

(No Model.)

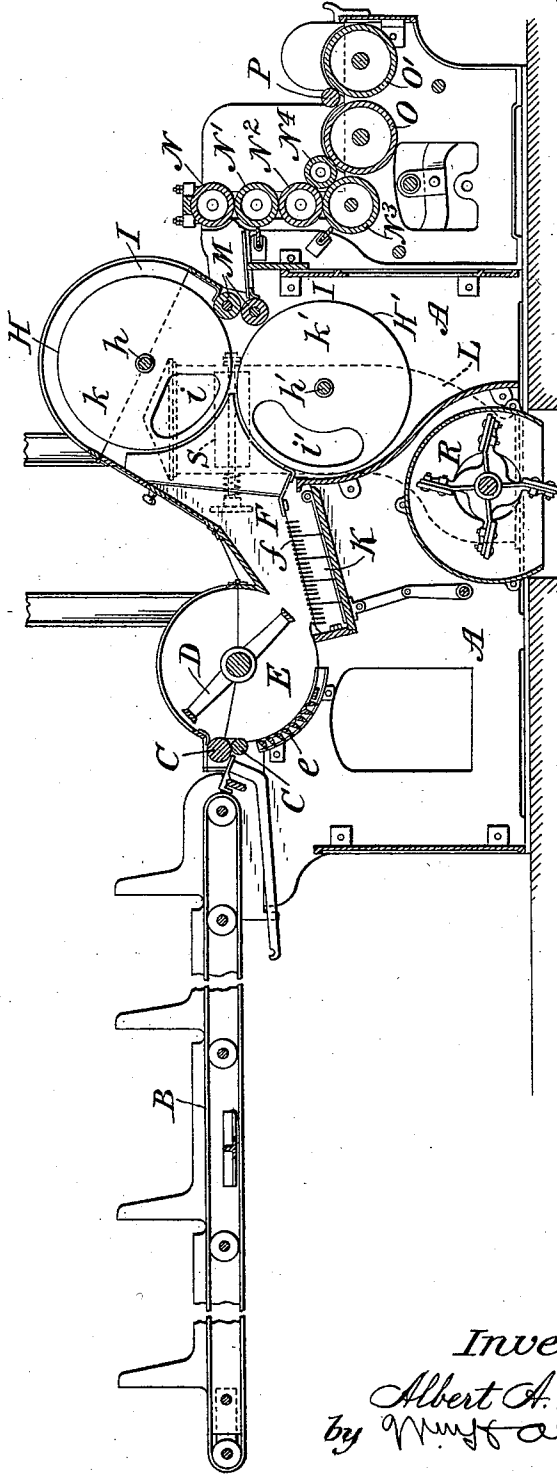
2 Sheets—Sheet 1.

A. A. SWEET.
PICKER.

No. 593,620.

Patented Nov. 16, 1897.

Fig. 1.



Attest:
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R. F. Smiley

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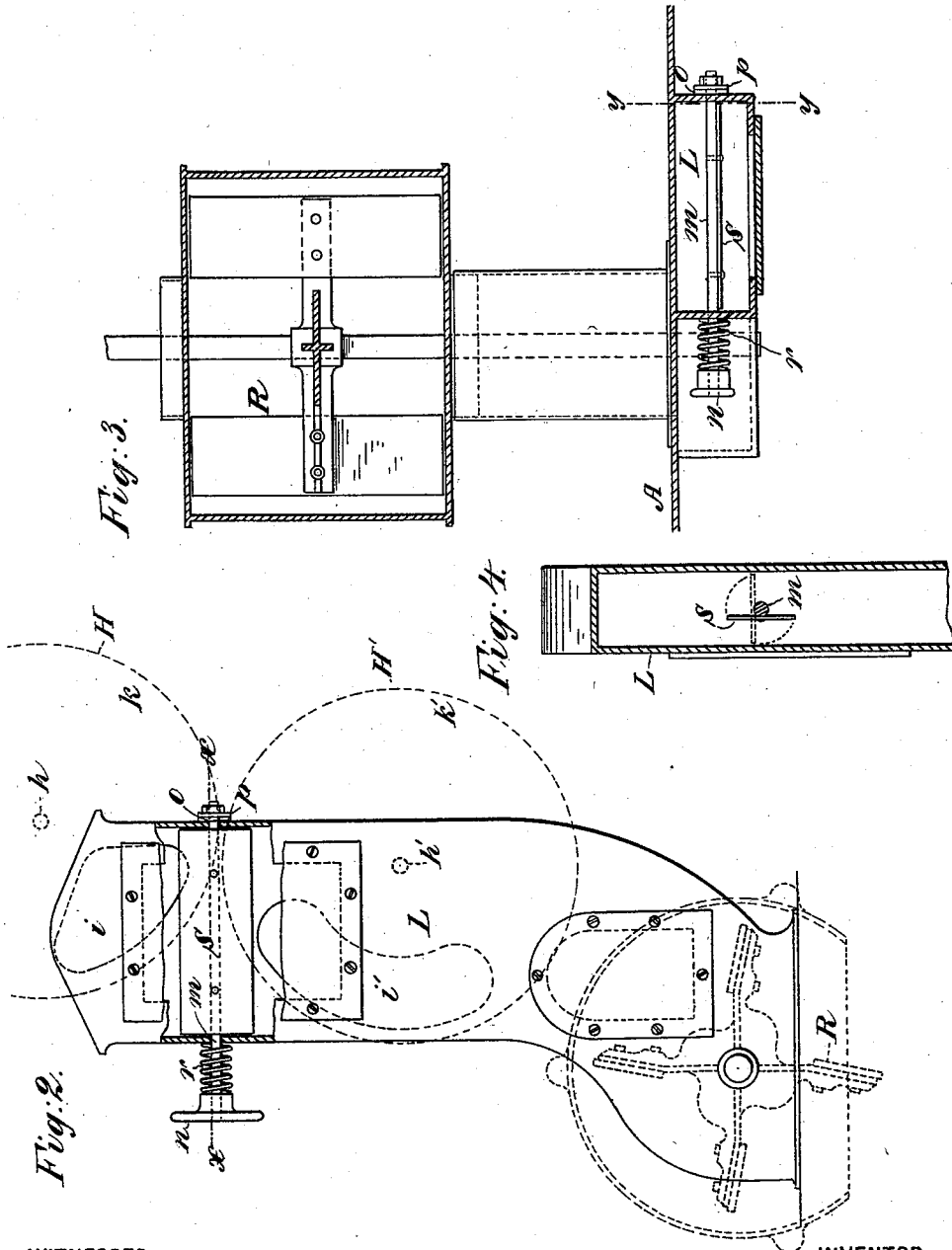
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2 Sheets—Sheet 2.

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PICKER.

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WITNESSES:

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UNITED STATES PATENT OFFICE.

ALBERT A. SWEET, OF FALL RIVER, MASSACHUSETTS, ASSIGNOR TO THE
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PICKER.

SPECIFICATION forming part of Letters Patent No. 593,620, dated November 16, 1897.

Application filed January 8, 1897. Serial No. 618,497. (No model.)

To all whom it may concern:

Be it known that I, ALBERT A. SWEET, a citizen of the United States, and a resident of Fall River, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Pickers, of which the following is a specification.

My invention relates to that class of pickers which are made use of in cotton-manufacturing establishments to prepare the raw cotton for the carding-engine, and has reference more particularly to the means whereby the inward drafts of air through the reticulated peripheral surfaces of the condensing cylinders or cages upon which the light loose flakes of cotton coming from the beater are formed into a bat are regulated and controlled. In pickers of this class as ordinarily constructed the interiors of the condensing cylinders or cages usually communicate with a fan or other air-exhausting means through the intermediaries of ducts leading from their respective ends thereto, whereby to superinduce through the reticulated peripheral surfaces of such cylinders or cages the requisite draft of air to insure of the collection thereon of the cotton and its conversion into a bat. As thus constructed it not infrequently happens that as the loose flaky cotton is drawn forward from the beater thereto under the influence of the draft set up by the fan or other air-exhausting means and the current engendered by the rotation of the beater, it, in consequence of changes in the temperature or in the hygometric conditions of the atmosphere, or both, is either carried so forcibly against the reticulated surfaces of the condensing cylinders or cages and adheres so tenaciously thereto that the sheet delivered by each of such surfaces maintains its own individual integrity after removal therefrom, and as a result thereof the lap formed by the union of the two is composed of two substantially distinct superposed sheets which separate from each other, or the lap "splits," as it is called, as such lap is unwound and fed to the carding-engines, whereby imperfect work is produced and injury to the clothing of the card occasioned, or else such cotton in passing from the beater to the condensing cylinders or cages is drawn more to one end

of the latter than to the other, in which event the resulting lap formed in the picker is of larger diameter at one end than it is at the other. To remedy these defects, it has been essayed to arrange within the ducts leading from the ends of the condensing cylinders or cages to the fan or other air-exhausting means, dampers whereby the currents of air passing through such cylinders or cages could be regulated and controlled. These dampers, however, while permitting of the regulation and control of these currents to a limited extent under certain conditions, have not obviated the objections above pointed out, principally because of the fact that they were located below the ends of both of the cylinders or cages, and in acting upon the currents passing through the one they have likewise acted upon the currents passing through the other. I have discovered, however, that by locating these dampers or other current-controlling devices in such positions in the ducts that they will act upon the currents passing through one of the cylinders or cages alone, without in any way acting upon the current passing through the other, and by properly adjusting such dampers or other current-controlling devices as the conditions may require, such objections may be overcome, a lap produced which shall be of the same diameter at both its ends, and the bat composing it shall be incapable of separation or splitting into its constituent sheet when fed to the carding-engine.

My invention therefore consists, first, in the employment with one of the condensing cylinders or cages, the air-ducts, and the fan or other exhausting devices, of dampers or other air-controlling devices for coöperating therewith, and, second, in various constructions and combinations of parts, all as will hereinafter more fully appear.

Referring to the accompanying drawings, which form a part of this specification, Figure 1 is a longitudinal vertical sectional elevation of a cotton-picker constructed in accordance with my invention; Fig. 2, a detail side elevation of one of the air-ducts leading from the condensing-cylinders to an exhaust-fan, the condensing-cylinders and exhaust-fan being shown in dotted lines and

parts of the air-duct being broken away for purposes of illustration; Fig. 3, a transverse sectional plan view of the exhaust-fan and the air-ducts connected therewith, taken in the plane $x x$ in Fig. 2, with the upper portion of the fan-inclosing case broken away; and Fig. 4, a transverse vertical sectional detail of one of the air-ducts and dampers, taken in the plane $y y$ in Fig. 3.

10 In all the figures like letters of reference are employed to designate corresponding parts.

A indicates the frame or housing of the picker up on which the various parts are or may be supported, B the traveling-apron upon which the cotton either in the form of laps or in a loose state may be supplied, and C the feed-rolls to which the cotton supplied to the apron is carried and fed.

Located in rear of the feed-rolls C is the beater D, by means of which the cotton delivered by such rolls is opened up and the motes and other refuse contained therein removed. This beater is mounted so as to rotate in a suitable chamber E, which is preferably provided in its bottom with a concentrically-arranged grid e , through which the motes and other foreign matters removed by the beater may pass, while yet preventing the escape of the loose flakes of cotton therewith.

30 Leading from the beater-chamber E, with its under side preferably tangent to the bottom thereof, is a trunk F, through which the cotton, after having been acted upon by the beater, is delivered to the condensing-cylinders H H'. These cylinders are mounted the one above the other at the proper distance apart in the closed chamber I, upon the respective shafts $h h'$, and have their cylindrical peripheral surfaces preferably constructed of wire-netting in reticulated form. As thus constructed and arranged these cylinders, with their inclosing chamber, are located at the rear end of the trunk F, in such a position with respect thereto that a portion of the peripheral surfaces of the former at and for some considerable distance from the line of their nearest approach on the side of their axes toward such trunk is exposed therein, while the remaining portions thereof are inclosed within their inclosing chamber I, and in order to retain any motes or other refuse that may fall from the cotton as it is carried along from the beater-chamber E to the condensing-cylinders H H' the bottom of the trunk F is likewise provided with a grid f , which opens on its under side into a receptacle K, from which such motes and refuse may be removed when required.

L indicates the ducts through which the required inwardly-flowing drafts of air through the reticulated peripheral surfaces of the condensing-cylinders are caused to pass. These ducts are secured to or formed as a part of the frame or housing of the machine, and, communicating at their upper portions with the interior of those cylinders through the orifices $i i'$, formed in the stationary heads $h h'$, with

which these cylinders are respectively provided, lead to and communicate with the means through which the required drafts of air are superinduced.

M indicates the rolls by means of which the sheets of cotton are stripped from the condensing-cylinders and compacted together into a coherent bat, and N N' N² N³ N⁴ the calender-rolls, between the pairs of which the bat received from the rolls M are passed and delivered to the winding-rolls O O', upon and between which it is wound into a lap on the roll P, as is common in this class of machine.

The construction and arrangement of parts as thus far described, with their accompanying mode of operation, possess no novelty in themselves, but are or may be the same as those heretofore employed and require no further description herein. Arranged in connection with one or the other of these condensing cylinders or cages II or II' and the means by which the inwardly-flowing drafts of air through its reticulated peripheral surface is superinduced are the means whereby the regulation and control of these drafts are effected, and it is to these that my present invention more particularly relates. These regulating and controlling means may be of various forms and their location such as the particular condensing cylinder or cage with which they cooperate may require. In the drawings I have shown the air-exhausting devices as constructed in the form of an exhaust-fan R, with which the lower end of the ducts L communicate, and the draft-regulating and controlling devices as constructed in the form of a damper S, which in the embodiment of the invention selected for illustration is journaled by a shaft m in each of the ducts L opposite the space between the two condensing cylinders or cages II II', whereby to be caused to operate upon and control the currents of air which pass through the peripheral surface of the upper cylinder or cage II alone. As thus arranged the regulation and control of the currents of air through the peripheral surface of that condensing cylinder or cage is effected by simply operating the damper in the required direction to reduce or increase the passage through the duct from the appropriate cylinder or cage as the necessities of the currents passing through the same may demand, and this in the construction shown in the drawings may be effected by simply turning the shaft or shafts m of one or both of the dampers in the proper direction or directions to accomplish the result desired. The means whereby this rotation of the shaft m is effected may be of various forms. I prefer, however, for this purpose to make use of a collar or knob n on its ends, and to hold it, with the damper, in any position to which they may be adjusted I find it convenient to employ a friction washer o , of leather or other appropriate material, which may be held clamped between a collar p on the end of the

shaft *m* and the side of the duct *L* by means of a coiled spring *r*, surrounding said shaft and bearing at its opposite ends against the collar or knob *n* and the side of the duct *L*, respectively, as shown.

While in the drawings I have shown the means through which the control and regulation of the currents of air through the reticulated peripheral surface of the condensing cylinders or cages may be effected as applied in connection with the upper of such cylinders or cages whereby to act upon those alone, it is obvious that they may be applied to the under of such cylinders or cages and operate with equal efficiency, it only being essential that they cooperate with the currents passing through the peripheral surfaces of one of such cylinders or cages without in any way affecting the currents passing through the other. In some instances these air controlling and regulating means may be employed at only one end of their cooperating cylinder *H* or *H'*; but in the preferred embodiments of my invention they are employed at both ends thereof, as a more thorough control and regulation of the drafts through the surfaces of such cylinders is thereby attained. With devices thus employed in connection with one or the other of the condensing cylinders and the means through which the inward currents of air through its reticulated surface are superinduced, whereby the force or intensity of such drafts may be regulated and controlled as required, not only may the laps produced by the picker be rendered incapable of splitting when unwound and fed to the carding-engine but also of the same diameter at both of their ends.

Although in the foregoing I have described the best means contemplated by me for carrying my invention into practice, I wish it distinctly understood that I do not limit myself strictly thereto, but reserve to myself the right to modify the same in various ways without departing from the spirit thereof.

Having thus described my invention and specified certain of the ways in which it is or may be carried into effect, I claim and desire to secure by Letters Patent of the United States—

1. The combination, with the condensing

cylinders or cages of a picker, and the means whereby inward drafts of air may be superinduced, of devices arranged in connection therewith whereby such drafts of air through the surface of one of said cylinders or cages may be controlled and regulated, without affecting the drafts of air passing through the other, substantially as described.

2. The combination, with the condensing cylinders or cages of a picker, means through which currents of air are superinduced through their peripheral surfaces, and a beater, of air-ducts leading from the ends of these cylinders or cages, and dampers arranged in such ducts opposite the space between the said cylinders or cages, whereby the currents of air passing through the surface of the upper said cylinders or cages may be controlled and regulated, without affecting the currents passing through the surface of the lower of such cylinders, substantially as described.

3. The combination, with the condensing cylinders or cages of a picker, and an exhaust-fan, of ducts leading from the ends of such cylinders or cages to the fan, of a damper arranged in said duct opposite the space between the cylinders or cages, whereby to regulate and control the currents of air superinduced through the surface of the upper cylinder or cage without affecting the currents superinduced through the surface of the lower cylinder or cage, substantially as described.

4. The combination, with the condensing cylinders or cages of a picker, and an exhaust-fan, of air-ducts leading from the opposite ends of such cylinders or cages to said fan, and a damper arranged in each of said ducts opposite the space between the cylinders or cages, whereby to control and regulate the currents of air superinduced through the peripheral surface of the upper of such cylinders or cages by the fan without affecting the currents superinduced through the surface of the other cylinder or cage, substantially as described.

In testimony whereof I have hereunto set my hand this 5th day of January, 1897.

ALBERT A. SWEET.

Witnesses:

EDWARD A. THURSTON,
ABEL T. ATHERTON.