

give a receipt for painting plaster casts, so as to render them impervious to the action of the weather? A. They are warmed and saturated with melted stearine or paraffine wax. The former is preferable. Soluble glass is also used.

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined, with the results stated:

F. W. D., Jr.—No. 1. Bornite—composed of sulphur 25, copper 63, and iron 12 per cent. No. 2. Epidote—silica 37, aluminum 23, iron oxide 14, magnesia 23, and water 3 per cent.—M. T. F.—It is not tin ore. The quartz contains augite and epidote.—S. H. M.—The ore contains a large amount of manganese oxide. Its value can only be ascertained by assay. It is worth assaying.—J. K. M.—No. 1. Marcasite—iron 46, sulphur 54 per cent. Not an iron ore. No. 2. A ferruginous clay slate of little value. No. 3. An impure steatite or soapstone. No. 4. This other, if properly ground and calcined, may have some market value. No. 5. An impure limonite iron ore.—F. and M.—It contains gold, of the variety known in works on mineralogy as "fool's gold" or iron pyrites—composed of iron and sulphur. E. B. S.—It is not sulphur as suggested, but iron sulphate, arising from the decomposition of pyrites. It is soluble in water, from which it crystallizes upon evaporating the solution slowly. It is used extensively in the arts.—J. C. U.—The crystals are quartz; when small and perfect they are sometimes employed as cheap imitation diamonds.—J. A. W.—It is zinc blende, of good quality, containing small amounts of cadmium.—Z. Y. X.—The small button consists chiefly of metallic iron.—W. J. B.—It is quartz.—L. H.—The quartz contains a notable amount of silver, copper, and traces of gold. An assay would be requisite to determine the precise value of the ore.—Poughkeepsie—No. 1. Gray limestone. No. 2. An impure pipe clay—suitable for drain pipes, cheap pottery, tiles, etc.—J. B.—It consists chiefly of iron sesquioxide, organic matters and clay, of little value.—J. B.—It contains no silver. The crystals are iron sulphide pyrites.

Any numbers of the SCIENTIFIC AMERICAN SUPPLEMENT referred to in these columns may be had at this office. Price 10 cents each.

COMMUNICATIONS RECEIVED.

The Editor of the SCIENTIFIC AMERICAN acknowledges with much pleasure the receipt of original papers and contributions on the following subjects:

- On Watch Making. By D. B. F.
On the Work of Rats. By H. J. M.
Manufacture of Watches. By D. B. R.
Aerial Navigation. By C. M.
On the Captive Balloon. By A. C. M.
On Writing Mediums. By M. L. B.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH Letters Patent of the United States were Granted in the Week Ending January 21, 1879, AND EACH BEARING THAT DATE. [Those marked (r) are reissued patents.]

A complete copy of any patent in the annexed list, including both the specifications and drawings, will be furnished from this office for one dollar. In ordering, please state the number and date of the patent desired, and remit to Munn & Co., 37 Park Row, New York city.

Table listing inventions with patent numbers and names, such as Air compressor, Amalgamator, Anchor, Axle box lid, etc.

Table listing inventions with patent numbers and names, such as Faucets, Feed water heater, Fence, Fibre, Finger ring, Fireplace, Flat iron, etc.

Table listing inventions with patent numbers and names, such as Electric light, Gas lighting apparatus, Knitting machines, Lock for doors, etc.

The Scientific American EXPORT EDITION. PUBLISHED MONTHLY.

THE SCIENTIFIC AMERICAN Export Edition is a large and SPLENDID PERIODICAL, issued once a month, forming a complete and interesting Monthly Record of all Progress in Science and the Useful Arts throughout the World. Each number contains about ONE HUNDRED LARGE QUARTO PAGES, profusely illustrated, embracing:
(1.) Most of the plates and pages of the four preceding weekly issues of the SCIENTIFIC AMERICAN, with its SPLENDID ENGRAVINGS AND VALUABLE INFORMATION.
(2.) Prices Current, Commercial, Trade, and Manufacturing Announcements of Leading Houses. In connection with these Announcements many of the Principal Articles of American Manufacture are exhibited to the eye of the reader by means of SPLENDID ENGRAVINGS.

Now Ready. THE SCIENTIFIC AMERICAN EXPORT EDITION FOR FEBRUARY, 1879, WITH EIGHTY-SIX ENGRAVINGS AND FIGURES.

GENERAL TABLE OF CONTENTS

Table of contents for the February 1879 issue, including sections like I.—INVENTIONS, DISCOVERIES, AND PATENTS; II.—MECHANICS AND ENGINEERING; III.—MINING AND METALLURGY; IV.—CHEMISTRY AND PHYSICS; V.—NATURAL HISTORY, NATURE, MAN, ETC.; VI.—MEDICINE AND HYGIENE; VII.—THE PARIS EXHIBITION, SCIENTIFIC MEETINGS, ETC.; VIII.—INDUSTRY AND COMMERCE; IX.—PRACTICAL RECIPES AND MISCELLANEOUS.

Table of contents for the February 1879 issue (continued), including sections like V.—NATURAL HISTORY, NATURE, MAN, ETC.; VI.—MEDICINE AND HYGIENE; VII.—THE PARIS EXHIBITION, SCIENTIFIC MEETINGS, ETC.; VIII.—INDUSTRY AND COMMERCE; IX.—PRACTICAL RECIPES AND MISCELLANEOUS.