May 26, 1925. 1,539,016

S. MIZUNO

REEL

Filed Aug. 20, 1924

Fig. 1.

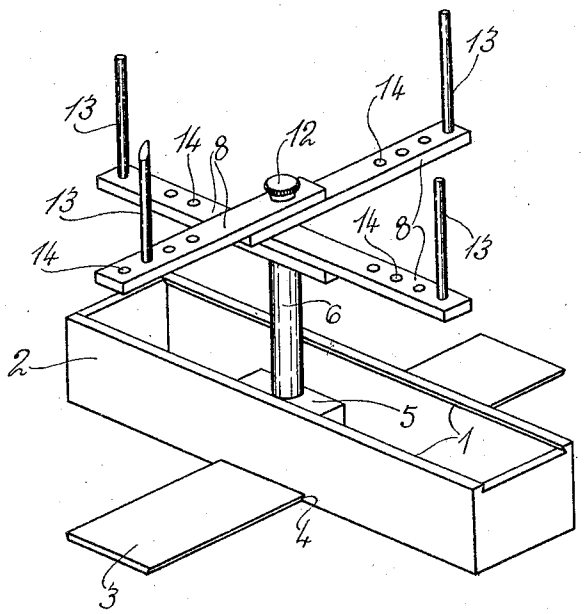


Fig. 2.

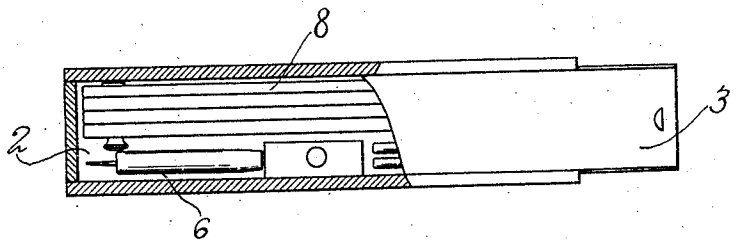


Fig. 3.

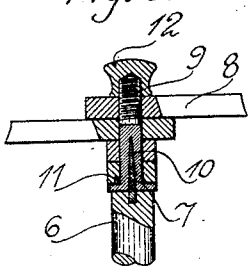
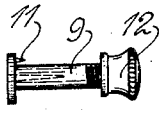


Fig. 4.



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UNITED STATES PATENT OFFICE.

SAKUZO MIZUNO, OF SHIMIZU CITY, JAPAN.

REEL.

Application filed August 20, 1924. Serial No. 733,211.

To all whom it may concern:

Be it known that I, SAKUZO MIZUNO, a subject of the Emperor of Japan, residing at Shimizu City, Shizuoka Prefecture, Japan, have invented certain new and useful Improvements in a Reel, of which the following is a specification.

My invention relates to improvements in a reel wherein four rotary arms with rectangular section are fixed radially by a bolt inserted through the openings near the inner ends of said arms and at each outer ends of them, a stud to be wound with thread is engaged in any one of the openings and the bolt carrying these members may rotate around a pin fixed to an upper end of a supporting prop which is mounted detachably on a seat block fixed to the inner surface of the rectangular box and a cover of this box may serve as a base board connected to the said box.

The principal object of my present invention is to provide an improved reel for winding thread around four studs.

Another object of my invention is to provide an improved reel with all the parts made detachable or collapsible so that it may be knocked down and put in a box, when it is not used or transported, in the most convenient and safest manner possible.

In the accompanying drawings;

Fig. 1 is an oblique view of a reel according to the present invention,

Fig. 2 is a plan view of the box which takes in all the members of the reel when it is not used,

Fig. 3 is a sectional elevation of connecting part of rotary arms, and

Fig. 4 is a side view of the connecting bolt screwed with a nut.

In the drawings, 1 denotes two grooves of side walls of a rectangular box 2 for guiding a cover plate 3 and this cover plate serves as a base engaging through a guide groove 4 made across the bottom of the box, and at the middle part of the box a seat piece 5 is fixed to an inner surface of a side wall to support a prop 6 engaging detachably in a hole bored on the upper surface of the said piece. And a pin 7 is projected upward from the end of the prop 6.

Four arms 8 are piled radially each other at their inner end and when a hollow bolt 9 is inserted through openings 10 made at the piled portions, a pin-hole of the lowest arm is engaged with a pin 11 mounted on the flange of the bolt as shown in Fig. 3, and then the bolt and arms are fixed by a nut 12.

A stud 13 detachably engaged in one of the openings 14 arranged at a pre-determined distance from the outer end of each of the arms serves as a support for the thread wound thereon. And then the hollow bolt with the said members rotates upon the pin 7.

The arms may be prolonged properly by connecting other arms.

In this invention all parts are connected detachably and when this device is out of use all members may be put snugly in the box as shown in Fig. 2.

Having now particularly described and ascertained the nature of my invention and in what manner the same is to be performed, what I claim is new and desire to secure by Letters-Patent of the United States, is:—

In a reel, a box having a groove in the bottom thereof, a cover plate for the box engageable in said groove, a base member arranged in the box, a prop detachably engaged in said base member, a pin carried by the upper end of the prop, a hollow bolt detachably engaged with said pin, said bolt including a flange and a nut, four arms clamped by the flange and nut, a pin carried by the flange and engaging one of the arms, said arms having a plurality of openings having outer ends thereof and studs detachably engaged in said openings, said prop, arms, bolt, and studs being adapted to be housed in the box when the reel is not in use.

In testimony whereof I hereunto affix my signature.

SAKUZO MIZUNO.