No. 855,430. PATENTED MAY 28, 1907.

F. W. CHADDERTON.

COMBING MACHINE FOR COTTON, WOOL, &c.

APPLICATION FILED JULY 29, 1904.

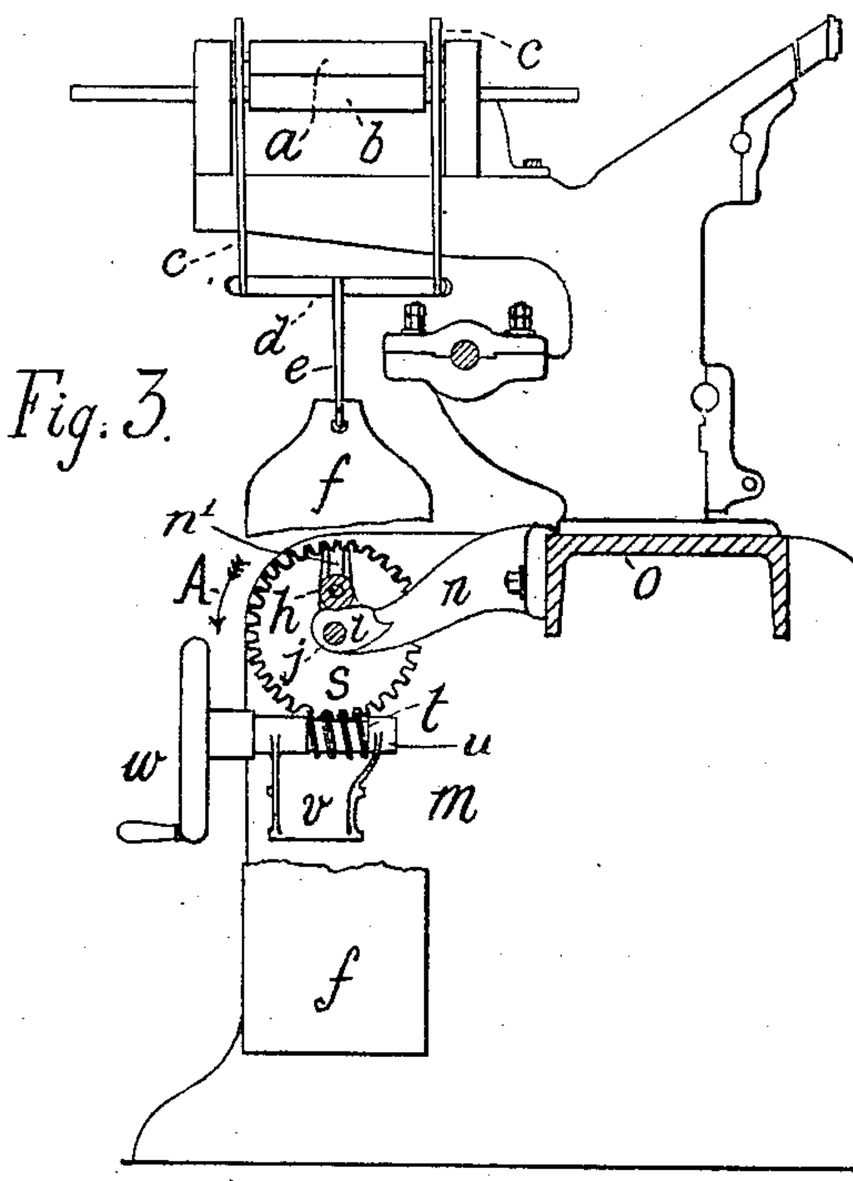

Fig. 3.

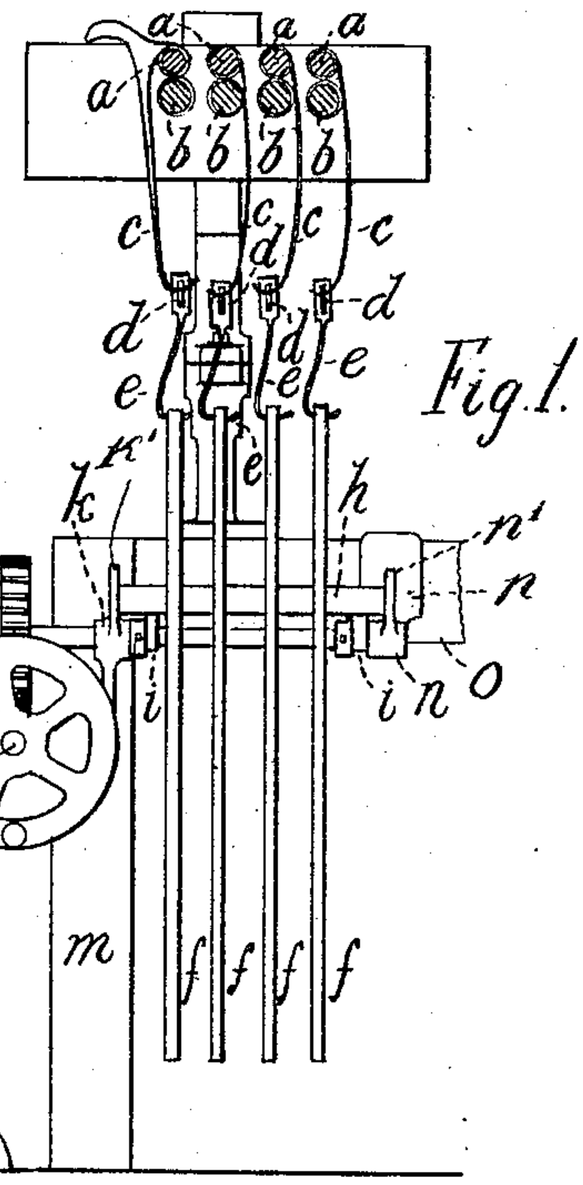

Fig. 1.

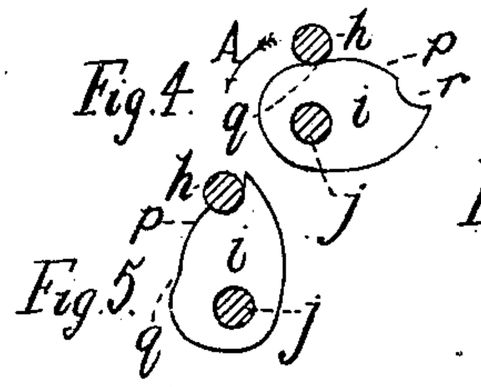

Fig. 4.

Fig. 5.

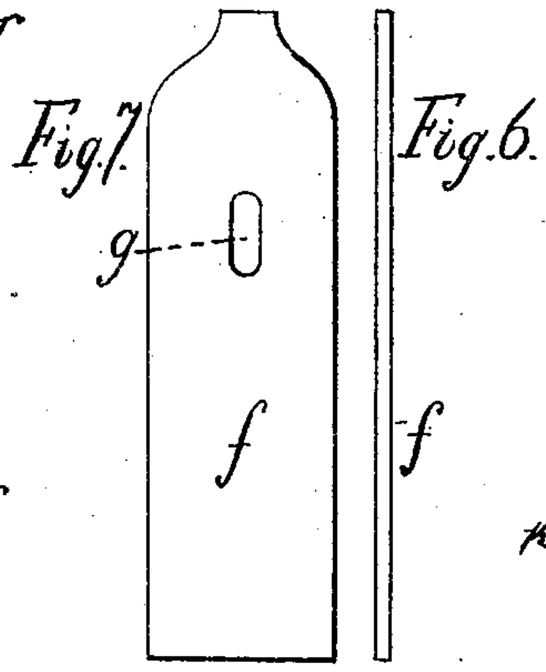

Fig. 7.

Fig. 6.

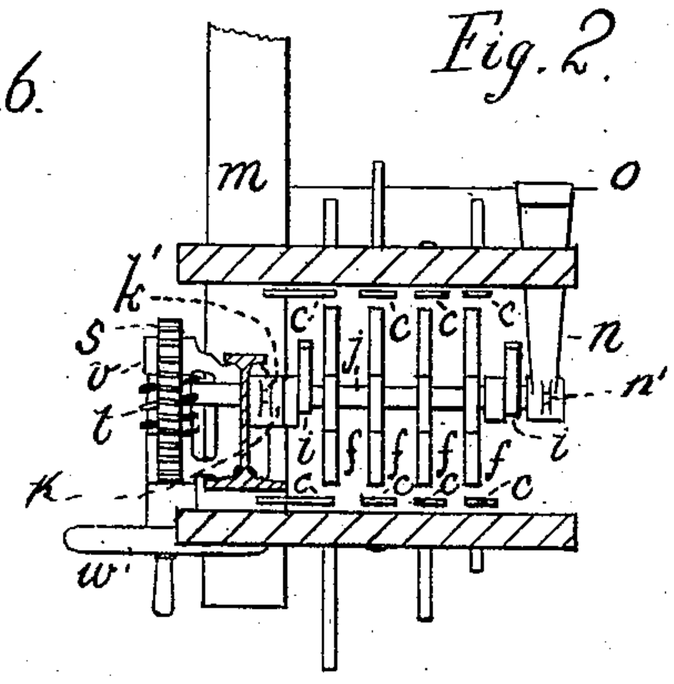

Fig. 2.

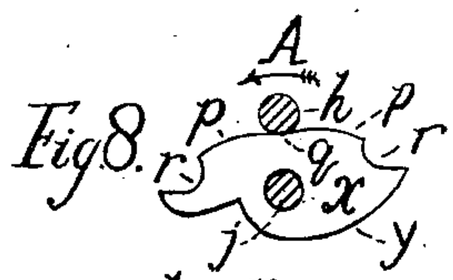

Fig 8.

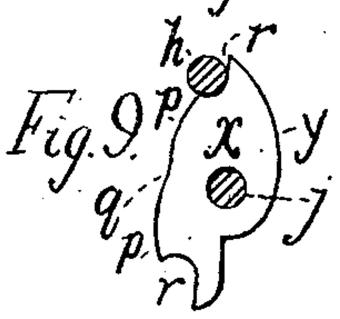

Fig. 9.

Witnesses:-
Henry Thieme.
F. George Barry.

Inventor:-
Frank Waugh Chadderton
by attorneys
Bowen & Lovard

UNITED STATES PATENT OFFICE.

FRANK WAUGH CHADDERTON, OF OLDHAM, ENGLAND.

COMBING-MACHINE FOR COTTON, WOOL, &c.

No. 855,430. Specification of Letters Patent. Patented May 28, 1907.

Original application filed February 25, 1902, Serial No. 95,517. Divided and this application filed July 29, 1904. Serial No. 218,598.

To all whom it may concern:

Be it known that I, FRANK WAUGH CHADDERTON, foreman, a subject of the King of the United Kingdom of Great Britain and Ireland, and a resident of 42 Penn street, Oldham, in the county of Lancaster, England, have invented a new and useful Improvement in Combing-Machines for Combing Cotton, Wool, and other Fibrous Materials, of which the following is a specification.

This invention of an improvement in combing machines for combing cotton, wool and other fibrous materials is a division of my application for Letters Patent Serial No. 95,517, filed February 25, 1902, and consists in the application to such machines of mechanism to relieve the operatives attending to such machines of the labor hitherto involved in unweighting or relieving the rollers of the draw-boxes of the weight of the weights used therewith as is necessary in order that the covered top-rollers may not be injured by the weights being left hanging on the rollers when such machines are not working as for example during the stoppage of mills in which such machines are employed. If the weights are left hanging on the rollers when the machines are not working, the pressure on the top-rollers tends to form flat places on them at the parts which rest on the bottom rollers used with such top-rollers.

According to this invention I provide for each top roller of the draw-box of a combing machine which may be required to be relieved from time to time of the pressure of the weight or weights used therewith, a rod moved by cams to engage with the weight or weights used with such roller so that such weight or weights may be raised and supported with little labor on the part of the attendant in charge of the combing machine and supported when raised for as long as may be desirable and I arrange the said device so that it may be operated easily and conveniently by the attendant in charge of the machine in which it is employed. The arrangements employed will necessarily be different in different cases according to the requirements of each case. Thus each weight may be provided with a separate raising device actuated by means of cams or one raising device may be made to raise two or more weights. I have therefore illustrated and described in the accompanying drawing and the description following one form of mechanism by way of example of the various arrangements which may be employed according to this invention.

In the accompanying drawing, Figure 1 is a front elevation partly in longitudinal vertical section, of so much of a combing machine as is requisite for the illustration of the form of this invention which is shown in the accompanying drawing by way of example. Fig. 2 is a plan showing part of the mechanism shown in Fig. 1 but with certain parts omitted and others broken to obviate confusion. Fig. 3 is a transverse vertical section showing the said portion of the combing machine as seen from the right hand of Figs. 1 and 2, and partly broken to show parts which otherwise would be hidden. Figs. 4 and 5 are elevations partly transverse sections taken on a plane parallel to that of Fig. 3 and showing on a larger scale than Fig. 3 and in two different positions, one of the cams used according to this invention in the form illustrated by way of example in the accompanying drawing and the rod acted upon by the said cam. Figs. 6 and 7 are respectively a front elevation and a side elevation of one of the weights used with the top rollers of the draw-box. Figs. 8 and 9 are side elevations in part transverse sections taken on a plane parallel to that of Fig. 3 and showing a double form of cam which it is convenient to employ in any case in which it may be desirable to employ cams capable of being turned in either direction.

In the drawing, *a* are the top rollers of the draw-box which are mounted and arranged to act in conjunction with bottom rollers *b* in the ordinary way. In conjunction with each of the top rollers there are provided two hooks *c* of the ordinary kind connected to a cross-bar *d* to which is connected a hook *e* supporting the weight *f* used with such top roller *a*, there being in each combing machine, two or more weights *f* each serving to exert pressure on one of the two or more top rollers *a* employed therein. For the purpose of this invention as embodied in the arrangement illustrated each of the weights *f* is provided with a slot *g* as will be hereinafter described.

During the working of the machine the weights *f* are supported by the top drawing rollers *a* with which they are respectively used and, apart from the inevitable wear to which they are subject, the leather coverings of the top rollers *a* receive no injury from the pressure to which they are subject. If

however the machine be stopped and especially if it be stopped for a lengthened period, while the weights *f* remain supported by the rollers *a* with which they are respectively used, the leather coverings are injured by hollows or flat places being formed in them at the parts at which they are pressed upon the metal rollers *b* used therewith. Hitherto to relieve the top rollers *a* of the pressure of the weights *f* respectively used therewith has been an inconvenient and laborious operation, which by reason of being inconvenient and laborious has been often neglected by the attendants in charge of combing machines to the detriment of the leather-covered rollers *a* and the work done by such machines.

According to this invention I provide devices which being moved into and held in a suitable position act upon the weights *f* which it may be desired to put out of action from time to time and support the weight thereof and prevent them from continuing to exert pressure upon the rollers *a* with which they are respectively used.

In the mechanism illustrated by way of example in the accompanying drawing, means are provided by which the weights *f* used with the top drawing rollers *a* can be relieved or put out of action on the rollers used with them. In the said mechanism a rod *h* is passed through the slots *g* formed as aforesaid for the purpose of this invention and is made capable of being raised and lowered and when raised serves to raise and support in the raised position the weights *f* so as to relieve the top rollers *a* of the draw-box of the pressure exerted thereby in the ordinary working of the machine. The said rod *h* is raised for the said purpose by means of two cams *i* which act upon it at opposite ends so as to raise it as a whole. The cams *i* are secured upon a shaft *j* capable of being turned in bearings formed one in a bracket *k* secured to the end-frame *m* of the machine and the other in a bracket *n* secured to the beam *o* which forms part of the ordinary framework of the machine. The rod *h* is supported during the ordinary working of the machine by means of the brackets *k n* which are provided with openings *k' n'* which receive the ends of such rod *h* and guide it when it is moved upward and downward. The rod *h* is formed at its ends with necks to enter the openings *k' n'*. The slots *g* in the weights *f* serve for the passage of the shaft *j* as well as for the passage of the rod *h*. Each of the cams *i*, as shown, is provided with one surface *p* to act upon the rod *h* and raise it when the said cams *i* are turned in the direction indicated by the arrow A from the position in which they are indicated in Figs. 1 2, 3 and 4.

In the position in which they are indicated in Figs. 1, 2, 3 and 4, the cams *i* present their parts *q* which are of least radius to the rod *h* thereby allowing the rod *h* to rest in the brackets *k n* and the weights *f* to hang free of such rod *h*. In being turned in the direction indicated by the arrow A from the position in which they are shown in Figs. 1, 2, 3 and 4 the cams *i* raise the rod *h* by means of their surfaces *p* and by raising the said rod *h* bring it against the upper ends of the slots *g* in the weights *f* and cause it to act on the said weights *f* and raise them so as to relieve the top drawing rollers *a* of the pressure ordinarily exerted thereon by the said weights *f*. At the end of each surface *p* which is most remote from the part *q* of the cam *i* on which it is formed there is formed a hollow *r*. The hollows *r* receiving the rod *h* when the cams *i* are turned in the direction indicated by the arrow A from the position in which they are indicated in Figs. 1, 2, 3 and 4 to the extent necessary to raise the weights *f* acted upon, serve to hold the said weights in a raised position and make such rod *h* hold the weights *f* so raised as indicated in Fig. 5.

The shaft *j* in the arrangement illustrated is adapted to be turned by means of a worm-wheel *s* secured upon it and a worm *t* secured upon a shaft *u* which is capable of being revolved in bearings formed in a bracket *v* secured to the end-frame *m* of the machine and is provided with a hand-wheel *w* so that it may be turned conveniently.

In any case in which it may be desirable in order to facilitate the use of the mechanism for relieving the top drawing rollers *a* of the weight of the weights *f* used therewith, the cams may be made capable of being turned in either direction from the neutral or inoperative position in which the parts of smallest radius are opposite to the rod *h*, this may be accomplished conveniently by employing cams *x* such as are illustrated by Figs. 8 and 9, each provided with two surfaces *p* and two hollows *r* so as to move the rod *h* in the same manner whether such cams *x* be turned from the neutral position in the direction indicated by the arrow A or in the contrary direction and if it be convenient in any such case one or each of such cams *x* with two surfaces *p* and two hollows *r* may be formed or provided with a cam such as that marked *y*. By the hand-wheel *w* being turned the operation of relieving the rollers *a* of the draw-box and also of again re-applying pressure thereto can be readily and conveniently accomplished and these operations being made easy and convenient the damage to the rollers *a* hitherto due to the neglect of the attendants to relieve such rollers *a* of pressure is obviated and as is clearly indicated in the accompanying drawings, the mechanism provided according to this invention is very simple and compact especially for application to a number of drawing box top roller weights suspended in proximity one to another.

What I claim and desire to secure by Letters Patent is:—

1. In a combing machine (combined combing machine and drawing frame) the combination with a top-roller of the drawbox and a weight supported thereby and exerting pressure thereon during the working of the machine, of means whereby the said weight may be engaged by a rod, a rod to engage with the said weight and raise and support it, two cams to act on the said rod at opposite ends thereof and each furnished with a hollow to receive the said rod when raised by the said cams, a shaft to carry both such cams and means to turn such shaft.

2. In a combing machine (combined combing machine and drawing frame) the combination with a top-roller of the drawbox and a weight supported thereby and exerting pressure thereon during the working of the machine, of means whereby the said weight may be engaged by a rod, a rod to engage with the said weight and raise and support it, two cams to act on the said rod at opposite ends thereof each with two operative faces leading in opposite directions from a part of least radius two hollows to receive the said rod when raised by the said cams, a shaft to carry both such cams, a worm-wheel connected to such shaft, a worm engaging with the said worm-wheel and means to turn such worm.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two witnesses, this twentieth day of July 1904.

FRANK WAUGH CHADDERTON.

Witnesses:
RUTH M. WILSON,
HOWARD CHEETHAM.