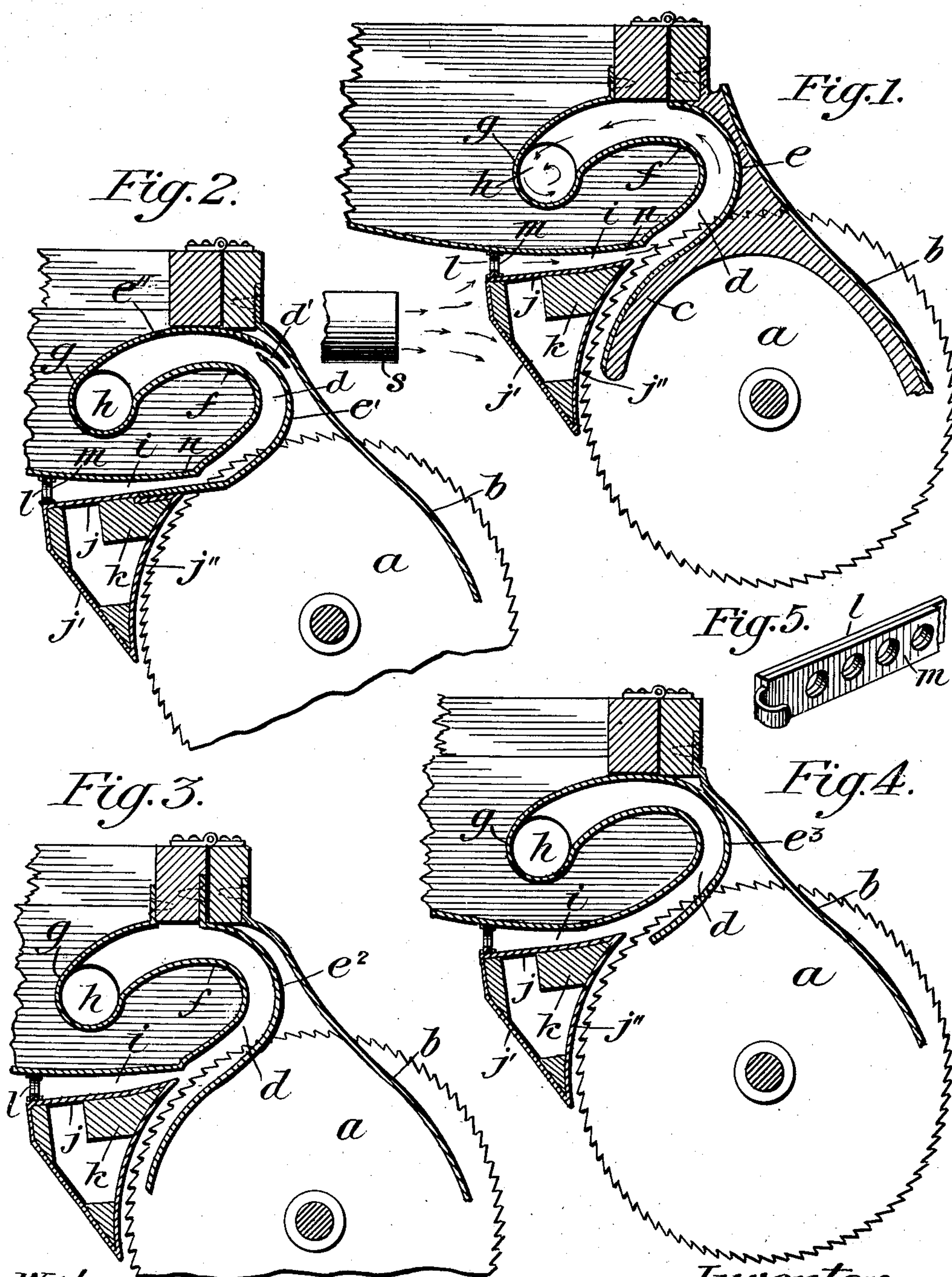


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J. G. DICKSON.
CLEANING MECHANISM FOR SAW GINS.
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UNITED STATES PATENT OFFICE.

JAMES G. DICKSON, OF LITTLE ROCK, ARKANSAS.

CLEANING MECHANISM FOR SAW-GINS.

No. 897,883.

Specification of Letters Patent.

Patented Sept. 8, 1908.

Application filed February 12, 1908. Serial No. 415,593.

To all whom it may concern:

Be it known that I, JAMES G. DICKSON, a citizen of the United States, residing at Little Rock, county of Pulaski, State of Arkansas, have invented certain new and useful Improvements in Cleaning Mechanisms for Saw-Gins; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of the invention is to provide a mechanism whereby a draft of air is directed along or in proximity to the periphery of the saws of a saw gin, after the latter have passed through the ribs of the gin for the purpose of separating and removing from the cotton enlapped about the teeth of the saws, dust, motes, leaf trash, stubble, moisture or the like contained in or incorporated with the lint, the draft of air being confined for this purpose in a relatively narrow duct, through the slots in the front walls of which a portion of the peripheral edges of the saws project after said saws have passed the ribs.

In the accompanying drawings, Figure 1 is a vertical section through a portion of a saw gin having my invention applied thereto. Fig. 2 is a similar view showing a modified construction of air duct. Figs. 3 and 4 are similar views showing further modifications, and Fig. 5 is a perspective detail view of a convenient form of damper for regulating the draft of air.

Referring to Fig. 1 of the drawings, *a* indicates the gin saws which are arranged in battery, as will be understood by those skilled in the art, each of said saws cooperating with gin ribs *b* in the well known manner. Extending rearwardly from each rib *b* is a curved tongue or projection *c* lying adjacent to and preferably conforming to the periphery of the saws, the end of said tongue *c* extending to a point just above the horizontal axis of the saws. Preferably, the sides of the tongues *c* lie quite close to the sides of the saw, with just sufficient clearance between the parts to permit the saws to move freely in the slots thus formed between adjacent ribs. At the points where the tongues *c* join the ribs *b*, the slots are preferably made as wide as the distance between the ribs, in order that the impurities or deleterious substances in the form of dust,

motes, or the like, will be permitted to pass through with the lint, for a purpose to be hereinafter more fully described.

The tongues *c*, together with the upper rear portions of the ribs form the front wall of a duct *d* which curves upwardly and rearwardly and discharges into a dust chamber *g* adapted to receive the motes, leaf trash, stubble, moisture and the like, and to discharge the same through an opening *h* located at one side of the gin frame. The opposite wall of the duct *d* is formed by a sheet or casing of iron, boards or the like, which extends transversely of the gin frame, to which it is secured at its ends. Preferably the front wall of the duct *d*, including the tongues *c*, will also be provided with a similar lining of sheet metal, boards or the like, as indicated at *e*, which extends transversely of the gin frame and is slotted at its lower front edge, as are the tongues *c*. It will be observed that this construction provides a duct or series of ducts *d* opening into the dust chamber *g* located above and to the rear of the saws and into which the peripheral edges of each of the saws project after passing through the gin ribs *b*.

Located below the dust chamber *g* and extending between the sides of the gin frame is a deck *j* which may be formed of sheet metal or boards running transversely of the gin body and between the end frames thereof and conveniently supported by beams or runners *k*, said deck forming with the substantially horizontal portion of the casing *f*, an air channel *i* which is provided with a constricted exit *n* opening into the air duct *d* and serving to deliver a draft of air longitudinally of said duct and therefore in a direction counter to the movement of the saws in the passage of the latter through the duct *d*.

It is found in practice, that, in ginning uncleaned cotton, a relatively large amount of deleterious material in the form of motes, leaf trash, stubble, moisture or the like is so enmeshed or intimately associated with the cotton fiber that it passes through the ribs of the gin and is delivered with the lint to the lint flue and ultimately this deleterious material has to be removed from the lint. It is the purpose of my invention to remove this deleterious material from the lint before the latter is doffed from the saws, and to effect this, a draft

of air is delivered by way of channel *i* to duct *d* in a direction counter to the movement of the saws in said duct *d*, which draft of air has the effect of loosening and shaking out the motes, dirt, and the like, and of taking up the moisture and carrying the same along duct *d* to the dust chamber *g*, without, however, removing any of the lint, which, because of the counter-movement of the air blast, becomes more firmly enlapped about the teeth of the saws, as will be apparent from an inspection of the drawings. This draft of air may be in the form of a positive blast from a blower or the like, or in the form of an induced current set up by a suction fan or similar apparatus. In case a blast fan is employed, I find it convenient to locate the discharge nozzle thereof at a point to the rear of the air channel *i*, as at *s*. When a suction or induced draft is employed, the suction fan may be connected up with the outlet *h* in any appropriate manner to effect the necessary draft through the channel *i* and duct *d*.

In order to regulate the amount of the air draft to a nice adjustment sufficient to effect the purpose sought and without carrying off any of the lint enlapped about the saw teeth, I preferably provide a suitable damper mechanism at the rear end of air channel *i*, which damper mechanism may conveniently take the form of two perforated plates *l* and *m*, one of which is fixed and the other movable, the movable plate being adjusted longitudinally of the fixed plate to bring the openings into any desired degree of registry. In order to use the same source of air for cleaning the lint and for doffing the latter from the saws, the decking *j* may be extended to form a generally triangular box-like structure running transversely of the gin body and comprising a downwardly extending wall *j'* and a curved upwardly extending wall *j''*, so that the blast of air, passing from the exit nozzle *s* of the blower or the like, striking the box-like decking will be divided, part flowing through the channel *i* and duct *d*, and part passing downward along the inclined wall *j'* and over the saws in the direction of movement of the latter, thereby serving to strip or doff the lint from the saws.

The arrangement in Fig. 2 differs from that in Fig. 1 in the construction of the air duct *d* which is formed by an upwardly curved plate *e'*, formed of sheet metal, boards or the like, attached to the forward edge of the deck *j*, said plate *e'* being slotted in a manner similar to plate *e* in Fig. 1, as hereinbefore described. In order to prevent the accumulation of motes, dust and the like in the space between the upper portion of the ribs *b* and the plate *e'*, the latter is interrupted near the upper bend to provide an opening *d'* between the same and the continuation *e''* thereof, which permits any dust, motes or the like which collect behind the ribs *b* to be drawn

into the duct *d* by the injector-like action of the draft of air passing the mouth of opening *d'*.

In the modification shown in Fig. 3, the front wall *e²* of the duct *d* is formed by a reversely curved plate attached to the upper front portion of the gin frame, as will be readily understood from the drawings. Said plate extends well down toward the horizontal axis of the saws and forms a duct *d* of substantially the same dimensions as the channel *d* shown in Fig. 1. The effect of this prolongation of duct *d* will be to permit a subsidiary draft to enter said duct *d* from below the lower edge of the box-like deck structure and assist in carrying off any deleterious material which is not removed by the main draft of air entering by way of channel *i*. When it is found that this subsidiary draft is unnecessary, a construction such as shown in Fig. 4 may be employed, in which the plate *e³* forming the front wall of the duct *d* constitutes an extension of the dust chamber *g* with the slotted lower ends extending a relatively short distance between the saws, yet sufficient to cause the saws to project into the channel *d*. The latter construction is particularly adapted to a suction draft of air for which purpose the suction fans may be connected in any appropriate manner with the outlet *h* of the dust chamber.

What I claim is:—

1. A lint cleaning mechanism for saw gins, comprising a dust chamber, a flue communicating with said chamber and into which a relatively small portion of the peripheral edges of the saws extend, and means for producing a draft of air in said flue counter to the movement of the saws to remove dirt, moisture and the like from the lint.

2. A lint cleaning mechanism for saw gins, comprising a relatively narrow flue into which the peripheries of the saws travel after passing the ribs, and means for producing a draft of air in said flue counter to movement of the saws to remove dirt, moisture and the like from the lint.

3. A lint cleaning mechanism for saw gins, comprising a flue running transversely of the battery of saws and having a slotted wall through which the saws extend, and means for producing a draft of air in said flue counter to the movement of the saws to remove dirt, moisture and the like from the lint.

4. A lint cleaning mechanism for saw gins, comprising a flue running transversely of the battery of saws and having a slotted front wall through which the saws extend, and an air blast channel at the rear of said flue and opening into the flue to direct a blast of air counter to the movement of the saws in the flue and substantially tangential to said saws.

5. A lint cleaning mechanism for saw gins, comprising a flue running transversely of the battery of saws and having a slotted front

5 wall through which the saws extend, and an
air blast channel having a constricted exit at
the rear of said flue and opening into the flue
to direct a blast of air counter to the move-
ment of the saws in the flue and substantially
tangential to said saws.

10 6. A lint cleaning mechanism for saw gins,
comprising a relatively narrow flue into
which the peripheries of the saws travel after
passing the ribs, means for producing a draft
of air in said flue counter to the movement of
the saws to remove dirt, moisture and the
like from the lint, and means for regulating
the force of the draft of air.

15 7. A lint cleaning mechanism for saw gins,

comprising a flue running transversely of the
battery of saws and having a slotted front
wall through which the saws extend, an air
blast channel at the rear of said flue and open-
ing into the flue to direct a blast of air coun- 20
ter to the movement of the saws in the flue
and substantially tangential to said saws,
and a regulable damper in said blast channel.

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

JAMES G. DICKSON.

Witnesses:

ARTHUR L. BRYANT,
JOHN C. NIEHOHON.