(No Model.) 2 Sheets—Sheet 1.

E. H. HILL.

PROCESS OF AND APPARATUS FOR COATING BARBED FENCE WIRE WITH METAL.

No. 264,535. Patented Sept. 19, 1882.

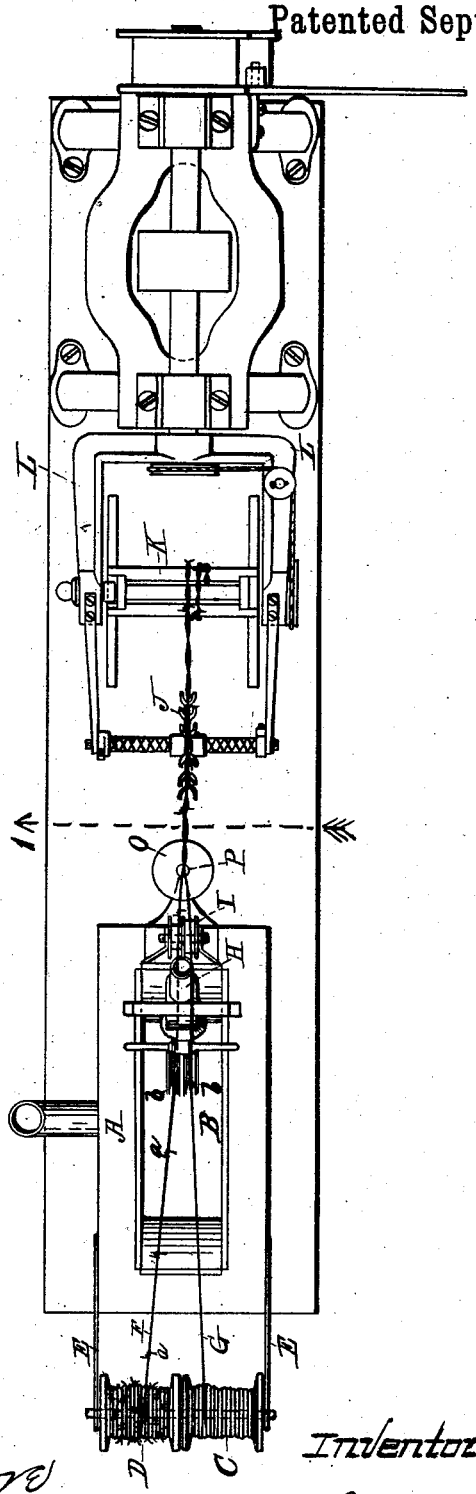

Fig. 1.

Witnesses,
Edwin E. Moore
Thos. H. Dodge

Inventor,
Edwin H. Hill

(No Model.) 2 Sheets—Sheet 2.

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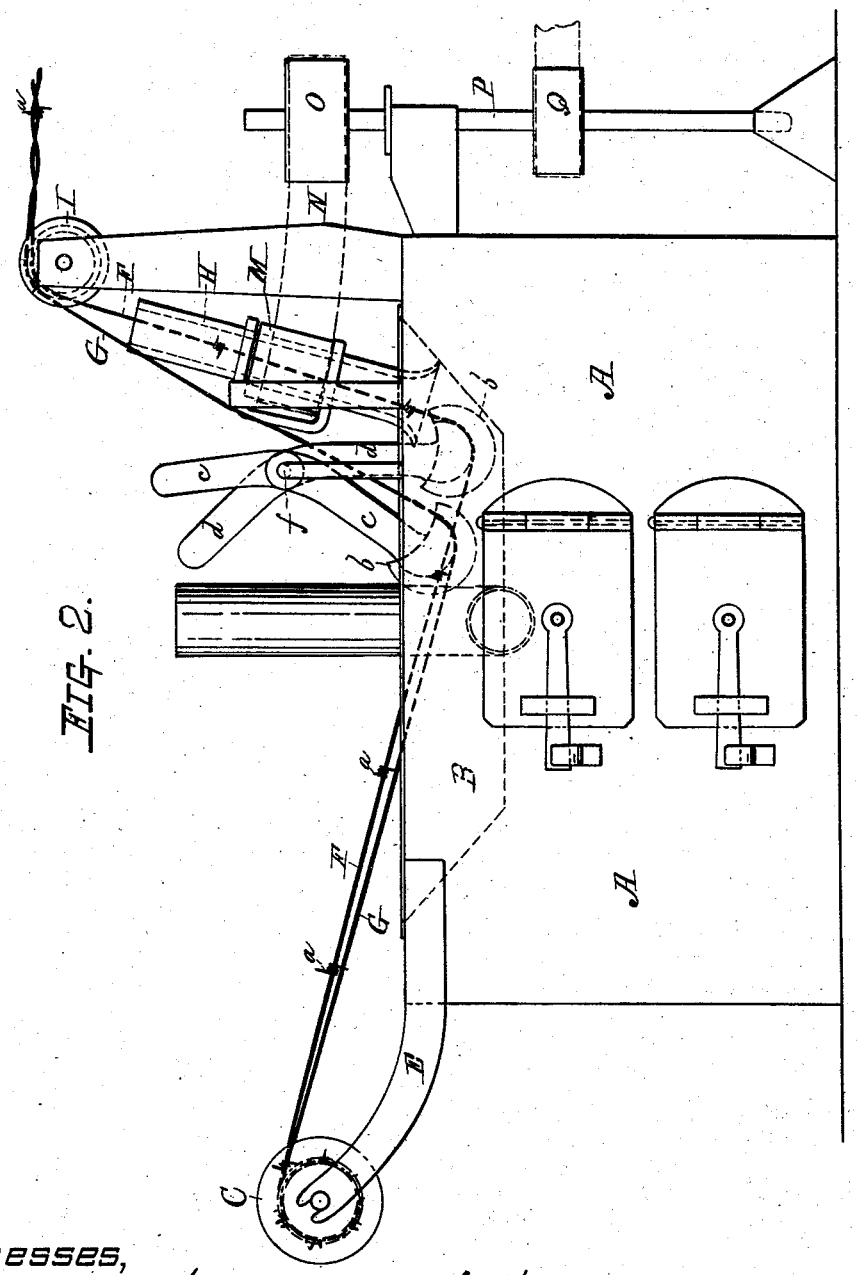

FIG. 2.

Witnesses,
Edwin E. Moore
Thos. G. Dodge

Inventor,
Edwin H. Hill

UNITED STATES PATENT OFFICE.

EDWIN H. HILL, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO WASHBURN & MOEN MANUFACTURING COMPANY, OF SAME PLACE.

PROCESS OF AND APPARATUS FOR COATING BARBED FENCE-WIRE WITH METAL.

SPECIFICATION forming part of Letters Patent No. 264,535, dated September 19, 1882.

Application filed October 21, 1880. (No model.)

To all whom it may concern:

Be it known that I, EDWIN H. HILL, of the city and county of Worcester, and Commonwealth of Massachusetts, have invented certain new and useful Improvements in the Process of and Apparatus for Coating Barbed Fence-Wire with Metal and Cabling Barbed Wire, as hereinafter described, and also certain improvements in the mechanism for carrying out said mode or process, or in aid thereof; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a top or plan view of so much of a machine for zinc-coating or tinning barbed fence-wire as is necessary to illustrate my present invention; and Fig. 2 represents a side view, looking in the direction of arrow 1, Fig. 1.

The nature of my invention consists, first, in a method of coating with metal and cabling barbed wire, as hereinafter described; and, second, in an improved apparatus or machine for facilitating such mode or process, as hereinafter described.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

In the drawings, the part marked A represents the furnace, and B the zinc-receptacle, all of which parts may be made in the usual mode of making zinc-coating furnaces.

C and D represent the two spools of wire, supported upon suitable journals in the ends of standards E E, projecting from the front of the furnace A, as fully indicated in the drawings. Spool D contains the barbed wire F and spool C the unbarbed wire G, and these strands of wire F and G are passed forward and down under the grooved guides *b b* on the lower ends of hinged levers *c* and *d*, said levers being journaled at *f*, so as to swing freely thereon. Lever *c* is shown swung back in Fig. 2 for the purpose of more fully representing the course of the barbed wire as it passes through the metal coating and cleaning apparatus. The barbed wire F, after passing under its grooved guide *b*, is drawn up through a rotating tube or cylinder, H, the lower end of which tube or cylinder is made flaring to prevent the ends of the barbs *a* from striking against the lower edge of said tube or cylinder H in their passage from the molten-metal bath to the grooved guide-roll I, and thence over the sprocket-wheel J to the spool K in the twisting apparatus L, and which twisting apparatus may be made in any of the well-known forms heretofore in use for twisting and cabling barbed wire.

The molten metal in receptacle B, when the apparatus is in use, is covered by preference with a thin coating of finely-broken charcoal, and the tube or cylinder H is also filled with finely-broken charcoal, sand, or some other similar material, and which charcoal, sand, or other similar material is prevented from working out at the bottom of tube or cylinder H in consequence of the greater specific gravity of the molten metal, which always covers the lower end of said tube or cylinder H.

Tube or cylinder H is provided with a pulley, M, around which passes a belt or band, N, from a pulley, O, on the upper end of shaft P, which in turn is driven by a belt passing around a pulley, Q, on its lower end. Cylinder or tube H may be driven, however, in any other convenient manner, at a moderate speed, for the purpose of moving the charcoal, sand, or other similar substance with which said tube is filled around and against the points of barbs *a*, thereby working off all surplus metal before it cools, and as a result of such operation the barbs *a*, on leaving tube H, are smooth, and their points sharp and free from bunches of adhering metal, which would otherwise be the case. Then, again, a great saving of metal is made, since the particles (after being abraded or removed from the barbs by the action of the moving charcoal or sand) work down into the receptacle B and mingle with the melted mass for use again.

The unbarbed wire G, after passing under its grooved guide *b*, the same as its fellow wire, F, passes up over grooved guide-roll I, after which both wires are twisted or cabled together by means of twister L as they are drawn upon and over sprocket-wheel J to reel

K, in the usual manner of reeling and twisting barbed wire composed of two or more main strands.

It will be observed that the wire strands F and G run separate and apart from each other until after they leave the grooved guide-roll I, and hence, while the barbs are fastened to the wire upon which they are coiled, the two main wires are not united together by the molten metal, which has cooled by the time the wires are drawn over grooved guide-roll I, and they therefore retain as much, if not more, spring and elasticity as ordinary cabled wire, and which is not the case when cabled wire is run through molten metal, since by such operation both strands are united together and rendered stiff and comparatively rigid.

In lieu of the cylinder H, any mere equivalent device may be used, and if the part or cylinder H were given a motion by vibrating the same, or other jarring motion, the points of the barbs might be cleaned, and that, too, without departing from the principle of my invention.

Before passing the wires to the bath of molten metal they may be run through a bath of boiling sal-ammoniac or a bath of muriatic acid; but I prefer to dip the spools or reels of wire C D into a bath of boiling sal-ammoniac before they are placed into the positions shown in the drawings.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The method of coating with metal and cabling barbed wire, as hereinbefore described, consisting of running the strands separately or apart through a bath of molten metal, and then passing the barbed wire through a mass of charcoal or sand having a stirring or barb-cleaning motion for removing the surplus metal from the barbs and barb-points, substantially as described, and then, after the metal coating has sufficiently cooled to prevent a union between the separate main strands of wire, cabling or twisting the metal-coated wires together, for the purposes stated.

2. In an apparatus for coating barbed wire with metal, the combination, with the receptacle B for containing the molten metal, of a charcoal or sand receiver or receptacle, H, substantially as and for the purposes set forth.

3. In an apparatus for coating barbed wire with metal, the combination of receptacle to contain the molten metal with grooved guides for directing the separate wires into the molten metal, a charcoal or sand receptacle, through which the barbed wire passes after leaving the bath of molten metal, for cleaning the barbs and barb-points from surplus metal, substantially as described, and a twisting, cabling, and spooling mechanism, for the purposes set forth.

EDWIN H. HILL.

Witnesses:
EDWIN E. MOORE,
THOS. H. DODGE.