

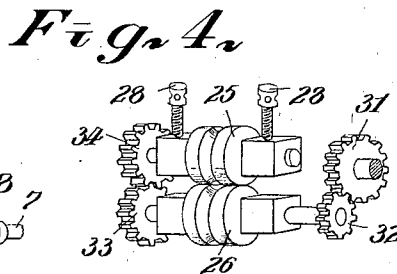
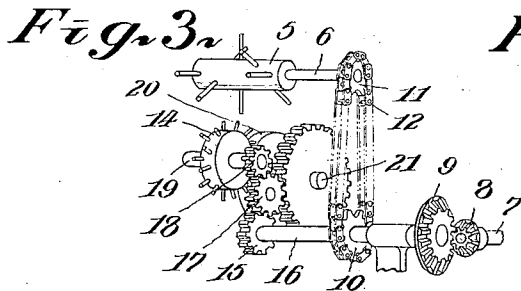
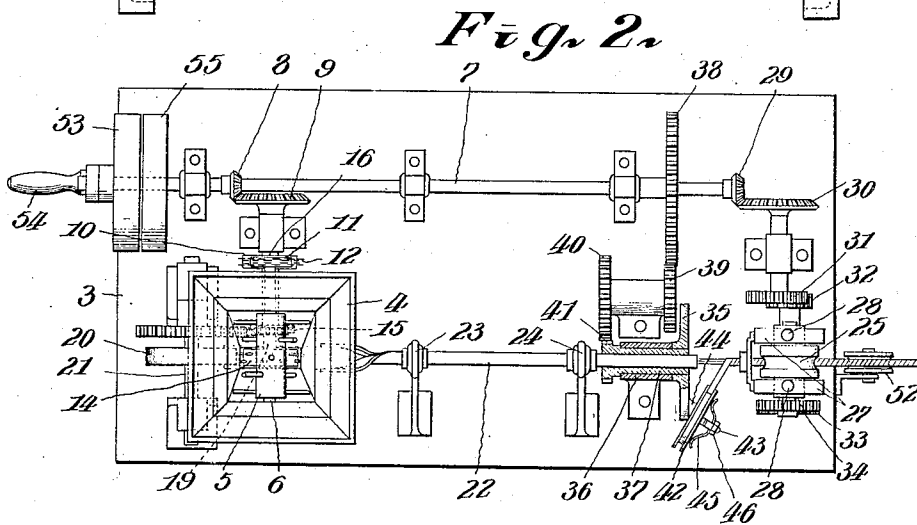
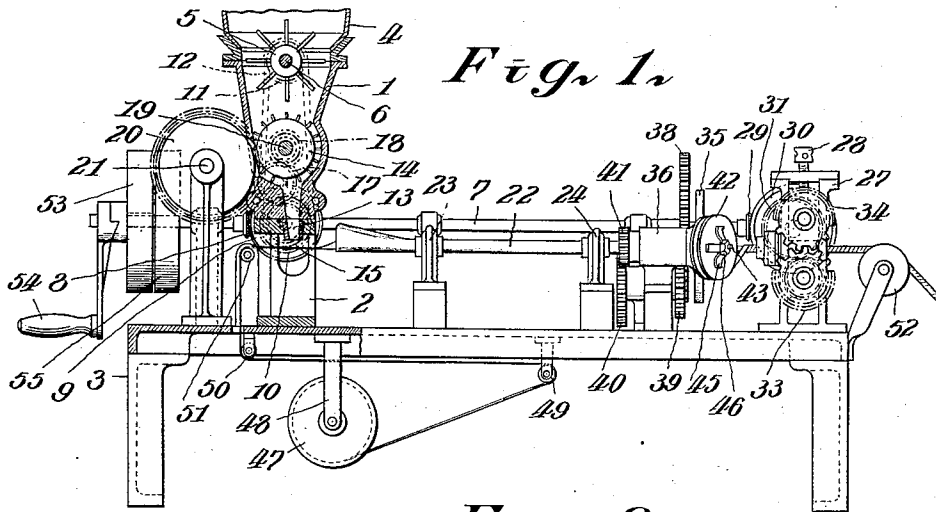
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MACHINE FOR MAKING PAPER COVERED INCENSE CORDS

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MACHINE FOR MAKING PAPER-COVERED INCENSE CORDS

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This invention relates to machines for making paper-covered incense-cords, in which powdered incense is deposited in a rice-paper-tape of tubular shape and the latter then wrapped in relatively inflammable paper-tape, in a spirally overlapping manner, the object being to provide a simple and efficient hand or power actuated machine for making such paper-covered incense-cords.

In the accompanying drawings:

Fig. 1 is a side view of a machine embodying the invention, partly in section, and having the greater part of the loading hopper broken away.

Fig. 2 is a plan view of the machine some parts of which are in section.

Fig. 3 is a diagrammatic perspective view illustrating the power transmission means from the drive shaft to the agitator, and the feed-control wheel.

Fig. 4 is a diagrammatic perspective view illustrating the power transmission to the take-up rollers.

Referring to the drawings, 1 indicates the feeder-box supported on a standard 2 on the bench 3. Above the feeder-box 1 is a hopper 4 into which the powdered incense material is supplied.

In order to prevent the choking of the hopper 4 with the material, an agitator 5 is provided in the lower part of said hopper, which consists of a cylinder having a number of stud-pins radially extending from its periphery in staggered relation to one another, and which is fixed to a shaft 6 journaled in said hopper 4 and the feeder-box 1, and driven from a driving shaft 7 through means of bevel gears 8, 9, a chain-wheel 10 on the shaft of said bevel gear 9, another chain-wheel 11 fixed to the agitator shaft 6, and an endless chain 12 running over said chain-wheels, as shown in Fig. 3.

The feeder-box 1 is constructed so as to form at its upper part a receiver for the material coming from the hopper 4, and has at its lower part an outlet spout 13 for delivery of the incense material on to the rice-paper-tape which travels therebelow. The said feeder-box is mounted on the top of the standard 2, has a bulged channel for the passage

of material from said receiver to the outlet, in which is located a feed-control wheel 14 snugly disposed therein.

The feed-control wheel 14 comprises a circular disc, a number of small stud-pins 55 radially extending from its periphery in staggered relation with each other, the said wheel being snugly disposed in the channel of the feeder-box, with its shaft journaled in same, the tips of the stud-pins engaging 60 against inside of the bulged out side-wall forming part of the channel, and partly extending into an opening formed in the opposite side-wall of the feeder-box. The feed-control wheel is driven by the driving shaft 65 7 through the bevel gears 8 and 9, gear wheel 15 fixed on the shaft 16 of the bevel gear 9, pinion 17 and gear wheel 18 fixed on the shaft 19 of said feed-control wheel 14, as shown in Fig. 3.

The trimming wheel 20 is rotatably supported by its shaft 21 mounted on its standards in such a manner that the periphery of said wheel will engage with the tips of the stud-pins of the feed-control wheel 14, 75 through the opening in the feeder-box 1 and trim the material being delivered from the interior of the feeder-box into the outlet spout 13.

It is noted the trimming roll 20 will act to 80 back up any excessive portion of the incense material carried by the stud pins of the feed-control wheel 14 at their contacting points, the trimming roll 20 being rotated in a direction opposite to that of the feed-control wheel 14, so that the incense material will be smoothly and uniformly fed into the spout 13.

The forming conduit 22 consisting of a tube having a cut-open and flaringly expanded end with a horizontal bottom thereon, is 90 supported on the supports 23 and 24 mounted on the bench 3, with the expanded end below and near the discharging spout 13, and serves to render the rice-paper-tape easily shaped into tubular form with the loaded incense material therein.

In order to take up the now tubed rice-paper-covered material, a pair of fluted rollers 25, 26 arranged above each other are provided, the shafts of which are mounted on 100

the supporting frame 27 on the bench 3, in such a manner as permits the adjustment of the upper roller 25 by means of the adjusting screws 28. The lower roller 26 is rotated by the driving shaft 7 by means of the bevel gears 29, 30 and the gear wheels 31, 32; while the upper roller 25 is revolved by means of the gear wheel 33 fixed on the shaft of the lower roller 26, and the gear wheel 34 on the shaft of the upper roller 25, as shown clearly in Figs. 2 and 4.

For wrapping the rice-paper-covered material in relatively inflammable paper-tape, a papering device 35 is provided, the disc of which is secured on the sleeve 37, and is journaled in the bearing 36 which is mounted on the bench 3, and encircles the outer end of the forming conduit 22, the same being rotated by the driving shaft 7 by means of the gear wheels 38, 39 and 40 and the gear wheel 41 mounted at the inner end of said sleeve, as shown in Fig. 2. The inflammable-paper-tape bobbin 42 is rotatably supported on the pin 43 mounted in the lug 44 provided near the periphery of the disc of papering device, and in an inclined relation to the face of said disc. The spring retainer 45 and the nut 46 hold the bobbin 42 on the disc, and it is seen the paper-tape will be spirally and tightly wound on the rice-paper-covered material as it is drawn up by the actuating take-up rollers 25, 26 upon the rotation of the disc of the papering device. The inflammable paper-tape is suitably tensioned, as it is seen the rotation of the paper-tape bobbin 42 is constrained by the spring-retainer 45 and nut 46.

The rice-paper-tape bobbin 47 is mounted on the hanger 48 fixed to under side of the bench 3, and feeds out the paper-tape over the pulleys 49, 50, 51 and 52, through the forming conduit 22 by means of the pulling action of the take-up rollers, 25, 26. The rice-paper-tape may be preferably of a width somewhat greater than the circumferential length of the incense-cord in order to form a lap-joint in the rice-paper-tube as is at once understood.

The driving shaft 7 may be driven mechanically by a suitable belt (not shown) placed over the fixed pulley 53; or manually driven by the handle 54. 55 is a loose pulley on the driving shaft to be used as an idler for the power belt, when the shaft is manually operated.

In operation, the powdered material is delivered on the traveling rice-paper-tape in suitable quantity, and tubed in the forming conduit, and then is wrapped spirally, and overlappingly in the relatively inflammable-paper-tape to produce a completed incense-cord. When starting the machine the end of the inflammable-paper-tape is glued or otherwise stuck fast, on the surface of the tubed rice-paper-tape.

Having now particularly described and ascertained the nature of my said invention and the manner in which same is to be operated, I claim:

1. In a machine for making incense cords, having the incense material tubed in rice-paper-tape, and externally wrapped in inflammable paper tape, a feeder-box having a discharge spout therein, for feeding powdered incense, an agitator in the feed-box, a feed-control wheel in the lower end of the feeder-box, a trimming wheel in proximate position to, and in cooperating relation with the feed-control-wheel for smoothly disposing the incense in its passage through the feeder-box delivery spout, a forming conduit for tubing the incense material in the rice-paper-tape, and means for wrapping the rice paper covered material in inflammable paper tape to produce the finished product.

2. In a machine for making incense cords having the material in a rice-paper-tape tube, and externally covered with inflammable paper tape, a supporting bench, means for forming a tube of rice-paper-tape, means for smoothly feeding incense material into the said rice-paper tube, a wrapping means for externally wrapping the rice-paper tube with inflammable paper tape, comprising a revoluble disc mounted on the supporting bench, a bobbin having an inflammable paper tape wound thereupon, mounted on the revoluble disc, and a pair of cooperating fluted rollers mounted on the bench, for pulling the incense-cord through the machine.

3. In a machine for making incense cords having the incense material in a rice-paper-tube and externally wrapped with inflammable paper tape, a supporting bench, a feeder-box having a discharge spout, and a bulged portion formed therein, a feed control wheel having a plurality of stud pins on its periphery, located in the bulged portion of the feeder box, a trimmer wheel in proximate relation with the ends of said stud pins for uniformly feeding the material through the discharge spout of the feeder-box, a drive shaft on the supporting bench, power transferring connecting means between the drive shaft, the trimmer wheel, and the feed control wheel for actuating both of the latter, a forming conduit mounted on the supporting bench for shaping the rice-paper into tubular form, a rice paper bobbin mounted beneath the top of the supporting bench, and upon which the said paper is wound, and means for wrapping the rice-paper tube containing the material with inflammable paper tape, frictional means for pulling the wrapped incense cord through the machine, and driving means connected with the drive shaft for operating the said frictional means.

4. In a machine for making incense cords, having the material in a rice-paper-tube, and

externally covered with inflammable paper tape, a supporting bench, means for forming a tube of rice-paper tape, a flared mouth on the forming tube, means for smoothly feeding the incense material into the said rice-paper-tube, a wrapping means for externally wrapping the rice-paper tube with inflammable paper tape comprising, a revoluble disc mounted on the supporting bench, a bobbin having the inflammable paper tape wound thereupon mounted at an angle to, and upon said revoluble disc for wrapping the inflammable tape about the rice-paper tube in a spiral manner, a pair of cooperating fluted rollers mounted on the bench, and adjusting means for adjusting the frictional pull of the fluted rollers on the incense cord when the latter is pulled through the machine.

5. In a machine for making incense cords, having the incense material in a rice-paper tube, and externally wrapped with inflammable paper tape, a supporting bench, a feeder-box having a discharge spout, a bulged portion formed therein near its lower end, a feed control wheel having a plurality of stud pins on its periphery, located in the bulged portion of the feeder-box, a trimmer wheel in proximate cooperative relation with the ends of the said stud pins, for uniformly feeding the material through the discharge spout of the feeder-box, a drive shaft on the supporting bench, power transferring connecting means between the drive shaft, the trimmer wheel and the feed control wheel for actuating both of the latter, a forming conduit mounted on the supporting bench for shaping the rice paper tape into tubular form, a flared mouth on the forming conduit, a rice paper bobbin mounted beneath the top of the supporting bench, and upon which the said rice-paper is wound, means for pulling the wrapped incense cord through the machine, and an angularly disposed inflammable paper bobbin mounted on the supporting bench adapted to spirally wind inflammable paper tape around the rice paper tube to form the finished product.

6. In a machine for making incense cords, of the type having the material in a rice paper tube, and externally covered with inflammable paper tape, a supporting bench, a feeder box having a discharge spout, and a bulged portion formed therein, a supply hopper mounted upon the feeder-box, an agitator mounted in the feeder-box comprising a horizontally disposed cylinder, stud pins radially disposed on the cylinder, a feed control wheel having a plurality of stud pins radially disposed on its periphery, located in the bulged portion of the feeder-box, a revoluble trimmer in cooperative engagement with the ends of the feed control wheel, stud pins for uniformly feeding the material through the discharge spout, means for driving the trimmer wheel,

the agitator cylinder, and the feed control wheel, and means for wrapping the rice paper covered material in inflammable paper tape to produce the finished product.

In testimony whereof I affix my signature. 70
CHUJI HORIGUCHI.

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