

No. 850,151.

PATENTED APR. 16, 1907.

G. GOLDMAN.
PROCESS OF MAKING GARMENT PADS.

APPLICATION FILED MAY 18, 1905.

2 SHEETS—SHEET 1.

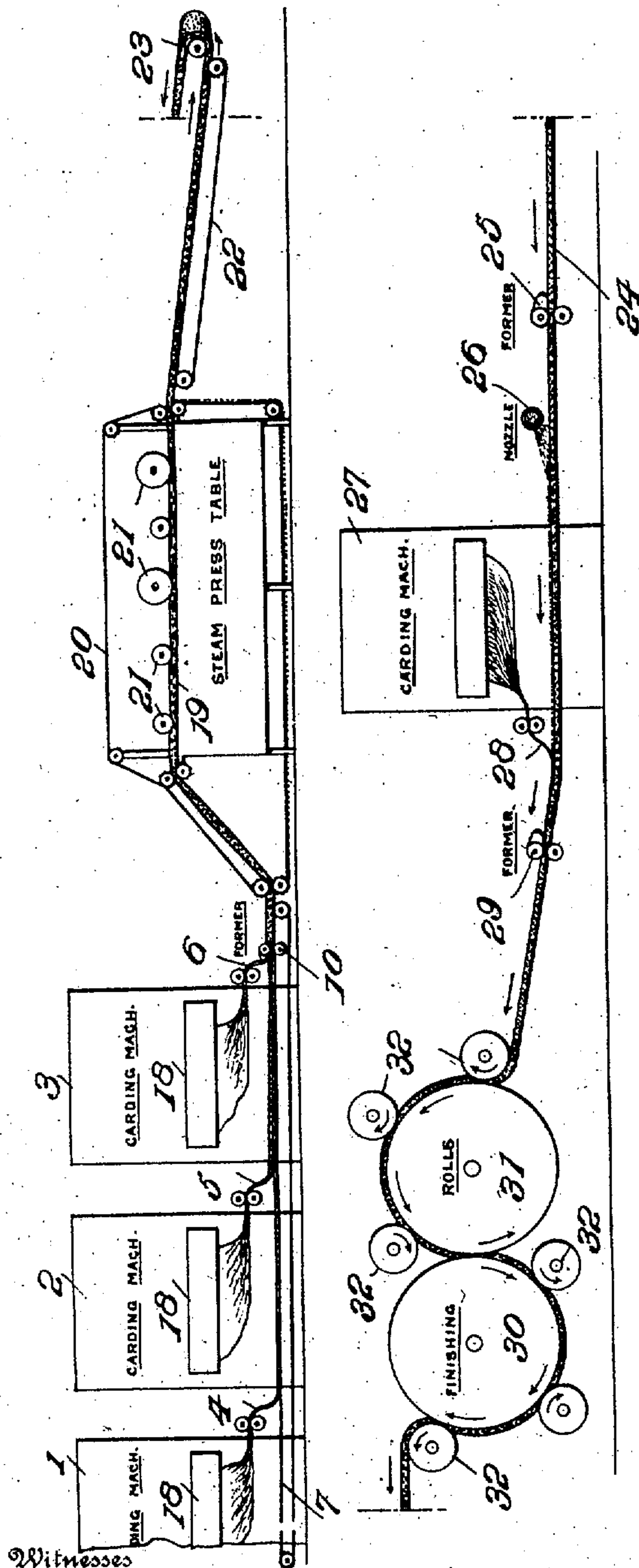
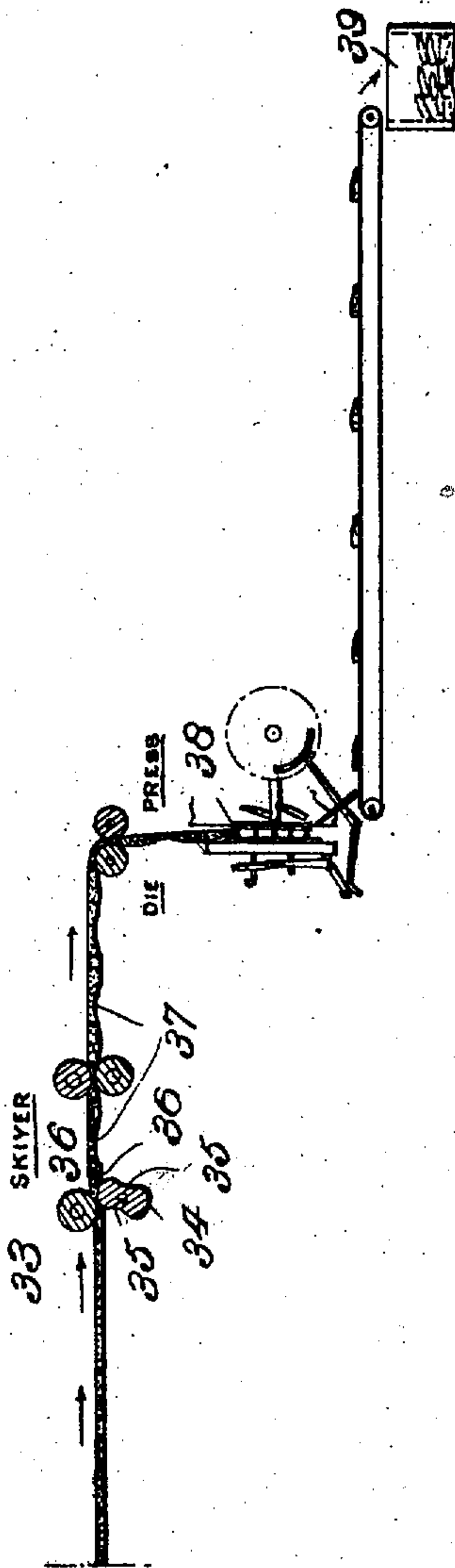


FIG. 1.



Witnesses

Gustave R. Thompson

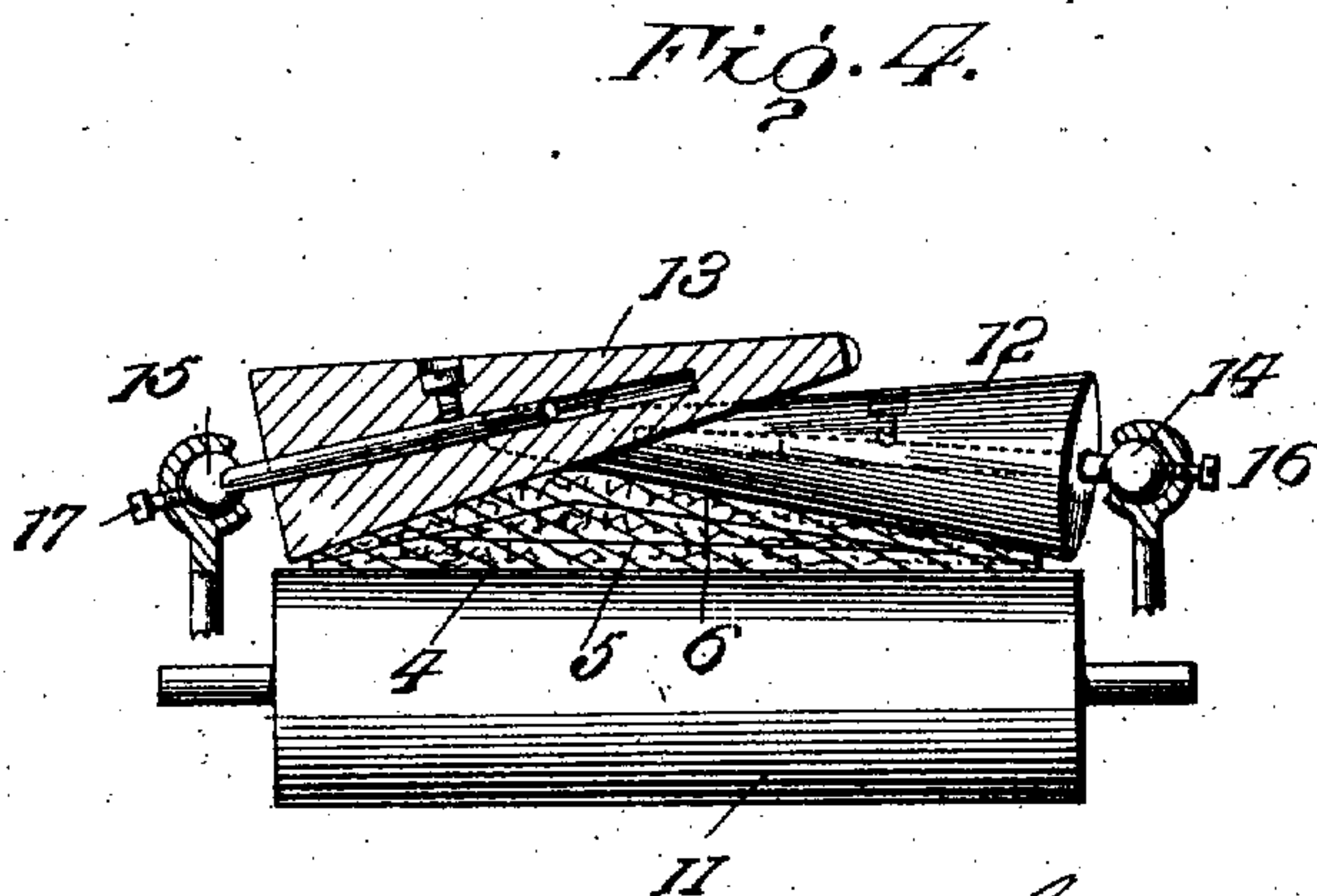
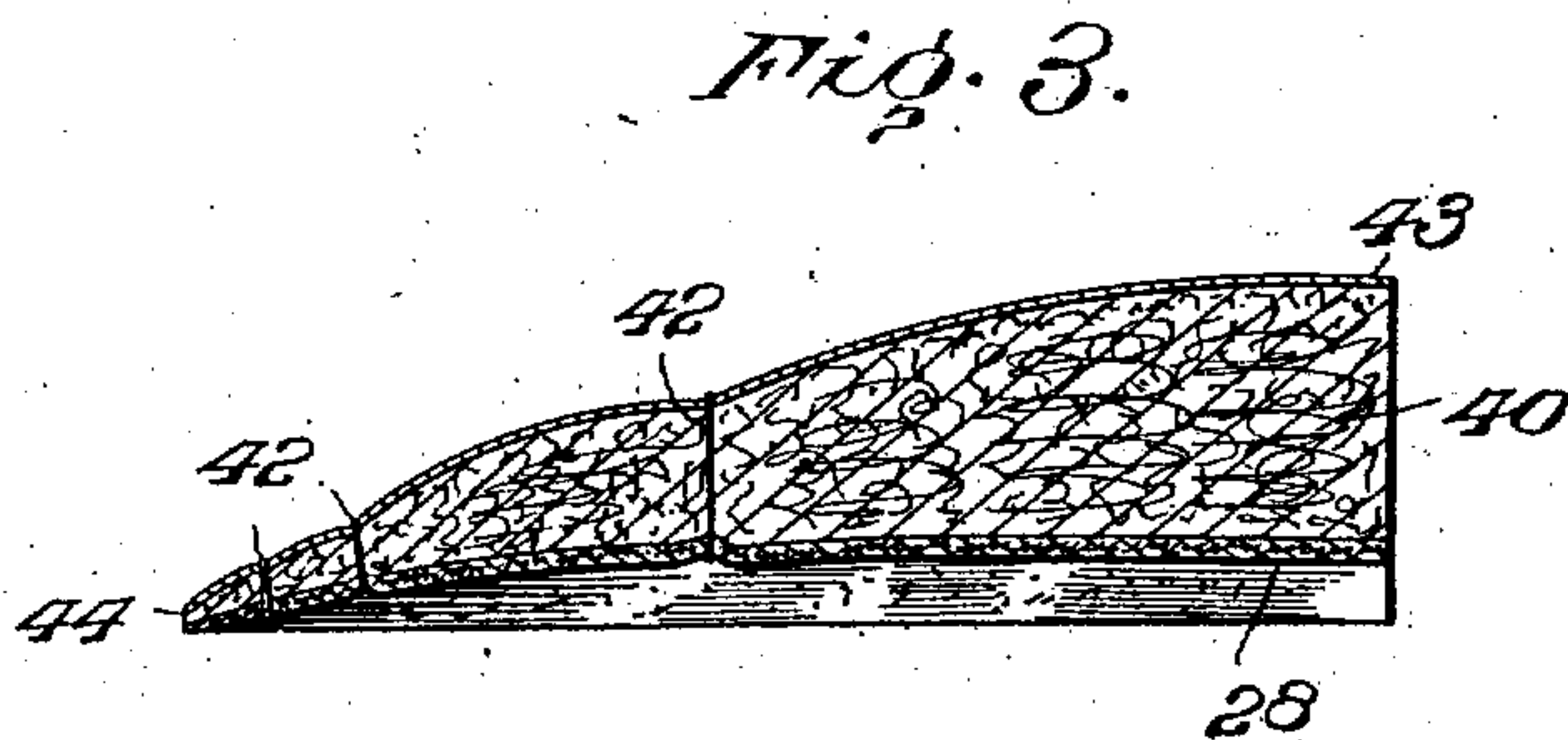
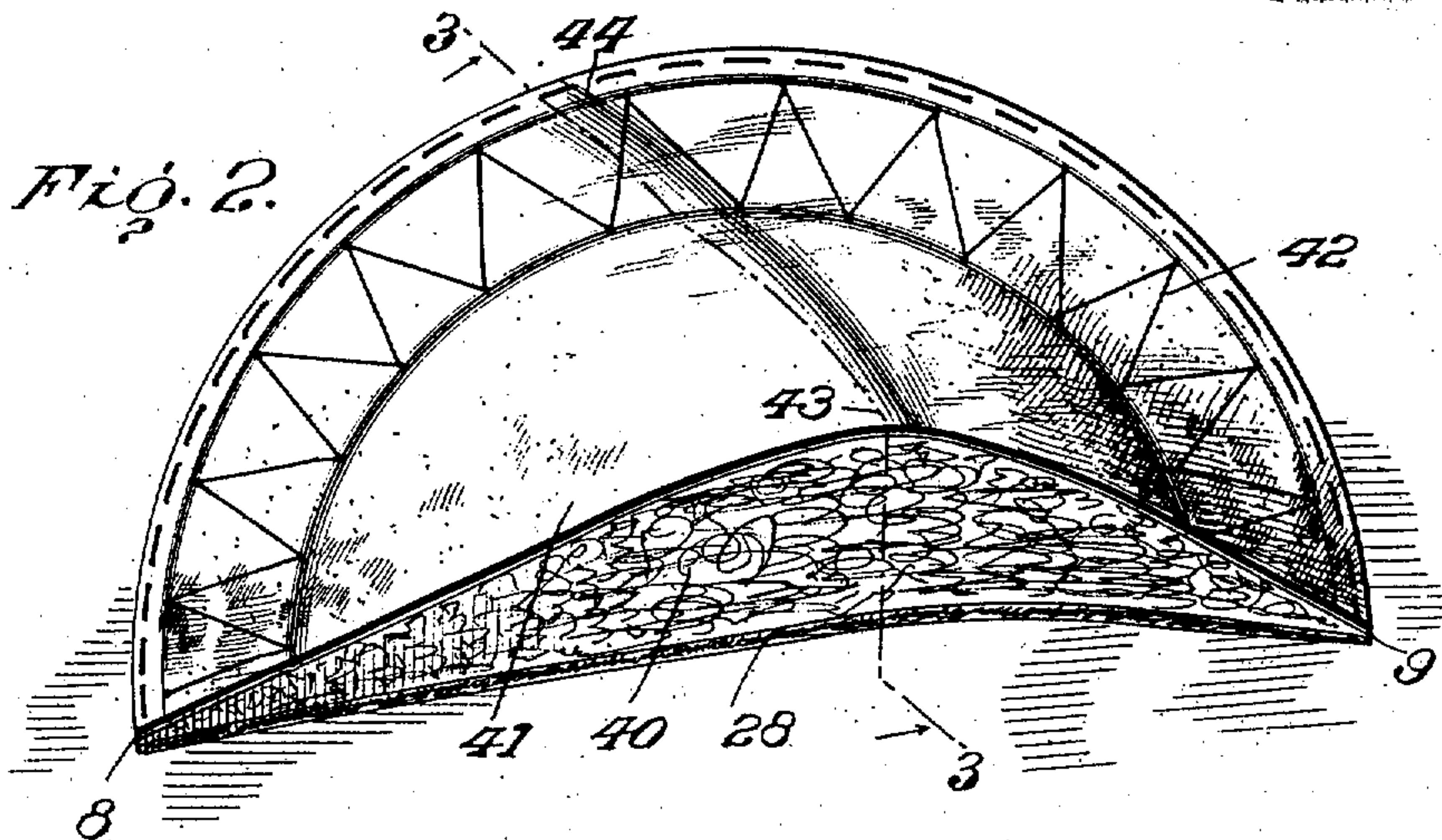
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No. 850,151.

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2 SHEETS—SHEET 2.



Witnesses

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UNITED STATES PATENT OFFICE.

GUSTAV GOLDMAN, OF BALTIMORE, MARYLAND.

PROCESS OF MAKING GARMENT-PADS.

No. 850,151.

Specification of Letters Patent.

Patented April 16, 1907.

Application filed May 19, 1905. Serial No. 261,257.

To all whom it may concern:

Be it known that I, GUSTAV GOLDMAN, of Baltimore, Maryland, have invented a new and useful Process of Making Garment-Pads, which invention is fully set forth in the following specification.

This invention relates to garment-pads, and has for its object to provide a pad of this character which shall possess the necessary taper or slope from its highest point or part, which shall be compact, shapely, and resilient, and which may be cheaply manufactured, while at the same time producing an article of superior merit and finish.

With these objects in view the invention consists in an improved method of manufacture and in a novel pad produced by said method.

In my United States Letters Patent No. 810,935, dated January 30, 1906, I have described and claimed a method of making garment-pads which, briefly stated, consists in laying down a bat or strip of fibers of uneven cross-section, forming transverse channels, preferably with sloping side walls, in said bat or strip, and then cutting the pads from said channeled bat or strip, after which the pads, if desired, may be smoothed to present an attractive finish. The pads made by this method are usually faced on both sides with woven fabric stitched thereto for the purpose of preventing the protruding ends of fibers from projecting out through the material of the garments to which they are applied and for the further purpose of affording a surface of sufficient tensile strength to receive and retain the stitches by which the pad is secured in its proper position in the garment.

In the present invention the fabric facing is omitted from one side—as, for example the under side—of the pad, and in lieu thereof is substituted a thin veneering of matted fibers bound to each other and to the face of the pad by a suitable adhesive material, as glue or size. By this construction it is possible to form the body of the pad of short cheap fibers of inferior grade and the veneering of longer fibers of better quality. The cost of the veneering is much less than that of the woven-fabric facing for which it is substituted, and when placed on the under side of the pad it performs all the essential functions of the woven fabric in this position and has also certain advantages not possessed by the fabric facing, among which may be mentioned the fact that the adhesive material which

unites the veneering to the body of the pad contracts on drying, and therefore has a tendency to draw the pad on the under side, giving it the slightly concavo-convex form which it is desirable for such pads to have. The upper side of the pad is supplied with the usual woven-fabric facing, which is secured to the pad in any preferred manner, as by quilting-stitches passing through the fabric, the pad-body, and the veneering.

In the manufacture of the pad any suitable kind of fibers are laid down in the form of a bat of uneven cross-section and the liquid adhesive material applied to one surface, after which a thin sheet of fibers to form the veneering is placed on the adhesive material and the whole subjected to pressure, preferably in the presence of heat. After the veneered bat of uneven cross-section has been thus formed the pad or pads is or are cut therefrom. Preferably a continuous process is employed, and when this is done the body of the bat of uneven thickness in cross-section is laid down in the form of a continuous strip on a carrier by suitable mechanism, as a carding machine or machines, and, if desired, is then subjected to the action of a former to give it the required cross-sectional form. In some instances binding material may be introduced between the fibers, while in other cases no binding material is thus employed. Usually the continuous bat thus secured is flat on its under side and slopes from an intermediate line toward its edges. When this is the case, the bat is by preference reversed or turned over while still traveling on the carrier, so that the flat side is uppermost, and the adhesive material is distributed over the flat surface, a spraying-nozzle being preferably employed for this purpose. Immediately after the adhesive material has been applied the bat is carried past a carding-engine or other mechanism which lays down a thin veneering film of fibers on the surface covered with the adhesive, and upon pressure being applied the veneering film is forced down into the adhesive and partially mats it. For the purpose of applying this pressure the bat or strip is preferably passed between a pair of steam-heated rollers, the heat thus supplied serving to assist in the rapid drying of the adhesive material, and thus fit the bat for the next step in the process. From the steam-rollers the strip or bat is allowed to travel a suitable distance to dry it, and is then preferably passed through a skiver, which acts to

cut transverse channels from the under side of the bat or strip, said channels preferably having sloping walls corresponding to the taper of the finished pad. The channeled bat or strip is then passed to a die-press, which cuts the pads therefrom. If desired, the pads may then be treated by a smoothing or finishing machine, though this is not essential. The body of the pad with the veneering on one side is then taken by a workman, who stitches the woven fabric to the face of the pad opposite the veneering, when it is complete.

It will of course be understood that the process is not dependent upon any particular mechanism; but there is shown in the accompanying drawings diagrammatic outlines of mechanism which is preferably employed.

In said drawings, Figure 1 is a diagrammatic elevation illustrating one form of apparatus which may be employed in making the pad. Fig. 2 is a perspective of the completed pad. Fig. 3 is a section on the line 3 3, Fig. 2, looking in the direction of the arrows; and Fig. 4 is an elevation, partly in section, of one kind of mechanism employed for forming the pad or strip.

Referring to the drawings, 1, 2, and 3 indicate carding-machines which act to lay down superimposed films of fibers 4, 5, and 6 upon a carrier-belt 7, moving from left to right in the drawings. For the purpose of giving the finished pad the desired taper from one side to the other thereof—i. e., from the medial line to the points 8 and 9, Fig. 2—the several films 4, 5, and 6 are of uneven width, the film 4 being substantially the width of the finished pad, the film 6 being narrower and when desired being placed slightly to one side of the medial line of the film 4, and the film 6 in turn being preferably as wide as the film 4. The several films are quite clearly indicated in Fig. 4.

After the superimposed films are deposited upon the carrier they are preferably subjected to the action of some suitable forming device for giving the pad composed of said films the desired form in cross-section. One of these formers is indicated at 10 and is shown in enlarged view in Fig. 4, wherein 11 is a substantially horizontal roller, and 12 and 13 are conical rollers mounted upon shafts having their ends secured in universal bearings 14 and 15, adjustably held in suitable supports by set-screws 16 and 17. By this means the fibers constituting the entire bat are crowded into the precise form desired in cross-section for the finished pad.

As previously stated, the several films of fibers constituting the entire bat may be supplied with binding material to unite the fibers into a matted mass, or said binding material may be omitted, depending upon the particular kind of bat to be manufactured. If binding material is to be supplied, it may

be furnished in the form of a powder from a suitable distributing apparatus 18, mounted on each of the carding-machines 1, 2, and 3. (See Fig. 1.) In case the binding material is employed the bat or strip of fibers is passed from the former 10 over a suitable apparatus for supplying heat and pressure. As here shown, this apparatus is in the form of a steam-press table, over which the pad or strip of fibers is carried between a moisture-carrying belt 19 and a second belt 20. As the strip or bat of fibers is carried between these belts it is subjected to the action of heated rollers 21 21, the steam-press table being also preferably heated, thereby converting the moisture on the moisture-carrying belt 19 into steam, which permeates the mass and renders the powdered binder effective for uniting the fibers, all as clearly set forth and described in my application, Serial No. 225,540, filed September 22, 1904. In case no binding material is employed the steam-press table may be omitted. After leaving the table the pad or strip of fibers is delivered to a carrier-belt 22, along which it is carried a sufficient distance to allow it to partially cool and dry, and after leaving said belt it has its direction of travel reversed by being turned over a roller 23, around which passes another carrier-belt 24, thereby turning the strip or bat over, so that what was previously its lower side has now become its upper side. If desired, the bat or strip of fibers may be then passed through a second set of formers 25, though this is not essential. After the bat has been thus reversed any suitable adhesive material is applied to the surface thereof by any desired form of mechanism. Preferably a perforated pipe or nozzle 26 delivers a spray of sizing over the surface of the bat, after which said bat is passed in front of a carding-machine 27, which is preferably provided with a long and superior quality of fiber, and this carding-machine 27 then deposits a very thin film 28 of said fibers upon the liquid sizing applied to the surface of the bat, this very thin film of fibers 28 constituting the veneering previously referred to. If desired, the bat may then be passed through another set of formers 29, though this is not necessary, after which the veneered bat is passed through or between any suitable set of pressure-rollers, preferably steam-heated, for forcing the veneering down into the sizing and for drying the same. As here shown, these rollers take the form of two large finishing-rollers 30 and 31, having a series of small rollers 32 acting in conjunction therewith, and the strip or bat is passed between the small rollers 32 and the large rollers 30 and 31, as shown. After leaving the rolls the bat is preferably permitted to travel a suitable distance to allow the same to partially dry, after which it is delivered to a suitable skiving mechanism 33, here shown in the

form of a skiving-roller 34, having depressions 35 formed in its surface and a cylindrical roller 36 bearing thereon and acting to force a portion of the bat into the depressions 35 on the skiving-roller 34, the portions thus forced into the depressions 35 on said roller being cut away by a knife 36', thereby forming transverse channels 37 in the bat or fibrous strip. The specific form or construction of the skiver forms no part of the present invention, the same being fully disclosed, described, and claimed in my United States application, Serial No. 226,226, filed September 27, 1904. It will be observed that the action of the skiver is to cut the transverse channels from the under side of the bat or strip—i. e., from the side to which no veneering has been applied—so that the transverse channeling does not act in any way to mutilate or destroy the veneering or finishing laid upon the upper surface. After the transverse channels have thus been formed in the bat or strip it is then passed to a suitable die-press 38, of any suitable form, preferably such as shown and described in my United States application, Serial No. 226,594, filed September 29, 1904, where the bats are cut from the strip and delivered to a suitable receptacle 39.

Referring to Figs. 2 and 3, 40 indicates the mass of fibers formed by superimposing the three films 4, 5, and 6 one upon another, and 28, as previously stated, indicates the veneer of longer fibers laid down by the carding-machine 27. After the pads have thus been cut from the bat or strip they have supplied thereto a blank of woven or other suitable fabric 41, which has previously been cut to the outline or shape of the pad, after which the said fabric is fixed by quilting-stitches 42 to the pad, said stitches extending through the woven fabric, the main body 40 of the fibers, and the veneering 28, all as will be clearly understood by an inspection of Fig. 3. It will be understood that while there is here illustrated a continuous bat or strip having three superimposed layers that this is unessential, since any suitable number of layers may be employed or any other suitable means may be used for securing the desired pad of uneven cross-section and the desired taper of the bat from any intermediate line or point toward its edges.

Referring to Fig. 2, it will be understood that the taper of the pad from the point 43 to the points 8 and 9 is due to the fact that the bat was laid down of uneven cross-section, whereas the taper of the bat from the point 43 to the point 44 is due to the transverse channeling of the bat by the skiver.

While there has been herein shown one means of forming the bat of uneven cross-section and of applying veneering material thereto, it will be understood that the invention is not limited to this particular means,

since any means whereby a bat tapering in cross-section and having a veneering applied thereto may be formed will come within the scope of the invention.

The product illustrated in the drawings and which results from the employment of the present process is not claimed herein, as the same forms the subject-matter of application, Serial No. 308,360, filed March 27, 1906.

What is claimed is—

1. The process of making pads which consists in forming a mass of fibers into a bat of tapering cross-section, veneering one side of said bat with a film of non-woven fibers, and then cutting the pad from said veneered bat.

2. The process of making pads which consists in laying down a continuous bat or strip of fibers of tapering cross-section, veneering one side of said bat or strip with a film of non-woven fibers, and then cutting the pad from said veneered bat or strip.

3. The process of making pads which consists in laying down a continuous bat or strip of fibers of tapering cross-section, applying a binder to one side of said bat or strip, then laying a film of non-woven fibers on said binder, whereby the film is united as a veneer to the bat or strip, and then cutting the pad from said veneered bat or strip.

4. The process of making pads which consists in laying down a continuous bat or strip of fibers of tapering cross-section, applying a binder to one side of said bat or strip, laying a veneering film of non-woven fibers on said binder, subjecting the whole to pressure, and then cutting the pad from said veneered bat or strip.

5. The process of making pads which consists in laying down a continuous bat or strip of fibers of tapering cross-section, applying a binder to one side of said bat or strip, laying a veneering film of non-woven fibers on said binder, subjecting the whole to heat and pressure, and then cutting the pad from said veneered bat or strip.

6. The process of making pads which consists in forming a bat or strip of fibers of tapering cross-section, veneering one side of said bat or strip with a film of non-woven fibers, forming transverse channels in the non-veneered side of said bat or strip, and then cutting the pad from said bat or strip.

7. The process of making pads which consists in forming a mass of fibers into a bat of tapering cross-section, applying a binder to one side of said bat, laying a veneering film of non-woven fibers on said binder, subjecting said bat to pressure, and then cutting the pad from said veneered bat.

8. The process of making pads which consists in forming a mass of fibers into a bat of tapering cross-section, veneering one side of said bat with a film of non-woven fibers, then cutting the pad from said veneered bat, and

then stitching a woven fabric to the non-veneered side of said pad.

9. The process of making pads which consists in forming a mass of fibers into a bat of
5 tapering cross-section, applying a binder to one side of said bat, laying a veneering film of non-woven fibers on said binder, subjecting said bat to pressure, then cutting the pad from said veneered bat, and then stitching a
10 woven fabric to the non-veneered side of said pad.

10. The process of making pads which consists in laying down a continuous bat or strip of fibers, imparting a tapering cross-sectional

form to said bat or strip, veneering one side of
15 said bat or strip with a film of non-woven fibers, forming transverse channels on the non-veneered side of said bat or strip, cutting the pad from said channeled bat or strip, and then stitching a woven fabric to the non-
20 veneered side of said pad.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

GUSTAV GOLDMAN.

Witnesses:

WM. B. KERKAM,
GUSTAVE R. THOMPSON.