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ratus for hoisting and conveying materials by from cable W. D. Andrews & Bro., 414 Water St., New York. For Surface Planers, small size, and for Box corner Grooving Machines, send to A. Davis, Lowell,

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Best Philadelphia Oak Belting & Monitor stitched. C. W. Arny, Manufacturer, 301 & 303 Cherry St., Philadelphia, Pa. Send for new circular.

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For First Class Steam Boilers, address Lambert ville Iron Works, Lambertville, N. J.

The Patentee of the U.S. Patent Autographic Safety Incisions for prevention of alteration of Checks, Drafts, Notes, Due Bills, &c., approved and commended by the Banks, is desirous of a party with Capital to Introluce the same. Full preparations already made for the Manufacture of the Instruments. Address E. J. Fischer, 513 N. 10th St., Philadelphia, Pa.

Wanted for all Steam Boilers—A great economizer for Fuel. Send for Circular. George E. Parker, Mant'rof light Machine Work and Brass Founder, 117 & 119 Mulberry St., Newark, N. J.



- C. J. A. can repair his rubber boots by fol lowing the directions on p. 203, vol. 30.—E. A. A. can japan iron eastings by the process described on p. 208, vol. 26. Bronzing is detailed on p. 298, vol. -M. can remove fruit and wine stains from table linen by the process explained on p. 171, vol. 30.—A. F. can repair his glue kettle with the cement described on p. 42, vol. 25.—A. E. S. will find a recipe for paste for paper labels on tin on p. 235, vol. 30.— W. H. P. does not send his name and address.—F.H. B. will find directions for making modeling wax on p. 58, vol. 24.—E. will find that Colburn's books on the locomotive engine are complete and authentic.
- (1) P. asks: If two horses are drawing 1 tun with a four foot double tree, and one of them be given his end shorter by 1 inch, what would be the apportionment of the draft to the horse with the shorter end of the double tree? What would be the proportion if his end were two inches shorter? A. This case is analogous to that of two men carrying a weight suspended from a pole, the force exerted by each being inversely proportional to the length of lever between the hand and weight
- (2) H. P. asks: Does color exert any influence on the heat-radiating powers of bodies, boilers, etc., being usually painted black in preference to any lighter color? A. According to Melloni, surfaces, white, black, and red radiating alike; so that, as regards the loss of heat from this source, the color of a substance is of no importance. On the contrary, color powerfully influences the absorpcontrary, color powerfully influences the absorpname, and place of residence. Is such a law constition of luminous heat. Dr. Franklin spread differtutional? A. No. See p. 137, vol. 25. ently colored pieces of cloth upon the snow in the sunshine. The black sunk farthest, that is, melted the most snow, and of course received the most heat. The blue sank to a less depth, the brown still less, and the white hardly at all. Hence by scattering soot over snow, its melting may be hastened.
- (3) E. M. W. asks: Has anything been discovered that will harden gutta percha as sulphur hardens rubber? A. We believe not.
- (4) A. M. asks: How can I construct a batstrong enough to charge a horseshoe magnet 12 inches long, with an electromagnet 5 inches long made out of 3% iron, wound with 800 feet of No. 22 A. A Runsen battery would be the best for the purpose, and your cheapest plan would be to buy it from the regular dealers in the article.
- (5) I. P. asks: Is white a color? A. If the centimeters. separate colors of the spectrum are considered each as an element, white light is a compound, formed by are several good preparations for this purpose for perfectly blending together all these elements, sale by druggists and others, than which we can reand cannot, therefore, be properly termed a color.
- (6) G. C. J. asks: 1. How long does it take ransmit one word across the ocean by cable? A. About one minute, although it is constantly va rying. 2. What is the charge per word? A. To England, the charge per word is \$1, gold.
- (7) W. L. C. asks: How can I preserve the color of fascicled everyreen leaves, and prevent them from falling from the branch? A. Try dipping in pure dammar varnish.
- (8) P. E. W. says: I wish to make brick out of the clay dredged from a channel at a seaport. The salt causes the bricks to glaze, and makes them

- (9) F. R. R. says: I have a large glass globe, mounted on a pedestal of the same material. In the former, near its junction with the latter, is a fracture extending around two thirds of its circumference at that point. Can you tell me of a compohave no deleterious effect upon the water contained therein, and at the same time prevent leakage? A. Try diamond cement.
- (10) M. C. asks: 1. Can you give me a good recipe for soft soap, made with potash and domestic grease? A. Add 3 galls. rain or other soft water to 1 lb. of concentrated ley; boil it and put into it 4 lbs. tallow and soap fat. When the solution becomes clear, add 12 galls. more water. It is ready for use when cold. 2. Is a cellar a good place on board ship. A. The latitude is equal to the zento keep it in? A. Yes. 3. Would freezing hurt it? ith's distance plus or minus the declination for the A. Very probably. 4. Does the addition of salt to day. The latter is found by referring to the Nauti-soft soap (to make hard soap) injure its quality? A. cal Almanac.
- (11) G. W. D. asks: What kind of varnish can I put on metal, so that the latter will not be injured when coming in contact with a solution of nitrate of silver? A. Try paraffin varnish. See p. 91, vol. 31.
- (12) J. A. asks: Is there any elastic substance that would take the place of rubber in cloth, and resist boiling water? A. We do not know of any such substance.
- (13) P. V. C. asks: Please give me a description of the spectroscope. A. You will find de-

scriptions on pp. 64 and 276, vol. 30. Can iron be decomposed by any acid, and will its decomposition generate electricity? A. Iron, being an elementary body, cannot be decomposed; but with strong nitric acid, it may be used as the positive element in the battery.

- (14) S. A. asks: Is there any means whereby the color may be taken from the heavy black residue or tar left in the still after running the burning oils off from the crude petroleum, at the same time letting it retain its former body or consistence? A. This cannot be done without altering some of its
- (15) H. P. G. asks: 1. What will effectual ly disguise the smell of ammonia? A. The smell of free ammonia, that is, ammonia not in combina-tion, cannot be disguised nor destroyed; but by combining it with a base, not volatile at ordinary temperatures, this may readily be accomplished. 2. What will prevent alcohol from evaporating? A. We know of no better method than that of keeping it in airtight vessels.
- (16) H. C. J. asks: What book explains the erms marcasite, biotite, muscovite blende, etc.? A. If you do not possess a dictionary, we cannot help you, since a certain amount of knowledge must be possessed by all readers of scientific publications. You can find full definitions of the names of these minerals in Webster's "Unabridged Dictionary."

Can you explain scientifically the operation of salt raising bread? A. Your meaning is not very clear. Raising salts or yeast powders commonly consist of such salts as cream of tartar (bitartrate of potash) and bicarbonate of soda. The leavening is due to the action of the liberated tartaric acid on the soda salt, which liberates the carbonic acid.

- (17) W. E. J. asks: What kind of battery is required to operate the Atlantic cable? A. A modification of the Daniell battery, called the Minotto or sawdust battery, is employed for the purse, twenty cells being used.
- (18) J. C. C. asks; 1. What should be the temper of the steel in a permanent U magnet? A. See p. 175, vol. 30. 2. Which will magnetize a U magnet the better, a helix in two parts, one for each leg of the magnet, or a single coil? A. The latter.
- There is a law in Ohio imposing a fine or imprison ment upon any person who sells, or offers for sale, a color exerts no influence upon the radiant power of patent in any county without having first exhibited the letters patent to the probate judge of the county wherein the patent is sold or offered for sale, and having made oath, in his presence, of ownership,
 - (19) G. H. J. asks: How is black paint for steam boilers made? A. Common asphalte dissolved in turpentine is a very good paintfor this purpose

What is Venice turpentine? A. Turpentine prepared from the sap of the laryz Europæa, or larch. What is the theory of a draft in a chimney when there is no hot air to produce a draft? A. Unless there is a difference of temperature, between the air within and the air without the chimney, there is

(20) S. W. says: When our nickel five cent pieces were issued, it was reported in newspapers tem might be derived from them. Is this true? A. The diameter of our five cent nickel coin is two

How shall I rid my house of roaches? A. There commend nothing better.

In making a chess board by gluing veneers upon a board, the veneers curled up as soon as wet with the glue. How can I get over the difficulsuch veneers, to moisten the opposite side with warm water.

(21) W. D. P. K. asks: Is there any chemical that, placed on or near a gas jet, will increase the luminosity? A. A device, used for this purpose, consists of a jet placed at the side of the gas burner, through which a supply of oxygen is allowed to escape.

Is there anything that I can take with mein a To our knowledge, there is nothing that would ac: tomary to use for this purpose a watertight vessel, and below the fire, but was glad to take them our complish this.

- (22) J. B. T. says: We have a drug store in wooden building, and are using kero We are always uneasy for fear of have no gas. fire. Would it cost very much more to light the store by electricity? A. Yes. An electromotive sition with which I may cement the interior of the force equal to forty Grove cells is the least that a globe, so as to strengthen it at the fractured point, suitable light could be produced with, and this would cost at least \$1 per hour for one light sufficient for the store.
 - (23) L. F. R. asks: Can a Bunsen or a bichromate of potassa battery be changed to a Leclanché, simply by using the proper chemicals? A.

How are round balls of soap formed? A. They are cast or pressed in molds.

Please describe the manner of finding the latitude

What is made of chromate of iron? A. Chromic

- (24) C. T., writing from Valley Falls, N.Y. says: A controversy has arisen in our community caused by the bursting of a flume, and we appeal to you to settle the question. All parties are agreed to abide by your decision. What is the difference be-tween the side pressure of a flume of water ten feet deep and twenty feet square, and one ten feet deep and ten feet square? A. The pressure per square foot upon the sides of the flume is the same in both cases, namely, 312% lbs. per square foot. To compute the pressure in such cases, multiply the area of the side of the flume by the hightof the center of gravity of the water in feet. In this example the hight of the center of gravity is 5 feet. Multiply the product by 621/2 lbs., the weight of a cubic foot of water.
- (25) J. S. H. says: On. 203, vol. 31, fou rave directions for making a phosphorescent lamp. I tried it, but the phosphorus would not dissolve in the oil. What shall I do? A. Phosphorus should dissolve in the oil. If you follow the recipe and your phosphorus and oil are pure, the process will not fail. Enough phosphorus should be used to keep the oil saturated.
- (26) E. H. asks: 1. Does a large body of li quid require a greater proportion of battery power than a smaller one? I have a copper bath 2 feet long containing about 20 gallons, which I can drive with 4 Callaud batteries, the zincs of which are 81/2 inches in diameter or with 3 small Bunsen batteries. and I have another copper bath 6 feet long, holding about 80 gallons, which I cannot drive with 14 Callaud batteries. If I put more goods in the large one than in the small one, the deposit is very slow, and soon ceases. Is nickel more easily deposited than copper, and does it require greater or less power than a copper bath of equal size, filled with the same amount of goods? A. So much depends upon the relative distance between your electrodes, the strength of your bath or electrolyte, and the coupling or arrangement of your batteries, as to the requisite quantity and tension of current, that, with so limited a description, we can give you no definite answer. 2. What is the relative power of Daniell's, Callaud's, and Smee's batteries? A. The electromotive force of a Grove being 100, Bunsen's is 98, Daniell's56, Smee's about 25, Callaud's about 45
- (27) W. P. asks: In adding the malt or diaase to a mashing of raw grain (which action is supposed to first convert the raw grain into starch, hen, afterstanding a proper time at a certain temperature, to transform the starch into grape or starch sugar), how am I to knowwhen the starch sugar is formed? A. The boiling of the starch with dilute sulphuric acid is effected on a small scale in leaden pans, but in an extensive preparation iron pans are employed. The requisite quantity of water is first heated to the boiling point, and to this is added the sulphuric acid, diluted with about 3 parts by weight of water. The starch is also brought, by the previous addition of water, to a milky consistency. The liquids so prepared are mixed, and the boiling continued until all the starch is converted into sugar. An intermediate stage, not usually noticed by the manufacturer, is the con version of the starch into dextrin, which in turn suffers decomposition into grape sugar. The entire conversion of the dextrin into grape sugar cannot be ascertained with certainty by the iodine test, as sometimes a purple-red tinge is produced, while in others there is no change. The most reliable test is that with alcohol, founded on the known insolubility in that menstruum. To one part of the solution to be tested there are added 6 parts of absolute alcohol; if no precipitate is thrown down, there is no dextrin remaining, and the conversion has been entire. The proportions of the materials are generally, to 225 lbs. of starch meal, 8 lbs. of ordinary sulphuric acid at 60° Baumé and 75 to 100 gallons of water. The separation of the sulphuric acid from the sugar solution is a most important operation, thattheirdiameter was a certain number of centime-ters, so that the measures of the French metric sys-success in this stage of the process. The acid is neutralized by baryta or by lime, with either of which it forms an insoluble salt. The baryta can be employed as carbonate (witherite). Lime is most generally used, for its greater cheapness
 - (28) I. F. A. asks: What is the best paint or coating to resist the action of sulphuric acid, to be applied to the inside of an open vessel? A. The best covering for the inside of tanks, etc., to hold sulphuric acid is sheet lead. This will perfectly resist all action.
- (29) S. E. M. says, in reply to J. E. W., who asked how to burn coal alack: We use it all the time in our boiler, starting the fire with soft coal, and then using half soft coal, mixed with slack. Our draft is not very good. In one place they think they cannot burn this mixture, without wetting it and then draining well before burning. I have tried this, but failed to see any good results. If J. E. W. will fire often and break up the crust that forms on top, he will have no trouble in using worthless. How can the difficulty be obviated? A. boat to keep me warm on a cold day? A. It is custifis mixture. I have put in steam blowers above

no draft.

MINERALS, ETC.—Specimens have been re- Fireplace, A. T. Bennett.....

C.I.F.—Your specimen of a Californian mineral is disintegrated mica schist, of no value.-J. P. L.-Your specimen is antimony.—I. P. D.—The quartz contains galena and iron pyrites.

COMMUNICATIONS RECEIVED.

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

On a Freak of Lightning. By E. J. M. On Capital and Labor. By B. E. G. J. On the Phylloxera. By L. W. G. On the Squirrel Question. By L. M. B. On Curious Apples. By A. T. N. On Terrestrial Gyration. By J. H. On Power in Cotton Mills. By T. T. D. On the Business Outlook. By J.

Also enquiries and answers from the following: H. R. S.-C. E. S.-E. J. G.-J. R. B.-W. T. B.-T. C. -J. R. V. - J. G.

HINTS TO CORRESPONDENTS.

Correspondents whose inquiries fail to appear should repeat them. If not then published, they may conclude that, for good res.sons, the Editor de clines them. The address of the writer should always be given.

Enquiries 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.

Hundreds of enquiries analogous to the following are sent: "Who sells machines for hulling castor beans? Who sells cotton seed lint machines? Who makes match making machines, and what composition is required for the matches? Whose is the best force pump?" All such personal enquiries are printed, as will be observed, in the column of "Business and Personal," which is specially set apart for that purpose, subject to the charge mentioned at the head of that column. Almost any desired information can in this way be expeditiously ob-

[OFFICIAL.]

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Elevator, windlass water, Howe & Heywood Engine, fire, J. B. Van Dyne (r). Engine, oscillating eteam, G. J. Wardwell Engine, reciprocating, G. J. Wardwell Equalizer, draft, A. D. Manley Fancet, S. L. Latte.	156,835 156,742 156,826 156,734 6,183 156,685 156,686 156,805 156,707	
Elevator, windlass water, Howe & Heywood Engine, fire, J. B. Van Dyne (r) Engine, oscillating steam, G. J. Wardwell Engine, reciprocating, G. J. Wardwell Equalizer, draft, A. D. Manley. Fancet, S. L. Latte Fertilizer, distributor, C. Harlan	156,835 156,742 156,826 156,734 6,183 156,685 156,686 156,805 156,707 156,700	
Elevator, windlass water, Howe & Heywood Engine, fire, J. B. Van Dyne (r). Engine, oscillating steam, G. J. Wardwell Engine, reciprocating, G. J. Wardwell Equalizer, draft, A. D. Manley. Fancet, S. L. Latte. Fertilizer, distributor, C. Harlan Free wing plaher, W. K. Platt	156,835 156,742 156,826 156,734 6,183 156,685 156,686 156,805 156,707 156,700 156,816	
Elevator, windlass water, Howe & Heywood Engine, fire, J. B. Van Dyne (r) Engine, oscillating steam, G. J. Wardwell Engine, reciprocating, G. J. Wardwell Equalizer, draft, A. D. Manley. Fancet, S. L. Latte Fertilizer, distributor, C. Harlan	156,835 156,742 156,826 156,734 6,183 156,685 156,686 156,605 156,707 156,700 156,816 6,183	

1	Foot warmer, M. S. Burns	156,657
	Furnace, hot air, N. A. Boynton	156,759
	Gage, pressure, J. Brown, Jr	156,691
١	Gas carbureter, W. H. Reed	156,820
ļ	Gas regulator, G. Goward	156,776
	Glass furnace, S. Richardson	156,637
1	Grate, J. Moore, Jr	156,783
ł	Grease, etc., saving, H. Pindar	156,815
1	Harvester pitman attachment, A. J. Sweeney	156,825
1	Harvesting machine, S. D. Locke	156 804
1	Heel polishing machine, C. H. Helms	156,669
	Hop extract for flavoring, W. A. Lawrence Horse detacher, A. Ehret	156,802 156,726
i	Horseshoe blanks, roll for rolling, G. W. Lester Horseshoe nails, finishing, R. Ross	156.803
:	Horseshoe nails, making, R. Ross	156,679
	Hose suspenders for firemen, W. A. Caswell	
i	Insect destroyer, W. W. Fichtenberg	156,792 156,696
į	Jack, lifting, W. M. Doty	156,725
	Jellies, etc., vessel for holding, G. H. Chinnock Jump seat, Stock & Underwood	
	Ladder, S. Hedges	156,635
	Lathe feed mechanism, W. Bley	156,758
:	Lathe for turning spools, Landfear & Campbell Lathe gear-cutting attachment, W. P. Hopkins Leather splitting machine, J. A. Safford	156,640 156,705
	Leather splitting machine, J. A. Safford Lightning rods, tubular, J. C. Schoonmaker	156,652 156,713
	Lock spindle, A. Kirks	156,738
,	Loom, Compton & Wyman	156,630
1	Loom, piled fabric, Compton & Wyman Loom picking mechanism, G. W. Brooks	156,627
ì	Lubricating compound, J. Scott	156,719
-	Measuring can, D. M. Mefford	156,809
!	Mechanical movement, R. E. Brand	156.723
	Meter, fluid, G. E. Peck	156,690
:	Millstone face tester, J. Thompson	156,731
1	Mowing machine, F. Bramer Needle, H. M. Jenkins	156,795
i	Nippers, die fer finishing, W. E. Snediker Nut lock, F. L. Bates	
i	Oil from water, etc., separating, I. C. Bates	156,751
į	Oil wells, torpedo for, L. G. PeckOrdnance, A. G. Sinclair	156,822
	Ores, treating cobalt, J. L. Kleinschmidt	
	Packing, piston, T. S. Davis (r)	6,128
:	Paper packages, W. H. Brock	156,765
	Planoforte stringing, Rogers & Manning	156,663
į	Picture frame mat, H. S. Hale	156,679 156,788
:	Pipes, etc., steam, T. Merriam Pitman connection, C. M. Young	156,710
i	Planter, corn, R. A. Green	156,786
İ	Plow, M. G. Slemmons (r)	6,131
	Porcelain knobs, G. Thumbshirn	156,801
	Press, cotton, E. L. Morse	156,811 156,665
	Pump, L. S. Daniels	156,661
	Pump valve, A. S. Cameron	156,769
	Railway switch, A. Quimby	156,818
	Rake, horse hay, S. G. Hurlbut	156,735
	Refrigerating tub, J. C. Jones	156,642
	Roof, composition, J. Kittredge Sash fastener, B. Doe	156,639
	Saw, circular, E. Andrews	156,748
	Sawmill head block, J. Hidden	156,664
	Scabbards, making bayonet, T. W. Rounds Scales, weighing, H. M. Weaver	156,831
	Screws, washer for wood, L. K. Fuller	156,699 6,124
	Seeding machine, W. Workman	156,688
	Separator, grain, H. Kurth	156,800
	Sewing machine, C. Groubman	156,662
	Shafting, hanger for, C. E. Holt	156,636 156,650
	Spindle bolster, A. S. Hopkins	156,668
١	Spinning spindle, E. D. Carter	156,770
ŀ	Steering apparatus, D. N. B. Coffin, Jr	156,695
	Store breaker, J. A. Blake	156,730
,	Stove, E. Palmie	156,813
	Stove, heating, E. E. Gold	156,727
-	Stove, magazine, W. F. Ross	156,821
į	Stove polishing machine, I. C. Shuler	156,712
	Stoves, fire pot and grate for coal, D. C. Breed Table and clothes rack, ironing, W. C. Arnold	156,749
i	Table, folding, F. Gesser	156,784
	Table, portable cutting, B. Strawbridge Thrasher, grain and clover, Lippy & Stocking Thrashing machines, concav for, A. Gray	156,701
İ	Tile making machine, P. Hervier	156,798
	Time check, watchman's, T. Hahn. Tobacco, restoring funky, Hahn & Strecker	156,787
	Tool receptacle, machine, T. L. Webster Toy, automatic, R. J. Clay	156,660
	Valve, steam, Harley & Fendrich	6,129
-	Vehicle wheel, J. R. Cook	156,773
1	Vehicle, shaft and pole attachment, W. Adams Ventilator, Havell & Braker	156,747
	Wagon axle, W. F. Sneed	1 66,71 6
ĺ	Was on brake, G. Farner	158,746
•	Wagon jack; F. Judsen	166,786

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55	Watches, safety wheel for, H. B. Wieland 156,718	l
9	Water drawer or elevator, I. Wing 156,834	l
18	Water wheel governor, A. Woodworth 156,720	l
7	Water wheel, turbine, E. Geyelin 156,632	l
69	Whip socket, H. A. Matthews 156,740	l
54	Window shade or Venetian blind, F. C. Martin 156,844	l
91		l
4	APPLICATIONS FOR EXTENSION.	l
20	III I DICELLOLIC I ON DELIDIONI.	l

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:

31,378.—HARVESTER.—R. Dutton. Jan. 27. 31,394.—POTTERY MOLDER.—W. Linton. Jan. 27. 31,402.-GRAIN BINDER.-S. Reynolds. Jan. 27. \$1,511.-LAMP.-C. W. Cahoon. Feb. 3.

DESIGNS PATENTED.

7,848.-FLOOR CLOTH .- J. Barrett, New York city. 7,849.—Boxes.—J. Comly, Philadelphia, Pa.
7,859.—CLOCK FRONT.—S. B. Terry, Waterbury, Conn.
7,851to7,853.—WovenFabbios.—W.B. Weeden, Prov., R. I. -CENTER PIECE.-H. Berger, New York city.

TRADE MARKS REGISTERED.

2,060.-RYE WHISKY.-T. G. Carroll, Baltimore, Md. 2,061.—DESICCATED VEGETABLES.—A. Godillot, N.Y. city. 2,062 & 2,063.—GBAIN BAGS.—Graham & Co., Rockford, Ill. 2,064.—Cotton Bale Ties.—C. G.Johnson, N. Orleans, La. 2,065.—CORN SALVE.—J. H. Richelderfer, Philadelphia, Pa. 2,066.—Mustard.—C. L. Stickney, New York city. 2,067 to 2,070.—Flour.—Thornton & Chester, Buffalo,N.Y. 2,017.—SPICES, ETC.—Weikel & Smith Co., Philadelphia, Pa

SCHEDULE OF PATENT FEES. On each Trade mark..... On filing each application for a Patent (17 years).....\$15 On issuing each original Patent......\$20 On appeal to Commissioner of Patents.....

CANADIAN PATENTS,

LIST OF PATENTS GRANTED IN CANADA,

NOVEMBER 17 to 18, 1874.

4.054.- D. Sullivan, Bangor, Penobscot county, Me., U. S. Improvements in steam boilers, called "Sullivan's Improved Steam Boiler.'' Nov. 17, 1874. 4,055.—F. A. Hibbard, East Stanbridge, Missisquoi county.

P. Q. Improvements in steamers and heaters, called "The Safety Combination Steamer and Heater." Nov. 17, 1874.

4,056.—A. De Garis, New York city, U.S. Improvements in apparatus for fattening fowls, called "Garis' Improved Fowl Fattening Apparatus.'' Nov. 17, 1874.

4,057.—E. B. Meatyard, Geneva Lake, Walworth county, Wis., U. S. Improvements in elastic railway car wheels, called "Meatyard's Patent Elastic Railway Car Wheels." Nov. 17, 1874.

4,058.-J. Bowman, Harrisburgh, Brant county, Ont. Im provements in hot sirdrums, called "Bowman's Revolving Angle Damper Parlor Heater." Nov. 17, 1874 4,059.—J. M. Grover, Oxford, Oakland county, Mich., U.S. Improvements on a straw-hinding attachment to harvesters, called "Grover's Grain Binder." Nov.17,1874. 4,060.—S. Rue, Philadelphia, Pa., U.S. First extension of No.2,849, called "Rue's Little Giant Injector." Nov.17

4,061.-S.Rue,Philadelphia,Pa.,U.S. Second extension of No. 2,849, called "Rue's Little Giant Injector." Nov. 18,

4.062.-E. S. Scripture, Brooklyn, Kings county, N.Y. U. S. Improvements on adjustable wrenches, called "Scripture's Champion Cast Steel Adjustable Slide Wrench." Nov. 18, 1874. 4,063.—J. E. Watson, Louisville, Jefferson county, Ky.,

U S. Improvements on water gages, called "Watson's High and Low Water Alarm Gages." Nov. 18, 1874 4,064.-A. Hadden, Goderich, Huron county, Ont. Ma chine for cramping, called "The Cramping Horse." Nov. 18, 1874.

4,065.—T. M. Chapman, Oldtown, Penobscot county, Me., U. S. Improvements on machine for sharpening saws, called "Chapman's Saw Sharpening Machine." Nov. 18

4,066.-H. E. Champion, Detroit city, U. S. Improvements on steam boiler furnaces, called "Champion's Improve-ment in Boiler Furnaces." Nov. 18, 1874.

4,067.—T. Branigan, Beloit, Rock county, Wis., U. S. Improvements on a boottree, or a device for treating boots called "Branigan's Champion Boot Tree." Nov. 18 1874.

4,068,-A. W. Covell, South Elmsley township, united counties of Leeds and Grenville, Ont. Improvementson saw shareners, called "Covell's Saw Sharpeners." Nov

4,069 .- J. Steel and J. McInnes, Glasgow. Lanark county. Scotland. Improvements on apparatus for actuating the brakes of railway trains by compressed air, part or parts of which are also applicable for signaling in railway trains,called "Steel & McInnes'ImprovedAirBrake and Train Signal." Nov. 18, 1874.

4,070.—C. F. Murdock, Detroit city, Mich., J. S. Improve-

ments in stop valves, called "Murdock's Champion Stop Valve." Nov. 18, 1874.

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