J. W. Thorn.

Cotton Picker.

No. 30,435. Patented Oct. 16, 1860.

Fig 1

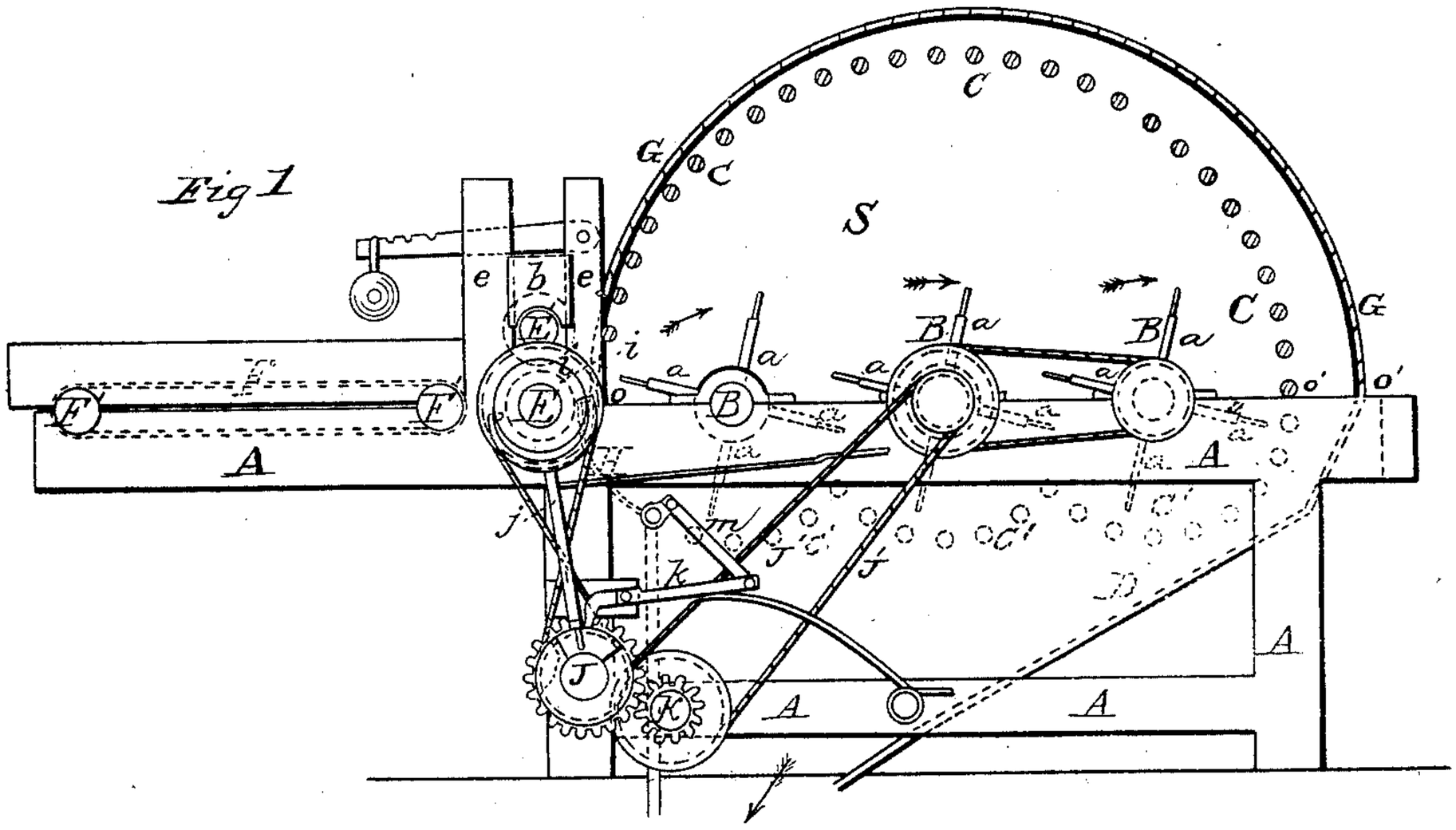
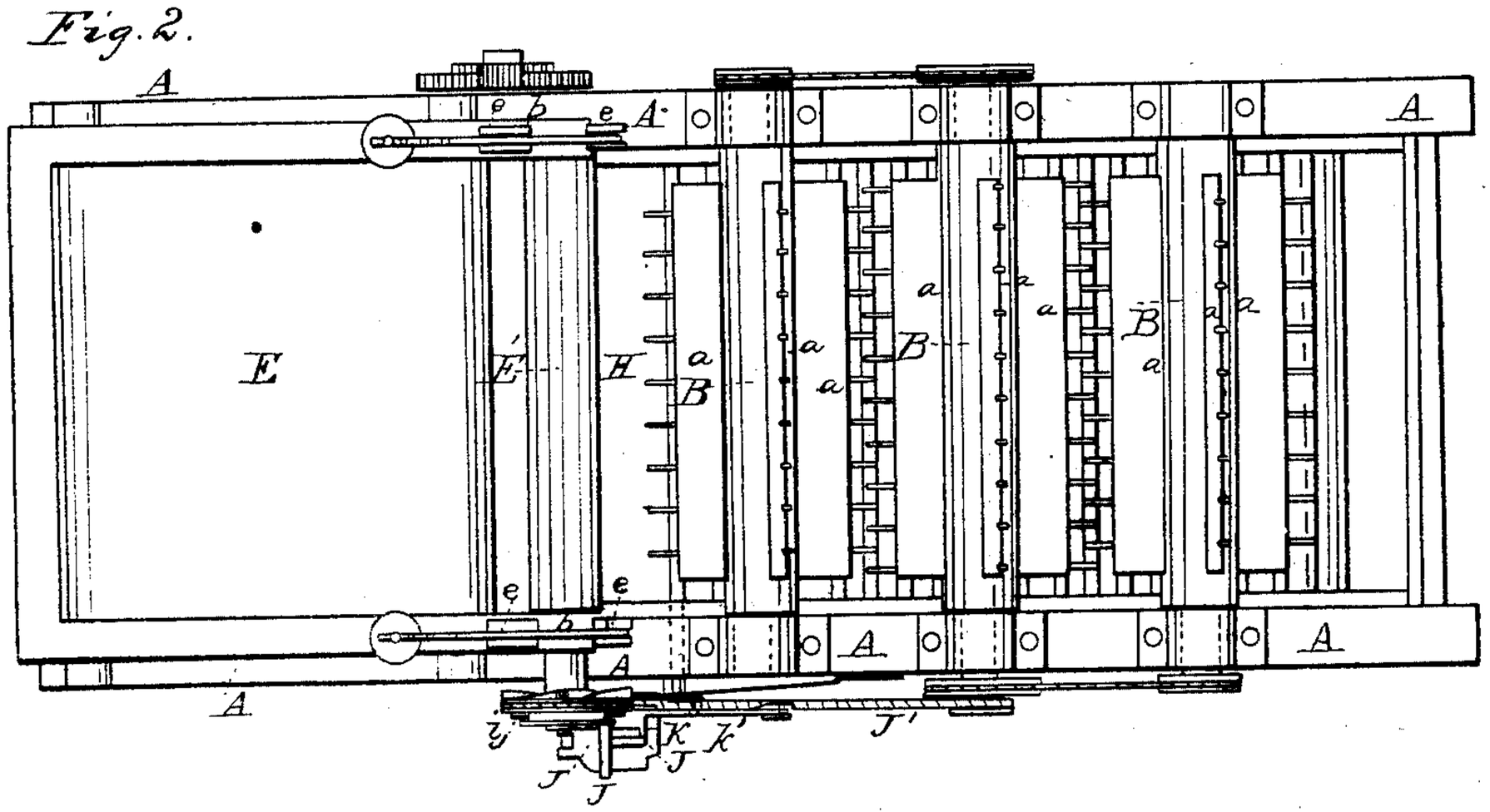


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

JOSEPH W. THORN, OF COURTLAND, ALABAMA.

COTTON-CLEANER.

Specification of Letters Patent No. 30,435, dated October 16, 1860.

To all whom it may concern:

Be it known that I, JOSEPH W. THORN, of Courtland, in the county of Lawrence and State of Alabama, have invented certain new and useful Improvements in Machines for Cleaning and Extracting Extraneous Matters from Cotton in the Seed Previous to Ginning; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a side elevation of the machine, with a vertical longitudinal section taken through the cover of the cleaning chamber. Fig. 2 shows a plan view of Fig. 1, with the cover removed.

Similar letters of reference indicate corresponding parts in both figures.

To enable those skilled in the art to fully understand my invention, I will proceed to describe its construction and operation.

In the drawings, A, A, represent the frame work of the machine, on the top of which are placed two, three, or more rotary, separating, beating, and fanning cylinders B, B, B, the journals of which run in suitable boxes on the top rails of frame A. These beaters or cleaners consist of four or more boards or wings *a*, *a*, running from end to end of shafts, and placed opposite each other, or radially to the center of the shaft. Each board is armed on its edges with a row of pins as shown in the drawings, which are arranged in such a way as to pass between the pins of the next beater running parallel to this,—thus the pins on the middle rotary beater pass between those projecting from the boards *a*, *a*, of the beater on each side of it. The object of this arrangement is to tear and separate the cotton sufficiently to free it of its dirt and leaves, which are at the same time thrown off from the cylinders, and blown through the grating C, C′, from which it is conducted away from the machine down the inclined board D, the blasts from the boards *a*, *a*, facilitating its rapid discharge from the machine. In a line with these cylinders B, B, toward the front of the machine, are placed two rollers E, E′, the lower one of which has fixed bearings, while the other, upper one is acted upon by movable bearing blocks *b b*, which are placed in upright guides *e*, *e*. The upper roller E′, is kept down on the lower ones by weights or springs so that it will be capable of an upward yielding action.

In front of the rollers E, E′, is arranged an endless apron F, moved by rollers F′, said apron is moved in the direction of the rollers and carries the cotton to be cleaned by the machine up to the rollers, the rollers then feed it into the cleaning box to be acted upon by the beating cylinders B, B, B, as will be hereinafter described.

The beater chamber S is made by setting the grate bars C C′ in the manner and position represented, so that the upper side of the chamber shall be in a curve drawn by a line extending from the center of the shaft of the middle beater B, or it need not be an arc of a circle provided the upper portion of the chamber lying between vertical planes passing through the center of the first and last beaters be of a greater height and capacity generally than the rest of the chamber. The beaters B are placed within the chamber S and a close box G incloses the whole as shown. The upper portion of the box G is of the shape of an arc of a circle of a greater radius than that of the grate C but being coincident with it at the point *o* so that the distance between their sides increases continually up to the points *o′*, *o′*. The box G is thence extended in any convenient manner to the floor or trash-box by an inclined spout D. These bars continue in curved lines under each cylinder B, to the front of the machine, and to the last one is hinged the curved door H, shown in dotted lines in Fig. 1. These bars form a screen through which the dirt, leaves etc., are thrown, the screen in the cover G, conducts off the leaves that are thrown upward, while the screens under the cylinders keep the cotton within the cleaning apartment, and allows the dirt and trash to fall through upon the inclined board, from which it is discharged at the bottom of the machine. The cotton is thus carried from the front to the rear of the machine over and around the cleaners, and brought back again, and discharged through the opening which the swinging door H, is made to close. Now when this door H, is opened to allow a discharge of pure cotton it is necessary that the feed motion of the rollers E, E′, be stopped, so that the pure and impure cotton will not get mixed nor the cotton or dirt from the feed rollers fall through the door opening. To effect this

end I have arranged with the gearing a system of cams and levers, which I will proceed to describe.

The cylinders are all driven by pulleys and bands which turn them in the direction of the arrows, Fig. 1, and the rollers E, E′ and apron F, are driven by pulleys and spur wheels. On one end of the lower roller E, is placed a grooved pulley *i*, having a grooved hub, on its outer surface, into which groove is placed a yoke that is on the upper end of a lever *j*. On the inside surface of the pulley *i*, are projecting ratchet teeth shown in Fig. 2, and projecting from the journal end of the roller E′ are pins that at suitable times clutch the pulley with the roller shaft. This grooved pulley is given a slight endwise motion, by a side cam wheel J, that is driven by the middle cylinder (B) pulley belt J′, through the medium of a pinion spur wheel K, Fig. 1.

The yoked and cam lever *j* gives to the pulley *i*, a side motion, and alternately engage with, and releases the roller shaft so as to stop the feed motion of said shaft at the required intervals. At the same time that this motion of the feed rollers is stopped, a jointed arm *k*, that connects with a crank, on one end of the door shaft, through the medium of connecting rod *m*, falls into a depression in the cam drum J, and opens the door, then as the movement of the surface cam of this drum puts the feed rollers in motion, as above described, the crank is thrown up and closes the door. In this manner the door H, is closed, and simultaneously therewith the feed rollers are stopped. It will be observed that there may be several ways for effecting this latter object and probably in a much more simple manner than the means herein described and represented.

The operation of this machine may be briefly described as follows: When the parts are all in operation, the cotton is spread on apron F which conducts it uniformly to the feed rollers E, E′, from which it is taken, (drawn) by the teeth of first cylinder B, and passed from one to the other, and deprived of its impurities which are partly blown through the grating in the chamber cover and partly separated by falling through the grating under the cylinders. The cotton, in its cleaning operation is carried from one end of the chamber to the other and then returned to the front part of the machine again under the cylinders at which place the door opens and discharges it as fast as it is cleaned. The screenings, or trash, may be conducted by a suitable spout out of the room.

I disclaim opening and closing the trap door H and stopping and starting the feed rollers automatically, but

I claim—

1. Constructing the beater chamber S, as above described, of the close box G and the grid C, springing from a common point at or near the feed rollers and diverging from each other, as and for the purposes set forth.

2. The combination of the beater chamber S containing a series of beaters, with the trap door H and the devices for opening and closing the same and for putting the feed rollers in and out of action substantially as and for the purposes described.

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Witnesses:
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