(No Model.)

W. GROVER.

THREAD UNWINDER.

No. 331,194. Patented Nov. 24, 1885.

Fig 1

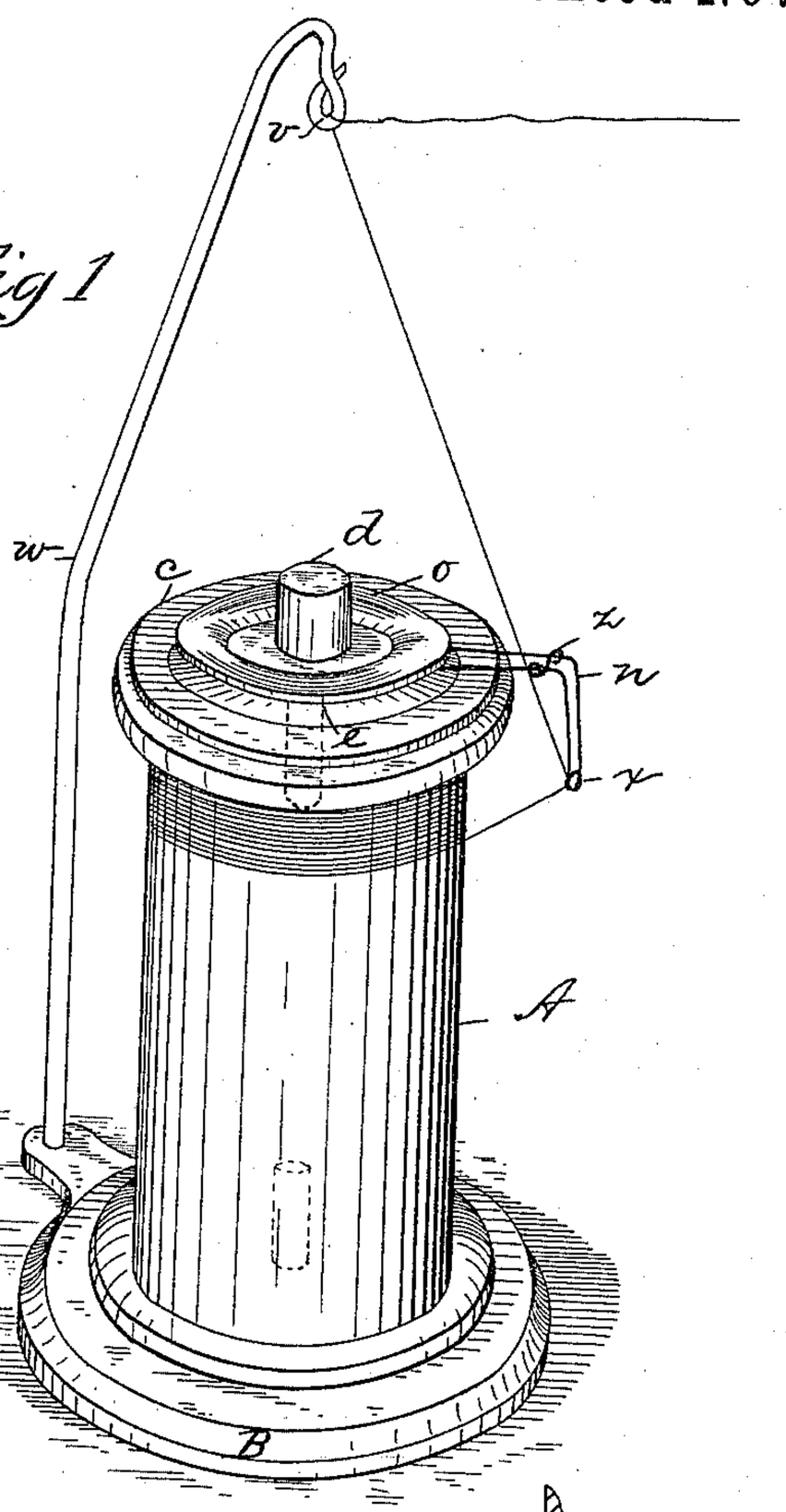


Fig 3

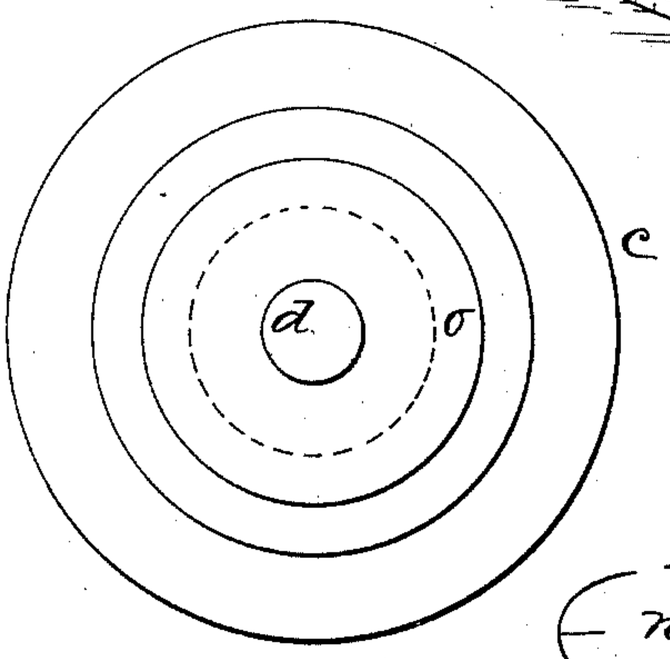


Fig 2

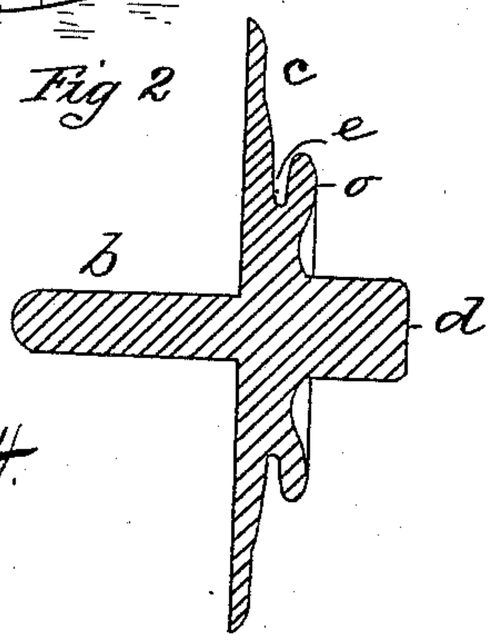
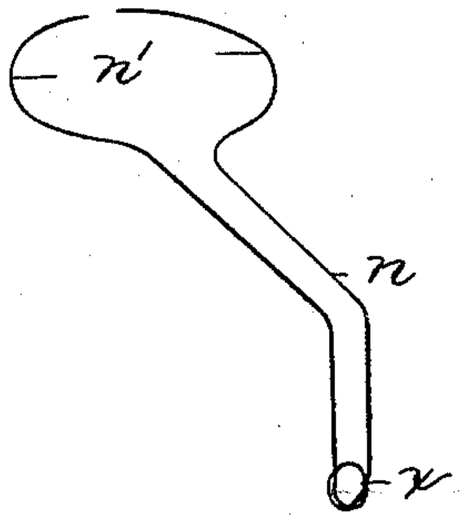


Fig 4.



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THREAD-UNWINDER.

SPECIFICATION forming part of Letters Patent No. 331,194, dated November 24, 1885.

Application filed June 15, 1885. Serial No. 168,717. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GROVER, a citizen of the United States, residing at Holyoke, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Thread-Unwinders, of which the following is a specification.

This invention relates to improvements in thread-unwinders, the object being to provide an improved apparatus of this class embodying an improved flier and means of connecting the same with the spool, whereby an even and uniform drag friction is had, and simple and convenient means are provided for adjusting the drag to any required frictional resistance.

In the drawings forming part of this specification, Figure 1 is a perspective view of a thread-unwinder constructed according to my invention. Fig. 2 is a transverse section of the spool-cap, and Fig. 3 is a plan view of the same. Fig. 4 is a perspective view of the flier.

In the drawings, A is the spool containing the thread to be unwound. B is the base of the unwinder, provided with the usual center post, on which the spool is set, and having secured thereto in any suitable manner the thread-guide *w*, which is provided with the usual guide-eye, *v*, at its upper end, which terminates about centrally over the end of the spool A. The base B is made preferably of metal, in order that it may be of sufficient weight to hold the parts steady while the unwinder is being used.

A cap, *c*, of metallic formation, is provided for the upper end of the spool A, consisting of a disk having the post *b* on its under side, which, when the cap is placed on the spool, as in Fig. 1, projects downward into the cavity in the spool and prevents the cap from moving laterally. A short post, *d*, is provided on the upper side of the cap, to serve as a handle. A collar, *o*, is formed on the upper side of cap *c*, in which is formed the annular groove *e*, which is smoothly finished and adapted to receive one end of the flier, as hereinafter described.

The flier *n* is made of suitable wire, preferably of stiff, elastic piano-wire, or of that of similar quality, bent substantially to the form shown in Figs. 1 and 4, having the usual thread-eye *x*, and provided with the separated curved arms *n'*, the curve of the latter being made to conform substantially to the circle of the base or bottom of the groove *e* in the cap *c*, but the form of said arms being such that their ends will not meet when placed on the cap, as hereinafter described. The outer end of the flier is bent downward over the edge of the cap *c* and the spool-head, as shown, to bring the eye *x* to proper position opposite the thread on the spool. The flier is placed on the cap *c* by pressing its open end against the bottom of the groove *e*, whereby the arms *n'* are caused to spring open, and they then close, grasping the circular part of the collar *o* at the bottom of the groove with more or less friction, according to the stiffness of the wire of which the flier is made, and thereby the requisite drag is imparted to the flier to give the desired tension to the thread when it is unwound.

When it is found desirable to cause the flier to grasp the neck of collar *o* more tightly than its own spring action causes it to do, to obtain more drag, the S-hook *z*, Fig. 1, is applied thereto, which is adjustable toward and from the curved arms *n'*, causing the latter to be more or less compressed against their bearing at the bottom of groove *e*.

The operation of the apparatus will be easily understood. The cap *c* and flier *n* are handled as one piece, to place them on or remove them from the spool A, the thread from the latter being passed through the eye *x* of the flier, and thence through the eye *v* of the thread-guide *w*. When the thread is drawn from the spool, for use on a sewing-machine or elsewhere, the flier *n* rotates on the cap *c* with sufficient friction to keep the thread straight between the spool and the end of the flier, and between the latter and the said machine, and any sudden pull on the end of the thread will not throw the flier around and loosen the thread on the spool, because of the frictional contact of the flier with the cap, as aforesaid.

The within-described flier provides for its adaptation to different requirements of frictional resistance by still another means in addition to those above set forth—viz., each cap *c* may be provided with several fliers of varying weight, which may be interchanged as desired.

What I claim as my invention is—

1. In a thread-unwinder, the spool-cap *c*, having a neck thereon at the bottom of the groove *e*, combined with the flier *n*, having curved spring actuated arms encircling said neck, substantially as set forth.

2. In a thread-unwinder, the spool-cap *c*, having a neck thereon at the bottom of the groove *e*, combined with the flier *n*, having curved spring-actuated arms encircling said neck, and the S-hook *z*, substantially as set forth.

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Witnesses:
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