UNITED STATES PATENT OFFICE.

SUMNER R. MASON, OF WILMETTE, ILLINOIS, ASSIGNOR TO WESTERN ELECTRIC COMPANY, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

CLEANSING OF FERROUS AND NON-FERROUS METALS.

1,337,718. Specification of Letters Patent. Patented Apr. 20, 1920.

No Drawing. Application filed September 3, 1918. Serial No. 252,474.

To all whom it may concern:

Be it known that I, SUMNER R. MASON, a citizen of the United States, residing at Wilmette, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in the Cleansing of Ferrous and Non-Ferrous Metals, of which the following is a full, clear, concise, and exact description.

This invention relates to the cleansing of ferrous and non-ferrous metals, and more particularly to the electrolytic cleansing of such metals.

The invention has for its object in general the rapid and thorough cleansing of ferrous and non-ferrous metals in an economical and efficient manner.

In accordance with one feature of this invention, the metals are cleansed by an electrolytic process without the use of fixed electrodes. In accordance with this feature, the parts to be cleansed are submerged in the electrolyte and are made the terminals for a source of alternating current.

In accordance with another feature of this invention, there is provided an electrolyte which is free from acids, efficient in action, and inexpensive to produce. According to this feature of the invention, the electrolyte has as its principal ingredient sodium or potassium cyanid combined with a small quantity of hydrate or carbonate, either sodium, carbonate, or potassium.

The electrolyte may be varied considerably as to the quantities of the several ingredients, but a typical electrolyte of this invention would be made by dissolving 32 grams of sodium or potassium cyanid in one liter of water and then adding four grams of sodium or potassium hydrate or by adding sodium or potassium carbonate and eight grams of grape sugar in case the electrolyte is to be used in the cleansing of ferrous metals. The organic matter such as grape sugar is added in order to keep the surfaces being cleaned free from coatings and slime of iron oxid or iron hydrate. Tartrates and citrates may also be used for this purpose, but are not so satisfactory and are more expensive.

In practising the process of this invention a plurality of the parts to be cleansed would be submerged in the electrolyte and a portion of them would be connected to one terminal of an alternating current source, the remaining ones to the other terminal of said source.

The greatest advantages of this process are realized when applied to the cleansing of iron or steel parts, due to the unusual brightness of the surface which is produced by this process. In its commercial application the unusual brightness of the surface produced will in most cases make unnecessary the polishing and burnishing of the parts which have been necessary heretofore to produce the necessary brightness.

The bright surface produced by this process also avoids the use of the bright dip which is composed of expensive nitric acid used alone or in conjunction with sulfuric acid in the well-known bright dip process.

A further advantage of this process resides in the fact that in the treatment with a non-acid electrolyte the danger of rusting, due to acid remaining on the parts or the tedious process of thoroughly cleansing the acid from the parts in water dips, is avoided. Parts cleansed in the cyanid electrolyte and by the use of alternating current may be removed directly from the electrolyte and left indefinitely without danger of rusting while the solution of which the electrolyte is composed remains upon them.

The parts treated by the electrolyte and process of this invention are ready, when withdrawn from the solution and rinsed in water, to be plated, painted, lacquered, or welded, without further treatment.

The process which utilizes the parts to be cleaned as the electrodes has the advantage that it avoids the use of the expensive fixed electrodes.

What is claimed is:

1. The process of cleansing metals, which consists in making the parts to be cleansed the electrodes of an electrolytic cell, and subjecting them to the action of alternating current.

2. An electrolyte for the cleansing of metals comprising cyanid, hydrate, and an organic agent.

3. An electrolyte for the cleansing of metals formed in the proportions of about 32 grams of cyanid to one liter of water, 4 grams of hydrate, and 8 grams of an organic agent.

4. An electrolyte for the cleansing of

metals formed in the proportions of 32 grams of cyanid, one liter of water, 4 grams of hydrate, and 8 grams of grape sugar.

5. An electrolyte for the cleansing of metals, comprising cyanid, hydrate, and grape sugar.

6. The process of cleansing metals, which consists in submerging the parts to be cleansed in a solution of cyanid, water, hydrate, and an organic agent, and submitting them as electrodes to the action of alternating current.

In witness whereof, I hereunto subscribe my name this 24th day of August A. D., 1918.

SUMNER R. MASON.