A NEW SCIENTIFIC WORK.

We have received from Professors R. H. Thurston and Richard H. Buel, their prospectus, issued from the Stevens' Institute of Technology, Hoboken, N. J., for a new and popular work, to be descriptive, in detail, of some of the most important of recent inventions and discoveries in mechanics and engineering. The idea is an excellent one, and we have no doubt, from the eminent ability of the editors, that the work will be of much value. If it were to be a sensation novel it would go with a rush, and a hundred thousand copies would quickly be called for. But, confined as it is to subjects that require study and intelligence in their mastery, no such rapidity of demand is, in the ordinary course of things, to be expected; scientific books generally have but a limited circulation. The editors have, however, adopted a special expedient to secure large sales. They propose to publish descriptions of good improvements, provided the holders thereof will furnish, at their own cost, first class essays accompanied by the best possible engravings. In addition thereto, each applicant is expected to pay to the editors, in cash, the sum of seventy-five dollars for each page occupied by his essay—which is equivalent to six hundred dollars, besides the cost of essay and engravings, for a space equal to one page of the SCIENTIFIC AMERICAN. At first blush, this outlay seems large; but it is only a seeming, for in return, the applicant is to receive twenty-five copies of the work free of charge, for every page of space he has paid for. Thus he receives the full *quid pro quo* for his money, and secures the additional benefits of the publication. We wish every possible success to the editors in this novel undertaking.

WILL YOU FAVOR US?

Will subscribers to the SCIENTIFIC AMERICAN, who have duplicate copies of No. 1, 2, or 3, of this volume, or others who do not preserve their numbers for binding, re-mail back to this office what they are willing to spare?

At the commencement of the year, we printed several thousand more copies of each number than we had subscribers for, and as many as we anticipated a demand for; but subscriptions have come in so much faster than we expected that the first three numbers are nearly exhausted. The publishers will be obliged to any of their patrons if they return all or either of the above numbers. Address SCIENTIFIC AMERICAN, New York.

Business and Personal.

The Charge for Insertion under this head is One Dollar a Line. If the Notices exceed Four Lines, One Dollar and a Half per Line will be charged.

Notes & Queries.

1.—PRESERVING NATURAL FLOWERS.—Will some one furnish me with directions for preserving natural flowers?—R. A. L.

2.—COPPER DIP FOR IRON CASTINGS.—Will some one give me a recipe for making this fluid?—S. D. R.

3.—HYDRAULIC CEMENT.—Will some one tell me how hydraulic cement is made, and of what material?—J. A. T.

4.—CEMENT FOR CROCKERY.—Will some of your readers inform me how to make a permanent cement for mending broken crockery.—B. F. T.

5.—HARDENING STEEL.—In the process of hardening steel, does a chemical change take place in the nature of the steel? If so, what is that change?—A. K. S.

6.—CRACKING OF LEATHER.—What is the cause of the leather, used for the front boards of wagons, cracking? I have tried to find a solution of this mystery and also a remedy for it.—E. G. V.

7.—MELTING GLASS.—Can any one tell me how I can melt glass in small quantities, getting it sufficiently liquid to pour freely?—C. F.

8.—MIXING PAINT.—Could any one inform me how to mix up paints, and what varnish is best to use in getting up Venetian blinds, so that they will neither blister nor crack?—D.

9.—EXPANSION OF MILLSTONES.—Can any one tell me if, and how much, French burrstones are expanded by the heat generated by friction in grinding?—J. C. B.

10.—IRON SHIP BUILDING.—I wish to know who made the first iron boat, and when it was constructed.—W. C.

11.—CONCRETE FLOOR.—I wish to know what will make the best concrete floor for a cellar, without the use of gravel.—J. A. S.

12.—IGNITION OF COTTON YARNS, ETC.—What degree of heat, created by dry air from a furnace, will cotton yarns or cloth stand before igniting, the yarns or cloth being placed in a chamber, and the hot air driven through by a fan?—J. R. K.

13.—RHUMKORFF COIL.—What is the method of constructing the coil of a Rhumkorff induction apparatus? I particularly wish to know the sizes of wire when covered, and the method of securing the most efficient insulation. I have seen described the Ritchie method of winding the wire, but it was very unsatisfactory, being too indefinite for any one, not already well informed, to understand.—J. J. S.

14.—JOURNAL BOXES.—What is the best material for journal boxes for a water meter, where the pressure is against the end or small point of the shaft, which is of brass or some other material that will not corrode? The lubrication is with the water. How do brass and hard rubber run together?—I. C.

15.—RELATIVE WEIGHT TO HORSE POWER OF ENGINE.—Can any one tell me the lightest weight of engine, to each horse power, that can be obtained by the best modern construction?—O. T. H.

16.—ELECTROPLATING WITH ALLOYS.—Can an alloy be deposited by electricity, on a metal surface, as gold, silver, and other metals are done, if the ingredients of the alloy are good conductors?—R. T.

17.—STEAM ENGINE PHENOMENON.—Last summer, I was running my engine after dark. The boiler was well filled with water, and the steam gage indicated 30 pounds pressure. Casting my gaze toward the top of the boiler, I saw a pale yellow light, at a small leak in a connection of the steam pipe; being alarmed lest the building was on fire in the story above, I seized my lamp, hastened up stairs, and satisfied myself that all was safe up there. I returned to the engine room and saw the light as before, not only where I first saw it, but at different points where steam was escaping injets. The lights disappeared when the lamp was brought near them. When my hand or some other substance was brought in contact with the jet of steam near the point of issue, the light seemed to attach itself to the hand or other substance. This continued for about forty minutes. What was the cause?—J. A. L. A.

18.—PRESERVING RUBBER BOOTS.—Is there any preparation to preserve gum boots from cracking? I find that always, after wearing awhile, they lose that fine gloss which they have when new, and get full of fine cracks. Can any one tell me how I can patch them in case they get torn, so as to make them waterproof again?—J. R. M.

19.—COKE FOR IRON MANUFACTURE.—Has coke, similar to our gas house coke, been used for melting iron in this country to any extent, and, if so, with what results? Does it melt iron as rapidly as coal, and does it have any chemical action on the metal? I am aware that it has been used in England, but I would lik to know whether that coke is similar to our gas house coke.—G. W. C.

20.—VALVE FOR MINING ENGINES.—Can any reader, who is using Davis' piston valve, tell me if it is suitable for an engine used in the shafts of deep mines? I am using the common slide valve, and the empty car, in descending, acquires considerable velocity and overcomes the friction of the engine, causing an unpleasant rattling of the valve and wear on the threads of the spindle. I think Davis' valve will answer the purpose, but it is comparatively unknown in this country; and I should like the opinion of some one well acquainted with it.—F. L.

21.—TRISECTION OF AN ANGLE.—Mr. N., of Ind., sends us the construction of a geometrical problem to trisect any angle of less than ninety degrees; and he ends his communication with the question, customary in such attempts, "if not, why not?" The point which has so long defied the powers of the best geometricians is the solution and demonstration of the problem by elementary geometry, and this Mr. Naylor leaves to his readers. The practical trisection of an angle has long been understood; the demonstration Mr. Naylor leaves just where he found it.

22.—SEPARATION OF GASES.—I wish to know if there is any simple way of separating the different elements of the air from each other.—L. M.

23.—TRANSIT OF THE PLANET VENUS.—Is there any reliable rule for computing the transits of Venus?—C. E. P.

Answers to Correspondents.

SPECIAL NOTE.—This column is designed for the general interest and instruction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for as advertisements at 1·00 a line, under the head of "Business and Personal."

ALL reference to back numbers must be by volume and page.

GEARING FOR SAWS.—In reply to query No. 2, January 20, I beg to say, for the information of A. K., that it is practicable to run circular saws with bevel gearing. There is a circular saw mill in our town running at the present time (and has been for the last ten years) with bevel gearing, a crown wheel, on upright water wheel shaft, four feet six inches diameter, 2 inch pitch, 6½ face, pinion 1 foot 6 inches diameter. I have made several mills on the same principle by substituting a mortise crown wheel and chipping and filing cogs in pinion.—W. H., of Ontario, Canada.

BLUEING IRON.—"Gun Barrel" will find the information he requires in this column.

GENERATING STEAM.—J. H. McC. is referred to pages 55 and 88 of our current volume.

S. T. A. E., C. E.—You will find an answer to your question in any elementary work on physics.

FACE WORMS.—Let H. E. A., query No. 4, January 20, try the water cure and keep his face washed clean.—K., of N. Y.

J. M. C., of Honolulu.—We know of no reason why the albumen from sea birds' eggs should not be as good as that of domestic fowls: Dix & Morris, 58 Cedar street, are dealers in the albumen. The price is about $1·25.

STAINING CANES.—Query 10, January 6, 1872.—Dragon's blood dissolved in water or alcohol, with burnt umber added until the desired shade is obtained, is the right thing. Apply with sponge. To get a matted appearance, make a second application in spots. Polish with shellac.—E. F. H., of Iowa.

WEARING OF SLIDE VALVES.—I would state, for the benefit of W. C., that the concavity is attributable to two causes: First and mainly, to the center of the seat being in constant wear, while the ends are worn only alternately; secondly, to the unequal distribution of the wearing surface.—A. K. S., of Neb.

COPPER SALTS.—L. H. B. is in error in stating that copper salts have been recommended for cleaning statuary. A wash of nitrate or sulphate of copper on stone work has been suggested as a preservative the object being to fill the surface pores of the stone with the metallic copper. The salt should be dissolved in water, and the hands kept from contact with it.

CRYSTALLIZATION OF HONEY.—Strained honey, if scalded and skimmed, will keep any length of time without change. The scalding will slightly alter the flavor, but will not impair it materially.—J. H. P.

A. W. P. S., of O.—A fall of 17 feet will give a rise, in a fountain, of 17 feet, *minus* the loss of head due to friction and the resistance of the air to the jet. The material of the conduit will not make very great difference in friction, but the larger it is the less will the friction interfere with the hight of the jet.

RED SPIDER.—How can the minute red spiders, which are found upon house plants and around windows in great numbers, be destroyed?—A. F. W. Answer: It is very difficult to get rid of the red spider. The florists sell certain soaps, intended for that purpose, which are to be dissolved in water and applied with a syringe. These insects flourish where it is warm and dry. But they cannot stand wet. Treat them to as much moisture as possible.

CAUSES OF CHANGE OF COLOR IN THE STARS.—C. B.'s theory is probably correct, but it is no new discovery. Mr. Proctor, we believe, has already written to the same effect.

TENSILE STRENGTH OF SWEDISH IRON.—H. L., of Ind.—The breaking weight per square inch of Swedish iron ranges from about 70,000 lbs. to 112,000 lbs., but 85,000 may be taken as an average. This information will answer your other questions, if you calculate the area of the cross sections of the round rods, by multiplying the radius by ·7854.

S. S. B., of N. Y.—Coke, like other forms of carbon, absorbs more or less of all gases floating in the air to which it is exposed. In burning, it liberates such of these gases as are not combustible, and by its own combustion produces mostly carbonic acid with traces of gases from substances which have been imperfectly removed in the process of coking.

SONOROUS STONE.—To W. S. R., page 138, Vol. XXV.—The stone near Pottstown, Pa., must be of volcanic origin, known as trachyte. An island in the West Indies, elevated 310 feet above the ocean, contains masses of the same character of rocks. Livingston, in his "South Africa," page 101, speaks of the Bamangwato Hills of the Bakaa Range, 700 or 800 feet above the plains: "The rocks, in falling, produce a ringing noise, which leads many to fancy that they contain abundance of iron. In many places, the lava streams may be recognized."—C. H. K., of the West Indies.

INDELIBLE INK.—Ink for marking linen can be made by dissolving five cents' worth of lunar caustic (nitrate of silver) in half an ounce of water. Equal parts of starch and saleratus must be used to stiffen the linen. Iron it smooth, write on it while hot, dry and iron again and if there be any blots, cover them with lard. Then lay it in the sun for several hours, and immediately wash in very strong hot suds.—E. E. S., of O.

BLUEING IRON.—On page 42 of the current volume, I find that J. C. C. wants to know how the peculiar blue surface is put on gun barrels. Let him apply nitric acid and let it eat into the iron a little; then the latter will be covered with a thin film of oxide. Clean the barrel, oil, and burnish. A very pretty appearance is given to gun barrels by treating them with dilute nitric acid and vinegar, to which has been added sulphate of copper. The metallic copper is deposited irregularly over the iron surface. Wash, oil, and rub well with a hard brush.—R. T.

GUN SCATTERING SHOT.—Mr. Abraham Heaton, of Ada, Mich., states that a gun will always scatter if the barrel be crooked. As a gunsmith of experience, and being now retired from the business, he thinks he can give H. W. good advice, and has no hesitation in imparting trade secrets. To straighten a barrel: Let it rest on the backs of two chairs to keep it level; take the breech out and lay a fine needle in the muzzle. Look in at the breech and turn the barrel round; and if the needle can be seen plainly all round, there is not much the matter with the straightness of the tube. But the barrel may be smaller in the middle, a frequent cause of scattering. To correct this fault, take a wooden rod, about six inches longer than the barrel, fit it snugly to the barrel from end to end. The end of the rod is to be the handle to draw it through the tube. The rod should have a small float file fitted in, about one inch from the end, even with the wood. If the middle of the barrel's length be smaller than the muzzle, it will be discovered on drawing the rod in and out of the barrel, and then the latter should be held in a vise, and the rod worked in and out till it passes easily. Then withdraw the rod, pry out the file, raise the latter by putting a piece of thick paper underneath, and proceed as before. After filing away the tight part, sand paper should be used to finish it with. Keep the breech pin in, so that the thread cannot be injured. The file must be of the best cast steel, with the temper drawn to a straw color.

PROPORTIONS OF ENGINE.—On page 42, Vol. XXVI., J. R. L. wants to know whether the builder's idea of increasing the power of his engine is correct, and the true cause of the engine's not doing one fourth more work with 80 pounds of steam than it will do with 45 pounds. I think if the builders will put on a 1,500 pound fly wheel instead of a 4,200 pound one, and enlarge the steam pipe as well as the governor, the engine will do the work. There is trouble with the governor, which causes the phenomenon of the engine doing three fourths of the work with 45 pounds and not the whole with 80 pounds.—S. F., of Pa.

FACE WORMS.—To H. E. A., query No. 4, January 20. The best remedy for the eradication of flesh worms that I have ever seen tried is the following: Rub with dry sulphur at night before retiring; at the same time, take internally a tablespoonful of sulphur and magnesia mixed with molasses (measured after mixing). In the morning, wash off the face with bran water and afterwards with pure cold water. Repeat this treatment on alternate nights till a cure is effected.—J. B. Jr., of O.

LIGHT ENGINES FOR SAW MILLS.—In answer to NEMO, query No. 16, January 20, I would advise him to try a saw with inserted teeth, and take out the teeth at equal distances, until he has power enough to run it. Of course he must replace the teeth with worn out ones, to keep the strain on the saw equal, so that it will run true. A saw will bear feed much better with only a few teeth that cut a good kerf than it will with many of them, each scraping out a little dust.—E. K., of N. Y.

PAINT BRUSHES.—.Query 5, January 1, 1872.—If the brushes are not hard, wash them with soft soap and water, or turpentine; if hard soak in a moderately strong solution of concentrated lye.—E. F. H., of Iowa.

Declined.

Communications upon the following subjects have been received and examined by the Editor, but their publication is respectfully declined:

ARTIFICIAL FUEL.—J. J. C.—E. F. L.

BOILER EXPERIMENTS.—W. H.

CANAL NAVIGATION.—C. B.

DIAMONDS.—A. D. R.

THE DAVENPORT TRICKS.—C. B.

TO SMOKE OR NOT TO SMOKE.—F. H.

WORMS IN TIMBER.—J. O. M.

ANSWERS TO CORRESPONDENTS.—Y. S.—J. A. C.—E. A. D.—G. S. & Co.—J. R.—C. O.—J. P. N.—R. E. O.—L. S.—E. H. G.—P. C., JR.—E. W. K. P.—W. S.

QUERIES.—W. A. A.—J. H. P.—J. D.—S. C. P.—J. O.—J. L.—S. G. S.

Recent American and Foreign Patents.

Under this heading we shall publish weekly notes of some of the more prominent home and foreign patents.

GIN GEARING.—Harris R. Easterling, M.D., Bennettsville, S. C.—This invention relates to the combination of two gins, placed diametrically opposite each other, and gearing with a master wheel driven by horse or other power, the connection between said gins and the pinions that gear with the master wheel being effected by means of sliding clutches, so that either gin may be stopped without stopping the other gin or the master wheel.

MACHINE FOR POLISHING AND VARNISHING MOLDINGS.—Charles and John Gschwind, of Union Hill, N. J.—This invention has for its object to devise a reliable apparatus whereon moldings, to be gilt, silvered, or otherwise ornamented, can be automatically and rapidly polished and, if desired, also varnished. This object is attained partly by a novel and ingenious arrangement of polishing tools and mechanism for moving the same over the moldings, and the combination therewith of an adjustable table on which the moldings are secured. It is also partly attained by a new system and arrangement of brushes, mechanism for dipping the same, and means for increasing their pressure upon the moldings in equal ratio to their distance from the varnish reservoir, and by further items of invention of greater or less importance.

HARNESS BUCKLE.—John H. Morris, Normal, Ill.—The invention consists in constructing and shaping the frame and tongue so that the buckle is held by pressure on heel and point in a very ingenious manner that gives great security. The device is a most useful one in connection with harness.

DITCHING MACHINE.—George W. Nevill, Richmond, Va.—This invention consists in a ditching machine which gradually cuts down to the depth desired, carries the excavated soil up over a flanged wheel, and discharges it at the side. Practical experiment has demonstrated its peculiar adaptability to the Western prairies.

CARPET STRETCHER.—William P. D. Claybrook, Palmyra, Mo.—This invention relates to an improved device for stretching carpets and for holding them in position while being fastened, the same being of a simple and convenient form or construction, and adapted for operation in rooms of various sizes.

SULKY PLOW.—John H. Robbins and Samuel Robbins, Bethel, Oregon.—The invention consists in a very ingenious method of adjusting the depth and pitch of plows in a sulky carriage frame by a peculiar and simple construction of beam and graduating mechanism.

WATER ELEVATOR.—John L. Burch, Franklin, Tenn.—This invention relates to an endless chain water elevator, of simple and convenient arrangement of parts whereby they may be readily taken apart for transportation, or more easily placed in or removed from a well than others heretofore employed.

CANAL BOAT.—William Henry Newell, Jersey City, N. J.—This invention relates to a new fender attachment for canal boats, whereby the lateral disturbance of the water is prevented, and undue friction during the propulsion of the boat avoided. It consists in hinging fenders to the sides or at the ends of the boat, so that they will protect the propellor or wheel and tend to prevent the disturbed water from reaching the banks. It also consists in the application to side fenders of extension pieces. The fenders may, on their hinges, be swung out or in more or less, according to the amount of water acted on by the propeller and depth of draft. To one or both the ends of the fender, are or may be applied extension fenders, which permit the proper lengthening or shortening of the main pieces. Instead of extension sections, there may be hinged sections at the ends of the fender, which may be folded against the main fenders, when to be carried out of the way. These hinged end pieces may also be used as rudders if desired. Canal boats having stern propellers may have fenders hinged only to their stems and bows, or either, and none at the sides. Where the fenders are caused to meet forward of the boat, they will, it is claimed, increase the speed by cutting through the water with less friction.

ROTARY STEAM ENGINE.—Thomas B. Van Pelt, of Spring Hill, Kan.—This invention relates to improvements, in rotary steam engines, intended to secure the full power of steam. A single rotary shaft, with cylinders, connecting with the steam chest, disk pistons, eccentrics, cams, yokes, sliding heads, levers, rock shaft, and cut-off valves, are employed to secure the object sought, and are covered by the claims allowed in the patent.

SASH HOLDERS.—Oscar W. Noble, of Darlington, Wis.—A bolt having a slot and pin, and a plate having a pin and slot applied in combination to the recess of the sash, also a cam bolt having a slot and pin, and a plate having slots and a pin, applied in combination to the recess of the sash are the features embraced in the claims upon which a patent has been obtained. By applying a projecting tongue to the cam, the same can be made to lock into mortises provided for its reception at proper intervals in the window frame, and thus constitute an absolute support for the sash; and the device, locks the sash when the latter is closed.

ELECTRO-MAGNETIC ENGINE.—Claude Victor Gaume, Williamsburg, N. Y.—This invention has for its object to furnish an improved electro-magnetic engine, simple in construction and effective and reliable in operation, being so constructed as to be free from the "pull back" or retardation which is a great objection to such engines as usually constructed. The armatures consist of a central bar, attached at its center to the face of a wheel, and having cross heads formed upon them about midway between their centers and end, the cross heads having short bars formed upon their ends parallel with the central bar, and the ends of which project to equal distances upon the outer and inner sides of said cross heads. Armatures thus constructed are claimed to be free from the retardation or "pull back" which was the great difficulty to be overcome in making electro-magnetic engines practical as a motive power.

MEDICAL COMPOUND OR BITTERS.—Richard G. Turner, Columbia, Texas.—This invention consists in a compound, more especially designed as a remedy for miasmatic fevers, but is claimed to be valuable in many other diseases and ailments of the human system, as general debility, torpid liver, dyspepsia, constipation, jaundice, and many others.

MARBLE POLISHNG MACHINE.—Michael Mallon, Rahway, N. J.—This invention consists of a horizontally swinging polishing stone holder, with driving gear and supporting apparatus therefor, adapted to be mounted on the surface of a large stone to be polished, and adjusted along it from one position to another and secured at any point, or to be used on a stationary table or platform. The machine may be used to polish metal and other substances. Sand may be carried upon the top of the stone and fed down through passages, from time to time, to the working surfaces.

EXTINGUISHER FOR STREET LAMPS.—George S. Dunbar, of Pittsfield Mass.—This invention has for its object to improve the construction of a gas light extinguisher, for which Letters Patent were issued, to the same inventor, October 3, 1871, so as to make it more satisfactory in operation, enabling the lights to be extinguished by a slightly increased pressure of the gas. It consists in the construction and combination of a lever, catch, shoulder or flange, with a flexible diaphragm and its attachments; also a combination of a pin with the catch, flexible diaphragm, and a case; also a combination of a pin or slide, with the lever and a slot in the case in which the said lever works. The invention is extremely ingenious, the gas being instantly extinguished by a pressure upon a pin passing through the case.

THILL COUPLING.—Lyman Derby, of Franconia, N. H.—This invention pertains to an improvement in the class of thill couplings in which rubber or other suitable elastic substance is employed to prevent rattling. The invention consists in a construction and arrangement of parts, whereby provision is made for causing two coupling screws to retain a secure hold, under all circumstances, by a single block or piece of rubber inserted between their adjacent inner ends, special provision being made for expansion of the rubber or compression of the same without material change in its elastic force, as applied to or exerted upon the screws; so that, if the block of rubber should be of undue size or firmness, the screws may notwithstanding be easily screwed home without injury to the rubber.

HARROW.—C. Hairgrove, of Jacksonville, Ill.—Two central bars are hinged together in the usual way of hinging harrows, or any other convenient way. To these bars are pivoted cross bars which are again pivoted to longitudinal bars at the outside, so that they may be inclined at an angle to the middle hinged bars. A clamping device holds them fixed when thus inclined. It is obvious that the more the cross bars are inclined from a right angle with the central hinged bars, the nearer will the teeth which they carry be brought together, and *vice versa*, the object being to construct a harrow in which the teeth may be adjusted in a simple manner, at a greater or less distance from each other.

TIRE SETTERS.—Joseph Pailca, of Ledyard, N. Y.—This invention consists of a bench, whereon the wheel is laid, with the tire adjusted upon its face at one side, and held by a holder suitably adapted therefor, while the other side of the wheel, on which the tire is to be forced, rests against a curved bar at the end of the frame, and a lever with a hook engaging the upper edge of the tire, while the end takes under the frame, which contracts the wheel and stretches the tire down upon the face or the hub in such manner as to allow of setting the tire without heating it at all.

EARTH CLOSET.—Hamilton Sherman, of Waverly, Pa.—This invention relates to that class of earth closets wherein the soil is transferred forward and dropped automatically at every raising of the cover by a carrier having an opening and closing bottom; the object being to improve the construction and the mode of operating grate bar slides with hinged metallic flaps underneath, closed by entering a narrow channel as the cover is raised and opened, successively, by their own gravity.

TRAVERSE MOTION.—Duncan Walker, of East Hampton, Mass.—This invention consists of a three pointed star wheel, combined with a pair of inclined faces or cams, arranged on said bar reversely to each other, and on opposite sides of the wheel at one end of the traverse bar, in such manner that said faces are alternately acted upon by the said star wheel, and the bar alternately moved in opposite directions, the movement in one direction beginning as soon as the movement in the other ceases, and the said movement being uniform in speed throughout the whole length, which is the essential object of the invention, and distinguishes it from those arrangements in which the bar is moved by eccentrics, which give a variable motion to the bar, and allow it to rest or move so slowly at each end that the wear of the threads or "ends" on the leather rollers is very much greater at the extremes of the movements than between them. The traverse bar assumes the form of a wide plate at one end, in which is a large hole whose walls are perpendicular to the bar and have each an inclined plane or cam which, beginning at a corner of said hole, inclines toward the center of it to some extent, and stops at a line parallel with the bar and passing through the center of said hole. One of the cams is on the same side of the center that the baris, and the other is on the opposite side. The three pointed star wheel revolves horizontally in the hole on the axis of a worm wheel below which is turned by a worm on the shaft of one of the draft rollers. This star wheel and the cams are so adjusted relatively to each other that one of the points will begin to act on one of the cams to move the bar in one direction at the moment another point escapes from the other cam, and ceases to move said bar in the other direction, These cams will not be straight inclines, but will have such form that the motion imparted to the bar by the revolving points will be uniform in respect of speed throughout each movement.

AIR SUPPLYING ATTACHMENT FOR STOVES.—Wesley Wright, of Lee's Summit, Miss.—This article is proposed for manufacture and sale in the market as a suitable attachment to stoves, by which the air (required to furnish oxygen) may be drawn from the outside of the chamber, and its supply to the fire graduated according to circumstances. It is a compound metallic hearth and air chamber constructed in a single piece and adapted to the use set forth.

WASHING MACHINE.—Isaac J. Wells, of Spring Valley, N. Y.—This invention has for its object to furnish a simple, convenient, and effective washing machine which shall be so constructed as to wash the clothes quickly and thoroughly and without injuring them. It consists in a washing cylinder and boiler, the washing cylinder being provided with buckets, and also a combination of stirrer pins with the washing cylinder.

ORGAN ACTION.—John H. Odell, New York city.—This invention embraces the employment of a pneumatic tube action for organs, in which the valves of the organ pipes are opened by the inflation of a pneumatic lever, which is inflated by the admission of air through a pneumatic tube, whereby the key board may be removed from the organ and placed at a considerable distance therefrom, and the usual arrangement of squares, levers, rollers, trackers, and electric wires, may be dispensed with. The invention also embraces the combination of a self acting exhaust valve with the pneumatic lever, and the employment of certain other novel devices in connection therewith, so as to produce a quick return movement of the pneumatic lever. The pneumatic lever may be operated by air pressure; but it may be also operated by an air exhaust or suction, in which case the pneumatic lever and connected parts would need to be specially arranged for the use of such exhaust. The inventor does not limit or confine himself to the particular form construction, or arrangement of any of the parts herein described, as they may be varied in many ways to suit the requirements of the construction without departing from the invention.

ELEVATOR.—William Livingstone and William F. Holske, Brooklyn, assignors to William F. Holske and William H. Silberhorn, New York city.—The first part of this invention consists of a combination of toothed eccentric wheels or pawls and weighted levers gearing with them, with the carriage, its actuating rope, and wood or other elastic guides, in such manner that the said toothed eccentric wheels will be caused to engage or bind against the wood guides by the gravity of the levers, or by the same and a spring to lock the carriages and prevent falling in case of accident. The essential object of this invention is to avoid the expensive toothed or notched iron bars and the iron pawls now used, which, besides being expensive, are also objectionable on account of their liability to break for want of elasticity by the sudden shock when catching the car. The second part of the invention consists of a system of intermediate driving and reversing gearing between the driving belt, by which the carriage is actuated, and the drum of the hoisting rope, whereby the carriage is operated at will in either direction by the said driving belt constantly moving in one direction, the shifting being readily effected by suspended cords, such as are commonly used in elevators for actuating the reversing gear. This part of the invention also comprises a novel friction brake device, which, being also worked by the reversing cords, comes into action at that moment when in the reversing of the clutches the drum is entirely disconnected from the driving belt, and retains the drum until, by the continuation of the action of the shifting gear after the clutch has been released, the drum becomes completely disengaged and the connecting one fully engaged, thus positively holding the carriage during the time of changing the connection and while both clutches are disconnected to allow the carriage to rest. The essential object of the second part of the invention is to provide a simple and efficient system of connecting reversing gear, whereby elevators may be worked from shafting of factories, etc. continuously moving in one direction, and thus save the necessity of employing special engines for reversing the carriage by reversing the valves. Thus the inventors are enabled to drive the carriage in either direction by a power constantly moving in one direction, and to hold said carriage while shifting from one connection to the other, so as to insure the entire disconnection of one clutch and the cessation of the motion of the drum and carriage before the other reversing connection is formed, so that there is no clashing of any counter forces; also to allow the carriage to stop as required by apparatus set in motion by the same act by which the reversing is effected.

SELF-ACTING MULE FOR SPINNING.—Joseph P. Sweet, Hebronville Mass.—This invention relates to a new arrangement of apparatus constituting a positive "wind" motion, and the gearing and ungearing devices therefore adapted for the Franklin mule, which we regard as a positive improvement upon this class of machines. A ratchet wheel, pawl, tapered pin, disks, combined with a cylinder shaft, a lever, spring, spring catch, dagger, and tripper, constituting the mechanism embraced in the patent which has been obtained upon the invention.

TRUNK LOCK.—Joseph Stanton, New York city, assignor to Adolphus Hagelin, same place.—This invention has for its object to furnish an improved trunk lock, so constructed that the lock itself will act as a guide to bring the parts of the lock into proper position for locking, thus counteracting any bad effects from the springing or warping of the side of the trunk body, and preventing any damage to the lock should the cover be accidentally dropped, even though the locking bolt be thrown forward.

SALVE.—Louisa Masters, Jackson, Miss.—This preparation has for its object to furnish an improved salve for the cure of sores, cuts, bruises, etc., whether they be of long standing or not. It is prepared of various ingredients, in specified proportions, and in a peculiar manner.

LIVER INVIGORATOR.—William L. Simmons, M. D., of Weatherford, Tex.—This preparation has for its object to furnish an improved medical compound, called "Liver Invigorator and Cholagogue," which is claimed to be very effective as a corrective of biliousness, indigestion, etc., caused by miasmatic influences, torpor of the liver, headache arising from disordered stomach, bowels and liver, or produced by malarious poisons, etc.

BIT BRACE.—James Rice, of Prairie Creek, Ind.—The first peculiarity in this brace is that it may carry several bits at once, those not in use being turned up out of the way. Second, a very ingenious device enables the sweep or leverage of the brace to be increased or diminished as may be desired. The precise form or arrangement of any of the parts described is not claimed, as they may be varied in many ways without departing from the invention.

ACCOUCHING GARMENT.—Harris R. Easterling, M.D., Bennettsville, S. C.—The invention consists in two corsets, leg pieces, and certain intermediate connections by which a lady is enabled to manage the whole business of parturition without the assistance of midwife or physician.