

(No Model.)

A. HILES.
MANUFACTURE OF RUSSIA IRON.

No. 535,587.

Patented Mar. 12, 1895.

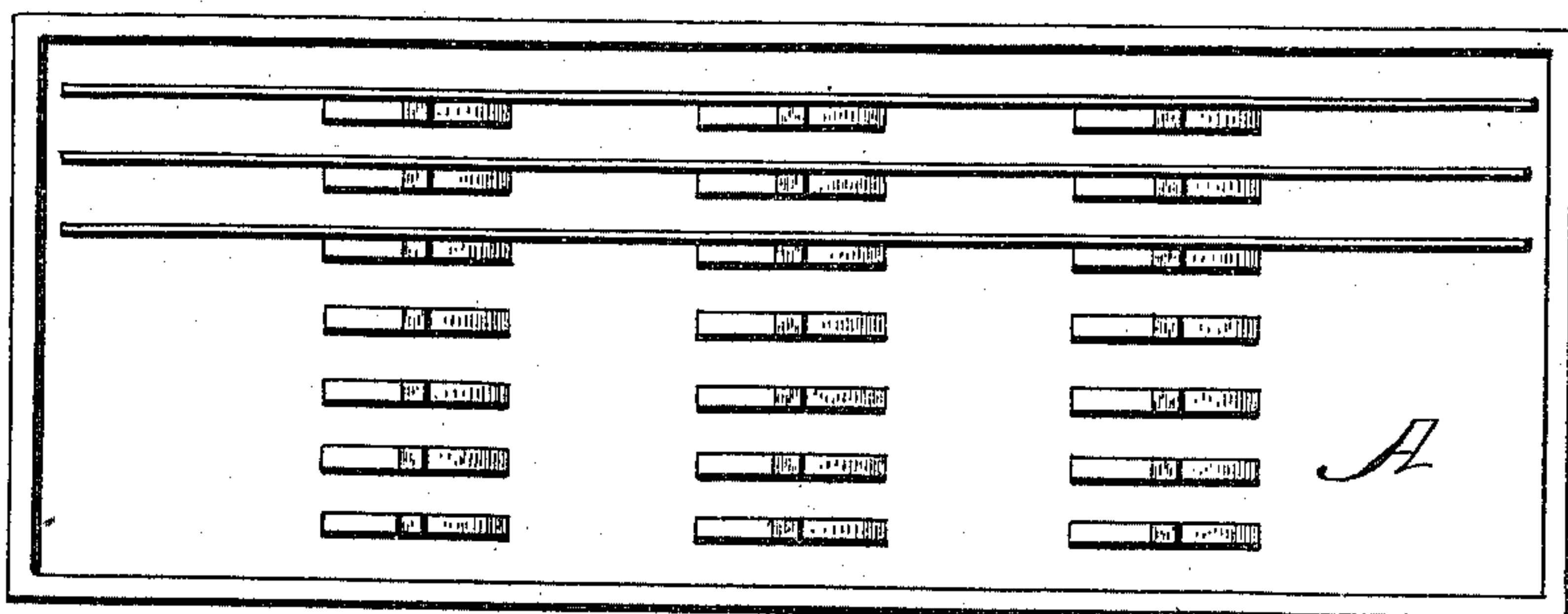


Fig. 1.

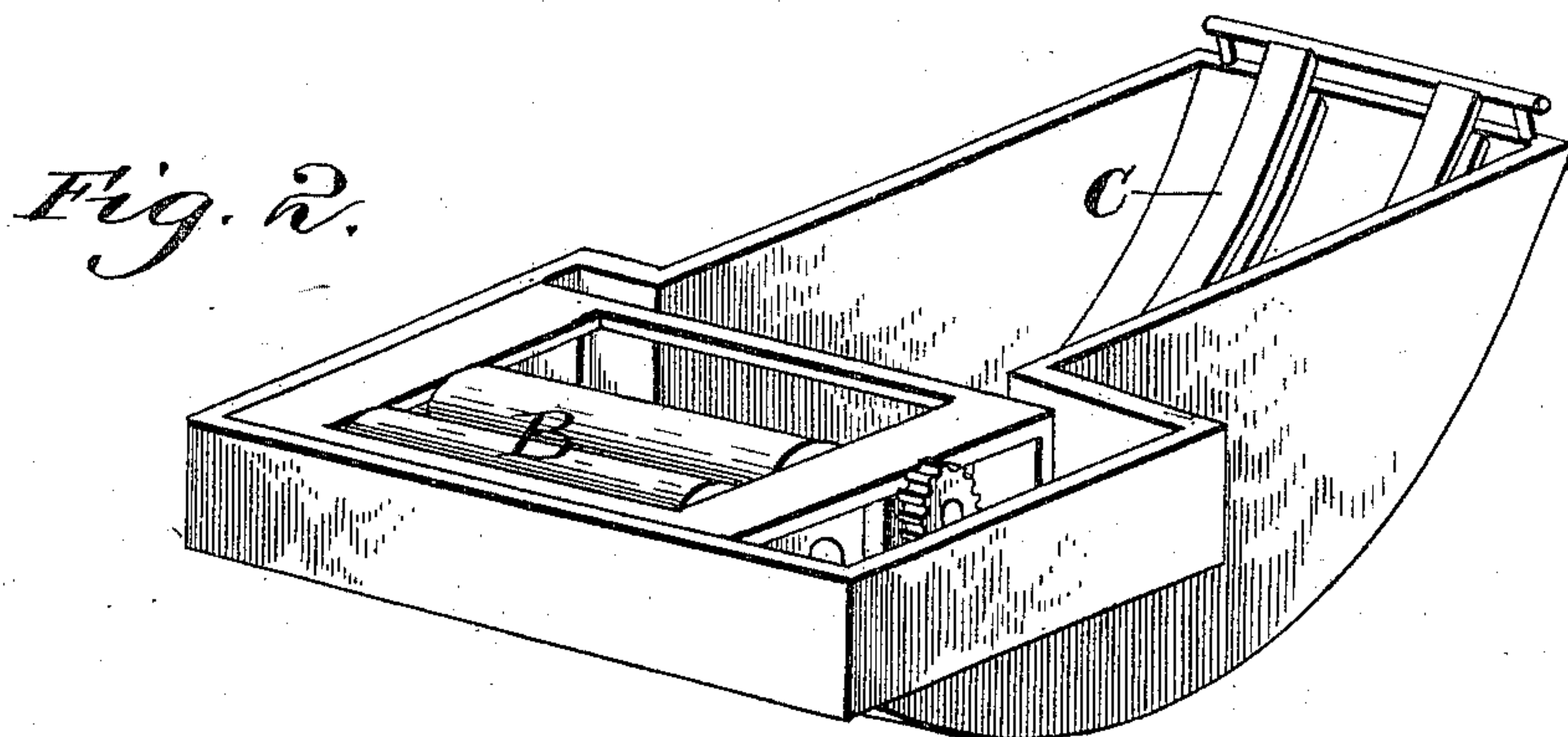
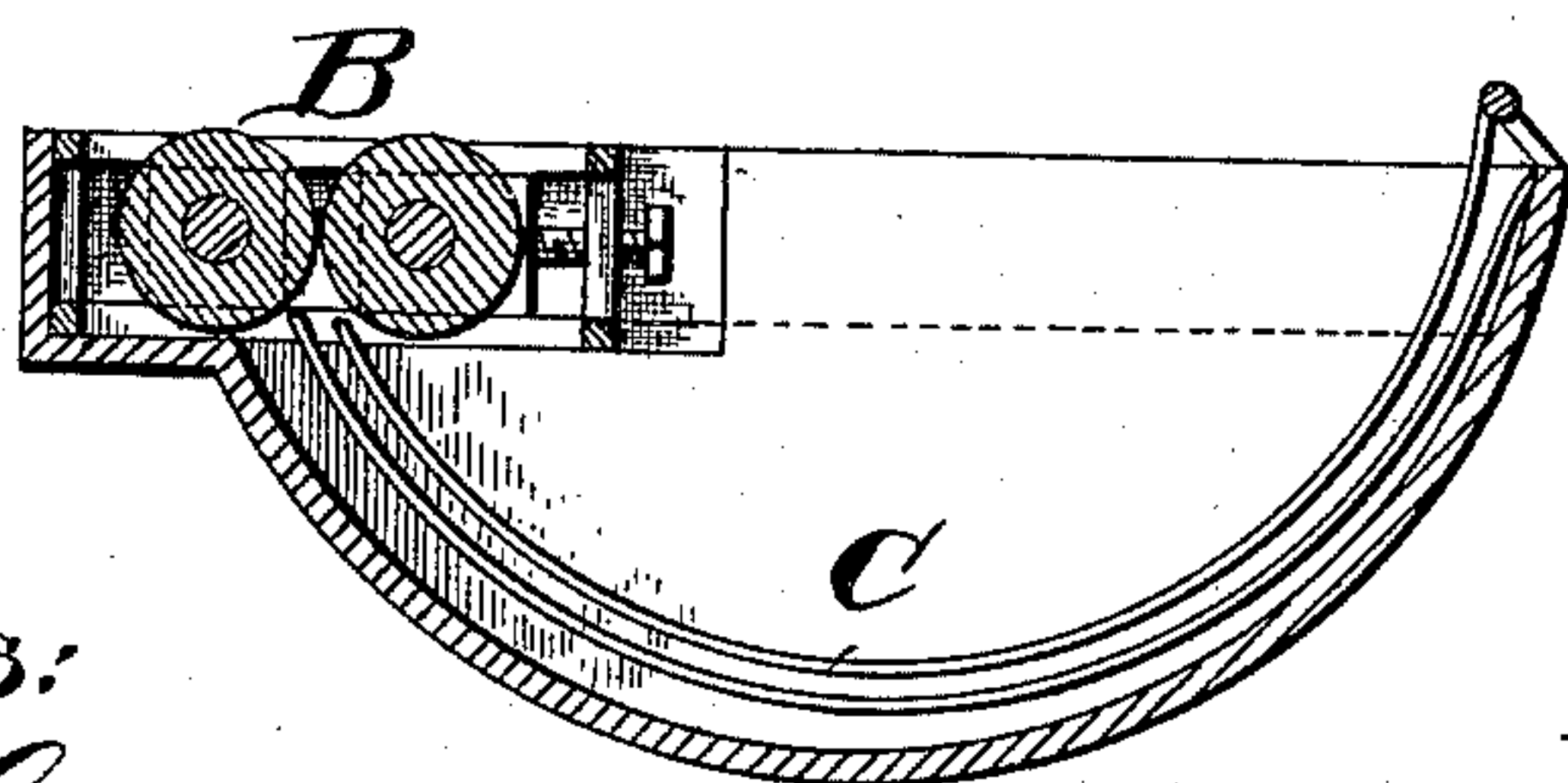


Fig. 2.

Fig. 3.



Witnesses:

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By N. W. Fitzgerald & Co. Attys.

UNITED STATES PATENT OFFICE.

ALFRED HILES, OF CHARTIERS, PENNSYLVANIA.

MANUFACTURE OF RUSSIA IRON.

SPECIFICATION forming part of Letters Patent No. 535,587, dated March 12, 1895.

Application filed May 5, 1893. Serial No. 473,148. (No model.)

To all whom it may concern:

Be it known that I, ALFRED HILES, a citizen of the United States of America, residing at Chartiers, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Making Russia Iron, of which the following is a specification, reference being had therein to the accompanying drawings.

10 My invention relates to a process for producing Russia or planished iron.

The chief objects of my invention may be briefly set forth as embodying an inexpensive, and simple process requiring a cheap organization of apparatus accompanied by economic consumption of materials usually employed in connection therewith in processes of this nature.

20 In the accompanying drawings forming a part of this specification, I have illustrated an apparatus embodying the essential features necessary in carrying out my improved process, and referring thereto—

Figure 1 is a view of a vat provided with a rack to sustain the sheets in a vertical position in the vat and out of contact with each other and the sides of the vat. Fig. 2 is a perspective view of the finishing pot furnished with the rolls, guides, &c. Fig. 3 is a sectional view of the finishing pot.

30 Sheet iron which is to be treated by this process should be removed from the "heat" or rolling apparatus before it has been reduced to the gage which is desired for the finished material, and after being trimmed and opened, it is pickled, and subsequently rinsed and dried. The surface of the metal is now rough, and if necessary, it may be annealed preparatory to the first step of my process, but annealing is not essential to my process, and the plates may be treated thereto immediately after leaving the pickle.

45 The sheets after being separated from the pack are placed in the vat and arranged in the rack, A, which is illustrated in Fig. 1, in such positions as to be out of contact with each other, whereby their surfaces are wholly exposed to the action of the liquid contained in the vat. The vat is filled with tallow, palm oil, or tar which is maintained at a boiling temperature. The metal being porous and being expanded under the influence of

the heat imparted by the boiling liquid, it will absorb the latter. The sheets are now removed to the pot which is filled with boiling grease or tallow, tar, pitch, or rosin, and in which the rolls B are so arranged that their lower surfaces dip slightly into the liquid. Suitable guides, C, are employed, the same being of such shape and construction as to lead through the liquid contained in the receptacle, whereby as the plates are fed thereinto, they are carried through the tallow and while yet coated with the grease are passed between, and subjected to the pressure of, the rolls. The rolls are maintained at the temperature of the liquid in the vat by contact therewith, and their surfaces are normally supplied and enveloped with a sheet of the hot grease which is thus brought into more intimate contact with the surfaces of the plate and is thereby incorporated in the molecular structure of the sheet. These rolls perform the function, and take the place of, the finishing rolls usually employed for reducing the sheets to the commercial gage, and therefore, after having been passed there-through, the grease which has been absorbed by the hot porous metal during its passage through the pot is confined within the pores of the body of the metal by the closure of the surface pores, thus rendering the finished material pliable and giving to its surface the glossy blue-black appearance which is characteristic of "Russia" iron.

85 Owing to the fact that the sheets are subjected to the pressure of the rolls while they are completely enveloped in, and saturated by, the boiling grease, which excludes the air and prevents its detrimental effects, the formation of "scale" is obviated, which is a great desideratum in that the marring of the surfaces of the plates due to the rolling thereinto of the scale is entirely overcome.

95 The above described process gives the iron an oily nature which protects it from oxidation and corrosion.

My invention is clearly defined from, and I do not claim, such methods of coating or glazing plates wherein the plates are treated with an oil bath and then placed in a pile between plates, not so coated, and heated to a cherry heat after which the pile is rolled and reduced in thickness. Such a process would

defeat the primary object of my invention
and destroy the advantages and benefits
which are attained by my invention by bring-
ing the rolls into direct contact with the plates
5 while the plates are in the bath and the sur-
faces thereof being rolled are out of contact
with the air and covered by the compound of
the bath so that the surface pores of the metal
are closed thereby effectually confining the
10 grease within the pores of the plate.

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

The herein described method of manufac-
turing Russia iron which consists in placing 15
the previously treated plates in a hot grease
bath and reducing said plates in thickness
while in and covered with the hot grease by
means of reducing rolls in said hot grease
bath and coated with the same, as set forth. 20
In testimony whereof I affix my signature
in presence of two witnesses.

ALFRED HILES.

Witnesses:

JOSEPH C. MONTGOMERY,
F. R. MCGREW.