

(34) E. H. R. suggests that if J. D. B. (p. 155, current volume) should make his elevator pit of cast iron, the trouble about leakage would be ended.

(35) A. W. asks: How can green cherry lumber be seasoned without checking? A. If it is seasoned by immersion in water, the difficulty you speak of will probably be avoided.

(36) J. W. writes: Am I right in understanding that bearings should always be softer than the spindles which run in them? Is that only necessary in case of the oil being forced out? I use hardened steel spindles running in Babbitt boxes (woodworking machinery).

(37) J. S. S. writes: 1. I have a 10 1/2 x 36 engine with a 10 foot fly wheel; boiler 3 feet diameter and 10 feet long, with 30 flues of 3 inches inside diameter.

(38) G. S. writes: 1. I wish to put up some telegraph wire. Will common unannealed wire do, or will it have a tendency to act as a permanent magnet? A. It will do.

(39) T. C. wishes to stretch a 1 inch iron wire rope a distance of 400 feet, allowing but 10 feet sag in the middle, and carrying on the rope a weight of from 1,500 to 1,800 lbs.

(40) E. M. asks: What is the best material for a flat roof for a machine shop and foundry? A. Tin will answer very well.

(41) W. C. asks: 1. How are ocean cables repaired? A. The ends are hauled up and united.

(42) C. E. S. asks: 1. In making an Æolian harp, what kind of strings is preferable catgut or wire? A. Ordinary violin or guitar strings answer very well.

(43) M. J. C. writes: Please explain to me the difference between brace, stay, and gusset, and also what is meant by crow-foot.

(44) H. N. L. asks: How much counter-balance must be put in a crank arm to make an engine run without vibration? A. The vibration cannot be prevented under all circumstances.

(45) T. W. W. asks: 1. Is it practicable to grind common oats into meal or flour suitable for bread on an ordinary country mill? A. They must first be kiln-dried.

(46) St. C. asks: 1. What thickness of steel is necessary to resist a bullet fired from an army revolver? A. We think a plate from one eighth to three sixteenths inch thick will answer.

(47) W. T. W. asks: Is it possible to make a horizontal engine reversible using only one eccentric, and that a fixed one? A. Yes.

(48) C. B. asks: Who was the engineer in charge of the construction of the Hoosac tunnel? A. Thomas Doane.

(49) G. J. B. asks: What is the best way to soften thin portions of chilled castings, in order to drill them? A. Anneal them.

(50) F. B. asks for instructions for making a small steam launch. A. Take your pattern from a good rowboat, and put in just as large an engine and boiler as you can conveniently carry.

(51) J. S. writes: I have one of Landis' domestic steam engines, of 1 1/2 horse power; upright boiler, 18 inches in diameter and 32 inches high, with 15 one-inch flues, full length of boiler.

economical that its use is advisable, unless there is some other special reason for heating by gas. In case gas is used, some one of the patent heaters in the market might be applied to advantage.

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

J. H. P.—The fragment contains a little copper blende, pyrites, and lead sulphide.—A. R. B.—It is a crystal of smoky quartz, the angles of which have been rounded by attrition.—D. N. LaB.—It is fine asbestos, of some value.—C. W. S. T.—No. 1. Clay containing much carbonaceous matter, iron, and alkaline earths, which renders it quite fusible.

COMMUNICATIONS RECEIVED.

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

- Telephonic Phenomena. By W. E. G.
A Brilliant Meteor. By G. W. S.
Snake Cannibalism. By H. R. H. and D. L.
Power Required for Velocipedes. By E. B. C. and G. F. S.
Nickel Plating. By W. H. F.
Darwinian Theory. By E. S. M.
Treatment of Inebriates. By T. P. P.
Perpetual Motion. By E. R. M.
Calculation of Horse Power. By T. J. L.
A Leech Barometer. By E. S. C.

HINTS TO CORRESPONDENTS.

We renew our request that correspondents, in referring to former answers or articles, will be kind enough to name the date of the paper and the page, or the number of the question.

Correspondents whose inquiries fail to appear should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them.

Inquiries relating to patents, or to the patentability of inventions, assignments, etc., will not be published here. All such questions, when initials only are given, are thrown into the waste basket, as it would fill half of our paper to print them all; but we generally take pleasure in answering briefly by mail, if the writer's address is given.

OFFICIAL.

INDEX OF INVENTIONS FOR WHICH Letters Patent of the United States were Granted in the Week Ending February 19, 1878, 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.

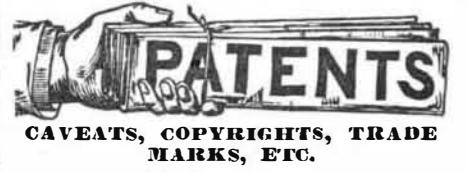
Table listing various patents granted in the week ending February 19, 1878, including items like Annunciator, Axle box, Bale tie, and many others.

Table listing various patents granted in the week ending February 19, 1878, including items like Cock for steam boilers, Coffee roaster, Collar, Cooker, and many others.

Table listing various patents granted in the week ending February 19, 1878, including items like Steam generator, Steamer, Stone sawing machine, and many others.

English Patents Issued to Americans.

- Axle box.—G. A. Morse, South Egremont, Mass.
Glove fastener.—G. Havell, Newark, N. J.
Horseshoe.—J. Russell et al., Newark, N. J.
Intrenching tool.—J. L. Buskett, St. Louis, Mo.
Lamp.—C. Chincock, Brooklyn, N. Y.
Microscope object glass.—E. Gundlach et al., Rochester, N. Y.
Mineral waters, etc.—G. D. Dows, Boston, Mass.
Mining machine.—F. M. Lechner, Columbus, O.
Oil stove.—E. B. Cox, Brooklyn, N. Y.
Railway brake.—A. K. Hadley et al., New York city.
Refrigerator, J. Lorillard, New York city.
Revolver.—O. Jones, Philadelphia, Pa.
Rock drill.—A. H. Elliott, New York city.
Ship armor.—E. W. Serrell, New York city.
Steam and hydraulic press.—J. F. Taylor, Glenville, Conn.
Telephone.—G. B. Richmond, Lansing, Mich.
Telescope object glass.—E. Gundlach et al., Rochester, N. Y.



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