G. W. ADAMS.

SPOOL.

APPLICATION FILED FEB. 12, 1912.

1 091,106. Patented Mar. 24, 1914.

Fig. 1

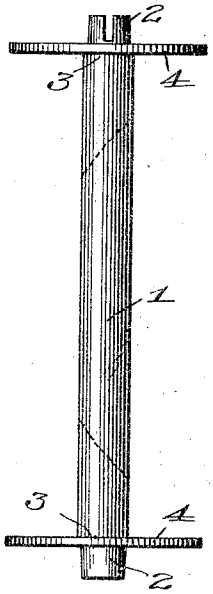


Fig. 3

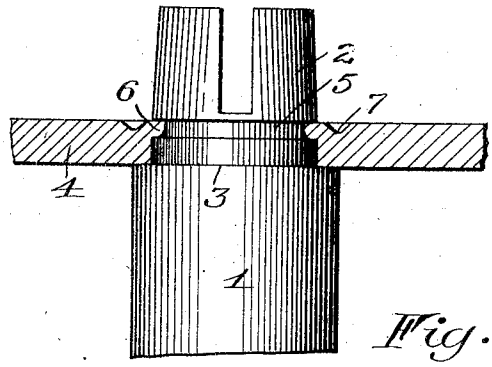


Fig. 5

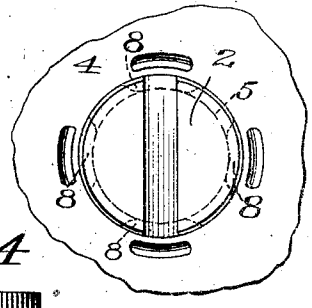


Fig. 4

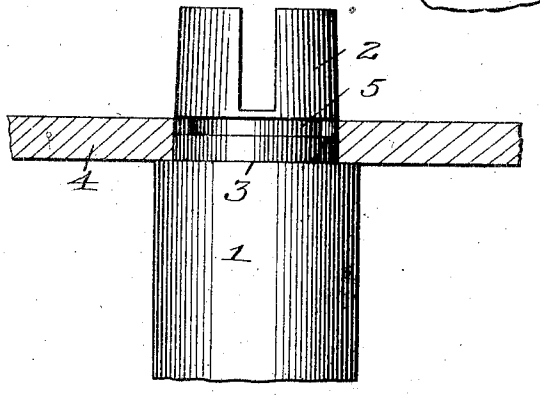
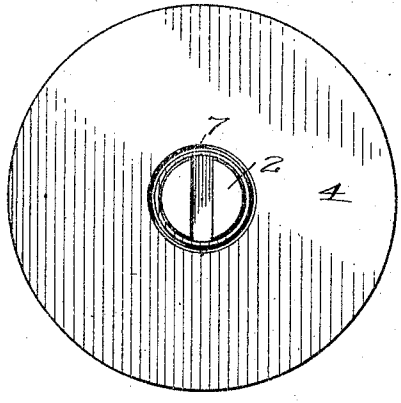


Fig. 2



Witnesses

Walter B. Payne

Nelson H. Epp

Inventor

George W. Adams

By Church & Church

his Attorneys

UNITED STATES PATENT OFFICE.

GEORGE W. ADAMS, OF ROCHESTER, NEW YORK, ASSIGNOR TO EASTMAN KODAK COMPANY, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

SPOOL.

1,091,106. Specification of Letters Patent. **Patented Mar. 24, 1914.**

Application filed February 12, 1912. Serial No. 677,104.

To all whom it may concern:

Be it known that I, GEORGE W. ADAMS, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Spools; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference-numerals marked thereon.

My invention relates to improvements in spools, with particular reference to metal spools, especially such as are employed for winding film in cameras, although susceptible of other uses as well, and it has for its object to provide a novel method of securing a disk on the spindle of a spool, in a simple and ready manner whereby it is impossible to remove the same without breaking the spool.

To these and other ends the invention consists in certain improvements and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings: Figure 1 is a view in side elevation of a film spool constructed in accordance with the present invention; Fig. 2 is a view in end elevation of the same; Fig. 3 is an enlarged sectional view; Fig. 4 is a similar sectional view, showing the relative position of the parts before the disk is secured in place, and Fig. 5 is a view of a modification.

Similar reference numerals throughout the several figures indicate the same parts.

The present embodiment shows one application of the invention, 1 designating the body portion of the spindle and 2 the reduced end portions. Shoulders 3 are afforded between the body portion 1 and the reduced end portions 2 of the spindle, said shoulders being adapted to support the disks 4. The reduced end portions 2 have formed thereon the annular grooves 5, as shown. The disks 4 are supported on the shoulders 3, and are held against movement on the end portions by means of inwardly directed projections or flanges 6. In order to form the flange 6 for engagement with the groove 5, I seat the disk 4 on the shoulder 3, as shown in Fig. 4, and then by means of a suitable machine, apply pressure to the disk at points surrounding the reduced end portion and substantially in vertical alinement with the shoulder 3, so as to upset the metal, and cause it to flow into the groove 5, as shown in Fig. 3. When the article is completed, the disk 4 has an annular recess or indentation 7 formed by the operation on the disk which results in the engagement of the projection or flange within the groove 5.

In Fig. 5, I show a modified form of the invention, where, instead of forming a continuous projection or flange, I provide a series of projections 8, adapted to engage the groove 5.

While I have described my invention in its particular application to a film spool, it is to be understood that I do not limit myself to the precise embodiment set forth, but intend to cover by this application any structure wherein a disk is affixed to a spindle in the manner hereinafter claimed.

I claim as my invention:

1. A spool comprising a spindle having a body portion, and a reduced portion, the reduced portion having an annular groove formed thereon, and a disk positioned about the reduced portion and supported against the body portion, said disk having an inwardly directed flange engaging the aforementioned groove and provided with an annular recess or indentation adjacent to said flange on the side farthest from the body portion.

2. A spool comprising a spindle having an annular groove thereon, and a disk arranged on the spindle and provided with a plurality of inwardly extending projections

engaging said groove, the thickness of the projections being less than the thickness of the disk.

3. A spool comprising a spindle having an annular groove thereon, and a disk arranged on the spindle and provided with a plurality of inwardly extending projections engaging said groove, the disk having a plurality of recesses or indentations in the face adjacent to said projections and coextensive with the latter.

GEORGE W. ADAMS.

Witnesses:
RUSSELL B. GRIFFITH,
H. E. STONEBRAKER.