

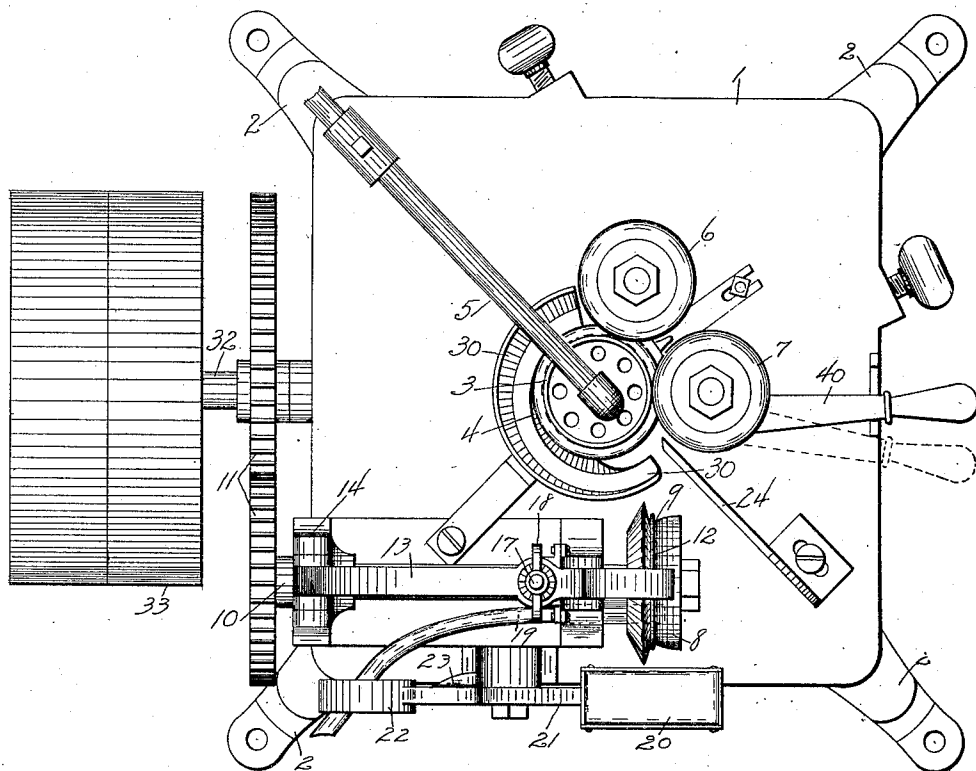
E. H. WORTHINGTON.
FOLD COLLAR SHAPING MACHINE.
APPLICATION FILED JULY 29, 1903.

1,016,312.

Patented Feb. 6, 1912.

3 SHEETS—SHEET 1.

FIG 1



WITNESSES

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By Mosher & Curtis
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3 SHEETS—SHEET 2.

FIG 2

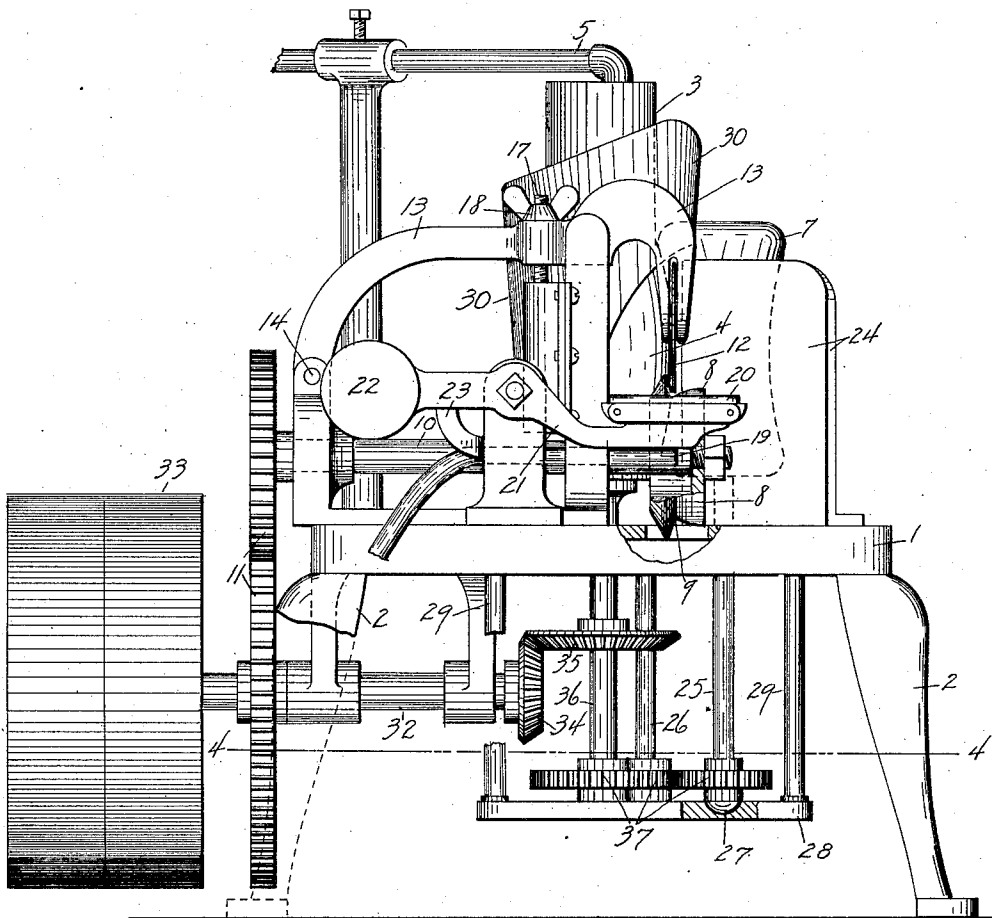
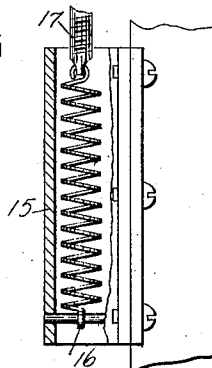


FIG 3



WITNESSES

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3 SHEETS—SHEET 3.

FIG 4

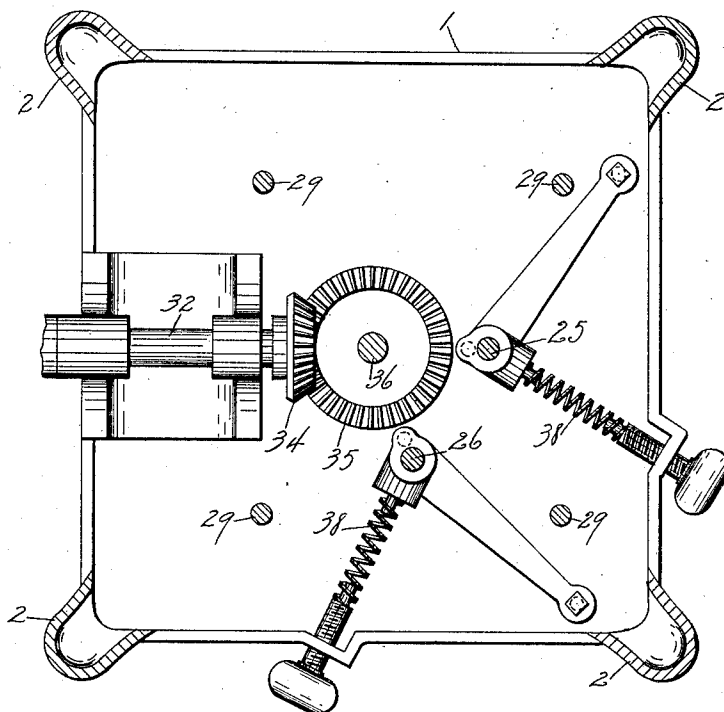
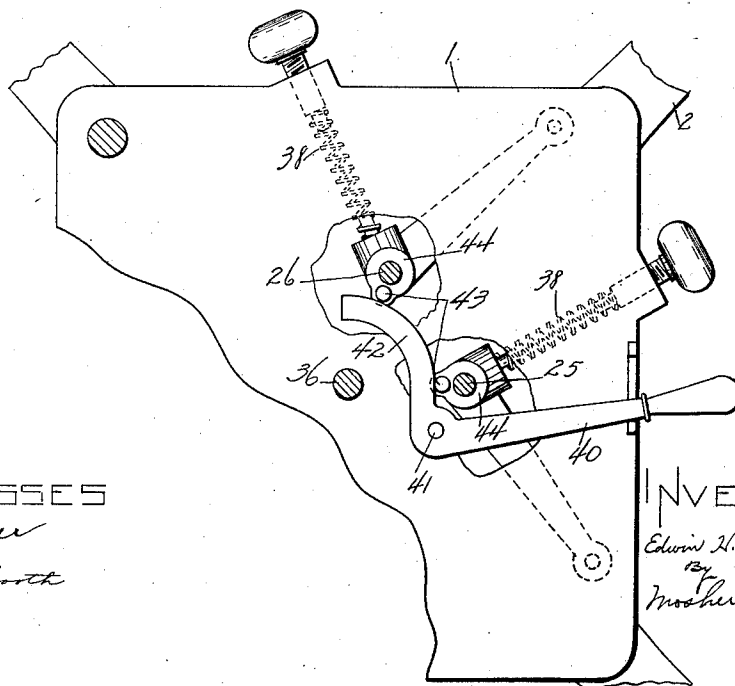


FIG 5



WITNESSES

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UNITED STATES PATENT OFFICE.

EDWIN H. WORTHINGTON, OF TROY, NEW YORK, ASSIGNOR TO ALBERT E. GRANT, OF TROY, NEW YORK.

FOLD-COLLAR-SHAPING MACHINE.

1,016,312.

Specification of Letters Patent.

Patented Feb. 6, 1912.

Application filed July 29, 1903. Serial No. 167,396.

To all whom it may concern:

Be it known that I, EDWIN H. WORTHINGTON, a citizen of the United States, residing at Troy, county of Rensselaer, and State of New York, have invented certain new and useful Improvements in Fold-Collar-Shaping Machines, of which the following is a specification.

The invention relates to such improvements and consists of the novel construction and combination of parts hereinafter described and subsequently claimed.

Reference may be had to the accompanying drawings, and the reference characters marked thereon, which form a part of this specification. Similar characters refer to similar parts in the several figures therein.

Figure 1 of the drawings is a top plan view of my improved collar-shaping machine. Fig. 2 is a view in front elevation of the same. Fig. 3 is a view partly in vertical section showing the spring for yieldingly forcing the disk toward the folding roll. Fig. 4 is a view in horizontal section taken on the broken line 4—4 in Fig. 2 showing a bottom plan view of the bed of the machine. Fig. 5 is a top plan view of the bed of the machine partly broken away.

This invention relates to improvements upon the machine shown and described in U. S. Letters Patent No. 672,188 issued to Albert E. Grant and John H. Van Hoevenbergh, August 16, 1901, for improvements in fold-collar-shaping machines, to which patent reference may be had for a more complete understanding of the present invention.

The objects and nature of the invention will appear in connection with the following description.

Referring to the drawings, 1, is the bed of the machine supported upon legs, 2, and having rotatively mounted thereupon the hollow shaping roll preferably having the cylindrical upper end, 3, and bulged or swelled to frusto-spherical form near its lower end at 4. This roll may be heated in any known manner as by gas-heating apparatus, 5, extending interiorly thereof through the upper open end of the roll. As a means for bending a folded collar around this shaping roll a pair of clothed pressing rolls, 6 and 7, are provided each rotary upon a vertical axis contiguous to the shaping roll and in position to press and hold an inserted

collar against the shaping roll until the spirally curved shape is permanently imparted to the collar. The conical guide, 30, assists in bending the collar to spiral form around the shaping roll and afterward delivering the same from the shaping roll. Rotary movements may be imparted to the shaping and pressing rolls in any known manner and in the preferred form of my invention, said rolls serve to accomplish or assist the feed-movement of the collar through the machine.

I have shown a driving shaft, 32, mounted in bearings on the frame of the machine and provided with a belt-pulley, 33, adapted to receive a driving belt not shown. A bevel-gear, 34, on the drive shaft meshes with a like gear, 35, upon the shaft, 36, which supports the shaping roll; and intermeshing gears, 37, on the respective roll-shafts cause rotary movements to be imparted to the pressure or feed-rolls in the usual manner.

The construction thus far described is substantially the same as that shown and described in said prior patent.

Located in advance of the shaping roll is a folding roll, 8, provided with a peripheral groove, 9, said roll being hollowed out to receive the gas-burner, 19, whereby the same is heated. This folding roll is fixed upon the horizontal shaft, 10, to which rotary movements are imparted from the drive-shaft, 32, through the intermeshing gears 11. In the construction shown, the folding-roll and disk, 12, serve to accomplish or assist the feeding of the collar through the machine. The disk, 12, rotatory in the plane of the folding-roll-groove, 9, is rotatively mounted upon the end of arm, 13, pivoted at, 14, upon the frame of the machine. The coil-spring, 15, is connected at its lower end at, 16, with the stationary part of the machine, and has its upper end connected with the screw, 17, which passes upwardly through the arm, 13, and is provided on its upwardly projecting end with a thumb-nut, 18, whereby the tension of the spring can be varied to force the arm and its supported disk, 12, downwardly toward or against the grooved folding roll 8. The disk, 12, is thus adapted to force tightly into the peripheral groove of the folding roll the folded edge of the collar inserted between said disk and roll, the disk being very thin and

occupying a position between the top and band of the collar without interfering with the folding operation thereupon. The disk is thus located in the plane of the folding-roll-groove.

In advance of the folding-roll is a moistening pad, 20, mounted upon one end of the lever, 21, the other end of which is provided with a weight, 22, whereby said pad is yieldingly supported in the path of the outer side of the folded edge-portion of the collar as the same passes to the folding-roll, the engagement of the collar with said moistening pad serving to slightly depress the pad and pad-supporting end of the lever 21. The weighted end of the lever is adapted to engage a stationary offsetting arm or bracket, 23, whereby the weight-induced movement of the lever is limited. The moistening pad may be moistened from time to time as necessity requires.

The operation of folding and shaping collars by means of this improved machine is as follows:—The fold-collar, which has been ironed out flat in the usual manner, is loosely folded up by hand and inserted into the machine in inverted position, its end being slid along over the moistening pad and then between the folding roll, 8, and presser-disk, 12, whereby the folded edge which has been dampened by contact with the moistening pad is forced down into the peripheral groove in the folding-roll into contact with the heated surface of said roll, which serves to convert into steam the moisture taken by the collar from the moistening pad which thus acts to soften the collar along its fold-line, making the same easily pliable. The folding roll also serves to iron said folded edge of the collar. The collar after passing the folding roll is directed between the shaping roll and the pressing rolls, 6 and 7, whereby the collar is wound spirally around the shaping roll from which it is delivered over the guide, 30, in the usual manner. The obliquely disposed guide, 24, assists in directing the first inserted end of the collar between the shaping roll and presser-rolls. By employing the presser-disk, 12, located in the plane of the folding-roll-groove, the collar in passing said roll and presser disk is maintained in an approximately straight position so that its plies along the folded edge are given an opportunity to become softened by the heat and moisture before the folded edge is crushed between the shaping and presser-rolls and before the spiral

form is imparted to the collar. The spindles 25 and 26, on which the clothed presser-rolls are mounted, have a ball-and-socket step-bearing at 27; in the plate, 28, rigidly supported by rods, 29, from the bed of the machine, the bed being provided with slots not shown through which said spindles pass to permit a rocking movement of said spindles to cause the presser-rolls mounted thereupon to approach and recede from the shaping roll. The presser rolls are held to their work by means of the coil springs 38. Separation of the clothed presser-rolls from the heated shaping roll can be accomplished by means of a hand-lever, 40, fulcrumed at, 41, upon the bed of the machine and provided with a cam, 42, adapted to engage pins, 43, on the sleeve-bearings, 44, through which the respective spindles of the clothed rolls are passed.

What I claim as new and desire to secure by Letters Patent is—

1. In a machine for shaping fold-collars, the combination with a grooved heated member; and a moistening pad yieldingly supported in the path of the folded edge of an inserted collar in advance of said heated member; of mechanism adapted to enter within the fold of the collar for forcing the folded edge of said collar to the bottom of said groove and against said pad.

2. In a machine for shaping fold-collars, the combination with a grooved heated member; a yielding support; and a moistening pad mounted upon said yielding support in the path of the folded edge of the collar in advance of said heated member; of mechanism for forcing the folded edge of an inserted collar to the bottom of said groove and against said pad.

3. In a machine for shaping fold-collars, the combination with a rotary roll having a peripheral groove; and a dampening pad yieldingly supported in advance of said roll; of a disk rotatory in the plane of the roll-groove adapted to force the folded edge of an inserted collar to the bottom of said groove and against said pad; a support for said disk movable toward and from said roll; and yielding mechanism for forcing said support and disk toward the roll.

In testimony whereof, I have hereunto set my hand this 22nd day of July, 1903.

EDWIN H. WORTHINGTON.

Witnesses:

FRANK C. CURTIS,
E. M. O'REILLY.