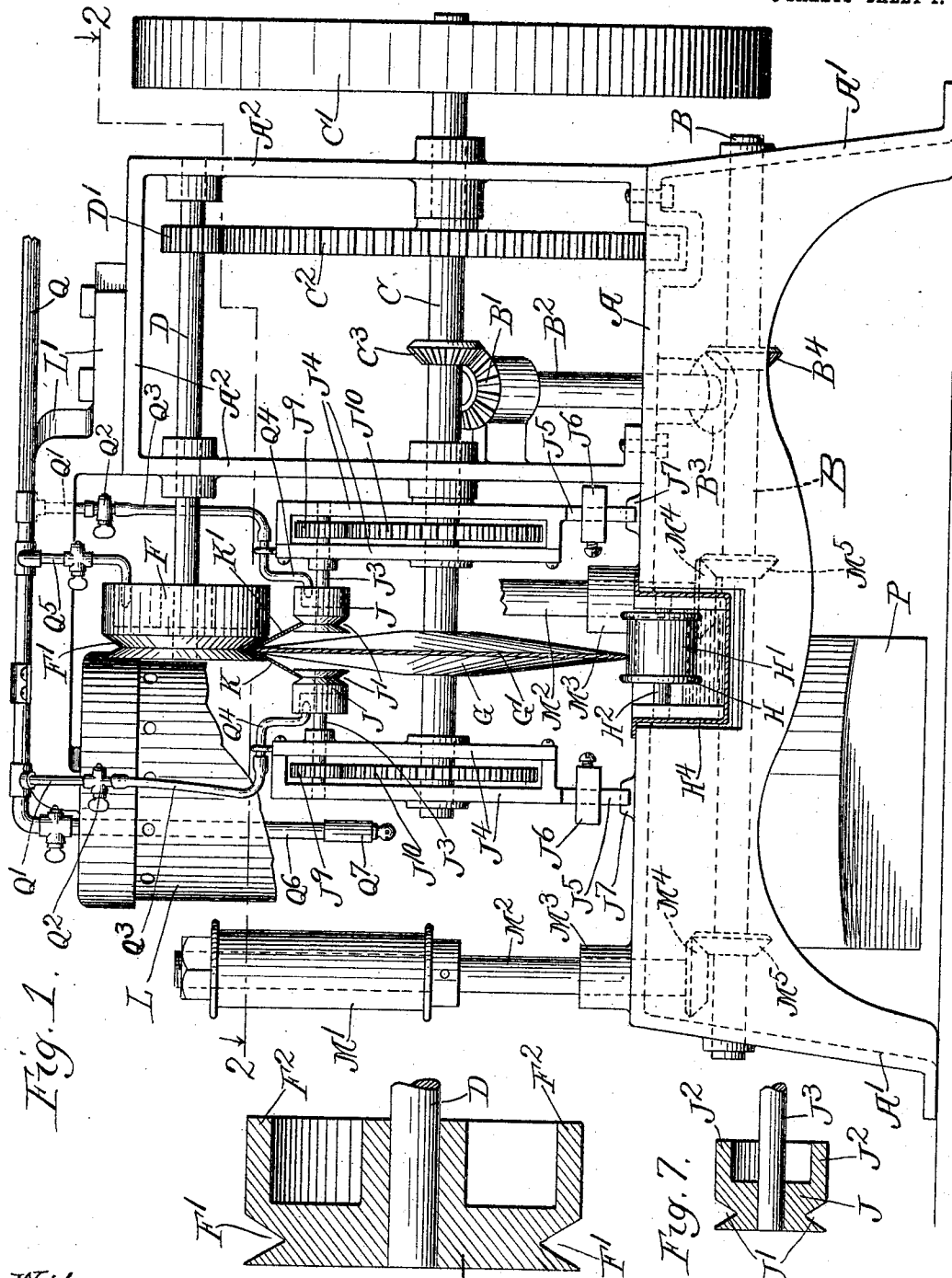


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 IRONING MACHINE.  
 APPLICATION FILED JAN. 2, 1906.

933,928.

Patented Sept. 14, 1909.  
 3 SHEETS—SHEET 1.



Witnesses,  
 Edward T. Wray  
 Homer L. Wray

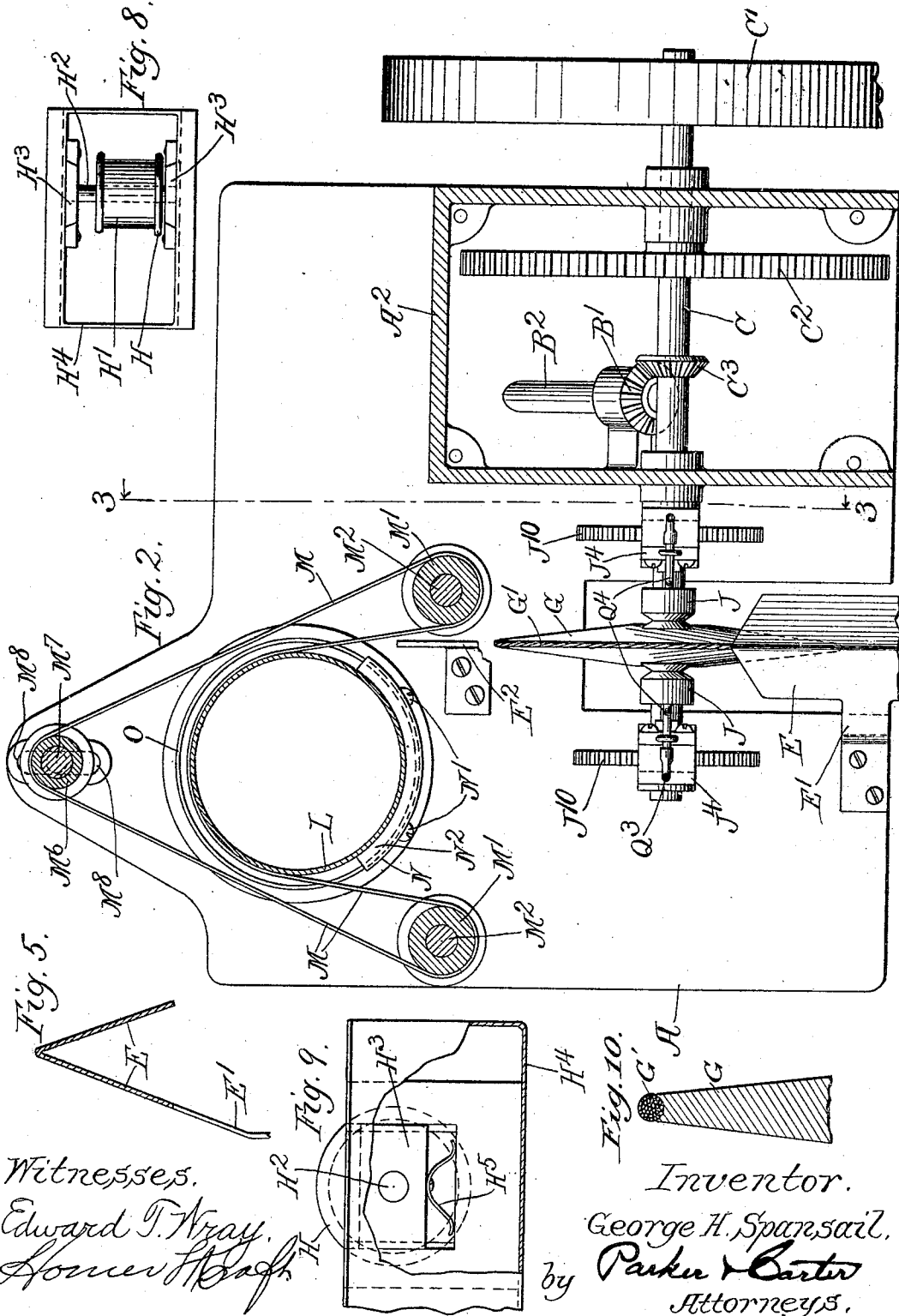
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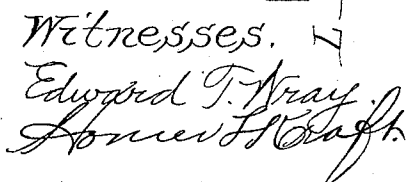
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3 SHEETS—SHEET 3.



Inventor:  
George H. Spansail,  
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# UNITED STATES PATENT OFFICE.

GEORGE H. SPANSAIL, OF CHICAGO, ILLINOIS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO CHICAGO LAUNDRY MACHINERY CO., A CORPORATION OF ILLINOIS.

## IRONING-MACHINE.

933,928.

Specification of Letters Patent. Patented Sept. 14, 1909.

Application filed January 2, 1906. Serial No. 294,101.

*To all whom it may concern:*

Be it known that I, GEORGE H. SPANSAIL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Ironing-Machines, of which the following is a specification.

My invention relates to pressing or ironing machines, and has for its object to provide new and improved apparatus for pressing and shaping collars and such like articles, the machine here shown and described being particularly designed for "turned down" collars as they are termed, that is, collars comprising two folds; although it will be understood, of course, that the invention may be used for other articles of like character.

The invention consists in providing means for folding turned down collars and at the same time pressing the fold in such a way as to make a smooth, even fold, relieve the strain on the fabric, and so prevent cracking or breaking.

It consists further in providing means for guiding and holding the collar in position during the operation and also for receiving and drawing the collars from the pressing devices with which may be associated means for smoothing or ironing the lower edges of a collar.

The invention consists further in the improvements and constructions to be set forth more fully in this specification.

The invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a front elevation of the machine with certain parts broken away for the sake of clearness; Fig. 2, a sectional plan view on line 2—2 of Fig. 1; Fig. 3, a vertical sectional view on line 3—3 of Fig. 2; Fig. 4, a detail view of the former showing in particular the operation thereof; Fig. 5, a detail section of the forward guide on line 5—5 of Fig. 3; Fig. 6, a section through the upper pressing wheel; Fig. 7, a like section through one of the lower pressing wheels; Fig. 8, a detail of the moistening roll in plan; and Fig. 9, a side elevation of the same with parts broken away. Fig. 10 is a detail view of the circumferentially padded disk.

Like letters of reference indicate like parts in all the drawings.

The various devices comprising the operative form of machine here shown and described are mounted upon a base plate A supported by the legs A<sup>1</sup> A<sup>1</sup> and carrying a frame work A<sup>2</sup> which provides bearings for two shafts C and D. On the shaft C is a drive pulley C<sup>1</sup> and a gear wheel C<sup>2</sup> which meshes with the pinion D<sup>1</sup> on the shaft D. The shaft C also carries a bevel gear C<sup>3</sup> in mesh with a bevel gear B<sup>1</sup> carried by a shaft B<sup>2</sup> having at its other end the bevel pinion B<sup>3</sup> meshing with a similar pinion B<sup>4</sup> on the shaft B mounted in the lower part of the machine, the three shafts B, C and D being thus connected so as to be turned when power is applied to the pulley C<sup>1</sup>.

The turn down collar is ordinarily first starched and ironed flat in a mangle or the like. It is then taken by the operator and bent at the proper place upon the forward guide E as illustrated in Fig. 3, and fed in between the wheels F and G. As here shown, the guide E is supported on a standard E<sup>1</sup> rising from the base plate A and the wheel F is mounted on the shaft D. This wheel is provided with a grooved pressing part F<sup>1</sup> and with an annular flange F<sup>2</sup> to which heat may be applied, as will be described later. The wheel G is mounted upon the shaft C and is provided with a relatively soft rim or tire part G<sup>1</sup> which may consist of an ordinary cord set into a groove in the edge of the wheel. This cord or the like, makes a soft pad for the fabric of the collar while under pressure from the pressing wheel F. It may also be utilized to provide for the moistening of the fold which may sometimes be necessary in order to prevent the breaking or cracking of the fabric. When this dampening process is necessary the machine is constructed so as to have the wheel G in contact with a dampening roller H covered with felt or the like H<sup>1</sup> and which is mounted on an axle H<sup>2</sup> turning in bearing blocks H<sup>3</sup> H<sup>3</sup> which are dove-tailed into recesses formed in the sides of a tank H<sup>4</sup>. The tank is partially filled with water. To insure proper contact of the dampening roller with the cord G<sup>1</sup> the bearing blocks are mounted on springs H<sup>5</sup>, these various details being shown in Figs. 1, 8 and 9. The ironing surface of the upper wheel F is preferably formed by an angular groove and as the cord G<sup>1</sup> presents a more rounded surface

it will be seen that there will be an annular space between the lower and upper wheel which is not entirely filled by the fabric of the collar. This space will be filled with steam as soon as the moistened collar comes into contact with the hot pressing wheel, which will aid in softening the fabric. The dampening, when required, may of course, be done by hand or some other form of apparatus.

I also provide devices for guiding and supporting the collar as it is passing between the wheels F, G and prefer to associate with such devices means for smoothing or polishing the edges of the collar. Preferably these devices are automatically adjustable to collars of different sizes. In the organization of the parts here shown this is accomplished by means of two wheels J, J similar to the pressing roll F with grooved parts J<sup>1</sup>, J<sup>1</sup> and heating flanges J<sup>2</sup>, J<sup>2</sup>. These wheels are mounted upon a shaft J<sup>3</sup> turning in bearings in two rectangular rocking frames J<sup>4</sup> mounted upon the shaft C and each carrying on a lower extension J<sup>5</sup> a weight J<sup>6</sup>. A stop J<sup>7</sup> limits the backward movement of each of the frames. I may also provide a spring J<sup>8</sup> as auxiliary to or in substitution for the weight J<sup>6</sup>. On the shaft J<sup>3</sup> of these ironing wheels is a pinion J<sup>9</sup> meshing with a pinion J<sup>10</sup> on the shaft C. If a turned down collar of the ordinary style is fed in between the pressing wheels F and G, the lower edges of the folds, indicated by the letters K, K<sup>1</sup> Fig. 1, will rest on the rolls J and depress the same by rocking the frames J<sup>4</sup> J<sup>4</sup>. The edges of the collar will be under considerable pressure because of the weights J<sup>6</sup> J<sup>6</sup> and springs J<sup>8</sup> when used, and this pressure, particularly when the wheels J, J are heated, as provided in my machine, will serve to smooth or iron the edges of the collar; the wheels following the edges of the collar automatically so as to also smooth the front or curved part of the outer fold when the collars are of that style. This smoothing of the edges of the collar is very desirable as it prevents wear on the shirt and also adds to the appearance of the collar. If necessary, of course, the edges of the collar may be moistened by hand, or otherwise.

The collar after passing through the rolls as above described is preferably received over a guide E<sup>2</sup> whence it passes to a shaping and drying device which is so constituted as to receive the ends of the collars and assist in drawing them through the pressing rolls. This device consists of a hollow metal cylinder around which passes a belt, the ends of the collars as they pass from the rolls being caught between the belt and the cylinder. In the drawings L represents the cylinder supported from a bracket L<sup>1</sup> extending from the frame work A<sup>2</sup>. The collars are pro-

pelled over this surface by means of the endless belt M, preferably of canvas or the like, which is driven by two rotating pulleys M<sup>1</sup> M<sup>1</sup> on the upright shafts M<sup>2</sup> M<sup>2</sup> mounted in suitable bearings M<sup>3</sup> M<sup>3</sup> on the base plate A, these shafts carrying the bevel gears M<sup>4</sup>, M<sup>4</sup> meshing with the bevel gears M<sup>5</sup> M<sup>5</sup> on the shaft B. At the back of the machine the belt passes over an idle pulley M<sup>6</sup> on the shaft M<sup>7</sup>, which for the purpose of changing the tension of the belt is preferably adjustable in a slot M<sup>8</sup> in the base plate A. I also provide an upper guide E<sup>3</sup>.

I prefer to pass the collars several times around the cylinder in order to perfectly dry and form them, and to this end I have provided a device for deflecting the collars downward as they come around to the front of the cylinder. This device consists of a curved plate N adjustably secured by means of the set screws N<sup>1</sup> N<sup>1</sup> to the front of the hollow cylinder O to be further described later, the plate N having the obliquely curved flange N<sup>2</sup> extending close to the front of the cylinder L. The course of the collars is plainly shown by the dash lines in Fig. 4. It will be seen by this figure that the upper portion of the collar on the cylinder L comes against the flange N<sup>2</sup> and is deflected downward, this collar pushing the others on ahead of it. The collars will, therefore, be forced to a sort of spiral course around the cylinder. The collars, it will be seen, are rubbed upon the hot curved surface of the cylinder and are, therefore, smoothed and at the same time dried and given the proper circular shape. The inside fold or flap of the collar will, of course, be the one which is brought into contact with the cylinder.

A further process of drying and forming or molding the collars takes place between the lower part of the cylinder L and the cylinder O. The collars, when they are forced out from under the belt pass down within the cylinder O, which is more or less hot because of its proximity to the cylinder L. When coming from these cylinders the collars will be perfectly dry and formed. In the machine here shown, I have provided an apron P to receive the collars as they fall from the former.

The ironing surfaces may be heated in any desired manner. I have here shown a system of gas burners suitable to accomplish this purpose. A gas supply pipe Q has the branches Q<sup>1</sup> Q<sup>1</sup> provided with the stop cocks Q<sup>2</sup> Q<sup>2</sup> and from the pipes Q<sup>1</sup> Q<sup>1</sup> extend the flexible tubes Q<sup>3</sup> Q<sup>3</sup> which are attached to the burner Q<sup>4</sup> Q<sup>4</sup> extending within the flange of the ironing wheels J J. A branch Q<sup>5</sup> in like manner carrying a burner extends into the flange of the ironing wheel F and another branch Q<sup>6</sup> extends within the cylinder L.

I wish it to be understood that I do not desire to be limited to the exact details of

construction shown and described for obvious modifications will occur to any person skilled in the art.

The use and operation of my device will perhaps have been made sufficiently clear by the foregoing. The machine in its organization as described, performs several processes in certain definite order, but it will be obvious that this order might be changed, or that certain of the processes might be omitted when circumstances require, without departure from my invention. The collar is first bent preferably by hand, over the guide E and then fed in between the wheels F and G which moisten the fold and also iron it from the outside, the collar being seated upon the relatively soft fabric on the edge of the lower wheel. This process effectually prevents the breaking of the fold so liable to occur because of the stiffening of the material of the collar in starching. It makes, nevertheless, a sharp well defined crease. The collar is then automatically carried onto the former which molds it into the desired round shape by rubbing it several times around the hot smooth outer surface of the cylinder L. The collar then passes inside the outer metal cylinder O which further shapes and dries the collar so that it will retain its circular form. Were the collar fed out straight from the forward part of the cylinder the curvature would tend to straighten out. The collars, it will be understood, are fed down automatically through the space between O and L.

The guide E<sup>3</sup>, it will be observed, also serves to smooth or iron the fold of a collar after it has passed from the ironing wheels. This element may not, of course, be essential to the proper operation of the device under all circumstances. I have shown this element as a part of a preferred construction, but this, as well as certain of the other parts of the machine which are separate in their functions may, of course, be omitted when conditions vary so as to make them superfluous.

I claim:

1. In a machine for ironing the folds of collars, the combination of a disk having a

circumferential pad, with an ironing roll having a groove, means for driving the same, and movably mounted supporting rolls for the edges of the collars.

2. In a machine for ironing the folds of collars, the combination of a disk having a circumferential pad, with an ironing roll having a groove, means for driving the same, and movably mounted supporting rolls for the edges of the collar having grooved ironing parts to receive said edges.

3. In a machine for ironing the folds of collars, the combination of an upper grooved ironing roller, a lower circumferential padded disk, grooved ironing rollers to receive the edges of the collar laterally disposed with respect to the lower disk and movably mounted so as to automatically follow the edges of said collars, and a driving mechanism for rotating said rolls and disk.

4. In a machine for ironing the folds of collars, the combination of upper and lower pressing wheels between which the fold of the collar is received, with laterally disposed movably mounted ironing rolls having each a V-shaped depression to receive the edges of the collar.

5. In a machine for ironing the folds of collars, the combination of upper and lower pressing wheels between which the fold of the collar is received, with laterally disposed ironing rolls to receive the edges of the collar, said rolls being mounted in swinging frames so as to accommodate collars of different widths.

6. In a machine for ironing the folds of collars, the combination of a circumferential padded disk, a shaft on which the disk is mounted, an ironing roll with a groove into which the edge of the disk extends, swinging frames laterally mounted on the shaft of the disk, ironing rolls with grooves to receive the edges of the collar mounted upon said swinging frames, and a driving mechanism to drive said disk.

GEORGE H. SPANSAIL.

Witnesses:

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