To all whom it may concern:

Be it known that I, Russell B. Kingman, a citizen of the United States, residing at West Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Cleaning Pads and Methods of Producing the Same; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

This invention relates, generally, to an improved construction of resilient cleaning device or pad, and to a novel method of producing the same.

The invention has for its object to provide a novel construction of cleaning device or pad in the form of a resilient substantially cylindrical mass adapted to be produced from a suitable sheet material such as fibrous fabric materials, animal skins, metallic fabrics, or composite metallic and vegetable yarn fabrics; and the invention has for a further object to provide a novel and easily performed method of producing the aforesaid novel construction of cleaning device or pad.

To the above ends this invention comprises a novel interfolded and convoluted mass of base material, so wrought into shape as to interlock its folds and convolutions to produce a substantially cylindrical resilient or soft mass, adapted to readily retain its shape under wear, without likelihood of unraveling or becoming stringy, with consequent loss of appearance or of comfort in handling when using the same.

Other objects of this invention, not at this time more particularly enumerated, will be clearly understood from the following detailed description of the same.

In the accompanying drawings, the various steps involved in the method of making the novel cleaning pad, as well as the finished article itself, is clearly illustrated.

In said drawings, Figure 1 shows a diagrammatic perspective of a sheet of material ready for the necessary manipulation involved in the novel method of producing the finished cleaning pad; Figure 2 shows the first step in the manipulation of the sheet material to produce the novel cleaning pad; Figures 3 to 10 inclusive show in diagrammatic perspective the various successive steps of the method of producing the novel cleaning pad; Figure 11 is an end view of the initially formed material resulting from a performance of the method steps shown in Figures 3 to 10 inclusive; Figure 12 is a diagrammatic perspective view of the final interlocking and convolving of the sheet material is accomplished to complete the novel form of cleaning pad; Figures 13 to 15 inclusive are diagrammatic cross sections showing various stages of the method involving the rolling or convolving of the initial sheet material into final form; Figure 16 is a perspective view of the novel cleaning pad as it approaches completion, and Figure 20 is an end view of the same; Figure 21 is a side elevation of the completed cleaning pad, and Figure 22 is an end view of said completed cleaning pad.

Similar characters of reference are employed in all of the hereinabove described views, to indicate corresponding parts.

In making up the novel cleaning pad embodying the principles of this invention, I take a flat rectangular sheet a of a suitable flexible material, as shown in Figure 1. The material selected for the purpose may be one of a variety of flexible sheet materials according to the character of finished article desired. For example, if it is desired to produce a finished spongiform cleaning pad or device adapted to provide a maximum of abrad-ing action when the same is applied to a surface to be cleaned, an all metal fabric that is one produced by interwoven or knitted metallic strands, may be employed. If a milder abrating action is desired, a composite fabric of suitably combined metallic and vegetable yarn strands may be employed. If a soft spongiform mass is desired, a fabric composed solely of vegetable
or other suitable yarn may be employed; and if a substantially non-abrading or soft polishing action is desired, the material employed in producing the novel cleaning pad may comprise a soft and flexible animal skin, such as chamois.

The first step in producing the novel cleaning pad is to fold the sheet material diagonally upon itself, thus producing the diagonal fold \( b \) shown in Figure 2, with the free corners \( c \) of the sheet material registered together and overlying one upon the other. When the material has been thus folded upon itself I start at the diagonal fold \( b \), and roll the material upon itself toward the free corners \( c \), as shown in Figures 3, 4, and 5, thus producing an elongated roll of the material, with the corners \( c \) uppermost and intermediate the ends \( d \) and \( e \). Next I take the end \( d \) and fold the end portion of the elongated roll of material longitudinally upon itself, bringing the said end \( d \) over upon the free corners \( c \), thus producing a transverse fold \( f \), as shown in Figure 6. Thereupon the transverse fold \( f \) is turned upwardly and over to again fold the rolled material longitudinally, with said fold \( f \) arranged above the end \( d \), thus forming a double transverse outer fold \( g \), as shown in Figure 7. I next take the opposite end \( e \) of the rolled material and inwardly fold the same over to meet the fold \( f \), and thus producing a transverse fold \( h \), as shown in Figure 8, thereupon taking the transverse fold \( h \) and inwardly folding the same over toward the opposite fold \( g \), and producing an opposite double transverse outer fold \( i \), as shown in Figures 9 and 10.

The material when thus far manipulated produces a roughly elongated mass with a plurality of interlaced layers of the rolled material piled above the free corners \( c \), which leaves substantially smooth end portions formed by the respective outer folds \( g \) and \( i \), and as indicated by the end view shown in Figure 11. The free corners \( c \) will thereupon lie between the intermediate body \( j \) of the rolled material and the said interfolded layers, with the ends \( d \) and \( e \) inwardly disposed and concealed, said interfolded layers being thus arranged to be interlocked into the final finished article so as to form the center core \( k \) thereof. Having completed the above described manipulations of the material to produce the initially rolled and folded body, I thereupon hold the corners \( c \) against the interfolded center core \( k \), and then grasping the outer portion of the intermediate body \( j \) roll or turn the core \( k \) and intermediate body \( j \) in opposite directions, as indicated by the arrows in Figure 12. This turning movement unwinds the convolved intermediate body \( j \) and reverses the same so that it is caused to be convolved exteriorly and longitudinally around the center core \( k \), while at the same time twisting and interlocking the junctures of the respective ends of said core \( k \) and intermediate body \( j \), as shown at 1 in Figures 19 and 22, to thus firmly hold the ends of the resultant body against outward displacement, and thus entirely enfold the center core \( k \) with reversely convoluted layers of the intermediate body \( j \), until a portion of the fold \( b \) is brought to the surface of the finished article, as shown at \( b' \) in Figures 21 and 22. The exposed fold \( b' \) may be secured to the main body of the completed device, in any manner found convenient, such as the staples \( m \), as shown in Figures 21 and 22, or by any other form of fastening means found desirable.

Attention is called to Figures 13 to 18 inclusive which show transverse sections at various stages in the formation of the novel cleaning pad.

The result of the above described operations produces a substantially cylindrical resilient body, which forms a very convenient cleaning pad, adapted to fit comfortably into the hand of the user; and which, by reason of its considerable mass, together with its resilient character, is adapted to readily conform itself to the surface to be cleaned, polished, scoured or the like. When the device is made of a comparatively coarse meshed fabric, it produces a sponge-like body or spongeform mass readily adapted to take up and hold cleaning fluids and the like. When made of all metallic mesh fabric, or composite vegetable yarn and metallic mesh fabric, a spongeform body adapted to produce in use a high degree of abrading effect is afforded in addition to other advantages already above mentioned.

By reason of the novel method of making, the resultant body of the cleaning pad is securely held together, so that its shape is retained, and so that it will not easily unravel, become stringy, or otherwise lose its original convenient resilient form.

Having thus described this invention, I claim:

1. A cleaning device, comprising a resilient substantially cylindrical spongeform body made of an integral sheet of fabric material formed to provide a center core of interfolded layers, and an outer covering about the center core, the end portions of said core and covering being interwoven to provide interlocked shape-retaining end portions, and means for fastening the outer covering against displacement.

2. The method of producing a resilient substantially cylindrical pad-like cleaning device from an integral sheet of flexible material which consists in folding said sheet material, diagonally upon itself, rolling the diagonally folded sheet from the fold with two adjacent corners disposed intermediate...
the ends of the folded and rolled sheet, then inwardly folding the end portions of the diagonally folded and rolled sheet to overlie said corners, and then reversely convolv-
ing the intermediate portion of the diagonally folded and rolled sheet about said corners and inwardly folded end portions to envelop the latter and at the same time intertwist the junctures of said intermedi-
ate portion and inwardly folded end por-
tions, and then securing the free longitudi-
nal edge of said enveloping portion to the
body of the substantially cylindrical mass
thus obtained.

In testimony, that I claim the invention set forth above I have hereunto set my hand this 10th day of March, 1925.

RUSSELL B. KINGMAN.