June 12, 1934. H. WILKINSON 1,962,945

METHOD OF AND MEANS FOR DEALING WITH FLAT STRIPPINGS OF COTTON AND OTHER FIBERS IN REVOLVING FLAT CARDING ENGINES

Filed Feb. 2, 1933 3 Sheets-Sheet 1

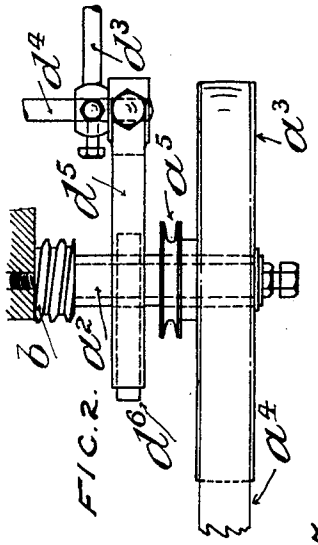


FIG. 2.

FIG. 1.

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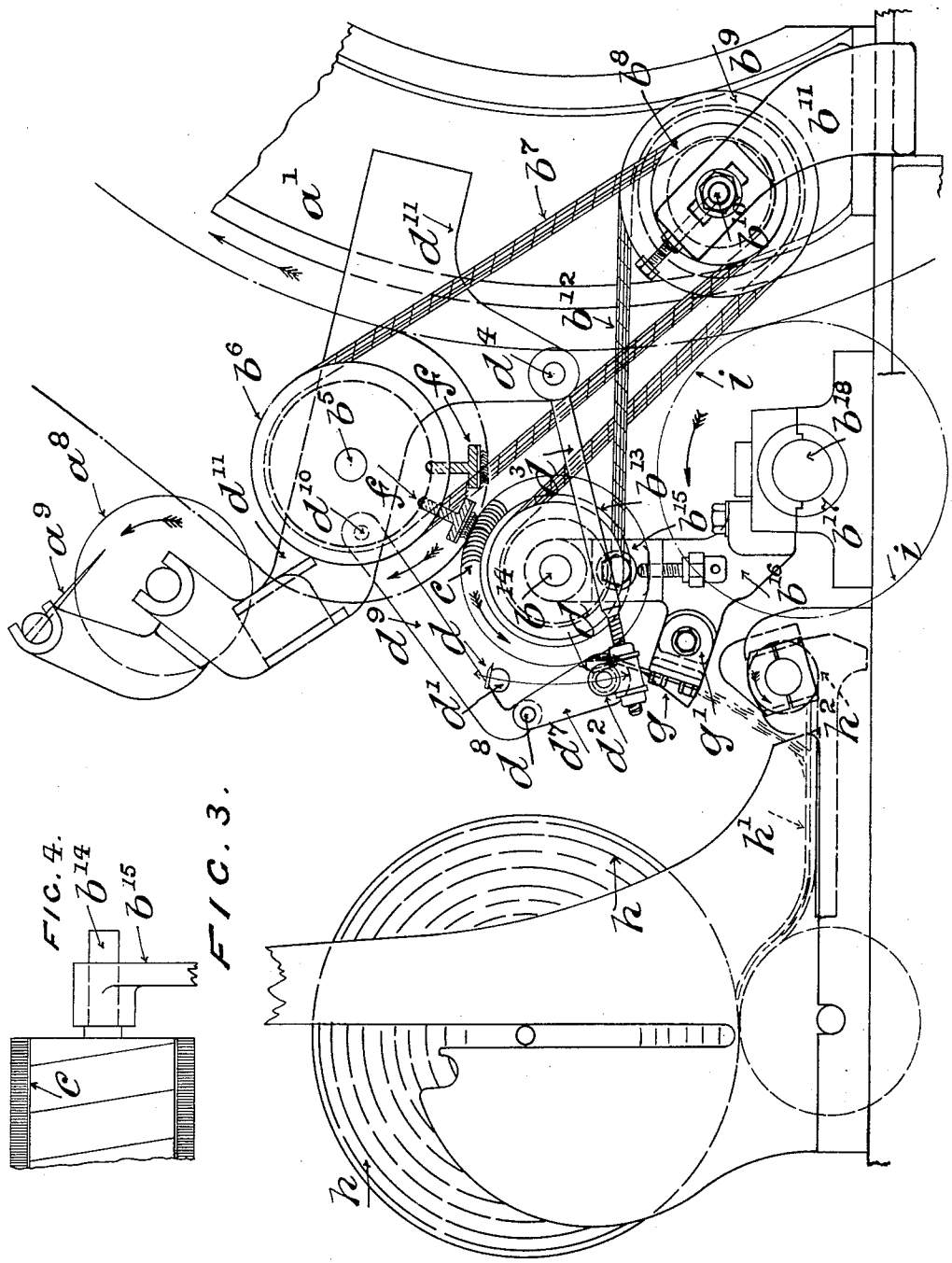


FIG. 3.

FIG. 4.

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Filed Feb. 2, 1933 3 Sheets-Sheet 3

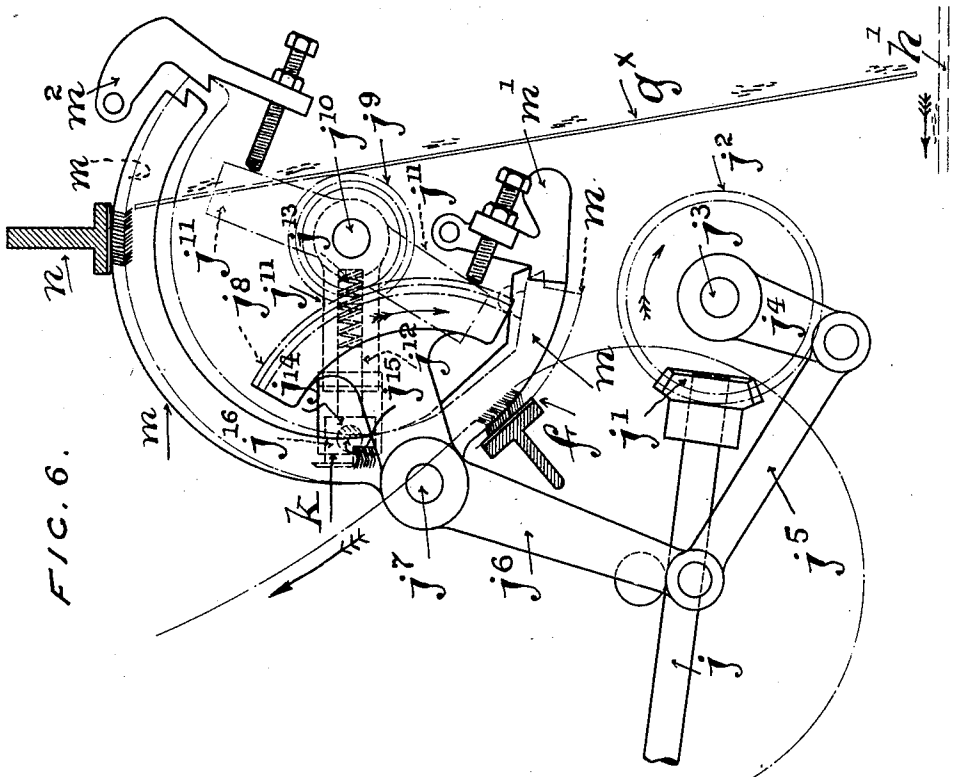


FIG. 6.

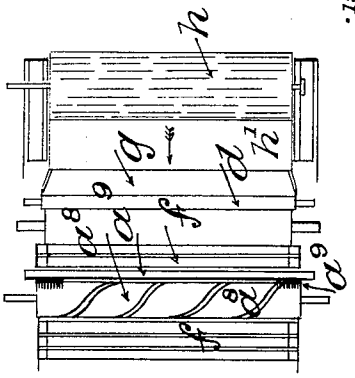


FIG. 5.

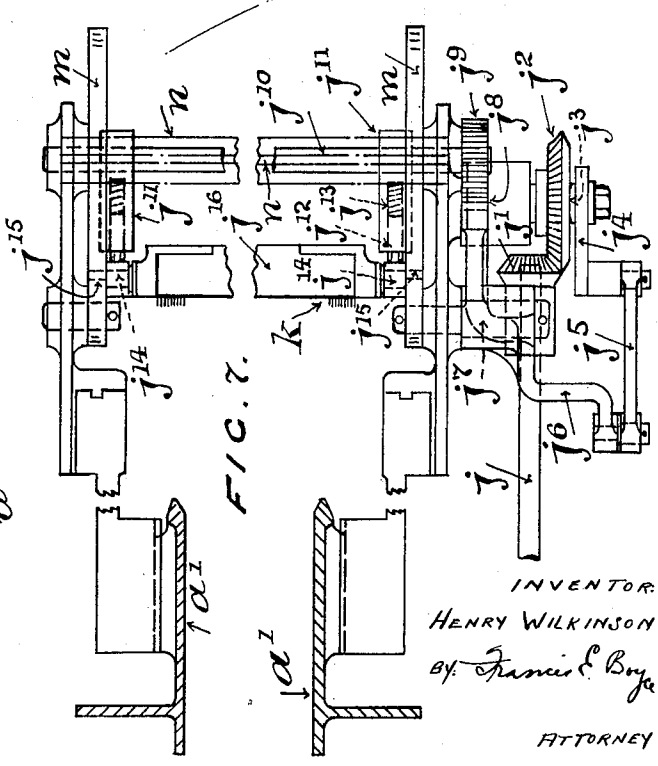


FIG. 7.

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UNITED STATES PATENT OFFICE

1,962,945

METHOD OF AND MEANS FOR DEALING WITH FLAT STRIPPINGS OF COTTON AND OTHER FIBERS IN REVOLVING FLAT CARDING ENGINES

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In Great Britain February 8, 1932

2 Claims. (Cl. 19—107)

This invention has to do with a method of and means for dealing with the strippings of cotton and other fibers which are stripped from the travelling "flats" in revolving flat carding engines. These strippings are usually gathered up by hand and sold or re-used as waste.

The method in question is, following detachment of such strippings from the travelling flats by some stripping apparatus or means, to direct or mechanically convey without handling such flat strippings to the lap or feed mechanism of the carding engine, so that such strippings are, along with the lap, caused to pass to the "licker-in", which with its "mote knives" is a cleaning mechanism. Thus, the method involved is, the collecting without handling and reincorporation of the flat strippings along with the lap, so that, said strippings are re-presented without any manual intervention and are re-advanced along with the lap for cleaning action thereon by the licker-in and mote knives, etc.

The means start with such a device as will collect and detach the strip (and as regards such there may be no particular broad novelty) and include means which will direct, convey, or conduct the said flat strippings to the lap being supplied at the feed end of the carding engine without manual intervention, and whereby, such flat strippings will go in along with the lap being fed to the licker-in to undergo along therewith cleaning treatment.

It is advantageous for my purpose to run the flats in the reverse direction to what is normal, such reverse running for other purposes being followed by some makers, as for instance, the Société Alsacienne.

It is well appreciated, that the flat strippings contain cotton fiber equally as good in staple as is delivered in the sliver, and therefore it is a desirable commercial proposition to automatically transfer the strip back to the lap to pass the feed roller and be acted upon by the licker-in and mote knives. A thicker strip may be arranged for, because the impurities, being in a loose state in the strip, can be more satisfactorily removed. In my opinion a cleaner sliver will thereby be obtained, as well as an economy effected, by the immediate re-introduction of the flat strips into or with each individual carding engine.

For preference I run the travelling flats the reverse way and employ any suitable stripping mechanism properly actuated.

In order to further set forth the method involved in my invention, I now proceed to describe two mechanical arrangements or means by which the method can be carried out by those skilled in the art, the two mechanical arrangements being typical rather than exhaustive of possible means.

The accompanying drawings serve to illustrate the mechanical arrangements and to make clear the method involved.

Fig. 1 shows in side elevation so much of the left-hand side of a revolving flat carding engine as is necessary to indicate the application of one arrangement of mechanism for carrying out the method.

Fig. 2 is a detail view.

Fig. 3 is a similar side elevation but taken from the right-hand side of the carding engine.

Fig. 4 shows a broken front view of a slowly revolving wire-clothed revolving stripper roller which initially strips the travelling flats.

Fig. 5 is a diagrammatic plan view indicative of the method and the means involved in the scheme according to Figs. 1, 2 and 3.

Fig. 6 is a side elevation of another and more complicated mechanical arrangement for carrying out the method.

Fig. 7 shows a broken plan view of parts of the mechanism illustrated in Fig. 6.

Referring first to the construction illustrated by Figs. 1 to 5, I arrange for the flats to run in the reverse direction to what is normal and this is effected in known manner and is not any novel part of my invention.

According to the arrangement Figs. 1 to 5, I have shown as appropriate, a stud shaft a which is fixed to the "bend" a^1 or the framework of the carding engine, and on this stud shaft a is mounted a sleeve a^2, said sleeve being driven through a pulley a^3 by a belt a^4 from a small pulley on the main cylinder shaft of the carding engine.

On the sleeve a^2 is mounted a small rope pulley a^5 which, by a crossed rope a^6, drives a rope pulley a^7 which rotates the ordinary spiral brush a^8 which brushes the dents of the travelling flats f. The ordinary comb for the revolving spiral brush a^8 is lettered a^9.

On the sleeve a^2 a worm b is mounted and this gears into a worm wheel b^1 on the inclined shaft b^2, which shaft b^2 has a worm b^3 mounted thereon to drive the notch blocks b^4 which support the travelling flats f, said notch blocks being mounted on a cross-shaft b^5. The opposite end of this cross-shaft b^5 has a rope pulley b^6 which, by a rope b^7, drives a small pulley b^8 of a double pulley b^8, b^9, mounted on an adjustable stud b^{10} carried

in a provided bracket b^{11} mounted on the framework and very clearly shown in Fig. 3. The pulley b^9 by a crossed rope b^{12} drives a rope pulley b^{13} mounted on a shaft b^{14} carried in adjustable brackets b^{15}, said brackets b^{15} being shown supported on brackets b^{16} attached to the pedestals b^{17} of the licker-in shaft b^{18}.

Upon the shaft b^{14} is mounted the wire-clothed revolving stripper roller c which is driven at a very slow speed (say three inches per minute) by the means described. This wire-clothed revolving stripper roller c is of ordinary description and clothed with a spirally wound filleting having teeth of about 3/4 of an inch in length and is shown separately and broken in length at Fig. 4. In rotating, it strips the travelling flats f which run at a very slow speed (say two inches per minute) and so this slowly revolving stripper roller c strips the travelling flats f in obvious manner.

Co-operating with the slowly revolving stripper roller c is a stripping comb d which is of ordinary type and it functions to strip the fibers from said roller c. The stripping comb d is fixed upon a bar d^1 mounted in journals d^2 on the lever arms d^3 fixed upon the cross-shaft d^4, a cam fork d^5 being fixed on the cross-shaft d^4 and said cam fork d^5 is operated by a cam d^6 mounted on the sleeve b and consequently the lever arms d^3 are moved up and down as indicated by Fig. 1. There is a lever arm d^7 jointed at d^8 to a link d^9 pivoted at d^{10} to the bracket d^{11}. As a consequence the comb d is oscillated on its bar-like axis d^1 and the comb d describes the same path on both up and down strokes. On its descent, the comb d strips said roller c and combs off or detaches the waste fiber removed from the travelling flats f and directs same downwards over the laterally arranged inclined chute or guide plate g which is shown mounted upon brackets g^1 adjustably secured to the brackets b^{16}. Thus, the slowly revolving stripper roller c directly strips the travelling flats f, and the comb d intermittently strips said roller c, combs off the waste, and directs same down over the chute or guide plate g so that the strips fall down on to the lap h^1 fed from the lap roller h and are carried along with the lap by the feed roller h^2 to the revolving licker-in i and returned into the carding engine without any manual intervention.

The Figs. 6 and 7 illustrate another mechanism for achieving my object, such a mechanism being broadly known for a different purpose.

In this example Figs. 6 and 7, the travelling flats f are carried around the known and suitably driven notch blocks at a slow speed in ordinary manner. There is provided a driven side-shaft j which by bevel wheel j^1 drives a bevel wheel j^2 mounted on a stud j^3, said wheel having a lever arm j^4 which, by a link j^5, operates a lever j^6 fulcrumed on a fixed shaft j^7, the upper part of the lever j^6 being shaped like a quadrant and having teeth at j^8. The mechanism described causes the quadrant part of the lever j^6 to oscillate angularly. The teeth j^8 gear with the teeth of a pinion j^9 mounted on a shaft j^{10} which has projecting arms j^{11}, in the bored lengths of which slidable spindles j^{12} are carried, springs j^{13} acting upon said spindles j^{12}. In the square heads of the spindles j^{12} bars j^{14} are mounted having a shaped face j^{15}, a block j^{16} supporting a comb and dent device k (of known construction). On the fixed shaft j^7 movable cam plates m are mounted, of the character shown, and these are engaged by the catch devices m^1 and m^2. The alternate positions of the cam plates m are shown in full and dotted lines (Fig. 6). In the dotted position of the cam plates Fig. 6, the full descent of the projecting arms j^{11} has disengaged the catch devices m^1 and the shaped faces j^{15} engage the dotted cam path and so the combined comb and dent device k strip the travelling flat f and the detached strip is carried upwards and around, the dotted cam path causing the combined comb and dent device k during the ascent to miss a stationary flat bar n. Ultimately, the projecting arms j^{11} act on the catch devices m^2 and disengage them, whereupon the springs j^{13} force outwards the shaped faces j^{15} and the combined comb and stripper k is so moved outwardly, that, the dents on the fixed flat bar n detach the strip on what is the downward or backward stroke of the combined comb and stripper k as same moves downwards. During its downward movement said combined comb and stripper k misses the travelling flats f and completes its downward movement, finally disengaging the catch devices m^1 when the projecting arms j^{11} encounter the catch devices m^1. The fibers detached by the fixed flat bar n fall down a chute, indicated by the dotted line g^x, onto the lap h^1 being fed from the lap h to the carding engine in manner similar to what has already been described.

I have not elaborated the description of the mechanism according to Figs. 6 and 7 as for another purpose such is broadly known.

In this example, too (Figs. 6 and 7), it is understood the revolving flats travel in the opposite direction to the normal.

I claim:

1. Means for obviating manual intervention for the re-incorporating of waste strippings from the flats of revolving flat carding engines into the lap fed to said carding engines, comprising a rotatable stripping device adapted to act on the travelling flats, means to drive the same, a stripping comb, an axis therefor, means to move the said stripping comb angularly and means to rotate same on its axis, and a chute to convey the strips detached by the said stripping comb down onto the lap being fed to the carding engine.

2. Means for obviating manual intervention for the re-incorporating of waste strippings from revolving flat carding engines into the lap fed to said carding engines, and consisting of a rotatable stripping roller to strip the travelling flats, a wire clothing on said rotatable stripping roller, means to slowly rotate said stripping roller, a stripping comb co-operating with said stripping roller, an axis for said stripping comb, supports for said axis, means to actuate said stripping comb, means to move same angularly, mechanism to control said movements to intermittently detach the strips from the rotatable stripping roller, and means to direct the detached strips into the lap being fed to the carding engine.

HENRY WILKINSON.