W. A. PRENTISS.

SPOOL.

APPLICATION FILED MAR. 16, 1921.

1,425,895.

Patented Aug. 15, 1922.

2 SHEETS—SHEET 1.

Fig. 1.

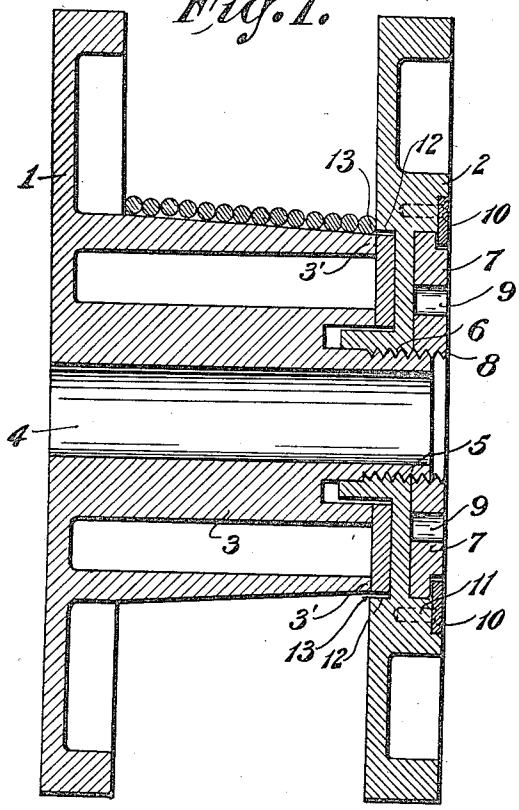


Fig. 2.

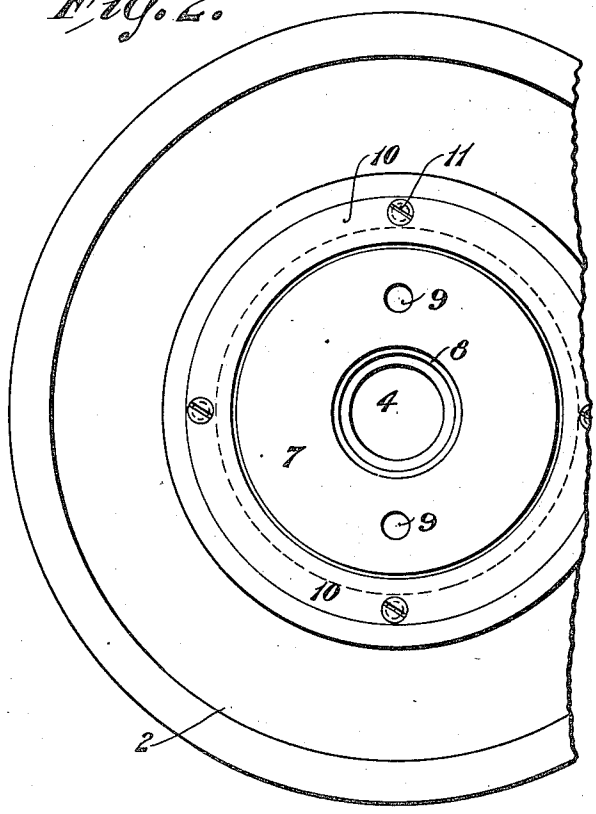


Fig. 3.

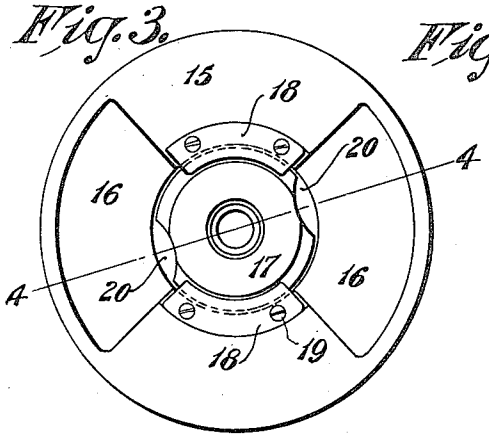
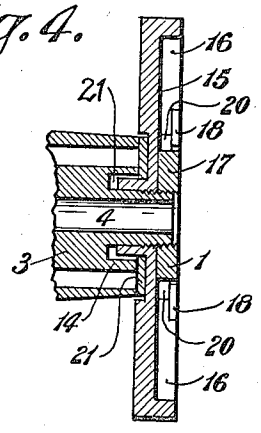


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 5.

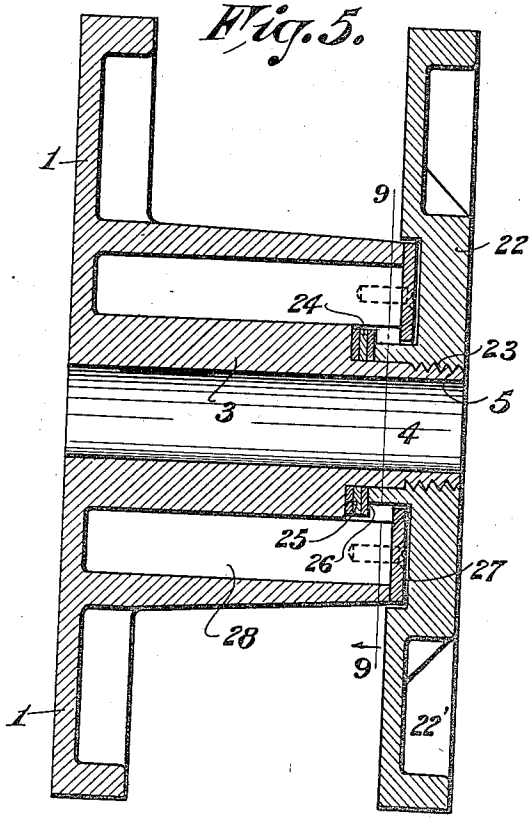


Fig. 6.

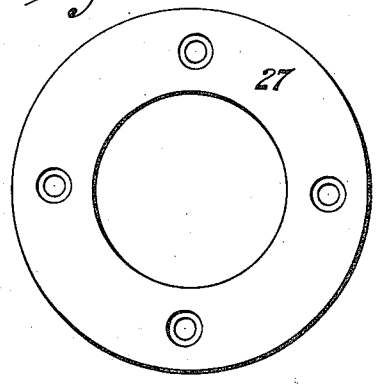


Fig. 7.

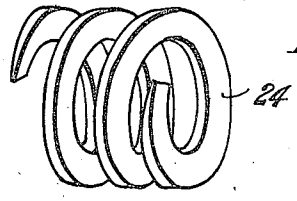


Fig. 8.

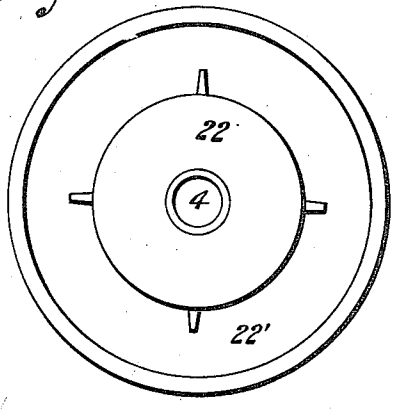
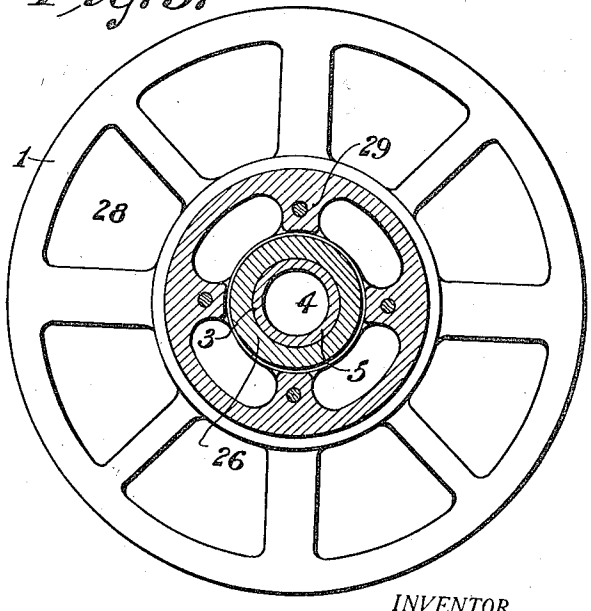


Fig. 9.



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SPOOL.

1,425,895. Specification of Letters Patent. Patented Aug. 15, 1922.

Application filed March 16, 1921. Serial No. 452,731.

To all whom it may concern:

Be it known that I, WILLIAM A. PRENTISS, a citizen of the United States of America, residing at Holyoke, in the county of Hampden and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Spools, of which the following is a specification.

This invention relates to improvements in spools of the type shown in my prior United States Patent No. 1,316,972, dated September 23, 1919, and is designed for receiving a coil of wire that is to be unwound for various uses such as when placed on a stapling machine, such as are used for securing magazines or other printed matter together. It may also be used for receiving a coil of ribbon, as well as round, wire.

An object of the invention is to provide a spool which has a fixed and a removable head member, and cooperating with the removable head are suitable devices for attaching and readily detaching the removable head from the hub or core part, and at the same time exerting an endwise or axial pressure on the turns of the coil of wire.

A further object is to provide devices for retaining the removable head in place on the core when not in use, and at the same time to permit it to be easily removed by the operator for the purpose of placing a coil of wire on the hub, or removing one therefrom.

Referring to the drawings:

Fig. 1 is understood to be a vertical sectional view through the axis of the spool, showing the locking devices for retaining the removable head in place on the hub.

Fig. 2 is an end view of Fig. 1, looking from the right and showing the locking plate with spanner receiving recesses therein.

Figs. 3 and 4 are detail views of a modification of the tightening or removable head locking device, which is designed to be operated by the fingers of the operator.

Fig. 5 is a further modification showing a coiled spring for locking the removable head in place.

Fig. 6 is a detail view of the plate for holding the spring 24 in place and closing in whole or in part the openings in the hub part of the spool.

Fig. 7 is a detail view of the locking spring before it is compressed.

Fig. 8 is a detail outside view of the removable head shown in Fig. 5, on a smaller scale.

Fig. 9 is a transverse sectional view on the line 9—9 of Fig. 5, showing the cored out openings in the hub.

Referring to the drawings in detail: 1 designates the fixed head, 2 the removable head, 3 the hub or core part of the spool in which an opening 4 is formed. This opening is for receiving the spindle of the machine on which the spool is to be used when the wire is being unwound from the spool. The hub 3 is formed with a threaded outer end portion 5 which receives the threads 6 of the removable head 2. 7 designates a locking ring or plate for the head 2, having the threads 8. This plate is formed with openings 9 to receive the projections of a spanner wrench, whereby the locking ring, or plate 7 may be tightened on the hub 3. The locking ring 7 is rotatably secured to the head 2 by means of the ring 10, which is attached to the head 2 by the screws 11. The head 2 is formed with an annular recess 12, the outside or extreme diameter of which is slightly greater than the diameter of the outer end of the core 3, as indicated at 3′; whereby when the head 2 is threaded onto the core, the recess 12 will permit it to extend slightly over the end of the core 3, as indicated at 13. By having the extreme diameter of the annular recess 12 greater than the diameter of the outer end of the core the removable head will therefore exert an endwise or lateral pressure on the coil of wire and will hold the same firmly in place on the spool, and against the fixed head 1, thus preventing the turns of the coil from becoming displaced.

The fixed head 1 and the core 3 are preferably formed or cast in one piece, of any suitable material, as aluminum or any of its alloys, for the purpose of producing a structure that is durable, as well as light in weight.

Referring to the structure shown in Figs. 3 and 4. The hub portion 3 is formed with an annular recessed portion 14. The removable head 15 is formed with arc shaped depressions 16, clearly indicated in Fig. 3. The rotatable head locking ring 17, for holding said head on the core, is rotatably secured to the head 15 by means of the arc shaped plates 18 and the screws 19. The locking ring is formed with recesses or cut

out portions 20 to receive the finger and thumb of the operator, to permit the ring 17 to be rotated by hand for the purpose of tightening or securing the removable head 15 to the core.

Referring now to the structure shown in Fig. 5: The removable head 22 is made in one solid piece, or casting, having a threaded opening 23 to receive the threads 5 of the hub or core 3. This head is secured to the core by means of the locking spring 24 shown in Fig. 7, which is placed or located on an annular shoulder portion 25 of the hub 3. The opposite end of the spring rests against the annular ring portion 26 of the head 22, whereby when the head 22 is threaded onto the hub, the coils, or turns of the locking spring are forcibly compressed and will automatically hold or retain the removable head in place, by reason of the expansive force of the spring.

It is understood that the head is tightened rather than loosened when the spool is rotated during the unwinding process. The operator may easily remove the head by hand when he wishes to take it off or place a new coil of wire on the hub.

27 designates a plate that is located on the end of the hub, and as shown is for holding the spring 24 in place and also for closing the cored out openings 28 of the hub. It is secured in place by screws entering the threaded openings in the ribs 29 (see Fig. 9). The head 22 is formed with a recess 22' for the purpose of lightness.

The operation of the structure shown in Figs. 1, 2, 3, and 4, may be described as follows: The removable head 2 is threaded onto the hub or core 3 until sufficient pressure is placed on the turns of the coil, then the ring 7, or the ring 17 in Fig. 3 is turned independently of the head, thus locking the same firmly to the hub or core. In order to remove the head 2, or the head 15, it is only necessary to first loosen the ring 7, or the ring 17, when the head as a whole can be removed, as readily understood.

In the structure shown in Figs. 5 to 9 it is only necessary to turn the removable head in a reverse direction. It will be seen that in all of the structures the locking feature consists in imparting lateral or axial pressure on the threads.

What I claim is:

1. In a device of the kind described, the combination, of a fixed and a removable head, a hub or core portion, means for attaching the removable head to the core portion, said means comprising a thread formed on the hub, a cooperating thread on the removable head, and means mounted on the removable head and formed with a thread for engaging the threads of the hub and serving to lock the removable head onto the hub, as described.

2. A spool, comprising a fixed and a removable head, the fixed head having a core formed integral therewith, said core having a threaded end portion to receive the removable head, and means on the removable head for locking the removable head to the core, comprising a rotatable plate.

3. A spool, comprising a fixed and a removable head, a core portion, a thread formed thereon to receive the removable head, means separable from the head proper for locking the head to the threaded portion, said means comprising a threaded ring, and means for retaining the ring in place.

4. In a spool structure, the combination with a fixed and a removable head, a core member integral with the fixed head and formed with a threaded portion which extends beyond the main body part of the core, the removable head having a thread to engage the threaded part of the core and the inner surface of the removable head being recessed to receive the end portion of the main body part of the core the end of the core having a recessed part and the removable head having a projection which enters the recessed part, whereby the removable head may exert pressure on the coil when mounted on the core.

5. In a spool structure, the combination with a fixed and a removable head, a core member integral with the fixed head and formed with a threaded portion which extends beyond the main body part of the core, the removable head having a thread to engage the threaded part of the core and a ring rotatably mounted on the removable head for engaging the threaded part of the core, the inner surface of the removable head being recessed to receive the end portion of the main body part of the core, whereby the removable head may exert pressure on the coil when mounted on the core.

WILLIAM A. PRENTISS.