

No. 816,226.

H. FEDER.
MOISTURE PROOF STRUCTURE.
APPLICATION FILED OCT. 11, 1905.

PATENTED MAR. 27, 1906

Fig. 1.

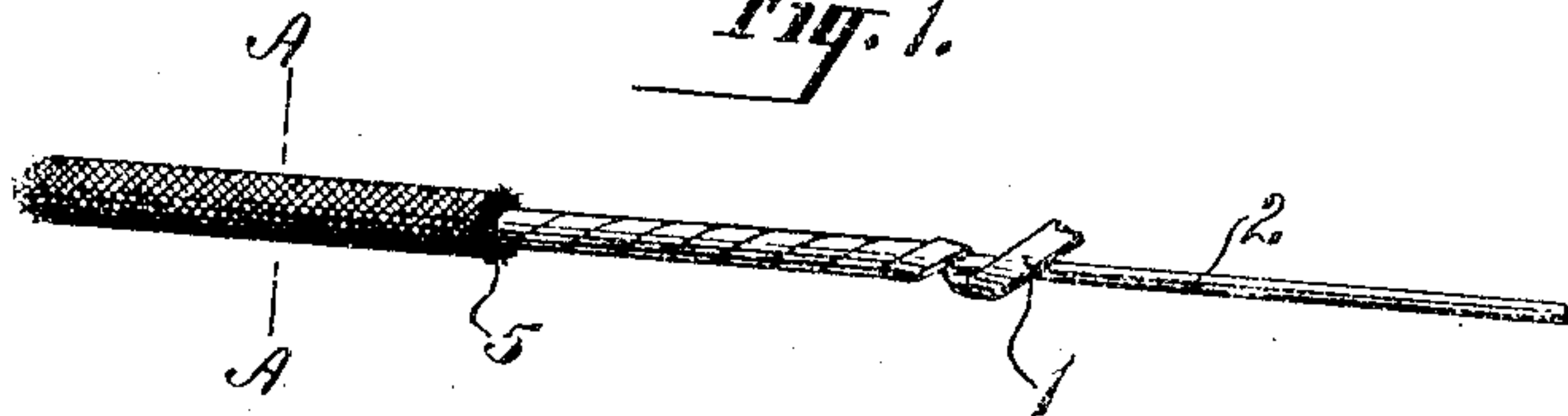


Fig. 2.

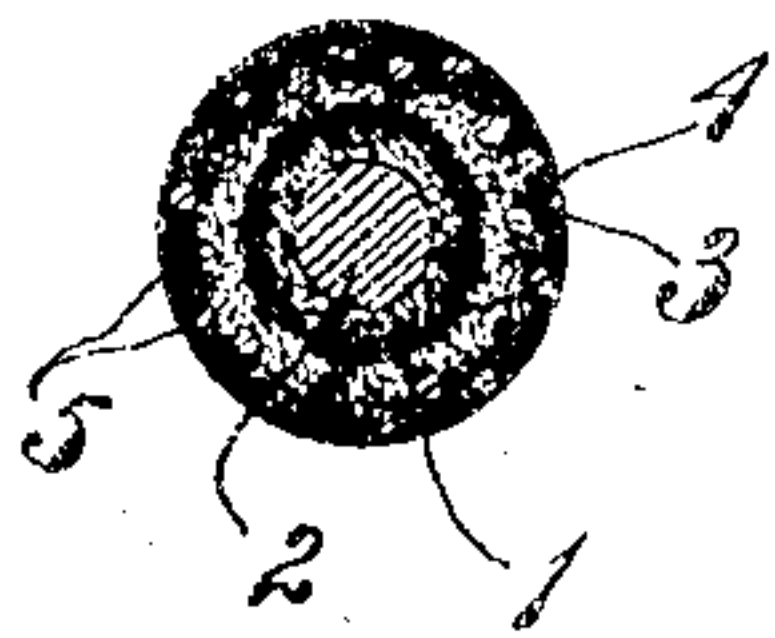


Fig. 3.

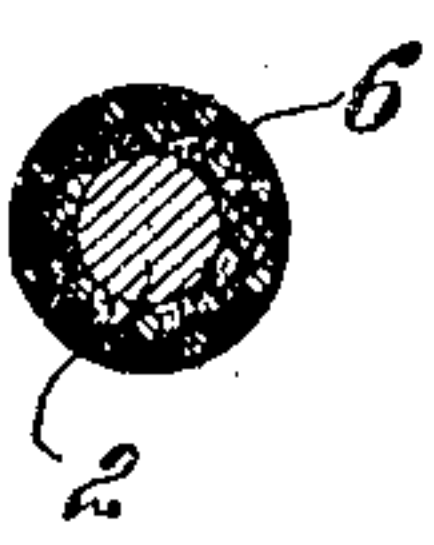


Fig. 4.

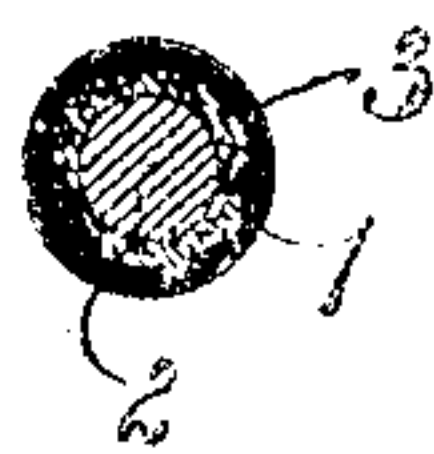


Fig. 5.

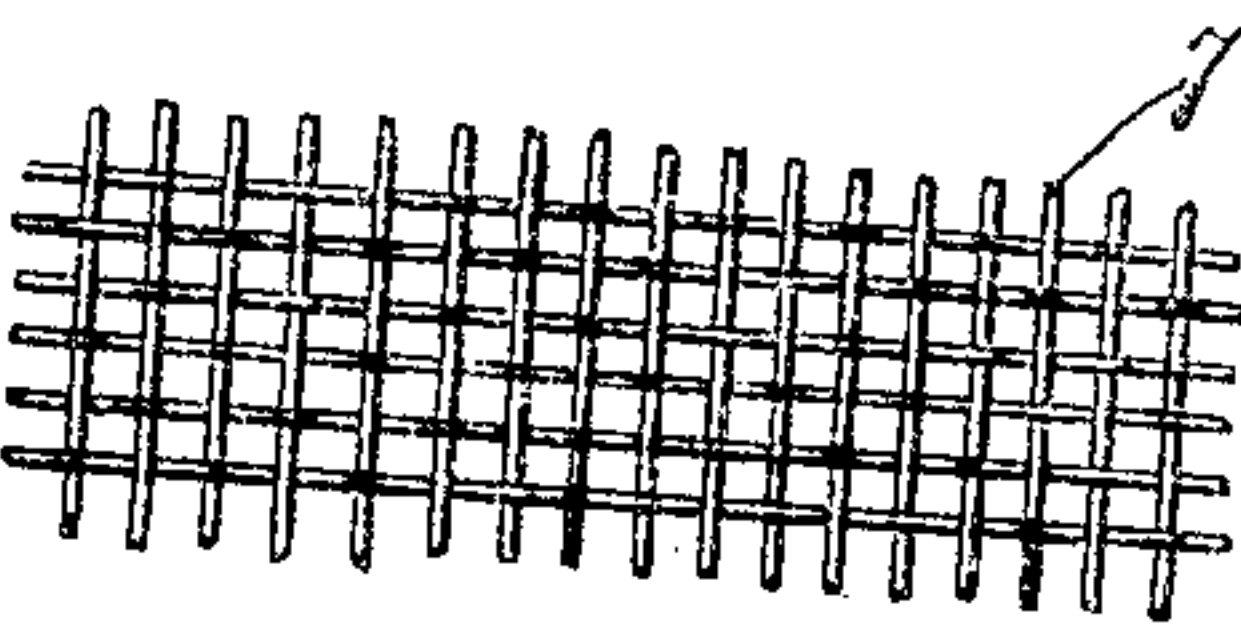


Fig. 6.



Witnesses:
J. L. Hachey
Henry Thieme

Inventor:
Harry Feder
By Brown & Brown
his Attorneys

UNITED STATES PATENT OFFICE.

HARRY FEDER, OF NEW YORK, N. Y.

MOISTURE-PROOF STRUCTURE.

No. 816,226.

Specification of Letters Patent.

Patented March 27, 1906.

Application filed October 11, 1905. Serial No. 282,224.

To all whom it may concern:

Be it known that I, HARRY FEDER, a citizen of the United States, and a resident of the borough of Manhattan, in the city and State of New York, have invented a new and useful Improvement in Moisture-Proof Structures, of which the following is a specification.

My invention relates to a moisture-proof structure in which a strand or strands of fibrous material are provided with a coating of cellular adhesive sizing having its outer surface developed into a moisture-proof skin or envelop.

In the accompanying drawings, Figure 1 represents in side elevation the moisture-proof structure in tubular form surrounding a wire core and consisting of an inner moisture-proof tube formed by a treated-paper strand and an outer tube formed by a treated fabric. Fig. 2 is an exaggerated transverse section in the plane of the line A A of Fig. 1. Fig. 3 is an exaggerated transverse section of a modified form in which the fabric tube immediately surrounds the core. Fig. 4 is a similar view in which the paper-strand tube is employed without the fabric tube. Fig. 5 is a plan view of a flat fabric, and Fig. 6 is an exaggerated partial transverse section through said fabric.

The foregoing figures show several of the many forms which my invention may assume, the gist of the invention being not the particular form of the complete structure nor the particular form, number, and relation of the strands which compose the structure, but rather the nature of the moisture-proof envelop and the intimate relation of the adhesive sizing on which the envelop is formed to the strand or strands which form the foundation of the structure.

In making the structure in tubular form a strand 1, of paper, is impregnated with a cellular sizing, such as casein—for instance, by passing it through a thin solution thereof—and then it is wound on a core 2—for example, a wire—the exterior of the wound strand being then submitted to the action of a hardening fluid, such as formaldehyde, by passing it through a vapor or other fluid form thereof. The formaldehyde or other hardening or coagulating fluid enters the cells of the casein and develops its exterior surface into a skin or envelop which will resist water and moisture. In the exaggerated sections Figs.

2, 3, and 4 the cellular sizing is denoted by 3 and the waterproof envelop by 4. This tubular structure, with its paper strand, may be alone relied upon to protect the core from moisture, or it may be covered by an outer tube formed of textile material as a base—for instance, a tube of braided threads—treated with a cellular sizing, such as casein, the latter having its exterior surface developed into a waterproof skin 6 by the action of formaldehyde. This latter structure may also be alone relied upon to protect the core, as shown in Fig. 3.

In Fig. 5 the woven fabric is formed of paper strands 7, treated with a cellular sizing, as hereinabove explained, and having its exterior surface developed into a waterproof skin or envelop 8.

The several strands, whether in the form of a flat fabric, as shown in Fig. 5, or in the form of a tubular fabric, as shown in Fig. 1, are held securely in the desired relation to one another, as well as being held individually in their twisted, wound, or entwined form, by the cellular adhesive sizing, and when the exterior surface of this sizing is developed into a waterproof skin or envelop by the action of formaldehyde the structure becomes impervious to moisture and is tough and durable.

The treatment with the formaldehyde or other hardening or coagulating fluid should take place only after the strands have been treated with casein and have been formed either individually or collectively into a permanent product.

What I claim is—

1. A moisture-proofed fabric composed of one or more strands of fibrous material coated with a cellular adhesive sizing for maintaining the formation of the strands, the exterior surface of the sizing being developed into an impervious moisture-proof skin or envelop.

2. A moisture-proofed fabric of tubular structure composed of one or more strands of fibrous material coated with a cellular adhesive sizing for maintaining the formation of the strands, the exterior surface of the sizing being developed into an impervious moisture-proof skin or envelop.

3. A moisture-proof fabric of tubular structure provided with a core, said fabric being composed of one or more strands of fibrous

material, coated with a cellular adhesive sizing for maintaining the formation of the strands, the exterior surface of the sizing being developed into an impervious moisture-proof skin or envelop.

5 4. A moisture-proofed structure comprising a core, a moisture-proofed paper envelop surrounding the core and a moisture-proofed textile envelop surrounding the paper envelop, the said envelops including a body of

sizing having its exterior surface developed into a moisture-resisting skin or envelop.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 5th day of October, 1905.

HARRY FEDER.

Witnesses:

FREDK. HAYNES,
F. GEORGE BARRY.