

(No Model.)

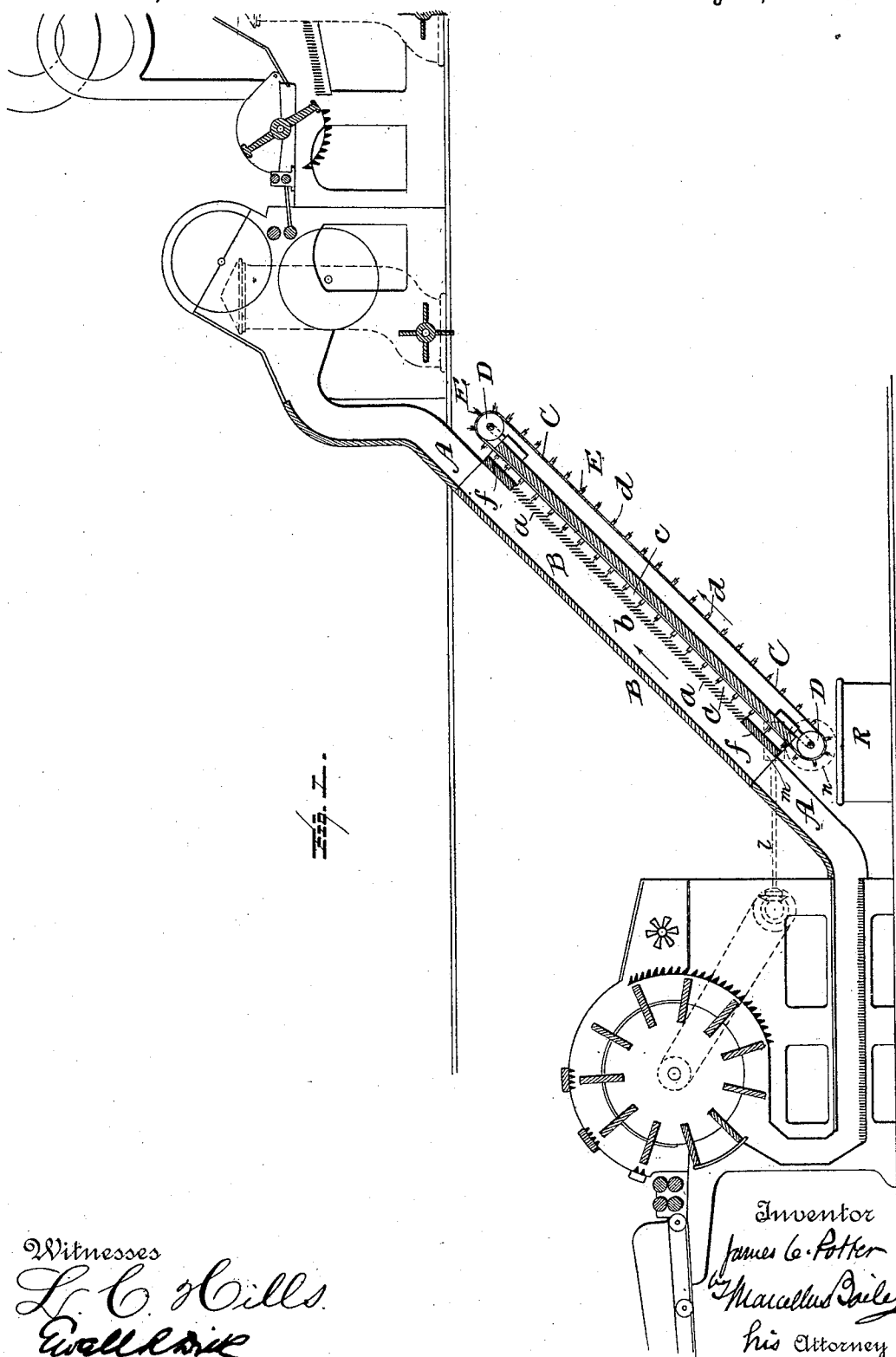
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J. C. POTTER.

DUST TRUNK FOR COTTON CLEANING APPARATUS.

No. 451,609.

Patented May 5, 1891.



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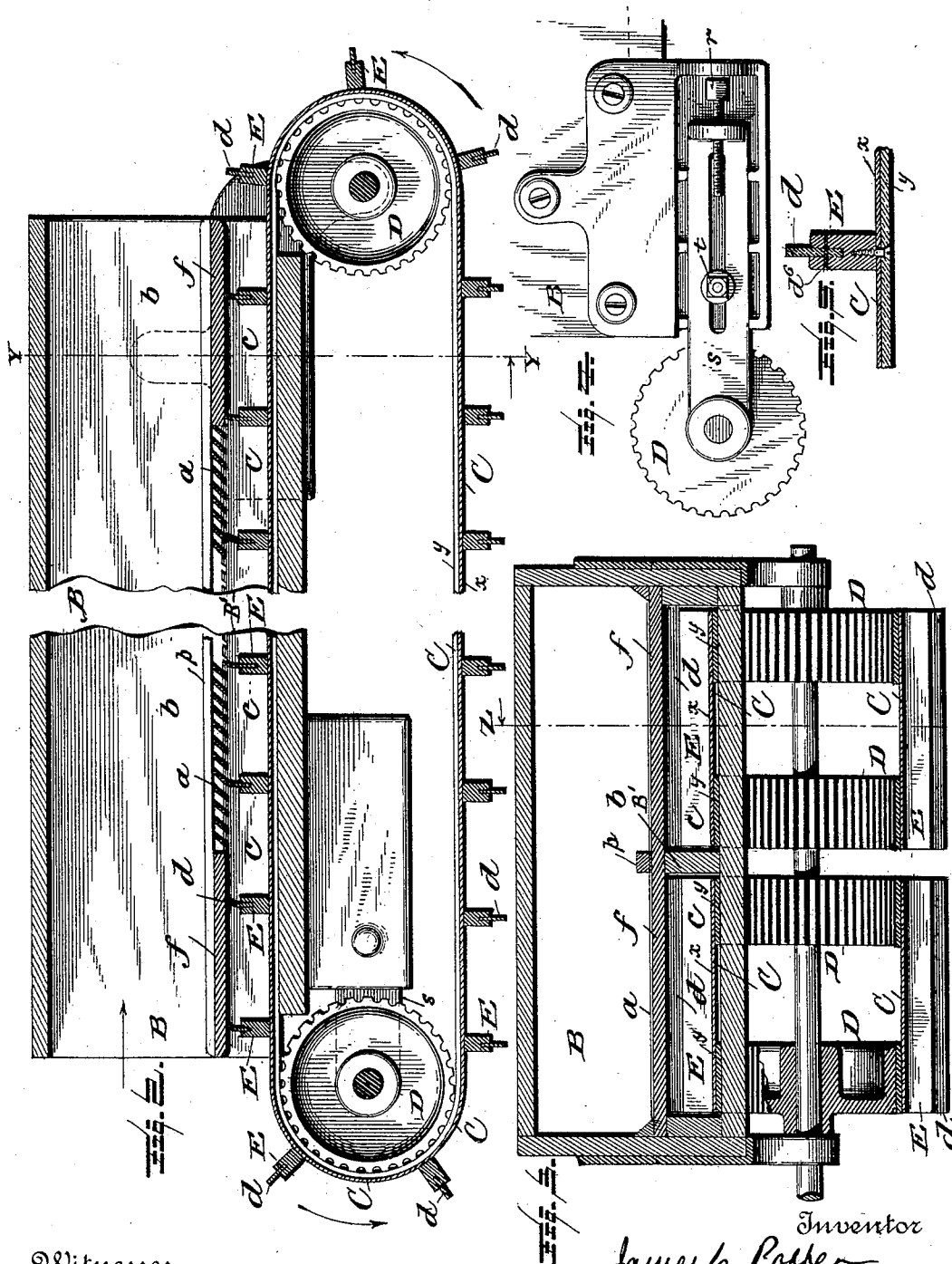
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Witnesses
L. C. Hills
Everett

Inventor
James C. Potter
by *Marcellus Daily*
his Attorney

UNITED STATES PATENT OFFICE.

JAMES C. POTTER, OF PAWTUCKET, RHODE ISLAND.

DUST-TRUNK FOR COTTON-CLEANING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 451,609, dated May 5, 1891.

Application filed December 11, 1890. Serial No. 374,304. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. POTTER, of Pawtucket, in the State of Rhode Island, have invented certain new and useful Improvements in Dust-Trunks for Cotton-Cleaning Apparatus and the Like, of which the following is a specification.

The dust-trunk for cotton-cleaning and like apparatus in which my invention is comprised is one of that general type in which a traveling conveyer is arranged in the trunk below the grating or grid-bars for the purpose of carrying off the dust and refuse falling through the grid-bars from the cotton which travels along in the passage above said bars. In one kind of trunk of this general class it has been proposed to use, in connection with the grid bars or grating and a series of separate dust-receptacles below the same, a traveling apron located in a separate chamber placed below the dust-receptacles and communicating with said receptacles through movable bottoms, with which the latter were provided. In another variety of trunk of this general class it has been proposed to use, in connection with the grid-bars, scraper-like transverse partitions mounted on sprocket-chains and extending between the grids above and the bottom of the lower part or dust-passage of the trunk below, and armed at their lower edges with brushes or the like to sweep along over the stationary floor or bottom of the dust-apron, so as to carry off the dust and refuse falling thereon, a valve-like door being provided at each end of the dust-passage traveled, which, by appropriate mechanism, was opened to admit the inward or outward passage of each scraper and was then closed until the next scraper came to it. Following the plan last referred to, it has been proposed, in lieu of moving scrapers extending from the floor of the dust-passage below to the grid-bars above, to provide just below the grid-bars a series of stationary transverse partitions reaching down part way to the floor of the dust-passage and to combine therewith a series of slat-like scrapers, (mounted on endless chains, as before,) which travel along over the floor of the dust-passage and are of a height to just pass under the lower edge of the transverse stationary partitions.

Dust-trunks for cotton-cleaning and the

like are made usually of considerable length, and; as is well known to those skilled in the art, it is absolutely necessary to divide the dust-space below the grid-bars by some means, such as cross-partitions and the like, into separate receptacles or boxes, in order to prevent any under current of air or leakage and the choking or clogging of the trunk consequent thereon. In the plan last mentioned these separate receptacles or boxes exist momentarily and only when the traveling slat-like scrapers are directly under the stationary hanging partition-pieces. At other times there will be an uninterrupted though sinuous passage for air in and lengthwise of the dust-chamber. In the plan which involves the use of vertical scrapers extending between the floor of the dust-chamber and the grid-bars this difficulty is not experienced to the same extent; but nevertheless it is to some extent, owing to the intermittent opening and closing of the end doors. Moreover, both of these plans involve the use of scrapers, which must drag over the stationary floor of the dust-chamber, and are liable to be injured themselves as well as to injure the floor of the dust-chamber by reason of metallic and other solid scrap which may fall into the dust-chamber and work between the lower edges of the scrapers and the floor. The plan first above mentioned is complicated, involving, as it does, the use of separate stationary dust-receptacles immediately below the grid-bars, with separately hinged or sliding bottoms, and below those receptacles a dust-chamber common to all the receptacles. Under my invention, however, I have no stationary dust-receptacles and no separate dust-chamber below and communicating therewith. I employ no scrapers of any kind, and I have no separate intermittently-operated doors for opening and closing the ends of the dust passage or chamber. I divide, it is true, the dust-passage into a series of separate receptacles; but these receptacles travel and are formed by a series of transverse partitions mounted upon an endless traveling apron, which forms a moving floor for the dust chamber or passage, the partitions extending from the apron below to the grid-bars above. These partitions are in no sense scrapers or conveyers. They are simply and solely partitions to divide up the

dust-passage transversely into separate compartments. The apron which carries them is in and of itself the only conveyer. Moreover, the parts are so constructed and arranged that the partitions themselves act at all times to close the ends of the dust-passage, there being at each end of this passage a solid imperforate top beyond the grid-bars of such length that when the apron is in movement one partition will reach it before the next adjoining one leaves it, and thus all necessity for swinging doors and mechanism for alternately opening and closing them is done away with.

The nature of my invention and the manner in which the same is or may be carried into effect will be readily understood by reference to the accompanying drawings, in which—

Figure 1 is a sectional view of my improved dust-trunk and the parts connected therewith. Fig. 2 is a longitudinal section of the trunk, on enlarged scale, on line Z Z, Fig. 3. Fig. 3 is a cross-section of the same on line Y Y, Fig. 2. Fig. 4 is a side elevation of one of the brackets and adjustable bearings of the roll at one end of the trunk. Fig. 5 is an enlarged cross-section of one of the partitions, together with the part of the belt adjacent thereto.

In Fig. 1 I have shown the general arrangement of parts as they would be in a cotton-mill having the conducting-trunk A leading from an opener located in the lower room to a breaker-lapper in the upper room. The trunk is represented as set at an angle of about forty-five degrees; but of course it can be placed at any angle desired.

In the conducting-trunk, at a convenient point, is introduced the dust-trunk B, which consists in a general way of a trunk divided by a grating of transverse grid-bars *a* into a cotton-passage *b* above and a dust-chamber or passage *c* below, the cotton-passage *b* communicating at each end, as usual, with the conducting-trunk A.

As dust-trunks are usually made from thirty-six to forty inches wide, I prefer to run a stationary upright partition B' in the dust passage or chamber from one end to the other of the trunk, the lower edge of the partition being fastened to the bottom of the trunk, and its upper edge being provided with notches into which the lower edges of the grid-bars are received and fitted. This prevents the bars from springing in the center, and also divides the apron lengthwise into two parts, which, as I find in practice, makes the latter much more easy to handle. This partition, however, while a convenience is not a necessity. The apron, which in this instance and for the reasons above given is divided longitudinally as just stated, is shown at C. It is mounted on rolls D, located outside of the dust-chamber, and the arrangement is such that the upper web only of the apron is in the dust-chamber, this web passing along over

and resting upon the bottom of the trunk as a support, and thus constituting, when in motion, a movable floor for the dust-chamber. Mounted upon and carried by the apron are the upright transverse partitions E, which are placed at suitable evenly-spaced intervals apart and extend between the apron below and the grid-bars above. These partitions thus divide the dust-chamber into a number of separate receptacles, the bottoms of which are furnished by the endless traveling apron, to which they are attached. In practice I attach to the upper edges of the partitions strips *d*, of leather, rubber, or other suitable material, which rub against the grid-bars, keeping them clean and making with them a tight joint. One of the rolls D is power-driven, for which purpose any known actuating devices may be employed. I prefer, however, to drive the same by a worm and worm-gear, as shown in the drawings.

The ends of the dust-chamber are open. Each of these ends outwardly beyond the grid-bars has an imperforate or solid top *f*, which is on a level with the lower edges of the grid-bars, and is of such length that it will always be engaged by two of the partitions—that is to say, of a length at least equal to the distance between two adjoining partitions E—so that it will be reached by one partition certainly by the time, and preferably before the time, it is quitted by the other partition next in front. In this way, although the ends of the dust-chamber are provided with no separate closing devices—such as doors, flaps, or the like—yet the chambers at these ends are always closed tightly against leakage, the partitions themselves, although constantly traveling, being the agents by which this result is attained.

Among other advantages attending my invention, it may be noted that the dust-receptacles can be made very shallow, as shown, as they are continually kept clean by the traveling of the apron.

In Figs. 2 to 5 I have shown on enlarged scale such details of construction as may be useful in building the apparatus.

The apron I prefer to make of an endless canvas web *x*, which is mounted on and secured to endless leather belts *y*, which run on the rolls D. The latter are fluted or ribbed, as shown, to prevent slip between them and the leather belts. The rolls are mounted in suitable brackets attached to the dust-trunk, and at one end of the dust-trunk the journals of the roll at that end are supported each in a bearing *s*, which is movable longitudinally in its supporting-bracket, is adjusted by the screw *r*, and is held in adjusted position by the set-screw *t*. This is to enable the apron to be kept properly stretched.

The partitions D are secured to the apron by screws or the like, which pass through the leather and canvas of the apron into the partitions. They (the partitions) serve to keep the apron laterally stretched and smooth.

Over the grid-bars and in line with the partition B' below I prefer to secure a longitudinal strip or cleat *p* to hold down the grid-bars in place.

5 The flexible strips *d* are secured by being inserted in kerfs formed for their reception in the top edges of the partitions, small nails *d'* then being driven in the partitions and through them to hold them in place, as seen
10 in Fig. 5.

I have hereinbefore stated that for the purpose of actuating the apron I prefer to drive one of the rolls D by worm and worm-gearing. Specifically, the driving mechanism consists of a shaft *l* driven by bevel-gearing from
15 a power-driven shaft on the opener, and having a worm *m*, which meshes with a worm-wheel *n* on the axle of the selected roll D, as indicated in Fig. 1.

20 A suitable receptacle R, Fig. 1, catches the dirt and refuse which is emptied from the dust-receptacles as they pass out from the lower end of the dust-passage and down around the lower roll D.

25 The grid-bars are set on a slant, with their lower edges in advance of their upper ones, relatively to the direction of movement of the apron through the dust-passage, as shown in section in Fig. 2.

30 Having described my improvements and the best way known to me of carrying the same into effect, what I claim, and desire to secure by Letters Patent, is as follows:

1. A trunk for cleaning cotton or the like,
35 consisting of a passage for the material to be cleaned, a grated bottom for said passage, and a dust-chamber below said grated bottom divided into a series of separate dust-receptacles, the floor or bottom of which is formed
40 by an endless power-driven apron and the sides of which are formed by transverse partitions attached to and moving with the apron and extending from the apron below to the grated bottom above, as and for the purposes
45 hereinbefore set forth.

2. A trunk for cleaning cotton or the like, consisting of a passage for the material to be cleaned, a grated bottom for said passage, and a dust-chamber below said grated bottom hav-

ing an imperforate top beyond the grated bot- 50
tom at each end and divided into separate dust-receptacles, the floor or bottom of which is formed by an endless power-driven apron, and the sides of which are formed by trans- 55
verse partitions attached to and moving with the apron and extending between the apron below and the grated bottom above and so spaced relatively to the length of the imperforate top portion of the ends of the dust-
60 chamber, that one partition will reach the said imperforate top portion before the next partition in advance quits it, substantially as and for the purposes hereinbefore set forth.

3. The trunk provided with a passage for the material to be cleaned, a grated bottom 65
for the same, and a dust-chamber below the grated bottom divided longitudinally by an upright partition extending between the bottom of the dust-chamber below and the grid-
70 bars of the grated bottom above and notched to receive said bars, in combination with the divided endless power-driven apron and the transverse partitions carried by said apron and
75 extending between the apron below and the grated bottom above, substantially as and for the purposes hereinbefore set forth.

4. In a trunk for cleaning cotton and the like, the combination, with the dust-chamber having open ends and formed beyond the grid-bars at each end with an imperforate top, 80
of an endless apron the upper web of which passes through the dust-chamber in contact with the bottom of the same and thence out beyond the ends of said chamber, and transverse partitions secured to said apron of a 85
height to extend between the apron below and the grid-bars above and so spaced relatively to the imperforate top at each end of the dust-chamber that when the apron is in move-
90 ment one partition will reach the imperforate top before the next in advance quits it, as and for the purposes hereinbefore set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES C. POTTER.

Witnesses:

A. T. ATHERTON,
C. T. ATHERTON.