

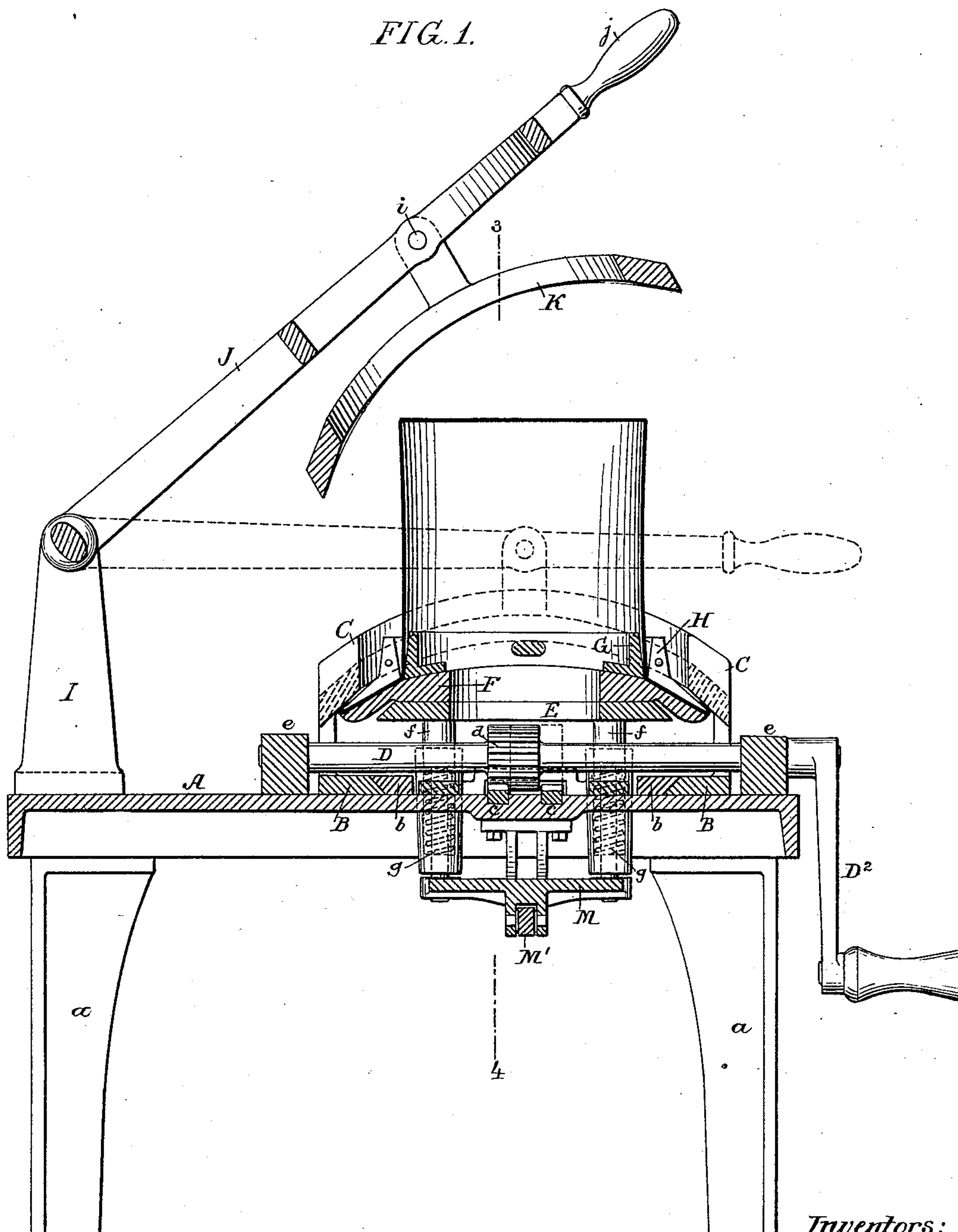
(No Model.)

2 Sheets—Sheet 1.

J. FITZ & G., J. G. & M. O. REHFUSS.
HAT BRIM CURLING MACHINE.

No. 434,438.

Patented Aug. 19, 1890.



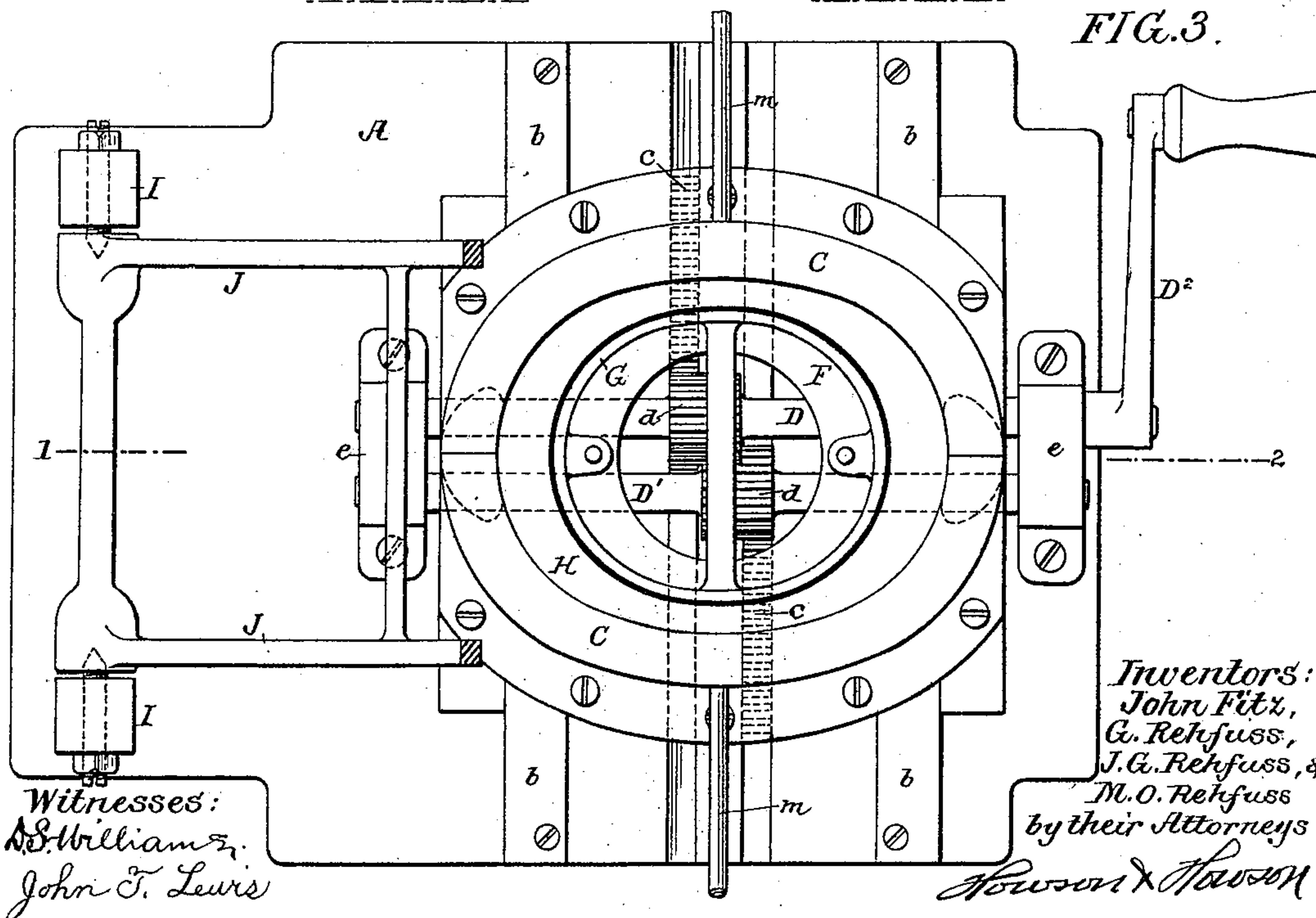
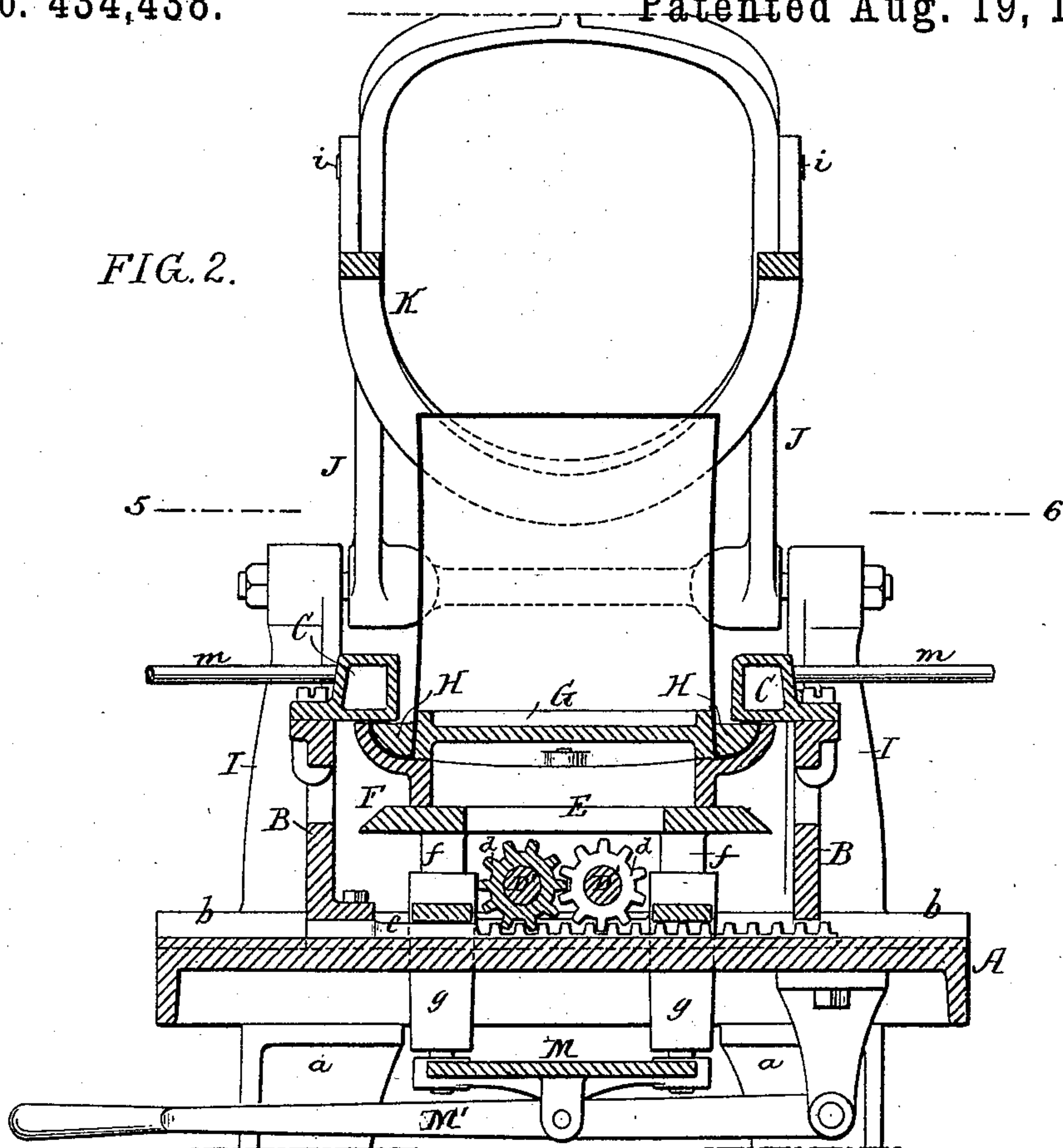
Witnesses:
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John Fitz, George Rehfuss,
J. G. Rehfuss & M. O. Rehfuss
by their Attorneys
Howson & Howson

2 Sheets—Sheet 2.

HAT BRIM CURLING MACHINE.

Patented Aug. 19, 1890.



UNITED STATES PATENT OFFICE.

JOHN FITZ, GEORGE REHFUSS, JOHN GEORGE REHFUSS, AND MARTIN O. REHFUSS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO SAID FITZ, AND EVAN MORRIS, OF SAME PLACE.

HAT-BRIM-CURLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 434,438, dated August 19, 1890.

Application filed April 3, 1888. Serial No. 269,475. (No model.)

To all whom it may concern:

Be it known that we, JOHN FITZ, GEORGE REHFUSS, JOHN GEORGE REHFUSS, and MARTIN O. REHFUSS, all citizens of the United States, and residents of Philadelphia, Pennsylvania, have invented certain Improvements in Hat-Brim-Curling Machines, of which the following is a specification.

One object of our invention is to so construct a hat-brim ironing or curling machine that the brims will be permanently set by the operation of the machine, no supplemental ironing, heating, or shaping of the brim by hand being necessary, a further object being to provide simple and efficient means for operating the various parts of the machine. These objects we attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal section on the line 1 2, Fig. 3, of a hat-brim ironing or curling machine constructed in accordance with our invention. Fig. 2 is a transverse section on the line 3 4, Fig. 1; and Fig. 3 is a sectional plan view on the line 5 6, Fig. 2.

We may state in the outset that our improved machine differs in its operation from others with which we are familiar in that it does not rely upon the imparting of heavy pressure to the brim by means of cold dies to effect the curling or shaping of the brim and the fixing or setting of the same in shape, the curling and setting of the brim in our improved machine being effected by shrinking the brim into the proper shape by the application of heat and moisture thereto and lightly pressing it over the forming dies or curls, the brim after being properly shrunk into form over these dies or curls being then confined until it has become cool. We find that by this means the shape or form of the curled portion of the brim is permanently fixed or set, whereas brims shaped under pressure by cold dies are likely to lose their shape in a short time, supplementary treatment and manipulation by hand being necessary in order to insure the retention by the curls of the shape which has been given to them in the machine.

Having thus set forth the general features of the invention, we will now proceed to describe the special construction of the machine we have devised.

A is the base-plate of the machine, mounted on suitable legs *a*, and secured to this base-plate are two dovetailed guides *b b*, extending transversely across the machine. To these guides are adapted the bases of opposite sliding frames B B, which carry the curling or ironing blocks C C, described hereinafter, each of the frames B having a rack *c*, and the two racks being arranged side by side, but a short distance apart. Meshing with these racks are two pinions *d d*, carried by longitudinal shafts D D', adapted to suitable bearings *e e* on the base-plate A of the machine, one of these shafts (the shaft D in the present instance) being provided with a handle D². The pinions *d d* not only mesh with the racks *c c* but also with each other, as will be noticed on referring to Figs. 1 and 3, the pinions being wider than their racks, so as to overlap and engage with each other; hence when the shaft D is turned the pinion *d* of the same not only moves its rack but also rotates the pinion *d* and shaft D', and hence moves the other rack in the opposite direction, so that both side frames B B are moved simultaneously toward or from each other.

E is a central plate carrying the lower shaping-die F and the hat-block G, said plate having on the under side studs *f*, adapted to sockets *g* on the base-plate A, and supported upon suitable springs therein, the lower ends of the studs being secured to a frame M, which can be depressed by means of a lever M'.

At the rear of the plate A are two brackets I I, to which is hung an arm J, preferably yoked, as shown, and provided with a suitable handle *j*, and pivoted at *i* to said arm J is a ring K, which conforms to the outline of the hat-brim and follows the dip of the same at front and rear.

The ironing or curling blocks C C are hollow, as shown, and steam is admitted to these hollow blocks through pipes *m m*, or in any other suitable manner, in order to maintain said blocks in a highly-heated condition. The

blocks C have at each end projecting plates which overlap each other and serve to bend the brim over the ends of the curls H as the blocks are moved toward each other, the projections being sufficiently heated by reason of their connection with the blocks.

The operation of the machine is as follows: The hat having had its brim first heated in any of the usual ways, so as to soften it, it is placed, as shown by the outline on the drawings, upon the lower shaping-die F, while the blocks C C are moved apart from each other, and the upper dies or curls H are then placed upon the brim, so as to depress it onto the shaping-die F, the preliminary softening of the brim permitting this to be readily done. The edges of the brim are then moistened, and the heated ironing or curling blocks C are moved toward each other, so as to bend the projecting edge of the brim inward over the curls H, the combined effect of the heat and moisture being to effect the shrinking of the material of which the curl of the brim is composed. If necessary, in order to effect the thorough shrinking of the curl of the brim, the moistening and heating may be repeated as many times as desired, the blocks C being withdrawn to permit access to the brim, and being again moved inward over the same after the exposed portion has been properly moistened. After the proper curling of the brim has been effected, the blocks C are withdrawn and the ring K lowered onto the brim so as to retain the curl in proper shape while the brim is cooling, the ring at the same time expediting the cooling of the brim, owing to the fact that its temperature is much lower than that of said brim.

While the brim is being cooled in one machine, the shaping and curling of a brim may be effected on another machine, so that no time is lost, one workman attending to both machines.

Although we have shown and described the blocks C as heated by steam, it will be evident that they may be heated by gas, hot water, hot air, or by means of inserted metal blocks or slabs of the proper temperature.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination, in a hat-brim ironing or curling machine, of the shaping-dies, the curls, and laterally-sliding heated blocks for bending the brim over said curls, substantially as specified.

2. The combination, in a hat-brim curling or ironing machine, of the shaping-dies, the curls, the heated blocks for bending the brim over said curls, and a cooling-ring conforming to the shape of the brim, and adapted to bear upon the curled portion of said brim on the removal of the curling-blocks, all substantially as specified.

3. The combination of the shafts D D', having wide pinions *d d'* meshing with each other, side blocks having racks *c c*, one engaging with one pinion and the other with the other pinion, and mechanism for rotating one of said shafts, substantially as described.

4. The combination, in a hat-brim curling or ironing machine, of the shaping-die, the curls, the side blocks, and a pivoted arm J, carrying a cooling-ring K in such a position that it can be depressed to rest upon the curled brim of the hat, all substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN FITZ.
GEO. REHFUSS.
J. GEO. REHFUSS.
MARTIN O. REHFUSS.

Witnesses:

WILLIAM D. CONNER,
HARRY SMITH.