No. 625,966. Patented May 30, 1899.

C. E. CARPENTER.

IRONING MACHINE.

(Application filed Dec. 10, 1898.)

(No Model.)

FIG. 1.

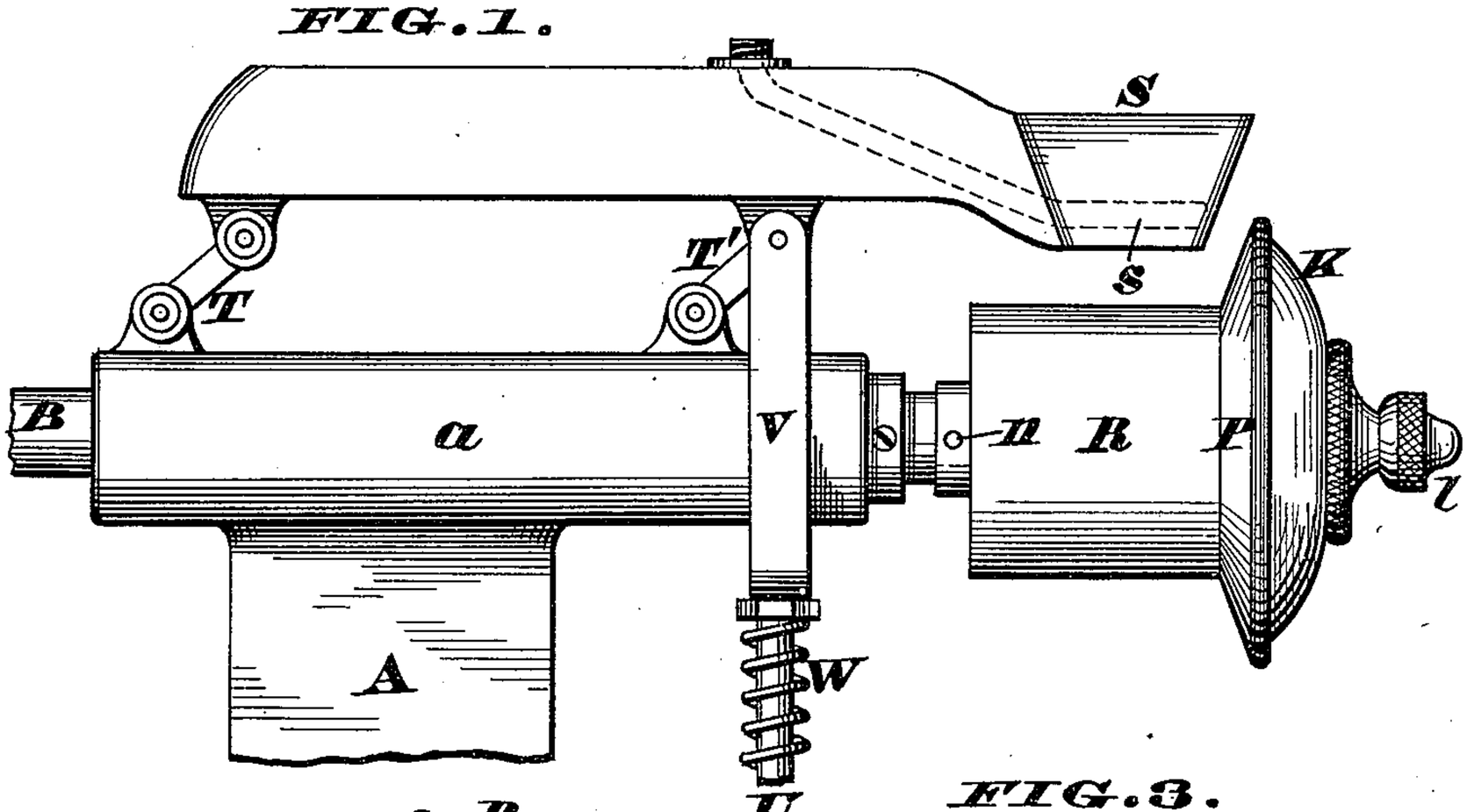

FIG. 2.

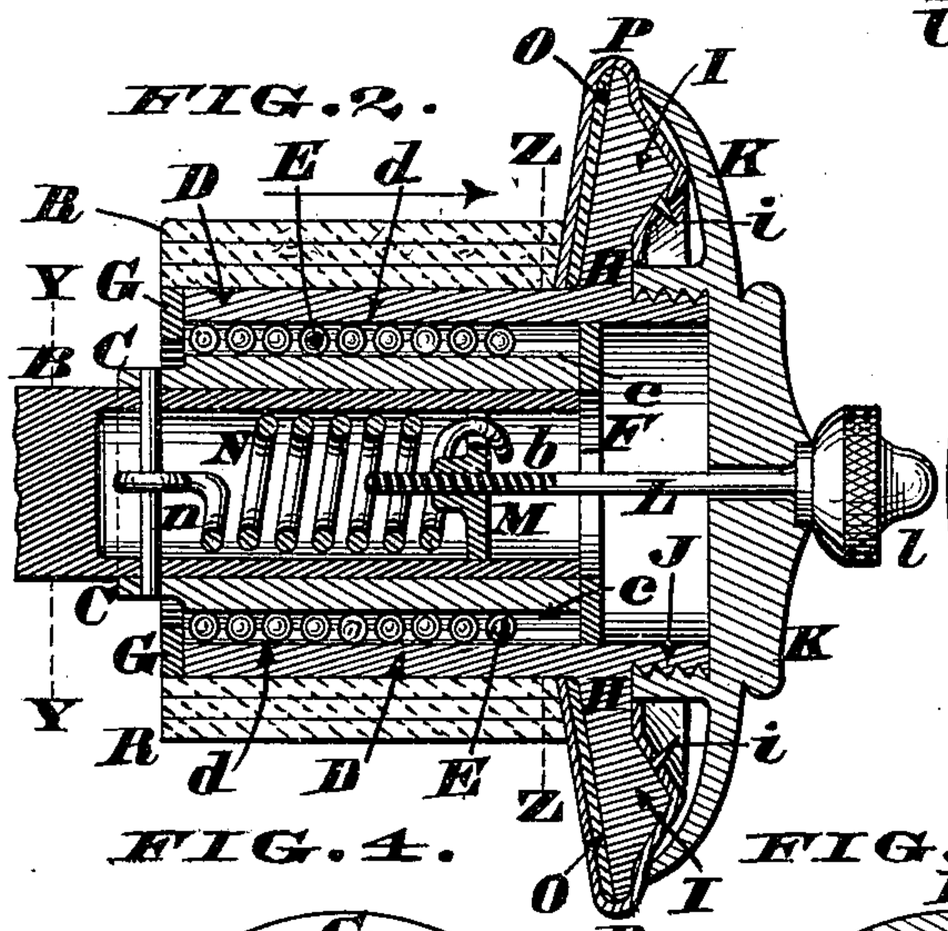

FIG. 3.

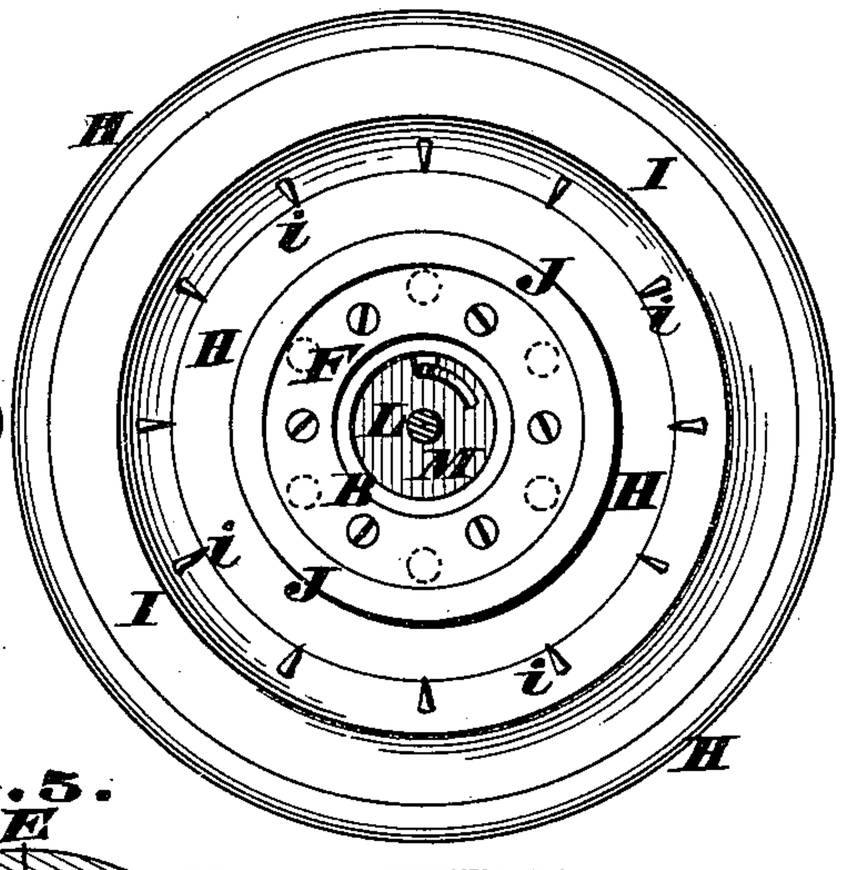

FIG. 4.

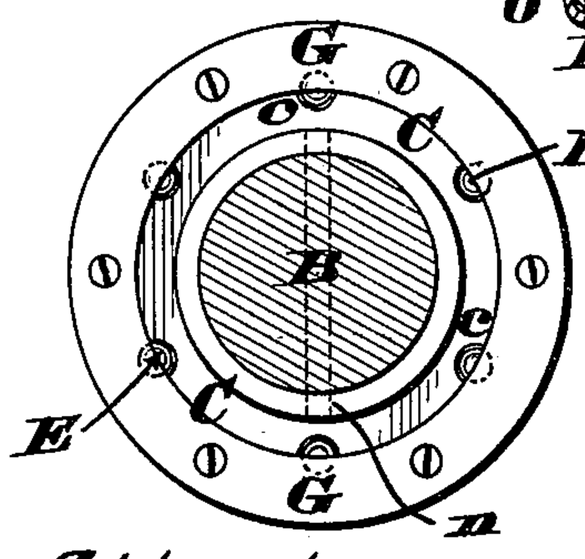

FIG. 5.

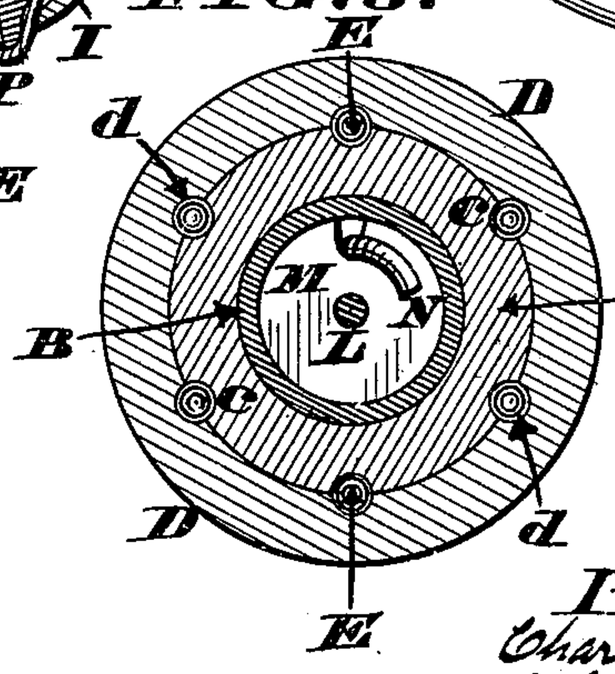

FIG. 6.

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CHARLES E. CARPENTER, OF CINCINNATI, OHIO.

IRONING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 625,966, dated May 30, 1899.

Application filed December 10, 1898. Serial No. 698,836. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. CARPENTER, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Ironing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to those ironing-machines having neckband-rolls capable of automatically shifting longitudinally of their driving-shafts; and my improvement comprises a novel combination of devices for enabling such shifting to be effected promptly and with the least possible friction. To accomplish this result, I provide the roll proper with a cylindrical longitudinal bore adapted to surround a cylindrical sleeve rigidly secured to the driving-shaft. Semicircular grooves are made along the meeting surfaces of said roll and sleeve, and these grooves are provided with hard-metal balls capable of rolling within said grooves, but incapable of escaping from them. Furthermore, that end of the driving-shaft upon which the roll is mounted is chambered out to admit a coiled spring having one end secured to said shaft and its other end fastened to a nut, wherewith is engaged a screw whose head bears against a cap. This cap is applied to a head of the roll, so as to hold a cloth covering of the same in place, and by properly turning the screw the tension of the spring is regulated to suit special requirements of the machine.

As a result of the above-described construction the rotary motion of the driving-shaft is imparted to the roll, while at the same time it is free to shift longitudinally a slight distance when subjected to the pressing action of a heated iron; but as soon as this pressure is relaxed the spring at once restores said roll to its normal position, as hereinafter more fully described.

In the accompanying drawings, Figure 1 is a side elevation of a portion of an ironing-machine provided with my improved neckband-roll. Fig. 2 is an enlarged longitudinal section through the operative parts of said roll. Fig. 3 is an end elevation of the roll-head. Fig. 4 is a transverse section of the driving-shaft, taken at the line Y Y of Fig 2. Fig. 5 is a similar section of the roll, taken at the line Z Z of Fig. 2, certain blanket wrappings of said roll being omitted. Fig. 6 is an end elevation of the grooved sleeve detached from the roll and shaft.

Referring to Fig. 1, A represents the upper part of the main frame of an ironing-machine of the class specified, and *a* is an elongated bearing, within which is journaled the driving-shaft B. Rigidly secured upon this shaft, either by shrinking, soldering, keying, or otherwise, is the cylindrical sleeve C, whose exterior has any suitable number of longitudinal grooves *c*, which are substantially semicircular in transverse section, as more clearly shown in Fig. 6. Adapted to fit snugly but not tightly around this sleeve is the roll proper, D, having longitudinal grooves *d*, which are the counterparts of those *c* of the sleeve. Adapted to traverse these coincident grooves *c d* are steel or other hard-metal balls E, which do not completely fill up said grooves from end to end. Sufficient unoccupied space must be left in the grooves for the balls to roll in when the roll is shifted. The balls are retained in place by one ring F, bolted to the end of sleeve C, and another ring G, bolted to the end of the roll D, which latter has an integral annular head H, provided with a ridge-shaped annular bead I, from the inner surface of which project pins *i*. In addition to this head the roll has an integral neck J, screw-threaded externally to permit the engagement of a cap K of practically the same diameter as the head H. Bearing against this cap is the head *l* of a thumb-screw L, whose threaded portion is engaged with a nut M, adapted to traverse a cylindrical chamber *b* in the end of driving-shaft B, the nut having secured to it one end of a coiled spring N, whose other end is fastened at *n* to said shaft.

O is a piece of felt applied to the inclined surface of the head H, and P is a muslin cover fitted over said felt and having its margin secured by the pins *i* in the usual manner.

R is a blanket padding coiled around the roll.

S is a smoothing-iron adapted to be heated by gas-jets issuing from a burner *s*. This iron is jointed to the bearing *a* by links T T′ and

is depressed by a treadle-rod U, attached to a yoke V, a spring W, coiled around said rod, serving to maintain said iron in its normally-elevated position. (Shown in Fig. 1.)

From the above description it is evident that any rotation of the shaft B must carry the sleeve C around with it, and as the balls E cannot escape from the grooves *c d* it is also evident that the roll D must turn in unison with said sleeve. Therefore when a neckband is applied to the padded roll D P and the treadle-rod U depressed the heated iron S is brought to bear very firmly upon said band. Consequently the band is carried around by the roll and is smoothed in the most expeditious and uniform manner by the iron S. Then by releasing the treadle its rod U is raised, the iron S elevated, and the collar-band is at once disengaged from the roll.

In ironing up close to the junction of a neckband with a shirt-body the tendency of the garment is to wedge in between the roll-head H and the iron S, and unless some provision were made for automatically and instantly arresting this wedging action considerable delay and damage would be the result. As soon, however, as any material pressure is exerted against the head the roll travels along on its numerous ball-bearings in the direction of the arrow shown in Fig. 2, and thus immediately relieves such pressure. Again, as soon as the pressure is removed the spring N at once pulls the roll back to its normal position. It will thus be seen that the balls E while serving as devices that impart to the roll a positive rotary motion from the driving-shaft without the possibility of any circumferential slipping yet enable said roll to shift longitudinally a sufficient distance to prevent damage either to the machine or to the garments ironed on it.

Finally, in Fig. 2 one end of the spring N is shown attached to the same transverse pin *n* that secures the sleeve C to shaft B; but this construction is not essential to the proper working of the machine, as said spring can be secured to any other fixture of said shaft.

I claim as my invention—

1. In an ironing-machine, a longitudinally-shiftable neckband-roll; a shaft upon which it is mounted; grooved bearings between said roll and shaft; balls housed within said grooves; and a spring that retains said roll in its normal position, substantially as herein described.

2. In an ironing-machine, the driving-shaft B, having at one end a chamber *b*, a sleeve C secured to said shaft, and provided with a series of longitudinal grooves *c;* a neckband-roll D mounted upon said sleeve, and provided with a corresponding series of longitudinal grooves *d;* balls E housed within said grooves; rings F, G, that retain said balls in place; a cap K applied to one end of said roll, and traversed by an adjusting-screw L, a nut M with which said screw is engaged; and a retracting-spring N, that pulls against said nut; said devices M and N being fitted within the chamber *b*, all as herein described, and for the purpose stated.

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

CHARLES E. CARPENTER.

Witnesses:

JAMES H. LAYMAN,

JESSE M. SIMON.