized is shaped and held mounted on said support, a size receptacle adjacent said support, a hood adapted to catch size thrown by centrifugal force from an article on said form and to return the same into said receptacle, and means for heating and maintaining at the required temperature size contained in said receptacle.

2. In sizing apparatus the combination of a rotary support, means for rotating said support, a form on which the article to be sized is shaped and held mounted on said support, a size receptacle adjacent said support, a removable hood adapted to catch size thrown by centrifugal force from an article on said form and to return the same into said receptacle, and means for heating and maintaining at the required temperature size contained in said receptacle.

3. In sizing apparatus the combination of a rotary support, means for rapidly rotating the support, a form on which the article to be sized is fitted and held in shape, means for detachably fastening and holding the form in a definite position on the support, a receptacle adapted to catch size thrown by centrifugal force from the article spun with the form on said support, and means for automatically stopping and timing the rotation of the support.

4. In sizing apparatus the combination of a rotary table having a vertical axis, means for rapidly rotating the table, a form removably fastened to said table and adapted to retain articles to be sized thereon in shape, a size receptacle surrounding said table, and a hood hinged to said receptacle and provided around its lower edge which closes into the top of the receptacle, with an inwardly projecting gutter having an opening into the receptacle adjacent to the hinge.

5. In sizing apparatus the combination of a rotary table having a vertical axis, means for rapidly rotating said table, means for securing articles to be sized on the table and retaining them in their final shape, a jacketed size receptacle surrounding the table and extended on one side thereof and provided on the extended side with a sump or well, means for supplying the jacket of the size receptacle with heat, and a removable hood fitting into the top of the size receptacle around the table.

6. In sizing apparatus the combination of a hollow standard, a rotary table mounted on said standard and provided with a depending shaft having bearings in the standard, a form removably mounted on the table, means for rapidly rotating the table, a size receptacle surrounding the table, and a removable hood-like cover fitting over said receptacle around said table and form.

7. In sizing apparatus the combination of a standard, a rotary table mounted thereon and having a vertical axis, means for rapidly rotating the table, a removable form for holding articles to be sized on the table, a size receptacle surrounding said table and adapted to catch size thrown therefrom by centrifugal force, and means for determining the duration of rotation of the table.

8. In sizing apparatus the combination of a standard, a rotary table mounted thereon and provided with a vertical shaft having bearings in the standard, a removable form for detachably securing articles to be sized on the table, a size receptacle surrounding said table and having a removable cover for catching size thrown from the table by centrifugal force, a driving shaft having a gear and clutch connection with the table shaft, a brake for stopping the table, and a lever for disengaging the clutch and applying the brake, and vice versa.

9. In sizing apparatus the combination of a standard, a rotary table mounted on said standard and provided with means for securing articles to be sized in place on the table, a size receptacle provided with a removable closure surrounding the table and adapted to catch size thrown therefrom, a driving shaft having a gear and clutch connection with the table, a lever for operating the clutch, a spring connected with the lever and tending to throw the clutch out of engagement, a latch working with said lever to hold the clutch in engagement, and an au-

tomatic timing device adapted to disengage the latch and release said lever when the table has run a certain length of time.

10. In sizing apparatus the combination of a standard, a table rotatably mounted thereon and having a vertical axis, a size receptacle surrounding the table and having a removable cover adapted to catch size thrown from the table, a removable form for securing articles to be sized on the table, a driving member, means for connecting and disconnecting the driving member and table, and an automatic timing device arranged to stop the table after it has run a certain length of time.

11. The combination of a standard, a table rotatably mounted thereon, a removable form for holding articles to be sized in place on the table, a size receptacle surrounding the table and adapted to catch size thrown therefrom, a driving member, means for connecting and disconnecting the table and driving member, and an adjustable timing device for stopping the machine after it has run a certain length of time and for varying the duration of its operation.

12. In sizing apparatus the combination of a standard, a table rotatably mounted thereon, means for rapidly rotating the table, a removable form for holding articles to be sized in place on the table, a size receptacle surrounding the table and upper part of the standard and extended at one side thereof and provided with a well and with a heating jacket, and a removable hood fitting into the upper part of said receptacle around and over the table.

13. In sizing apparatus the combination of a standard, a table rotatably mounted thereon, means for rapidly rotating the table, a removable form for holding articles to be sized in place on the table, a size receptacle provided with a water jacket containing a heating coil and with a sump or well at one side having valve controlled water and steam supply connections, and a removable closure surrounding the table and adapted to catch size thrown therefrom.

14. In sizing apparatus the combination of a hollow standard, a rotary table mounted on and projecting beyond the upper end of said standard and provided on its upper face with a groove or channel, a form provided with a tongue removably fitted in said groove or channel, means for fastening the block in place on the table, means for rapidly rotating the table, and a size receptacle and closure surrounding the table and adapted to catch and hold size thrown from the table and articles placed thereon.

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

ALBERT SLOCUM.

Witnesses:
CHAS. L. GOSS,
ALICE E. GOSS.