up about 14 troy grains of arsenic. The living insect will be safe from the ravages of moths, anthrenus or dermestes. This liquid will not change the color of blue, green or red beetles if dried after soaking 24 hours. Hemiptera and orthoptera can be treated in the same The nests, cocoons, and chrysalids of insects may be preserved by means of this solution, or by dipping into benzineor a solution of phenol or creosote.

(31) C. E. T. writes: Will you inform an "old subscriber" if any definite experiments on the conductivity of dry steam are on record? Will the amount of heat required to raise the temperature of a pound of water 1° per minute increase the temperature of dry steam with the same rapidity? If a copperglobe capable of containing one ounce of water converted of the question. into steam at 100 lbs. pressure per square inch be subjected to the same heat which raised the temperature of the water 1° per second, will the steam conduct or convey the heat throughout its bulk so as to increase at the into the waste basket. same rate? A. According to Regnault's experiments, the amount of heat that raises the temperature of a the amount of heat that raises the temperature of a of a personal character, and not of general interest, pound of water 1° will raise the temperature of 3.28 should remit from \$1 to \$5, according to the subject, lbs. of saturated steam, or 2.08 lbs. of superheated steam, through the same range.

(32) P. R. asks if there is any simple way of testing silver to see if it is alloyed with copper. A. Cover a small fragment of the alloy with 3 parts of pure warm nitric acid; when it has dissolved add an equal volume of strong ammonia water-a blue tint indicates copper. Or add pure hydrochioric acid instead of ammonia, and bring a drop of the filtered solution in contact with a drop of solution of potassium ferrocy on a clean porcelain surface—a reddish brown colora tion indicates copper.

(33) E. J. W. asks: How can I make indelible inks of different colors, black, purple, red, etc. to mark linen, etc., with stencil plates, rubber stamps, etc. What is the best manner of heating the vulcanized rubber and plaster form in making rubber hand stamps? A. See recipes on pp. 11 (35), 250 (2) (4), 257 (60), 75 (9), 96, 236 (37), 43 (2), and 107 (37), vol. 38, and 284 (54), 300 (46), and 246, vol. 37, and 11 (7), 59 (3), 117, 251 (52), 331 (9). and 284 (38), vol. 36, Scientific American. Also p. 1326 SCIENTIFIC AMERICAN SUPPLEMENT,

(34) O. S. asks how to detect the mineral substance terra alba in commercial cream of tartar A. Digest the salt with 4 or 5 times its weight of strong ammonia water, for a short time, warm and filter the solution, and wash the residue with warm water-the insoluble residue contains all the earthy impurities.

(35) H. W., Jr., asks how to construct a storm glass as used by the United States Naval Depart-A. You perhaps refer to the instrument described on p. 38, vol. 36, of the Scientific American. Dissolve 2 parts of Borneo camphor, 1 part of potassium nitrate (saltpeter), and 1 part of ammonium chloride (sal ammoniac) in 100 parts of 95 per cent alcohol, and add enough distilled water to precipitate a small portion of the camphor. Place this in a large test tube with the upper end drawn out soas to leave an opening not larger than a pinhole. The instrument, which is not of much practical value, is fixed in the open air out

(36) C. W. P. asks: What metal in band shape, say ¾ inch wide by 31 inch thick, will stand running over a 5 or 6 inch pulley two or three thousand times, the band to touch only one fourth of the face of pullcy? Have tried common band iron, but find it quickly crystallizes and breaks. A. We think you can use steel of a quality similar to that employed for band saws.

(37) T. G. McC. asks: 1. Would I have to pay a license, or would I be infringing, on any of the rubber patents if I manufactured some small inven-tions of my own out of rubber, not vulcanized but soft rubber? A. We think the soft rubber patent has expired. 2. Where can I get rubber goods manufactured, providing I invented something that required a rubber attachment? A. Any of the rubber manufacturers in this city would prohably make your articles. Your 3d and 4th questions are indefinite.

1. Is there a patent on the process of lining metal pots, etc., with what is called porcelain lining? A. The processes in use arc covered by several patents. 2. How is it done? A. The materials are reduced to a uniform ly fine powder and made into a paste with water. This is applied to the vessels, dried, and subjected in a muffle or kiln to a temperature sufficiently high to fuse the enamel. 3. Could tinware be so lined? A. Tinned iron may be thus enameled, but the coating of tin becomes oxidized in the process. 4. If so, where could I get it done? A. Lalance & Grosjean, Beekman and Cliff

(38) C. B. asks whether it is possible to compress the air for the use of an engine by means of a windmill. If so, it will supply a great want on the farm. Every farmerneeds a light power to saw wood grind corn, make cider, and many other purposes. An ordinary windmill does not furnish power enough, and besides at the very time it is needed perhaps the wind does not blow. But if it could be constantly employed compressing air and storing power which would be always ready, the combination would supply a great want and meet a ready sale. A. This could easily be done.

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

C. E. K.—It is not genuine amber (succinite).—E. A. H.-No. 16 is orthoclase (rose) containing muscovite. No. 6 is quartz, orthoclase and hornblende. No. 19 is limestone(somewhat resembling the Solenhofen variety), with small seams of malachite and ferric oxide. No. 8 is shell limestone. Nos. 9, 13, 3 and 14 are also limestones. No. 1 is quartz, limestone, hornblende. No. 17 is chlorite. No. 119 is chalcopyrite with seams of lime No. 15 is quartzite. No. 5 is similar to No. 6. No. 12 is fine ferruginous quartz conglomerate. No. 7 is orthoclase with a little hornblende. No. 11 is a dole-

excess of arsenious acid in fragments; 11/2 pint will take hornblende. No. 194 will be reported subsequently _E. W. H.-Glass colored by ferrous oxide.-D. C. L.-It put into this preparation absorbs about 1000 this of its contains slate, calcite, galena, iron, and a little copper own weight. When soaked in this liquor and dried it pyrites.—E. O. H.—Fragment of quartz with a little

COMMUNICATIONS RECEIVED.

The Editor of the Scientific American acknowledges with much pleasure the receipt of original papers and contributions on the following subjects

Wading of a Box and Axle. By H. D. M. Crank Motion. By E. H.

The Celestial Machine. By G. V. 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

Many of our correspondents make inquiries which annot properly be answered in these columns. Such inquiries, if signed by initials only, are liable to be cast

Persons desiring special information which is purely we cannot be expected to spend time and lahor to obtain such information without remuneration.

[OFFICIAL.]

INDEX OF INVENTIONS

Letters Patent of the United States were Granted in the Week Ending July 16, 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 pleasestate the number and date of the patent desired. and remit to Munn & Co., 37 Park Row, New York city.

and remit to Munn & Co., 37 Park Row, New York	city.
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Drills, etc., feed screw, etc., for rock, R. Allison. Drum, heating. G. B. Follett. Electric light, P. O. Jenkins. Elevator, P. Sykes. Elevator and carrier, hay, W. F. Goddard Elevators, grain spout for, F. M. Campbell. Eyelet for securing buckles to straps, C. W.White Faucet, measuring, R. W. Tavener Feed water heater, J. J. Ralya Feed water heater, I. J. Ralya Feed water heater, locomotive, E. Korting. Felly Joint and tightener, Owen & Mahan. Fences, etc., post for, A. P. Bowes. Fertilizer, Boykin & Carmer Fire escape, Copeland & Taylor Fire escape, D. L. Dieckmann. Flat iron, C. G. Gunderson Floor, roof, etc., composition, T. Hyatt. Fluid discharging apparatus, G. F. Fogerty. Fluting machine, H. Luchs (r) Furnace for boilers, smoke consuming, D. S. Olds Furnace, glass annealing, etc., W. Hirsch. Gas, charging water with, H. B. Dunham Gas lighter, automatic, Miller, Tallmadge & Brown Gas lighting apparatus, electric, J. P. Tirrell Gas, manufacture of, W. J. Taylor Gus retorts, loss of heat in charging, J. Slade. Gate, J. W. Brokaw. Gate, J. R. Talley. Glass, manuf. of toughened enameled, F. Slemens	205,998 206,057 205,952 206,052 206,052 206,052 206,055 206,151 206,151 206,152 206,125 206,125 206,077 206,087 205,949 205,949 205,094 3,388 206,112 206,009 8,388 206,123 206,109 205,060 206,080 206,083 20
Drills, etc., feed screw, etc., for rock, R. Allison. Drum. heating. G. B. Follett. Electric light, P. O. Jenkins. Elevator, P. Sykes. Elevator and carrier, hay, W. F. Goddard Elevators, grain spout for, F. M. Campbell. Eyelet for securing buckles to straps,C. W.White Faucet, measuring, R. W. Tavener Feed water heater, J. J. Ralya. Feed water heater, locomotive, E. Korting. Feily joint and tightener, Owen & Mahan. Fences, etc., post for, A. P. Bowes. Fertilizer, Boykin & Carmer Fire escape, Copeland & Taylor Fire escape, O. L. Dieckmann. Flat iron, C. G. Gunderson Floor, roof, etc., composition, T. Hyatt. Fluid discharging apparatus, G. F. Fogerty. Fluting machine, H. Luchs (r). Furnace for boilers, smoke consuming,D. S. Olds Furnace, glass annealing, etc., W. Hirsch. Gas, charging water with, H. B. Dunham Gas lighter, automatic, Miller, Tallmadge & Brown Gas lighting apparatus, electric, J. P. Tirrell Gas, manufacture of, W. J. Taylor Gus retorts, loss of heat in charging, J. Slade. Gate, J. W. Brokaw. Gate, D. C. Delinger. Gate, J. W. Brokaw. Glass, manuf. of toughened enameled, F. Siemens Glass mould, J. H. Hobbs	205,998 206,062 206,052 206,062 206,061 206,061 206,055 206,103 206,963 206,107 206,077 206,979 206,014 206,112 206,009 8,338 206,123 206,108 206,009 205,950 206,063 206,109 205,950 206,095
Drills, etc., feed screw, etc., for rock, R. Allison. Drum, heating. G. B. Follett. Electric light, P. O. Jenkins. Elevator, P. Sykes. Elevator and carrier, hay, W. F. Goddard Elevators, grain spout for, F. M. Campbell. Eyelet for securing buckles to straps, C. W.White Faucet, measuring, R. W. Tavener Feed water heater, J. J. Ralya Feed water heater, I. J. Ralya Feed water heater, locomotive, E. Korting. Felly Joint and tightener, Owen & Mahan. Fences, etc., post for, A. P. Bowes. Fertilizer, Boykin & Carmer Fire escape, Copeland & Taylor Fire escape, D. L. Dieckmann. Flat iron, C. G. Gunderson Floor, roof, etc., composition, T. Hyatt. Fluid discharging apparatus, G. F. Fogerty. Fluting machine, H. Luchs (r) Furnace for boilers, smoke consuming, D. S. Olds Furnace, glass annealing, etc., W. Hirsch. Gas, charging water with, H. B. Dunham Gas lighter, automatic, Miller, Tallmadge & Brown Gas lighting apparatus, electric, J. P. Tirrell Gas, manufacture of, W. J. Taylor Gus retorts, loss of heat in charging, J. Slade. Gate, J. W. Brokaw. Gate, J. R. Talley. Glass, manuf. of toughened enameled, F. Slemens	205,998 206,057 205,952 206,052 206,052 206,052 206,055 206,151 206,153 205,963 206,125 206,077 206,087 206,078 206,014 206,103 205,149 206,014 206,003 206,123 206,123 206,059 206,014 206,003 206,00

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Gum box and spinning toy, Sibley & Holmwood, Jr		[
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Plow and grain driil, H. A. Avery	206,070	!
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