

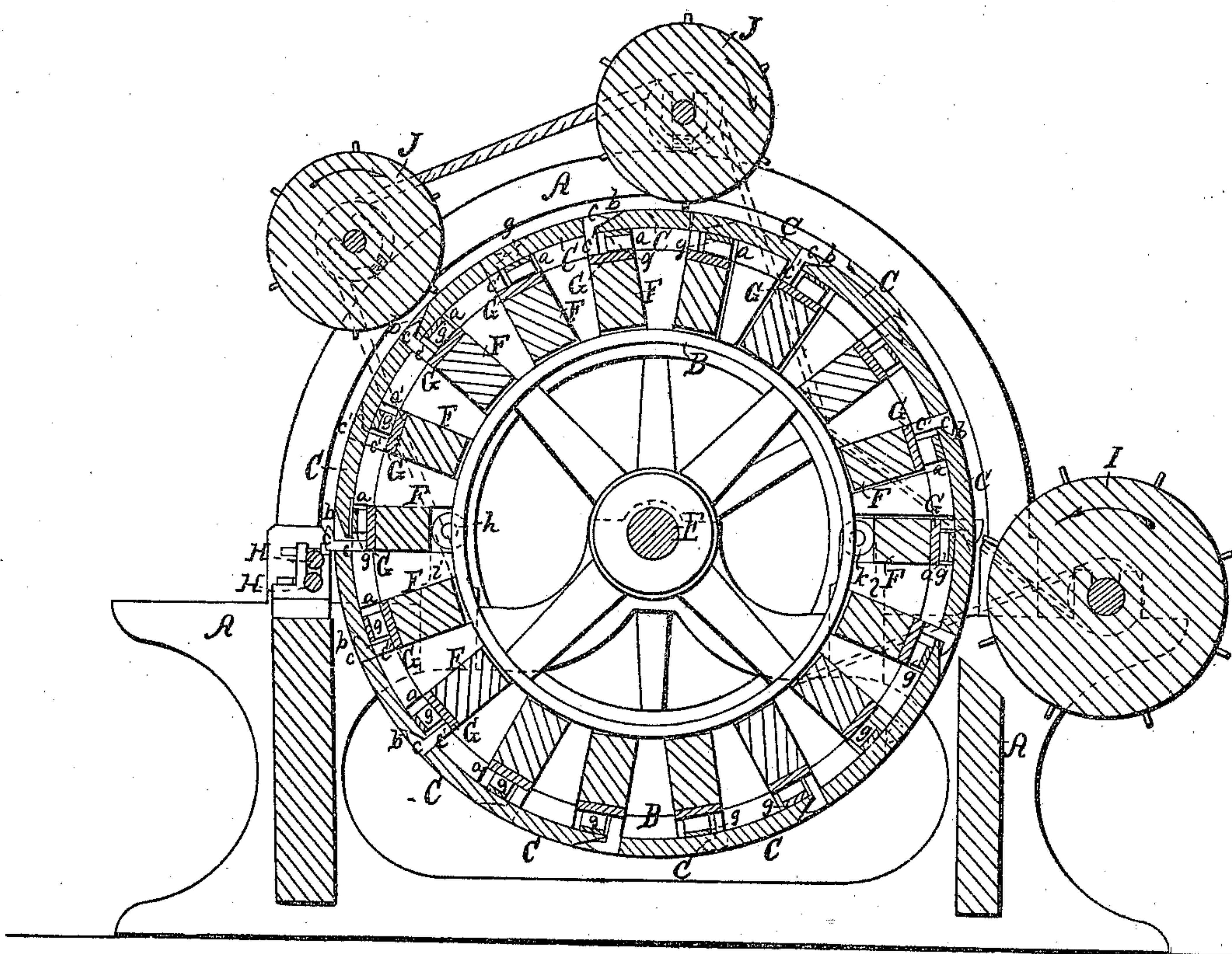
Sheet 1-2 Sheets.

T. B. Butler.
Wool Burring Mach.

N^o 21,116.

Patented Aug. 10, 1858.

Fig. 1.



Sheet 2-2 Sheets.

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Fig. 2.

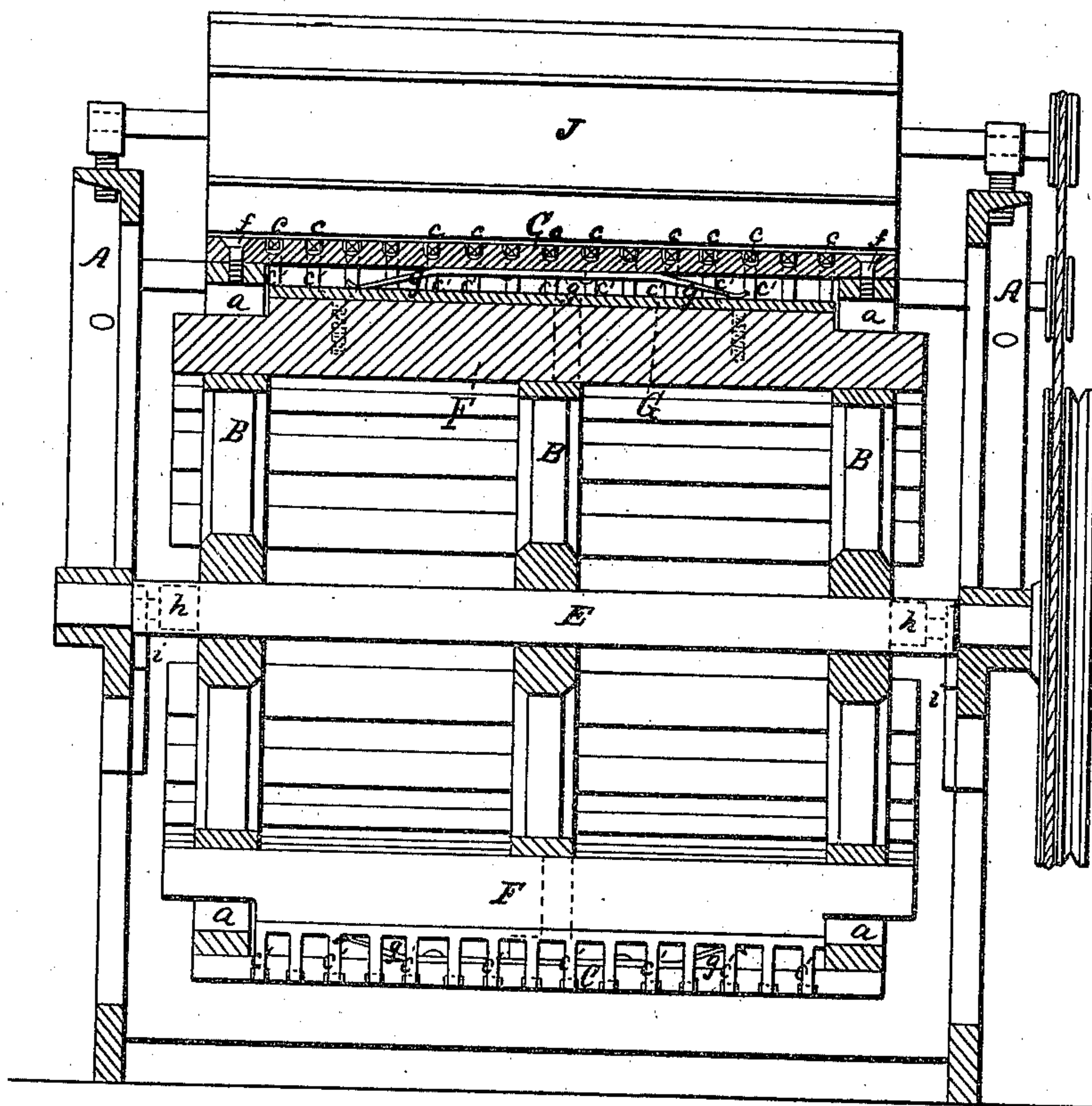
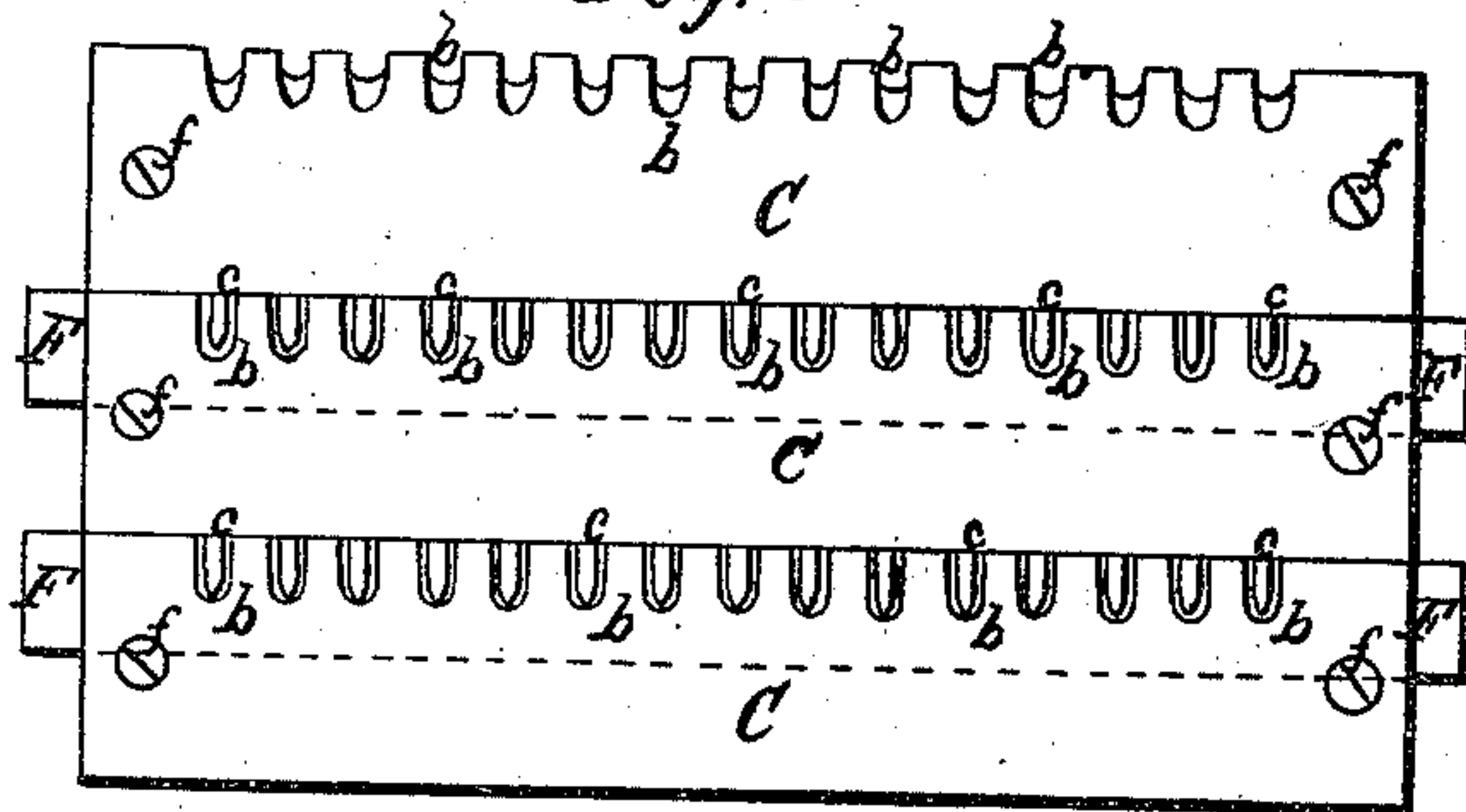


Fig. 3.



UNITED STATES PATENT OFFICE.

THOMAS B. BUTLER, OF NORWALK, CONNECTICUT.

OPERATING THE TEETH OF CYLINDERS FOR BURRING WOOL, &c.

Specification of Letters Patent No. 21,116, dated August 10, 1858.

To all whom it may concern:

Be it known that I, THOMAS B. BUTLER, of Norwalk, in the county of Fairfield and State of Connecticut, have invented a new and Improved Method of Applying and Operating the Teeth of Cylinders for Burring, Ginning, or Cleaning Wool, Cotton, and other Fibrous Materials; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a vertical section of a machine for burring, ginning, or cleaning wool or other fibrous material, having my invention applied, said section being taken in a plane parallel with the axis of the cylinder. Fig. 2 is a vertical section of the same, in a plane passing close to and parallel with the axis. Fig. 3 represents a portion of the face of the cylinder.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in so applying and operating the teeth of a revolving cylinder which presents a uniform peripheral surface to the action of strippers, brushes, or other analogous devices, that as said teeth are severally caused by the rotary motion of the cylinder to approach the feed rollers or other means applied to supply the material to be operated upon, they are projected beyond the peripheral surface of the cylinder for the purpose of seizing said material, and that immediately after passing the feed roller or means of supply, they are retracted into "pockets" within the peripheral surface of the cylinder, where they are caused to hold the ends or seized portions of the fibers securely, and thereby made to present the material upon the surface of the cylinder to the action of the strippers, brushes, or other analogous devices, without themselves interfering in any degree with the operation of such devices. The result obtained by this improvement is the distribution of the fibers over a smooth uniform surface upon which they are held firmly without being cut, while they are closely and at all points alike subjected to the action of as many strippers, brushes, or analogous devices as may be necessary to clean them, without the necessity of making the toothed cylinder or the strippers,

brushes or other cleaners rotate at a high velocity, which is objectionable.

To enable others to make and use my invention, I will proceed to describe its construction and operation.

A, is the framing of the machine which resembles substantially in its form that of the wool-burring machines and carding machines heretofore employed.

B, B, B, C, C, is the main cylinder consisting of three wheels B, B, B, of uniform size, keyed to the shaft E, and having bolted to their peripheries by screw bolts *f, f*, a number of metal plates or as they may be termed "lags" which are arranged close together and parallel with the shaft E. The lags C, C, constitute the periphery of the cylinder and are turned off to form a true and perfectly continuous cylindrical surface, with the exception that a number of recesses *b*, or as I term them "pockets" are formed in each, close to one edge of each of the said lags to receive the teeth *c, c*, which are capable of being withdrawn completely within the said pockets, and at the bottoms of these pockets notches are formed in the edge of the lag extending to their interior surfaces and forming, when the lags are fitted closely together, holes in the periphery of the cylinder, for the shanks of the teeth *c, c*, to work through.

F, F, are a series of straight wooden or metal bars corresponding in number with the lags C, C, and fitted to work radially to and from the center of the cylinder in radial slots *a, a*, in the wheels D, D, D, but always remaining parallel with the axis of the main cylinder. Each of these bars has attached to it a row of the teeth *c, c*, corresponding in number and arrangement with the holes and pockets in either of the several lags C, C, the said teeth being pointed and set nearly at right angles to their shanks *c', c'*, which are radial to the cylinder. The teeth may be secured separately to the bars F, F, or each row of them may be attached to a plate G, that is screwed to each of the said bars after all the teeth have been riveted or otherwise secured to it. The teeth remain in the pockets during the greater portion of every revolution of the cylinder, being held there by springs *g, g*, applied between the bars F, F, and the lags C, C; but as each row of teeth arrives nearly close to the feed rollers H, H, which supply the

wool or other material—the cylinder rotating in the direction of the arrow shown near it in Fig. 1,—its respective bar F is forced out by its ends, which project beyond the ends of the cylinder, passing two rollers *h, h*, arranged one at each end of the cylinder on studs secured in small stationary standards *i, i*, bolted to the framing A, on opposite sides thereof and the row of teeth is thereby projected from the cylinder as shown at the left hand of Fig. 1. The rollers *h, h*, however, only remain projected from the cylinder till the teeth have passed the feed rollers and seized the material presented to them by said rollers, for as soon as the bar F passes the rollers *h, h*, it is drawn in again by its spring *g*, and the teeth are thereby retracted into their pockets. A similar projection of the teeth from their pockets is produced as they approach the rotary brush I, which works at the rear of the cylinder by a similar action on the ends of the bars F, F, of two rollers *h*, which are arranged like *h, h*, on studs in two stationary standards *l*, which are secured in suitable positions on opposite sides of the framing A, which rollers keep the teeth projected just long enough for the rotary brush to brush off the fibers, after which the bar is drawn in by its respective spring *g*, and the teeth are retracted into the pockets again.

J, J, are rotary strippers arranged at convenient distances from the feed rollers, and working almost in contact with the peripheral surface of the cylinder. These strippers may be of any kind suitable for burring, ginning or taking out the dirt from wool, cotton, or other fibrous material. Boxes may be properly arranged to receive the burrs, seeds or dirt taken out of the fibers by the action of the strippers. A rotary brush may be arranged between the feed rollers and the first stripper, to straighten the fibers preparatory to the action of the strippers and to throw back upon the feed apron any locks or fibers which the teeth may have failed to catch.

The operation of burring or cleaning by this machine is as follows:—The main cylinder, feed rollers, strippers, and brush, having been severally set in motion, in the directions indicated upon them by arrows, by a proper system of belting or gearing, the wool or other fibrous material is supplied to the feed rollers by a feed apron such as is commonly used in such machines, and by the said feed rollers is presented to the projected teeth *c, c*, of the main cylinder, as the said teeth severally approach it, and is seized by said teeth, and secured upon them by their retraction into their pockets. As the material is carried past the strippers, it

is laid out by the action of the latter upon the even peripheral surface of the cylinder, and every portion of it is presented by the rotary motion of the cylinder at the same distance from the centers of the strippers and every portion of it is subjected to a like action, and operated upon with a similar degree of perfection, while the teeth are entirely out of the way and form no obstacle to the action of the strippers. As the teeth severally approach the rotary brush I, and are again retracted, the fibers are brushed off into a suitable receptacle. In order to insure the bearing of the teeth *c, c*, upon the bottoms of the pockets *b, b*, in such a manner as to hold the material securely, the bottom or sides or both, of each pocket, may be lined with india rubber or other elastic material. The most convenient method of applying such material would be to form a groove all along that edge of each lag in which are the pockets, and below the pockets, and insert a strip of india-rubber to fill the whole length of the groove.

In order that no obstruction may be offered to the retraction of the teeth into their pockets, by burs or seeds, cams may be applied instead of the springs *g, g*, to draw in the bars F, F, with a positive motion and with sufficient force to break or cut the burs or seeds. The said seeds, on being broken in this way, will generally drop out.

A cylinder with teeth operating as above described may be employed in connection with a "grid" for ginning cotton, the teeth being projected far enough to hook the cotton through the bars and leave the seed, and then being withdrawn into their pockets to hold the cotton and present it to the action of strippers to clean it from all impurities. A similar cylinder may be applied to the ordinary breaker cards.

What I claim as my invention, and desire to secure by Letters Patent, is:—

The application of teeth to a rotating cylinder having a uniform peripheral surface, in such a manner as to be projected beyond the said surface to catch the fibrous materials to be operated upon and afterward retracted into pockets within the said peripheral surface, for the purpose of holding said material and presenting the greater portion of it upon the even peripheral surface of the cylinder without any obstruction to the action of strippers, brushes, or other analogous devices for burring, ginning, or cleaning it, operating in combination with said cylinder, substantially as herein described.

THOS. B. BUTLER.

Witnesses:

W. TUSCH,
W. HAUFF.