R. C. FAY.

Bobbin and Spool.

No. 200,706. Patented Feb. 26, 1878.

Fig. 1.

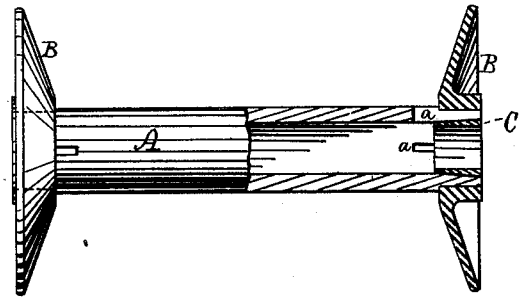


Fig. 3.

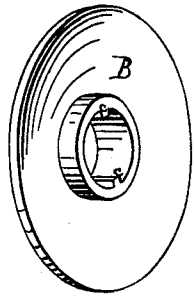


Fig. 2.

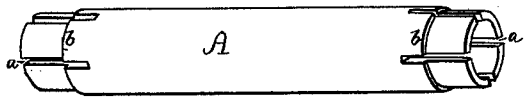


Fig. 4.

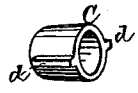


Fig. 5.

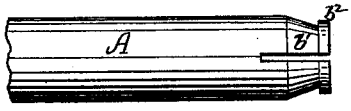


Fig. 6

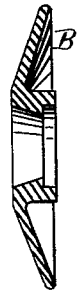


Fig. 7.

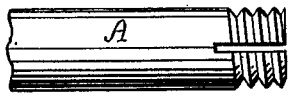
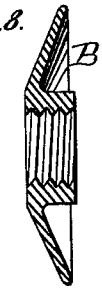


Fig. 8.



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UNITED STATES PATENT OFFICE.

RIMMON C. FAY, OF PAWTUCKET, RHODE ISLAND.

IMPROVEMENT IN BOBBINS AND SPOOLS.

Specification forming part of Letters Patent No. **200,706**, dated February 26, 1878; application filed December 7, 1877.

To all whom it may concern:

Be it known that I, RIMMON C. FAY, of Pawtucket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Bobbins and Spools; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a clear, true, and complete description thereof.

The object of my improvements is to provide a practically suitable spool for the wire trade.

The comparatively novel use of wire as a binder in harvesting-machines, in book-making, and in other connections has created an extensive demand for carefully-spooled wire. Spools for this service must necessarily be of considerable capacity, of great strength, not only for withstanding the rotative strain incident to receiving the wire under a laying and straightening tension, but also for withstanding longitudinal strain against the inside of the heads incident to the laying of the wire in accurate and complete courses.

Spools, when heavily laden with wire, are liable to accidental dropping, as well as to careless handling, and great strength is requisite for withstanding injury. While strength is an obvious necessity in such spools, it is of importance that they be as light as is consistent with the uses intended; and the wire itself for some uses being a comparatively inexpensive commodity, it is also important that the cost of spools be as low as possible after their several essential requirements have been duly considered.

While some of the heavier bobbins and spools heretofore employed in textile manufactures might be used with varied results in the wire trade, I know of none which will meet all of the requirements stated, and, so far as my knowledge extends, no bobbins or spools prior to my present invention have ever been designed with special reference to the uses specified.

The main feature of my invention consists in the combination, with a wooden body or barrel having an abutting shoulder near each end, of metallic heads provided with hubs, and a tapering plug at each end, which expands the body into close contact with the hub. The abutting shoulder on the barrel prevents the head from being driven inward, and the expanded end of the body prevents the head from being forced off by the pressure of the wire at the end of each course in winding.

For securing perfect unity of the head with the barrel, my invention further consists in the combination, with a wooden barrel provided with a shoulder and with slotted ends, of a metal head having a hub provided with one or more interior longitudinal webs, each of which occupies a slot in the barrel; and to secure the tapering plug, it is also provided with one or more exterior longitudinal webs, each of which occupies a slot in the barrel; and to provide for using the bobbins on a spindle in winding the wire, and for delivering it, as in a harvester, I make the tapering plug hollow, so that it serves as a bushing. The slots in the barrel not occupied by the webs on the head and plug serve as recesses for the reception of a dog on a winding-spindle, by which the spool is rotated. The inner ends of the same slots serve as holders for the end of the wire at the beginning of the winding operation.

To more particularly describe my invention, I will refer to the accompanying drawings, in which—

Figure 1 represents, partly in side view and partly in section, a spool embodying all of my improvements. Fig. 2 represents the barrel of the spool with heads detached. Fig. 3 represents one of the heads detached. Fig. 4 represents the conical plug and bushing detached. Fig. 5 represents one end of a spool-barrel with a tapered and a square shoulder. Fig. 6 represents, in central section, a head adapted to receive the end of barrel shown in Fig. 5. Fig. 7 represents one end of a barrel provided with a coarse screw-thread, each thread serving as a double shoulder. Fig. 8 represents in section a metal head, with its hub internally threaded for receiving the barrel, Fig. 7.

The barrel A is composed, preferably, of hard wood, and it may be chambered throughout, or not, as may be desired. I prefer, however, that it be so chambered.

The heads B are preferably of cast-iron, and are provided with a hub. In most cases the tapered or dished head is preferred; but they may be flat, if desired. The tapered plug C is also preferably of iron.

When the barrels are not chambered throughout, they are bored for a short distance at each end and provided with the slots *a*, which admit of the ends being slightly contracted for entering the hub, and freely expanded by the tapering plug. In all cases an abutting shoulder, as at *b*, is provided on the barrel for resisting the inward movement of the head. This shoulder may be square or inclined, as shown; or a series of shoulders in the form of a screw-thread may be employed. If the barrel be not bored throughout, the tapered plug is provided with a stud, which serves as an axis for the spool. When bored, the plugs are hollow, as shown, and serve as bushings.

The webs *c* on the interior of the hub enter the slots *a* in the barrel, and the webs *d* on the plug in like manner also enter slots, as shown.

The barrel shown in Fig. 5 has two shoulders, one of which is inclined, as at b^1, and the other is square, as at b^2, and the hub of the head, Fig. 6, is correspondingly fitted to receive the end after it is compressed, as is permitted by the slots. After being entered, the end expands and fills the hub. The inclined shoulder prevents the head from being moved inward, and the square shoulder prevents it from being moved outward, and the tapering plug renders the connection complete.

The slots *a* in the barrel are longer than the thickness of the head and length of the hub, and their inner ends serve as end holders for the wire which is to be wound on the spool. The outer ends of these slots, not occupied by the webs on the head or plug, afford recesses for the reception of the fingers of a driving-dog on a spindle in a winding-machine.

It is to be understood that for general uses I prefer a spool embodying all the features shown in the drawing; but in spools for light service good results will be attained if the tapering plug and the hub of the head have no webs, and, by accurate fitting, the slots in the barrel may be dispensed with.

I do not limit my invention to a head and hub cast in one piece, because I am well aware that the head may be struck up in dies from sheet metal, and provided with shoulders or recesses, with which a hub may securely engage.

I sometimes prefer to provide the outer end of the hub with recesses for the reception of the fingers of a dog in a winding-machine, instead of using the slots in the barrel for that purpose, as before described.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a spool or bobbin, the combination, with a wooden body or barrel having an abutting shoulder near each end, of metallic heads provided with hubs, and conical plugs which expand the ends of the barrel within the hubs, substantially as described.

2. The combination, with a wooden barrel having an abutting shoulder and longitudinal slots at each end, of a metallic head and hub provided with interior longitudinal webs and a conical plug, substantially as described.

3. The combination, with a wooden barrel having an abutting shoulder and longitudinal slots at each end, of a metallic head and hub, and a conical plug provided with exterior longitudinal webs, substantially as described.

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