2 Sheets—Sheet 1.

W. WILMSMANN.

Apparatus for Manufacturing Wire.

No. 201,582. **Patented March 19, 1878**

Fig I

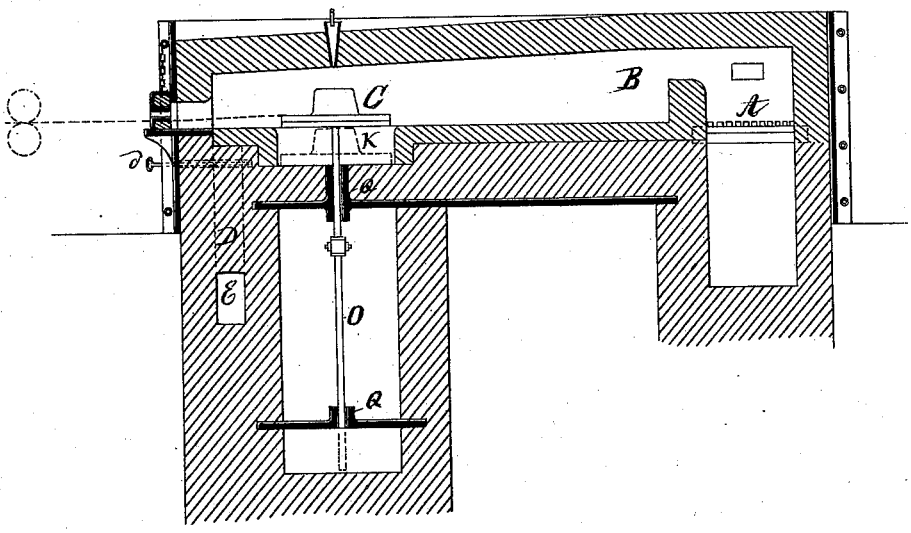
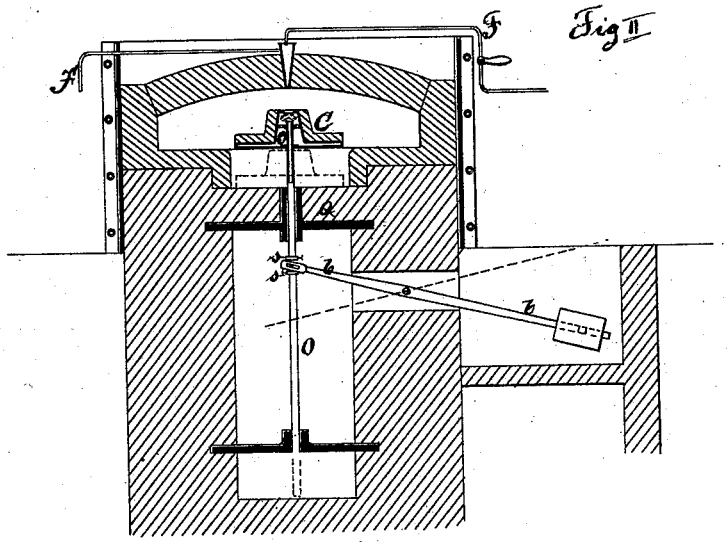


Fig II



1:40

Witnesses
A. Scott
M. B. Atkinson.

Inventor.
W. Wilmsmann
per A. Schiedung
Attorney

2 Sheets—Sheet 2.

W. WILMSMANN.

Apparatus for Manufacturing Wire.

No. 201,582. **Patented March 19, 1878.**

Fig III

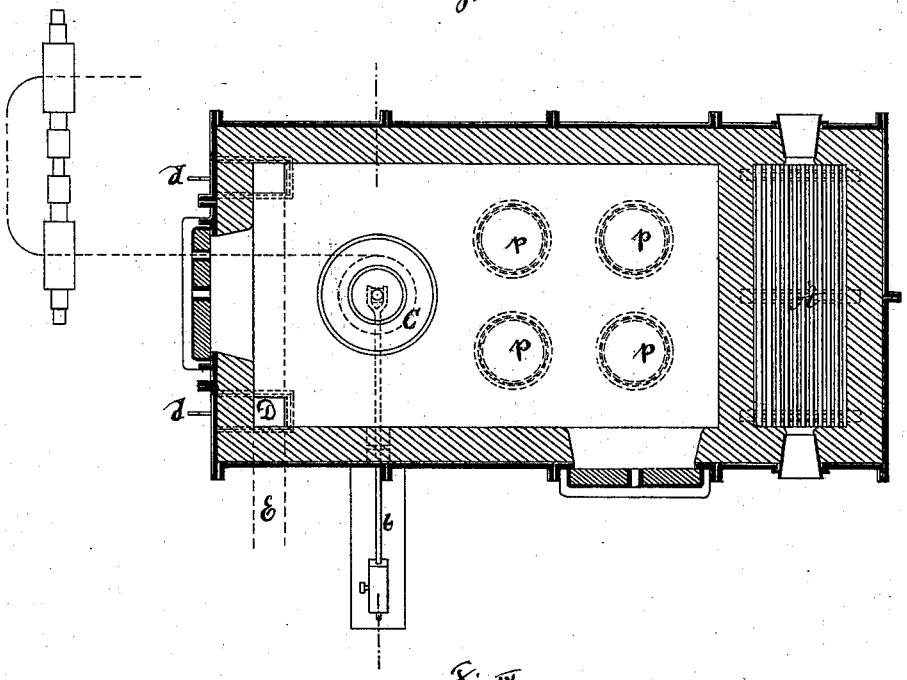
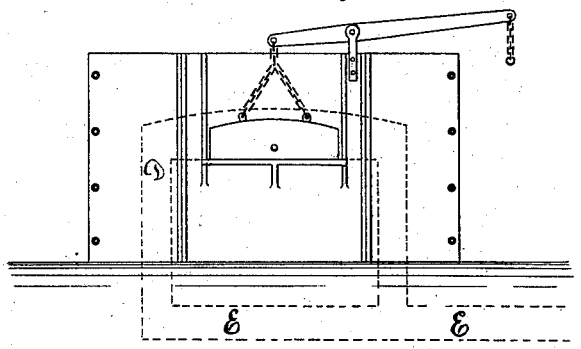


Fig IV



1:40.

Witnesses
A Scott
W. B. Atkinson.

Inventor
W. Wilmsmann
per A. Schüssling
Attorney

UNITED STATES PATENT OFFICE.

WILHELM WILMSMANN, OF HAGEN, PRUSSIA.

IMPROVEMENT IN APPARATUS FOR MANUFACTURING WIRE.

Specification forming part of Letters Patent No. **201,582**, dated March 19, 1878; application filed February 16, 1878.

To all whom it may concern:

Be it known that I, WILHELM WILMSMANN, of Hagen, in the Province of Westphalia and Kingdom of Prussia, have invented certain new and useful Improvements in the Manufacture of Wire, of which the following is a specification:

The present invention relates to an apparatus for manufacturing wire; and it consists in the combination, with a heating-furnace, of a vertically-adjustable drum, which is made hollow, so as to be cooled by a current of water, and is adapted to receive a coil of wire, which wire is carried from the drum in a heated state to a rolling-mill, to be drawn out.

In the accompanying drawings, forming part of this specification, Figure 1 is a vertical longitudinal section of a furnace for heating the wire. Fig. 2 is a transverse section of the same. Fig. 3 is a horizontal sectional view, showing several coils to be heated, and the manner of conducting the wire from the supporting-drum to the drawing-rolls. Fig. 4 is a front elevation of the furnace.

My invention is designed to supersede the expensive and tedious processes of manufacturing wire by annealing the metal rods and drawing the same through die-plates, so as to form wire of a given diameter. I also avoid the necessity of resorting to the pickling process, which consists in subjecting the wire to the action of an aqueous solution of sulphuric acid. I propose to manufacture wire by what may be termed the "hot-rolling process." This is not broadly new with myself, because it has been proposed to place a coil of wire or metal rod upon a drum located within a furnace, and to pass the wire between rolls arranged outside of the furnace. My apparatus is specially adapted for carrying out this process of hot-rolling in a quick and perfect manner. The furnace comprises the fuel or grate chamber A and the heating-chamber B, which latter is adapted to receive a series of coils of wire to be heated, as is shown in Fig. 3. C denotes a drum, which serves to sustain a coil of wire while the same is being unwound and drawn through reducing-rollers arranged outside of the furnace. These rollers are of the ordinary construction, and are shown in Figs. 1 and 3.

D D are the draft-flues, having the dampers *d*, and E is the smoke-passage. The floor of the heating-chamber is provided with a cavity or chamber, K, which is large enough to receive the drum C when the same is lowered into the chamber, in order to permit a coil of wire to be placed on the drum by simply drawing the coil over the drum. This operation can be performed from the front of the heating-chamber without raising the coil of wire.

In order to enable the drum to withstand the heat of the furnace, it is cooled by means of water, in the following manner, viz: The water is led through a supply-tube, F, into a funnel projecting through the roof of the heating-chamber, and from this funnel the water flows into the drum. In order that no air can pass into the furnace, the inlet-funnel is always kept full of water, and, as more water flows through the tube F than can pass out through the funnel, I combine a waste or overflow tube, F′, with the funnel. The drum C is provided with a top aperture large enough to receive the stream of water descending from the inlet-funnel, and it is provided with a chambered body for receiving and containing water. The drum is mounted on a tubular vertical shaft, O, which is in communication with the water-chamber of the drum, so as to lead the water away therefrom. By this means the said shaft is also maintained in a cool state, the water flowing constantly through it. The drum is generally constructed of a hollow metallic body, which is surrounded by a jacket of fire-proof material. The shaft of the drum is journaled in bearing-plates Q, through which it passes loosely, so as to slide up and down. A weighted lever, *b*, passing through the furnace-wall, carries a tubular bearing at its inner end, which bearing receives the shaft of the drum, collars *s* on the shaft serving to prevent the vertical movement of the bearing independently of the shaft. It will thus be perceived that the drum can revolve and be raised and lowered for accomplishing the results heretofore stated.

The apparatus forming the subject of the

present invention is specially designed for manufacturing wire of a very small diameter.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The hollow revolving drum, having a water-inlet opening at the top and a hollow supporting-shaft at the bottom, to permit the flow of water through said drum and shaft, in combination with a furnace having means for supporting the drum and for supplying water to the latter, substantially as and for the purpose set forth.

2. The furnace having an aperture in the bottom of its heating-chamber, in combination with a vertically-adjustable revolving unwinding-drum, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILHELM WILMSMANN.

Witnesses:
AUG. HARDT,
AUG. KOHN.