

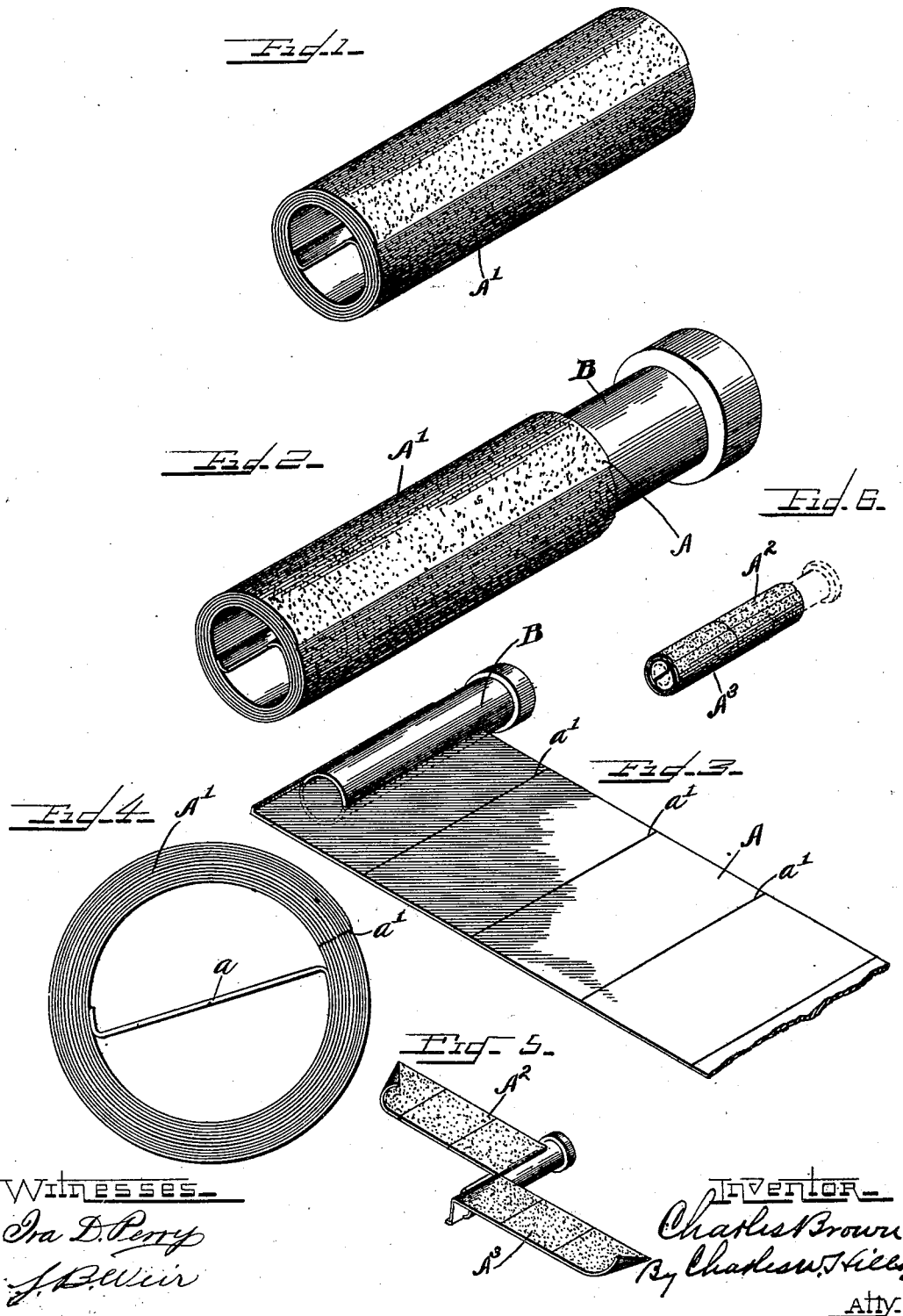
No. 676,487.

Patented June 18, 1901.

C. BROWN.
ABRASIVE SLEEVE.

(Application filed Aug. 10, 1900.)

(No Model.)



UNITED STATES PATENT OFFICE.

CHARLES BROWN, OF CHICAGO, ILLINOIS.

ABRASIVE SLEEVE.

SPECIFICATION forming part of Letters Patent No. 676,487, dated June 18, 1901.

Application filed August 10, 1900. Serial No. 26,453. (No model.)

To all whom it may concern:

Be it known that I, CHARLES BROWN, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Abrasive Sleeves; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in abrasive sleeves, and more particularly to a sleeve designed to be used for grinding, polishing, or the like.

The invention consists in the matters hereinafter described, and more fully pointed out and defined in the appended claims.

In the drawings, Figure 1 is a perspective view of a sleeve embodying my invention. Fig. 2 is a similar perspective view showing the sleeve secured upon the mandrel in position for use. Fig. 3 illustrates the construction of the sleeve. Fig. 4 is an end elevation of the sleeve. Fig. 5 is a view illustrating the mode of constructing one form of such a sleeve. Fig. 6 is a perspective view of the sleeve constructed as indicated in Fig. 5.

As shown in said drawings, A indicates a strip of flexible material having on one side an abrasive surface and having the other side gummed. One end of said strip is secured in a longitudinal slit in a mandrel B, as shown in Fig. 3, about which the remainder of the strip is wound, thereby producing a sleeve (indicated as a whole by A') which may be readily slipped from the mandrel when dry and consisting of a plurality of thicknesses or layers of the flexible material and having a web *a* extending diametrically across the sleeve. Obviously said sleeve may be of any desired size or length or may be constructed of any desired and suitable material, such as sand or emery paper or emery-cloth, or the flexible sheet may be coated with any other abrasive material.

When constructed of an abrasive paper, such as sand or emery paper, the strip on its under or smooth side may be creased transversely, said creases being parallel and herein indicated by *a'*, and so spaced, preferably,

that when the paper is rolled into tubular form, as indicated in Fig. 4, said creases will fall in a radial line.

The operation of a sleeve embodying my invention is as follows: My improved abrasive sleeves may be used with any grinding-machine having a mandrel similar to the mandrel B, (indicated in Figs. 2 and 3,) provided with a longitudinal slit. The sleeve is slipped on said mandrel with the web *a* fitting closely in the slit thereof, and thereby rigidly securing the sleeve from rotation thereon. The sleeve, if preferred, may be made sufficiently long to project beyond the end of the mandrel, as shown in Fig. 2. When the inner end of the same is worn, the sleeve may be slipped off and reversed and the unused end thereof utilized. After the first layer or outer cover of the sleeve has been used or worn out the operator may remove said first layer and present a new abrasive surface for use, the crease *a'* acting to facilitate tearing said sheet or strip transversely when unwound to that point. Obviously the sleeve may be constructed with any number of wearing or cutting surfaces, which are exposed for use successively as desired.

The web *a* serves a double purpose. It not only acts to retain the sleeve rigidly secured upon the mandrel when in use, but the same also acts as a stiffening or strengthening web and serves to hold said sleeve from being distorted in drying or by handling or pressure during transportation. Said sleeve may be constructed, if preferred, as illustrated in Figs. 5 and 6, in which A² A³ indicate, respectively, the ends of a strip designed to be secured at its middle part in a mandrel-slot, as before described. Said ends are provided on opposite sides with abrasive material and adhesive material and wound oppositely about the mandrel and their adjacent edges secured or cemented together, thereby forming a continuous sleeve similar to that described. In this construction the middle part of the strip constitutes the radial web about which the two ends of the same are wound oppositely. Obviously a straight strip of paper may be bent or folded at its middle part to permit the ends of the same being wound oppositely about the mandrel. As shown, however, a single piece of paper is slit to near one end thereof,

thereby forming a continuous strip, the two halves of which are offset one from the other and which when extended oppositely, as indicated in Fig. 5, have intermediate of the ends a part adapted to form the web and designed to engage in the mandrel. The wear on such sleeve is mostly at one end. Such being the case, after one end of the sleeve has been worn out the other end may be brought into use. Obviously the parts of the strip being wound oppositely when either end is brought into use the sleeve portion used will rotate in the direction of its winding, thereby avoiding the tendency to tear or unwind. Clearly certain of the details of construction herein described may be departed from without departing from the principle of my invention.

I claim as my invention—

1. An abrasive sleeve comprising a strip of flexible material provided on one side with an abrasive surface and rolled in permanent tubular form and means formed by a part of said strip acting to secure said sleeve upon a mandrel or the like.
2. An abrasive sleeve comprising a strip of flexible material provided on opposite sides with an abrasive surface and adhesive material and rolled into tubular form with the abrasive surface outermost, a part of said strip forming a web extending radially and longitudinally of the sleeve.
3. An abrasive sleeve comprising a plurality of layers of abrasive material rolled in tubular form and rigidly and permanently secured together and provided with a transversely-projecting web.
4. An abrasive sleeve comprising a flexible strip of abrasive material provided on oppo-

site sides with an abrasive surface and a gummed surface and adapted to be formed into a rigid sleeve by having a part thereof secured in a slotted end in a mandrel and having the remainder of said strip wound about said mandrel and transverse creases in said strip.

5. An abrasive sleeve comprising a strip of flexible material provided on opposite sides with an abrasive surface and adhesive material and formed into a rigid sleeve by having a part thereof intermediate of the ends secured on a mandrel and forming a radial web and having the end portions wound oppositely about the mandrel and united together edge to edge.

6. An abrasive sleeve formed of a flexible strip provided on opposite sides with an abrasive surface and a gummed surface, a part intermediate of the ends of said strip forming a radial web about which the end portions are wound oppositely and united edge to edge into a rigid sleeve, said strip being creased on one side transversely thereof whereby successive layers may be removed from the sleeve.

7. An abrasive two-part reversible sleeve constructed of a strip of flexible material oppositely wound at each end of said sleeve having a web extending longitudinally of the same and rigidly secured on opposite sides thereof.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

CHARLES BROWN.

Witnesses:

C. W. HILLS,
F. O. STEVENS.