

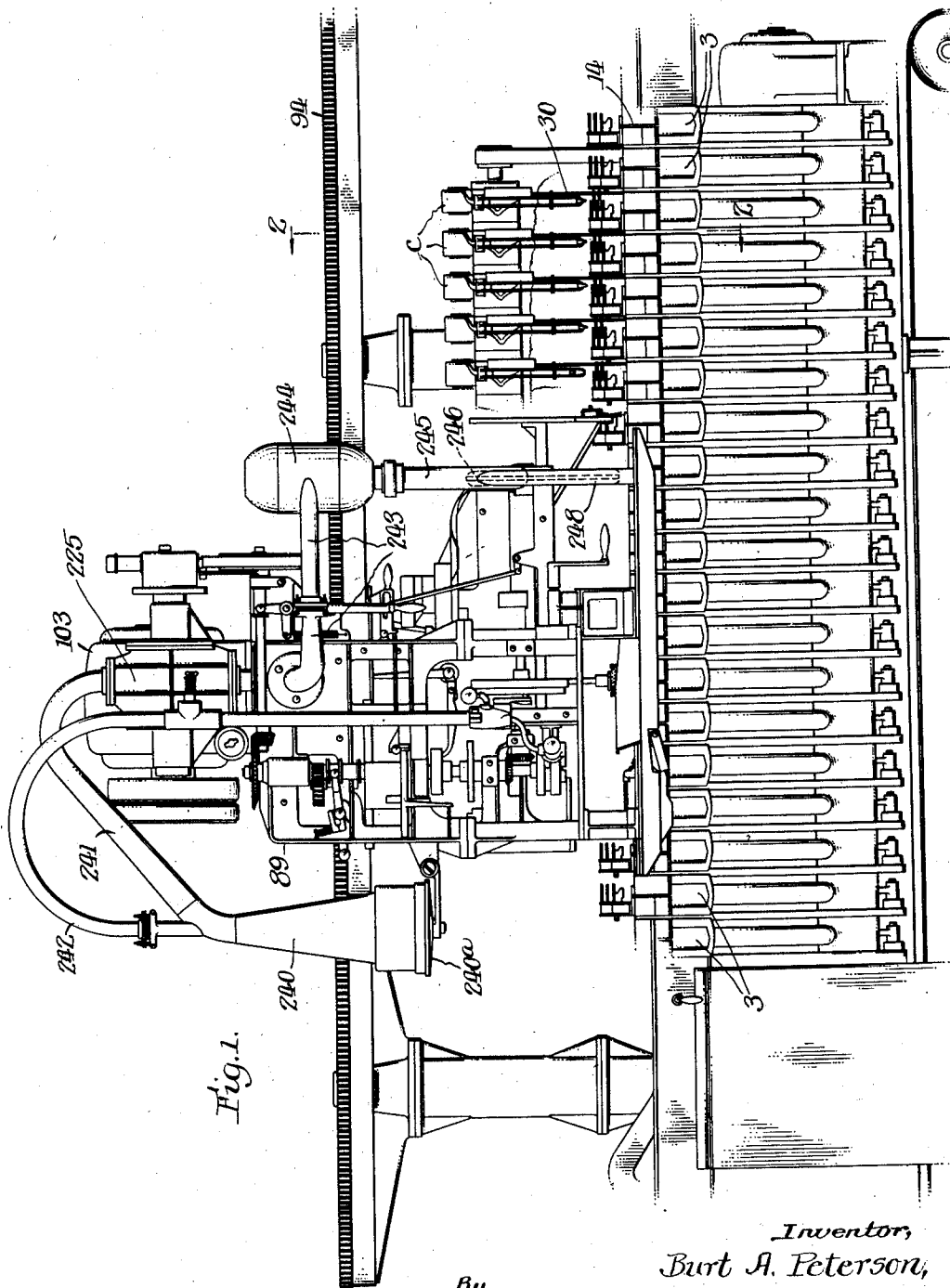
March 29, 1927.

1,622,607

B. A. PETERSON

WINDER

Original Filed Dec. 1, 1924 2 Sheets-Sheet 1



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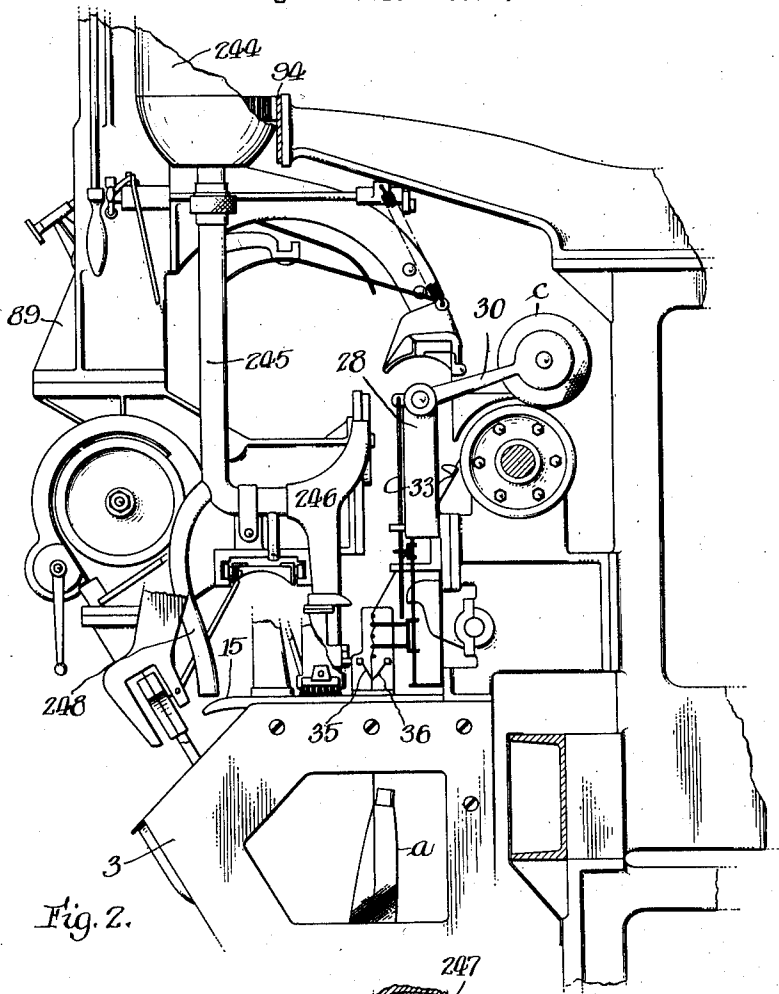


Fig. 2.

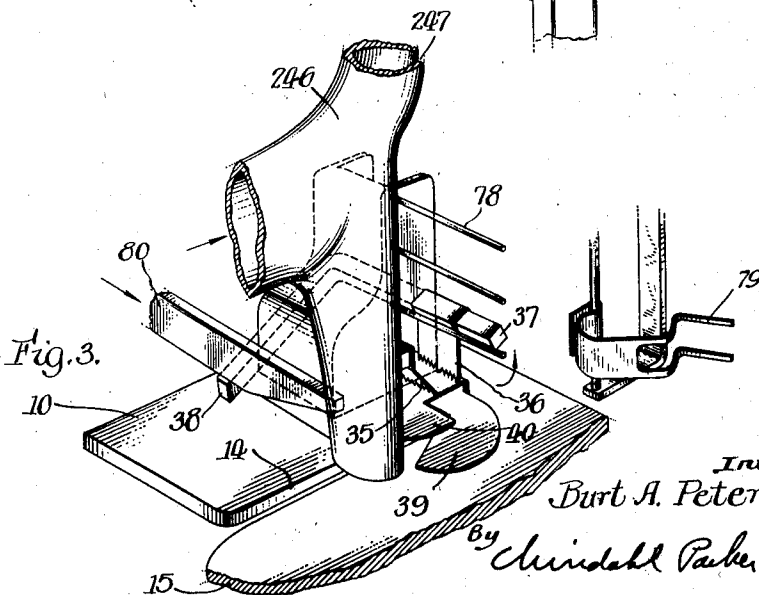


Fig. 3.

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Patented Mar. 29, 1927.

1,622,607

UNITED STATES PATENT OFFICE.

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WINDER.

Application filed December 1, 1924, Serial No. 753,040. Renewed August 27, 1926.

In the Colman Patent No. 1,267,977, dated May 28, 1918, there is shown an automatic winder comprising a series of winding units and a winder-tending mechanism arranged to travel along the series of units and tie reserve bobbins onto the ends of threads on cheeses. Said mechanism comprises a nozzle from which an air blast is discharged to blow lint off the winding units. This nozzle is located on the rear end of the winder-tending mechanism and therefore the threads which have been united by the winder-tending mechanism are subjected to the air blast. Lint is therefore blown onto the running threads and occasionally the air blast will cause a thread to catch on some part and be broken.

The object of the present invention is to obviate the defects just referred to. This object has been attained by placing the air blast nozzle at or near the forward end of the winder-tending mechanism so that it shall operate to clean the yarn clearer, detector, yarn guides and other parts of the winding unit before a new thread is associated with said parts, thereby keeping the yarn clean and obviating the possibility of accidental thread breakage.

In the accompanying drawings, Figure 1 is a fragmental side elevation of an automatic winder embodying the features of my invention.

Fig. 2 is a vertical sectional view taken approximately in the plane of line 2—2 of Fig. 1.

Fig. 3 is a fragmental perspective view.

The invention is herein shown as embodied in a winder consisting of mechanism for unwinding yarn from bobbins *a* (Fig. 2) onto tubular cores to form cheeses *c*, and a mechanism arranged to travel along the winding mechanism and tie the ends of the yarn on reserve bobbins to the ends of the yarn on the cheeses and perform various other operations attending the production of cheeses. The winder comprises an elongated framework similar to that shown in Patent No. 1,267,977 and providing two parallel sides, each side having means for supporting bobbins and means for supporting and rotating cheeses. The winder-tending mechanism travels around the winder framework and ties the end of the yarn on a reserve bobbin to every cheese except in the case of cheeses that have reached the desired size.

The winder may be considered as consisting of a plurality of units, each unit comprising means for supporting a winding couple (i. e., a bobbin and a cheese), means for rotating the cheese and traversing the yarn, an anti-bouncer (not herein shown) to prevent the cheese from becoming eccentric, means for throwing the cheese out of operation upon exhaustion of the yarn (these devices, in this instance, being similar to those disclosed in the Colman Patent No. 1,274,386), a reserve bobbin pocket 3 (Fig. 2), a plate 10 (Fig. 3) having a slot 14 through which the reserve thread may pass laterally to the thread guide hereinafter mentioned, and a guard finger 15 (these parts being similar to the construction shown in my copending application Serial No. 323,194, filed September 11, 1919), and a yarn clearer and yarn-guiding means which are similar to the construction shown in my copending application Serial No. 612,428, filed January 18, 1923.

Each winder unit also comprises a bracket 28 to which is pivoted a cheese-supporting arm 30. Connected to the cheese-supporting arm is a depending throw-out link 33.

The yarn clearer referred to comprises two serrated blades 35 and 36 between which the thread runs. The blade 35 is stationary, but the blade 36 is carried by a rock shaft 37 having an arm 38 arranged to be depressed to move the blade 36 away from the blade 35. Below the yarn clearer are two plates 39 and 40 which are adapted and arranged to guide the thread. Above the yarn clearer is a detector comprising a stationary grid formed of three parallel spaced fingers 78 across which the thread is arranged to run and a spring-pressed fork consisting of two fingers 79 arranged to swing into the spaces between the fingers 78 and bear upon the running thread.

The winder-tending mechanism includes means for opening the yarn clearer to receive a new thread and for freeing the yarn clearer of accumulations of lint and foreign matter. This means, in the present embodiment, consists of a cam bar 80 (Fig. 3) mounted on the winder-tending mechanism in position to depress and pass over the arm 38.

The winder-tending mechanism is supported by an endless elevated rail which may be like that shown in the Colman Patent

No. 1,267,977. The carriage or framework of the winder-tending mechanism includes a frame 89 provided with a pinion (not shown) meshing with an endless rack 94. Power to actuate the winder-tending mechanism and to cause said mechanism to travel about the winder framework is supplied by an electric motor 103. Power may be communicated from the motor 103 to the before-mentioned pinion and to the winder-tending mechanism in any suitable way.

Exhaust air currents are employed for finding the thread ends upon the cheese, for holding the thread at various points, and for carrying off waste portions of the threads; and an air blast is utilized for blowing lint and dust from the winder units. These air currents may be produced by any suitable means, that herein shown being an exhauster 225 of ordinary construction mounted on the carriage or framework of the winder-tending mechanism, the exhauster being driven from the motor 103 in any suitable way.

To separate the waste thread ends from the air current there is provided a separator 240 fixed to the framework or carriage of the winder-tending mechanism at the rear end thereof. The separator 240 is connected to the exhauster by means of a tube 241. The air current enters the separator through a tube 242. The motion of the air in the separator causes the thread ends to be thrown outwardly to the walls of the separator, whence they fall to the bottom of the separator, the air passing out through the tube 241. In each round trip of the winder-tending mechanism, the separator 240 is automatically opened to discharge the accumulation of thread clippings. For this purpose the bottom 240^a of the separator is arranged to be lowered by means such, for example, as that disclosed in the Colman Patent No. 1,267,977, operating at a certain point in the circuit of the winder-tending mechanism. When the bottom 240^a is thus opened the accumulated waste drops into a receptacle (not shown). By reason of the location of the separator 240 at the rear end of the winder-tending mechanism, the waste can be more conveniently received and disposed of than if the separator were mounted elsewhere on the traveling mechanism.

The exhauster 225 discharges air through a conduit 243 into a centrifugal oil separator 244 and thence through a branched tube 245. The branch 246 of said tube extends in a generally vertical direction and is secured upon the winder-tending mechanism in position to travel relatively close to the series of brackets 28, the anti-bounders, detectors 78-79, yarn clearers 35-36, and guide plates 39-40. In other words, it travels past those parts with which the running thread is in contact or in proximity. In the side of the tube 246 which faces the winding

units is a longitudinal slot 247 through which the air blast issues. It will be seen that lint will be blown off those parts of the machine which are so close to the path of the running thread that lint, if allowed to accumulate, might be picked up and carried along by the thread.

Another branch 248 of the tube 245 extends close to the series of guard fingers 15 and discharges a blast of air onto the bobbin holders as the winder-tending mechanism progresses along the winder.

The knotter and the means for placing the exhausted thread in the knotter are located approximately midway of the length of the winder-tending mechanism. As indicated in Fig. 3, the nozzle 246 and the cam bar 80 are arranged so that the yarn clearer plates 35 and 36 are in the open position at the time the air blast is directed upon them, thus enabling the air blast to blow off any accumulation of lint, wild yarn, or the like.

As shown in Fig. 1, the blow-off tubes or nozzles 246 and 248 are located at or near the forward end of the traveling winder-tending mechanism and consequently ahead of the knotter. Hence, the winder units are cleaned before the reserve bobbins are tied onto the cheeses, rather than afterward, thus obviating any danger of the air blast breaking down threads that have been tied together.

I claim as my invention:

1. An automatic winder having, in combination, a series of winding units each comprising a yarn clearer, a detector and a reserve bobbin pocket, and a winder-tending mechanism arranged to travel along the series of units, said winder-tending mechanism including means to discharge an air blast against the winding units to blow lint therefrom, said means comprising two nozzles located near the forward end of said mechanism, one of said nozzles being directed toward the yarn clearer and the detector and the other nozzle being directed toward the reserve bobbin pocket.

2. An automatic winder having, in combination, a series of winding units and a winder-tending mechanism arranged to travel along the series of units, said winder-tending mechanism including means to discharge an air blast against the winding units to blow lint therefrom, said means comprising a nozzle located near the forward end of said mechanism.

3. An automatic winder having, in combination, a series of winding units and a winder-tending mechanism arranged to travel along the series of units, said mechanism including an exhauster, a separator for thread clippings, said separator being located adjacent to the rear end of the winder-tending mechanism and connected to the exhauster, and a lint-blow-off nozzle mounted

on the winder-tending mechanism adjacent to the forward end thereof and connected to the discharge from said exhauster.

4. An automatic winder having, in combination, a series of winding units each having relatively movable serrated blades forming a yarn clearing means, a winder-tending mechanism arranged to travel along the series of units, said winder-tending mechanism including means near the forward end of said mechanism to move said blades to open the yarn clearing means, and pneumatic means near the forward end of said mechanism to clean said blades while open.

5. An automatic winder having, in combination, a series of winding units each comprising a yarn clearer, a detector, other parts above the detector and a reserve bobbin pocket, and a winder-tending mechanism arranged to travel along the series of units,

said winder-tending mechanism including means to discharge an air blast against the winding units to blow lint therefrom, said means comprising two nozzles located near the forward end of said mechanism, one of said nozzles being directed toward the yarn clearer, the detector and parts above the detector and the other nozzle being directed toward the reserve bobbin pocket.

6. An automatic winder having, in combination, a series of winding units each including a cheese arm and parts associated with said arm, and a winder-tending mechanism arranged to travel along the series of units, said winder-tending mechanism including at its forward end means to discharge an air blast against said parts.

In testimony whereof, I have hereunto affixed my signature.

BURT A. PETERSON.