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G. NORWOOD.

SPOOL HOLDING BOX.

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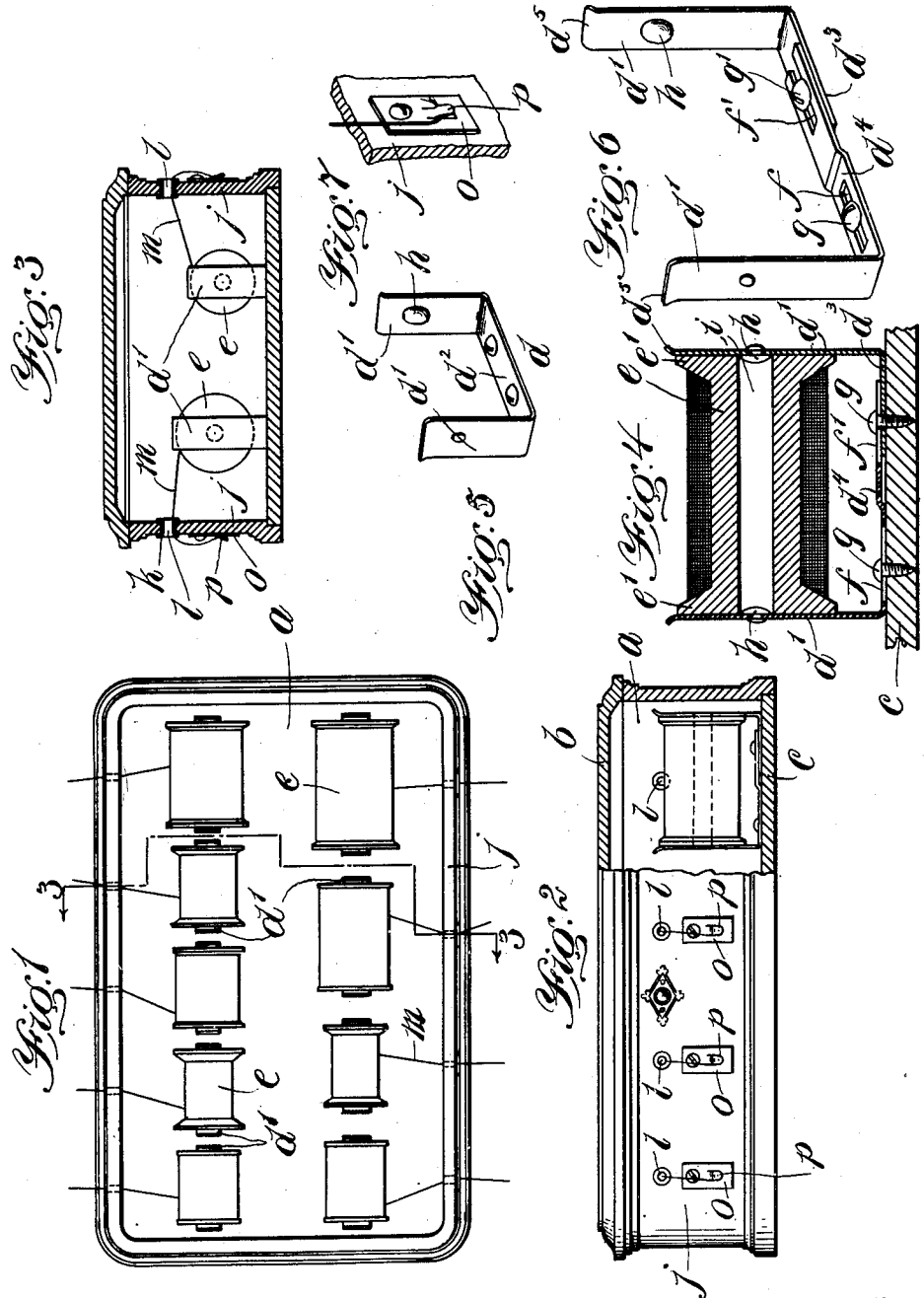

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UNITED STATES PATENT OFFICE.

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SPOOL-HOLDING BOX.

No. 820,596. Specification of Letters Patent. Patented May 15, 1906.

Application filed May 1, 1905. Serial No. 258,181.

To all whom it may concern:

Be it known that I, GEORGE NORWOOD, of Winthrop, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Spool-Holding Boxes, of which the following is a specification.

This invention has for its object to provide a holder in which spools of various kinds of thread may be held in such a manner that the thread may easily be drawn off from the spools and lengths thereof easily broken off.

Further objects are to provide spool-holding means with which a full spool may be easily engaged and from which an empty one may quickly be removed, and to provide a breaking device which in separating a length of thread from the thread on the spool will leave a frayed end, which can easily be twisted up into a point capable of readily entering the eye of a needle.

The essentials of the invention comprise a box having mounted in its interior resilient holding-arms with which the spools of thread are detachably engaged, the walls of the box having openings through which the thread may be led as it is drawn off from the spools, and breaking devices mounted on the sides of the box immediately adjacent the openings, whereby the thread can be easily broken and which will retain the end of thread left after the breaking.

In the drawings illustrating the preferred embodiment of my invention, Figure 1 represents a plan of the spool-holding box with the cover removed, showing the spools in place. Fig. 2 represents a side elevation of the same, partially broken away. Fig. 3 represents a cross-section on line 3 3 of Fig. 1. Fig. 4 represents a fragmentary sectional view showing in axial section a spool of thread and the resilient holding members. Figs. 5 and 6 represent perspective views of two forms of spool-holding devices. Fig. 7 represents a perspective view of the preferred form of thread-breaking device.

The same reference characters indicate the same parts in all the figures.

a represents the box or casing, having a removable cover *b* and a bottom *c*, to which are secured the spool-holders *d*, which are fixed rigidly to the bottom of the box and provided with resilient arms *d'*, which project approximately perpendicularly from the bottom of the box. These arms are arranged in pairs located a sufficient distance apart to receive between them a spool *e*, the distances being varied, of course, to accommodate spools of different sizes. Preferably the arms are made of strips of relatively thin springy sheet metal, and each pair may be bent up from a single strip, the intermediate portion d^2 of which is perpendicular to the arms, as shown in Fig. 5, or the holding-arms may be made of separate pieces having perpendicularly-bent portions d^3 d^4, adapted to be placed on the bottom of the box *a*, as shown in Fig. 6. In this form one of the portions which is adapted to rest on the box-floor, as the part d^4, is offset and superposed on the portion d^3. This portion is provided with slots *f f'*, through which the holding-screws *g g'*, which secure it to the box-floor, pass. As will be readily apparent, the slots permit adjustment of one of the arms *d'* toward and from the other, so that thereby the holder is adapted to take spools of varying sizes.

The arms *d'* each carry a protuberance or projection *h*, arranged on the side adjacent the other arm of the pair and adapted to enter one end of the central bore *i* of the spool. These projections *h* are rounded, being preferably segments of spheres, and are short, being extended from the sides of the arms adjacent the spool a distance sufficient to enter slightly the bore of the spool and support the same. The curvature and extension of the projections *h* are such that the sides thereof are but slightly inclined away from the sides of the arms *d'*—that is, they make obtuse angles with the surrounding plane surfaces of the arms. The gentle inclination of the sides of the protuberances from the adjacent or bearing surfaces of the arms enables the spool to be pushed down between them and by bearing against them to separate the arms without requiring the arms to be separated manually. Thus a spool may be placed in a holder by a single movement and with the use of but one hand, and when it has been moved down far enough the resiliency of the arms causes the protuberances to snap into the bore of the spool. As shown in the drawings, the projections *h* are in the form of rivets having large heads; but in order to reduce the expense of manufacture they may be formed by simply indenting and pressing out integral portions of the arms. The arms

are continued above the projections *h* a sufficient distance to extend slightly beyond the circumferences of the adjacent spool-flanges *e'* and are then bent outwardly away from each other and from the spools to form lips d^5, by which they may be engaged and sprung away from each other to facilitate the placing or removal of a spool and between which the spool may enter when it is being placed and when the arms as a whole are held by their resiliency nearer together than the length of the spool.

In the side walls *j* of the casing are eyelets or bushings *k*, providing holes *l*, through which the threads *m* from the spools are extended, and externally on the sides of the box beneath the holes, there being one adjacent each hole, are the thread breaking and holding devices *o*. In their simplest form these breaking devices consist each of a metal plate attached by a screw to the wall of the box and having an integral tongue *p* struck up therefrom. As the tongue *p* is integrally attached at one end to the plate and at its other end projected therefrom, its opposite sides project outwardly at an acute angle to the sides of the recess formed in the plate by its removal, and also the process of separating and forcing outwardly the tongue leaves the adjacent edges of it and of the plate rough and saw-like. This forms on the plate and tongue, respectively, two pairs of approximately rectangular jagged edges, which are substantially parallel and arranged in the same manner as the cutting edges of a pair of shears, and these edges coöperate with each other in breaking the thread and holding its end.

When a sufficient length of thread has been drawn off one of the spools, it is passed under the adjacent tongue *p* and pulled upward. This draws the thread through the pair of shear-like rough edges on one side of the tongue and recess, causing the thread to be frayed and broken, not with a sharp clean cut, but a few strands at a time, so that an uneven brush-like end is left on the thread, the end which is left after the breaking being held between the jaw and adjacent portions of the plate, leaving a length between the breaking device and adjacent outlet which is in position to be grasped and pulled out when a new needleful is required. The thread end after being broken in the manner described is in the best condition for being threaded into the needle-eye, for upon wetting the brush-like end and twisting it between the thumb and forefinger a sharp point is produced which will enter the eye with the least possible resistance.

I am aware that other spool-holders have been constructed with thread-cutters adjacent; but such devices are unsatisfactory, as they cut the thread with a square end which unfits it to be threaded easily into a needle having a small eye. My breaking device is constructed and adapted to operate differently from such cutters and it leaves the end of the thread in such shape that it can be passed through the eye of the needle with the least possible resistance.

I claim—

1. A spool-holding box comprising in combination, a box having orifices in its sides, spool-holders consisting of pairs of flat spring-arms secured to the bottom of the box and projecting perpendicularly therefrom, and having shallow rounded protuberances on their adjacent sides, the arms of said holders being adapted to extend by the ends of the spools and the protuberances to enter the bores of the spools and support them, and thread holding and breaking devices secured to the outside of the box adjacent each orifice, each such device consisting of a flat plate having an integral tongue struck out at an acute angle from the surface thereof, the threads being lead from each spool through the nearest orifice and under the tongue of the adjacent holding and breaking device.

2. A spool-holding box comprising in combination, a box having orifices in its sides, spool-holders consisting each of two spring-strips bent at right angles and secured by screws to the bottom of the box, one portion of each strip lying flat on the bottom of the box, such portion of one strip overlapping that of the other and having slots receiving the fastening screws for adjustment, the other portions of the strips being upright, forming holding-arms; shallow rounded protuberances on the adjacent sides of the upright arms; the arms of said holders being adapted to extend by the ends of the spools and the protuberances to enter the bores thereof and support them; and thread holding and breaking devices secured to the outside of the box adjacent each orifice, each such device consisting of a flat plate having an integral tongue struck out at an acute angle from the surface between the side edges thereof, the threads being led from each spool through the nearest orifice and under the tongue of the adjacent holding and breaking device.

3. A holder for spools comprising a box or casing, spool-holders consisting each of a pair of flat spring-strips bent so as to extend perpendicularly, and secured adjustably, to the bottom of said casing whereby the distances between the members of each pair may be varied, and said arms having protuberances adapted to enter the opposite ends of the bore of a spool.

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

GEORGE NORWOOD.

Witnesses:

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