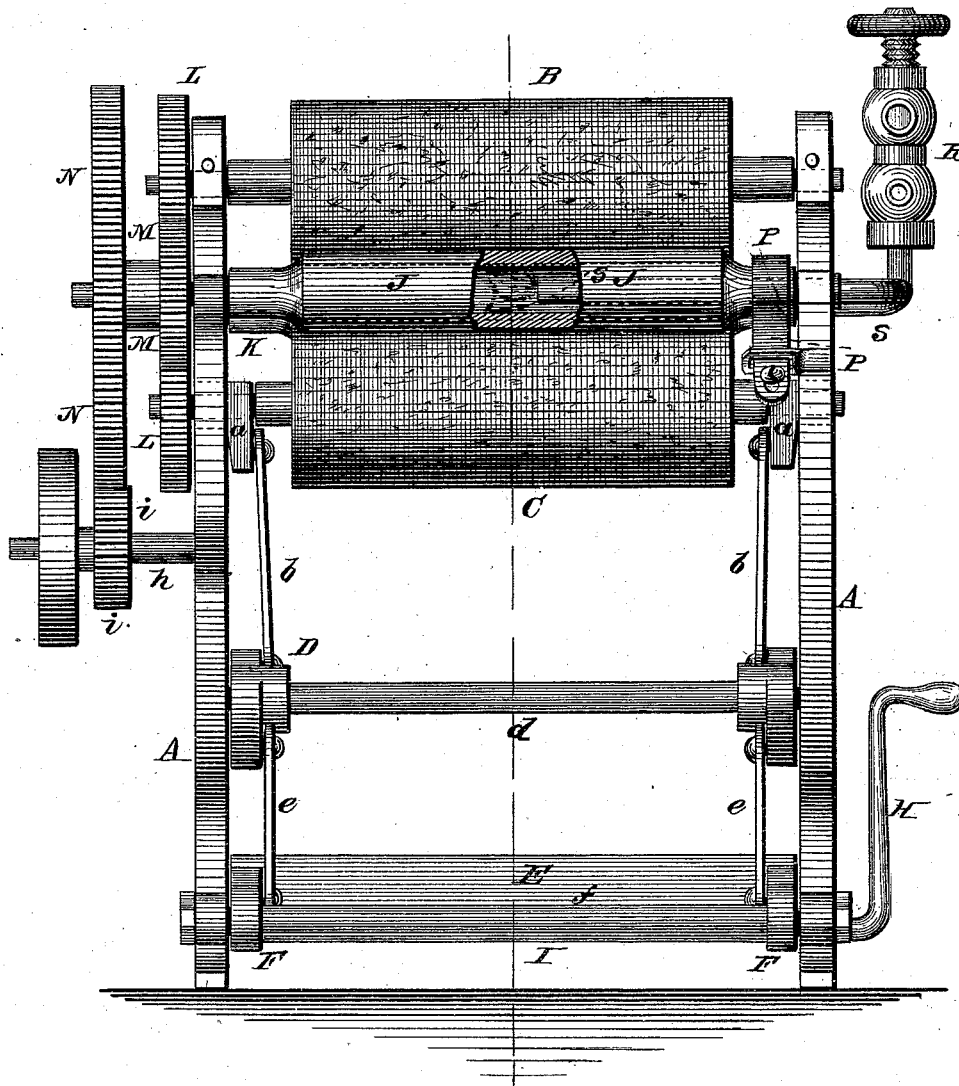


W. & J. COUTIE.  
Ironing-Machine.

No. 215,325.

Patented May 13, 1879.

*Fig. 1.*



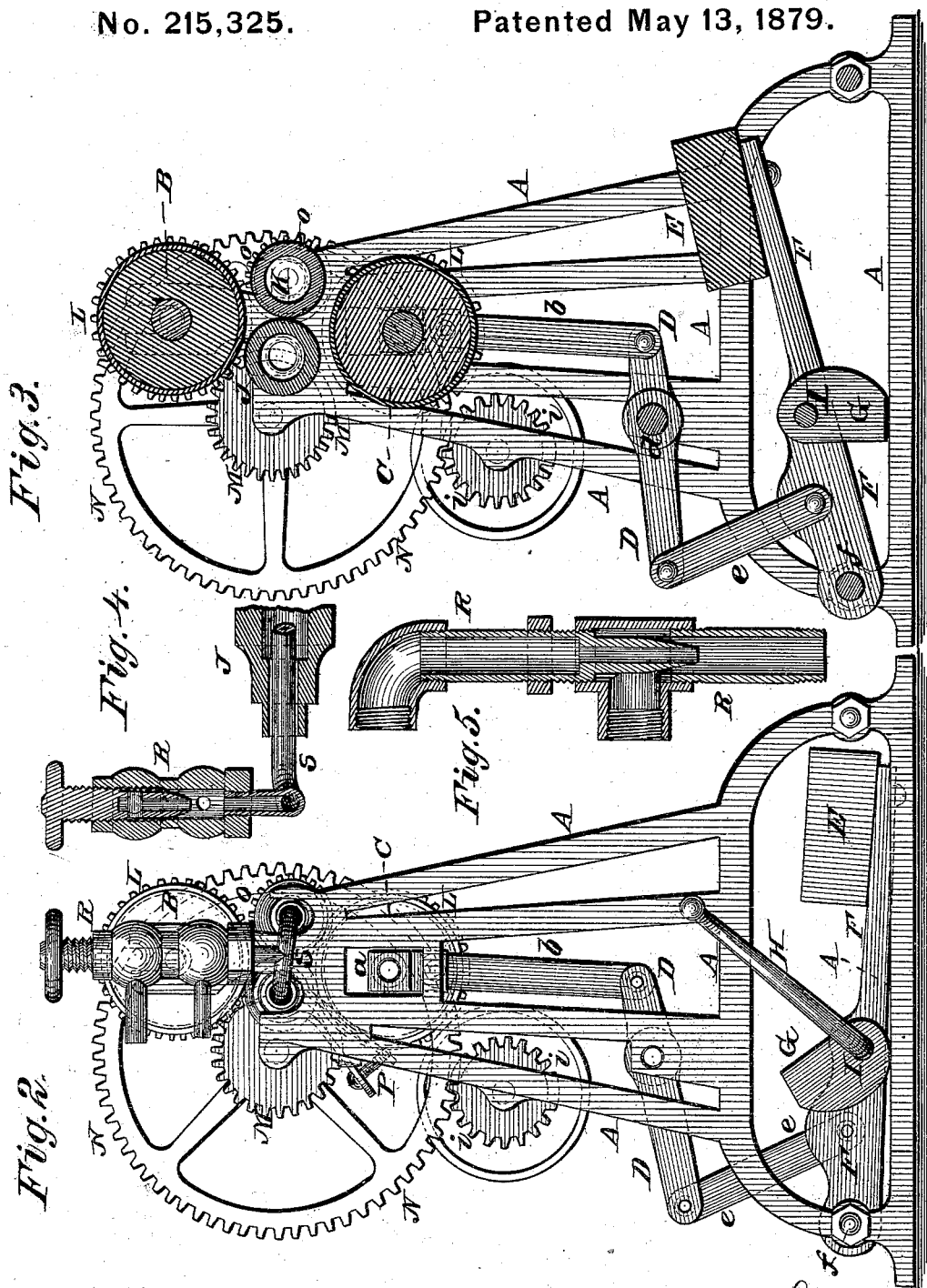
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# UNITED STATES PATENT OFFICE

WILLIAM COUTIE AND JAMES COUTIE, OF TROY, NEW YORK.

## IMPROVEMENT IN IRONING-MACHINES.

Specification forming part of Letters Patent No. **215,325**, dated May 13, 1879; application filed March 11, 1879.

*To all whom it may concern:*

Be it known that we, WILLIAM COUTIE and JAMES COUTIE, of Troy, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Ironing-Machines; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The object of this invention is principally to make a calender ironing-machine that will give a gloss finish to collars and cuffs; and the nature of the invention consists in a brake used with a hot calender-roll, operated by friction of a covered roll, and a fixed top roll, with movable hot roll and a lower roll, and in the combination of parts, as will be hereinafter more fully set forth.

In the annexed drawings, Figure 1 is a front elevation of a calender ironing-machine embodying the present invention. Fig. 2 is a side view, and Fig. 3 a transverse vertical section, of the same. Figs. 4 and 5 are detailed views of parts thereof.

A represents the frame of the machine, constructed in any suitable manner to receive the working parts, as hereinafter described. B represents the upper and C the lower soft or yielding roller. The upper roller, B, has its journals placed in the side pieces of the frame, while the journals of the lower roller, C, are placed in boxes *a a*, which are movable up and down in vertical slots in said side pieces. The boxes *a a* are, by rods or links *b b*, connected with levers *D D*, which are placed upon a shaft, *d*, and the other ends of these levers are, by rods or links *e e*, connected with other levers *F F*, near their inner ends—that is, near the ends where said levers *F* are pivoted to a shaft, *f*. The other ends of these levers *F F* are connected by and support a weight, *E*, by means of which the lower roller, *C*, is held raised up. Through the levers *F F* is passed a shaft, *I*, on which are two cams, *G G*, working upon the sills of the side pieces of the frame, and on one end of said shaft is a crank, *H*, by means of which the shaft may be turned

to cause the cams to raise the weighted ends of the levers *F F*, and thus allow the lower roll, *C*, to fall a certain distance.

*J* is the calender-roll proper, and *K* is the auxiliary or supplemental calender-roll, said rolls being both supported upon the lower soft roll, *C*, and hollow, so as to be heated. The two rolls *B* and *C* are provided with cog-wheels *L L*, which gear with a cog-wheel, *M*, secured or formed upon the hub of a large cog-wheel, *N*, and this latter receives its motion from a pinion, *i*, on a shaft, *h*, to which motion may be communicated by any suitable power. The journal of the supplemental calender-roll *K* is provided with a pinion, *O*, which meshes with the cog-wheel *L* of the lower soft roll, *C*.

The hot roll or calender-roll proper, *J*, is entirely disconnected from all connection with the covered rolls by wheels, and it receives its motion exclusively from the pressure on the covered rolls. In this case its motion would always be the same as the surface of the covered rolls, whatever change may be made in the thickness of the cover of these rolls; but it is found, in practice, to require a draw between the surfaces of the rolls to prevent the shortening of the goods, and to this end a brake, *P*, is applied on the cold end of the hot roll.

To polish the goods, the second or supplementary hot roll, *K*, is applied under light pressure, or no pressure but its own weight, and this roll is placed immediately behind the hot calender-roll proper, *J*, so that it rests on the same side of the goods, and on the same covered roll.

The calender-roll *J*, being under heavy pressure, embeds the seams of the goods in the covered rolls, so that they present a smooth even surface to the supplementary or polishing roll, which is run at a high surface velocity under light pressure, to give a polish or luster to the goods, and at the same time avoid tearing the cover of the covered roll.

In the drawings is only shown a supplementary roll applied to finishing one side of the goods. Where both sides require to be finished another similar roll is applied to the other covered roll.

The temperature of the hot roll should be

the highest that can be applied without burning the cover of the covered roll when the machine is in motion, and any stoppage of the machine when the rolls are hot will immediately burn the covering.

To instantly separate all the rolls at once, the shaft I is turned by means of its crank or handle, so as to apply the cams G and raise the weight E, when the lower roll, C, will fall about one inch, and the hot rolls J K fall with it; but as the hot rolls come to the bottom of the spaces in which their journals move they rest here in position about half an inch apart, this being found sufficient to prevent the burning of the cover of the covered roll.

When the cams G are turned out of the way, the weight E and system of levers, as described, press the lower covered roll, C, up against the hot rolls, and these up against the upper covered roll, thus all three being brought in contact and pressure by moving the lower roll. The pressure is regulated by the weight.

In this machine is also used an injector, R, for forcing the gas into the burners S under pressure, and in order to burn the gas perfectly inside the hot roll it is mixed with air. The gas generally used is ordinary street illuminating-gas; but some of the gas companies remove most of the pressure from the street-mains during the day when little of their gas is being used, and gas will not heat properly when burned at less than ordinary pressure. For this reason, therefore, the injector is used. The construction of this injector is substantially the same as those used for injecting water into steam-boilers; but the nozzle of the injector should be reduced to the size required to just supply the proper quantity of air at a high pressure.

The injector is preferably constructed, as shown in Figs. 4 and 5, with an inlet for the gas, and the air, being admitted under pressure, draws in the gas to be consumed at the burners in the rolls.

In some cases it is best to apply one injector to each roll, and have them blow directly into the burner in a line with the axis of the roll. After the proper proportions and pressure for given work are found by experiment it can be conveniently made out of gas-pipe, and a jaw used to obtain the pressure.

The operation of the machine will be readily seen. The weight holds the rolls in proper position while the articles to be ironed are passed through the machine, the calender-roll ironing the goods, while the auxiliary or finishing roll puts on the gloss or finish.

By means of the mechanism described for raising the weight, the rolls are instantly separated, so as not to burn the covering of the covered rolls.

Having thus fully described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. A brake, in combination with a hot calender-roll, which is operated by friction from the covered roll, substantially as and for the purposes herein set forth.

2. The combination of a fixed top roll, a movable hot roll, and a lower roll supported by a mechanism substantially as described, whereby all the rolls may be thrown instantly out of contact, as set forth.

3. The combination, in an ironing-machine, of a fixed top roll, a movable calender-roll, a movable finishing-roll, and a lower movable roll actuated by a mechanism substantially as described, for the purposes herein set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

WILLIAM COUTIE.  
JAMES COUTIE.

Witnesses:

JAMES L. RICE,  
FRED. A. MALBY.