

M. PALMER.
STRAND TWISTING DEVICE.
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1,063,722.

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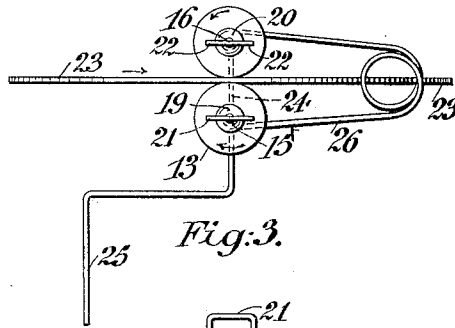


Fig. 3.

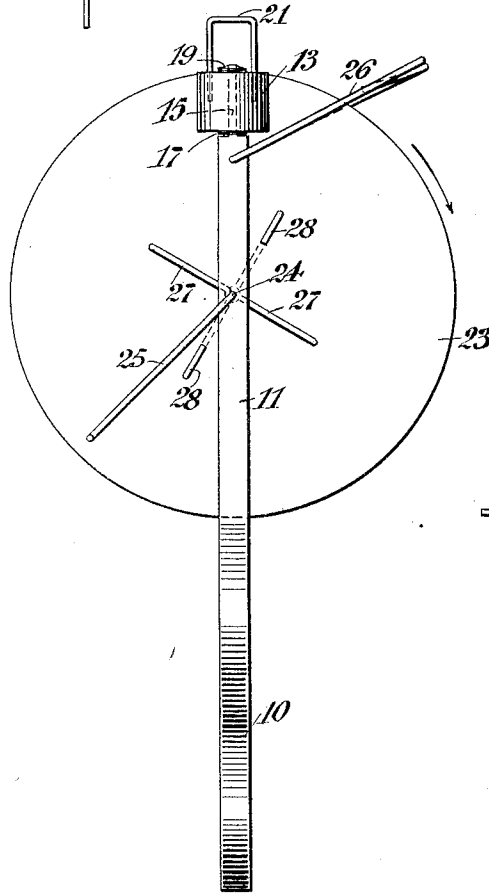


Fig. 1.

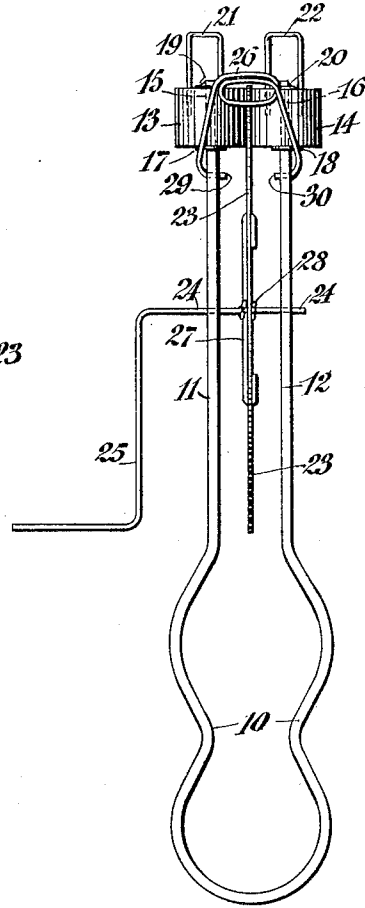


Fig. 2.

Witnesses:
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UNITED STATES PATENT OFFICE.

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STRAND-TWISTING DEVICE.

1,063,722.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, MONTAGUE PALMER, a citizen of the United States, residing in the borough of the Bronx, in the city and State of New York, have invented certain new and useful improvements in Strand-Twisting Devices, of which the following is a specification.

The object of the invention is to provide a suitable device for winding the elastic rubber strands which are commonly employed in pairs for actuating the propellers of miniature or toy aeroplanes. These strands require, for each flight, to be wound, in opposite directions. They are commonly provided with hooks at their rear ends which render them easily detachable from the shafts of the two propellers employed.

The invention comprises rotatable twisting-heads adapted to receive these hooks, while the opposite ends of the strands continue to be held as before against turning, in the aeroplane, and means for rotating the twisting-heads in opposite directions.

In the accompanying drawing, Figure 1 is a side-elevation of a form of the device embodying the invention, Fig. 2 is a front-view of the same, and Fig. 3 is a top-view.

Similar letters of reference indicate corresponding parts throughout the figures.

The device shown comprises a handle 10 which terminates in two oppositely-arranged arms 11, 12. At the outer ends of said arms are mounted rotatably two friction-wheels 13, 14, respectively. When the handle and arms are made of a strip of metal, as shown, the bearings for each friction-wheel may be formed by reducing the end of the arm so as to form at the end of the same a cylindrical stud. A washer 17 is placed on the stud 15 at the lower or inner end of wheel 13, and a similar washer 18 on stud 16. Washers 19, 20, are secured at the outer ends of the studs by heading the studs over the washers. The friction-wheels 13, 14, carry each an eye, 21, 22, respectively, which consists of a U-shaped piece of wire secured at its ends in the wheel and extending beyond the outer end of the stud. The wheels 13, 14 with their eyes 21, 22, form twisting-heads, to which the elastic strands to be

wound are attached by engaging them with the eyes 21, 22, one hook with each eye, respectively.

Between the arms 11, 12, is located a driving friction-wheel 23, supported on and fixed to a shaft 24 having bearings in the arms and projecting at one end at the outside of the arm and there cranked so as to form a handle 25 for turning the driving-wheel. At its sides the wheel is engaged by the wheels 13, 14 of the twisting-heads, which wheels are retained in frictional engagement with the driving wheel by a spring 26 secured at its ends in the arms 11, 12, at a point adjacent the twisting-heads 13, 14, and spanning the driving wheel and actuating the arms toward each other, thereby pressing the wheels 13, 14, toward each other upon the driving wheel between them. The shaft 24 is retained against longitudinal movement in its bearings by abutment of the driving-wheel with the twisting-wheels 13, 14.

For winding the two strands of an aeroplane by this device, the hooks of the strands are secured in the eyes 21, 22, as described, and then while holding the handle 10 in one hand, the operator turns the crank 25 with the other hand. By this operation the driving-wheel 23 is rotated, thereby rotating the wheels 13, 14, in the directions of the arrows, Fig. 3, and causing the eyes 21, 22, to turn in opposite directions and correspondingly wind the strands. When wound, the strands are disengaged by removing their hooks, one at a time, from the eyes. The strands may then be restored to the aeroplane shafts, for propelling the aeroplane.

The handle 10 may be of any desired shape or material. The arms may be connected thereto in any suitable manner so as to be capable of being pressed one toward the other, whereby the necessary frictional contact of the twisting-heads with the driving-wheel is secured. In case the handle 10 be made of spring-metal, it will, particularly in the smaller sizes of the device, afford of itself sufficient spring-tension to cause the necessary frictional engagement of the wheels, and in this case the spring 26 may be omitted.

The wheels 13, 14 may be formed of wood or of any other suitable material, and likewise the driving-wheel may be of wood, rubber, metal, fiber-composition, or any material adapted to provide the necessary friction.

The ratio between the driving wheel and the twisting wheels may be one to two, one to five, or any desired figure, and is obtained by properly proportioning the wheels.

The driving-wheel may be attached to its shaft by means of ribs, two of which, 27 and 28, are shown in the drawing, arranged transversely to each other, one at each side of the wheel, and crossing at the center of the same, where they are soldered or otherwise secured to the shaft 24. The ribs at their ends pass through the disk 23, and are secured by being bent at their ends down upon the disk, as shown in Fig. 2. They strengthen the disk and aid the same to resist buckling. Any other desired means for securing the driving wheel upon the shaft may be employed.

The spring 26 may be released from the arms by springing the same at one of its inturned ends 29, 30, out of engagement with the arm, and then withdrawing the other end of the spring. When free, the spring may be expanded or contracted by hand, and when replaced will give a correspondingly less or greater pressure than before, thereby producing less or more friction of the driving wheel with the twisting heads. Thus the device may be restored to usefulness in case of loss of friction, and may be adapted to winding strands of different torsional strengths.

It is obvious that changes may be made in

the construction without departing from the invention.

I claim:

1. A strand-twisting device, comprising a handle, arms extending therefrom, a driving-wheel mounted between said arms, a crank connected with said driving-wheel, and oppositely-arranged rotatable twisting-heads mounted on said arms and spring-actuated into contact with said wheel.

2. A strand-twisting device, comprising a flexible handle, arms extending therefrom and movable toward and from each other, a driving-wheel mounted between said arms, a manually-operable crank connected with said driving-wheel, and oppositely-arranged rotatable twisting-heads mounted on said arms and movable therewith into and out of contact with said driving-wheel by flexure of said handle.

3. A strand-twisting device comprising a handle, arms extending therefrom, a driving-wheel mounted between said arms, a crank connected with said driving-wheel, twisting-heads mounted rotatably on said arms and adapted to frictionally engage the driving-wheel at opposite sides of the same, and a spring connected detachably with the arms adjacent said twisting-heads and actuating the same toward said driving-wheel.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

MONTAGUE PALMER.

Witnesses:

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