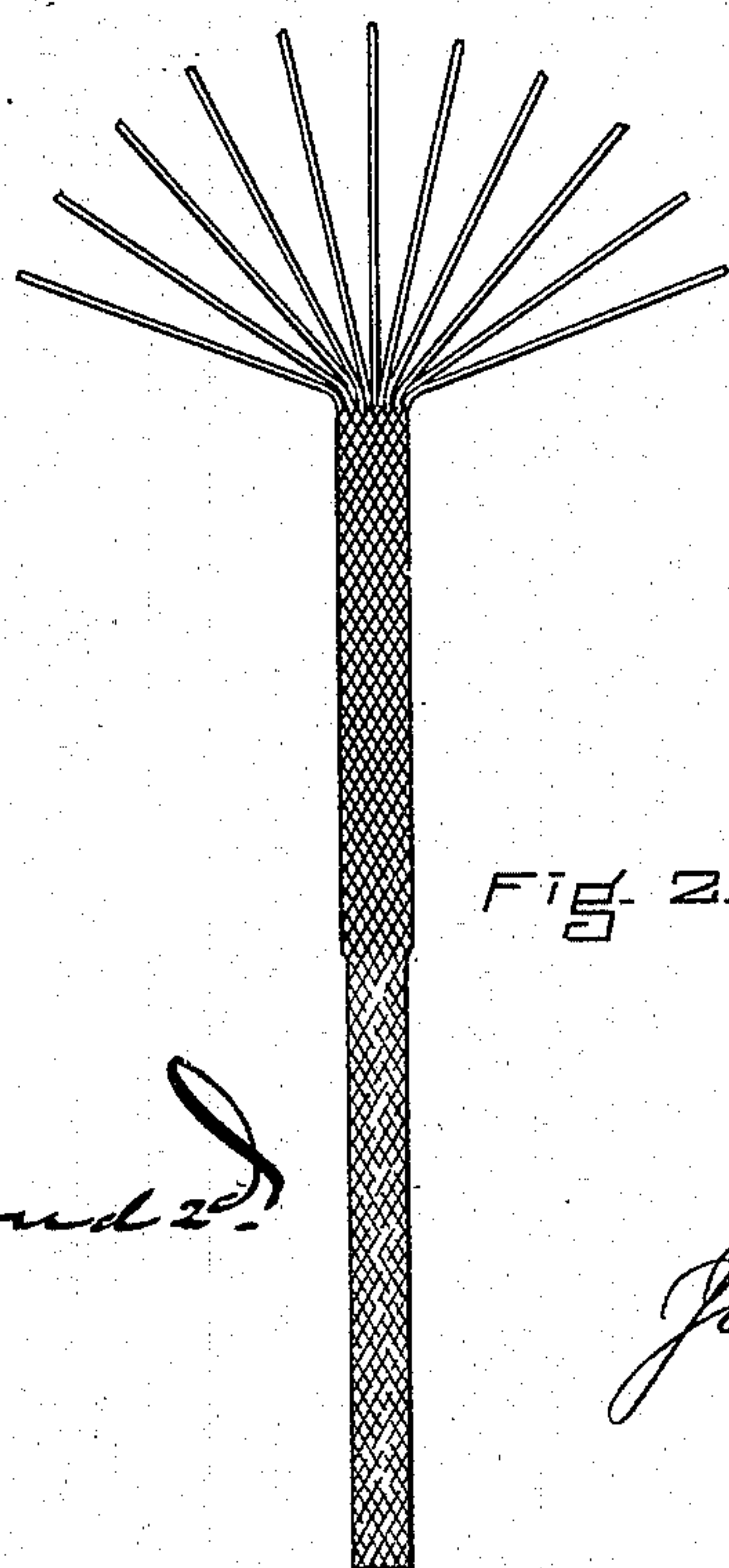
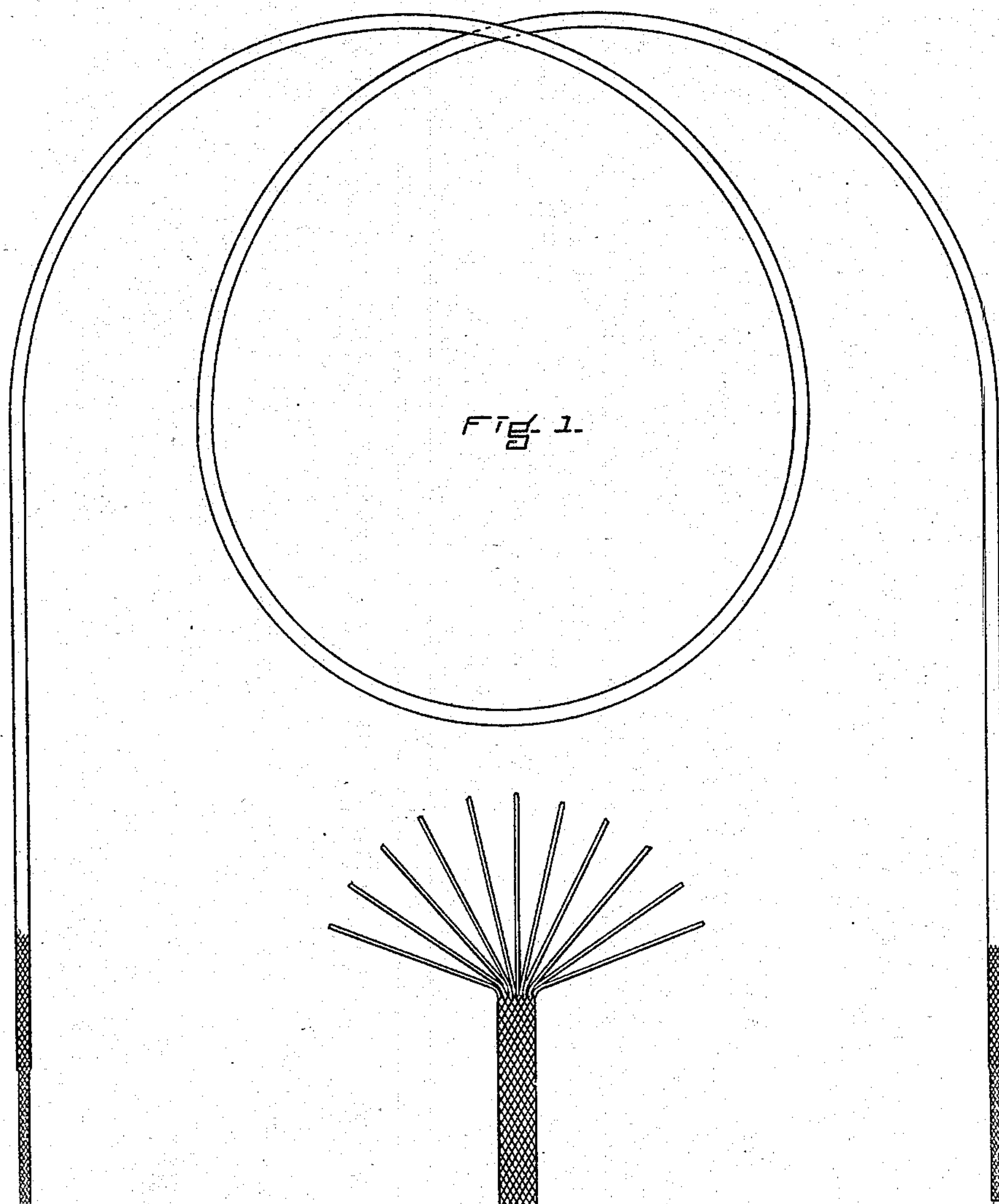


(No Model.)

J. P. TOLMAN.
LACING CORD.

No. 573,249.

Patented Dec. 15, 1896.



WITNESSES:

J. H. Raymond
J. W. Deane

INVENTOR-

James P. Tolman

UNITED STATES PATENT OFFICE.

JAMES P. TOLMAN, OF NEWTON, MASSACHUSETTS, ASSIGNOR TO THE
SAMSON CORDAGE WORKS, OF BOSTON, MASSACHUSETTS.

LACING-CORD.

SPECIFICATION forming part of Letters Patent No. 573,249, dated December 15, 1896.

Application filed January 15, 1895. Serial No. 534,972. (No specimens.)

To all whom it may concern:

Be it known that I, JAMES P. TOLMAN, a citizen of the United States, residing at Newton, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Shoestrings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

My invention relates to a shoestring made of a number of fibrous flexible strands united together throughout their length by an interlocking twist, and the interlocked ends of which string are stiffened and united by a permeating adhesive cement or composition, hard at ordinary temperatures and waterproof, and which unites the fibers of each strand interiorly and exteriorly of it and the various interlocked strands with each other interiorly and exteriorly, so that each end of the string is a hard solid mixture of fibers, locked fiber strands, and uniting medium of the character specified. A shoestring of this construction has hardened united ends and a long flexible intermediate section and is very desirable in that it is a strong string and in that the ends are formed very readily and economically and without the addition of any independent or separable metallic covering or addition.

I do not confine myself to the kind of cement employed or to the manner of its application, but would mention as a desirable kind for the purpose one made from fish-glue, because of its waterproof character, its tenacity, its permeating character, and its hardness when dry.

In the drawings, Figure 1 is a view of a

complete shoestring. Fig. 2 is a view enlarged of one end.

In the manufacture of my improved lacing-cords the cement by which the ends of the cords are united, solidified, and hardened is preferably applied while the cords are under tension, as by being wound around a mandrel or other object having a circumference equal to the length of the lacing-cord to be made, and after the cement has hardened the cords are severed in the middles of the portions where the cement has been applied. From this method of construction it results that as the cords are somewhat attenuated by tension when the cement is applied the ends, permeated by the cement, will, when the latter is hardened, be somewhat reduced in size relative to the body portions of the cords, which latter will resume their normal diameters when the tension is relaxed.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

As an improved article of manufacture, the lacing-cord herein described, the same consisting of a number of flexible, fibrous strands twisted or braided together and having its ends stiffened, hardened and reduced in size and bound together by an adhesive cement, hard at ordinary temperatures, and which permeates the said flexible, fibrous strands so as to solidify and join the same together throughout the bodies of the ends of the cord, substantially as set forth.

JAMES P. TOLMAN.

Witnesses:

F. F. RAYMOND, 2d,
J. M. DOLAN.