No. 699,001. Patented Apr. 29, 1902.

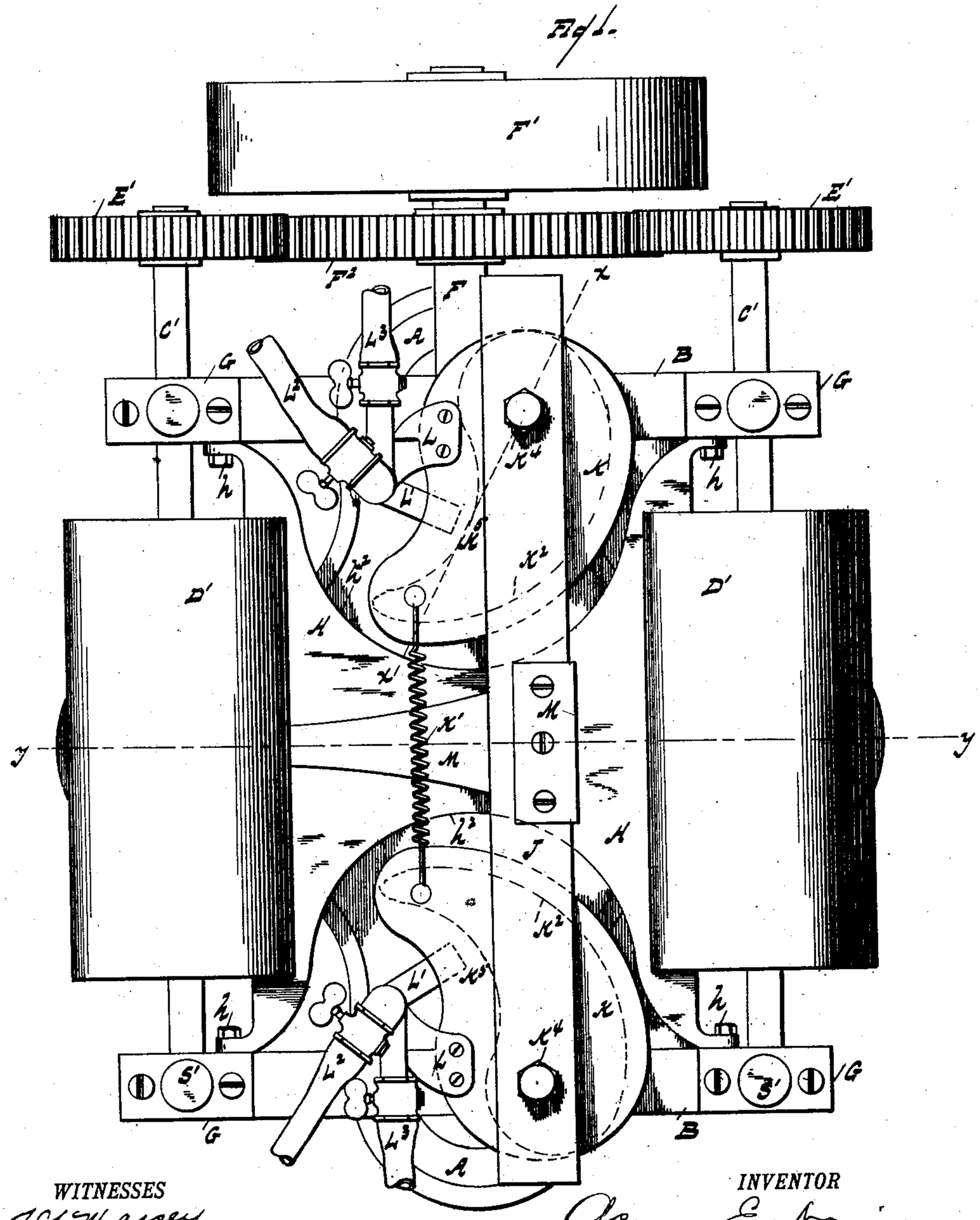
G. E. NORRIS.

EDGE IRONING MACHINE.

(Application filed Sept. 30, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig 1.



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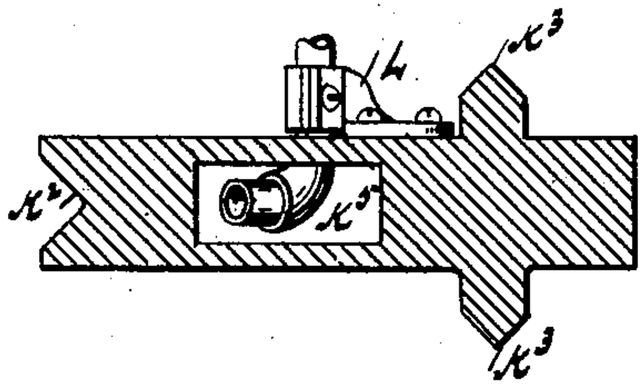

Fig 3.

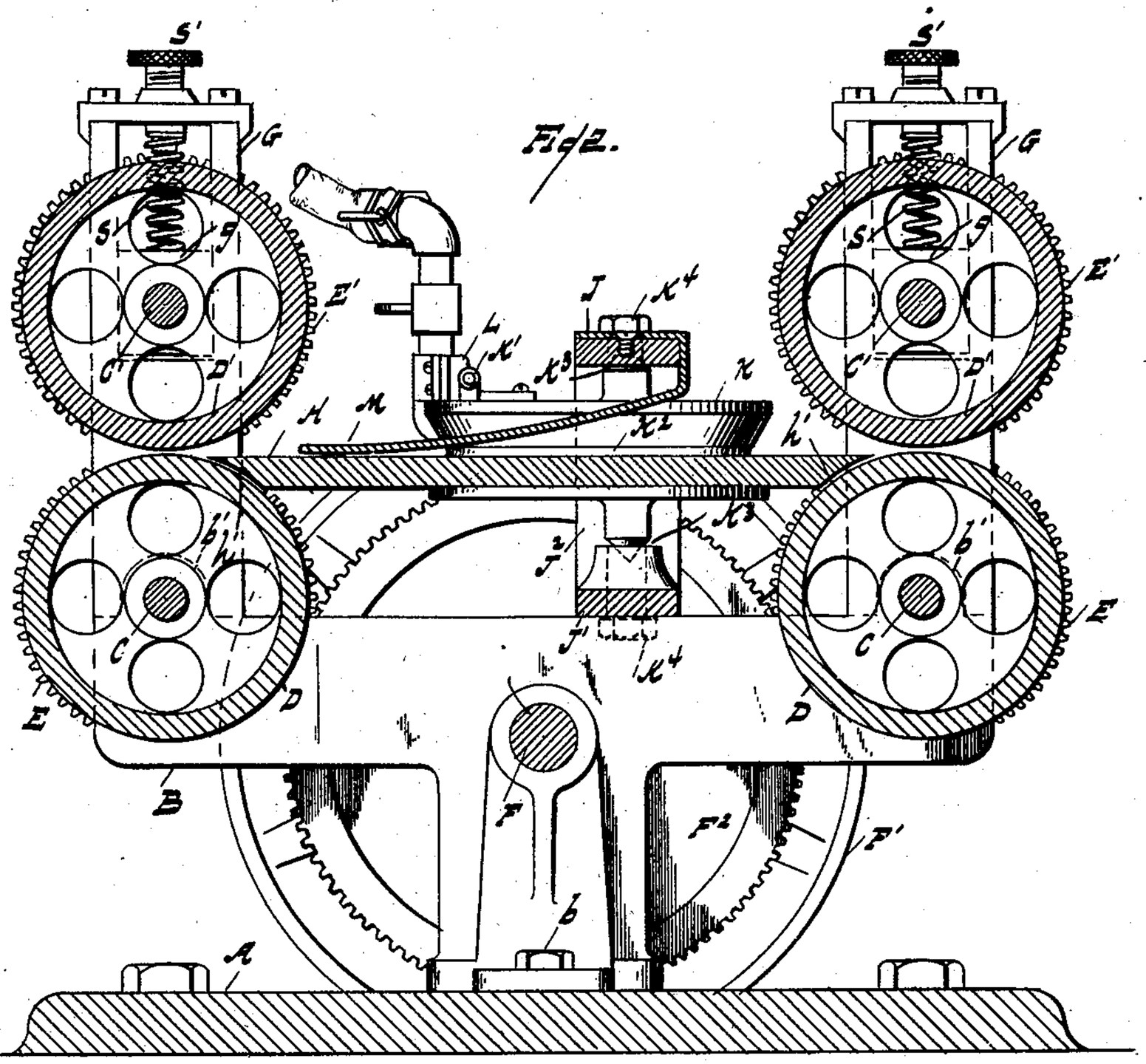

Fig 2.

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GEORGE E. NORRIS, OF DETROIT, MICHIGAN.

EDGE-IRONING MACHINE.

SPECIFICATION forming part of Letters Patent No. 699,001, dated April 29, 1902.

Application filed September 30, 1901. Serial No. 76,988. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. NORRIS, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Edge-Ironing Machines; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to ironing-machines; and it consists in the various combinations and arrangements hereinafter described and claimed.

In the drawings, Figure 1 is a plan view of my machine. Fig. 2 is a cross-section on the line *y y* of Fig. 1. Fig. 3 is a section on line *x x* of one of the ironing-cams.

Similar letters refer to similar parts.

A represents the bed-plate, which may be fastened to any appropriate foundation.

B B are brackets attached to each end of the bed-plate, each in a similar manner to the other by a bolt, as shown at *b*. At each end of the brackets B B are suitable bearings *b' b'*, (shown in dotted lines in Fig. 2,) within which are journaled the shafts C C. These shafts each carry rollers D D and have on their ends spur-wheels E E, and in corresponding bearings in the opposite ends of the machine is journaled a shaft F, which carries at its outer extremity a band-wheel F', and secured to shaft F between the band-wheel and the bearing is a spur-wheel F^2. The spur-wheels E E are adapted to engage the spur-wheel F^2, so that the rotation of the shaft F with the spur-wheel F^2 would correspondingly rotate the rolls D D both in the same direction.

Each of the T-shaped brackets B B carries an elevated framework G G, in which slidably engage blocks *g g*, which form bearings for cross-shafts C' C'. These carry at their extremities spur-wheels E' E', which engage with the spur-wheels E E. The shafts also carry on them rollers D' D', corresponding with the rolls D D with which the rolls D D are substantially in contact. Spiral springs S S, controlling the sliding bearings *g g*, and set-screws S' S' regulate the pressure by which the blocks *g g* are held downward, and therefore regulate the pressure of the rolls one upon the other or upon any intervening substance.

The upright frames or projections G G are united by a peculiarly-shaped plate H, attached to the frames by screws at *h h* and shown in cross-section in Fig. 2. The lower edges of this plate are chamfered off to accommodate the curvature of the rolls, as shown at *h' h'* in cross-section in Fig. 2. The edges being in close proximity to the rolls D D, this plate H affords a platform or guide for all material which is entering between the rolls and by their rotation transferred from one set of rollers to the other. The sides of the plate H are hollowed out into substantially semicircular concavities, as shown at h^2 h^2 in Fig. 1.

Above and below the platform H is a rigid rectangular frame, formed of transverse members J J', united at the ends by short upright bars J^2, the lower member of which is held rigidly by appropriate means to the T-shaped brackets B B. The upper and lower members of the frame are separated by some little distance, as is shown in Fig. 2. At each end of the frame are pivotal arrangements, to be hereinafter described, whereby cam-shaped ironing-blocks K K are rotatably held, which blocks are shown in Fig. 1. These cams are held with their longer axis approaching each other by preferably a uniting spiral spring K'. The location of this spring, however, is unimportant so long as it is arranged to hold the cams in the position shown, so that they will yield against an elastic resistance which tends to return them to the original position.

It is obvious that any flat material coming between the rolls D D' will pass over the plate or platform H and between the cams K K, and if it were transversely wider than the normal distance between the cams it would spread them apart against the yielding elastic resistance of the spring. The contiguous edges of the cams are grooved, as shown by dotted lines at K^2 in Fig. 1 and in the sectional view of Fig. 3, also in the elevation of Fig. 2.

As this machine is expressly designed to iron the edges of cuffs and collars and simi-

lar articles which have a similar amount of transverse resistance, the grooves afford the means of doing this. These cams have axes, as shown in Fig. 3, at K^3 K^3. Hollow-stem set-screws K^4 K^4 are enabled to grasp the ends of these axes, and thus hold the cams from any but a revoluble movement upon the axes thus provided.

Attached to each cam by a curved bracket L, Fig. 1, are nozzles L′, and to these nozzles are attached an air-pipe L^3 and a gas-pipe L^2, which are controlled by appropriate stop-cocks and connected with a source of air and gas supply by flexible rubber tubes of the usual construction. Appropriate volumes of air and gas under pressure pass through these pipes L^2 L^3 and unite at the nozzle and on being ignited burn with a small flame in a curved pocket K^5 (shown by dotted lines in Fig. 1) in the periphery of the cam. This is also shown in section in Fig. 3, the section cutting the pocket at the point of the nozzle, as shown on the line x x, Fig. 1. It will be observed that this construction maintains a fixed relation between the nozzle and the cam regardless of the position which the cam may assume in its work, and therefore there is no variation in the heat of the cam, as would otherwise be if the cam rotated over a flame from a fixed source or against the flame from a fixed source. As the pipes L^2 L^3 are rubber and yield they do not sensibly resist the swinging and separation of the cams, as hereinbefore described.

Above the platform H and attached to the upper member J of the framework is an elastic tongue M, which projects toward one pair of rollers and affords an elastic holder and guide for the work which is forced between the rollers and over the platform H.

It is obvious that quite a number of the details of this construction might be varied quite materially and not depart from the invention—as, for instance, in place of the spring K′, I might employ two separate springs, one operating upon each of the cams, so so that each cam yields against an approximately equal resistance. So, also, the form of the table H might be varied to some extent, and the form of the pressure-tongue M could also be varied. Other means might be employed, which will readily suggest themselves, for holding the upper rollers in yielding bearings, all without departing from the invention.

The mode of operation of this device is as follows: When a collar or cuff is entered between the rollers D D′ upon the right-hand side of the machine, the rollers being continually revolved by a belt attachment from some source of power running upon the band-wheel F′, and thus driving all of the rollers by means of the gear described, it, being wider than the normal distance between the cams, is forced by the initial pair of rollers between the cams, its edges coming in contact with the bottom of the grooves of each cam, the cams yielding to accommodate the width and also to afford a certain amount of pressure against the edge. The cams being heated by the gas-flames furnished by the gas-jets to the proper degree of temperature, they smooth and iron the edges of the article as it passes between them. The opposite pair of rollers grasp the article and assist in drawing it through, while the tongue M prevents wrinkling or longitudinal ridges being formed in the article due to the transverse pressure against its edges. Thus the article is rapidly, economically, and certainly ironed at its edges. Folded articles can also be ironed at the fold and edges by causing them to traverse the machine in the manner hereinbefore described. The article after passing through the last pair of rollers is dropped into a receptacle (not shown) from whence it may be taken by hand. The rollers are preferably covered with cloth or any other moderately-soft substance, so as to retain a good hold upon the article and at the same time not injure its surface which in the process has already been subjected to an ironing action.

What I claim is—

In an edge-ironing machine, the combination of cam edge-ironers, means for holding them in position and permitting their partial rotation against the resiliency of a spring, a platform upon which the articles to be ironed are carried, means for forcing the articles between the cams, and an elastic tongue M to assist in holding the articles in position and to afford a guide therefor, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

GEORGE E. NORRIS.

Witnesses:

NETTIE V. BELLES,

R. A. PARKER.