(No Model.)

F. CRICH.

WIRE GALVANIZING APPARATUS.

No. 301,572. Patented July 8, 1884.

Fig. 1.

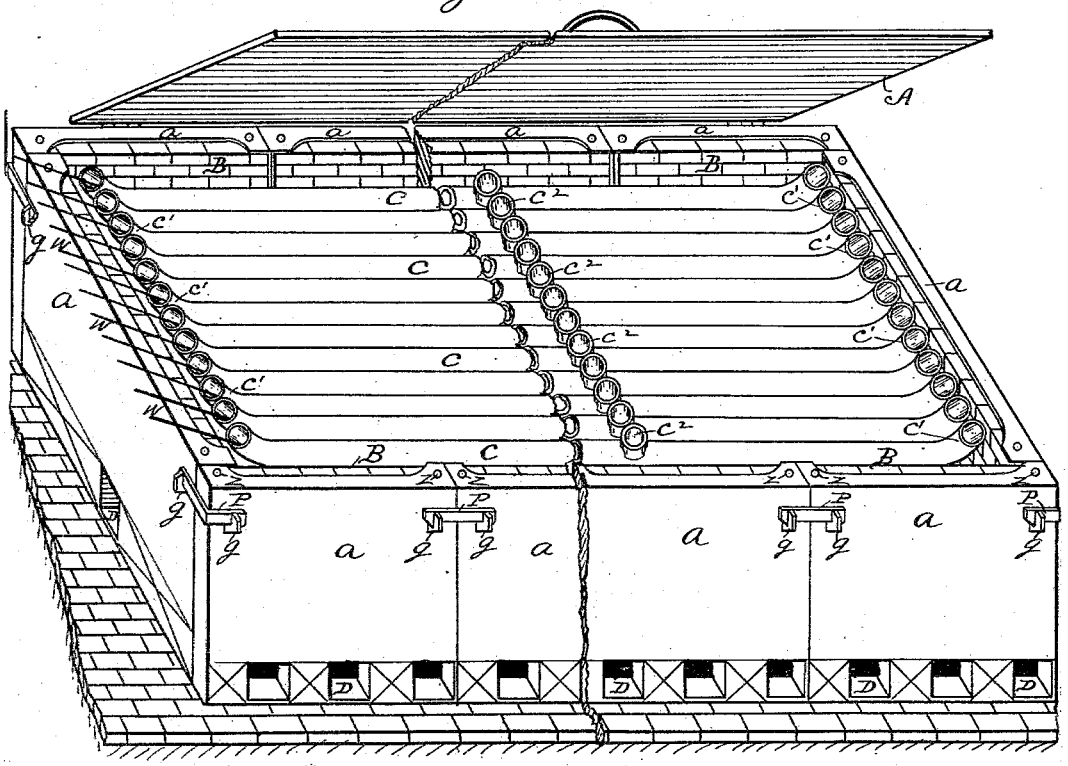


Fig. 2.

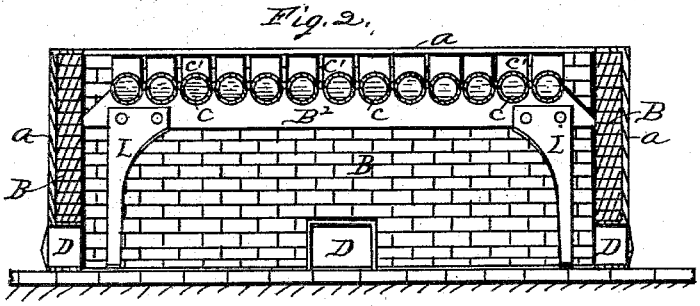


Fig. 3.

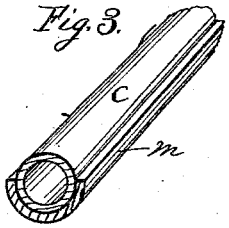


Fig. 4.

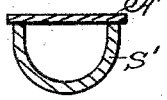


Fig. 5.

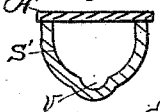


Fig. 6.

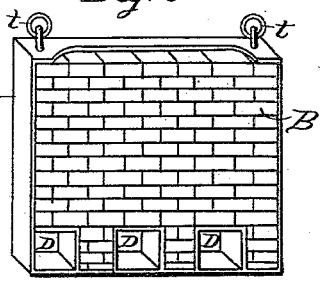
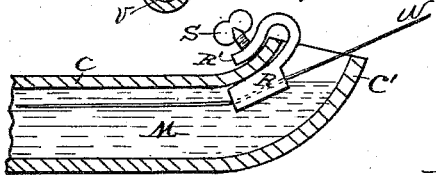


Fig. 7.



Witnesses.

Thos. H. Hutchins,

Wm. J. Hutchins.

Inventor.

Frederick Crich

UNITED STATES PATENT OFFICE.

FREDERICK CRICH, OF JOLIET, ILLINOIS, ASSIGNOR OF ONE-HALF TO THE ASHLEY WIRE COMPANY, OF SAME PLACE.

WIRE-GALVANIZING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 301,572, dated July 8, 1884.

Application filed December 21, 1883. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK CRICH, a citizen of the United States of America, residing at Joliet, in the county of Will and State of Illinois, have invented certain new and useful Improvements in a Wire-Galvanizing Apparatus, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a perspective view; Fig. 2, a cross-section looking toward one end; Fig. 3, a perspective view of a portion of a pipe lying in a supporting-trough; Figs. 4 and 5, cross-sections of different forms of galvanizing-troughs; Fig. 6, a rear perspective of a section of the furnace-sides; and Fig. 7, a central longitudinal view of a portion of a pipe, *c*, and a side view of the shoe R, that conducts and supports the wire *w*.

This invention relates to certain improvements in a wire-galvanizing apparatus, which improvements I will fully explain in the following specification.

The object of this invention is to so construct the apparatus that it needs very much less galvanizing material to galvanize the wire than in ordinary apparatuses for this purpose, and lessens the liability to lose the galvanizing material in case of any breakage or accident; also, to render it possible to repair and replace parts without disturbing the remaining parts while the apparatus is in operation.

Referring to the drawings, the furnace consists of the sectional flanged side plates, *a*, lined with fire-brick on their fire-sides, and said brick lining held therein by means of the flanges, as shown in Fig. 6. These side plates so lined are set up as shown in Fig. 1, and held together in position by means of the integral lugs *g* and bars P. Each such section is provided with the draft-holes D and rings *t t* on the top, for the purpose of furnishing means to raise out a section *a* for repairs, and be immediately replaced by a new one without disturbing the remaining parts of the furnace or delaying the operation of the apparatus in the least.

In ordinary furnaces of this class the side walls of the furnace are generally built all in one solid continuous wall, so that when it needs repairs the fires have to be put out and the galvanizing metal necessarily cool off, and thereby stop further operation. All that difficulty is overcome by constructing the furnace-sides in the removable sections as set forth.

Instead of using a large vat to hold the galvanizing material, as is the general practice in apparatuses of this character, the galvanizing material is contained within the train of horizontal pipes *c*. (Shown in Fig. 1.) The metal is melted and poured in at the openings c^2, which are located about midway between the ends of said pipes, as shown in Fig. 1. These openings also permit an inspection of the metal at that place, to see if it is in proper working condition. These pipes are turned up sufficiently at each end, so that they may be full of metal M between the turned-up ends *c'*, and prevent it spilling out, as shown in Fig. 7 more particularly. These pipes *c* may be provided immediately under the openings c^2 with depressions or troughs *v*, as shown in Fig. 5, for the purpose of collecting the dross of the galvanizing metal, and rendering it easy to remove the dross by means of a ladle. These pipes *c* are supported within the furnace, as shown in Fig. 1, on the beams B^2, supported by legs L, and may be constructed of terra-cotta, fire-clay, or any suitable material of that nature, and they may be, in cross-section, of the forms shown in Figs. 4 and 5, or as shown in the other figures, and, if deemed necessary, lie in a suitable trough, *m*, for a support, as shown in Fig. 3.

A lid, A, Fig. 1 is designed to cover over the furnace and pipes except at their ends, to permit the wire *w* to be drawn through the pipes *c;* or each pipe, if formed in the shape of a trough, as shown in Figs. 5 and 4, can have an individual lid or cover, A'. In order to prevent the wire *w* from wearing the pipe *c*, a shoe, R, shown in Fig. 7, may be used to pass the wire through. A thumb-screw, S, serves to fasten the shoe R to the pipe, so that the shoe may be removable.

In operation, the wire *w* is first threaded through the pipes *c*, after which the pipes are filled, as before stated, with the galvanizing metal. The fuel for keeping a fire beneath

the pipes is supplied between them and the inner sides of the furnace, and the draft-holes D give it sufficient draft. The galvanizing metal is thus kept in a molten state within the pipes, and the wire *w* is drawn through it to galvanize it.

Should a single pipe break or need to be replaced by a new one, the wire *w* can be withdrawn, one end of the pipe raised up to pour out the molten material into a ladle, where it can be kept molten over a fire, and a new pipe laid in to replace the removed one, and the molten metal poured back into it, after a few minutes, without disturbing any of the others. Should one break and drop its contents, only a small portion of the galvanizing material being used can be lost, and that without disturbing any of the other pipes, or the operation of the device.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows, to wit:

1. In a wire-galvanizing apparatus, the pipes *c*, formed of terra-cotta, fire-clay, or any analogous material, and having the turned-up ends *c'*, and trough *v*, for the purpose set forth.

2. The combination of the pipe *c* and the detachable shoe R, as and for the purpose set forth.

3. The combination of the pipes *c*, formed of terra-cotta, fire-clay, or other analogous material, and having the turned-up ends, with the furnace described, formed of the separate sections *a*, and means for attaching and holding said sections together, as and for the purpose set forth.

FREDERICK CRICH.

Witnesses:
THOS. H. HUTCHINS,
WM. J. HUTCHINS.