

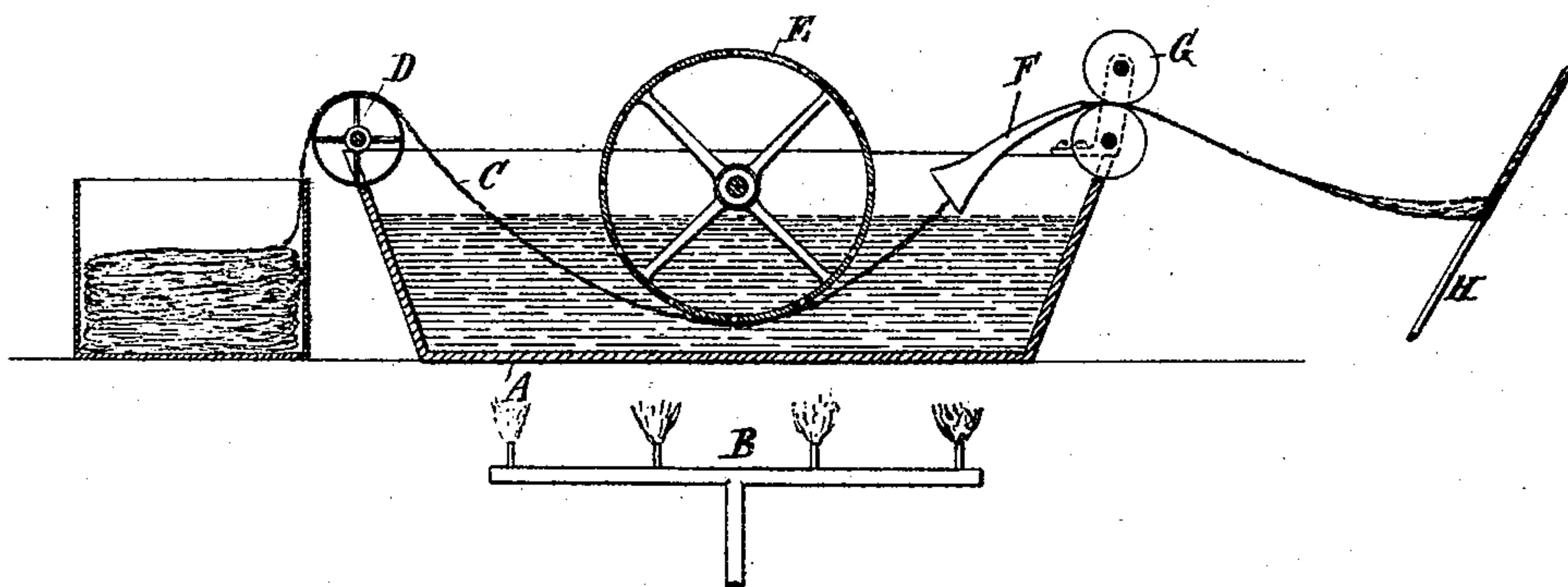
(No Model.)

C. CUTTRISS.

PROCESS OF INSULATING ELECTRIC CONDUCTORS.

No. 488,141.

Patented Dec. 13, 1892.



Witnesses:  
Raphael Netter  
M. G. Tracy.

Inventor  
Charles Cuttriss  
by Duncan & Page  
Attorneys.

# UNITED STATES PATENT OFFICE.

CHARLES CUTTRISS, OF NEW YORK, N. Y., ASSIGNOR TO THE KNUDSON-CUTTRISS WIRE COMPANY, LIMITED, OF NEW YORK.

## PROCESS OF INSULATING ELECTRIC CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 488,141, dated December 13, 1892.

Application filed January 20, 1892. Serial No. 418,643. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES CUTTRISS, a subject of the Queen of Great Britain, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Processes of Insulating Electric Conductors, of which the following is a specification, reference being had to the drawing accompanying and forming a part of the same.

The object of the improvement or invention which forms the subject of this application, is to render available for purposes of insulating electric conductors raw cotton in the condition known as "sliver."

It is well known that cotton in the condition of sliver has but little tenacity or cohesion, and all attempts to utilize it in this condition as a means of covering electric conductors resulted in practical failure until the discovery was made by myself that if the sliver were first drawn through boiling water its fibers could be matted or felted in such manner that it could be easily and practically wound on or applied to a conductor and compacted to form a desirable and valuable covering. I have now found that if the sliver be drawn through boiling oil and the surplus expressed that the cohesion of its fibers is very greatly increased, and that it may be made by pressure into a sort of tape of a great many times the tensile strength of the original sliver, and that in this condition it may be reeled or wound on a conductor to form a very perfect insulating-covering therefor. The extreme delicacy of the original fiber renders it necessary to use an oil or an insulating compound which, at a boiling heat, will be brought to the same consistency—in other words, to the consistency of a perfectly mobile fluid as distinguished from one that is viscous or sticky in character. No special apparatus is required for thus treating the sliver, as it is merely necessary to draw it through the fluid and pass it through squeezing-rolls. After issuing from the rolls it may be wound at once on the wire or conductor or reeled off and preserved in good condition for subsequent application. Two advantages are gained by this process. The

sliver is rendered remarkably coherent and its tensile strength very greatly increased, while the oil itself serves as an insulator, so that a wire served with the treated sliver would require no other treatment to make it a very desirable and useful insulated conductor that could be made up with others into cables or passed through an ordinary braiding-machine.

In the accompanying drawing I have shown a simple form of apparatus that may be used in the above-described treatment of the sliver, the parts being shown in vertical section.

A is a receptacle for containing the material, which may be resin oil or resinous or similar compounds capable of being brought to a very perfect state of fluidity by the application of heat.

B designates the burners that are employed to keep the material at the boiling-point—a desideratum for good results.

The sliver C is drawn up out of the can over a roll D, and is carried under a cylinder E with a perforated surface, and then through a guide-tube F to the squeezing-rolls G. From thence it is taken off in any desired manner or wound directly on a wire H. It is desirable to rotate the roll D and cylinder E with a peripheral speed equal to that of the squeezing-rolls; but the latter are the means by which the sliver is drawn through the compound. In passing down into and through the boiling oil or other material the sliver parts with its air and becomes thoroughly saturated with the oil. The air escapes largely up through the perforations in the cylinder, which is about one-half submerged.

I am well aware that yarns, tape, and the like, prior to being wound on or applied to a conductor, have been drawn through insulating compounds of many kinds, both hot and cold; but this has been with the purpose and result of increasing their insulating or water-repellant properties; but by the treatment of sliver in the manner described I secure another or an additional result in the better cohesion of the fibers, not by reason of the adhesive character of the coating on the fibers alone, but by the actual felting or matting of the fibers even when the consistency or char-



acter of the material absorbed is such that it does not possess any sensible adhesive qualities.

What I therefore claim is—

- 5 The method of preparing cotton sliver for application to electrical conductors, which consists in drawing the sliver in its natural state through a boiling non-viscous insulating

fluid, such as oil, and then matting or felting the same and expressing the surplus oil taken up by it.

CHARLES CUTTRISS.

Witnesses:

ROBT. F. GAYLORD,  
PARKER W. PAGE.