W. A. PRENTISS.

SPOOL DEVICE.

APPLICATION FILED AUG. 9, 1917.

1,265,110. Patented May 7, 1918.

Fig. 1.

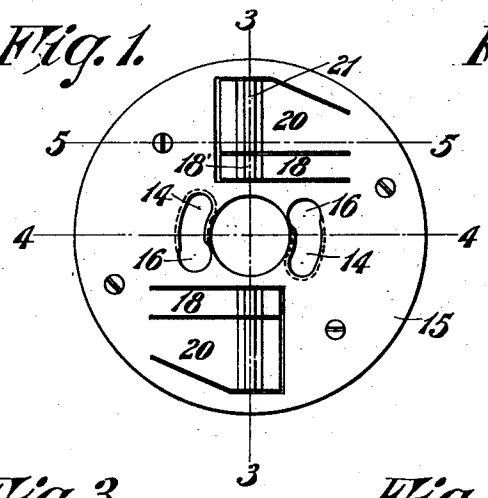


Fig. 2.

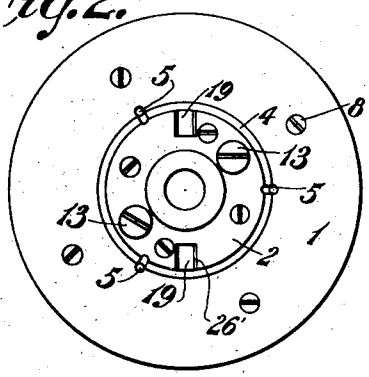


Fig. 3.

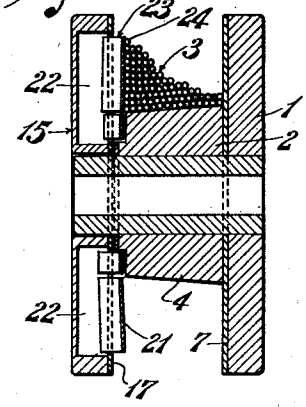


Fig. 4.

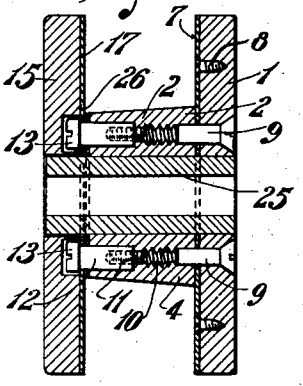


Fig. 5.

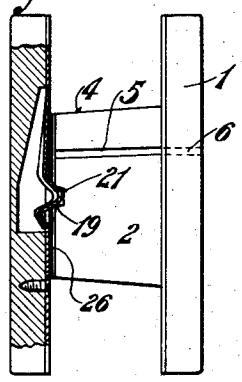
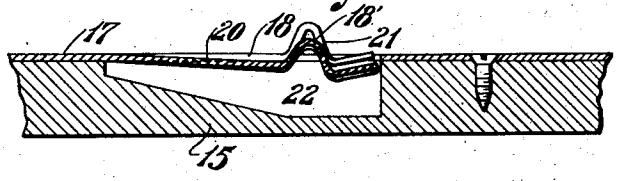


Fig. 6.



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SPOOL DEVICE.

1,265,110. Specification of Letters Patent. Patented May 7, 1918.

Application filed August 9, 1917. Serial No. 185,261.

To all whom it may concern:

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

This invention relates to improvements in spools for holding coils of wire, while being unwound, as for example, in machines for inserting wire staples in books and magazines.

An object of the invention is to provide a spool in which the coil of the wire that is to be unwound can be readily placed on to the spool.

A further object of the invention is to provide a spool in which one head is readily removable and with means for automatically holding the head clamped or retained in place after the coil of wire has been placed on the core or hub of the spool.

A further object of the invention is to automatically exert a constant and progressive pressure on the layers or turns of wire that is being unwound, or, in other words, the pressure is exerted on the outermost layer of the coil during the unwinding process for preventing the hanks of turns of wire from becoming displaced during the unwinding operation.

Referring to the drawings:

Figure 1 is a plan view of the inner surface of the removable head showing the metal plate that is secured to the wooden portion of the head and with the integral struck-up elastic finger-like portions, also, the arc-shaped slots for receiving the heads of the connecting screws that are located in the end of the core of the spool;

Fig. 2 is a plan view of the other portion of the spool looking at the end of the core to which the head, shown in Fig. 1, is detachably secured and illustrating the recesses for receiving the struck-up portions of the elastic fingers that retain the removable head locked to the core;

Fig. 3 is a vertical sectional view of the spool taken on a plane indicated by the broken line 3—3 of Fig. 1 showing the spring fingers engaging the recesses in the end of the core or hub, and, also the spring fingers that normally press against the sides of the coil of wire. This figure also illustrates the inclined surface of the struck-up portion of the last mentioned fingers;

Fig. 4 is an assembled view illustrating the manner of securing the parts of the spool together; particularly the heads of the screws engaging the recesses in the removable head;

Fig. 5 is a detailed sectional view taken on a plane indicated by the section line 5—5 of Fig. 1; and

Fig. 6 is an enlarged detail view of the spring finger which normally presses against the ends of the coil, and also the spring finger which enters the recess in the end of the core for retaining the removable head in place.

Referring to the drawings in detail: 1 designates the fixed end plate or head of the spool, 2 the core or hub portion which receives the coil of wire, a portion of which is indicated diagrammatically at 3. This core is made slightly tapering, as indicated at 4 in order to permit the ready insertion of the coil of wire. 5 indicates parallel grooves that are formed in the surface of the core 2 to receive the binding wires which hold the turns of wire of the coil together, the inner end of which coil may be passed through the opening in the fixed head 1. In order to prevent the wire from wearing the head 1, the same is covered with metal plate indicated at 7 that is secured thereto by means of the screws 8. The core 4 is secured to the head 1 by means of the screws 9, a portion of which is formed with a thread 10 which is like the usual wood screw, the other portion of which is formed with a machine screw thread for the purpose of receiving the thread in the inner end of the machine screw 12. These screws are formed with an enlarged head 13 which is designed to enter the arc-shaped openings or recesses 14 of the removable head 15 shown in Fig. 1. The ends of these recesses are formed with an enlarged circular shaped part, indicated at 16, whereby when the heads 13 of the screws 12 are inserted in the openings 16, and the removable head 15 is given a slight rotary motion the head 15 will be locked to the hub part of the spool. These arc-shaped slots are cut in the metal plate 17 which is secured to the inner surface of the removable head 15. For the purpose of retaining the head 15 securely in place spring fingers 18 are provided which are

formed with struck-up portions 18′ which portions enter the recesses 19 in the end of the hub 2. (See Fig. 5). These fingers will exert an outward pressure on the head 15 which will produce a constant tendency to move the head 15 against the heads 13 of the screws 12. Located adjacent to the spring fingers 18 are a second set of spring fingers 20 which are also provided with struck-up and curved portions 21. These fingers as well as the fingers 18 are preferably struck-up from a cut out portion of the metal plate 17 which have free movement within the recesses 22 of the head 15. The spring members 20, it will be observed, have the edge of the struck-up portions 21 formed on an incline, as clearly shown in Fig. 3, the purpose of which is to exert a constant and progressive pressure on the turns of wire, as the coil is being unwound, and, for preventing the different layers of wire from becoming displaced. This is clearly indicated in Fig. 3 where the outer end 23 of the spring finger 20 is engaging the uppermost turn of the coil of wire, indicated at 24, and it is evident that as the coil is unwound this inclined surface will exert a progressive pressure toward the center of the spool. Extending through the two heads of the spool is a hollow core member 25, through which passes a rod when the wire is being unwound to permit the spool and coil to rotate freely. It is also within the province of my invention to make the spring fingers 18 and 20 of separate pieces of metal and to secure them in openings cut in the metal plate 17 if desired. It will be noticed that the end of the core 2 is provided with a metal plate 26 having openings 26′ cut therein, which register with the recesses 19 in the end of the hub 2. The struck-up portions 18′ will engage either the bottoms of the recesses 19 or the sides of the openings 26′.

From this description it will be seen that I have provided a separable spool that will permit one head to be readily removed for placing the coil thereon, and, to exert a constant pressure on the ends of the coil for retaining the turns in place during the unwinding process.

What I claim is:

1. A separable spool, comprising, a core, a fixed and a removable head secured to the core, means for temporarily securing the removable head in place on the core consisting of spring elements on the removable head that engage the core or hub of the spool to exert an outward pressure against the attaching means between the removable head and core.

2. A spool having a fixed and a removable head, means for detachably securing the removable head in place, comprising a bayonet joint construction between the removable head and the core of the spool, and a spring device on the removable head to exert an outward movement on the removable head, and means on the hub to receive the spring device whereby the removable head is retained in place.

3. A spool for unwinding wire having a fixed and a removable head, a spring device on the inner face of the removable head for exerting a progressive pressure in the direction of the axis of the spool on the side of the layers of wire during the unwinding of the coil.

4. A spool having a fixed and a removable head, a core, means for connecting the heads thereto, means on the removable head comprising spring members with elevated portions for retaining the removable head in place on the core means and for exerting pressure on the ends of the coil, respectively.

5. A spool having a removable head, means for securing the same in place, comprising projections with enlarged heads on an end of the core, a slotted plate secured to the removable head to receive the heads of the projections, a spring device engaging the core for exerting an outward pressure on the removable head, and other spring devices to engage the coil to retain the layers of wire in place.

6. A spool comprising, in combination, a fixed and a removable head, a core or hub part, screws passed through the fixed head and into one end of the core screws in the other end of the core having threaded recessed ends and engaging the first mentioned screws, the last mentioned screws having enlarged heads for engaging recesses in the removable head to detachably retain the removable head in place, means consisting of spring fingers to lock the removable head against movement and other spring fingers having inclined surfaces for exerting a constant pressure on the ends of the coil when placed on the core.

WILLIAM A. PRENTISS.