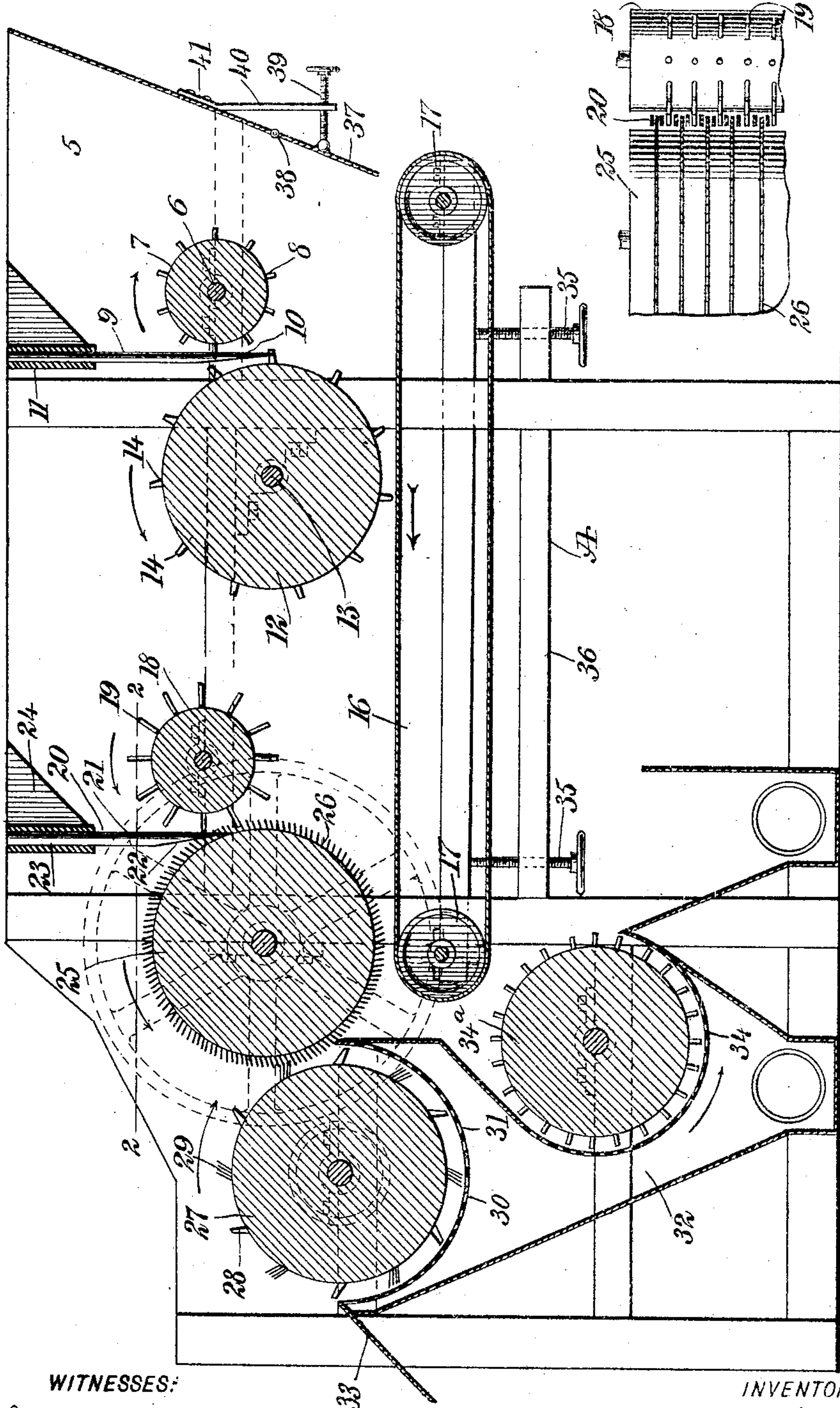


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PATENTED JULY 12, 1904.

E. J. GARDNER.  
COTTON CLEANING MACHINE.  
APPLICATION FILED OCT. 30, 1903.

NO MODEL.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ELI J. GARDNER, OF SHAWNEE, OKLAHOMA TERRITORY, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO GRAB-BOLL COTTON CLEANER & MACHINERY CO., OF SHAWNEE, OKLAHOMA TERRITORY, A CORPORATION OF OKLAHOMA TERRITORY.

## COTTON-CLEANING MACHINE.

SPECIFICATION forming part of Letters Patent No. 765,135, dated July 12, 1904.

Application filed October 30, 1903. Serial No. 179,141. (No model.)

*To all whom it may concern:*

Be it known that I, ELI J. GARDNER, a citizen of the United States, and a resident of Shawnee, in the county of Pottawatomie and Territory of Oklahoma, have invented a new and Improved Cotton-Cleaning Machine, of which the following is a full, clear, and exact description.

This invention appertains to improvements in cotton-cleaning machines, and has particular reference to an improved device of the class described designed for cleaning cotton of the class commonly known as "grab-boll" cotton from oil-mills and other bolly and trashy cotton of a like quality.

In carrying out my invention I have particularly in contemplation the correlation and arrangement of certain elements by which all dirt, leaves, and hard substances will be separated from the cotton and the latter in a cleaned or renovated state will be delivered to a chute, from whence it is conducted to a proper receptacle or point.

Still another object of my invention is to provide a machine which shall be exceedingly simple and compact in its construction, capable of being readily operated, and one which will embody the desired and essential features of economy and durability.

With the above-recited objects and others of a like nature in view my invention consists in the construction, combination, and arrangement of parts, as is described in this specification, delineated in the accompanying drawings, and set forth in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the figures.

Figure 1 is a vertical longitudinal sectional view taken through a cotton-cleaning machine embodying my improvements, and Fig. 2 is a sectional view on the line 2 2 in Fig. 1.

Referring now to the accompanying drawings in detail, the letter A designates the

frame portion of my machine, which may be of any suitable and desired construction, as I do not intend to limit myself to any special form of frame, the structure of the latter being determined largely by the particular requirements of the machine. This frame is provided at one end with a relatively large hopper 5, through which the mass of cotton in its uncleaned state is to be fed to the machine.

Extending transversely through the hopper of the machine is a shaft 6, carrying a cylinder 7, which cylinder is provided with a plurality of teeth 8, such cylinder being termed, for the sake of convenience, the "sticker-head" cylinder, and which is designed to receive the cotton as it is fed into the hopper and to carry or force the same up against the breast 9. This breast, it will be observed, consists of a plurality of bars having sharpened end portions 10, such bars or teeth being securely fastened in a frame portion 11, extending transversely of the machine above the sticker-head cylinder. The bars of this breast are arranged vertically, and the cotton against the breast is designed to be pulled through the bars or teeth by the beating-cylinder 12, said cylinder being journaled upon a shaft 13 and provided on its periphery with a plurality of picker-teeth 14. It will be seen by reference to the drawings that the beating-cylinder 12 rotates in the opposite direction from the sticker-head cylinder, the course of travel of the cylinders being indicated by the arrows. After the cotton has been picked or pulled through the breast by the cylinder 12 it is passed or tossed into the middle chamber of the cleaner, from whence it is carried through the medium of the endless-belt conveyer 16. This conveyer, it will be observed, extends over wheels 17 17, mounted in the frame of the machine, and as the cotton falls upon the same it is carried or pushed to the picker-cylinder 18, the latter being provided with a number of teeth 19, and this cyl-



inder, it will be noted, also rotates in the same direction as the beating-cylinder 12, but at a more rapid rate of speed. After the cotton has been engaged by the cylinder 18 it is  
 5 tossed or thrown against the breast 20, formed with a number of mote-ribs 21, having sharpened end portions 22, said ribs or bars being rigidly secured, as at 23, in the frame 24, extending transversely at the top of the ma-  
 10 chine.

It is to be noted that in the operation of this machine the bolls of cotton are torn apart as the cotton is pulled through the breast 9 by the feed-cylinder, and when the material  
 15 reaches the picker-cylinder 18 the further separation of the refuse material from the cotton is accomplished through the following means: Arranged adjacent to the mote-ribs forming the breast 20 is a relatively large re-  
 20 volving saw-cylinder 25, having arranged around the periphery thereof a large number of fine saw-teeth 26, this cylinder being of the type commonly employed in cotton-gins. As such saw-cylinder is arranged on the opposite  
 25 side of the breast 20 from the picker-cylinder 18 and turns at a relatively slower rate of speed than such cylinder 18 it will pull or pick the cotton through the spaces between the mote-ribs and in the course of its revolu-  
 30 tion will carry the now cleaned cotton over upon the roll 27. This roll has mounted upon its periphery rows of teeth 28, alternating with rows of brushes 29, so that for the purpose of convenience this cylinder may be  
 35 termed a "brush-cylinder." As the cotton reaches the latter it is carried around and dusted or passed over a screen 30, mounted directly beneath the brush-cylinder, such latter screen having a large number of perforations  
 40 31 therein, through which perforations pass the particles of dirt, such as leaves and smaller refuse, such waste particles passing down through the chute 32 to any suitable point of deposit, while the now thoroughly  
 45 cleansed cotton is tossed by the brush-cylinder 27 over upon a downwardly-inclined chute 33 into any suitable receptacle. (Not shown.)

In cleaning cotton with this machine a large  
 50 part of the refuse, such as hard lumps or locks, which have dropped upon the endless conveyer-belt 16 are likely to have mixed or mingled therewith a quantity of cotton-seed which it is desirable to preserve and separate,  
 55 and for this purpose the matter carried by the conveyer-belt is deposited over the end of the same upon a screen 34, where the cotton-seed is separated from the refuse by the cylinder 34<sup>a</sup>. It will also be observed that I have  
 60 provided an arrangement by which the conveyer-belt may be adjusted to suit the flow of material thereon, such means being in the nature of relatively long threaded screws 35 35, extending through a bar 36 of the frame A and

being designed to bear against the under side 65 of an adjustable support carrying the wheels or rollers 17.

For some purposes it may be desired to have the lower portion of the hopper 5 immediately above the conveyer adjustable, and for  
 70 this purpose I form such lower portion of a plate 37, hinged, as at 38, to the rigid body portion of the hopper, said plate carrying a screw-rod 39, which passes through a sus-  
 75 pending strip or bracket 40, secured, as at 41, to the side of the hopper, and by turning the screw the plate 37 may be moved toward or from the conveyer, thereby increasing or de-  
 80 creasing the size of the bottom portion of the hopper.

For the purposes of driving or rotating the various cylinders or rolls of the machine any suitable mechanism may be employed—such as endless belts, pulleys, and the like—and power may be applied from any convenient  
 85 source.

It is to be noted that I have provided an exceedingly simple and compact machine and one in which the cotton may be cleaned thor-  
 90 oughly and rapidly, and all the valuable substances or materials contained in the original batch of grab-boll cotton, which were primarily cast into the hopper 5, are preserved, while the waste portions or trash are separated therefrom.  
 95

While I have shown and described one particular embodiment of my invention, it is of course to be understood that I do not confine myself to all the precise details of construc-  
 100 tion herein illustrated, as it will be evident that there may be modifications and variations in certain respects without departing from the essential features of the invention or sacrific-  
 105 ing any of the numerous advantages thereof.

Having thus described my invention, I claim 105 as new and desire to secure by Letters Patent—

1. The combination of a machine-frame, a hopper thereon, a toothed cylinder arranged within said hopper, a breast arranged adja-  
 110 cent to said cylinder, a beating-cylinder arranged on the opposite side of the breast from the first-mentioned cylinder, the construction being such that cotton fed into the hopper will be taken through the breast by the beat-  
 115 ing-cylinder, cleaning devices for the cotton, an endless conveyer-belt for conveying the cotton from the beating-cylinder to said cleaning devices, and means for conveying the cleaned cotton from the devices to a suitable  
 120 point of deposit.

2. The combination of a main frame, a hopper thereon for receiving the cotton, a breast formed of a plurality of bars, means for forc-  
 125 ing the cotton against the breast, a beating-cylinder for pulling the cotton through the breast, a saw-cylinder, means for conveying the cotton from the beating-cylinder to the saw-cylinder, means for receiving cotton from



the saw-cylinder, said means including a brush-cylinder, and means arranged adjacent to the brush-cylinder for assisting in the removal of the refuse from the cotton received by the brush-cylinder.

3. The combination of a main frame provided with a hopper, cotton-cleaning devices including a sticker-head cylinder arranged within the hopper, a beating-cylinder, a breast between the sticker-head cylinder and the beating-cylinder, a saw-cylinder and a brush-cylinder, a picker-cylinder and a breast adjacent to the saw-cylinder, and an endless conveyer for assisting in carrying the cotton from the beating-cylinder to the saw-cylinder, substantially as set forth.

4. The combination of a main frame, a hopper thereon, a sticker-head cylinder arranged within the hopper, a breast arranged adjacent to said sticker-head cylinder, a beating-cylinder arranged on the opposite side of the breast, an adjustable conveyer-belt arranged beneath said cylinders, and means for cleaning the cotton, arranged above the conveyer-belt, such means including a saw-cylinder, a breast adjacent to the saw-cylinder and through which the cotton is drawn by said cylinder, a brush-cylinder to which the cotton is carried by the saw-cylinder, the brush-cylinder being arranged adjacent to the saw-cylinder and at the side opposite the breast, and a screen arranged beneath the brush-cylinder.

5. The combination of a main frame, a hopper thereon, a breast arranged within the hopper, a sticker-head cylinder within the hopper for carrying material to the breast, a beating-cylinder for receiving the material from the sticker-head cylinder and drawing it through the breast, a saw-cylinder, a picker-cylinder, a breast formed of a plurality of mote-ribs arranged between the picker-cylinder and the saw-cylinder, a brush-cylinder for receiving the cotton from the saw-cylinder, and a screen arranged beneath the brush-cylinder.

6. The combination of a feed-hopper, a sticker-head cylinder therein, a beating-cylinder for receiving cotton from the sticker-head cylinder, means between the sticker-head cylinder and the beating-cylinder for removing lumps of material from the cotton, a conveyer beneath the cylinders, and secondary mechanism for cleaning and separating refuse from the cotton, said mechanism being disposed adjacent to the conveyer for the afore-said cylinders.

7. The combination of a hopper, a cylinder within said hopper, a beating-cylinder in co-

operative relation to the first-named cylinder, a breast between the two cylinders, a conveyer for transporting material from the beating-cylinder, a picker-cylinder over said conveyer, a saw-cylinder disposed in coöperative relation to the picker-cylinder, a breast formed by a plurality of sharpened ribs or bars which are arranged between the saw-cylinder and the picker-cylinder, a brush-cylinder mounted adjacent to the saw-cylinder, a screen co-operating with the brush-cylinder, a second screen arranged below the first-mentioned screen, and another toothed cylinder coöperating with the last-mentioned screen.

8. The combination of a main frame, a hopper thereon, a sticker-head cylinder for the cotton arranged in said hopper, mechanism for cleaning the cotton arranged adjacent to the said cylinder, and means comprising an endless belt, and devices for adjusting the belt arranged below the cylinders and the cotton-cleaning means for conveying the cotton to the latter and for removing the refuse of the cotton from the machine.

9. The combination of a main frame provided with a hopper, a breast through which the material is drawn from the hopper, a beating-cylinder for drawing the material through the breast, a picker-cylinder, means for conveying the material from the beater-cylinder to the picker-cylinder, a saw-cylinder, a breast formed of a plurality of ribs arranged between the picker-cylinder and the saw-cylinder, the material being drawn through the breast by the saw-cylinder, a brush-cylinder for receiving the cotton from the saw-cylinder, and a screen arranged beneath the brush-cylinder, as set forth.

10. The combination of a feed-hopper, a breast through which the cotton is drawn from the feed-hopper, means within the hopper for forcing the cotton against the breast, a beating-cylinder arranged adjacent to the breast for drawing the cotton through the breast, an endless belt conveyer beneath the breast and beating-cylinder, devices for adjusting the belt, and secondary mechanism for cleaning the cotton, the said mechanism being disposed adjacent to the said conveyer, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ELI J. GARDNER.

Witnesses:

F. B. REED,  
C. J. BENSON.