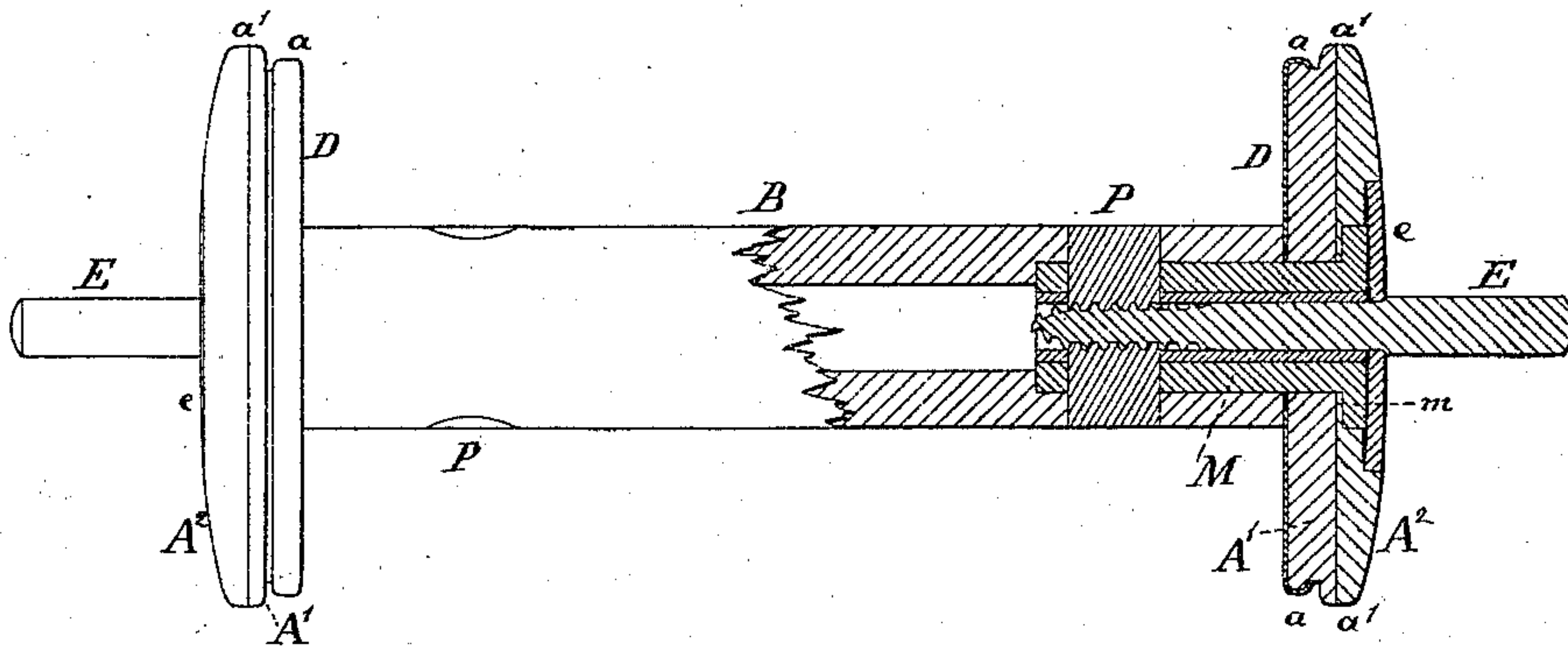


A. CARMICHEL.

**S p o o l s .**

No. 135,626.

Patented Feb. 11, 1873.



Witnesses:

Inventor:

Arnold Hermann.  
Hf. Westbrook

A. Carmichael  
by his atty J. S. Stetson  
New York

# UNITED STATES PATENT OFFICE.

ALEXANDER CARMICHEL, OF WESTERLY, RHODE ISLAND, ASSIGNOR TO  
HIMSELF AND JOSEPH DEWS, OF SAME PLACE.

## IMPROVEMENT IN SPOOLS.

Specification forming part of Letters Patent No. 135,626, dated February 11, 1873.

*To all whom it may concern:*

Be it known that I, ALEXANDER CARMICHEL, of Westerly, Washington county, Rhode Island, spool manufacturer, have invented certain Improvements relating to Spools, of which the following is a specification:

The invention is adapted for jack-spools, warper-spools, and generally for all grades of large spools used in every branch of fibrous manufacture.

Spoos having the inner face and outer edge or rim of each head covered with sheet metal have been put in the market by myself and associates. The metal being tightly spun upon the wood does much to insure a durable smoothness of these portions of the spool, and thus to reduce the liability of the yarn becoming caught in any roughness on the head, and thus being broken in being wound off from the spool. The importance of a small gain in this respect has led to a large demand for spools so protected.

A difficulty attending the use of such spools arises from the liability of the metal to become bruised at and near the edges of the heads. This accident is frequent especially when boys and careless operatives strike the spools heavily laden with yarn upon any hard object. The present improvement overcomes or reduces this evil by providing a false rim outside of the true or metal-coated rim and out of contact with the yarn, which false rim projects out further than the true rim and serves as an efficient protector. The invention also provides a very efficient and firm fastening of the heads upon the barrels.

The following is a description of what I consider the best means of carrying out the invention:

The accompanying drawing forms a part of this specification, and represents the improved spool partly in elevation and partly in section.

Referring to the drawing and the letters of reference marked thereon,  $A^1 A^2$  are separate pieces of bass-wood glued together, with the grain of the one piece crossing that of the other to form tough and durable heads. B is the main body of the barrel, which may be of the same relatively soft wood. D D are tinned iron plates spun upon the wood and fitting over beads or outer rims  $a$  of the heads,

as shown. Each head is turned with a groove in its rim and with the two beads or swells  $a$  of unequal prominence. The outer bead or false rim  $a'$  should project considerably beyond the inner or true rim  $a$ , and should have sufficient thickness to give a strong body. It is also preferable that this false bead should be turned on such a portion of the head that the dividing seam between the two thicknesses of wood shall come in the center. Thus formed it is a tough and strong protection for the true rim, and the spool thus constructed will bear throwing upon brick floors or upon hard or angular surfaces with impunity, and the false rim  $a'$  may become battered to an indefinite extent without the true rim  $a$  and the covering of thin metal D being in the least disturbed. So long as the true rim and metal covering remain unbruised or uninjured the yarn is delivered smoothly and without interruption.

I employ iron or steel gudgeons formed with a shoulder, as is common in the most approved constructions of spools; but I provide in addition thereto a more efficient fastening of each head to the barrel than I have before known.

E is the metal gudgeon; and  $e$ , a large sheet-metal washer, which is compressed upon the outer face of the head by the shoulder of the gudgeon when it is tightly screwed in. M  $m$  is a neck of cherry or other hard and strong wood, which is formed with a tolerably stout body, M, and a broad head,  $m$ , and sunk into a corresponding hole in the head and firmly glued. The neck M  $m$  is attached to the head  $A^1 A^2$  by being thus fitted and firmly glued in advance of the screwing of the head to the barrel. The barrel is bored to receive the neck M, and the necks are glued tightly in the hole thus formed. Now, on boring across the axis of the barrel, and inserting the box-wood or other hard plug P, and properly boring and threading it to receive the gudgeon E, and the whole being glued, the connection, when the gudgeon E is tightly screwed up, is made more than usually firm. The piece P, which I call a key-nut, performs not only its usual function of receiving and forming a tight hold for the screw-gudgeon E, but also the additional function of firmly keying in the



neck M, and thus holding the head by both the neck and the gudgeon.

I claim as my invention—

1. A spool having the inner faces of the heads and the true rims covered, as shown, and having false rims exterior to the covered true rims, and arranged to serve as protections therefor, as herein set forth.

2. The necks M *m*, shouldered in the heads of the spool and let into the barrel and secured

by key-nuts, in combination with threaded gudgeons screwed in the said key-nuts, as specified.

In testimony whereof I have hereunto set my hand this 28th day of December, 1872, in the presence of two subscribing witnesses.

ALEXANDER CARMICHEL.

Witnesses:

THOS. H. PEABODY,  
J. ALONZO BABCOCK.