

SP00L.

988,755.

Patented Apr. 4, 1911.

FIG. II is a plan view of a mechanical device. It features a central rectangular frame (2) with a horizontal bar (1) at the top and a vertical bar (6) on the left. A cylindrical component (10) is mounted on the left side of the frame, with a horizontal shaft (3) passing through it. The shaft is secured by a nut (17) and a washer (15). A bracket (11) is attached to the shaft, and a spring (12) is connected to it. A small component (13) is also visible. The right side of the device is symmetrical to the left, with a similar cylindrical component (10) and shaft (3) assembly. The entire device is supported by a base (9).

FIG. III is a detail view of a component (4) from FIG. II. It shows a curved surface (9) and a small circular feature (4).

John C. Bergner.
James H. Bell

Charles A. Brinley,
By Mary Paul.
Attorneys.

UNITED STATES PATENT OFFICE.

CHARLES A. BRINLEY, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE AMERICAN PULLEY COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

SPOOL.

988,755.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES A. BRINLEY, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Spools, whereof the following is a specification, reference being had to the accompanying drawings.

In said drawings, Figure I, represents an end view of a spool embodying my invention. Fig. II, is an axial section thereof on the line II, II, of Fig. I. Fig. III, is a perspective view of the bushing-cup before its union with the barrel.

My invention is especially adapted for use in connection with what are known as "jack-spools", whose parts are to a great extent pressed or stamped from sheet metal.

In Letters Patent of the United States No. 715,729, dated December 9th, 1902, there is shown and described a jack-spool having certain structural features which bear a resemblance to those of the present invention in that the journals of the spool are formed of relatively short rods, which do not extend throughout the entire axis thereof, and which are secured within the barrel or drum by means of cup-shaped bushings.

Among the objects of the present invention are to provide means for firmly attaching the head to the barrel, without any tendency to rock or shift, and to permit the construction of the barrel from a thin sheet of metal whose edges may merely abut, without the use of rivets, screws or other fastening devices.

Referring now to the drawings, the heads of the spool are indicated at 1, 1, the barrel at 2, the journals at 3, 3, and the bushing-cups at 4, 4. As the heads, journals and bushings are counterparts of one another, a single description will suffice.

The head is preferably provided with a peripheral rolled bead 5, and with outwardly projecting ribs 6, to afford greater stiffness. At the region indicated at 7, an abrupt annular shoulder is formed around the center of figure of the head, so as to form a recess of cylindrical form and having substantial depth, on the inside face of the head. Openings 8, are preferably arranged at intervals within the periphery of the shoulder 7, and at a distance therefrom equal to the thickness of the metal from

which the barrel 2, is formed. The barrel is cylindrical throughout its entire length, the metal adjacent to the periphery at the extremities thereof being at right angles to the general plane of the metal of the head.

The bushing-cup 4, is preferably integral, and provided around its edge with a series of projections 9, corresponding in number and location with the openings 8, and of such size as to fit snugly in said openings. The external periphery of the bushing-cup fits closely within the barrel and is welded thereto, throughout a sufficient portion of its surface to afford a firm internal joint, the welding being preferably effected by means of the electric welding process now in use, although this result may be otherwise accomplished. The position of the bushing-cup when thus welded, is such that the projections 9, protrude beyond the end of the barrel 2, to an extent not substantially greater than the thickness of the metal of the head at the region immediately adjacent to the recess formed by the shoulder 7.

When the device is to be employed with the non-continuous journal rods shown, the same are constructed and applied as follows:—A central opening 10, is formed in the head, to permit the entrance of the journal rod, whose diameter, at the portion 11, located within the bushing-cup and for a short distance beyond the outer surface of the head, is somewhat greater than that of the extreme outer end portions 3. The inner end of the journal-rod is provided with a T-shaped head 12, of proper diameter to be capable of insertion through an elongated opening 13, formed in the inner end of the bushing-cup 4, the dimensions of the opening and head 12, being such that when the head 12, after being inserted through said opening, is turned at right angles thereto, the T-shaped projections will engage with, and afford a firm bearing against, the bottom of the bushing-cup. The enlarged portion 11, of the journal-rod is threaded for a short distance at the region 15, which protrudes immediately beyond the outer face of the head, and a nut 16, engages with said threaded portion so as to permit the drawing of the parts together and the clamping of the T-shaped head 12, against the bottom of the bushing-cup 4. Said nut may be provided with holes 17, so as to permit the turn-

ing thereof by means of a spanner, thus obviating the projecting corners of an ordinary nut.

The parts can be readily assembled by inserting the projections 9, of the bushing-cups, through the openings 8, in the respective heads 1, the ends of the barrel being seated within the recesses formed by the shoulder 7. The journal-rods 3, with their T-shaped heads 12, are then inserted in the proper position for passage of their heads through the elongated openings 13. The journal-rods are then turned at right angles to their former position, the nuts 15, are slipped over the outer ends of the journal-rods and screwed up against the faces of the head, so that the parts are firmly clamped together. Great security in the attachment of the barrel to the head is thus afforded, since the engagement of the projections 9, in the openings 8, and the abutment of the end portion of the barrel 2, within the recess formed by means of the shoulder 7, absolutely prevent any tendency on the parts to rock or turn with relation to one another.

It will be seen that by the above construction I can employ relatively very thin sheet metal for the barrel, since the welding of the journal cups thereto reinforces the structure of the barrel as a whole, and insures the maintenance of the abutting ends of the sheet in proper relation to one another, without rivets or other fastening devices. Furthermore, while the attachment of the heads to the barrel is very secure, there is no substantial protrusion of the projections 9 or other securing devices beyond the external surface of the metal of the head, as is the case where riveted tangs are employed to attach the barrel to the head; moreover, the parts can be easily assembled and are readily detachable from the bushing cup and barrel.

Having thus described my invention, I of course wish it to be understood that I do not broadly claim the use of a bushing-cup in connection with the barrel and journal-rod, since such a device is described in the Letters Patent above mentioned, but in such former construction there was no positive union between the bushing-cup and the barrel, and the attachment as a whole depended upon frictional engagement of the parts. Furthermore it must be understood that while I prefer to employ a projection or projections upon the bushing-cup and a corresponding opening or openings in the head,

in order to insure greater firmness of attachment, and also prefer to employ non-continuous journal-rods, I do not limit all my claims to such arrangements, since some of the advantages due to the feature of the barrel provided with a bushing-cup welded thereto, are independent of these particular embodiments.

I claim:—

1. In a spool or similar structure, the combination of a head having a recess of cylindrical form upon its inner face, and an opening in the bottom of said recess, near to the peripheral wall thereof; a hollow barrel having a cylindrical end portion, provided with a bushing cup secured in its interior, said bushing cup having a projection extending beyond the end of the barrel and adapted to enter said opening, the end of said barrel fitting snugly within said recess; and means for securing the bushing cup and barrel in the described position, substantially as set forth.

2. In a spool or similar structure, the combination with a head having a recess of cylindrical form upon its inner face, and openings near said recess; of a barrel provided with a bushing-cup welded thereto, said cup being provided with projections adapted to enter said openings, and the end portions of said barrel fitting snugly within said recess; a journal-rod adapted to be inserted through the head and to engage with said bushing-cup; and means for securing said journal-rod in position and clamping the head to the barrel, substantially as set forth.

3. In a spool or similar structure, the combination of a head having a recess of cylindrical form upon its inner face, the wall of said recess forming an abrupt shoulder around the bottom thereof; a barrel having a cylindrical end portion; a bushing cup welded upon the interior of said barrel, the end of said barrel fitting snugly within said recess and against said shoulder, and the bushing cup abutting against the bottom of the recess; and means for retaining said parts in the described position, substantially as set forth.

In testimony whereof, I have hereunto signed my name, at Philadelphia, Pennsylvania, this fifteenth day of July 1909.

CHARLES A. BRINLEY.

Witnesses:

JAMES H. BELL,
E. L. FULLERTON.