R. SUMNER.

QUILTING MACHINE.

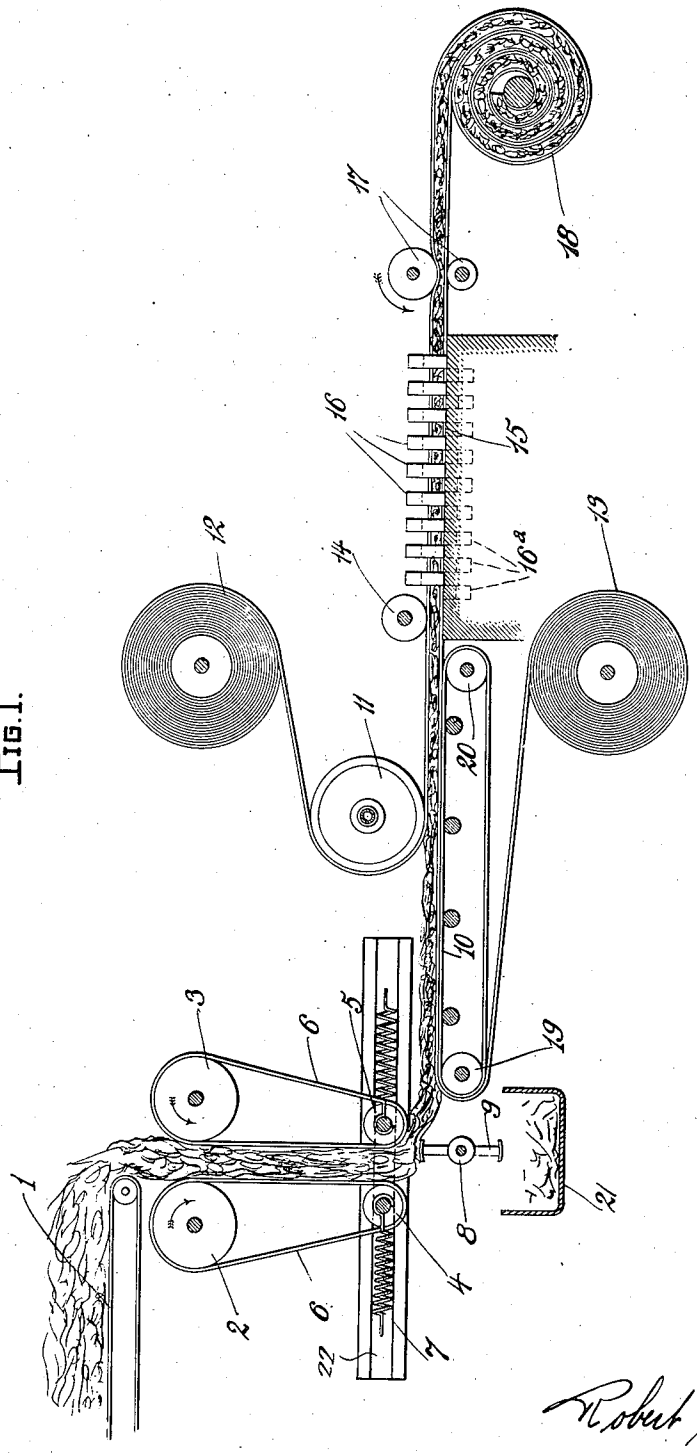
APPLICATION FILED MAR. 4, 1916.

1,194,254.

Patented Aug. 8, 1916.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

FIG. 2.

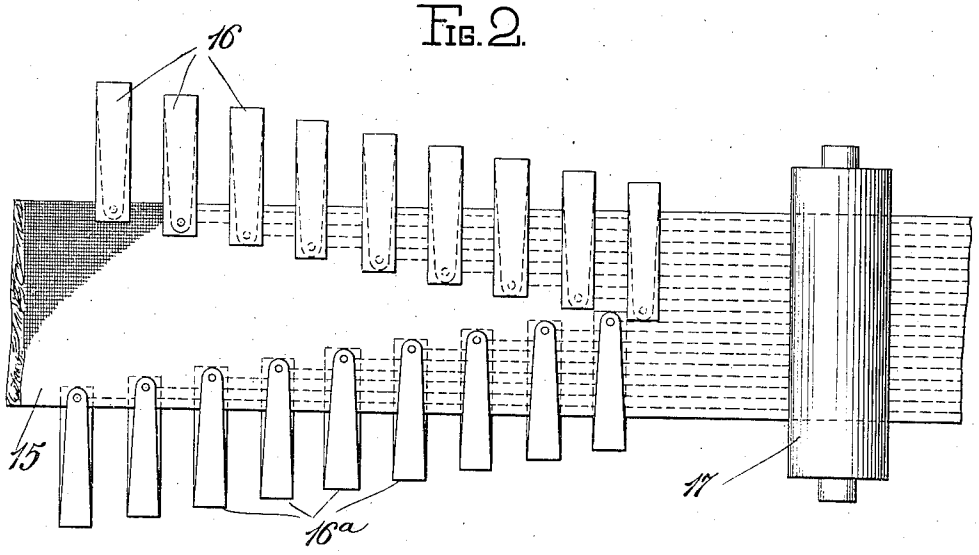
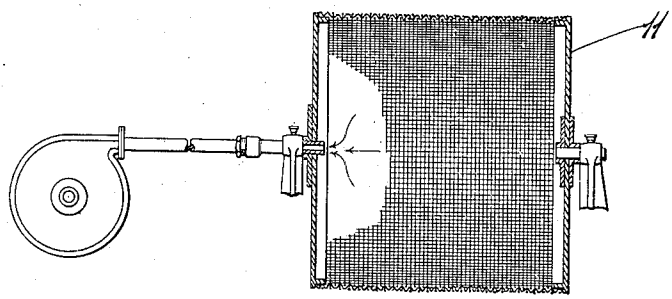


FIG. 3.



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QUILTING-MACHINE.

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To all whom it may concern:

Be it known that I, ROBERT SUMNER, residing at Cowley Hall Lodge, Cowley, Middlesex, England, have invented certain new and useful Improvements in Quilting-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to quilting kapok and like fibers and has reference to the type in which the fibers are subjected to the action of a beater to form a sliver which is subsequently inclosed between strips of webbing material and a plurality of seams stitched simultaneously in the combined layers thus formed.

The object of the invention is to provide an improved arrangement for carrying out a process of this nature and with this end in view the principal feature of the invention consists in that the material to be quilted, is cleaned and passed by endless bands to a beater to form a sliver which is directed on to a strip of webbing material carried by a traveling belt, a second strip of webbing material being subsequently brought into engagement with the fibers and the whole quilted in a simultaneous and continuous manner.

Other and subsidiary features of the invention will be understood as the description proceeds.

In the accompanying drawings: Figure 1 shows diagrammatically an arrangement for carrying out my improved process and Fig. 2. comprises a diagrammatic plan of an arrangement of sewing machines for carrying out the quilting operation. Fig. 3. is a detail view of a drum shown in Fig. 1 with exhaust means connected thereto.

According to one form of the invention the kapok or like material is thoroughly ginned to purify it of husk and adherent material and is fed by any suitable means such as the conveyer 1, Fig. 1 from the cleansing apparatus into what may be termed a rough sliver box which is open at its top and bottom part. At its upper part are mounted two rollers 2 and 3 of relatively large diameter, and at its bottom part are two rollers 4 and 5 of relatively smaller diameter. Bands 6 preferably of rubber connect the rollers 2 and 4 and 3 and 5. The lower rollers 4 and 5 are mounted in guides 22, and are fitted with springs 7 so that they are free to have elastic movement laterally.

Immediately below the opening between the lower rollers 4 and 5 is mounted a further roller 8 provided with protruding arms 9 forming beaters, which on rotation of the roller 8 catch the kapok or like fiber and feed it forward on to a strip of webbing material carried as hereinafter described by a traveling belt 10 moving in the direction of the arrow shown. The beating roller 8 feeds out the fibers in a continuous stream upon the belt and forms thereby a sliver of substantially even thickness.

The conveyer belt 10 preferably commences as shown at a point a little in advance of the beating roller 8. As it has been found that heavier particles fed from the beating roller have a tendency not to be fed forward but to be deposited beneath the roller, a box or drawer 21 may be provided for the purpose of removing this detached material.

The conveyer belt 10 carries the sliver beneath a revolving drum 11 which is formed preferably of gauze or perforated sheet metal, and a vacuum of slight degree is maintained within the drum by means of a hollow spindle or equivalent device which is in communication with an exhaust fan. Adjacently mounted to the drum 11 are two rollers 12 and 13 which carry a webbing of muslin or like material. The material from the roller 12 passes around the drum 11 to which it is caused to adhere by reason of the suction produced. The material from the roller 13 passes around the conveyer belt 10 at its end adjacent the beating roller 8. A stripping roller 14 is provided to disengage the layers of muslin and kapok sliver from the drum 11 and direct them into a table 15 where they are stitched by continuously running sewing machines 16. These machines perform the stitching operation only and do not feed the material forward. In order to obtain a uniform and equal feed past all the sewing machines feeding means such as rollers 17 are provided arranged to move at the same speed as the pulleys 19 and 20 which carry the conveyer belt 10. A further roller 18 is provided upon which the finished product is wound.

The operation of the parts above described is as follows: The kapok or like fiber is fed by the conveyer 1 between the bands 6 which move in the direction of the arrows around the rollers 2, 3, 4 and 5, into contact with the beater arms 9 on the roller 8. By this arrangement it is distributed as a sliver of substantially even thickness upon a layer of muslin or like webbing from the roller 13. The sliver and the muslin beneath it are fed forward by the conveyer 10 beneath the drum 11 which brings muslin from the roller 12 into contact with the kapok so that the latter passes from the drum 11 inclosed between two sheets of material and is subsequently quilted by the sewing machines 16 which can be arranged to sew the material with rows of stitches at any convenient distance apart.

By reference to Fig. 2 it will be seen that the sewing machines are disposed in two rows, those in the row 16 being in staggered relation to those in the row 16^a. A great advantage attending the use of this arrangement is that all the longitudinal quilting can be done during one passage of the material, this being rendered possible owing to the fact that the stitching head of each machine is arranged, an equivalent distance in advance of its neighbor to the distance apart which the quilting seams are required to be. For example, if a quantity of kapok fiber inclosed in muslin a yard wide is to be quilted, with seams two inches apart, each sewing machine would be arranged two inches nearer the center of the material than the machine immediately preceding it.

Ordinary sewing machines may be used for carrying out the quilting operation, those in the row 16 being disposed upside down. The transverse quilting of the material may be performed in any convenient manner. It will thus be seen that a web of longitudinally quilted material is produced in a continuous operation in a shorter time and at less cost than it has been possible to produce quilted material hitherto.

I claim:—

1. In a quilting apparatus in combination, two endless belts for guiding and conveying the material to be quilted, said belts running in planes at right angles to each other, a beater receiving said material from one of said belts and directing it on to the other, and means for quilting the material received by the one of said belts which receives the material from said beater.

2. A quilting apparatus comprising in combination two endless belts for guiding and conveying the material to be quilted, said belts running in planes at right angles to each other, a beater receiving said material from one of said belts and directing it on to the other, means for guiding webbing strips on both sides of said material, and sewing machines disposed in two lines inclined transversely of the direction of movement of the material, each machine being disposed nearer the center of the material than the preceding one in the same line by a distance corresponding to the distance apart which the seams are required to be.

3. A quilting apparatus comprising in combination a belt for conveying materials to be quilted, means for guiding webbing strips on both sides of said material and separate sewing machines of ordinary type disposed in two lines inclined transversely of the direction of movement of the material, each machine being disposed nearer the center of the material than the preceding one in the same line by a distance corresponding to the distance apart which the seams are required to be and the machines in one line being staggered with respect to the machines in the other line.

4. A quilting apparatus comprising in combination two endless belts for guiding and conveying the material to be quilted, said belts running in planes at right angles to each other, a beater receiving said material from one of said belts and directing it on to the other, means for leading a webbing strip between said material and the one of said belts which receives the same from said beater, and means for guiding a webbing strip on the other side of said material, said last mentioned means comprising a perforated drum over which the webbing strip passes, means for producing a partial vacuum in said drum, and means for stitching said strips.

5. A quilting apparatus comprising in combination a conveyer for carrying a sliver of material to be quilted, means for leading a webbing strip between said conveyer and one surface of said sliver, and means for guiding a webbing strip on the other side of said sliver comprising a perforated drum over which said webbing strip passes and means for creating a partial vacuum in said drum, and means for stitching said strips.

6. In a quilting apparatus in combination, a beater and means for feeding material to be quilted to said beater, said means comprising two pairs of rollers, and endless bands running over the rollers of each pair, the lower roller of each pair being of relatively smaller diameter than the upper roller, and means for quilting said material.

7. In a quilting apparatus in combination, a beater, two pairs of rollers, the rollers of each pair being substantially one above the other, and belts running over said rollers, said belts delivering material downwardly to said beater, the lower roller of each pair being resiliently mounted whereby it may yield in a direction transverse to the direction of movement of said belt, and means for quilting said material.

8. The combination in a quilting machine of means for forming a sliver of fibrous material such as kapok, said means including mechanism for directing the same onto a strip of webbing material, a traveling belt for conveying said fibrous and webbing material beneath a second strip of webbing material, and a plurality of means for simultaneously and continuously quilting the fabric so formed.

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT SUMNER.

Witnesses:
FRANK B. DEHN,
H. C. WESTON.