2 Sheets—Sheet 1.

R. KITSON.

COTTON-OPENERS AND CLEANERS.

No. 193,094. Patented July 17, 1877.

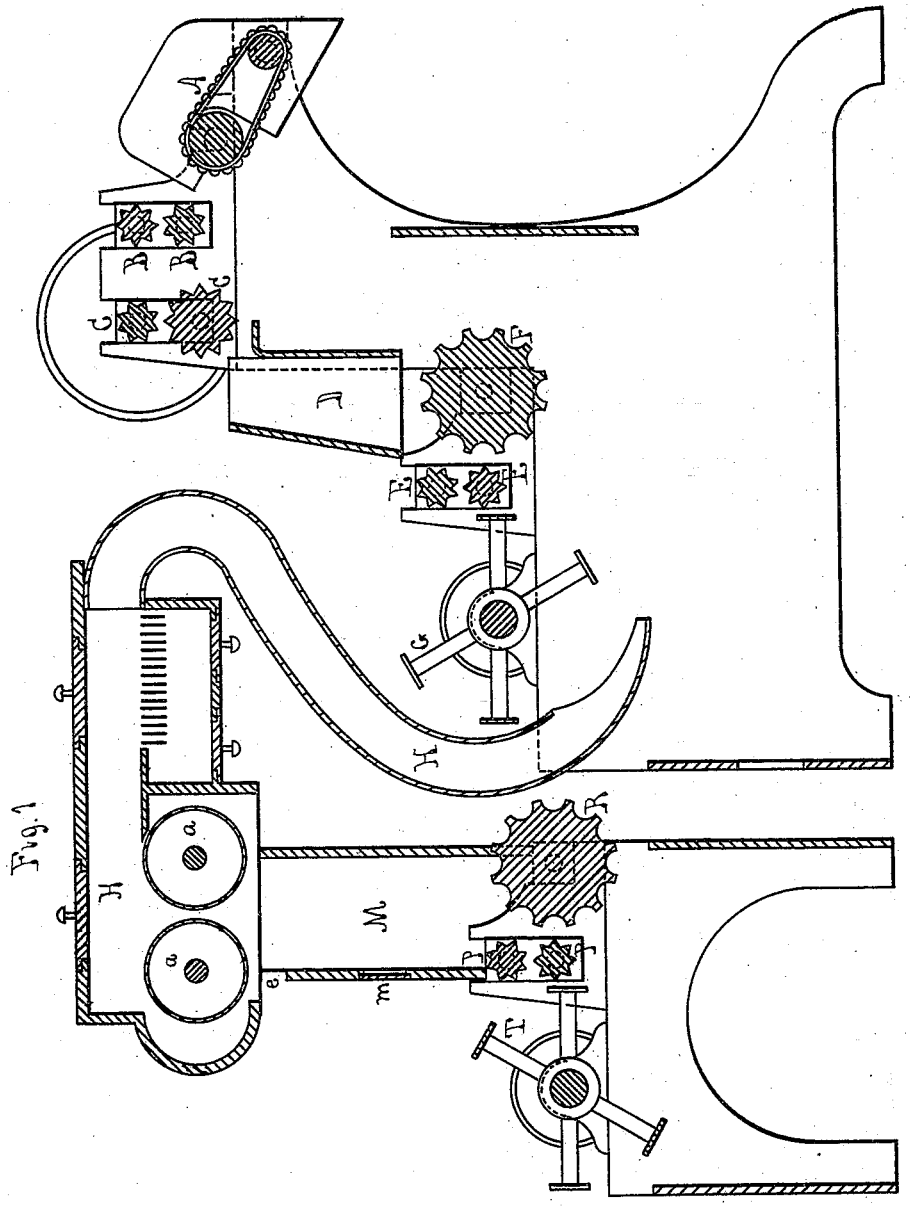

Fig. 1.

Witnesses.
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by A. K. Garland Atty.

2 Sheets—Sheet 2.

R. KITSON.

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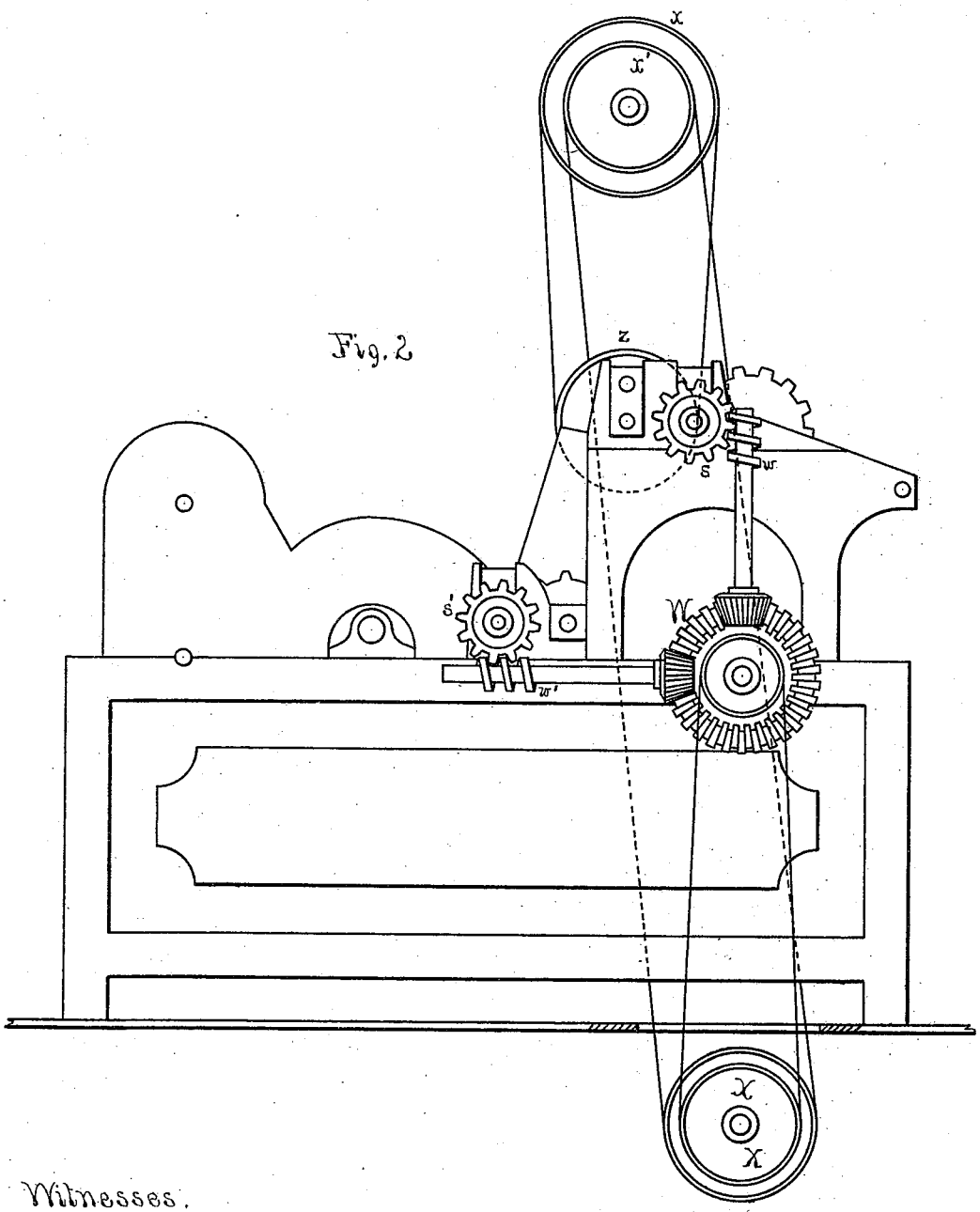
Fig. 2



Witnesses.

Wm. S. Brown

A. K. Garland

Inventor

Richard Kitson

by A. K. Garland

Atty.

UNITED STATES PATENT OFFICE.

RICHARD KITSON, OF LOWELL, MASSACHUSETTS.

IMPROVEMENT IN COTTON OPENERS AND CLEANERS.

Specification forming part of Letters Patent No. **193,094**, dated July 17, 1877; application filed August 31, 1876.

To all whom it may concern:

Be it known that I, RICHARD KITSON, of Lowell, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Opening and Cleaning Cotton, &c., of which the following is a specification:

My invention relates to the application, to the trunk of a common cotton opener or breaker, of a condenser-box, together with suitable feeding mechanism for delivering the cotton to a beater, the object of my invention being to deliver the cotton or other material from the trunk of the opener or breaker directly to the lapper, instead of dropping it to the floor or into a bin, as has heretofore been done, and also to deliver the cotton to the beater in a constantly uniform quantity, so that an even lap will be formed, free from all irregularities of weight or size.

In the drawings, Figure 1 represents a vertical section of a cotton-opener with my improved condenser applied to the trunk. Fig. 2 is a side elevation, showing the driving mechanism.

A is the feed-apron, upon which the cotton is placed and fed to the grasping-rolls B B. C C are fluted separating-rolls, which revolve at a much greater speed than the grasping-rolls, and open and separate the lumps and bunches of cotton.

These several rolls are driven by means of the mechanism shown in Fig. 2, in which W represents a beveled-gear wheel. This gear-wheel imparts motion to the grasping and feed rolls by means of the worm-gears *w* and *w'*, and gear-wheels *s* and *s'*, respectively, in the well-known form. This gear-wheel W is driven by a belt from a pulley on the main shaft X, which shaft is below the floor of the room in which the machine is placed. Another belt from a pulley on the main shaft X causes the dividing-rolls to revolve at the desired rate of speed by means of the pulleys *x*, *x'*, and *z*.

This method of driving the several rolls forms no part of my invention, as it is well known and used for similar purposes, and other well-known mechanism may be used adapted to the room in which the beater is placed, and the shafting which operates the same.

D is a condenser-box, into which the cotton falls from the separating-rolls, and from this box it is delivered to the beater G by the feed-rolls E E and F.

This beater G throws the cotton into a trunk, H, and the current of air caused by the rapid revolution of the beater carries the cotton along through the trunk, and upon the revolving screens *a a*, in the usual manner.

M is a condenser-box, into which the cotton falls from the screens *a a*. At the bottom of this condenser I place a large fluted roll, R, which is made to revolve slowly and turn the cotton along to the feed-rolls P P, the former acting as a supplementary feed-roll, and assisting very materially in delivering out of the box a constantly uniform quantity to the beater.

In the top of this condenser I make an opening, *e*, directly under one of the screens, by means of which the surplus, when the box becomes filled, will be thrown out and the cotton in the box prevented from becoming jammed or pressed down, and hence the cotton in the box will be kept at a uniform evenness as to its bulk at the bottom of the box, though the total quantity may be varied.

This combination of the condenser-box with the feed-rolls R and P P forms an automatic feeding device, which insures the making of a substantially perfect lap.

Heretofore the cotton has been dropped from the screens *a a* at the end of the trunk of an opener or breaker onto the floor in any convenient place to be fed by a workman to another opener or lapper, which not only involved the expense of one workman, but also rendered the room peculiarly liable to fire on account of the loose cotton being quickly ignited by a hot bearing or other cause; but by the application of my condenser-box this expense and danger is overcome, as the cotton is delivered into this box from the screens, and fed out of it directly to another opener or lapper, and thus the cotton is kept inclosed as soon as taken from the bale and placed upon

the feed-apron till the lap is made, thereby avoiding the danger from exposure, and expense of handling.

By means of this condenser a more even lap will also be made than has heretofore been possible when the cotton has been fed by hand to the lapper, it being practically impossible to feed an even quantity to the lapper by hand; but by means of this condenser the quantity delivered to the lapper is made to be entirely independent of the quantity fed into the machine, and the feed-rolls R and P P will take out of the box a constantly uniform quantity, and a corresponding even lap will be formed.

This box may be made of any convenient length to be applied to the end of the cotton-trunk, and connected to the next opener or lapper, and, by means of a glass window, *m*, in the box, the operator may at all times see the quantity in it and keep it well filled.

This condenser is also applicable for a similar purpose to machines for opening other fibrous materials.

I claim as new and of my invention—

The combination of the cotton-trunk H, the condenser-box M, and the beater T, substantially as described.

RICHARD KITSON.

Witnesses:

A. K. GARLAND,

D. HALL RICE.