



should we really use to get the above power? 5. My engine is a plain slide valve in very good condition. At how much cut-off should the slide valve be set? Answers: 1. Our correspondent does not state the point at which steam is cut off, so that we cannot tell what power the engine is developing. 2. Considerable saving of fuel would be produced, by fitting the pipes; possibly as much as ten per cent. 3. Instead of reducing the speed of the engine, it would be better to cut off the steam at an earlier point of the stroke and increase the initial pressure. Questions 4 and 5 show that this is a case where it would be well to consult a good engineer, who would probably suggest improvements which would result in great saving of fuel.

B. says: 1. I have, in a 40 horse power five flue boiler, 60 lbs. of steam; the boiler is half full of water, when the water is cooled down to 60°. What will be the pressure on the outside of the boiler (presuming the boiler to be airtight)? 2. When I begin to get up steam, should I let out the air in the boiler as fast as the pressure will force it, or keep it confined? 3. Will the corrosion around rivets that leak become dangerous? What is the easiest way to stop such leaks? Answers: 1. The pressure outside the boiler will be about 14-17 pounds per square inch. The pressure inside the boiler, above the water, will be about 1/2 of a pound per square inch. Below the water line the pressure per square inch will be the weight of a column of water of one inch cross section and with a height equal to the depth of the pressed surface below the water level. 2. In raising steam, the best plan is to keep the safety valve open until steam is formed. 3. Yes. If the leaks cannot be stopped by caulking the heads of the rivets, the rivets must be cut out and replaced by new ones.

W. A. B. says: 1. Will nitrate of silver do for making silver solution for electro-plating? I mean the lunar caustic sold in drug stores. 2. Will a piece of wrought or cast iron do for one of the poles of the Bunsen battery, instead of carbon? 3. Is there any difference between cyanide of potassa and cyanide of potassium? 4. How much silver and cyanide of potassa does it take to make one gallon of solution? 5. Does it make any difference if the vat, in which you place your solution of cyanide of silver, be made of cast iron? Answers: 1. Lunar caustic, or coin and silver scraps dissolved in nitric acid, may be employed in making cyanide of silver for electro-plating. 2. Iron will not answer instead of carbon, but platinum will. You can obtain large pieces of gas carbon gratis from any gas house when they are cleaning out retorts. It is very hard, but can be sawn with a fine saw, if you have patience. 3. Cyanide of potassa is incorrect; it should be cyanide of potassium. It is very poisonous and requires care in using. 4. Dissolve 3 1/2 ozs. of cyanide of potassium in 1 quart of distilled water; and in this solution, dissolve well washed chloride of silver (precipitated from nitric acid solution by hydrochloric acid) until a saturated solution of cyanide of silver is obtained; then dilute with an equal bulk of water. 5. An iron vat will cause the silver to be deposited upon it unless lined with paraffin, asphalt or other non-conductor.

COMMUNICATIONS RECEIVED.

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

- On Using Water as Fuel. By A. W. T.
On the Southern Canal. By P. K. McM.
On Life Saving Inventions. By J. C., and by L. S.
On Asiatic Cholera. By C. McD.
On the Ponca Fossil Remains. By C. W. P.
On Psychic Force on the Slate. By S. C. D.
On the Million Dollar Telescope. By T. M. P.
On a Transatlantic Balloon Voyage. By C. R.
On Screwing in Studs. By J. W. T.
On Slivers. By J. M.
On the Australian Water Cooler. By O. C. W.
On Corundum in Pennsylvania. By W. K. S.
On Metallurgy. By J. T.
On Deep Sea Soundings. By —

Also enquiries from the following:
A. M.—L. G.—A. G. J.—A. H.—R. W. Co.—O. A. M.—C. R.—E. M. H.—W. K. C.—J. H. P. & Co.
Correspondents who write to ask the address of certain manufacturers, or where specified articles are to be had, also those having goods for sale, or who want to find partners, should send with their communications an amount sufficient to cover the cost of publication under the head of "Business and Personal," which is specially devoted to such enquiries.

[OFFICIAL.]

Index of Inventions

FOR WHICH

Letters Patent of the United States WERE GRANTED FOR THE WEEK ENDING

June 3, 1873,

AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

Table listing inventions granted for the week ending June 3, 1873, including items like Alarm, till, J. F. Baldwin, Animal power, chain for, G. N. Palmer, Bag fastening, mall, B. X. Blair, Basket, work, T. V. Hobbs, Bed bottom, spring, C. Gammel, Bed, spring, S. Stout, Bedstead, invalid, A. Bray, Bedstead, parlor, F. E. Coffin, Billiard cue, H. Platts, Bin, sweet potato, etc., H. T. Bayse, Block, building, S. T. Fowler, Bobbin, A. I. Earl, Bouquet holder, A. F. Ransom, Box, fur set, Alkin & Stone, Brush, C. W. Palmer, Buildings, construction of, H. H. Bryant, Burial casket, Menka & Carder, Turner, gas, D. E. Ryan.

Table listing various mechanical inventions and their inventors, including items like Sheet metal, corrugating, F. Roys, Skate, W. Strasser, Skirt, hoop, Lockwood & Carter, Sled brake, J. Slater, Smoothing and fluting iron, J. Hewitt, Solder, flux, for, C. E. Yager, Soldering iron, Blaise & Branner, Soldering machine, W. D. Brooks, Sole channeling machine, H. S. Vrooman, Sole pressing machine, C. M. Hayden, Spark arrester, T. D. Hendrick, Speeder, G. W. Olney, Spring door, D. Dick, Stamp holder, adhesive, S. V. Beckwith, Staple, blind slat, C. M. Palmer, Steam condensing tank, etc., C. N. Tyler, Step cover and fender, F. M. Niemann, Stereoscope, folding, J. A. Bazin, Stove grate, W. J. Keep, Stove grate, W. J. Keep, Stove, heating, T. M. Salmon, Stove, reservoir cooking, E. Bussey, Straps, clasp for securing, O. O. Storie, Submarine blasting platform, etc., J. Burson, Telegraph pole, Carver, Athey & Jennings, Thrasher, re-winnowing, J. B. Paon, Thread dressing machine, etc., J. Short, Toy, A. R. Batchelder, Trap, animal, J. Gould, Trunk and strap fastener, J. Fairman, Turn table, Macdonald & Fritzsche, Type, E. R. Whitney, Valve, flexible lip-formed, E. Field, Valve, piston, G. M. Gibbs, Vessels, berth for, B. Weisker, Wagon running gear, A. Lewis, Washing machine, P. G. Dahmer, Washing machine, J. W. Hannah, Washing machine, M. N. Lovell, Water by condensation of air, forcing, J. M. Brooke, Water closet, portable, T. Barrett, Webbing, machine for cutting, W. A. Rice, Wheat, preparing food from, E. M. Murray, Wheel quartering machine, W. Sellers, Whip socket attachment, R. Dods, Windmill, W. D. Nichols, Work stand, ladies', G. S. Manning, Wrench, Smith & Lee, Wrench, pipe, J. Rigg.

APPLICATIONS FOR EXTENSIONS.

Applications have been duly filed, and are now pending for the extension of the following Letters Patent. Hearings upon the respective applications are appointed for the days hereinafter mentioned:

- 25,227.—HORIZONTAL WHEEL.—A. Andrews et al. Aug. 13.
25,343.—STOVE.—E. M. Manigle. August 20.
25,373.—PAPER BOX MACHINE.—S. B. Terry. August 20.
25,484.—COTTON SCRAPER.—J. M. Mitchell. August 27.
25,506.—LAMP.—H. Malvorson. September 3.
25,544.—TRY COCK.—J. F. Cook. September 3.
26,243.—WATER CLOSET BASIN.—W. Boch, Sr. Nov. 12.
30,201.—FREEZING APPARATUS.—F. P. E. Carre. August 13.

EXTENSION GRANTED.

- 24,304.—IRON MOVING MACHINE.—C. Hewitt.

DISCLAIMER.

- 90,973.—STEP LADDER.—C. G. Udell.

DESIGNS PATENTED.

- 6,694.—MAT AND COAT HOOK.—A. D. Juad, New Haven, Conn.
6,695.—STRIPED FABRIC.—C. H. Landenberger, Phila., Pa.
6,696.—NUBIA.—J. Phillips, Philadelphia, Pa.
6,697.—HEATING STOVE.—J. Beasley, Philadelphia, Pa.
6,698.—WATCH HANDS.—B. A. Goodell, Waltham, Mass.

TRADE MARKS REGISTERED.

- 1,286.—PETROLEUM.—Brown Brothers, Erie, Pa.
1,287.—WATERS.—Courvoisier & Co., New York city.
1,288.—SHIRTS.—W. A. Farr & Co., Boston, Mass.
1,289.—CHAIR SEAT, ETC.—Gardner Manufacturing Company, Glen Gardner, N. J.
1,290.—TOOTH BRUSHES.—S. L. Mintzer, Philadelphia, Pa.
1,291.—SOAP.—J. Oakley & Co., New York city.
1,292 to 1,294.—WHISKIES.—Walsh & Co., Cincinnati, O.
1,295.—GRINDING MILLS.—A. W. Winall, Cincinnati, O.
1,296.—MEDICINE.—C. C. Zimmerman, Shoemakersville, Pa.
1,297.—WHISKY.—J. T. M. Orendorf, Baltimore, Md.
1,298.—BEVERAGE.—S. F. Stowe, Providence, R. I.

SCHEDULE OF PATENT FEES:

Table listing patent fees: On each caveat \$10, On each Trade-Mark \$25, On filing each application for a Patent (17 years) \$15, On issuing each original Patent \$20, On appeal to Examiners-in-Chief \$10, On appeal to Commissioner of Patents \$20, On application for Reissue \$30, On application for Extension of Patent \$50, On granting the Extension \$50, On filing a Disclaimer \$10, On an application for Design (3 1/2 years) \$10, On an application for Design (7 years) \$15, On an application for Design (14 years) \$30.

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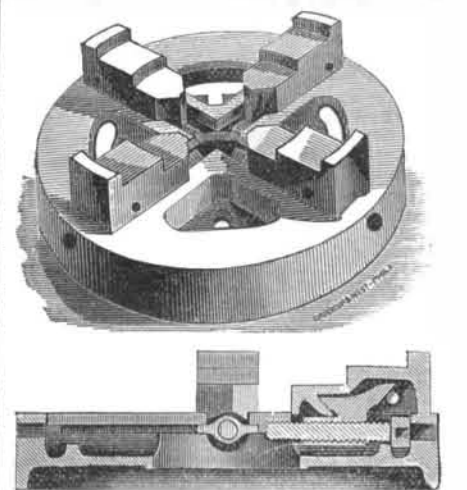
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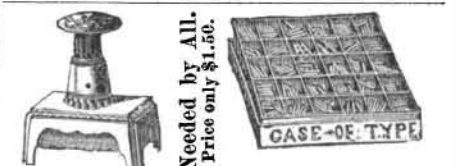
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