F. C. STANLEY.

SAFETY ATTACHMENT FOR SHAFTS AND MANDRELS.

APPLICATION FILED JULY 27, 1914.

1,166,722. Patented Jan. 4, 1916.

FIG. 1.

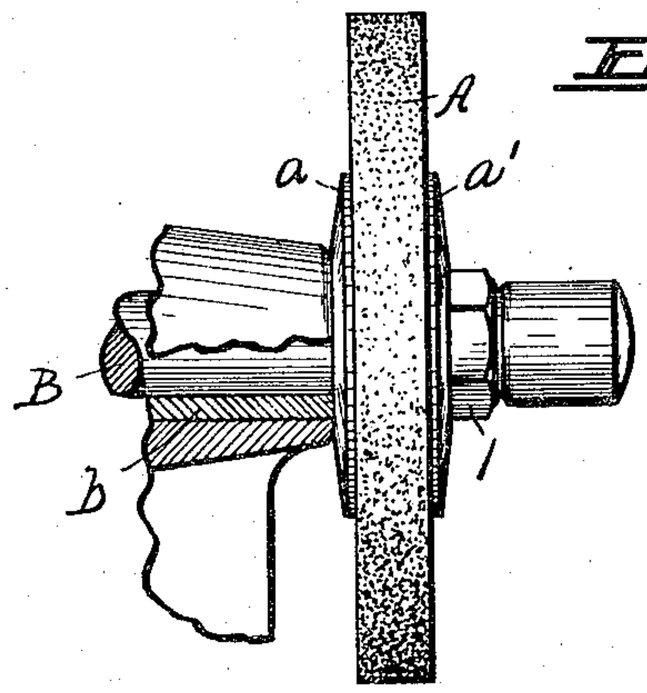


FIG. 2.

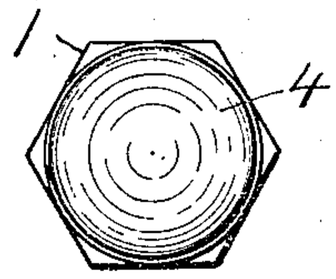


FIG. 3.

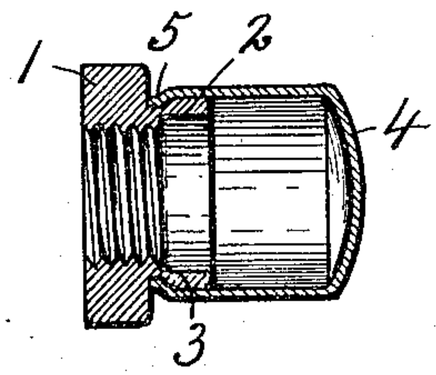


FIG. 4.

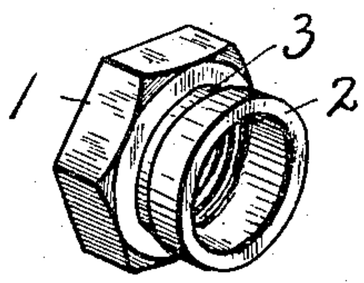


FIG. 5.

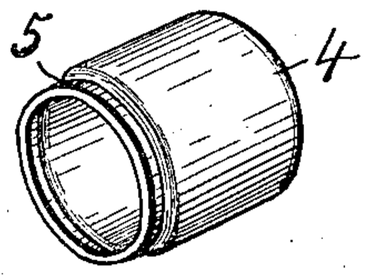
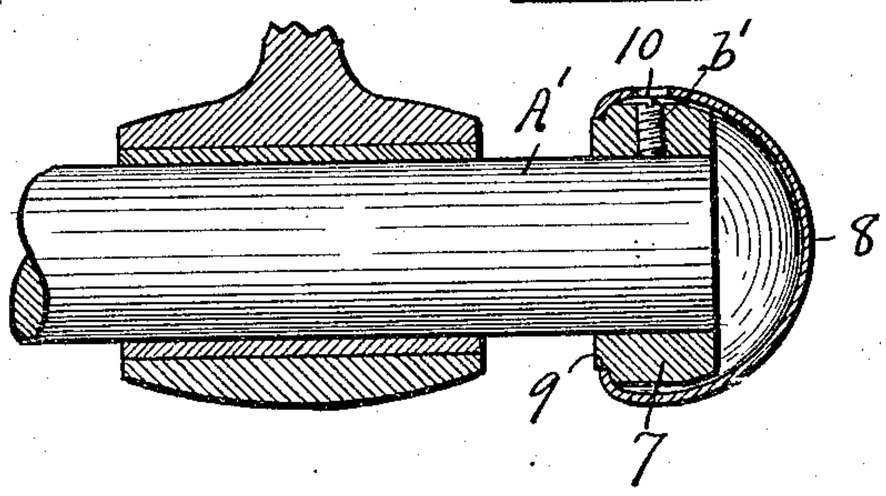


FIG. 6.



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SAFETY ATTACHMENT FOR SHAFTS AND MANDRELS.

1,166,722. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed July 27, 1914. Serial No. 853,483.

To all whom it may concern:

Be it known that I, FRANK C. STANLEY, a citizen of the United States, and resident of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Safety Attachments for Shafts and Mandrels, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in safety attachments for shafts, mandrels and other rotary elements having exposed parts which are more or less liable to catch the clothing of the operator or other person who may come in contact therewith, to cause serious injury to said person or damage to the machine of which the rotary element is a part.

The main object is to reduce the liability of such accident or damage by covering the more dangerous part of the rotary element with a cap or shield, which is normally free to rotate with said element but will cease to rotate under the slightest friction or resistance due to the contact of the person's clothing therewith, thereby preventing any possibility of such clothing becoming wound thereon to the danger or injury of such person.

Another object is to enable these safety devices to be made up in standard sizes as unitary articles of manufacture at a comparatively small cost, to be used more particularly on the exposed ends of shafts or mandrels carrying nuts or collars.

Other objects and uses will be brought out in the following description:

In the drawings Figure 1 is a face view, partly in section, of a portion of an emery grinding machine, showing the adjacent end of the mandrel equipped with my improved safety device. Fig. 2 is an end view of the safety device shown in Fig. 1. Fig. 3 is a longitudinal sectional view of the same device. Figs. 4 and 5 are perspective views respectively of the threaded section and cap section of said device. Fig. 6 is a sectional view, partly in elevation, of the end of a shaft or mandrel and its bearing, showing a slightly modified form of safety device applied to the end of the shaft.

In order that my invention may be clearly understood, I have shown in Fig. 1 a portion of an emery grinder consisting of a grinding wheel A held in place upon a mandrel B by means of clamping collars —*a*— and —*a'*— and a nut —1— engaging the threaded end of the mandrel, which latter is journaled in a suitable bearing —*b*— forming a part of the machine. The nut —1— is provided with a cylindrical extension —2— and an annular groove or bearing —3— at the junction of this extension with the angular portion of the nut. The open end of a cap section —4— is rotatably mounted upon the extension —2— to inclose and conceal the threaded end of the mandrel B, said open end of the cap section being crimped or contracted at —5— into the groove —3— to hold the sections —1— and —4— constituting the safety device against relative endwise movement, so that the cap becomes a permanent part of the nut although free to rotate thereon. The exterior of this cap is preferably smooth and cylindrical to further reduce the liability of catching objects which may come in contact therewith, and its closed end is also rounding or spherical and provided with a smooth exterior for the same purpose.

In Fig. 6, I have shown a slightly modified safety device consisting of a collar —7— and a cap section —8— rotatably mounted thereon, the collar being adapted to be secured to the end of a shaft, as A', by means of a set screw —*b'*— and is provided with a reduced annular bearing or groove —9— into which the open end of the cap —8— is crimped or contracted to hold the collar and cap against relative endwise movement and at the same time permit the cap to rotate freely on the collar.

The set screw —*b'*— is constructed so that when tightened its outer end lies wholly within the cap —8—, which is provided with a radial opening —10— in the same transverse plane as the set screw, so that it may be brought into registration therewith for the reception of a screw driver or other implement used in loosening or tightening the screw.

The cap shown in Fig. 6 is spherical, but it is evident that any form of cap may be used as one of the elements of this safety device without departing from the spirit of this invention, so long as the cap covers the exposed end of the shaft or mandrel and is

revolubly mounted upon the nut or collar which is secured to said shaft and forms the other part of the safety device.

What I claim is:—

1. In combination with a mandrel having a clamping collar on one end of a safety cap loosely journaled on the outer end of the collar to permit the latter to turn with the mandrel independently of said cap.

2. The combination with a mandrel having a threaded end, and a nut secured thereon and provided with an annular bearing, of a cap loosely journaled on said bearing and inclosing said threaded end.

3. In combination with a mandrel, a collar secured to one end of the mandrel to rotate therewith and a safety cap journaled on the collar and covering the end of the mandrel and permitting the mandrel with the collar thereon to rotate independently of the cap.

4. In combination with a mandrel, a collar secured to one end of the mandrel to rotate therewith and provided with a reduced annular bearing, and a safety cap journaled in said bearing and covering the end of the mandrel to permit said mandrel with the collar thereon to rotate independently of the cap.

5. In combination with a mandrel, a collar secured to one end of the mandrel to rotate therewith, a cap journaled on the collar to permit the mandrel and collar to rotate independently of the cap, said cap being extended some distance beyond the end of the mandrel and collar to allow a limited axial adjustment of said collar without disturbing its relation to the cap.

In witness whereof I have hereunto set my hand this 17th day of July, 1914.

FRANK C. STANLEY.

Witnesses:

H. E. CHASE,

VIOLA HOWLAND.