

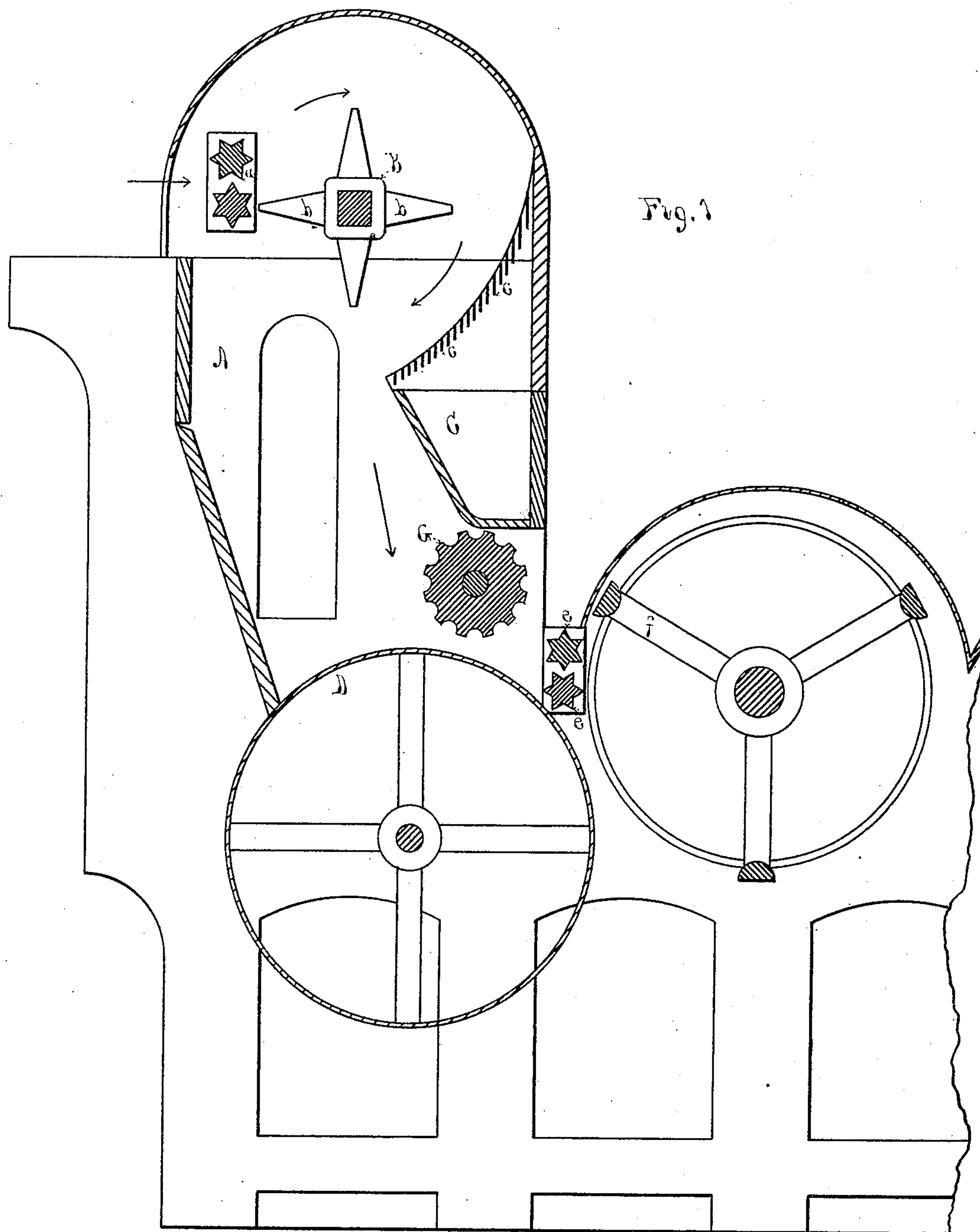
(No Model.)

2 Sheets—Sheet 1.

R. KITSON.  
COTTON OPENER.

No. 252,583.

Patented Jan. 17, 1882.



Witnesses  
Jm. S. Brown  
H. P. Ockington.

Inventor  
Richard Kitson.  
by his Attorney, J. P. Rice.

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Fig. 2

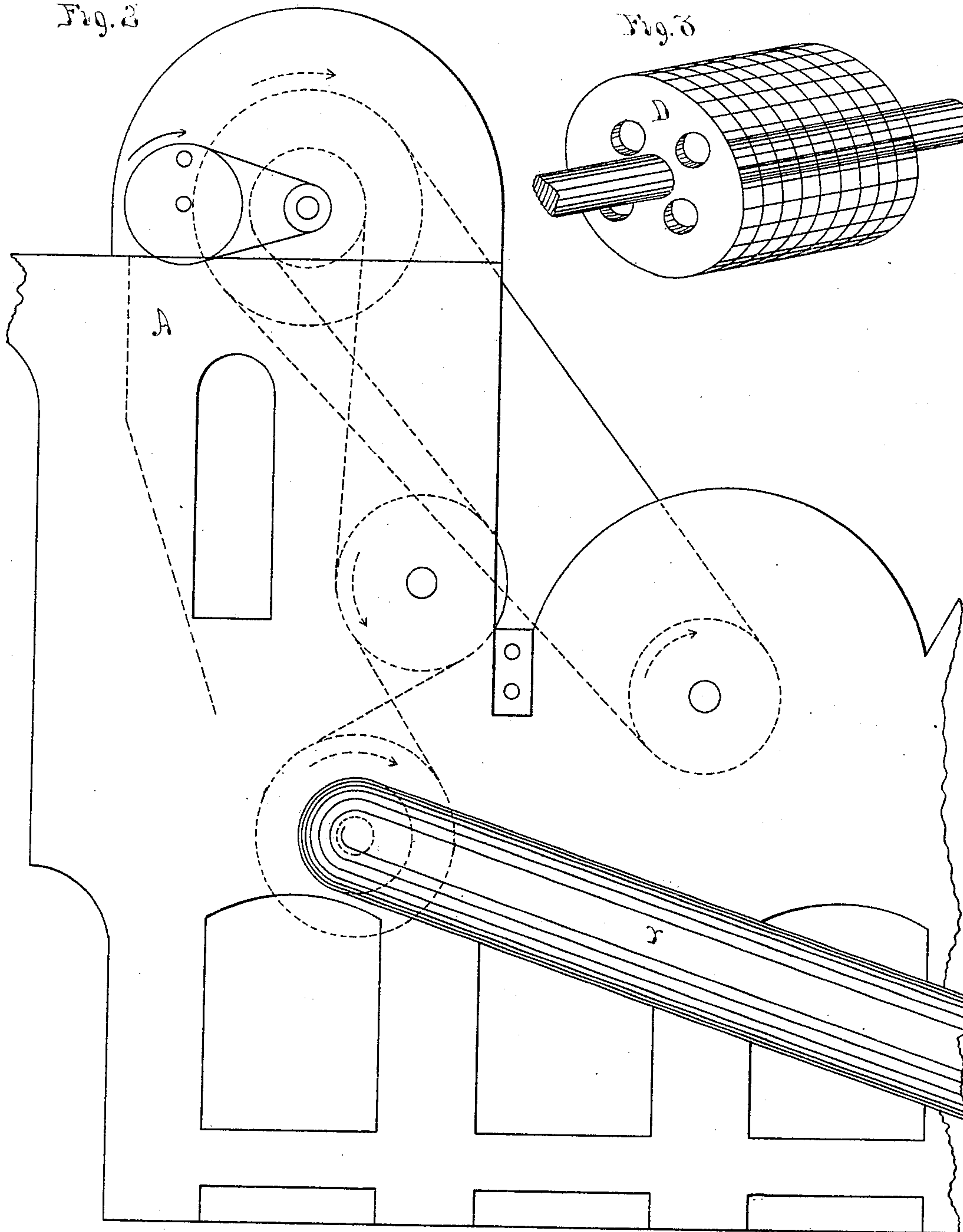
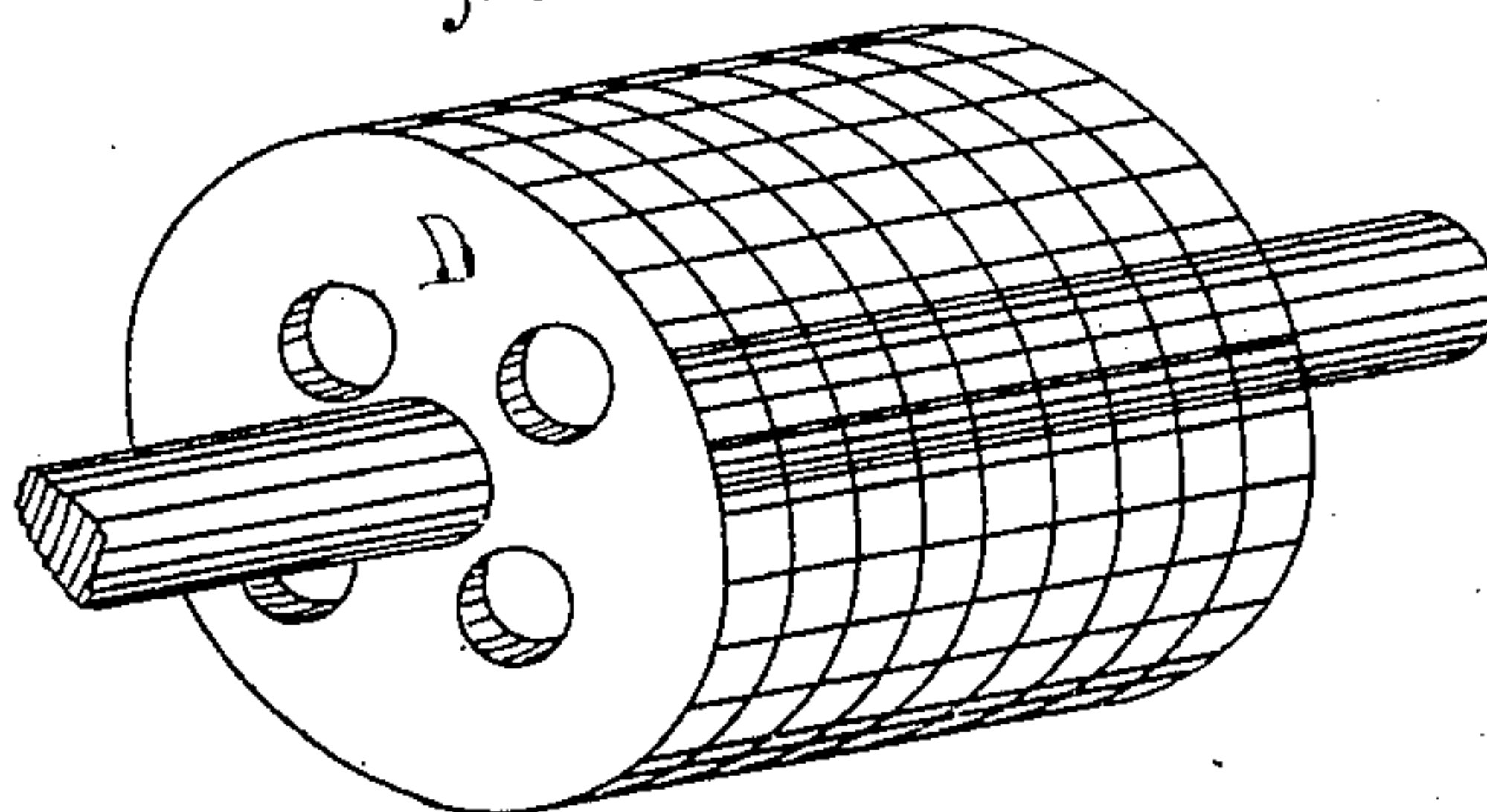


Fig. 3



Witnesses

Wm. S. Brown  
George A. Wilber

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Richard Kitson  
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# UNITED STATES PATENT OFFICE.

RICHARD KITSON, OF LOWELL, MASSACHUSETTS.

## COTTON-OPENER.

SPECIFICATION forming part of Letters Patent No. 252,583, dated January 17, 1882.

Application filed May 21, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, RICHARD KITSON, of the city of Lowell, county of Middlesex, and State of Massachusetts, have invented a new and useful Cotton-Opener, of which the following is a specification.

My invention relates to cotton-openers in which the cotton, after being opened by one opening mechanism, is, before being fed to the beater, permitted to fall in a gage-box in which a constant supply of cotton is maintained, regardless of any irregularities in the quantity falling at different times into it, and from the bottom of which a regular and constant quantity is supplied to the beater.

The object of my invention is to provide the gage-box, or box into which such a supply of cotton to be fed to the beater is maintained, with a dead-air chamber to receive and hold any sand, dirt, or other foreign substances loosened by the preceding opening mechanism and prevent their passage to the beater with the cotton, and to provide a rotary screen or cylinder upon which the cotton in the gage-box will be supported, and to which the cotton will cling sufficiently to be carried forward in a regular sheet to the beater, and into which the lighter particles of leaf loosened from the fiber may pass or be drawn by an intruding current of air created by withdrawing the air from such cylinder by connecting it with an exhaust-fan usual in such machines. I accomplish this object by the mechanism shown in the accompanying drawings, in which—

Figure 1 is a section of the device embodying my improvements. Fig. 2 is a side elevation; and Fig. 3 is a perspective of the cylinder D, seen in Fig. 1.

Similar letters of reference indicate like parts throughout the figures.

A is the gage-box; *a*, a pair of grasping-rolls by which the cotton is taken when brought within their grasp by an attendant moving it forward over a feed-table, or by the action of an endless feed-apron upon which it is placed, or by other feeding mechanism, and by which it is held while acted upon by the breaker shaft or cylinder B, which is provided with fingers or pins *b*. This shaft rotates in the direction indicated by the arrows near it.

C is the dead-air chamber, having an inclined top composed of bars *c c* placed a small distance from one another on and over which the cotton or fiber entering the machine between the feed-rolls in the direction indicated by the horizontal arrow (being opened by the action of the fingers *b* upon it) falls. The arrows within the gage-box indicate the general direction of the cotton in passing through it. As the fiber is opened by the fingers above, the dirt, sand, leaf, or other foreign matters which are loosened from the fiber are projected against the upper and back portion of the gage-box by the rotary motion of the shaft and fingers and slide over and fall upon these bars with the fiber. The smaller and heavier particles not closely entangled with the fibers fall between the bars into the dead-air space, while the cotton slides over the bars and falls to the bottom of the box upon the gauze cylinder D. The bars forming the top of the dead-air chamber are preferably placed parallel with the breaker-shaft B, in the arc of a circle, beginning behind the shaft and extending downward and under the shaft until the line of the perpendicular of the edge of the shaft or cylinder is over the bars, so that everything which passes into the machine must fall upon the bars before it can reach the bottom of the gage-box. These bars may, however, be disposed in any other convenient position which may be found advantageous to attain the end desired.

The cylinder D may be connected in the ordinary and well-known manner with an exhaust-fan, which draws into the cylinder such small motes or pieces of leaf or other foreign matter as, being very light, do not fall into the dead-air chamber above described.

The connecting-flue through which the air is exhausted from the cylinder D is shown at *r* in Fig. 2, and its end (not shown) opens into the case of the ordinary well-known exhaust-fan, which is placed beneath the collecting-cages upon which the lap is formed of the cotton after it leaves the beater. This flue is a sheet-metal pipe placed outside of the frame of the machine, with its ends curved to connect with openings to the cylinder and fan. The cylinder D, revolving toward the feed-rolls *ee*, carries the fiber toward them and presents fresh

and uncovered surface for the falling cotton to be deposited upon. The cotton falling upon this cylinder is carried out between the feed-rolls *ee* to the beater *f*, which may be of any  
5 of the known forms desired.

G is a compression-roll, which is used to gather the loose fiber into a sheet-like form, acting, in conjunction with the cylinder D, upon the fiber prior to its reaching the feed-rolls *ee*.

10 The several parts may be driven by belts, as indicated by the dotted lines in Fig. 2, or by belts or gears driven by other convenient shafts, as may desired.

What I claim as new and of my invention  
15 is—

1. The combination of the gage-box A, grasping-rolls *a*, breaker-shaft B, provided with the fingers *b b*, and the dead-air chamber C, having a grated inclined top, substantially as described.  
20 described.

2. The combination, with mechanism for

opening the cotton, of gage-box A, provided with the dead-air chamber C, having the grated top upon which the cotton acted upon by said opening mechanism falls, the rolls *ee*, and  
25 beater *f*, substantially as described.

3. The combination of gage-box A, gauze cylinder D, feed-rolls *ee*, and beater *f*, substantially as described.

4. The combination of the grasping-rolls *a*  
30 *a*, breaker-shaft B, provided with the fingers *b*, gage-box A, with the rolls *ee*, and gauze cylinder D, substantially as described.

5. The combination of the grasping-rolls *a*,  
35 breaker-shaft B, provided with the fingers *b*, gage-box A, provided with the dead-air chamber C, cylinder D, feed-rolls *ee*, and beater *f*, substantially as described.

RICHARD KITSON.

Witnesses:

S. KITSON,

DAVID HALL RICE.