

melted lead; take of the scum and mix it with as much fine blacklead as will give it an iron color. Clean the machinery and smear with this mixture. After twenty-four hours rub clean with a soft linen cloth. It will keep clean for months under ordinary circumstances.

Galvanized iron is iron covered with zinc in a zinc bath. Formerly it was covered by the aid of electricity, created by a galvanic battery, but lately is covered with zinc in the same manner that tinned iron is made, still keeping its old name. Zinc will corrode underneath paint, and form zinc oxide, a white powder, which loosens the zinc and it drops off.

Re heating and rolling down or forging down wrought iron bars reduces their elongation and increases their tensile strength. The skin of wrought iron is not the strongest portion. Cold rolling increases the strength of wrought iron. Tensile strength of wrought iron averages ten per cent. more with the fiber than across it. Compressing melted steel with a pressure of about six tons per square inch increases its strength.

Every boiler should be protected from the weather. It often occurs that boilers have no other protection than simply a loose board roof, which in ordinary rain storms leaks at every point. If the boilers were always under steam, the bad consequences would be comparatively light, but the great mischief occurs when the boilers are cold. Whenever rust appears on the surface of a boiler it means loss of iron and strength, and consequently is less able to withstand high pressure.

It is said that those who wish to do any painting on or about their mills, will find the following an excellent and cheap recipe, which will last much longer than any ordinary whitewash: Three hundred parts washed and sifted white sand, forty parts precipitated chalk, fifty parts of resin and four parts linseed oil are mixed and boiled in an iron kettle, and then one part of oxide of copper and one part of sulphuric acid are added. This mass is applied with an ordinary paint brush while warm. If it is too thick, it is diluted with linseed oil. This paint dries very rapidly and gets very hard, but protects the wood excellently.

#### SCIENCE NOTES.

On the 1st of next August an International electric exhibition will be opened at Vienna, and a fine display is anticipated.

An apparatus for recording the exact speed of a train during its entire run, including stoppages and startings, has been invented by M. Pouzet.

In the united states last year the Bessemer steel ingot product reached 1,696,450 tons, or an increase of 10 per cent. over the year immediately preceding.

The Italian Government have begun to substitute bronze for the steel guns now used for field artillery, mainly because bronze can be more easily worked.

A CONTEMPORARY advocates the use of wind engines in new countries where prospecting operations are necessary before deciding where to sink the permanent shaft.

It is said that steam and air-tight rubber

packing may be made by brushing it over with a solution of powdered resin in ten times its weight of water. The packing is ready in about four weeks.

In Great Britain the large sum of \$40,000,000.00 is invested in railways. Some of the engines weigh 45 tons, and take a load of 90 tons at a speed of from 40 to 50 miles an hour.

BONDEAUX red is a new colouring matter for wine. It appears to be a naphthaline dye. Its presence in wine can be very easily detected. Silk is turned by it to a granite red, and the addition of a little ammonia makes the doctored wine brown.

A STRONG infusion of sassafras root is recommended by Dr Hinton as a powerful remedy for poisoning by *Rus toxicodendron*. When it is cool cloths are wet in it and applied frequently to the patient. A day's treatment will effect a cure usually.

THE REPORT from England of the discovery of a cheap method of extracting aluminium may be the precursor of a violent change in many established trades. Aluminium is one of the metals most abundant in nature. Common clay has for its basis alumina or oxide of aluminium. Nothing but the costliness of its manufacture has prevented this metal from displacing silver for many purposes. Aluminium is not affected in any way by exposure to air. It is lighter than silver, harder, can be rolled to a wonderful degree of thinness, or drawn into the finest of wire. It combines readily with copper, iron or silver, forming alloys of great hardness and durability. As a metal of coinage purposes in the lower denominations aluminium possesses many advantages over silver, nickel, copper, bronze, or any combination. The manufacturing world will wait with interest for further particulars of this discovery. It is likely that a great field for cheap aluminium would be found among the stove-founders. The tarnishing of the nickel ornaments now used in such great quantities is a serious trouble to the housewife, who would hail with delight the introduction of some stove decorations which would want less attention.

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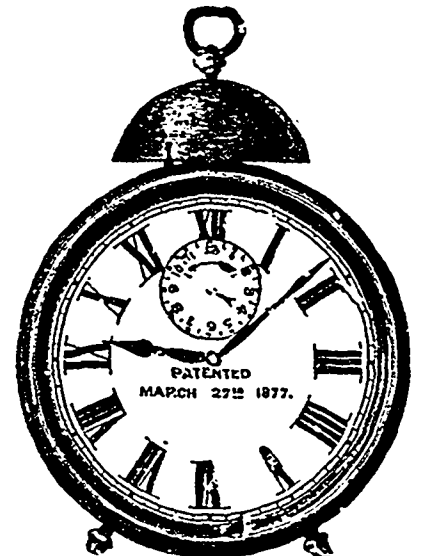
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