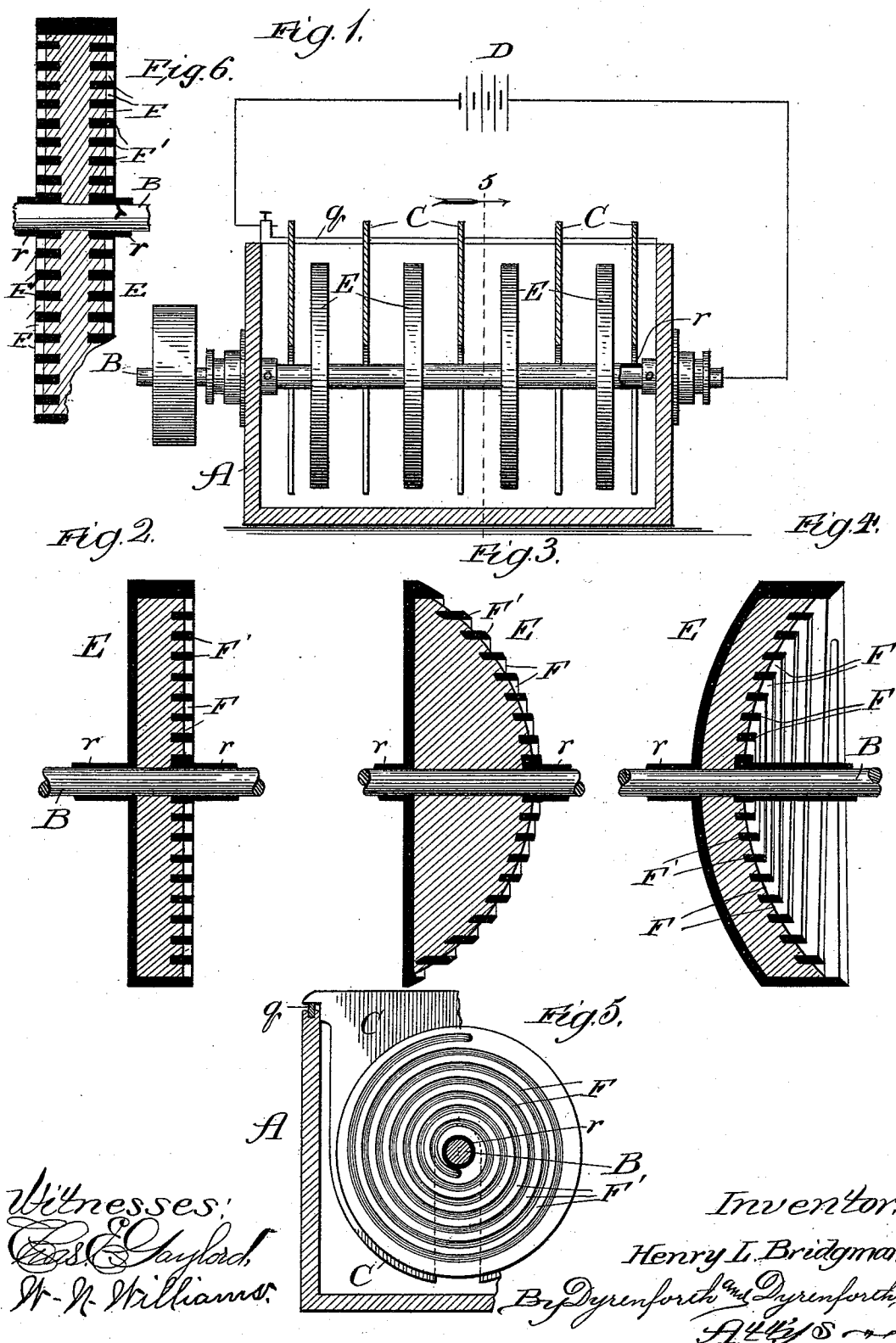


(No Model.)

# H. L. BRIDGMAN. APPARATUS FOR ELECTRODEPOSITION.

No. 528,586.

Patented Nov. 6, 1894.



# UNITED STATES PATENT OFFICE.

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## APPARATUS FOR ELECTRODEPOSITION.

SPECIFICATION forming part of Letters Patent No. 528,586, dated November 6, 1894.

Application filed October 3, 1893. Serial No. 487,113. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY L. BRIDGMAN, a citizen of the United States, residing at Blue Island, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Electrodepositing Apparatus, of which the following is a specification.

The object of my invention is to provide an electro-depositing apparatus, the cathode for which shall be of general or approximate plate-shape and adapted to receive the deposit of metal on its side or sides grooved, (by preference spirally) by applying insulating material to form the groove, wherein the deposited metal assumes a more or less attenuated or elongated form and is produced in large quantities with each operation of the apparatus, owing to the comparatively large number of the cathodes their form will permit to be accommodated in the vat, and the consequent large aggregate of depositing surface they present.

The purpose of producing the metal of deposit in the attenuated or elongated form referred to is to form wire, of any desired gage, immediately by the action of the apparatus, or strips of the metal adapted to be readily drawn into wire.

In the accompanying drawings—Figure 1 is a view in sectional side elevation of an electro-depositing apparatus provided with my improvement. Figs. 2, 3, and 4 are broken sectional views each showing a different form of the cathode within my invention. Fig. 5 is a broken view representing a section taken at the line 5 on Fig. 1, and viewed in the direction of the arrow. Fig. 6 is a view like that presented in Fig. 2, showing a modification.

A is the vat having supported in it a metal shaft B, which is preferably rotatable and is covered with insulation *r* wherever it is exposed to the electrolytic fluid in the vat, and straddled by the anodes C, which are hung to extend at suitable intervals apart in the vat from its lateral upper edges, on one of which the anodes bear against a metal rod *q* connected with one pole of a generator D, the shaft being connected with the opposite pole thereof.

E E represent my improved cathodes.

The cathode E, which is preferably, though

not necessarily, circular, is essentially of plate-form, or generally or approximately of that form; that is to say it has flat, or more or less concave or convex, or depressed or bulging surfaces for receiving the metal deposits by the electrolytic action, which may be caused to take place on either or both sides of the cathode.

As the arrangement is shown in Figs. 2, 3, and 4 of the drawings, only one surface of each cathode is adapted to receive the metal deposit, while Fig. 6 shows an arrangement for the deposit on both surfaces. The surface is grooved, the groove F illustrated being spirally continuous from the center through which the shaft B passes, to the periphery, which is covered with the insulating material *r*, the latter covering also the back of the cathode or surface thereof on which the depositing is to be prevented and being extended on the shaft where it is exposed to the liquid-contents of the vat. The groove F is formed with suitable insulating material, F', as rubber or wax, fastened to the side of the cathode-plate.

The form of the cathode enables a comparatively large number thereof to be immersed in a vat A, in which they alternate on the shaft B with the anodes C; and accordingly a great extent of depositing surface is afforded in a comparatively small apparatus, thus enabling a large quantity of the wire, or other form of the metal product, to be manufactured at once in the apparatus.

The operation is the same as that of other apparatus of the same class; that is to say, the shaft is rotated in the liquid contents of the vat and carries with it the cathodes, which stir the liquid, and in the grooves of which (the latter being coated with graphite, or any suitable substance that will tend to prevent adhesion) the electrolytic action deposits the metal in the desired elongated or wire form. When the product has attained the desired thickness, it is stripped from the cathodes.

What I claim as new, and desire to secure by Letters Patent, is—

An electro-depositing apparatus comprising, in combination, a vat A for the electrolytic fluid and in which the anodes D are sus-

pendent, a rotatable insulated shaft B, a cathode E secured on the shaft to rotate with it the cathode being of general plate-form with a spiral groove formed on at least one side  
5 with insulating material and having its edge covered with insulating material, and a generator having its poles connected, respect-

ively, with the cathode, through the shaft, and the anodes, substantially as and for the purpose set forth.

HENRY L. BRIDGMAN.

In presence of—

M. J. FROST,

W. N. WILLIAMS.