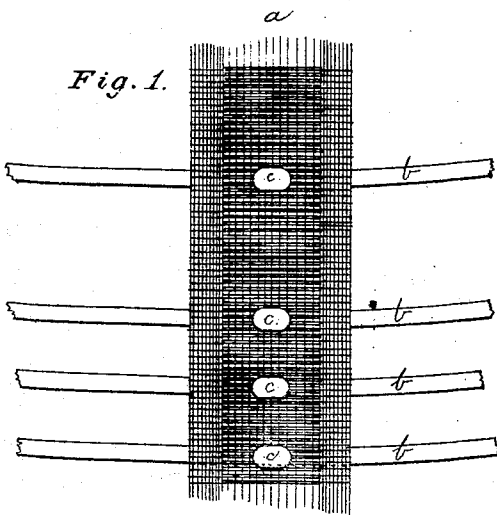


**P. LIPPMANN.**  
**Skeleton-Skirts.**

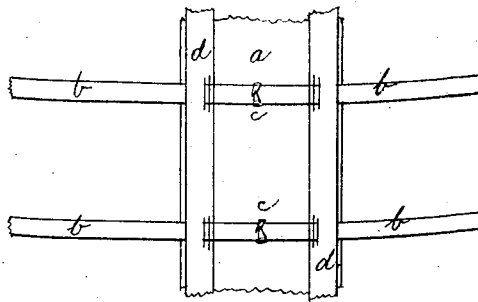
No. 144,911.

Patented Nov. 25, 1873.

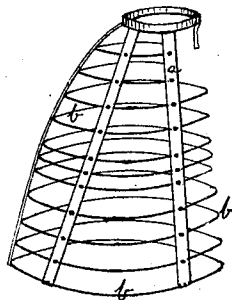
*Fig. 1.*



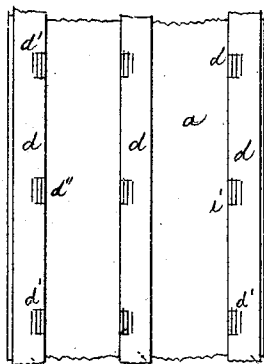
*Fig. 2.*



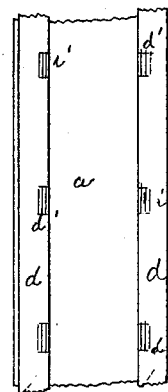
*Fig. 4.*



*Fig. 3.*



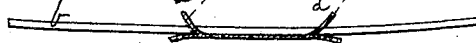
*Fig. 5.*



*Fig. 6.*



*Fig. 7.*



*Witnesses:*

*Jacob Naef*  
*Julius Luter*

*Inventor:*

*Philipp Lippmann*

# UNITED STATES PATENT OFFICE.

PHILLIPP LIPPMANN, OF NEW YORK, N. Y.

## IMPROVEMENT IN SKELETON SKIRTS.

Specification forming part of Letters Patent No. **144,911**, dated November 25, 1873; application filed October 30, 1873.

*To all whom it may concern:*

Be it known that I, PHILLIPP LIPPMANN, of the city, county, and State of New York, have invented a new and useful Improvement in the Construction of Skeleton Skirts, of which the following is a specification:

The object of my invention is to furnish a support to the horizontal hoops of a skeleton skirt, which shall hold the hoops with sufficient firmness, so that they will not fall down or break away, and, at the same time, shall not require the use of tapes woven double at the points of intersection of the hoops for forming pockets, and woven single between the double-woven pockets. My improvement supersedes the necessity of the double-woven pockets, and of making any part of the vertical tapes of the skirt double, or with pockets; and my improvement consists in a new manufacture of skeleton skirts, in which the horizontal hoops are suspended upon one, two, or more flaps or ridges woven upon one of the sides or faces of the tapes in the line of the length, and so that such flap or ridge will, when the hoops are constructed thereon, stand perpendicular, or nearly so, to the face of the tape, and into which longitudinal flaps or ridges the hoops are inserted, through holes in the same, at proper intervals to form the skirt.

In the accompanying drawings, Figure 1 is a view of the exterior face of the tape *a*, hoops *b*, spangle or rivet *c*; Fig. 2, the opposite face of the vertical tape *a* and the loose flaps *d*, hoops *b*, and rivets *c*. Fig. 3 is a view of a tape with three flaps, *d d d*; Fig. 5, same as last, with two flaps, *d d*. Figs. 6 and 7 are cross-sections of Figs. 3 and 5, with hoop *b* inserted. Fig. 4 is a side view of the skeleton skirt.

In all the figures similar letters represent similar parts.

In weaving the flaps *d*, or perpendicular lines of ridges upon the face of the tapes, the flaps or ridges are thrown out, singly, doubly, or in a greater number, as may be desired, by the operation of the jacquard mechanism. These flaps may have, at intervals, a stoppage or interrupting of the filling-threads, so as to leave the warps in the flaps or ridges loose or open; or the flaps may be made of continuous fabric, without any interruption of the filling. In the former case, the hoops are passed through the flaps at the open spaces. In the latter case, the hoops *b* are placed on the flaps through a hole made by a bodkin or any proper instrument made for the purpose. When the hoops are thus inserted in the flaps they are supported by the flaps from falling down sufficiently to secure them in that direction; and, to prevent lateral motion, the hoops may be secured to the vertical tapes *a* in any suitable manner; but spangles *c* or two-pronged rivets are the most suitable to the purpose.

What I claim as my invention herein, and for which I desire Letters Patent, is—

A skeleton skirt in which the horizontal hoops *b* are supported upon and by flaps *d* woven upon the faces of the vertical tapes *a*, the hoops being passed through openings *d'* in the flaps made in the weaving, or otherwise by puncture, substantially as set forth.

PHILLIPP LIPPMANN.

Witnesses:

YOCAL NOEF,  
JULIUS SUTER.