No. 705,666. Patented July 29, 1902.

C. C. GRIDLEY.

COLLAR TURNING AND IRONING MACHINE.

(Application filed Sept. 8, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1

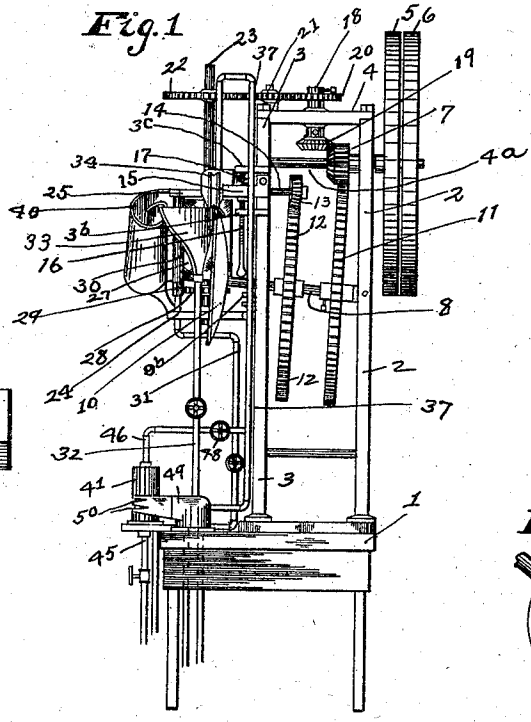


Fig. 12.

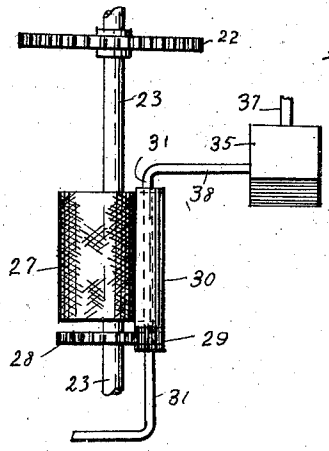


Fig. 5

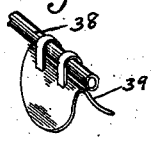


Fig. 3

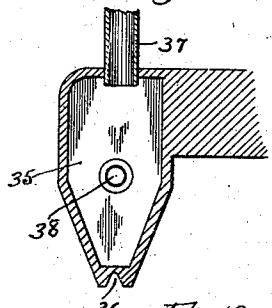


Fig. 13

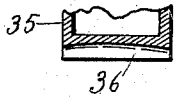


Fig. 2

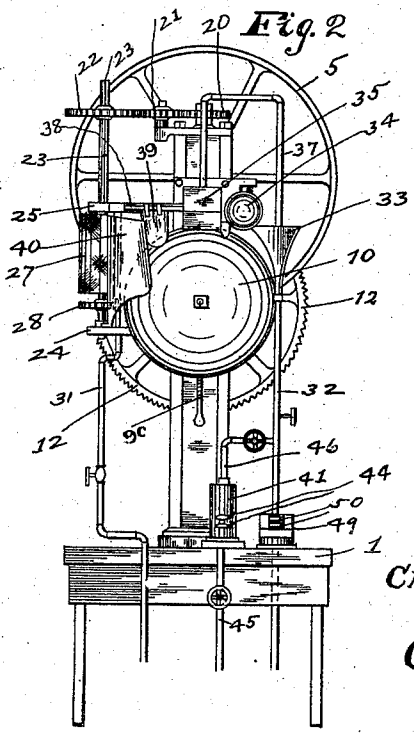
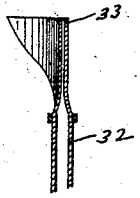


Fig. 4



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(No Model.) 2 Sheets—Sheet 2.

Fig. 6

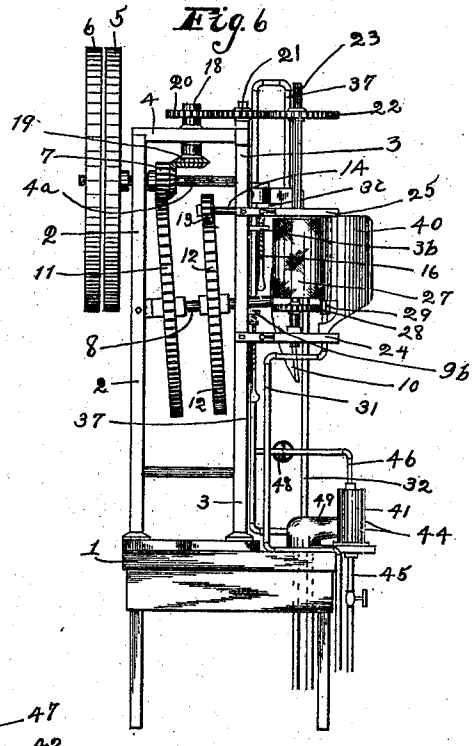


Fig. 7

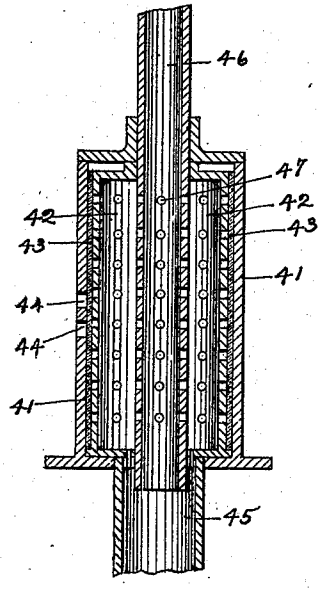


Fig. 8

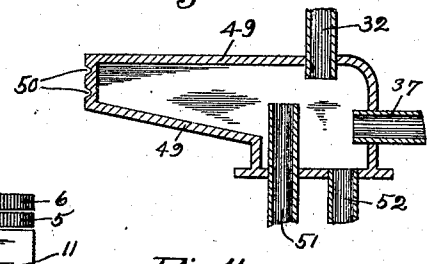


Fig. 9

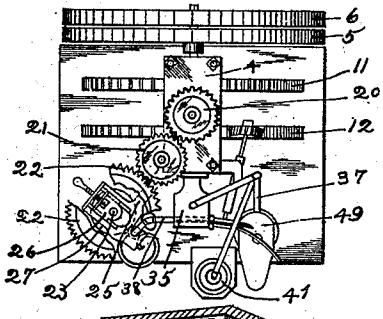


Fig. 11

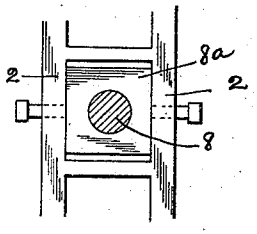
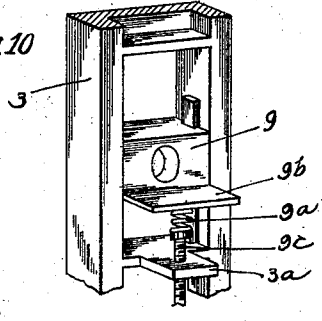


Fig. 10



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UNITED STATES PATENT OFFICE.

CHARLES C. GRIDLEY, OF COLUMBUS, OHIO.

COLLAR TURNING AND IRONING MACHINE.

SPECIFICATION forming part of Letters Patent No. 705,666, dated July 29, 1902.

Application filed September 8, 1900. Serial No. 29,428. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. GRIDLEY, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Collar Turning and Ironing Machines, of which the following is a specification.

My invention relates to the improvement of collar turning and ironing machines, and has particular relation to machines for turning and ironing the folds of lay-down collars; and the objects of my invention are to provide an improved mechanism of such construction as to not only turn or fold a lay-down collar, but to iron the fold or folded edge thereof and to so construct said device as to perform this operation rapidly and effectively. These objects I accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my improved machine. Fig. 2 is a front view of the same. Fig. 3 is a central vertical section of an ironing device which I employ in the manner hereinafter described. Fig. 4 is a central vertical section of the collar-fold dampening and shaping device. Fig. 5 is a detail view in perspective of a collar-guide employed in the manner hereinafter described. Fig. 6 is a view in elevation of the machine taken from the opposite side from that shown in Fig. 1. Fig. 7 is an enlarged central vertical section of a collar-edge-dampening device employed in the construction of the machine. Fig. 8 is a similar view of a collar-edge-ironing device used in conjunction with said dampening device. Fig. 9 is a plan view of the machine. Fig. 10 is a detail view in perspective of a portion of one of the frame-standards with an adjustable shaft-bearing therein. Fig. 11 is a view in elevation of a portion of the rear frame-standard, illustrating the manner of journaling one of the wheel-carrying shafts therein. Fig. 12 is a detail view in elevation showing the smoothing-roll and cylinder and the fixed ironing-head which I employ in the manner hereinafter described, and Fig. 13 is a longitudinal sectional view of the ironing-head shown in Fig. 3.

Similar numerals refer to similar parts throughout the several views.

1 represents a table or framework upon which my improved mechanism is mounted. Rising from this table are rear and forward frame-standards 2 and 3, said standards being connected by a top plate 4. Journaled transversely in the upper portions of the frame-standards 2 and 3 is a shaft 4^a, upon the rear end portion of which are mounted fixed and idle belt-wheels 5 and 6. Upon the shaft 4^a between said frame-standards is carried a pinion 7, the forward face of which is formed with bevel gear-teeth, as shown. Below the shaft 4^a is arranged a normally-inclined transverse shaft 8, the rear end of the latter being journaled in a block 8^a, which, as indicated in Fig. 11 of the drawings, is pivoted in the rear standard 2. The forward end portion of the shaft 8 is journaled in and extends through a vertically-sliding block 9, which, as shown in Fig. 10 of the drawings, is adjustably supported in a vertically-slotted portion of the front standard 3. This journal-block 9 is supported on the upper end of a spring 9^a, which bears between the under side of an outwardly-projecting lip 9^b of said block and the head of an adjusting-screw 9^c, which works in a threaded opening in a standard lip projection 3^a. On its outer or forward end the shaft 8 carries a concavo-convex disk 10, which owing to the normal inclination of the shaft 8 is slightly inclined, as shown. The shaft 8 carries on its rear portion a gear-wheel 11, which gears with the pinion 7, and in front of said wheel 11 said shaft carries a gear-wheel 12, the upper side of which gears with a pinion 13, mounted on the rear end portion of a transverse shaft 14. The shaft 14 is journaled in a forwardly-projecting bearing-block 15, the rear end portion of which is pivotally connected with the standard 3. This bearing-block 15 has its outwardly-projecting portion adjustably supported on the upper end or head of a vertical adjusting-screw 16, which works through the threaded opening in a standard projection 3^b. Between the upper side of the bearing 15 and the under side of a projecting lip 3^c of the standard 3 is interposed a coiled spring 17. Journaled in the top frame-plate 4 is a short

vertical shaft 18, which on its lower end carries a bevel gear-wheel 19 and on its upper end a gear-wheel 20. Through the medium of a connecting gear-wheel 21 the wheel 20 is connected with a gear-wheel 22, which is carried on the upper end portion of a vertical shaft 23. This shaft 23 is journaled in the forward standard-arms 24 and 25. These standard-arms 24 and 25 are provided, as indicated in Fig. 9 for the standard-arm 25, with suitable forms of adjustable bearing-blocks 26, in which said shaft is journaled. Upon the shaft 23 is carried a cloth-covered roll 27, and on the lower portion of said shaft is carried a gear-wheel 28, which gears with a pinion 29 on the lower end portion of a vertical cylinder 30, the latter being journaled on the vertical upper portion of a steam-pipe 31. Mounted on the upper end of a vertical steam-supply pipe 32 at the right of the disk 10 is a concavo-convex flaring head 33, this head having a vertical passage therethrough, which communicates at its base with the pipe 32. The curved head thus formed has one of its points extending to a point beneath and in close proximity to the under side of a grooved guide or pressure wheel 34, which is carried on the outer end of the shaft 14. Adjacent to this wheel 34 and having its grooved or notched under side receiving loosely the upper edge portion of the disk 10 is an ironing-head 35, the under side notch or groove therein being indicated at 36 and being curved to conform to the curve of the disk 10, as shown in Fig. 13. This fixed ironing-head is, as indicated more clearly in Fig. 3, hollow and has leading therein a steam-supply pipe 37. Said ironing-head is also provided with a laterally-extending outlet steam-pipe arm 38, which is connected in its upper end portion with the pipe 31. To the left of and adjacent to the ironing-head 35 I suspend from the pipe-arm 38 an angular or inverted V-shaped guide-plate 39. (See Fig. 5.) Supported from the frame-arm 24 is a vertically-arranged coiled shaping and discharging plate 40.

Upon the forward portion of the table 1 or on a forward extension thereof I may employ a dampening device, which comprises a vertical cylindrical body 41, within which is arranged a perforated cylinder 42 and between which and the cylinder 41 is a suitable packing of cloth or similar material 43. The external cylinder 41 is provided on its forward side with transverse openings 44. Through the upper end of the cylinder 41 and through the cylinder 42 to a lower outlet-pipe 45 leads a pipe-arm 46, the latter having its inclosed portion perforated, as shown at 47. This pipe-arm 46 preferably leads from the pipe 37 and is provided with a regulating-valve 48.

Arranged on the table 1 is a forwardly-projecting hollow ironing-head 49, the forward end of which is in alinement with the forward side of the cylinder 41 and is provided with transverse ironing-recesses 50. The ironing-head 49 is provided with a steam-supply pipe 51 and an outlet or exhaust pipe 52. The lower ends of the pipe 37 and the pipe 32 lead from said ironing-head 49.

It is obvious that through the belt connection with the wheel 5 rotary motion is imparted to the various shafts, gear-wheels, and parts carried by said shafts.

In utilizing my invention a turn-down collar, which is ordinarily first ironed flat, is run over the upper curved edge of the turner 33, the seam or line joining the front and rear sections of the collar being thus sufficiently dampened by the steam escaping from the turner 33 to break the starch and permit the two sections of the collar to be bent at angles to each other. From this turner-head the collar is fed beneath the guide-wheel 34 until its seam or central portion is embraced between the disk 10 and the ironing-head 35. The passage of the collar between these last-mentioned devices results in the folded portion thereof being ironed and in the collar assuming its properly-turned shape. Passing between the wings of the guide-plate 39 the collar is first ironed or smoothed between the heated cylinder 30 and the cloth-covered roll 27, from which it is fed into the coiled or curled shaping-plate 40 and the desired curl imparted thereto before it is allowed to drop through the latter. In order to impart a smooth edge surface to standing collars or cuffs the edges of which have become worn or rough, the collar or cuff edges may be dampened by running the same through the notches 44 of the dampening-cylinder 41, thence through the notches 50 of the ironing-head 49. In this manner ragged or rough edged collars or cuffs are readily ironed smooth. It will also be observed that by turning the adjusting-screw 16 the height or elevation of the guide-wheel 34 may be regulated.

From the construction above described it will be seen that a reliable mechanism is provided for not only turning or folding a collar, but for ironing the same into the folded form, imparting the desired curl or curvature thereto and dampening and ironing the edges of collars and cuffs which have become worn or rough.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a collar turning and ironing machine, the combination with a framework, a curved turner-head 33 having a steam-passage therethrough, a rotating grooved collar-guide wheel 34 adjacent to said turner-head and a fixed hollow ironing-head 35 having an under side groove and having a steam-pipe connection therewith, of a rotating disk 10 having its edge portion adapted to turn through the groove of said ironing-head, substantially as specified.

2. In a collar turning and ironing machine, the combination with a framework, a curved turner-head 33 having a steam-passage therethrough, a rotating grooved guide-wheel 34 adjacent to said turner-head, a fixed hollow steam-supplied ironing-head 35 having a grooved under side and rotating concavo-convex disk 10 having its edge running through said ironing-head groove, of a steam-heated journaled cylinder 30 and a rotating cloth-covered roll adjacent thereto, substantially as specified.

CHARLES C. GRIDLEY.

In presence of—
C. C. SHEPHERD,
A. L. PHELPS.