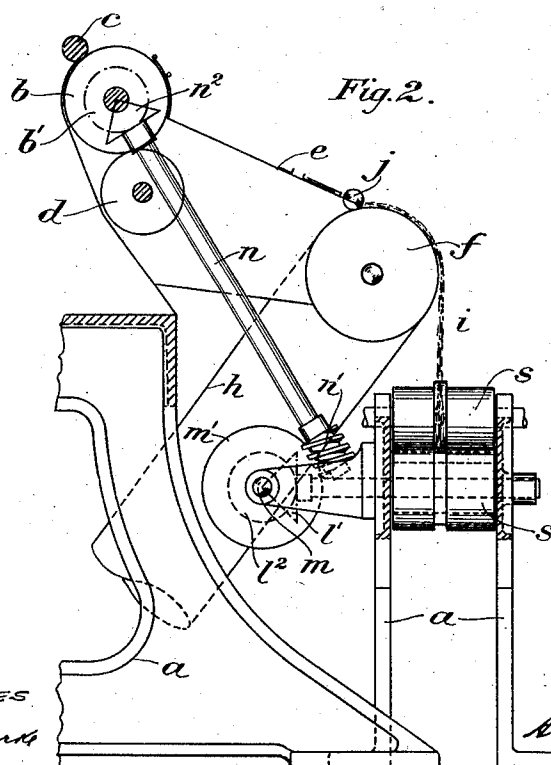
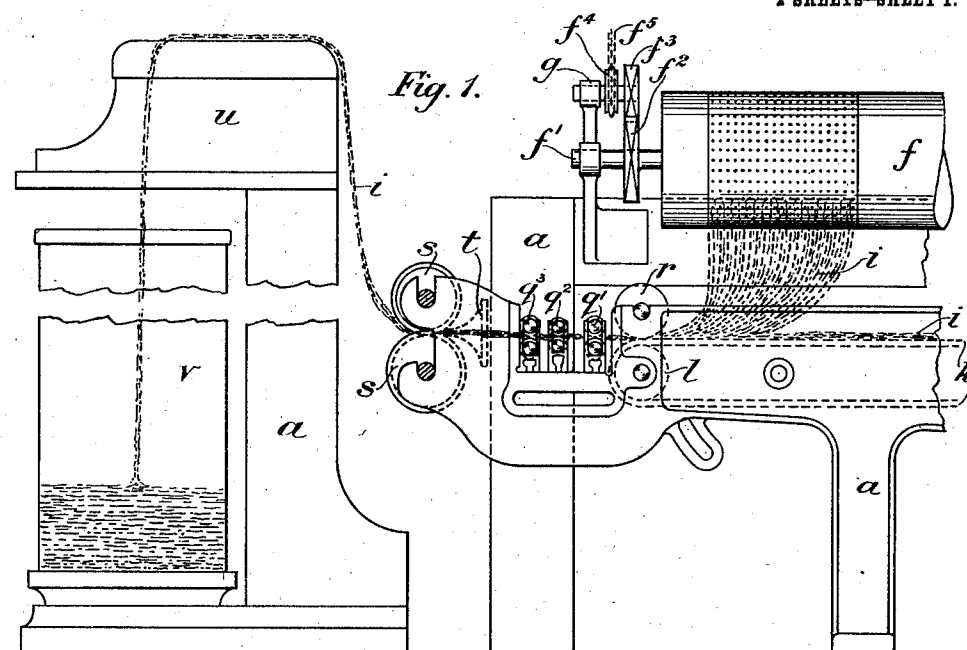


APPLICATION FILED NOV. 12, 1910.

Patented May 7, 1912.

2 SHEETS--SHEET 1.



W. P. Burke

John C. Sanders,

Albert Jamlinson

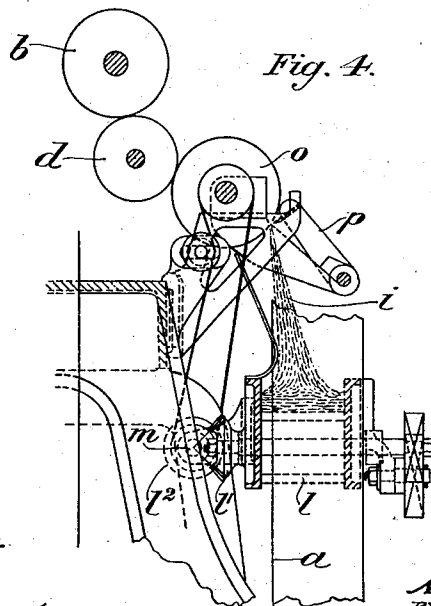
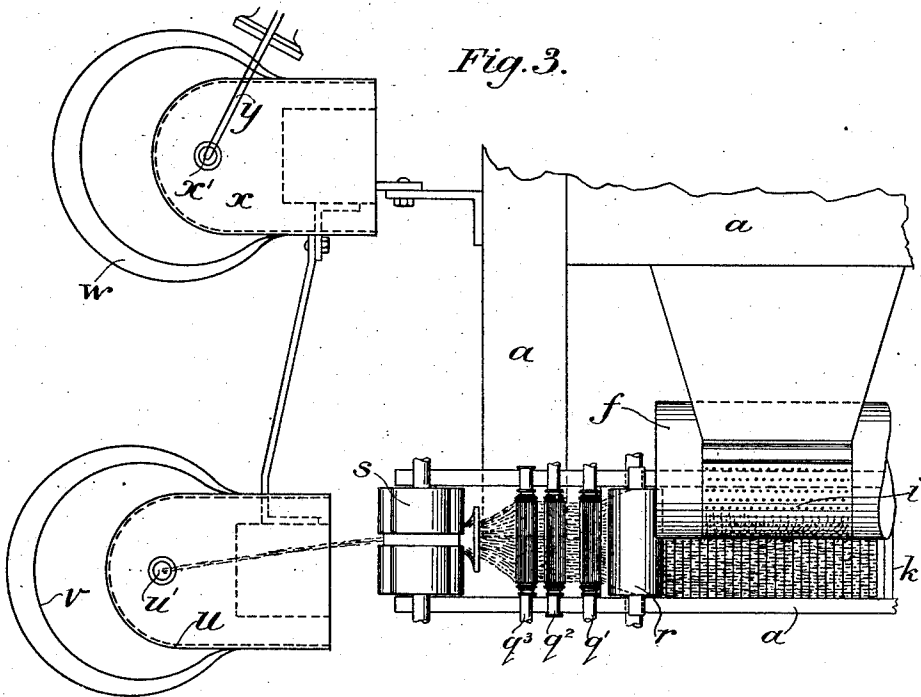
BY *Mr. William H. H. H.*

A. TOMLINSON.
COMBING MACHINE.
APPLICATION FILED NOV. 12, 1910.

1,025,934.

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2 SHEETS—SHEET 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

ALBERT TOMLINSON, OF MANCHESTER, ENGLAND, ASSIGNOR TO JOHN HETHERINGTON AND SONS LIMITED, OF MANCHESTER, ENGLAND.

COMBING-MACHINE.

1,025,934.

Specification of Letters Patent.

Patented May 7, 1912.

Application filed November 12, 1910. Serial No. 592,016.

To all whom it may concern:

Be it known that I, ALBERT TOMLINSON, a subject of the King of Great Britain, residing at Manchester, in the county of Lancaster, England, have invented new and useful Improvements in Combing-Machines, of which the following is a specification.

My invention relates to improvements in combing machines particularly for combing cotton, and has for its object to recover the waste material from the combing cylinder and convert it into a sliver of any desired weight and deposit the same in a coiler can.

It has hitherto been customary in some combing machines to remove the fleeces of waste fibers in receptacles, in the form of wound laps, or upon a traveling conveyer, and to employ such waste in any suitable subsequent manufacture. A method has also been proposed of working short cotton rejected by cotton-combing machines into a sliver in the combing machine and coiling the same with the object of bringing it into condition suitable for spinning purposes without carding or other re-working. In such method it was proposed in one arrangement to directly concentrate or condense each fleece of waste fibers as it leaves its doffer into a sliver and then to deliver it from a pair of rollers following the concentrating trumpet into the trumpet-shaped neck of a slowly revolving flier whereby the sliver is slightly twisted and coiled upon a bobbin or spool. In an alternative arrangement under the same method it was proposed to concentrate and condense each fleece of waste fibers by a trumpet into a sliver and then combine the slivers into one and deliver such combined sliver by an endless traveling conveyer and two pairs of rolls at different elevations to a rotating coiler can, or if desired to draw and even the consolidated sliver a "railway head as is common with carding machines" was suggested between the conveyer and the can.

According to my present improvements I employ a condensing cylinder or other suitable means for stripping and combining the waste fibers from the different heads of the combing machine and laying the stripped waste fibers on to an endless traveling conveyer without any concentration and deliver the combined fleece of waste fibers into a draw box like that employed for the good fleece and comprising three or more pairs

of fluted drawing rollers driven at progressively increasing surface speeds; after the draw box but not before the fleece is concentrated into a sliver by passing it through a trumpet, and then through the nip of a pair of calender rollers whence it passes to the trumpet mouth of the coiler top of a coiler can and is treated in an exactly similar manner as the sliver obtained from the good fleece of long stapled fibers. In this manner and by the means indicated I obtain from the fleeces of waste fibers stripped from the different heads of the combing machine a sliver of workable size and of such definite weight as may be required. I attain this object as illustrated in the accompanying two sheets of drawings, which illustrate the application of my invention to a combing machine.

Figure 1 is a side elevation of the delivery end of the combing machine and showing the last head with the traveling conveyer, the drawbox, containing three or more pairs of progressively driven drawing rollers, calender rollers, extra coiler and its appurtenances which I employ for the purposes of my invention. Fig. 2 is an end sectional elevation showing a combing cylinder, stripping brush and condensing cylinder for transferring the waste fleece to the traveling conveyer and front calender rollers. Fig. 3 is a plan of Fig. 1 with some of the parts omitted and showing the arrangement of the ordinary coiler for the good sliver as well as the extra coiler for the waste sliver. Fig. 4 is a similar view to Fig. 2 but omitting the calender rollers and showing an arrangement of doffing cylinder and comb for transferring the waste fleece from the combing cylinder to the traveling conveyer.

In these views:—*a* designates the frame of the machine; *b* the combing cylinder; *c* the detaching roller for the removal of the good fleece; *d* the stripping brush for removing the waste fibers from the combing cylinder; *e*, Fig. 2, a casing inclosing the space between the combing cylinder *b* and the condensing cylinder *f*. The shaft or axle *f'* of the condensing cylinder *f* is supported in the usual way in brackets *g*, one of which is shown in Fig. 1, and the condensing cylinder is rotated by a pair of gears *f*² *f*³ and a chain wheel *f*⁴ and chain *f*⁵ driven preferably from the wood roller

shaft in the creel in the usual way as is well understood. The condensing cylinder is substantially of the type shown and described in the United States patent to Roth, #905,233, December 1st, 1908, in which a shield permits the condensing effect to be exerted on only a part of the drum. The condensing cylinder is connected by a trunk *h* to a fan, not shown, in the usual way, in order to remove by suction the fleece *i* of waste fibers removed from the combing cylinder *b* by the stripping brush *d*, such fleece *i* passing under a roller *j* and over the exterior of the rotating condensing cylinder *f* to the traveling conveyer *k*. The traveling conveyer *k* is supported on guide rollers *l*, one of which is shown in Fig. 1 and which is driven by suitable gearing from any convenient moving part of the machine, as for example by a pair of bevel wheels *l'* *l''* from the side shaft *m*. The side shaft is driven as shown in Fig. 2 by a worm wheel *m'* from a worm *n'* on an obliquely placed shaft *n* which is driven by a bevel gear *n''* from a bevel gear *b'* on the axis of the combing cylinder *b*.

As an alternative for the condensing cylinder I may employ any suitable arrangement for transferring the stripped fleece *i* of waste fibers from the combing cylinder *b* to the traveling conveyer *k* provided that each fleece of waste fibers is allowed to fall or flow evenly and without concentration so that it may reach the draw box in an open condition. I show one such an arrangement in Fig. 4 in which a rotating wire clothed doffing cylinder *o* and oscillating doffing comb *p* actuated by any convenient driving gear and connections in the usual and well known way, take the fleece *i* of waste fibers from the stripping brush *d* and transfer it to the traveling conveyer *k*.

All the foregoing parts are of ordinary construction and operate in the manner well understood by those conversant with combing machines and in themselves form no part of my invention, which, as already stated, consists in employing in conjunction with the traveling conveyer *k*, a drawbox containing three or more pairs of progressively driven drawing rollers between the

traveling conveyer and the extra coiler and its appurtenances. This drawbox, as shown in Figs. 1 and 3, is similar to that employed for the good sliver and has three pairs of fluted drawing rollers *q'* *q''* *q'''* respectively which are driven at progressively increasing surface speeds in any convenient and well known manner for the purpose of elongating and consolidating into a sliver the fleece *i* of waste fibers which reaches the trumpet mouth *t* in an open condition. The fleece *i* as it leaves the traveling conveyer *k* passes under an evening and consolidating roller *r* through the nip of the three pairs of drawing rollers *q'* *q''* *q'''* into and through a trumpet *t*, through the nip of a pair of calender rollers *s*, from which it issues in the form of a complete sliver and is delivered through the trumpet mouth *u'* of the coiler top *u* into a coiler can *v* where it is coiled in the usual way and by the usual means. This coiler can *v* is of course in addition to the usual coiler can *w* and coiler *x*, shown in Fig. 3 where the good fleece *y* is seen passing through the trumpet mouth *x'* of the coiler top *x* into the can *w*.

What I claim and desire to secure by Letters Patent in the United States is:—

In combination, a combing cylinder, a stripping brush adapted to strip the waste fibers therefrom, a rotating condensing cylinder to which the waste fibers are fed, a traveling conveyer, means for transferring said fibers to said conveyer in an open condition, an evening and consolidating roller operatively associated with said conveyer to engage the fibers thereon, a trumpet, a series of drawing rollers to receive the fibers from said traveling conveyer and deliver the same into said trumpet, calender rollers for gripping the material after it issues from said trumpet, and a coiler into which the material passes from the calender rollers.

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

ALBERT TOMLINSON.

Witnesses:

H. B. BARLOW,
J. BENNETT.