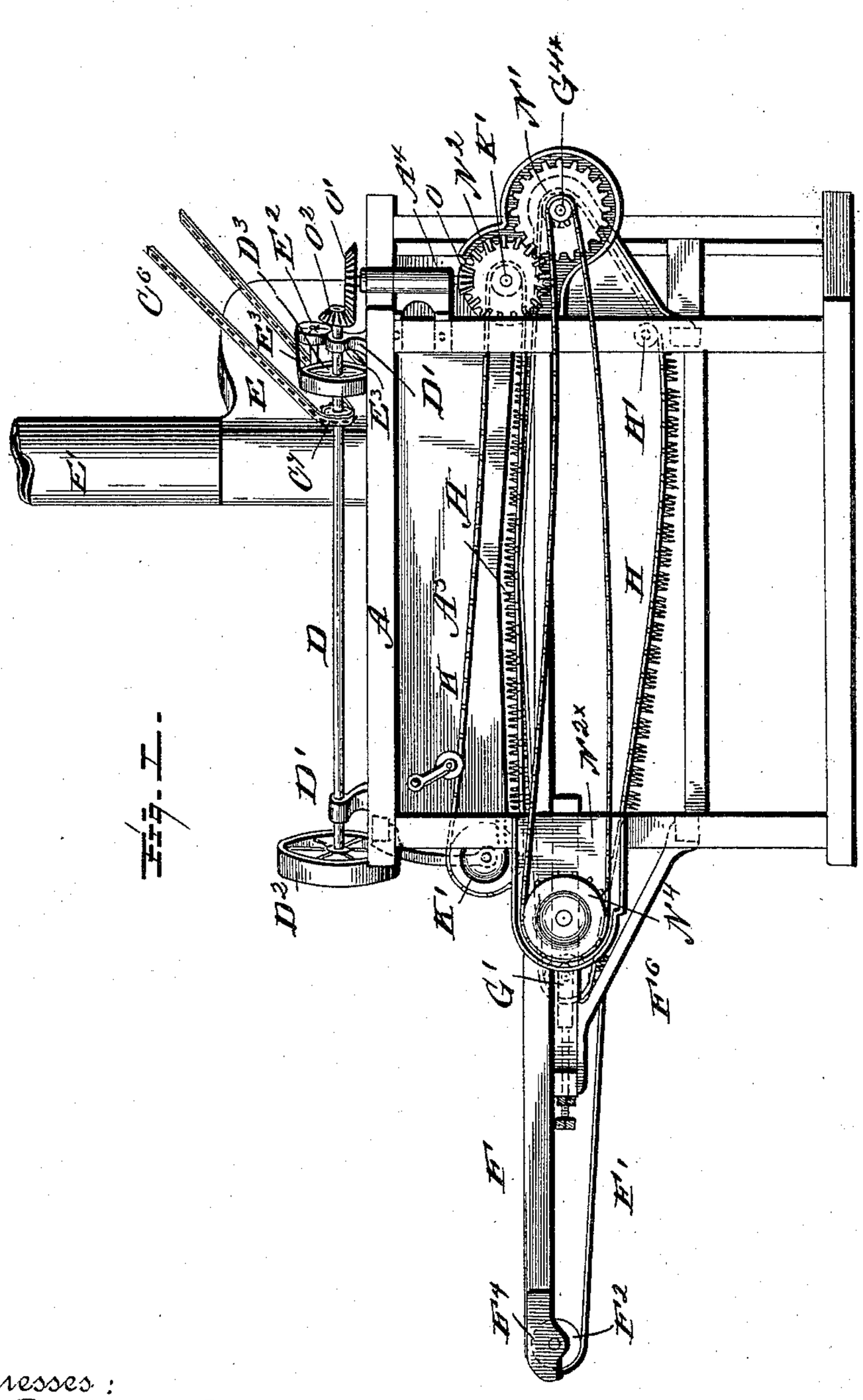
(No Model.) 3 Sheets—Sheet 1.

F. W. REESE.

BROOM CORN CLEANER.

No. 488,251. Patented Dec. 20, 1892.



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(No Model.) 3 Sheets—Sheet 2.

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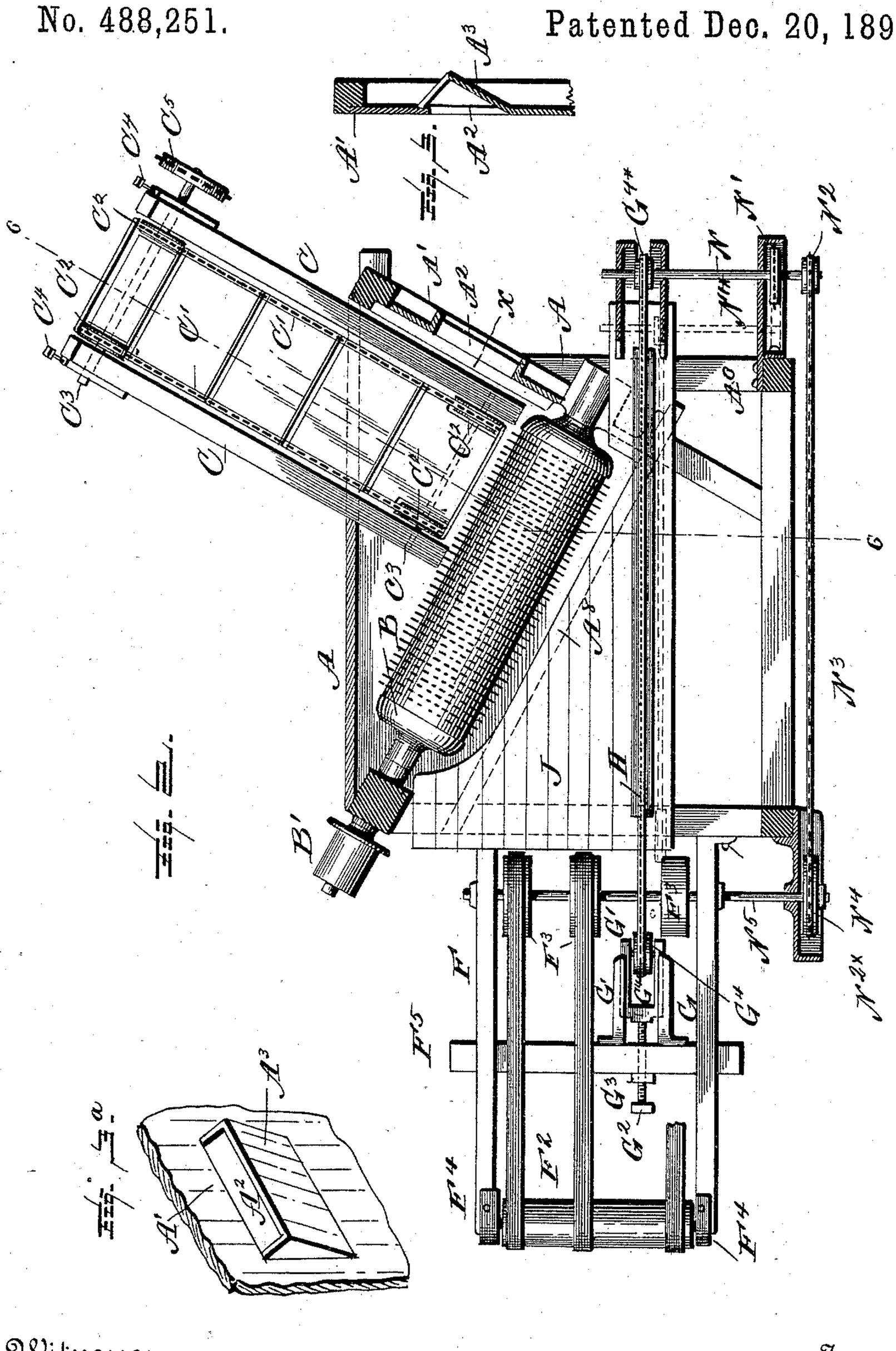

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Fig. 4.

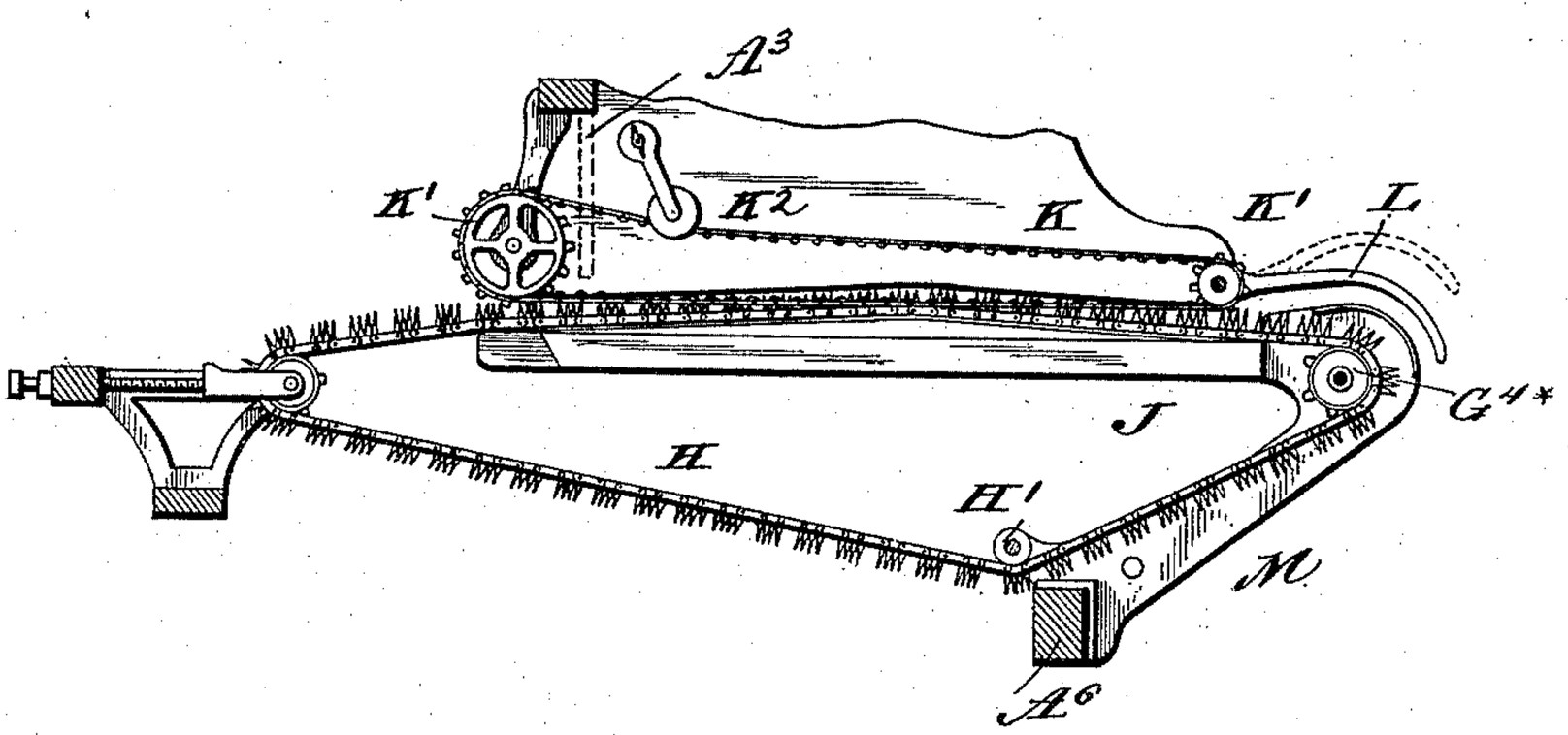


Fig. 5.

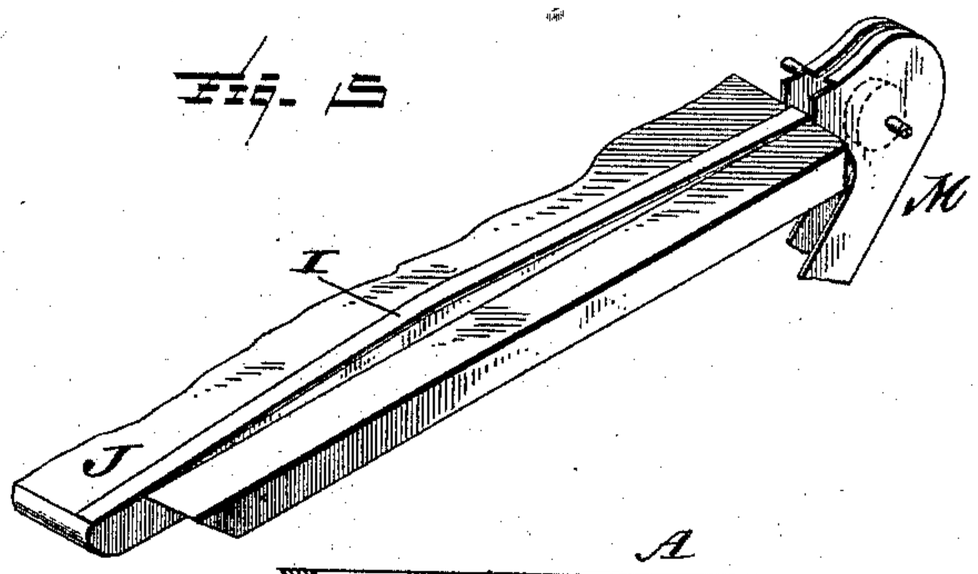
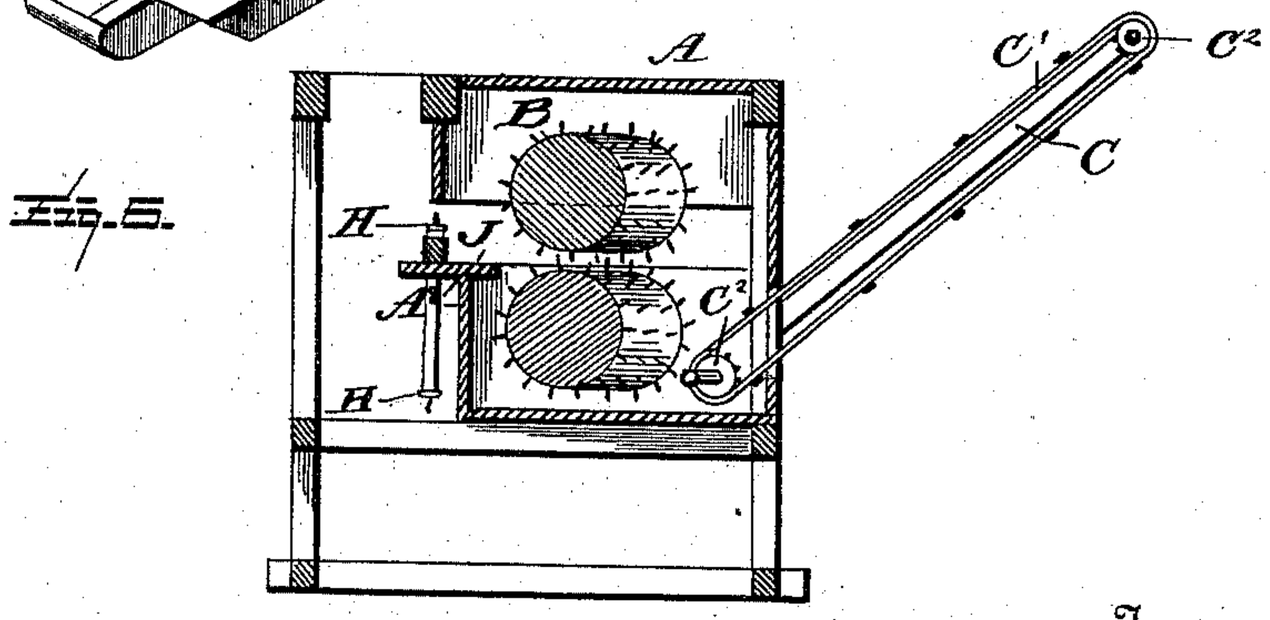


Fig. 6.



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UNITED STATES PATENT OFFICE.

FREDERICK W. REESE, OF PARIS, ILLINOIS.

BROOM-CORN CLEANER.

SPECIFICATION forming part of Letters Patent No. 488,251, dated December 20, 1892.

Application filed February 27, 1892. Serial No. 423,020. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. REESE, a citizen of the United States, residing at Paris, in the county of Edgar, State of Illinois, have invented certain new and useful Improvements in Broom-Corn Cleaner, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has relation to broom corn cleaners, and among the objects in view are to provide a new arrangement of the elevator with relation to the cleaning cylinders and to construct a casing adapted to such arrangement; to provide such a bed or track for the toothed feed belt as will cause it to more positively control the material during its passage through the machine, and to provide various improvements in the several parts of the machine.

Other objects and advantages of the invention will be mentioned in the following description and the novel features thereof will be particularly pointed out in the claims.

In the drawings—Figure is a side elevation of a broom corn cleaning machine embodying my invention. Fig. 2 is a horizontal section on a line passing immediately above the table of the machine. Fig. 3 is a vertical section of the inclined rear wall of the casing and is taken on the line *x x* of Fig. 2. Fig. 3ª is a perspective view of a portion of the end wall A′. Fig. 4 is a side elevation of the toothed feeding belt and its adjacent parts with portions of the framework in section. Fig. 5 is a perspective of the convex feed belt track with portions of the table and the belt-pulley bracket. Fig. 6 is a section on the line 6 6 of Fig. 2.

Like letters of reference refer to like parts in all of the figures.

A represents the casing of the machine and it is substantially rectangular with the exception of the rear end which at A′ is inclined or arranged transversely at other than a right angle to the sides of the casing. The section A′ of the rear of the casing is arranged at a right angle to the axial lines of the cleaning cylinders B, one only of which is shown, the other being arranged immediately above as is customary. These cylinders are rotated by means of a belt which passes around each of the pulleys B′ of which one is provided for each cylinder. C represents the elevator and consists of an endless apron or a series of bars as preferred carried or propelled by sprocket chains C′ passing over pulleys C^2 mounted on shafts C^3 arranged parallel with the cleaning cylinders. Sprocket-chain-tightening-devices C^4 are operatively connected with the outer shaft C^3 and this shaft carries a sprocket wheel C^5 which is operated by a sprocket chain C^6 passing over a pulley C^7 mounted on a shaft D secured in bearings D′ located upon the top of the casing. A band pulley D^2 is the provision made for communicating motion to the elevator by means of the connections described. By arranging the end section at right angles to the elevator and the latter parallel with the cleaning cylinders the seed, dirt, dust and refuse taken from the corn by the cylinders is more directly conducted to the elevator and from thence out of the casing and no square corner or adjacent space exists within the casing and adjacent to the elevator in which an objectionable collection of seed, and refuse would occur. This is quite a serious objection in cases which are wholly rectangular.

There is mounted upon the case an exhaust fan and its inclosing box E which communicates with an up-take E′ and with the interior of the casing A. This exhaust is for the purpose of carrying the dust, smut and lighter portions of the refuse which is cleaned from the corn. The shaft E^2 of the exhaust fan is provided with a pulley which operatively connects the fan with the shaft D by means of the belt E^3 and pulley D^3. The section A′ of the casing has an air opening or inlet A^2 partially covered by an inclined board A^3, Fig. 3. The arrangement of the board A^3 with relation to the opening A^2 is such as to confine said board practically within the cross area of the end section so that there is practically no projecting part beyond the rear wall of the casing. The inclination of the board A^3 is such as to direct the incoming air somewhat in a downward direction and toward the cylinders and the elevator.

At the front end of the casing there is a horizontal framework F for the support and operation of the preliminary feeding belts F′

which pass over a roller F^2 and pulleys F^3 mounted for rotation at each end of the framework. At the ends of the side bars of the framework are secured castings F^4 which form or are provided with bearings for the roll F^2. A cross beam F^5 is arranged upon and at the end of brackets F^6 and together with the said brackets serve to support the framework F in a horizontal position while the inner end thereof is secured to the framework of the casing A. To the inner face of the cross-bar F^5 are secured two grooved gibs or ways G in which a cross-head G′ is adjusted by means of the bolt G^2 and set nut G^3. This serves as a belt-tightener. The cross-head carries a sprocket wheel G^4 over which and a companion sprocket $B^{4\times}$ at the rear end of the machine passes the toothed feed belt H. A belt-tightening device such as a weighted roller H′, running upon the inner surface of the lower and idle portion of the belt is sometimes also employed. This toothed feeding belt passes over a convex track I arranged in the path of the belt and upon or within or above the floor J of the casing. This floor is arranged upon a level with the preliminary feeding belts and serves the purpose of maintaining material in a line of movement which will guide it between the cleaning cylinders at which the said floor terminates as clearly shown in Fig. 2. There is another floor to the casing below the cylinders and constitutes the bottom proper of the casing. It is designed that the casing A shall be practically air and dust proof so far as the escape of air and dust therefrom is concerned, except by way of the up-take E′. There is therefore a front board A^3 a rear board A^4 and side board A^5 all of which terminate at a point above the floor J sufficiently distant to permit of the passage of the material through the machine; these three boards form a skirting depending from the top of the casing toward the floor and the edge of the skirting or board A^5 may or may not as shown practically conform to the outline assumed by the teeth of the feeding belt as it passes over its convex bed I; this form is clearly shown in Fig. 1.

K represents a sprocket chain running on sprockets K′ and parallel to and outside of the toothed feed belt, the object of this chain is to force the corn into the teeth of the belt and to assist in moving the corn and to prevent the corn from being drawn out of the toothed feed belt by the cleaning cylinders; if desired, another sprocket chain K may be employed at the opposite side of the feed belt. A belt-tightener K^2 is employed in connection with the sprocket chain K. At the delivery end of the machine and in proximity to the feed belt there is a movably-mounted curved guide arm L which serves to maintain the parallelism of the stalks of the corn and to cause them to assume positions of closeness to each other at the time of or just before they are delivered from the machine into any suitable receptacle in which they are bundled. This operation of the curved arm will be further described.

M represents one of a pair of brackets which extend from the cross sill A^6 of the casing to the floor J or to that portion thereof that projects through the rear end of the machine. These brackets are provided with bearings for the sprocket $G^{4\times}$, or rather the shaft N thereof, and at the same time they are extended beyond the area of said sprocket and above the teeth of the feed belt mounted thereon and are flanged to form a curved track or way along which the stalks of the corn after it has been cleaned are moved by those following which are positively fed by the belt. Now it will be seen that if the curved guide arm or arms, for there may be more than one, are allowed to rest by gravity or by a weight or spring pressure upon the accumulating stalks that they will be compressed together until the arm is raised by the feeding pressure or otherwise and thus a quantity sufficient to form a bundle may be collected at this point of the machine. Furthermore, by regulating the weight or tension of the curved arm upon the stalks they may be allowed to gradually and either continuously or intermittingly pass from the machine and in either case they will be parallel with each other and in good condition for packing into bundles or immediate use.

It now remains to describe the means for giving motion to the feed belt H. This is accomplished by means of a gear wheel N′ on the shaft N meshing with a gear N^2 on the shaft of the sprocket wheel K′ which is also constructed to mesh with a miter O on a vertical shaft carrying another miter O′ which meshes with a miter O^2 on the shaft D. A sprocket N^2 on the shaft N operates a chain N^3 which rides the sprocket N^4 secured to the shaft N^5 that carries the pulleys F^3 and by this construction the preliminary feeding belts are moved. The bracket $N'^{\times}$ is secured to the standard of the casing and practically incloses the gearing N′ N^2 while a similar bracket $N^{2\times}$ is similarly mounted and incloses a sprocket N^4.

Having described the construction of the machine in detail a more connected description of its operation will now be given. Broom corn is first laid with more or less regularity upon the preliminary feeding belts which carry them to and for a short distance along with the toothed feed belt H and under the chain K which at its sprocket K′ acts to press the stalks into the teeth of the belt which latter is just beginning to rise upon the convex track I. A firm hold upon the stalks is now taken by the belt and they are carried toward the cylinders which being arranged at an angle to the belt begins the cleaning operation at the tip of the stalk and gradually as the latter advances traverse the entire length of the brush removing the seeds and the smut and other foreign material and casting them onto the elevator C. A board or

partition A^8, see dotted lines Fig. 2, prevents the deposit of an undesired quantity of refuse beyond the influence of the exhaust and the elevator and therefore the former working simultaneously with the latter takes up the lighter portions of the refuse and ejects it through the up-take. After passing between the cylinders the downward travel of the spiked belt so that the points of its teeth are below the upper edges of the brackets M releases the stalks from positive feed and they are afterward moved as before described under the guide-arm L over and along the curved ends of the brackets and into a suitable receptacle. The heavier portions of the refuse are received upon the elevator with a minimum in quantity of the portions which escape between the cylinders and the elevator and the greater portion thereof is carried upward and delivered from the elevator into a suitable receptacle or upon the ground.

What I claim as new is;—

1. The combination of a toothed feed belt, a sprocket chain running parallel therewith, and a convex track for the feed belt, substantially as specified.

2. The combination with a feed belt and curved tracks at the delivery end thereof, of a movable curved arm, substantially as specified.

3. The combination with a toothed feed belt, of tracks arranged at its delivery end and above its teeth, and an arm operating to restrict the passage of the material over said tracks, substantially as specified.

4. The combination with a toothed feed belt, of tracks arranged at its delivery end and above its teeth, and a movable arm operating to restrict the passage of the material over said tracks, substantially as specified.

5. The casing A having the rear transversely-inclined wall and provided with the elevator, arranged parallel with said wall, and with the cleaning cylinders arranged parallel with the shafts of the elevator and at a right angle with said end wall, substantially as specified.

6. The casing provided with a floor J, the partition A^8, the inclined wall A′ and the elevator arranged parallel with said wall A′, substantially as specified.

7. In a broom corn cleaner, a closed casing having front and rear openings for the passage of material, a floor having a convex belt track, and a side board or skirting conforming at its edge with the convexity of the feed belt and track, substantially as specified.

8. In a broom corn cleaner, the cylinders, means for producing a current of air, and a casing having an inclined rear wall provided with an air inlet having an inner inclined deflecting board substantially as specified.

9. The combination of the belt the brackets M, provided with bearings and with curved edges, with cross sill A^6 arms L and the floor J, substantially as specified.

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

FREDERICK W. REESE.

Witnesses:

HENRY VAN SUTTON,

J. W. SHEPHERD.