MOXIBUSTION PRODUCTION TOOL

FIELD OF TECHNOLOGY

[0001] The present invention relates to the technical field of moxibustion production, and more specifically to a moxibustion production tool.

BACKGROUND

[0002] As one of the traditional therapeutic methods in Chinese medicine, moxibustion is increasingly used in home healthcare, TCM clinics, and wellness centers due to its efficacy in warming the meridians and harmonizing qi and blood. Prior to moxibustion, two key consumables must be prepared in advance—moxa sticks and ginger slices.

[0003] Moxa sticks are formed by compressing and shaping moxa floss to ensure combustion stability and efficient release of medicinal effects; ginger slices must be cut thin and perforated (to facilitate placement of moxa sticks and heat penetration), and their warming properties further enhance the therapeutic effect of moxibustion.

[0004] 1. The functions of moxa stick forming and ginger slicing must be performed by separate devices; moxa sticks are usually prepared using dedicated manual or simple electric molds, while ginger slicing requires common kitchen tools (such as manual ginger slicers or small slicing machines), and in some cases, perforation is done manually; this 'multi-device operation' mode requires switching between different devices during moxibustion preparation, not only increasing the operator's workload but also occupying additional space for storing multiple devices.

[0005] 2. Some traditional moxa stick forming devices use manual compression (such as screw rod-driven compression blocks), requiring the operator to manually rotate the screw rod to provide pressing force, which can lead to hand fatigue with prolonged use and involves high operational intensity; even devices driven by electric or pneumatic means often lack efficient automatic reset mechanisms—for example, after forming the moxa stick, the compression assembly must be manually reversed or wait for the device to reset slowly, further extending the production cycle of each batch of moxa sticks and reducing overall efficiency.

SUMMARY

[0006] The present invention provides a moxibustion production tool to address the issues in the prior art, where the 'multi-device operation' mode causes moxibustion preparation to require switching between different devices, increasing the operator's workload and occupying extra space for storing multiple devices.

[0007] The technical problems solved by the present invention are achieved through the following technical solutions:

[0008] A moxibustion production tool, comprising:

[0009] a support frame;

[0010] a moxa stick mold, mounted on the support frame and used for compressing and shaping moxa floss;

[0011] a ginger slicing device, mounted on the support frame and located below the moxa stick mold;

[0012] a drive device, disposed on the support frame and configured to drive the moxa stick mold and the ginger slicing device.

[0013] Optionally, the moxa stick mold comprises a moxa floss forming assembly and a compression assembly disposed above the moxa floss forming assembly, wherein the compression assembly is driven by the drive device to insert into the moxa floss forming assembly and compress the moxa floss into shape.

[0014] Optionally, the moxa floss forming assembly comprises:

[0015] a fixed mold, mounted on the support frame;

[0016] a movable mold, cooperating with the fixed mold for shaping the moxa floss;

[0017] an adjustment structure, mounted on the fixed mold and movable mold, for driving the movable mold to slide toward or away from the fixed mold.

[0018] Optionally, both the fixed mold and the movable mold comprise:

[0019] a mounting plate;

[0020] multiple mounting through-holes, formed on the mounting plate;

[0021] multiple mold housings, vertically penetrating and mounted inside the mounting through-holes.

[0022] Optionally, the adjustment structure comprises:

[0023] two receiving plates, each fixedly mounted at the end of the fixed mold and the movable mold respectively;

[0024] a telescopic rod, fixedly mounted between the two receiving plates.

[0025] Optionally, the compression assembly comprises:

[0026] an outer cylinder, fixedly mounted on the support frame;

[0027] a pressing column, slidably inserted into the interior of the outer cylinder;

[0028] a spring, mounted between the outer cylinder and the pressing column, used to retract the pressing column.

[0029] Optionally, the ginger slicing device comprises:

[0030] a placement rack, fixedly mounted on the support frame;

[0031] multiple sets of perforation columns, fixedly mounted at the top of the placement rack;

[0032] a hydraulic rod, mounted on the support frame and connected to the drive device;

[0033] a cutting blade, mounted at the end of the hydraulic rod and used to cut ginger slices under the action of the hydraulic rod.

[0034] Optionally, the support frame comprises:

[0035] a base plate;

[0036] a bracket, fixedly mounted on one side of the top of the base plate and fixedly connected to the moxa stick mold;

[0037] an inclined bracket, mounted on the other side of the top of the base plate and used to support the moxa stick mold.

[0038] Optionally, the drive device comprises:

[0039] an air supply main pipe, in communication with multiple outer cylinders;

[0040] two branch pipes, with both ends respectively connected to the air supply main pipe and the hydraulic rod.

[0041] Optionally, a pressure relief valve is mounted on the air supply main pipe.

[0042] The beneficial effects of the present invention are as follows:

[0043] Integrates the moxa stick forming and ginger slicing functions onto the same support frame, enabling synchronized pneumatic drive and one-stop 'moxa stick production–ginger slicing' operation, greatly reducing moxibustion preparation time and resolving the problem of equipment dispersion in traditional setups.

[0044] The moxa stick mold adopts a multi-mold housing design, allowing simultaneous production of multiple moxa sticks in a single operation, while the ginger slicing device synchronously completes perforation and cutting of multiple ginger slices.

[0045] The pneumatic drive system responds quickly and, together with the spring automatic reset structure, reduces operational intensity; the pressure relief valve effectively prevents overpressure in the air circuit, enhancing equipment operational safety.

BRIEF DESCRIPTION OF THE DRAWINGS

[0046] FIG. 1 is a schematic structural diagram of the present invention;

[0047] FIG. 2 is a schematic structural diagram of the ginger slicing device of the present invention;

[0048] FIG. 3 is a schematic structural diagram of the moxa stick mold of the present invention;

[0049] FIG. 4 is a schematic structural diagram of the movable mold of the present invention;

[0050] FIG. 5 is a schematic structural diagram of the compression assembly of the present invention.

[0051] In the drawings: 100, support frame; 110, base plate; 120, bracket; 130, inclined bracket;

[0052] 200, moxa stick mold; 210, moxa floss forming assembly; 211, fixed mold; 212, movable mold; 2121, mounting plate 2; 2122, mounting through-hole 2; 2123, mold housing 2; 213, adjustment structure; 2131, receiving plate 2; 2132, telescopic rod 2; 220, compression assembly; 221, outer cylinder; 222, pressing column; 223, spring;

[0053] 300,ginger slicing device; 310, placement rack; 320, perforation column; 330, hydraulic rod; 340, cutting blade;

[0054] 400, drive device; 410, air supply main pipe; 420, branch pipe; 430, pressure relief valve.

DESCRIPTION OF THE EMBODIMENTS

[0055] The invention is further described below in conjunction with the specific drawings.

[0056] Referring to FIGS. 1–5, a moxibustion production tool comprises:

[0057] support frame 100;

[0058] moxa stick mold 200, mounted on support frame 100 and used for compressing and shaping moxa floss; by applying high pressure, the moxa floss material is uniformly pressed into the mold to form standard-shaped moxa sticks, ensuring density and consistency, and improving combustion efficiency and medicinal efficacy;

[0059] ginger slicing device 300, mounted on support frame 100 and located below moxa stick mold 200, used for slicing fresh ginger into thin slices for use with moxa sticks to enhance therapeutic effects; ginger slices increase the warming effect of moxibustion and promote blood circulation;

[0060] drive device 400, disposed on support frame 100 and used to drive moxa stick mold 200 and ginger slicing device 300, ensuring synchronized operation of both devices and improving overall work efficiency; in this embodiment, drive device 400 may be implemented using linear motors, hydraulic rods, or electric push rods, among other existing technologies.

[0061] The integration of moxa stick forming and ginger slicing functions onto the same support frame 100, together with the drive device for synchronized operation, enables one-stop 'moxa stick production–ginger slicing' operation, greatly reducing moxibustion preparation time and solving the problem of equipment dispersion in traditional setups.

[0062] The moxa stick mold 200 adopts a multi-mold housing design, allowing simultaneous production of multiple moxa sticks, while the ginger slicing device 300 synchronously completes perforation and cutting of multiple ginger slices.

The working principle of this embodiment is as follows:

[0063] Place the ginger slices inside the ginger slicing device 300, then place the moxa floss material inside the moxa stick mold 200; activate the drive device 400, which pushes the ginger slicing device 300 and moxa stick mold 200, causing the moxa stick mold 200 to compress and shape the moxa floss material while the ginger slicing device 300 slices the ginger.

[0064] In some embodiments of the present invention, referring to FIG. 2, the moxa stick mold 200 comprises a moxa floss forming assembly 210 and a compression assembly 220 disposed above the moxa floss forming assembly 210, wherein the compression assembly 220 is driven by the drive device 400 to insert into the moxa floss forming assembly 210 and compress the moxa floss into shape;

[0065] In the present invention, the compression assembly 220 can be implemented using several existing structures; for example, by combining a threaded rod and a compression block, the threaded rod adjusts the height of the compression block during rotation, causing the block to descend and compress the moxa floss material, and then ascend after compression;

[0066] Similarly, the compression assembly 220 may also adopt the pneumatic compression device described below, wherein the compression block descends under pneumatic force to compress the moxa floss material, and ascends to reset when the air pressure decreases, driven by a pull ring;

[0067] Therefore, the compression assembly 220 may be implemented using various existing technologies, which are not further described herein;

[0068] In the present invention, the moxa floss forming assembly 210 may be implemented using several existing structures; for example, a lifting-type moxa floss forming assembly 210 achieves splicing and forming by moving the assembly up and down;

[0069] Similarly, the moxa floss forming assembly 210 may also adopt the horizontal movement type described below, wherein two moxa floss forming assemblies 210 are spliced together under the action of a drive mechanism;

[0070] Therefore, the moxa floss forming assembly 210 may be implemented using various existing technologies, which are not further described herein.

[0071] The moxa floss forming assembly 210 typically includes a chamber of specific shape for accommodating and securing the moxa floss, ensuring consistent form during compression.

[0072] In some embodiments of the present invention, referring to FIG. 3, the moxa floss forming assembly 210 comprises:

[0073] fixed mold 211, mounted on support frame 100;

[0074] movable mold 212, cooperating with fixed mold 211 for shaping the moxa floss; the close fit between the movable mold 212 and fixed mold 211 ensures precise shaping of the moxa floss;

[0075] adjustment structure 213, mounted on fixed mold 211 and movable mold 212, for driving the movable mold 212 to slide toward or away from the fixed mold 211, thereby enabling normal splicing and separation of the molds, ensuring precise shaping of the moxa floss and convenient removal after forming.

[0076] In some embodiments of the present invention, referring to FIG. 4, both the fixed mold 211 and movable mold 212 comprise:

[0077] mounting plate 2121, used to support the entire mold structure and provide a base for installation;

[0078] multiple mounting through-holes 2122, formed on mounting plate 2121; these through-holes accommodate the mold housings and ensure precise alignment;

[0079] multiple mold housings 2123, vertically penetrating and mounted inside the mounting through-holes 2122; these housings are the main forming parts of the mold, and the vertical design allows for smooth material injection and discharge, completing the product forming process.

[0080] The bottom of the mold housing 2123 is equipped with a sealing plate to prevent moxa floss from falling out during compression and forming.

[0081] In some embodiments of the present invention, referring to FIG. 4, the adjustment structure 213 comprises:

[0082] two receiving plates 2131, each fixedly mounted at the end of fixed mold 211 and movable mold 212; the main function of the receiving plates 2131 is to provide support and connection points, ensuring stability during operation;

[0083] a telescopic rod 2132, fixedly mounted between the two receiving plates 2131; the extension and retraction of the telescopic rod 2132 brings the two receiving plates 2131 closer or farther apart, allowing the fixed mold 211 and movable mold 212 to be joined during use and separated for removal.

[0084] In some embodiments of the present invention, referring to FIG. 5, the compression assembly 220 comprises:

[0085] outer cylinder 221, fixedly mounted on support frame 100, providing stable support and guidance;

[0086] pressing column 222, slidably inserted into the interior of outer cylinder 221, enabling vertical movement for compression or release of the target object;

[0087] spring 223, mounted between outer cylinder 221 and pressing column 222, used to retract the pressing column 222; when no external force is applied, the spring automatically pushes the pressing column 222 back to its initial position, ensuring system reset.

[0088] The working principle of this embodiment is as follows:

[0089] Inject gas into the interior of outer cylinder 221 to increase internal air pressure, which pushes the pressing column 222 downward, inserting it into the mold housing 2123 and stretching the spring 223 to compress the moxa floss into shape; after forming, release the gas so that the spring 223 retracts and pulls the pressing column 222 back to its initial position.

[0090] In some embodiments of the present invention, referring to FIG. 2, the ginger slicing device 300 comprises:

[0091] Placement rack 310, which is fixedly mounted on the bracket 100 and used to stably support other components;

[0092] Perforation post 320, which is provided in multiple sets and fixedly mounted on the top of the placement rack 310, used for securing and positioning the ginger slices to be cut, ensuring stability during the cutting process, and forming through-holes in the ginger slices when they are placed;

[0093] Hydraulic rod 330, which is mounted on the bracket 100 and connected to the drive device 400;

[0094] Cutting blade 340, which is mounted at the end of the hydraulic rod 330 and cuts the ginger slices under the actuation of the hydraulic rod 330, wherein the hydraulic power of the hydraulic rod 330 pushes the cutting blade 340 to perform horizontal movement to cut the ginger slices, and the sharp blade edge enables fast and precise cutting.

[0095] In some embodiments of the present invention, with reference to FIG. 2, the bracket 100 comprises:

[0096] Base plate 110, serving as the fundamental structure of the entire bracket, providing stability and support;

[0097] Bracket 120, which is fixedly mounted on one side of the top of the base plate 110, fixedly connected to the moxa column mold 200, and firmly connected to the mounting plate 2121 in the fixed mold 211 by bolts or welding, ensuring the stability of the moxa column mold 200 during use;

[0098] Inclined bracket 130, which is mounted on the other side of the top of the base plate 110, used to support the moxa column mold 200, and inclined at a certain angle to support the mounting plate 2121 in the movable mold 212, ensuring the stability of the mounting plate 2121 under force.

[0099] In some embodiments of the present invention, with reference to FIG. 2, the drive device 400 comprises:

[0100] Main air conduit 410, which is in communication with multiple outer cylinders 221 and connected to an air compressor, used to guide the flow of gas and ensure uniform pressure distribution to each outer cylinder 221;

[0101] Branch pipe 420, which is provided in two pieces, with both ends of each branch pipe 420 respectively communicating with the main air conduit 410 and the hydraulic rod 330, transmitting the gas from the main air conduit 410 to the hydraulic rod 330 via the branch pipe 420, thereby achieving power transmission.

[0102] In some embodiments of the present invention, with reference to FIG. 5, a pressure relief valve 430 is mounted on the main air conduit 410, which automatically releases excess pressure when the system pressure exceeds the safety range, preventing equipment damage or safety incidents.

[0103] Working method of the present invention:

[0104] Start the telescopic rod 2132 to drive the movable mold 212 away from the fixed mold 211, fill the mold housing 2123 with moxa floss, control the telescopic rod 2132 to make the movable mold 212 fit against the fixed mold 211, turn on the air compressor, allow air pressure to enter the outer cylinder 221 via the main air conduit 410, push the pressing column 222 downward to compress the moxa floss, maintain for 3-5 seconds, then turn off the air compressor, the spring 223 drives the pressing column 222 to reset, open the movable mold 212 and remove the formed moxa column;

[0105] Lay the ginger slices flat on the placement rack 310, ensuring the perforation posts 320 penetrate the ginger slices; the air compressor pressure drives the hydraulic rod 330 downward via the branch pipe 420, the cutting blade 340 cuts the ginger slices along the perforation posts 320, after cutting is completed the hydraulic rod 330 resets, and the cut ginger slices are removed.

[0106] The above demonstrates and describes the basic principles, main features, and advantages of the present invention. Those skilled in the art should understand that the present invention is not limited by the above embodiments, which are only intended to illustrate the principles of the invention, and various changes and improvements may be made without departing from the spirit and scope of the invention, all of which fall within the scope of protection claimed by the present invention. The scope of protection of the present invention is defined by the appended claims and their equivalents