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D. F. DROW

2,478,255

FLYTIER

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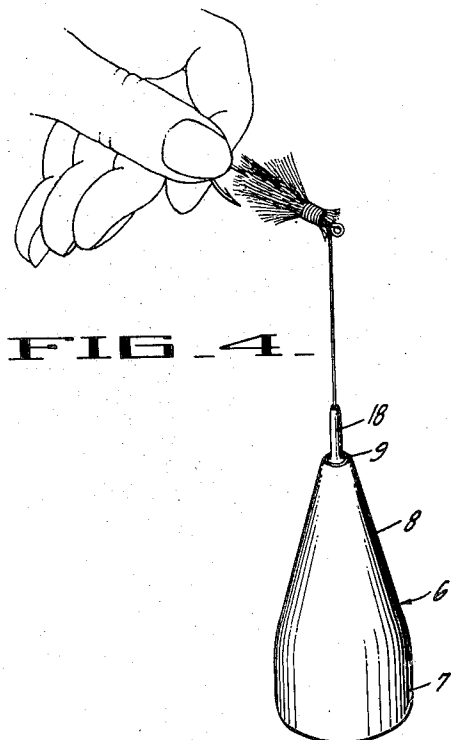


FIG. 4.

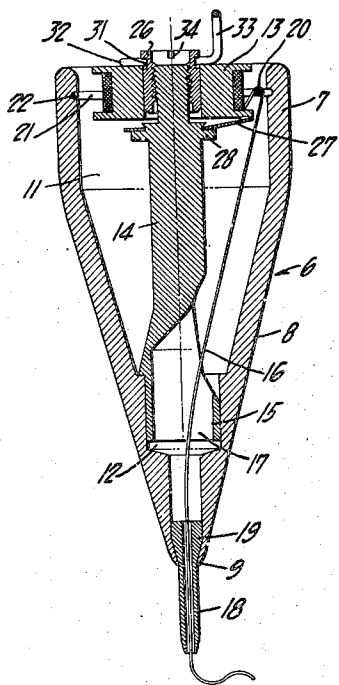


FIG. 1.

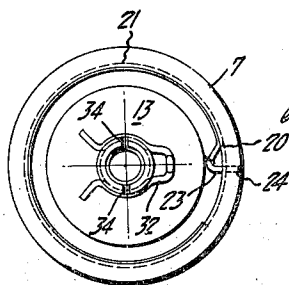


FIG. 3.

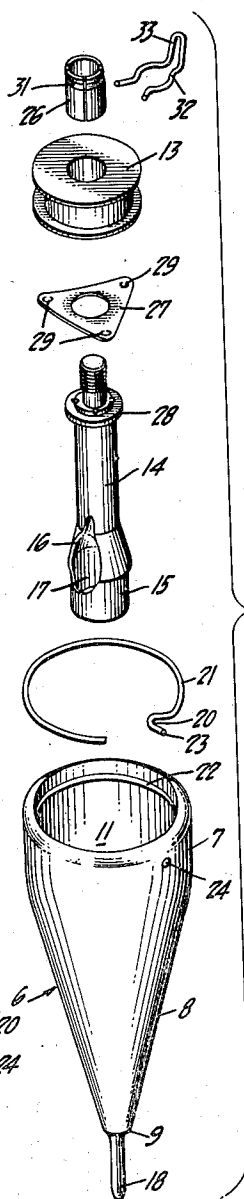


FIG. 2.

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FLYTIER

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2 Claims. (Cl. 242—140)

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The invention relates to a thread dispenser, and more particularly to a thread dispenser for fly tying wherein the thread is fed from a bobbin through a thread conduit formed in the tool for conducting the thread to the work.

An object of the present invention is to provide a thread dispenser in which the tension exerted by the dispenser to the withdrawal of thread therefrom may be controlled in accordance with the desired tightness of the winding and the breakage strength of the thread being used.

Another object of the present invention is to provide a thread dispenser for fly tying and the like which is manipulatable into restricted work areas and which will dispense thread via a conduction conduit removed from the operator's fingers and designed to reach into spots inaccessible to the fingers and to guide and apply pressure to the thread at a point immediately adjacent to the contact of the thread with the work, thereby eliminating the necessity of pulling on the length of thread in order to apply a desired tension at the work.

Again an object of the present invention is to provide a fly tyer in which the rate of dispensation of the thread is adjustable so that the tyer may be suspended on the thread from the work maintaining a tension upon the thread sufficient to prevent unwinding thereof from the work.

Still another object of the present invention is to provide a fly tyer in which the threaded bobbins are readily removable, permitting a rapid interchange of colors and weight of thread, and in which the tension exerted by the tyer to the withdrawal of the thread is automatically maintained constant or if desired is variable by the operator.

Again another object of the present invention is to provide a fly tyer formed with a minimum number of durable parts, and of a design and construction facilitating ease and inexpensiveness of manufacture and assembly and rapid disassembly by the operator for cleaning or adjustment.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of the invention which is illustrated in the drawings accompanying and forming part of the specification. It is to be understood, however, that variations in the showing made by the said drawings and descrip-

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tion may be adopted within the scope of the invention as set forth in the claims.

Referring to said drawings:

Figure 1 is a vertical cross section of the fly tyer embodying the features of the present invention.

Figure 2 is an exploded side elevational view of the parts comprising the fly tyer shown in Figure 1.

Figure 3 is a top plan view of the fly tyer shown in Figure 1.

Figure 4 is a view of the fly tyer showing it operatively associated with a thread being applied to work.

In tying flies for use by fly fishermen, in the making of ship models, and with other precise work requiring the manipulation of thread to bind and to secure portions of the work together, and to necessarily exert the ability to work in confined spaces, it is difficult for the operator to achieve the requisite dexterity with the fingers alone, or with forceps, tweezers and the various improvisations which have been utilized to work with the thread. It is also essential that the operator be enabled to secure the thread at a portion of the work, to prevent unwinding or loosening of the already completed parts, and the thread is usually clumsily and insecurely held by weights placed thereon or by the operator taking several turns of thread around an adjacent immovable object. The fly tyer of the present invention functions to dispense thread under a controlled tension through an elongated and manipulatable orifice and such function is afforded by the provisions of a replaceable thread bobbin within an elongated and tapered housing, which terminates in an extended thread discharge orifice in communication with the thread unwound from the bobbin under the resistance imposed by a selectively adjusted tension means associated with the bobbin. With more particular reference to Figure 1, such fly tyer comprises a housing 6 having a cylindrical portion 7 at one end thereof and a tapered portion 8 extending from said cylindrical portion and terminating in a blunt point 9. The housing 6 is formed with a hollow interior, including an open, barrel shaped generally conical portion 11 adjacent the end 7 of the housing, and a stepped-down portion 12 extending between the barrel shaped portion 11 and the tip 9 at the reduced end of the housing. A thread supplying and dispensing means is desirably provided within the housing, and such means as here shown comprises a thread bobbin 13 rotatably positioned upon a spindle 14 provided within the housing.

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The spindle is shown as provided with a cylindrical base portion 15 tightly fitted within the stepped portion 12 of the housing. As a means of conducting the thread wound on the bobbin 13 to the exterior of the housing, the spindle 14 has a relieved sidewall portion 16, and as best shown in Figure 2, adjacent the base portion 15, and the aperture formed in the relieved sidewall communicates with a bore or hollow passage 17 provided in the base of the spindle. It will thus be clear that a discharge passage is formed for the thread unwound from the bobbin through the hollow interior of the housing, thence through the relieved sidewall and open bore 17 of the spindle, and through the stepped-down portion 12 of the housing to the exterior thereof adjacent tip 9.

To extend the usefulness of the tyer, it is desirable to provide a means for controlling the thread at a distance from the operator's hand, and such means of extending the effective length of the thread guide in the housing is here shown in the form of a thin conduit extension 18, having a slightly enlarged end 19 received in the tubular end 9 of the housing with the opening in the conduit in registration with the hollow interior of the housing. By means of conduit 18 the operator is enabled to dexterously manipulate with a high degree of control the thread when drawn through the conduit even under restricted working conditions, and additionally the conduit 18 serves to control and strengthen the thread to its immediate contact with the work eliminating breakage and the necessity of exerting pressure at the point of thread contact with the work over a long stretch of thread extending between the work and the closest point at which the operator's hand may function. A guide 20 is desirably provided adjacent the bobbin 13 for relieving the strain on the unwinding thread and for preventing friction between the thread and the bobbin during the unwinding operation, and such thread guide in the form of a loop portion here shown provided in a removable snap ring 21 fitted within a groove 22 formed in the interior wall of the housing. Guide 20 is preferably yieldably mounted against the wall of the housing, and such yieldable mounting is afforded by the positioning of a ring end 23 adjacent the loop 20 angularly bent therefrom and movably fitted within a radial aperture 24 penetrating the wall of the housing.

To adjust the tyer for use with threads having different breaking points, and to work requiring a specified and uniform tension being exerted by the operation, it is desirable to provide a tension regulator controlling the rate of unwinding of the thread from the bobbin and the force required to effect such unwinding. Referring again to Figure 1, and as an important feature of the present invention, this tension adjustment is provided in the form of a spring 27 functioning as an adjustable brake operating against the thread bobbin. Bobbin 13 to permit unwinding of the thread therefrom is mounted for rotation upon a sleeve 26 threadably connected to the spindle 14. Underlying the bobbin when the latter is mounted for rotation on the sleeve is a dished spring washer forming the spring 27 operatively secured to the spindle and resting upon a flange 28 provided thereon. The periphery of the dished washer 27 is preferably provided with a plurality of equidistantly spaced raised nodes 29 providing bearing points for the flat bottom of the bobbin 13. Sleeve 26 is provided with a circumferentially extending recess 31 adjacent the outer end thereof for receipt of a cotter key

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32 snapped into the recess 31 to prevent withdrawal of the bobbin over the end of the sleeve. Cotter key 32 serves as the means for exchange of or replacement of empty bobbins, and is preferably formed with an upstanding portion 33 which may be readily grasped for snapping the spring key 32 into or out of the recess 31 to effect the removal, the installing or replacing of the bobbin, it being noted that all bobbins of the same depth may be readily interchanged without affecting or changing the tension required to withdraw the thread.

It will thus be obvious that with the washer 27 positioned on the spindle bearing against the under side of the bobbin, and with the cotter key 32 carried by the sleeve 26 pressing upon the upper side of the bobbin, movement of the sleeve through its threaded mounting on the spindle longitudinally thereof will effect a change in pressure between the spring 27 and the bobbin and consequently a brake to the free rotation of the spindle in the thread unwinding operation. In order to provide for a more ready adjustment of the tension through movement of the sleeve on its spindle, the former is provided with aligned slots 34 adjacent the free end thereof for convenient turning by a screwdriver or other thin object, and by a slight turn upon the sleeve the operator is able to vary the tension placed upon the thread incident to the unwinding thereof from the bobbin, and can vary such tension in accordance with the strength of the thread and the tightness required by the particular thread application.

In many tying and securing operations it is desirable to have a means of exerting a constant tension upon the thread as by a weight hanging therefrom or by securing the thread to an immovable object, and by reason of the adjustable tension exerted to inhibit bobbin rotation the thread tyer and as shown in Figure 4, serves as a static weight exerting a constant tension upon the thread and freeing the operator's hand for other operations. By a sufficient rotation of the sleeve 26 the operator can render the bobbin immovable under the weight of the tyer, and the latter will therefore hang upon the thread as shown in Figure 4 exerting a sufficient weight thereon to keep the thread taut. However, if the weight of the tyer should exceed the breaking strength of the particular thread being used, the operator need only adjust the tyer for a tension sufficient to prevent breaking of the thread, in which case the tyer will gradually pay-out more thread and thereby slide down the suspended thread, maintaining a constant resistance thereon, until a surface is reached upon which the tyer will rest, at which time further dispensing of thread will cease and the tension imposed upon the bobbin will itself maintain the desired tautness in the thread.

A preferred manner of threading the tyer is to use a flexible threading needle (not shown) which may be inserted at the open, enlarged end of the housing, through the guide 20 and extended down through the body and out of the conduit 18 for drawing through the thread attached to the upper end of the needle. Any fine flexible wire provided with a hooked upper end will function as a threading needle.

I claim:

1. In a device of the character described, a hollow body adapted to be held in the palm of the hand and having a thread discharge conduit extending from one end thereof, a spindle mounted

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within the interior of said body adjacent the opposite end thereof, a spring supported on said spindle in predetermined relation to one end thereof, a thread reel having an axial bore jour-
nalled for rotation on said sleeve and with one
end of said reel in engagement with said spring,
detachable fastening means mounted on said
spindle end in engagement with the opposite end
of said reel, and means for adjusting the spacing
between said fastening means and said spring
to thereby apply selected pressure to the opposite
ends of said reel to afford selective frictional re-
sistance to its rotation.

2. In a device of the character described, a
substantially conical shaped hollow body having
a thread discharge conduit extending from the
reduced end thereof, a spindle fixed to said body
within the interior of the enlarged end thereof,
a spring washer supported on said spindle in pre-
determined relation to one end thereof, a sleeve

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threaded on said spindle end for longitudinal ad-
justment relative to said spring washer and
formed with a peripheral groove for receipt of a
detachable spring wire clip, a thread reel having
an axial bore journaled on said sleeve with one
end of said reel in engagement with said washer,
and a spring wire clip mounted in said groove and
bearing on the opposite end of said reel.

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