

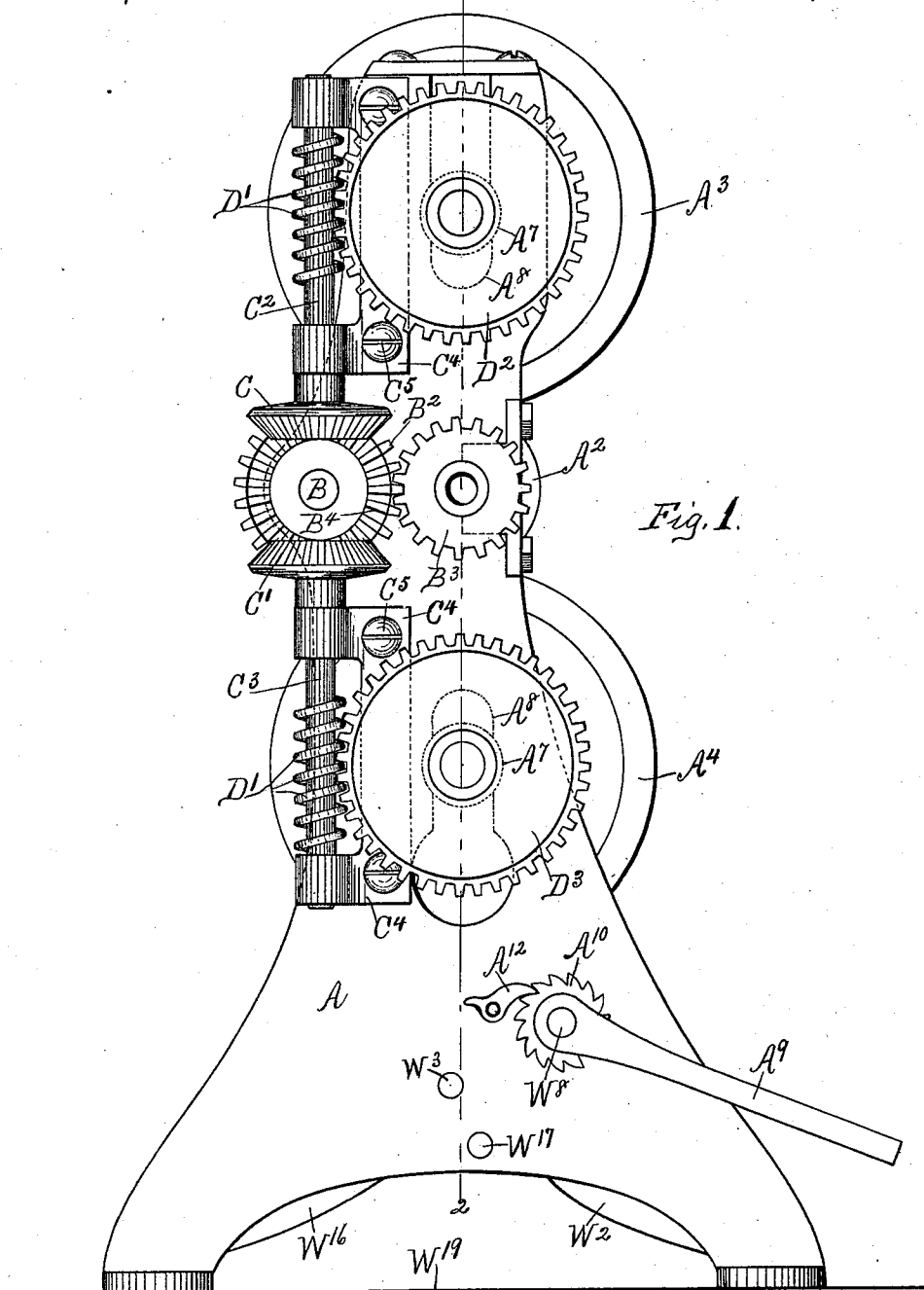
(No Model.)

3 Sheets—Sheet 1.

H. L. GEE.
IRONING MACHINE.

No. 506,428.

Patented Oct. 10, 1893.



Witnesses:
Frank C. Curtis
A. Delaney

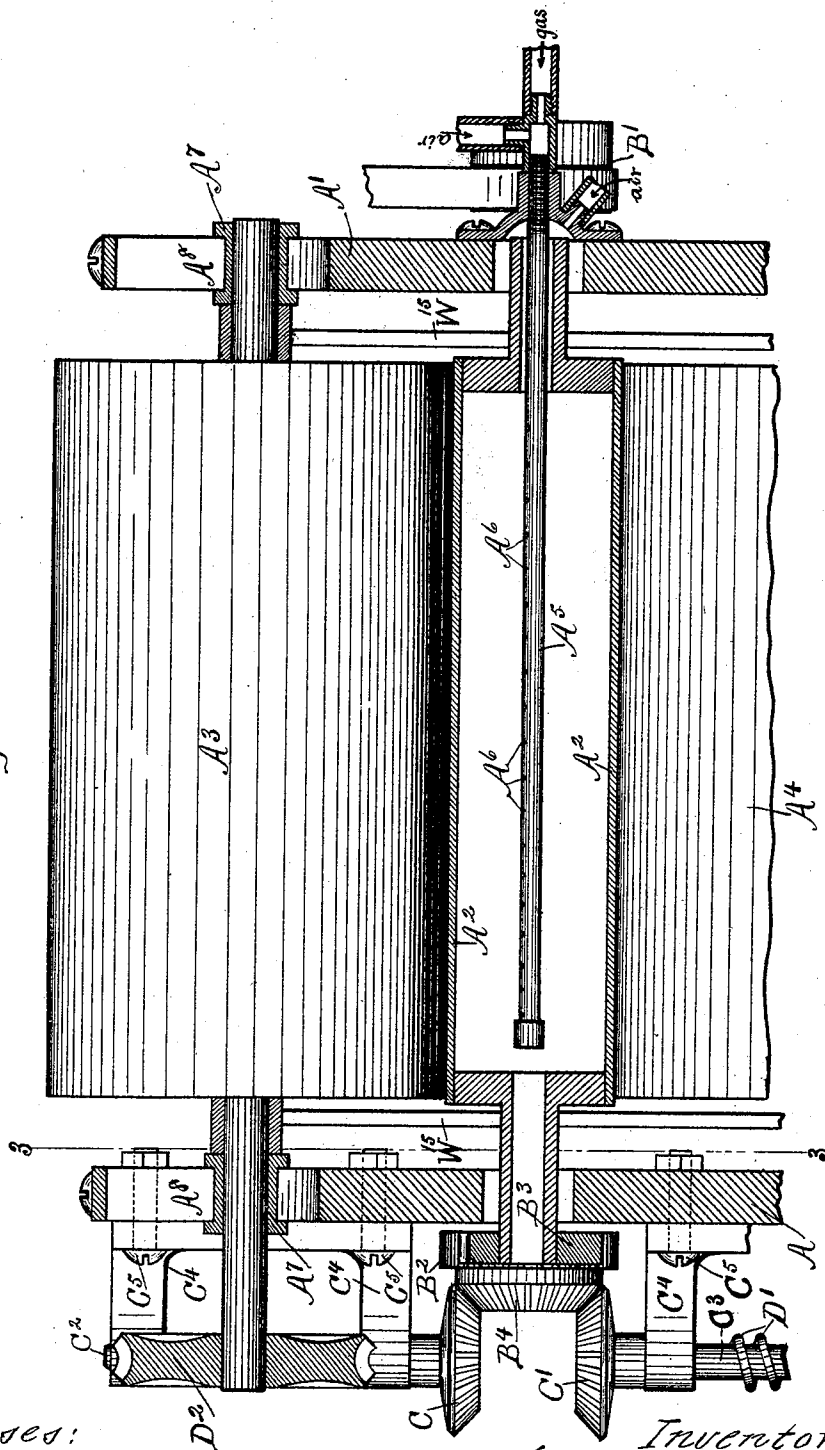
Inventor:
Horace L. Gee,
by Geo. M. Mosby
Atty.

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Fig. 2.



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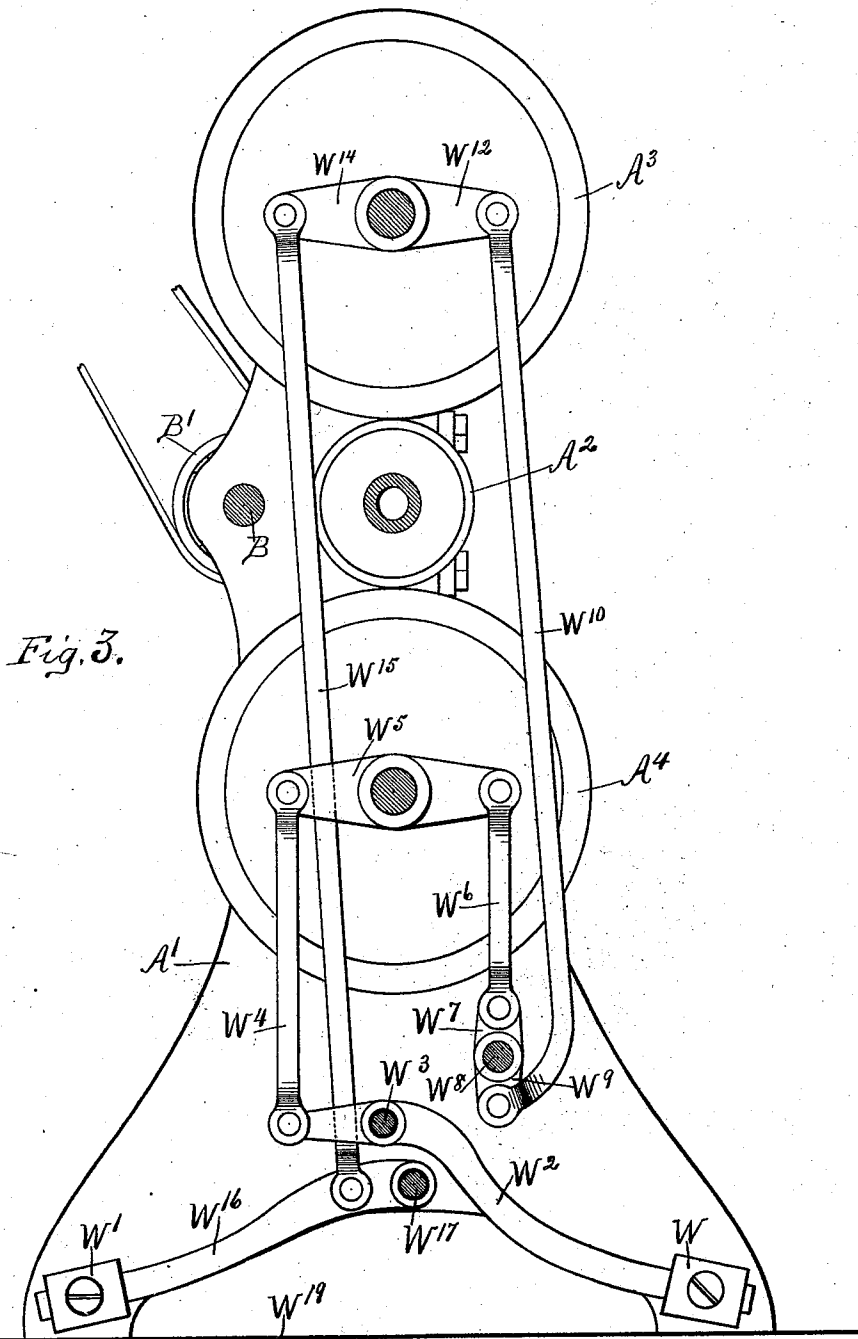
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UNITED STATES PATENT OFFICE.

HORACE L. GEE, OF TROY, ASSIGNOR OF ONE-HALF TO WALTER L. HERMANS,
OF COHOES, NEW YORK.

IRONING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 506,428, dated October 10, 1893.

Application filed May 16, 1892. Serial No. 433,101. (No model.)

To all whom it may concern:

Be it known that I, HORACE L. GEE, 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 Ironing-Machines, of which the following is a specification.

My 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 letters of reference marked thereon, which form a part of this specification.

Similar letters refer to similar parts in the several figures therein.

Figure 1 of the drawings is an end view in elevation of my improved ironing-machine. Fig. 2 is a vertical longitudinal section of the same, taken on the broken line, 2—2, in Fig. 1, with the lower part broken away. Fig. 3 is a vertical cross-section taken on the broken line, 3—3, in Fig. 2, extended through the parts broken away in the latter figure.

A, A'—represent the end uprights of the main frame of the machine which support in suitable bearings a rotary polishing-roll, A², and upper and lower feed-rolls, A³, and A⁴. The middle or polishing roll is adapted to be heated in the usual manner by the combustion of gas conveyed interiorly of the hollow roll by a pipe, A⁵, inserted through one of the roll-journals apertured to receive it, as shown in Fig. 2. The pipe is non-rotary and is supported in a cap or bracket as indicated.

Fig. 2. Combustion takes place at the outer small apertures, A⁶, in the gas-supply pipe. The rolls, A³, and A⁴, are preferably clothed in the usual manner and serve to feed and press the fabric to be ironed against the polishing-roll. The feed-roll shafts are rotary in bearing-boxes, A⁷, movable in slideways, A⁸, in the frame uprights. The pressure of the feed-rolls upon the polishing-roll is maintained by weights, W, and W'. The weight, W—, is adjustably secured to one arm of lever, W²—, fulcrumed upon the rod W³—, the ends of which are supported by the end uprights of the frame. The other arm of this weight lever is con-

nected by link, W⁴—, with one end of lever W⁵—, pivoted upon the lower roll shaft. The other end of the latter lever is connected by link, W⁶—, with the arm, W⁷—, fixed upon the rock-shaft, W⁸. Another arm, W⁹—, fixed upon the rock-shaft, is connected by link, W¹⁰—, with the arm, W¹²—, of the lever which is pivoted upon the shaft of the upper feed-roll. The other arm, W¹⁴— of such lever is connected by link, W¹⁵—, with the lever, W¹⁶— fulcrumed at one end upon the rod, W¹⁷—, and provided at the other end with the adjustable weight, W'. A like system of weights and levers, not wholly shown, is provided at the other end of the rolls.

By means of a hand-lever, A⁹—, fixed upon one end of the rock-shaft, W⁸—, the shaft can be rocked to force the feed-rolls away from the polishing-roll and back again to the position shown in the drawings, the rock-lever being held in any desired position by the ratchet, A¹⁰—, and pawl, A¹²—. When the rolls are forced apart, the weights rest upon the floor, W¹⁹—, or other suitable support.

Most ironing machines having a heated polishing roll are provided with mechanism for separating the rolls to admit of repair or renewal of the material with which the feed-rolls are clothed, or for other purposes.

It is necessary to rotate the polishing-roll to heat it equally on all sides before work is commenced, and to prevent delay the rotation of such roll should be continuous to keep it uniformly heated, while the feed-rolls are temporarily forced away from it for repairs or other purposes. The clothing of the feed-rolls can frequently be better repaired while in motion than they could be while at rest, and one of the objects of my invention is to provide a combination of a polishing roll supported in fixed relation to the machine frame, with feed rolls and feed roll raising and lowering mechanism adapted to raise and lower both feed rolls and at all times to support said rolls with mechanism for maintaining the rotary movements of all the rolls in whatever position they may be made to assume by the system of weights and levers.

Another object of my invention is to provide a convenient means for communicating to the feed-rolls a much slower rate of rotary

movement than that communicated to the polishing-roll. Heretofore such variations in rates of speed have been accomplished in a limited degree by means of an expensive system of intermediate cogged wheels and pinions. As heretofore constructed, the practical limit of variation has been about twenty-two revolutions of the polishing-roll to one of the feed-rolls. It is desirable to increase this ratio two or three fold; and I have ascertained that by use of worm-gear connections between the polishing and feed-rolls, I can easily and cheaply obtain any desired ratio of rotary speed, and a steady, even movement of the feed-rolls. Such a construction also permits of a considerable movement of each of the feed-rolls away from the polishing-roll without interfering with the continuous movement of all the rolls. When desired power may be applied directly to the polishing-roll, but I have shown a separate shaft, B, having end-bearings in the frame uprights, provided at one end with a loose and fixed driving-pulley, B¹—, and with a gear-wheel, B²—, at the other end, adapted to engage with gear-wheel, B³—, fixed upon the trunnion of the polishing-roll to rotate the same. The drive-shaft, B, is also provided with a beveled gear wheel, B⁴—, fixed thereon and adapted to engage with each of the gear-wheels, C and C'—, fixed respectively upon the worm-shafts, C², and C³—. The worm-shafts are rotary in bearings contained in angle-brackets, C⁴—, secured to the frame uprights by screw-bolts, C⁵. The worms, D'—, are adapted to respectively engage with the worm-wheels, D²—, D³—, severally fixed upon the feed-roll shafts.

It is obvious that the driving-shaft will rotate as many times during each rotation of the feed-rolls as there are teeth in the worm-wheels. The larger the diameter, the greater the number of teeth which can be practically employed in the worm-wheels, the greater the leverage obtainable to rotate the feed-rolls. By having considerable leverage I am able to impart a steady even movement to all the rolls instead of an unsteady, jerky movement to one or more of them.

The gear-wheels, B²—, and B³—, may be of the same size or one may be larger than the other and both made detachable and interchangeable to produce a varying ratio of speed between the feed and polishing rolls, when desired.

I can easily make fifty to seventy-five teeth on a twelve or fifteen inch worm-wheel, producing a relative rate of speed between the polishing roll and feed-rolls of fifty or seventy-five to one.

By having the worm-shafts parallel with

the respective slideways, A⁸—, and the worms of the proper length, the worm-wheels will not be disengaged from the actuating worms by the movement of the feed-rolls to and from the polishing-roll, since the worm-wheels will travel longitudinally of their respective worms while in mesh therewith.

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

1. In an ironing machine, the combination of the polishing roll, the feed rolls, a worm gear intermediate the polishing roll and each feed roll, mechanism at each end of the machine for moving the feed rolls to and from the polishing roll said roll moving mechanism being adapted to support the feed rolls in every position of the same, and consisting of two pairs of approximately parallel links, the links W⁴ and W⁶ forming one pair, and links W¹⁰ and W¹⁵ forming the other pair, each pair connected loosely by a lever pivoted on the axis of a feed roll, the links W⁶ and W¹⁰ at one side of the rolls being connected by mechanism adapted to move them oppositely, and the links W⁴ and W¹⁵ at the other side of the rolls being each pivoted to a lever provided with a counter-balancing weight, substantially as set forth.

2. The combination of the polishing roll supported in fixed relation to the machine frame, a spur gear fast on the shaft of said roll, feed rolls having each a worm wheel on its shaft, the worm shafts, a bevel gear on each of said shafts, mechanism for continuously and positively driving the polishing roll and the feed rolls by the medium of intermediate gears B² and B⁴ and feed roll raising and lowering devices adapted to raise and lower each feed roll and to support said rolls in every position of the same; substantially as set forth.

3. In an ironing machine, the combination of a feed roll having a worm gear, a worm shaft supported to turn in fixed bearings and provided with a bevel gear, a polishing roll having a shaft provided with a spur gear, a driving shaft having a like gear meshing with the polishing-roll shaft gear and also having a bevel gear meshing with the bevel gear of the worm shaft, and means for moving the feed roll to and from the polishing roll in a right line without disconnecting any of the gears, substantially as set forth.

In testimony whereof I have hereunto set my hand this 11th day of May, 1892.

HORACE L. GEE.

Witnesses:

GEO. A. MOSHER,
FRANK C. CURTIS.