[31.]

WILLIAM H. COLLINS.

Improvement in Machines for Cutting Ice.

No. 119,324. Patented Sep. 26, 1871.

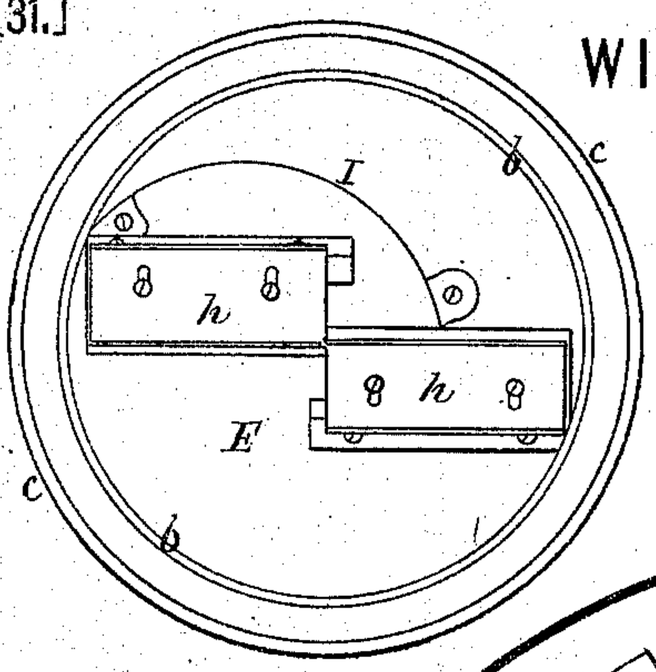

FIG. 3.

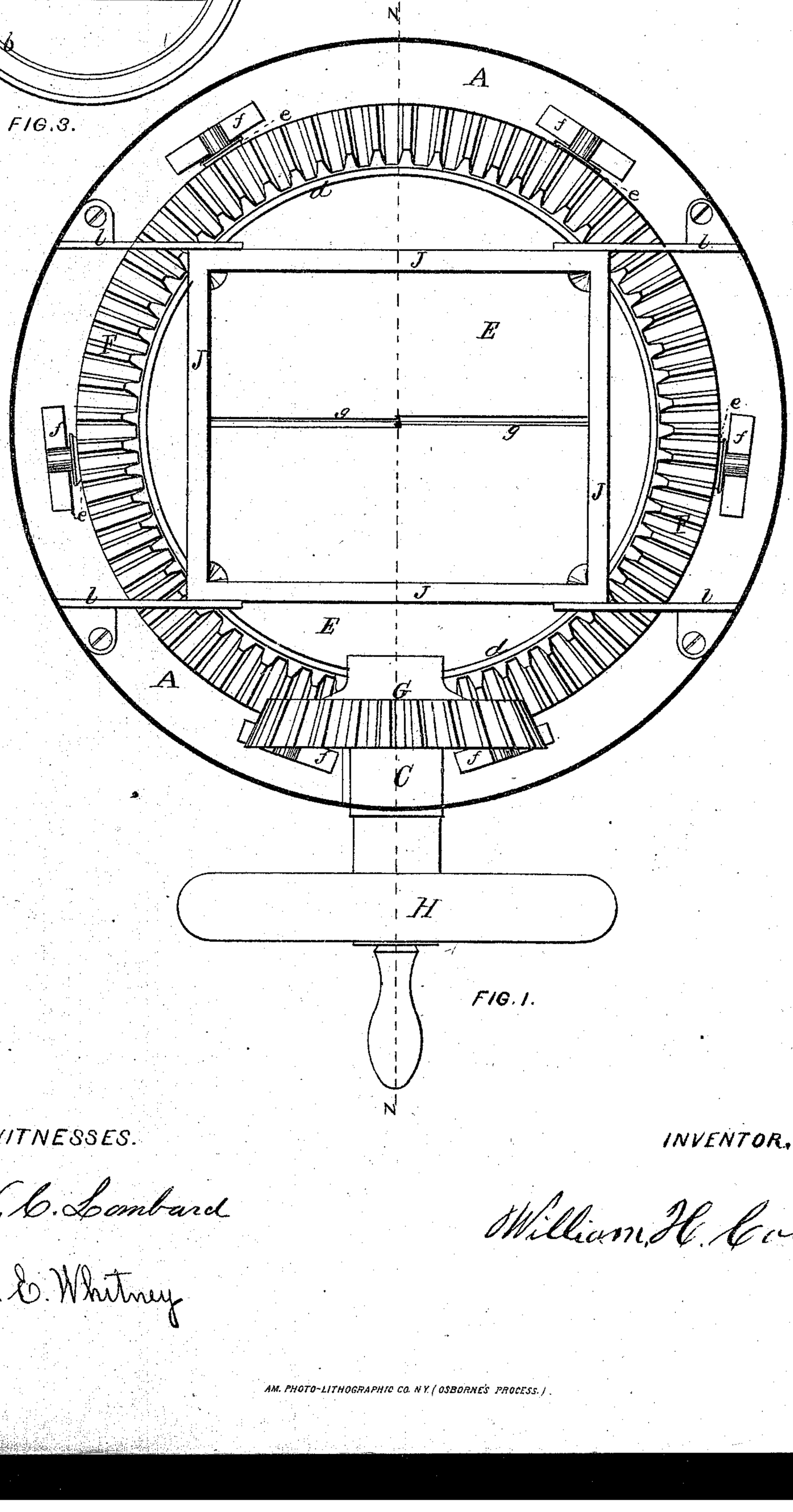

FIG. 1.

WITNESSES.

N. C. Lombard

G. E. Whitney

INVENTOR.

William H. Collins

2 SHEETS.

SHEET 2.

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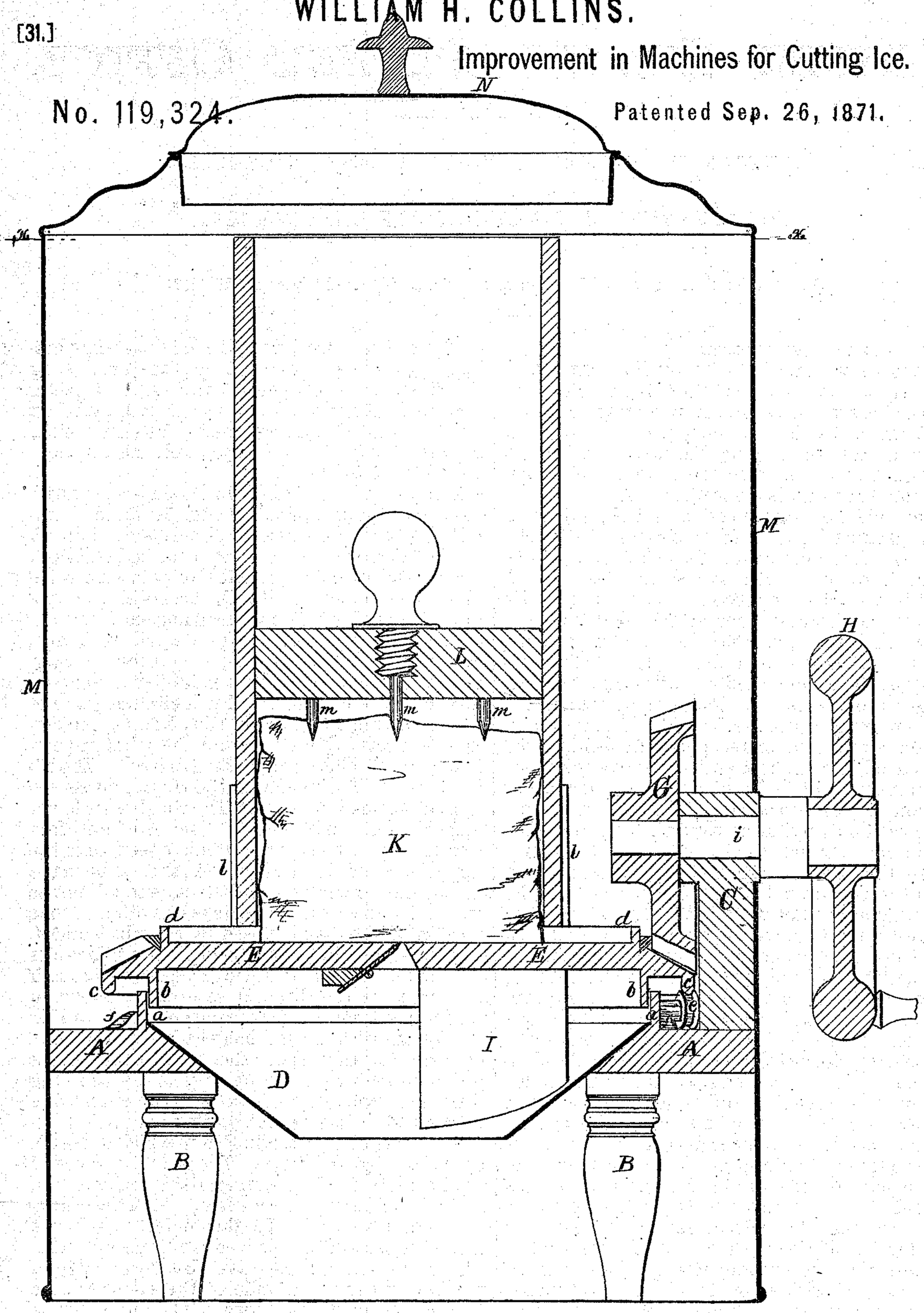

FIG. 2.

WITNESSES.

N. C. Lombard

G. E. Whitney

INVENTOR.

William H. Collins

UNITED STATES PATENT OFFICE.

WILLIAM H. COLLINS, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR SHAVING ICE.

Specification forming part of Letters Patent No. 119,324, dated September 26, 1871.

To all whom it may concern:

Be it known that I, WILLIAM H. COLLINS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Machines for Cutting and Shaving Ice for Cooling Drinks, of which the following, taken in connection with the accompanying drawing, is a specification:

The object of my invention is the production of a machine for cutting or shaving ice for the purpose of cooling drinks that shall occupy less space on the counter, cost less, and be more effective in its operation than any now in use; and it consists, in the first place, in the employment of a circular disk or plate having two or more plane-irons inserted therein, radiating from the center; said disk being mounted on anti-friction rolls arranged around its outer edge, upon which it is made to revolve in a horizontal plane, in combination with a tank or receptacle for holding the ice placed in a vertical position above the same, the upper end of said tank being open for the insertion of the ice to be cut, and the lower end being closed only by the cutter-disk, all arranged in such a manner that the ice will be fed to the cutter by the force of gravity, the ice being held from turning around with the cutter-disk by the rectangular form of the tank, and by a weight or follower placed above the ice, and provided with spurs upon its lower side, which enter the ice and assist in holding it in place. It also consists in the combination with the cutter-disk of a conical chute, placed beneath the same, to direct the shaved ice into the tumbler. It also consists in the combination of a scraper with said cutter-disk and chute, the same being secured to the under side of the cutter-disk, and projecting downward therefrom in the form of a semicircle, eccentric to the axis of the cutter-disk, and having its lower edge cut to fit the conical side of the chute, for the purpose of scraping the ice from the sides of said chute. It also consists in the combination, with the above-described mechanism for shaving ice, of a vertical cylindrical case inclosing the whole, except the operating-wheel or crank and provided with an opening at the bottom for inserting the tumbler, and a cover at the top, which may be removed to supply the machine with ice, this case inclosing an air-space around the ice-tank, which serves to preserve the ice a greater length of time than it could be kept were the tank not inclosed.

Figure 1 is a sectional plan of a machine embodying my improvements, the case only being shown in section on line *x x* on Fig. 2. Fig. 2 is a vertical section on line *z z* on Fig. 1, and Fig. 3 is a plan of the under side of the cutter-disk, showing the eccentric scraper and the arrangement of the cutters.

A is the table or bed of the machine supported upon the legs B B, and having the stand C projecting from its upper side. A hole is cut through the bed A in its center, so that the bed is simply a ring, and to the inner edge of said ring is secured the conical chute D, the opening in the lower end of which is somewhat smaller than the top of a tumbler. A circular rib or flange, *a*, is also formed on the upper side of the ring-bed A for the purpose of a guide for the cutter-disk E. The cutter-disk E is a circular plate of metal, having two circular ribs, *b* and *c*, projecting downward therefrom, and the rib *d* projecting upward from the upper face thereof. The rib *b* is fitted to the inside of the rib *a*, and serves to hold the disk in place. The rib *c* has its lower edge rounded, and rests on a series of anti-friction trucks, *e*, mounted in stands *f* secured to the upper side of the bed A. A slit, *g*, is made across the center of the disk A, extending the whole distance from one side to the other of that portion of the disk inclosed by the ribs *b* and *d*. In said slit or throat are secured two plane-bits or cutters, *h*, each of a width equal to one-half the length of the slit, and secured by screws to inclined beds formed for the purpose on the under side of the disk E, said inclines being formed at opposite angles to each other, so that the cutters will both present a cutting-edge to the ice as the disk E is revolved on its axis. The outer edge of the disk E has formed on its upper side a series of cogs or gear-teeth, F, into which the teeth on the bevel-gear G mesh. The gear G is mounted on the short shaft *i*, having its bearing in the stand G, and to the outer end of which the crank-wheel H is secured. To the under side of the disk E is secured the curved rib I, placed eccentric to the axis of the disk, the lower edge of which is cut to fit the side of the conical chute D, the line of contact with said chute being a spiral extending about one-third the circumference, and from the top to the bottom of said chute, and serves to scrape all the cut ice from the chute into the tumbler in an obvious manner. J is a rectangular tube of metal or other

suitable material, placed in a vertical position above the cutter-disk, and supported from the bed A by the stands or brackets *l l*. The upper end of the tube or tank J is open, and the ice to be cut is placed therein, resting on the upper side of the cutter-disk E, as shown in Fig. 2 at K. L is a weight, to be placed on top of the ice, and is provided with a series of sharp spurs, *m m*, on its under side, for the purpose of holding the ice in place. M is a sheet-metal case inclosing the whole machine, except the crank-wheel H, and having an opening in the top as large as the diameter of the ice-tank and closed by a cover, N. The case M also has a portion of its side cut away below the bed A, to which it is secured by screws, said opening being for the purpose of inserting a tumbler under the chute to receive the ice as it is cut. Said opening is not shown in the drawing. The case M, inclosing a space around the ice-tank J, serves the purpose of a refrigerator to keep the ice, as well as to cover up the mechanism and make a neater-looking and more ornamental apparatus to place upon a counter.

By the arrangement of mechanism here embodied I am enabled to dispense entirely with a feed mechanism, thus reducing the cost of the machine very materially, and also very much diminish the space occupied by the machine.

Having thus fully described my invention, what I desire to secure by Letters Patent of the United States, is as follows:

1. The cutter-disk E, carrying one or more plane-bits or cutters, arranged in slots radiating from the axis of motion thereof, and having its bearing on its outer edge on anti-friction trucks, substantially as described.

2. The cutter-disk E, constructed and operated as set forth, in combination with an ice-holding tank, J, arranged in a vertical position above the same, substantially as described.

3. In combination with the cutter-disk E provided with radiating cutters *h* and arranged to revolve in a horizontal plane in or on a peripheral bearing, the conical chute D secured to the bed A and concentric to the cutter-disk E, substantially as described.

4. The curved scraper I, in combination with the conical chute D and cutter-disk E, all arranged and operating substantially as described.

5. In combination with a machine organized as herein set forth for the purpose of shaving ice, the inclosing-case M, arranged and applied substantially as described, for the purpose specified.

Executed at Boston this 1st day of August, 1871.

WILLIAM H. COLLINS.

Witnesses:
N. C. LOMBARD,
G. E. WHITNEY.

(51)