

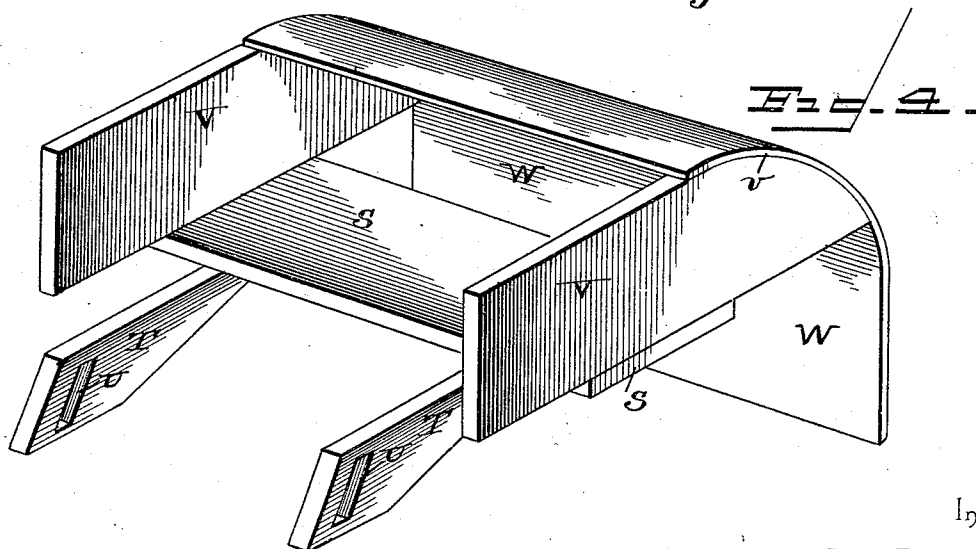
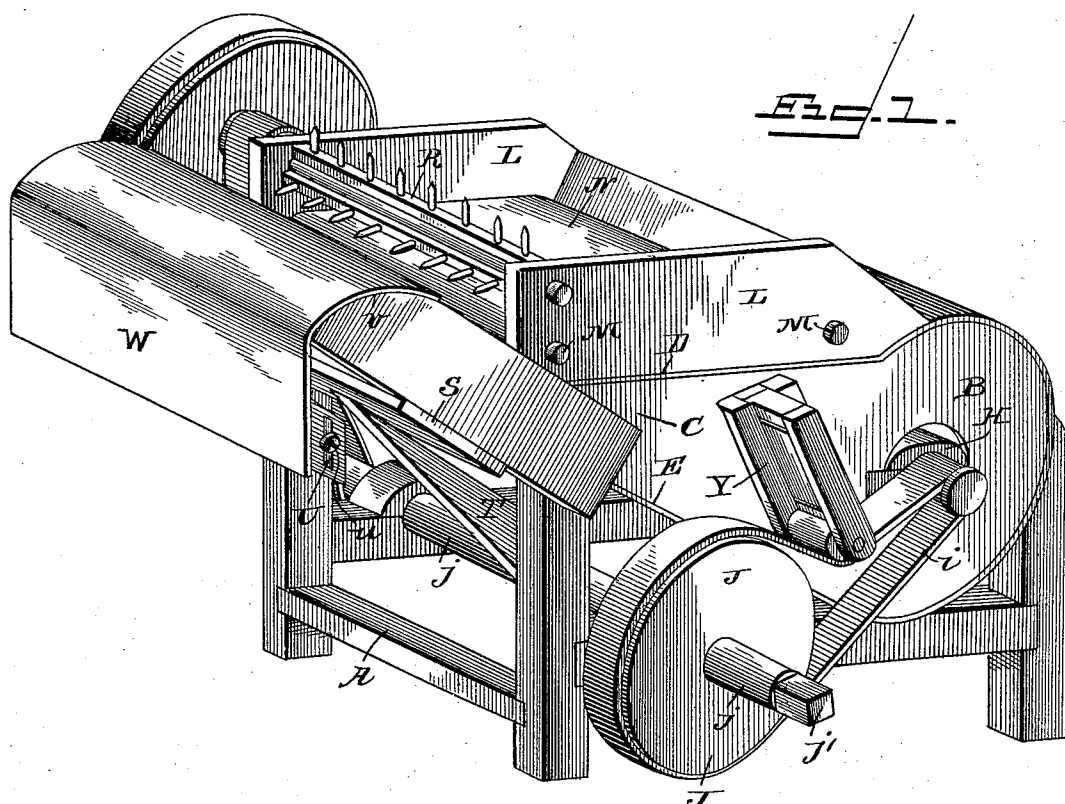
(No Model.)

2 Sheets—Sheet 1.

T. D. RUFFIN.
COTTON GRADER AND NAIL ARRESTER.

No. 508,842.

Patented Nov. 14, 1893.



Inventor

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By *his* Attorneys.

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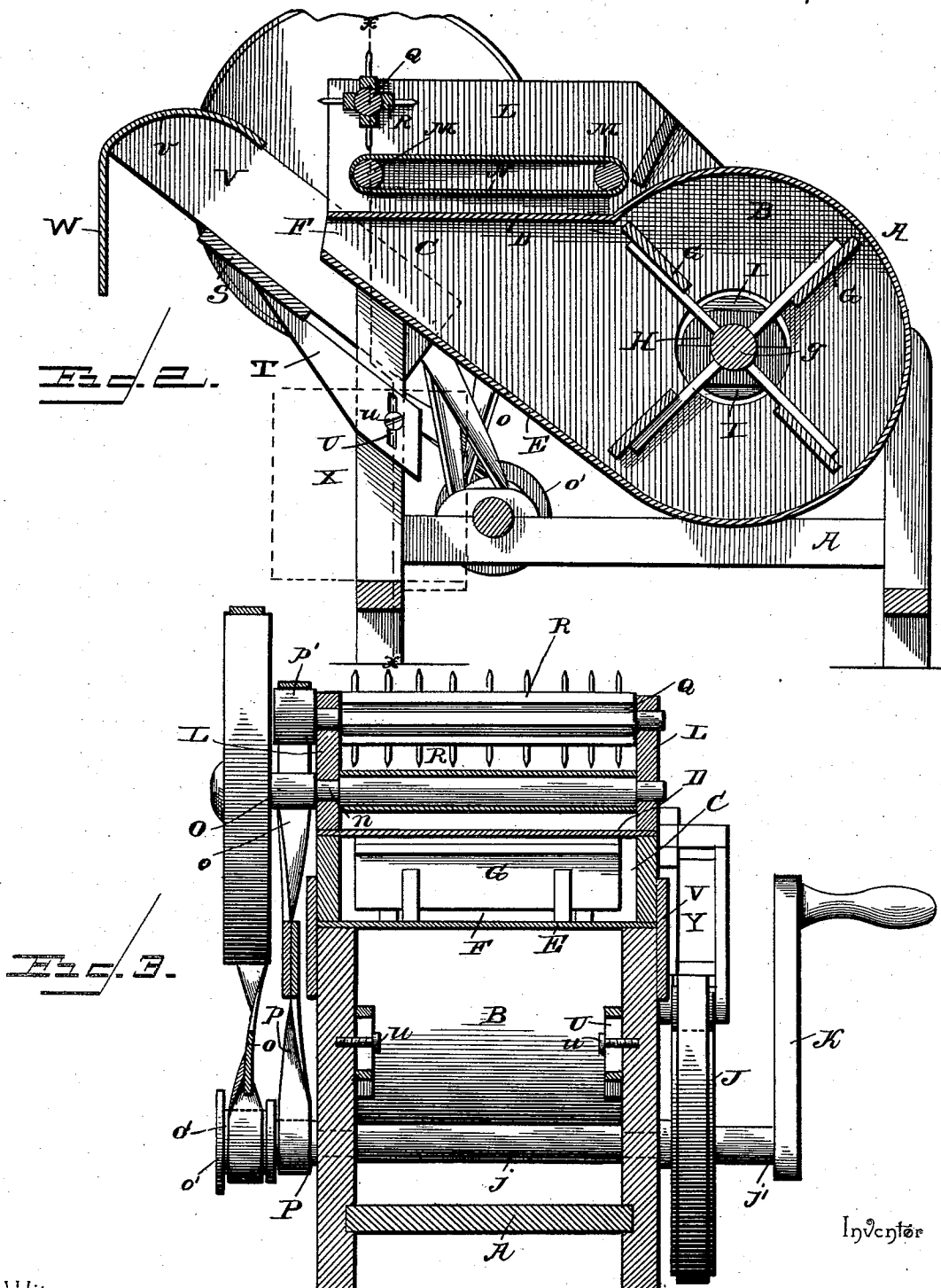
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COTTON GRADER AND NAIL ARRESTER.

No. 508,842.

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Witnesses
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UNITED STATES PATENT OFFICE.

THOMMAS D. RUFFIN, OF DYERSBURG, TENNESSEE.

COTTON-GRADER AND NAIL-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 508,842, dated November 14, 1893.

Application filed July 18, 1893. Serial No. 480,863. (No model.)

To all whom it may concern:

Be it known that I, THOMMAS D. RUFFIN, a citizen of the United States, residing at Dyersburg, in the county of Dyer and State of Tennessee, have invented a new and useful Cotton-Grader and Nail-Arrester, of which the following is a specification.

This invention relates to cotton graders and nail arresters; and it has for its object to provide an improved machine of this character which is especially adapted for feeding good cleaned cotton into a gin.

To this end the main and primary object of the present invention is to construct a machine of this character having especial facilities for separating damaged and stained cotton from good cotton, thereby raising the grade of cotton ginned, while at the same time providing means for the effectual separation of nails and other hard substances from the unginned cotton, so that the cotton which is fed to the gin will be perfectly free from such substances as will tend to damage the gin, and in connection with the uses described, the machine also contemplates the drying of damp or wet cotton which may be passed therethrough.

With these and other objects in view which will readily appear as the nature of the invention is better understood the same consists in the novel construction, combination and arrangement of parts, hereinafter more fully described, illustrated and claimed.

In the accompanying drawings:—Figure 1 is a perspective view of a cotton grader and cleaner constructed in accordance with the present invention. Fig. 2 is a central vertical longitudinal sectional view thereof. Fig. 3 is a transverse sectional view on the line $x-x$ of Fig. 2. Fig. 4 is a detail in perspective of the grading attachment at one end of the machine and separated therefrom.

Referring to the drawings, A represents a suitably constructed frame on which is mounted the fan casing or drum B. The fan casing or drum B, is extended at one side into the elongated air flue or trunk C, having a flat top D, and an upwardly inclined bottom E, the outer reduced end of said air flue or trunk terminating in a reduced discharge opening F, located at one end of the supporting frame A, and of a width equaling the

same. A constant current of air is maintained in the air flue or trunk C, and discharged through the outlet opening F, thereof, by means of the revolving fan G. The revolving fan G, is mounted to turn in the casing or drum B, and has its shaft g , journaled in the bearings H, at opposite sides of said casing or drum, and each extremity of the shaft g , carries a band pulley I, one of which may receive a power belt from suitable driving machinery, while the other opposite pulley receives one end of the belt i , the other end of which passes over the belt wheel J, secured to one end of the lower drive shaft j , journaled on the frame A, below the air trunk C. One end of the shaft j , is extended and squared as at j' , to receive a hand crank K, which may be employed, if so desired, to operate the machine.

Suitably secured on the flat top of the air flue or trunk C, is the side-inclosed feed hopper L, in the bottom of which, at its opposite ends, are journaled the opposite apron rollers M, over which passes an endless feed apron or belt N, and one of said apron rollers is extended at one side as at n , and carries the belt wheel O, receiving motion from the crossed belt o , the other end of which passes over the flanged pulley o' , secured to one end of the shaft j . Alongside of the flanged pulley o' , and also secured on the shaft j , is a second pulley P, which drives the crossed belt p , one end of which passes over the pulley p' , secured to one extremity of the feed roller shaft Q. The feed roller shaft Q, is journaled in opposite sides of the feed hopper L, directly over the outer discharging end of the apron N, and said roller shaft has secured thereto a longitudinal series of toothed or spiked feed bars R, which pass through the cotton carried by the belt N, and serve to regulate the amount of cotton fed onto the grading devices located in front of or beyond the discharge of the air flue or trunk C, as will now be described.

Adapted to be adjustably and detachably arranged in front of and beyond the outlet or discharge opening F, of the air flue or trunk C, is the lower inclined grading board S. The inclined grading board S, is adapted to be disposed at an angle of about forty-five degrees in front of the discharge opening or

mouth of the flue and is fastened to the upper outer ends of the opposite supporting arms T. The opposite supporting arms T, are provided with inner lower slotted ends U, which are adjustably secured to opposite inner sides and one end of the frame A, by means of the adjusting screws *u*, engaging the slots thereof and opposite frame sides. The lower inclined grading board S, has secured to opposite ends thereof the upwardly extending side boards V, having upper outer curved ends *v*, to which is secured the upper curved deflecting board W, which is disposed directly above the lower inclined grading board S, and serves to direct the cotton blown there-against into the gin or other receptacle into which the cotton is being fed.

From the foregoing it will be apparent that while the machine is in operation the cotton will be evenly fed from the hopper L, over the mouth of the air flue or trunk C, and while the current of air discharged out of the said flue or trunk will be sufficient to carry the lighter good cotton over the grading board S, and against the curved board W, to be deflected into the gin or other receptacle, still, the stained and heavy cotton, nails, and other foreign substances, will strike the inclined grade board S, and will fall therefrom into the bin or box X, removably arranged in the frame A, below the lower end of the said inclined grade board S. This bin or box may be removed from time to time when a sufficient amount of material has accumulated therein. It is well known that the heavy cotton is always damaged cotton, but since a certain amount of the good cotton is liable to fall therewith into the waste bin or box X, such cotton may be regraded in this machine, and when the operation of regrading is taking place, the inclined grading board E, is lowered by means of its adjustment, sufficiently below the mouth of the flue or trunk C, in order to enable the cotton to first strike the curved deflecting board W, and be conveyed to the gin or other receptacle, while nails or other foreign substances fall directly into the waste bin or box.

It will be obvious that different belting or gearing may be employed, and such auxiliaries as belt tighteners Y, arranged over any of the belts, and I will further have it under-

stood that changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a cotton grader and nail arrester, a fan having a tapered air flue or trunk, a cotton feed and regulating device arranged on top of said flue or trunk and discharging directly in front of the same, a separate and independent vertically adjustable grading device arranged in front of the mouth of the flue or trunk and having an inclined grading board, and a waste bin or box arranged below said grading device, substantially as set forth.

2. In a cotton grader and nail arrester, the fan casing having an elongated air flue or trunk at one side, and having a flat top the fan in said casing, a feeding and regulating device mounted on top of the flue or trunk and discharging in front of the same, and having its frame mounted directly on the flat top of the casing a separate and independent grading attachment adjustably and detachably mounted in front of the mouth of said flue or trunk and having a lower inclined grading board and an upper curved deflecting board, and a waste bin or box below the grading attachment, substantially as set forth.

3. In a cotton grader and nail arrester, the combination with the fan casing having an air flue or trunk at one side and a feed device on top of the same; of a vertically adjustable grading attachment arranged beyond the mouth of the flue or trunk and having a lower inclined grading board, opposite side boards arising from opposite ends of said grading boards and having upper outer curved ends, and a curved deflecting board secured to said curved ends of the side boards, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

THOMMAS D. RUFFIN.

Witnesses:

WILLIAM A. SMEKES, Jr.,
R. J. RUFFIN.