Uranus 85,052,000, Neptune 140,000,000. 2. Has our distance from Alcyone been estimated or determined? A. The nearest estimate is that it would take light at least three years to traverse the distance. 3. Is there any ap- is hardened to some extent by heating for a short time. preciable amount of heat derived from bodies outside of our solar system? A. No.

(37) P. B. G. says: There is a floating transparent mass which floats over the pupils of my eyes. In looking at a white object the mass looks like a knotted spider's web; in looking at a dark object, or reading, it seems like a blur. A. From your too general description we should judge your trouble was conjunctivitis, that is, a floating mucus, caused by infiammation of the lining membrane of the evelid. The remedy for this is an astringent wash, alum water, or something of that nature.

(38) J. R. asks: What are the exact proportions of the ingredients used in making oxygen gas, for the calcium or lime light? A. For oxygen, heat strongly in a capacious retort of copper or iron, 4 parts chlorate of potash and 1 part peroxide of manganese, well mixed together. Wash the gas well as it comes over. A pound of this mixture should give you about 25 gallons of the gas. 2. What is the best way of making hydrogen to mingle with oxygen? A. Hydrogen is usually prepared by the action of diluted sulphuric acid (1 of acid to 7 of water) on scraps of zinc. This gas should also be well washed before using. Scrap iron and a less dilute acid are occasionally employed, instead of zinc, in manufacturing the gas on a larger scale.

I take to dissolve 1 oz. nitrate of silver? A. It will dis. cannot get the sore to heal or the hair to grow over the solve in 5 ozs, water at 52° Fah, and in 06 oz. of boiling place. The recipe is as follows: Take oil seneca 14 ozs., water. 2. How much to dissolve 1 oz. tartaric acid? A. Tartaric acid is soluble in 4 parts of water at 60° Fah, and in 0.5 parts at 212° Fah.

made from pure caffeine? A. The tannate of caffeine part, Keep the part perfectly dry for two weeks, and may be obtained as a beautiful white precipitate, if an aqueous solution of caffeine is added in excess to aqueous and morning with purewater containing a little salicylic tannic acid. An infu<sup>st</sup>on of tea, by its tannin, also precipitates solutions of caffeine.

(41) S. K. asks: What is the proportion of a saturated solution of bromide of potassium? A. This depends altogether upon the temperature at which the solution was saturated. The solubility of the salt increases as the menstruum is warmed. Bromide of potassium is soluble in 1.87 parts of water (by weight) at 32° Fah., in 1.55 parts at 60°, and in 0.98 parts of water, at 212° (boiling point).

(42) W. F. K. asks: 1. Is there to your knowledge any soap made entirely of vegetables? A. There is no soap of this kind. 2. What is put into soap to harden it? A. After the saponification is finished, the soap is coagulated by the addition of common salt. The precipitated soap is then pressed, cut into form, and dried. This gives hard soap.

(43) E. N. W.-Saffranine (C21 H20 N4) is ment. prepared commercially by treatingcrude aniline oil with nitrous acid gas, and then with arsenic acid or bichromate of potash.

(44) P., C., & Co., ask: In packing ice in walls 10 inches thick, will coke dust or ordinary cinders be equivalent to sawdust? A. If the coke dust is as porous as charcoal dust, it may answer the purpose. In the absence of sawdust, carpenters' shavings are sometimes used.

(45) J. M. asks: 1. How long will it take ash and maple to season well? A. About 2 years. 2. Would it be better to season them in sheds or in the open air? A. Let them be covered at top. 3, Why is spruce used in preference to other soft woods for pianoforte sounding boards? A. We presume. if so used, it is because it is a tough wood, less likely to split than most woods. 4. Which is the next best wood to spruce for sounding boards? A. Perhaps white wood or pine. 5. How long will spruce take to season well, if cut 1/2 inch thick? A. Six months or so, not to dry, but to season. 6. Which is the stronger, brass or cast iron? Cast iron for your purpose, probably.

(46) E. A. B. says: I notice that A. C. L. makes inquiries in regard to laying a pipe. If he were to use an earthen pipe of considerable larger diameter than the lead pipe, enclosing and retaining the lead pipe in the center of the earthen one by means of spiders placed at suitable distances, thus causing an air space to encircle the lead pipe, would not this form a better protection than if sawdust alone were used? A. The suggestion is a good one for the purpose indicated, provided the air space is hermetically sealed at the outlets. But it will not compensate for want of depth when the pipe is laid in the ground

(49) C. A. M. asks: 1. How can I harden Canada balsam without interfering with its color? A. It disk. Five or six cells will be required. 2. How can Canada balsam be rendered colorless? A. It may be bleached by exposure to sunlight. 3. Is there any other transparent substance that can be worked in as soft a condition, or as easily, and afterwards hardened without losing its transparency? A. There are several other gums and balsams (compounds of certain resins with various essential oils) that may be substituted for the Canada balsam-such as balsam copaiba, balsam tolu, gum benzoin, and Venice turpentine, also good collodion. Canada balsam, however, generally gives the best satisfaction.

such as they have in restaurants. I do not want to use gas, and I cannot put in a stove because I have not got a chimney. How can I do it? A. There are small stoves in the market arranged to burn kerosene oil. If you could provide suitable means of ventilation in your rooms one of these might answer the requirements,

(51) E. W. M. asks: How can a suitable white paint for paper water pails be made? A. Zinc white (oxide of zinc) in oil is the least objectionable paint practically available for this purpose that we know of.

(52) D. says: I copied from a back number sprains, ringbones, etc., in horses. I used it according (39) H. C. asks: 1. How much water should to directions for curb, and believe it has cured it, but I oil rosemary 5 ozs., oil lavender 3 ozs., oil turpentine 9 ozs., and pyroligneous acid 4 ozs. Mix well together and place in an earthen vessel, then add and stir in gradually sulphuric acid 1 pint until effervescence ceases. (40) S. L. asks: Can tannate of caffeine be shave off the hair and apply once a day to the affected rest the animal for a month. A. Wash the sore night acid, and cover with, a clean cotton cloth, between the folds of which a little of the dry acid has been rubbed, at the gages. I lifted the steam valve, let out the steam, This will purify the sore and protect it from the attacks

of insects. If this fails, it will be necessary to treat the animal constitutionally.

(53) B. K. D. asks: If a steampine 100 feet long is connected to a boiler with an ordinary value at 20 feet from the end, which is securely plugged, will there be as much pressure at the further end of the pipe as there is between the boiler and valve, allowing the valve to be only one fourth open? A. Yes.

(54) F. B. asks: What size of engine is required to drive a skiff 18 feet long by 4 feet broad, and have been connected together, all being fed with one what size of screw is required? I want to keep her at pipe from the force pump. The fires of the middle boil as light a draught as possible, and get a speed of from 10 ers were urged until they were very hot, and the side to 15 miles pre hours. A local mile to the bills of the mile book with the third to the bills of the mile book with the bills. to 15 miles per hour. A. You will be obliged to devise fires slow. Then the middle boiler would empty itself special machinery for any such speed as you speak of, and you must determine the necessary data by experi-

(55) J. B. W. asks: What size of wheel should be used for a boat 100 feet long and of 20 feet to 10 feet diameter, and of 15 to 18 feet pitch.

(56) W. M. K. asks: At what angle to the line of direction should a plate, in passing through water, be placed, to secure the greatest pressure sideways, with the least resistance to its forward motion? A. As we understand your question, the angle does not make however, we do not get your idea.

What difficulties or objections are there to using nitroglycerin as a motor by exploding it in a cylinder ? A. The principal objection is that it would generally be necessary to provide a new cylinder after each explosion.

Is there any chemical compound, safe to use, which will decompose slowly, producing considerable heat? A. We think that you will find that wood and coal are the best compounds.

(57) A. R. says: I wish to discharge under 36 feet head 100,000 gallons of water per minute through a circular iron pipe, placed at an angle of 45° to the horizon. What should be the diameters of the upper and lower ends of the pipe? A. We are not sure that we get the idea. If you will send a sketch, showing the arrangement, we will endeavor to answer your question.

(58) R. V. J. says: I am running two boilers, one at a time, for the purpose of heating a large building. If I pump water to the first guage, in a few minutes it will run up and fill the glass and all the guages. Do you know of any remedy? A. Probably the rise of the water is due to the construction of the boiler or the

7,434,000, Venus 492,000, Earth 1,618,000, Moon 13,000, 1006. Its composition may be formulated as follows: Mars 13,463,000, Jupiter 23,810,000, Saturn 49,000,000,  $(C_2 H_3 O)_2 \downarrow O_2 + 3 (Cu O, As_2 O_3)$ . Uranus 85,053,000, Neptune 140,000,000. 2. Has our dis-

(62) G. L. P., Jr., says: 1. The ports in a small brass cylinder are out of place. Is it possible to have them filled with brass, so that they may be cut out again? A. Yes, by burningin. 2. Could plaster of wallow in. In the second story, on the north side, make Paris be used for cores in casting brass? A. Yes, but it boxes for the hens to lay in and set in, with the entrance is apt to cause air holes. 3. Would a common house furnace give heat enough to melt brass? A. Yes. 4. What is the best brass alloy for small castings? A. Copper 10, tin 5, zinc 2 parts.

(63) J. T. F. asks: How can the surface of a pane of glass be softened so as to receive any impres-(50) F. B. says: I want to keep a hot bar sion, and then harden again? A. This is not feasible, except by a uniform softening of the whole plate in a suitable furnace.

> (64) H. F. A. says: I wrote some time ago for directions to electroplate insects, and I ask the following questions: 1. What are the proportions of nitrate of silver and wood naphtha for the dip? A. Make a saturated solution. 2. How shall I treat with ammonia? A. Dip the articles in aqua ammonia. 3. Howdo you vaporize mercury in order to expose the article? A. By heating, but great care must be taken not to breathe the fumes

(65) J. H. M. asks: Can you tell me how many cells of a carbon battery (4 inch jars) are neces of your paper a recipe for an acid blister for curing sary for the production of the electric light? A. About 40 or 50 cells

> (66) J. N. asks: 1. Will the pressure in a boiler ultimately raise the water from the bottom, so that the plates will get red hot, generate a gas, and cause an explosion? A. If there is plenty of water, and the boiler is reasonably well designed, the water will not be driven from the plates. We know of no good evidence in favor of the generation of the gas. 2. When I was second engineer, we had a force pump of which the check valve spindle was too short. I told the first engineer that it would not be safe, but "he knew his business." On going to start the engine, I found no water took an iron red, wrapped a cloth round it, and found only 6 inches of water in the boiler. The fire was damped. I brought some one to see it, who soon made a great change. If I had moved the fire first, I am afraid I should have been moved pretty quickly. Please give me your opinion. A. When the water is low in a boiler, and you do not know where it is, the safest thing to do is to haul the fire if it can be done quickly, or if not, cover the fire over with ashes, and allow the boiler to cool somewhat, before raising the safety valve or admitting water. 3. I have been where several boilers into the side boilers. Can you explain? A. Boilers should always be so connected that such action would be impossible. This precaution is only neglected by the reckless or ignorant.

(67) L. B. says: Please tell me how I can beam, drawing 10 feet of water? I have a non-condens- find out how many lbs. of steam passing through a 2 ing engine, 26 inches in diameter of cylinder and 30 inch feed pipe into a 10 x 18 inch cylinder is equal to a inches stroke? A. You can use a propeller of from 91/2 horse power? A. The steam per horse power per hour may vary from 20 to 100 lbs., according to the character of the engine. The horse power is the product of the the piston in square inches, and the speed of the piston in feet per minute, divided by 33,000.

(68) J. A.W. says: Will you explain why a any difference in the pressure on the sides. Possibly, certain load located at a distance from a certain power should show more resistance when so attached than it would when more closely located and attached, or, to be more explicit : Why does a train of cars so made up with empty cars infront of the loaded cars pull harder than the same train would with the loaded cars ahead of the empty cars? I know this to be fact. A. If you can conveniently send us the data on which you base your opinion, please do so, together with such observations as have been made in regard to the behavior of the train, especially of the empty cars, when made up in the different ways mentioned. As you state your question, we have not sufficient information to form a decided opinion,

> (69) C. A. R. asks: How can I clean deers' antlers without scraping near the roots, where the horns are so rough? A. Try a little fine pumice powder moist ened with strong alkali. Rub well and wash with wa Or use muriatic acid, free from iron, in place of ter. the alkali.

(70) W. S. says: I have a conservatory in which the plants droop and die from (I believe) the effects of carburetted hydrogen gas escaping from the pipes in the street adjoining and oozing through the soil (47) R. M. asks: What shall I do, or cause manner in which the steam pipe is attached; but we in the house. I have complained to the officials in annot answer positively, from the data sent. (59) G. W. asks: With what velocity will idea and do nothing. Can you suggest any chemical or other appliance whereby the bad effects of the gas might be neutralized? A. If this is, in reality, the cause, the trouble may be alleviated to some extent by sprinkling the floor withdryslaked lime and charcoal in powder; but the only practicable and effectual way to overcome the difficulty will be to rectify the cause, as

haif a pound of sulphate of zinc. When this is dis- windows to open for ventilation and protected with wire ' solved, drop a few crystals of blue vitriol on the copper cloth. Under the stairs in first story place boxes, in which quite young chickens may be brooded over night, secure from rats and other vermin; also, make cages in the corners, in which hens inclined to set at improper times may be placed and fed. Near these provide a box, always filled with sand, lime, and ashes, for the fowls to for the hen on the rear side and the place to take the egg out in front. Plenty of gravel and pounded bones should be given them at all times, with an occasional meal of meat in winter. Overhead the roosts are to be placed, of rough poles, 1 or 2 inches in diameter, with Thus provided, the hens will continue to the bark on. lay, if furnished with meat occasionally, all winter. A place for doves or pigeons may be made in the roof of the building, if desirable.

> (72) S. B. M. asks: If you think it possible to re-tin fruit cans after they have been used and rusty, will you tell me the best mode of re-tinning them? My idea is to first cleanse with acid, and then dip in molten tin. A. Your method is a good one. Cover the tin bath with a layer of molten wax to keep the hot tin from contact with the air.

> (73) J. F. K. & Co. ask: Is there an imroved tool for truing up crosshead wrists? A. We know of nothing but the clamp with serrated teeth.

> (74) D. D. asks: How can I use a lamp in a magic lantern so as not to cover much of the reflector? A. The reflector should be set so that the light reflected from it shall come to a focus in the fiame of the lamp, then it diverges with the light from the fiame, and the two enter the condenser under similar conditions. Or you can have the body holding the oil on the outside of the lantern, and the oil carried to the burner through a pipe.

> (75) A. O. asks: How can I find the magnifying power of a microscope? A. Place under the microscope some definite measure; then look, with one eye, in the microscope, and with the other look at a rule placed the same distance away on the outside. With a little practice, it will be seen how long the one division in the microscope appears to be on the rule outside. In the same manner the apparent diameter of the field may be determined; that is, if 1 division inside covers 100 divisions outside, then the power is 100, etc.

> (76) W. E. N. says: What size of steam engine can I run witha boiler 16 inches high and 12 inches in diameter, made of 1 inch copper, bound at every 4 inches with bands ; inch thick and 11/2 inch wide. The heads are  $\frac{3}{16}$  inch thick. A. You can make an engine  $1\frac{1}{2} \ge 3$  inches, if the boiler steams well.

> (77) D. H. L. asks: Would there be any danger in eating water melons raised from the seed of a melon which had been poisoned in the stem? A. No.

(78) A lady writes to know what is the matter with her greenhouse. The plants drop their leaves as soon as the heat is raised in the house. The gardener attributes it to the paint on the pipes. The rose house, she thinks, was kept too close during the summer, so that the red spiders became very numerous. But the greenhouse trouble is of another kind. A. See if the gas main is not near the greenhouse; the effect of coal gas in any form would be as described. If the paint used on the pipes has any gas tar in its composition, it effective pressure in lbs. per square inch, the area of 'is sure death to the plants, and should be all scraped off. Plants will sometimes be several years in recovering from the effects of it. The rose house should be left open during the summer.

> MINERALS, ETC.-Specimens have been received from the following correspondents, and examined, with the result stated:

S. H.-The stones found in the coffee are small quartz pebbles,-F. G. K.-You failed to number or otherwise designate your specimens. One of them is trap rock, with bright specks of pyrites. The one full of holes is a piece of quartz discolored by sesquioxide of iron. Be sides these, there are a piece of slate, a sample of clay containing a considerable percentage of iron, and an iron garnet.-T. S.-It is galena, sulphide of lead. It contains, when pure, 86% per cent of lead, and 13.4 per cent of sulphur. The specimen you send is much mixed with earthy minerals and pyrites. It would require an analysis to determine the available quantity of lead.

#### COMMUNICATIONS RECEIVED.

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

On a Human Clock. By J. F. B. On Spiritualism. By R. S. H., by T. B., and by B. C. H.

on properties erected last year? The tinman used the best tin, but, as is usual here, the joints are not soldered; but the sheets are raised at the edges two inches or so and pressed together and then turned over slightly. The roofs are rather fiat. The seams run from the gutter to the peak of house. The consequence is that when the snow is melting, the water backs up into the seams and ferent solutions require different powers. 2. What sized flows into the room beneath, doing much damage. The tinner says the seams cannot be soldered now they have been painted. A. In this city the tin is always soldered, tery power to silverplate? A. Better use two of the except upon steep roofs. The conditions you mention above named cells. try roofs very much. Perhaps you can remedy it in a measure by tightening the seams, and giving them a coat of rubber paint,

(48) C. F. J. asks: What will remove pimples and black worm specks from the face? A. Take No. 15 galvanized wire answer for my main line? A. rose water 3 ozs., sulphate of zinc 1 drachm; mix. Wet cold cream, which also gently dry off.

to be done, to stop the serious leaking of five tin roofs, cannot answer positively, from the data sent.

air enter a vacuum? A. About 1,300 feet a second, if there is no resistance from friction, etc.

(60) H. G. W. says: 1. Is the most powerful battery the best for electro-plating? A. No, but difbattery will it take to goldplate a watch case? A. A there is nothing practically available that may be emone gallon cell will answer. 3. Will it take more bat- ployed as an absorbent or antidote for the gas.

(61) E. D. W. says: 1. I am constructing a line of telegraph 1/4 of a mile in length, and have three relays, each relay has 1/4 of a lb. of No. 30 silk covered wire. Will they be suitable for that distance, and will

Larger wire, say No. 23, would be better adapted to so the face with it, gently dry it, and touch it over with short a circuit. No. 15 wire for the line will answer.

Use two wires, 2. Will you please send me directions What is the chemical name for Paris green, and what for making a cheap battery for my main line with the are its constituents? A. Paris green (Schweinfurtgreen) above three instruments in circuit. A. Place a disk of is the aceto-arsenite of copper. In 100 parts it contains: copper, to which a guttapercha covered wire is soldered, Oxide of copper 31 29; arsenious acid 58 65; acetic acid in the bottom of a jar, and suspend a piece of zinc with vide plenty of glass windows on the south, the east, and be observed, in the column of "Business and Personal,"

(71) S. A. C. asks: Please tell me the dimensions for a poultry house for 800 hens. and the way to build it? A. Make the building two stories in height; inclose it with matched boarding: also board it on the inside of the studding, and fill in the exterior frame with sawdust, tan-bark, or clay. If a part of the barn on the south side of the hay-mow can be partitioned off for the purpose, so much the better; or the poultry-house may sent: "Who sells rotary nail-cutting machines? Who

tension thereto. Provide an open stairway from the

On the Moon's Rotation, By D. S. On Wrought Iron Bridges, By J. E. G. On Postage Stamps. By J. W. S., and by H. W. B. Also inquiries and answers from the following: J. M.-M. M.-O. H. H.-L. P. K.-C. R.-E. B. W.-W. J. S.

#### HINTS TO CORRESPONDENTS.

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

Hundreds of inquiries analogous to the following are be erected against the south side of the barn as an ex- makes the best coal gas apparatus for hotels, large houses, etc.? Who sells steam blowers? Whose is the first to second story for self and fowls; let the floor of best mariner's compass? Why do not makers of paperthe first storybe of the natural earth, and that of the making machinery advertise in the SCIENTIFIC AMERIsecond story of matched plank. In the first story pro- CAN?" All such personal inquiries are printed, as will

is given.

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which is specially set apart for that purpose, subject to | Horse-hampering device, W. H. Means the charge mentioned at the head of that column. Al most any desired information can in this way be ex peditiously obtained. . . ......

OFFICIAL.

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FOR WHICH

Letters Patent of the United States were Granted in the week Ending

#### January 23, 1877,

#### 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

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Dental engine attachment, E. T. Starr Dental plates, stamping, C. F. Barnard Dental plugger, C. King Derrick, portable, B. Jackson Die for forging hammers, D. Maydole Door bell, J. P. Connell Draught equalizer, G. W. Harrington Draught equalizer, G. W. Harrington Draughtsmen's compasses, J B. Fricke Drill jar, F. E. Quinn Dumping scow, Bird & Borgs Dyeing silks, process for, J. Rau	186,504 186,522 186,580 186,574 186,590 186,416 186,557 186,419 186,617 186,530 186,626
Dental engine attachment, E. T. Starr Dental plates, stamping, C. F. Barnard Dental plugger, C. King. Derrick, portable, B. Jackson Die for forging hammers, D. Maydole Droaught equalizer, G. W. Harrington Draught equalizer, G. W. Harrington Draught secon passes, J. B. Fricke Drill jar, F. E. Quinn. Dumping scow, Bird & Borgs Dyeing silks, process for, J. Rau Earth closet, L. Altemus.	186,504 186,522 186,580 186,574 186,590 186,416 186,557 186,419 186,617 186,530 186,620 186,620
Dental engine attachment, E. T. Starr Dental plutger, C. King Dertal plutger, C. King Derrick, portable, B. Jackson Die for forging hammers, D. Maydole Door bell, J. P. Connell Draught equalizer, G. W. Harrington Draught equalizer, G. W. Harrington Draught scompasses, J B. Fricke Drill jar, F. E. Quinn Dumping scow, Bird & Borgs Dyeing silks, process for, J. Rau Earth closet, L. Altemus Eaves trough, J. F. Biegelaar	186,504 186,522 186,580 186,574 186,590 186,419 186,617 186,627 186,626 186,626 186,626 186,446
Dental engine attachment, E. T. Starr Dental plates, stamping, C. F. Barnard Dental plugger, C. King Derrick, portable, B. Jackson Die for forging hammers, D. Maydole Door bell, J. P. Connell Draught equalizer, G. W. Harrington Draught equalizer, G. W. Harrington Draught scompasses, J. B. Fricke Drill jar, F. E. Quinn Dumping scow, Bird & Borgs Dyeing silks, process for, J. Rau Earth closet, L. Altemus Eaves trough, J. F. Biegelaar Electric motor, D. Ward	186,504 186,522 186,580 186,574 186,590 186,416 186,557 186,419 186,617 186,520 186,626 186,446 180,529 186,642
Dental engine attachment, E. T. Starr Dental plates, stamping, C. F. Barnard Dental plugger, C. King Derrick, portable, B. Jackson Die for forging hammers, D. Maydole Door bell, J. P. Connell Draught equalizer, G. W. Harrington Draught equalizer, G. W. Harrington Draught scompasses, J. B. Fricke Drill jar, F. E. Quinn Dumping scow, Bird & Borgs Dyeing silks, process for, J. Rau Earth closet, L. Altemus Eaves trough, J. F. Biegelaar Electric railroad signal, J. D. Hughson	186,504 186,522 186,580 186,574 186,590 186,590 186,590 186,519 186,519 186,519 186,530 186,630 186,630 186,632 186,642 186,529 186,642
Dental engine attachment, E. T. Starr Dental plates, stamping, C. F. Barnard Dental plugger, C. King Derrick, portable, B. Jackson Die for forging hammers, D. Maydole Door bell, J. P. Connell Draught equalizer, G. W. Harrington Draught equalizer, G. W. Harrington Draught scompasses, J B. Fricke Drill jar, F. E. Quinn Dumping scow, Bird & Borgs Dyeing silks, process for, J. Rau Barth closet, L. Altemus Eaves trough, J. F. Biegelaar Electric railroad signal, J. D. Hughson Electric thermostat, E. J. Frost	186,504 186,522 186,580 186,574 186,570 186,457 186,419 186,617 186,620 186,620 186,620 186,622 186,522 186,522 186,553
Dental engine attachment, E. T. Starr Dental plates, stamping, C. F. Barnard Dental plugger, C. King Derrick, portable, B. Jackson Die for forging hammers, D. Maydole Door bell, J. P. Connell Draught equalizer, G. W. Harrington Draught equalizer, G. W. Harrington Draught equalizer, G. W. Harrington Draught scow, Bird & Borgs Dyeing silks, process for, J. Rau Earth closet, L. Altemus Eaves trough, J. F. Biegelaar Electric motor, D. Ward Electric train sgnal, J. D. Hughson Electricthermostat, E. J. Frost	186,504 186,522 186,580 186,574 186,575 186,419 186,657 186,626 186,626 186,626 186,626 186,626 186,622 186,529 186,642 186,572 186,553 186,642
Dental engine attachment, E. T. Starr Dental plates, stamping, C. F. Barnard Dental plugger, C. King Derrick, portable, B. Jackson Die for forging hammers, D. Maydole Door bell, J. P. Connell Draught equalizer, G. W. Harrington Draught equalizer, G. W. Harrington Draught scow, Bird & Borgs Dumping scow, Bird & Borgs Dyeing silks, process for, J. Rau Earth closet, L. Altemus Eaves trough, J. F. Biegelaar Electric motor, D. Ward Electric trailroad signal, J. D. Hughson Electric thermostat, E. J. Frost Electric telegraph, R. K. Boyle	186,504 186,522 186,550 186,554 186,554 186,557 186,419 186,657 186,652 186,632 186,632 186,632 186,632 186,553 186,642 186,553
Dental engine attachment, E. T. Starr Dental plutger, C. King Dertal plutger, C. King Derrick, portable, B. Jackson Die for forging hammers, D. Maydole Door bell, J. P. Connell Draught equalizer, G. W. Harrington Draught equalizer, G. W. Harrington Draught scompasses, J B. Fricke Drill jar, F. E. Quinn Dumping scow, Bird & Borgs Dyeing silks, process for, J. Rau Earth closet, L. Altemus Earth closet, L. Altemus Electric railroad signal, J. D. Hughson Electric train signal, L. L. Ferst Electric telegraph, R. K. Boyle	186,504 186,522 186,574 186,574 186,574 186,574 186,419 186,419 186,637 186,636 186,636 186,636 186,636 186,632 186,632 186,632 186,632 186,632 186,632 186,633 186,635
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Dental engine attachment, E. T. Starr Dental plates, stamping, C. F. Barnard Dental plugger, C. King Derrick, portable, B. Jackson Die for forging hammers, D. Maydole Door bell, J. P. Connell Draught equalizer, G. W. Harrington Draught equalizer, G. W. Harrington Draught equalizer, G. W. Harrington Draught scow, Bird & Borgs Dyeing silks, process for, J. Rau Earth closet, L. Altemus Eaves trough, J. F. Biegelaar Electric motor, D. Ward Electric train signal, J. D. Hughson Electric telegraph, R. K. Boyle. Elevator for buildings, M. Bragaldi Evaporating apparatus, D. Watson	186,504 186,522 186,574 186,574 186,574 186,577 186,416 186,557 186,419 186,617 186,632 186,642 186,642 186,642 186,643 186,453 186,455 186,645
Dental engine attachment, E. T. Starr Dental plugger, C. King Derntal plugger, C. King Derrick, portable, B. Jackson Die for forging hammers, D. Maydole Door bell, J. P. Connell Draught equalizer, G. W. Harrington Draught equalizer, G. W. Harrington Draught scompasses, J. B. Fricke Drill jar, F. E. Quinn Dumping scow, Bird & Borgs Dyeing silks, process for, J. Rau Earth closet, L. Altemus Earth closet, L. Altemus Electric railroad signal, J. D. Hughson Electric train signal, L. L. Ferris Electric train signal, L. L. Ferris Electric to for buildings, M. Bragaldi Evaporating apparatus, D. Watson Evaporator, open pan juice, D. Watson	186,504 186,522 186,574 186,574 186,574 186,577 186,557 186,657 186,657 186,626 186,626 186,626 186,627 186,627 186,627 186,645 186,453 186,455 186,645 186,645
Dental engine attachment, E. T. Starr Dental pluger, C. King Dertal pluger, C. King Derrick, portable, B. Jackson Die for forging hammers, D. Maydole Door bell, J. P. Connell Draught equalizer, G. W. Harrington Draught equalizer, G. W. Harrington Dumping scow, Bird & Borgs Dyeing silks, process for, J. Rau Eaves trough, J. F. Biegehaar Electric motor, D. Ward Electric train signal, J. D. Hughson Electric train signal, L. L. Ferris Electric telegraph, R. K. Boyle Elevator for buildings, M. Bragaldi Evaporating apparatus, D. Watson Evaporator, open pan juice, D. Watson Eygelass, F. P. Iannarone Fan, automatic, S. F. Gray.	186,504 186,522 186,530 186,574 186,574 186,577 186,419 186,647 186,647 186,642 186,529 186,523 186,542 186,553 186,427 186,553 186,427 186,553 186,453 186,453 186,453
Dental engine attachment, E. T. Starr Dental plutger, C. King Dertal plutger, C. King Dertick, portable, B. Jackson Die for forging hammers, D. Maydole Door bell, J. P. Connell Draught equalizer, G. W. Harrington Draught equalizer, G. W. Harrington Draught equalizer, G. W. Harrington Draught geow, Bird & Borgs Dyeing silks, process for, J. Rau Earth closet, L. Altemus Eaves trough, J. F. Biegelaar Electric railroad signal, J. D. Hughson Electric train signal, L. L. Ferris Electric train signal, L. L. Ferris Electric telegraph, R. K. Boyle Evaporator, open pan juice, D. Watson Evaporator, open pan juice, D. Watson Fan, automatic, S. F. Gray	186,504 186,522 186,530 186,574 186,557 186,419 186,657 186,636 186,636 186,636 186,642 186,642 186,643 186,445 186,445 186,445 186,445 186,445 186,645 186,445 186,645 186,645 186,445 186,645 186,645 186,455 186,455 186
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Dental engine attachment, E. T. Starr Dental pluger, C. King Dertal pluger, C. King Derrick, portable, B. Jackson Die for forging hammers, D. Maydole Door bell, J. P. Connell Draught equalizer, G. W. Harrington Draught equalizer, G. W. Harrington Dumping scow, Bird & Boogs Dyeing silks, process for, J. Rau. Earth closet, L. Altemus Eaves trough, J. F. Biegelaar Electric rollroad signal, J. D. Hughson Electric train signal, L. L. Ferris Electric telegraph, R. K. Boyle. Elevator for buildings, M. Bragaldi Evaporator, open pan juice, D. Watson Evaporator, open pan juice, D. Watson Eyeglass, F. P. Iannarone Fan, automatic, S. F. Gray Feathering paddle wheel, W. C. Thompson Fence, O. Cleaveland. Fence, O. H. Smith Fire alarm bell striker, W. Donaldson	186,504 186,522 186,530 186,574 186,557 186,419 186,636 186,636 186,642 186,642 186,642 186,642 186,643 186,445 186
Dental engine attachment, E. T. Starr Dental plugger, C. King Dertick, portable, B. Jackson Derrick, portable, B. Jackson Die for forging hammers, D. Maydole Doro bell, J. P. Connell Draught equalizer, G. W. Harrington Draught equalizer, G. W. Harrington Dumping scow, Bird & Borgs. Dyeing silks, process for, J. Rau Earth closet, L. Altemus Eaves trough, J. F. Biegelaar Electric trainord signal, J. D. Hughson Electric trainord signal, J. D. Hughson Electric train signal, L. L. Ferris Electric telegraph, R. K. Boyle Elevator for buildings, M. Bragaldi Evaporating apparatus, D. Watson Evaporator, open pan juice, D. Watson Fan, automatic, S. F. Gray Feathering paddle wheel, W. C. Thompson Fence, O. Ch. Smith	186,504 186,522 186,552 186,574 186,574 186,575 186,419 186,647 186,557 186,452 186,553 186,555 186

to	Horse-hampering device, W. H. Means	
]-	Horseshoe, Cornish & Hunt	
<u> </u>	Horseshoe, T. Thistlewood (r)	
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	Lamp extinguisher, C. T. Colby	
	Lantern, J. Hughes (r).	
	Leech, artificial, F. F. McDonald	
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	Lightning rod clip, A. Snook	
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e	Locomotive exhaustpipe, J. C. Farmer	
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2	Ores, treating, Z. A. Willard	
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3		
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6		
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9 9	Revolving fire arm, H. L. Gardner	196 470
0	Revolving fire arm, D. P. Wosson	196 500
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; '	Saws, guide for circular, C. I. Chaffee	186.541
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1	1 obacco press, N. B. Jones	

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# [March 3, 1877.



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To the Editors of the Evening Journal; Having caused a personal examination to be made of the condition and affairs of the Washington Life Insurance Company of New York, as of the 31st day of December, 1876, by Hon. John A. McCall, Jr., Deputy Superintendent, duly appointed by me for that purpose, and deeming it for the public interests that the result of his investigation should be published, I herewith enclose his report for publicatior

Very respectfully yours, W. SMYTH, Acting Superintendent.

ALBANY, January 23d, 1877. **Hon.** William Smyth, Acting Supt. New York Insur-ance Department;

ance Department: ance Department: I respectfully report that in accordance with the provisions contained in your appointment No. 362, dated December 26th, 1876, and with the assistance of Messrs. Ballard, Will's and W. H. Smyth, I have completed an examination of the Washington Life Insurance Coropany of New York City. The very satisfactory condition of the company as exhibited below is attributable to the management of its affairs by able, prudent and honorable men. It gives me pleasure to state that in a minute and ex-acting investigation I find nothing to condem, but, on the contrary, much to commend. Complete schedules of mortgages, deferred premi-ums, and real estate investments as of December 31st. 1876, being the date of examination, have been placed on file in the department. The following are the assets and liabilities :

#### ASSETS. \$159.284 80 Accrued interest on investments ..... 53.071 26 19.109 46 180,429 95 Market Value. Stocks and Bonds : Value. U. S. 6's, registered .... \$510,000 \$581,400 N. Y. State 7's, regis'd 100,000 100,000 N. Y. City 7's, regist'd 990,000 1,138,500 N. Y. City 5's, regist'd 122,200 122,200 Brooklyn 7's, regist'd 260,000 299,000 107,000 Kingston City Coupons, 11,000 11,000 bonds..... \$2,093,200 \$2,359,100 \$2,359,100 00 43,592 92 Total assets ... ..... \$5,265,495 36 Deduct items not admitted : Mortgages taken for debt...... \$10,838 81 Value of real estate over department appraisal..... 37,784 80 Agents' balances..... 43,592 92 92.216 53 -----LIABILITIES. Net value of outstanding policies . . ... \$4,337,644 00 Unpaid losses and encovments not due.... 43.306 82 Premiums paid in advance. ..... 2,388 51 Unpaid dividends to stockholders..... 346 50

Salaries, rent, &c..... 3,000 00 Total liabilities as to policyholders......\$4.386.685 83 Surplus as regards policyhold's 786,593 00 Aggregate......\$5,173,278 83 ital stock ..... Respectfully submitted,

r ne amaier, b. pier ariana	1001 currier, activity, b. W. curber b	j om j.
	Toy, A. Fritz 186,418	Six H
	Toy trumpet, F. McLaughlin 186,595	splene
Foldmg bier, W. White 186,650	Traction engine, J. S. Lake 186,582	-
Force pump, H. T. Drain 186,464	Treadle, C. Hopkins 186,564	its w
Force pump, C. H. McKeehan 186,594	Trimming, M. P. Bray 186,454	able
Fruit jar, J. T. Schaffer 186,629	Tug attachment, harness, D. W. Brodnax 186,457	while
Gas burner, B. Donohue (r) 7,470	Tug carrier, G. Jeakle 186,478	Тн
Gas stove, W. M. Jackson (r) 7,474	Umbrella runner, P. Molloy 186,600	compl
Gate, automatic, E. J. Coler 186,415	Umbrella runner and tip cup, O. M. Smith 186,630	-
Grain separator, A. W. & C. T. Kendrick	Valve, T. Boldemann 186,533	price
Grain drill, J C. Baker 186,407	Vapor burner, M. L. Ballard 186,519	book,
Grain elevator, J. L. McLaughlin 186,596	Vehicle top support, Marlatt & Wright 186,428	or \$8
Grain register, L. Poole 186,614	Veneers, composition, C. H. Land 186,483	and N
Grate bar for furnaces, L. P. Rider 186,436	Wagon brake, R. M. Baker 186,447	
Grinding mill, A. W. Straub 186,440	Wagon brake lever, J. G. Morton 186,489	
Hame and trimming, G. F. Eberhard 186,547	Wagon lock, F. Rakes 186,618	
Hammers, manufacture of, D. Maydole 186,588	Wagon, side spring, J. Ledwith 186,426	
Hand rest, J. Ridge 186,625	Wardrobe bedstead, W. Sutcliffe 186,507	N. 1
Hanger for garments, L. Hellmann 186,559	Washing machine, J. Myers 186,431	
Harness buckle, M. Huerta 186,569	Washing machine, C. K. Rogers 186,499	SUPPI
Harness saddle tree, W. H. Bustin 186,461	Watch escapement, N. Meyers 186,598	bined
Harrow and land roller, W. M. Stehley 186,506	Water pipe, lateral, W. L. Church 186,411	age.
Harvester rake, O. Cooley 186,413	Waterproof hose, J. Murphy 186,492	the Se
Hat holder, P. H. Miner 186,488	Water tube, boiler, etc., W. B. Glover 186,472	the S
Hat rack and seat, C. Whittaker 186,648	Water tube boiler, etc., W. Ord 186,494	
Head rest, W. L. Miltz 186,487	Weather strip, E. C. Underwood 186,508	prefei
Hook eyes, manufacture of, J. Robson 186,437	Welt trimmer, W. R. Barton 186,524	<b>\$</b> 7 an
Horse collar, A. Rutherford 186,627	Wheel brake, B. B. Hotchkiss 186,565	forSc
Horse hay fork, H. Fisher 186,468	Wheelbarrow and cultivator, J. D. O'Callaghan 186,606	
Horse hay fork, J. Orr 186,607	Windlass hoist, J. & H. Fulmer 186,564	

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