B. C. CALDERWOOD.

SEPARATOR SCREEN.

APPLICATION FILED APR. 30, 1913.

1,222,732.

Patented Apr. 17, 1917.

2 SHEETS—SHEET 1.

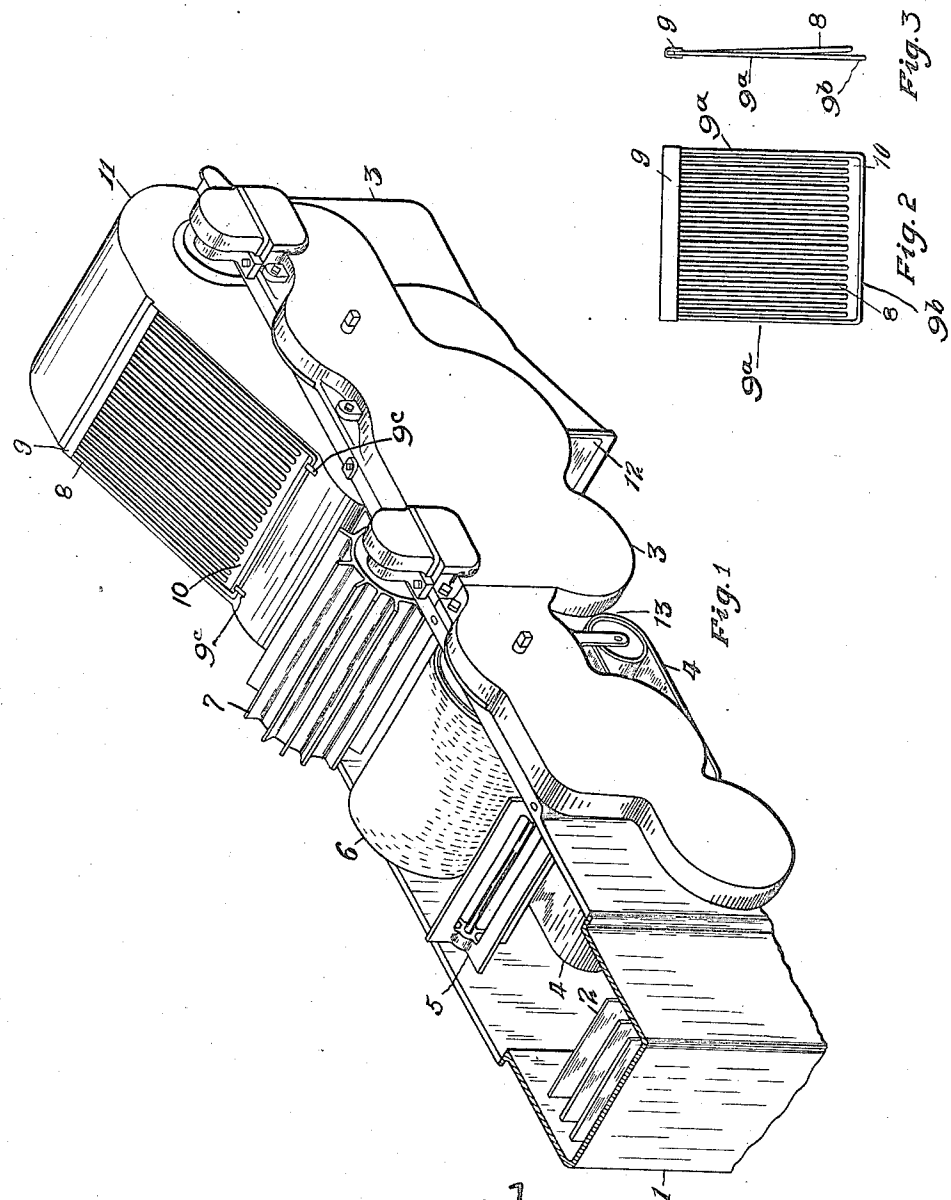


Fig. 1

Fig. 2

Fig. 3

Witnesses:

Benjamin Calderwood

by Kingsley

Edward S. Beach

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

B. C. CALDERWOOD.

SEPARATOR SCREEN.

APPLICATION FILED APR. 30, 1913.

1,222,732.

Patented Apr. 17, 1917.

2 SHEETS—SHEET 2.

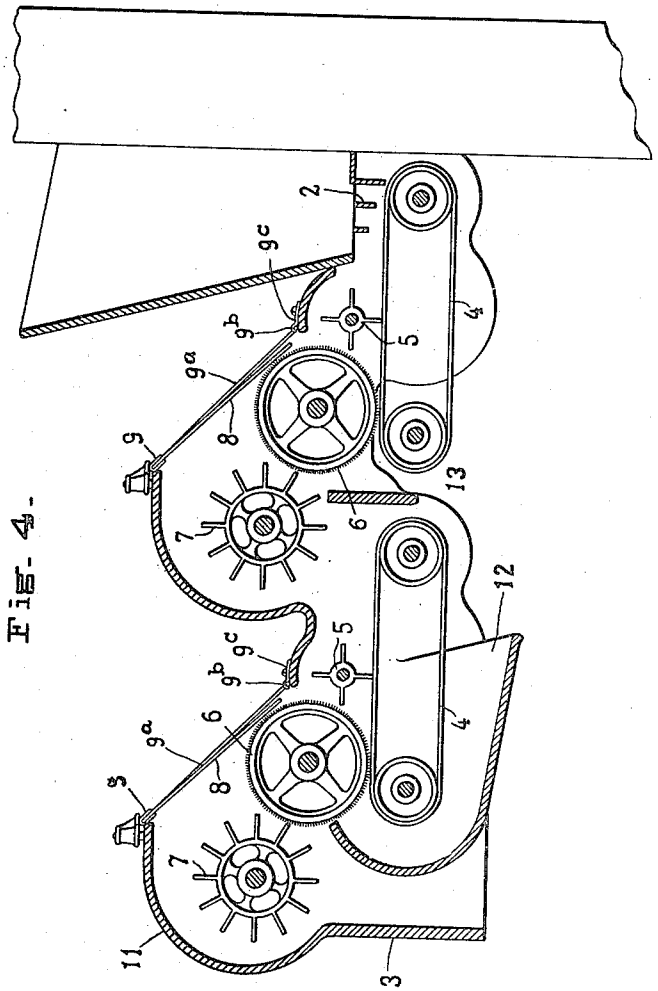


Fig. 4.

WITNESS

J. Clyde Tapley.

INVENTOR

Benjamin Colbrie Calderwood

BY

Edward J. Bosch

ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

BENJAMIN CRABTREE CALDERWOOD, OF VALLEY FALLS, RHODE ISLAND, ASSIGNOR TO PRICE-CAMPBELL COTTON PICKER CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

SEPARATOR-SCREEN.

1,222,732. Specification of Letters Patent. Patented Apr. 17, 1917.

Application filed April 30, 1913. Serial No. 764,523.

To all whom it may concern:

Be it known that I, BENJAMIN CRABTREE CALDERWOOD, a citizen of the United States, residing at Valley Falls, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Separator-Screens, of which the following is a specification.

My invention relates to improvements in separator screens for cotton cleaners on cotton-picking machines whereby a series of spring wires is secured to a holder at the upper end, said spring wires being parallel to one another, and in such close proximity that seed cotton will not pass through, while dirt, sand, leaf trash, motes, and all small foreign matter can pass through with ease. These spring wires being secured only by one end to the holder, act like a series of vibrating tongues when the machine is in motion, thereby loosening any cotton which may adhere thereto, which is drawn back into the cleaners by an action to be explained in a subsequent paragraph.

My separator screen is attached to the cleaner housing; a loop passed around but clear of the free ends of the spring wires and secured to the holder, aiding in locating the separator screen on said housing. The housing, with separator screen attached, is directly over the breaker-fan card-roller and combined doffer-and-fan in the cleaners, in which the cotton is fluffed and the fibers otherwise separated by the breaker fan, which also breaks up any foreign matter, such as cotton burs, sticks or leaves which may find access to the cleaners. The cotton is next taken by the card roller, to which it adheres until removed by the doffer fan. This doffer fan serves a twofold purpose: first, it creates a strong current of air which finds its outlet through the separator screen, and carries with it the dirt from the cotton while this cotton still adheres to the card roller; and second, doffs the cotton from the card roller when it reaches a fixed point. Such cotton as is carried or blown against the under side of the separator screen, which is placed on an incline on the housing, is rapidly worked downward under the combined action of gravity, the air current from the doffer fan and the vibration of the spring wires; said cotton being caught by the breaker fan and the reverse current of air generated by the same, is snatched back through the opening provided for this purpose at the lower end of the spring wires, or vibrating tongues, into the cleaners, where the same process as heretofore described is repeated in the second section of said cleaner.

From the above it will be understood that the free ends of the vibrating spring wires leave an opening between the ends of said spring wires and the cleaner housing, for the purpose of releasing such cotton which has had the staple or lint wound or twisted around these spring wires, to again reënter the cleaner.

The objects of my invention are: first to provide means for eliminating all foreign matter from the picked cotton; and second, to prevent clogging and loss of cotton from the cleaners.

In the accompanying drawings forming a part hereof,

Figure 1 is an isometric assembly of the cleaner, with the forward housing removed to show the relative positions of the breaker fan, card roller and doffer fan. The rear housing is in place, with the separating screen attached thereto and showing an opening between the housing and the ends of the spring wires.

Figs. 2 and 3 are details of the separator-screen.

Fig. 4 shows in longitudinal section a device of the cleaner shown in Fig. 1, the apparatus being duplicated as actually constructed in cotton-picking machines embodying this invention.

In the drawings, 1 is the elevator housing, 2 the elevator belts, 3 the cleaners, as the entire mechanism is known, and 4 the first conveyer belt in the cleaners. 5 is the first breaker fan, 6 the card roller, and 7 the combined fan and doffer. 8 are the vibrating tongues or spring wires in the separator screen, 9 the holder, while 10 designates the opening between the housing and the ends of the spring wires. 11 is the rear housing, 12 the rear lower outlet for trash, and 13 the middle lower outlet whereby dirt may leave the cleaners.

The cotton enters the cleaners by the elevator belts 2 in the elevator housing 1, and is deposited upon the conveyer belt 4, from which it is picked up by the breaker fan 5, which fluffs and otherwise separates the cotton fibers, and also breaks up unduly-large

pieces of trash and foreign matter. The cotton is then caught by the card roller 6, which carries it around on its periphery until doffed by the combined fan-and-doffer 7, this latter rotating rapidly in a direction opposite to the rotation of the card roller, thus creating a strong current of air which finds its outlet through the separator screen 8 and which carries with it such trash as does not find an outlet through the openings 12 and 13. The breaker fan 5 rotates in a direction opposite to that of the combined fan-and-doffer, thereby creating a current of air of lesser strength, but in a direction reverse to that of the fan-and-doffer; the latter blows the air from the cleaner out, while the breaker fan draws it in. The result is that the cotton is worked downward on the separator screen until caught by the current of air from the breaker fan, or by the breaker fan itself as this is in close proximity to the separator screen, which whips it back into the cleaners. The holder 9 is a transverse bar carrying the spring wires or tongues 8 like tines, and this bar 9 is provided with an approximately U-shaped carrier 9^a, the ends of this carrier being annexed to the bar 9 at the ends thereof so that the tongues or tines 8 lie between its side portions, the free ends of the tines 8 pointing toward its transverse portion 9^b, and the opening 10 being between the ends of the tines and the transverse portion 9^b. The latter is held to the casing by eyes or staple-like fasteners 9^c, and the screen thus formed slants upwardly for some distance to the bar or holder 9, leaving the free end-portions of the tines free to vibrate when the apparatus is in use in consequence of the movement of the machine itself. After this the cotton passes through a second cleaning process similar to that already described, after which it is deposited in the proper receptacles. There is a second breaker fan under the screen.

What I claim is:—

A separating screen for use in a cotton-cleaner attached to a cotton-picking machine, said screen comprising a series of vibrating tines secured to a transverse holder; an approximately U-shaped carrier the free ends of which are secured to the holder, and the transverse portion of which passes the ends of the tines at a distance therefrom; the transverse member of the carrier being adapted for attachment to a cotton-cleaner; a fan doffer; a card roller; and a breaker fan located below the tines; all combined and operating substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses, this 25th day of April, 1913.

BENJAMIN CRABTREE CALDERWOOD.

Witnesses:
G. BLAKE,
WILLIAM J. DODGE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."