Conscience in Work.

The policy of right doing cannot be doubted. Every intelligent man and woman must see that in nearly every instance it pays richly and fully for whatever labor or self-sacrifice it may involve, and in the few cases where they cannot see this result most of them have sufficient faith in the law to trust it. Yet, if this be the only motive in action, it cannot be called right doing in the best sense. That which is done solely from the hope of gain or advantage cannot be of the highest type.

The habit of doing what we have to do as well, as thoroughly and as speedily as possible, without imme- be trusted far and wide, who will work equally well diate reference to its probable or possible effects upon ourselves, is one which would of itself secure at once best at all times, is an invaluable member of society. the best success for ourselves and the greatest good of And he cannot do this simply from the motive of selfthe community. It would settle many vexed questions and solve many knotty problems. Instead of this, the telligence and foresight, it is conscience, vitalizing every common course is to consider closely the comparative detail of labor, and raising it to its highest pitch of exbenefit that is likely to accrue to us in return. There are all degrees of this calculation, from the strictly Confectioners' Journal. just to the grossly selfish. One man tries to estimate the true worth of his labor and performs it accordingly, another gives as little work and secures as large returns as possible, and between these there is every shade. But in all such reckonings there is one important element left out. No one can count up the value of the labor which is both generous and conscientious. Even its money value can never be calculated.

The youth who enters business determined to do all that comes to his hands as well and as quickly as he in the spring it was found that no movement had occan, who is anxious to learn and anxious to please who curred. According to the Lucerne correspondent of the never measures his labor by his wages, but freely Times, the observatory is to be a wooden building 8 gives all the work and the best work in his power, is vastly more valuable than the one who is always bear-i floors, each with two rooms. The lower floor, which ing in mind the small pay he is receiving and fearing is to be embedded in the snow, will be placed at the that he should give too much in return. So the mechanic or the clerk who, beyond his stated salary, beyond even his obligations to his employer or the de-

mands which public opinion could make upon him, exerts himself to make his work as perfect as he can. and delights in its thoroughness and excellence, apart from any private benefit it can render him, has a value which can never be computed. It matters not what the work be, whether it be done with the spade of the laborer, the pen of the clerk, the brush of the artist, or the voice of the statesman. Such people are sought far and wide, there are places always open to them, and their services are always at a premium. Talents and skill tell for much, but conscience in work tells for more. He whose integrity is unquestionable, who can alone as when every eye is upon him, and will do his interest. It is the result of something more than incellence.—Condensed from a lengthy editorial in the

An Observatory for Mont Blanc.

A second attempt is to be made to build an observatory at the top of Mont Blanc. As the workmen who tunneled last year through the snow just below the summit did not come upon rock, M. Janssen has decided that the building shall be erected on the frozen snow. A wooden cabin was put up, as an experiment, at the end of last summer, and in January and early meters long and 4 meters wide, and consisting of two disposition of climbers and guides, and the upper floor reserved for the purposes of the observatory. The roof, which is to be almost flat, will be furnished

with a balustrade, running round it, together with a cupola for observations. The whole building will rest upon six powerful screw jacks, so that the equilibrium may be restored if there be any displacement of the snow foundations. The building is now being made in Paris, and will shortly be brought in sections to Chamounix. The transport of the building from Chamounix to the summit of Mont Blanc and its erection there have been intrusted to the charge of two capable guides-Frederick Payot and Jules Bossonay.

CORNELL UNIVERSITY had, in 1891-92, a larger number of students in her technical departments than any of the nine technical colleges of Germany, with the single exception of Berlin (Charlottenburg). Sibley College, in its courses in mechanical engineering alone, has a larger number of students than the total in any German technical college except Berlin, Munich and Carlsruhe. The following are the figures: Berlin. 1,756; Cornell, 1,090; Munich, 642; Carlsruhe, 586; Sibley, 525; Hanover, 514; Stuttgart, 363; Darmstadt, 334 : Dresden, 251 ; Brunswick, 237 ; Aachen, 110.

When it is considered that the German colleges are the wards of the state, and are fully supported by their guardians, while Cornell University and its technical colleges are the wards of New York State, and left to be supported by private liberality, the contrast is something remarkably creditable to the latter, and not at all to the State so greatly benefited.

New Pacific Mail Steamer.

A new steamship, the Peru, for the Pacific Mail Steamship Company, was launched on the 11th from the yards of the Union Iron Works at San Francisco. The Peru is a steel steamer, 350 feet long, with triple expansion engines of 2,800 horse power, and is expected to attain a speed of 15 knots per hour.

RECENTLY PATENTED INVENTIONS. Railway Appliances.

CAR COUPLING. - Robert S. Russell Brownsville, Tenn. This is an improvement in that class of devices known as "twin-jaw" couplers, a coupling jaw of novel form being pivoted within each drawhead, the jaw having a horizontal hook at its forward end and a shoulder on the lower face of its weighted rear end, while a rock shaft journaled heneath the drawhead carries an arm adapted to contact with the jaw and the shoulder. The beveled forward ends of the coupling jaws pass each other as the cars come together, their hooks becoming automatically engaged, means being provided for locking the parts in coupled or nncoupled position. This coupling is inexpensive and always safe, and the device is readily operated from the side of the car,

MAIL BAG CATCHER.-James W. Horton, Madison, Ind. Catching and holding arms, normally pendent, are secured to a main or supporting bar hung in bearings npon the outer faces of the car door posts, these arms being swung out into operative or horizontal position by a lever arm. The catcher arms are adapted to be readily reversed to operate in either direction of movement of the car, the arms positively grasping the bag, while the holding devices yield to its inertia to overcome the shock. The de vice is simple in construction and easy to manipulate.

BAGGAGE STAMP OR CHECK.-Thomas M. Cunningham, Nashville, Tenn. This invention consists of a railroad ticket having separate and independent stamps or checks secured to it indicating the amount collected by the initial road on the route for the baggage of the passenger, with other particulars, such as the excess in value and excess weight of the baggage. The improvement has for its object the more certain division pro rata of charges for excess of baggage on connecting railroadsusing coupon tickets. although it is likewise applicable to local tickets.

Mechanical.

GRINDING WHEEL ATTACHMENT. John H. Goetsche, San Francisco, Cal. Emery and other grinding wheels are, by this improvement, provided with a casing formed with an annular recess to retain the oil, the inner wall of the casing resting on the face of the wheel and being held in place by a washer. The arrangement is such that all the lubri-

of the machine. The frame is supported by an or dinary wheel at the landside, and the land roller is hinged centrally between its ends at its forward side to the opposite side of the frame, so that it will have a free lateral swinging movement. This improvement is designed to afford especial advantages from the fact that the soil rolls better and the clods break up more easily just at the time they are turned up by the plow, and the weeds and vegetable matter are thus so effectually covered up that they rot more quickly.

FOWL CRATE.-Friedrich W. Ewert, Wood Lawn, Ill. A transverse partition divides this crate into upper and lower compartments, and transverse and longitudinal bars in each upper and lower division are made to form single compartments, one for each fowl, there being a door on the front end of each compartment formed of a bar sliding on vertical rods, guide rods held on the bar sliding in bearings on the crate. The crates are more especially designed for shipping fowls to a distance without injury, perfect ventilation being afforded, and the construction being simple and durable.

EGG CARRYING PACKAGE.-Robert G. Dale and Walter S. Weightman, Durango, Col. The outer body of this package or case is made of pasteboard or thick paper bent or folded to form two tubular sections lying side by side, with their inner walls dividing them but left free to open, inner thin paper or flexible strips being looped to form a series of separate egg chambers in each tubular section. The improvement is more especially designed to facilitate the safe delivery of eggs in small lots to consumers, and is also applicable to egg cases of larger size, or packages containing any number of such divided lots.

CHEESE VAT.-Leopold Meyer, Ahnapee, Wis. This is an improvement upon vats having a water tank and heater, the milk being heated in a removable vat suspended upon the water tank. The milk yat has a sliding and detachable connection with the water tank, and a longitudinal discharge pipe extends along the under side of its bottom, the projecting end of the pipe entering an aperture in one end of the water tank when the vat is secured to the tank, the latter having a heating pocket in its bottom. The bottom of the sheet metal milk vat is strengthened, and a simple and convenient means provided for drawing off the whey from the curds, the tank and vat being easily separated and operated, and easily kept clean.

MUZZLE FOR HORSES AND STOCK. Marcus S. Moremen, Switzerland, Fla. This is a simple and practical device, attachable to the head of the animal to prevent injury being done to other cattle or to trees and shrubbery, while allowing freedom to graze. Theskeletonmuzzle is secured upon the jowls of the beast, and its open bottom is normally closed by a pivoted and spring-pressed guard plate, a projection from the latter engaging the ground to swing the plate upward within the muzzle when the animal lowers its head, POWDER DUSTER.-John P. Wright, Phomaston, Texas. This is an inexpensive device adapted to be carried on a farm cart or wagon, and be easily operated by the driver to distribute poison upon plants. A bed or platform carries uprights supporting a hand shaft with crank handle, this shaft being con nected by a belt and pulley with a distributer shaft on the outer ends of which are poison-distributing cylinders, which may be held at different heights, as desired, for dusting the plants. The distributer shaft is operated by the turning of the crank handle by the driver, and not by the moving part of the machine, so that the powder may be applied only where needed and none of it will be wasted,

Miscellaneous

Toy.-William H. Gregg, New York City. The evolutions of a body of soldiery can be imitated and different positions of a company of infantry may be accurately represented by this novel and amusing toy, instruction in the order of marching bodies of men being illustrated thereby. In connection with a base board, a series of figures is supported on transverse strips secured pivotally at both ends on parallel bare, and thus adapted for changing the position of the figures by ranks.

PUZZLE.—Antenor Assorati and Arturo Cuyas, New York City. A puzzle in egg form, simulating the mythical egg of Columbus, is provided by this invention, the egg being so constructed that when handled in a certain manner it may be made to stand upon its end. Although the toy is inexpensive, the interior mechanism is so arranged that it requires considerable expertness to solve the puzzle.

DESIGN FOR THE ORNAMENTATION OF SHEET METAL.-Leopold Kahn, New York City. The leading feature of this design consists of alternating strips of ribbon-like and lace-like metal, the latter figures simulating different varieties of lace, and having preferably scalloped edges overlapping the ribbon-like figures.

DESIGN FOR A SHOE SHAPER PLATE.oseph W. Skinner, La Crosse, Wis. The edge lines of the flat main plate converge slightly toward both ends. which are turned up at right angle, one upturned end being bent over in a curve, while in the other is inserted a screw eye.

PRESSURE REGULATING VALVE.-Wal frid Gustafsson, Brooklyn, N. Y. This invention provides a valve of simple, durable, and inexpensive construction, with which, no matter what the pressure may be upon the inlet, the pressure at the outlet may | sires to select a cigar. be diminished as desired. The invention also provides a means whereby the regulating mechanism of the valve may be manipulated in a convenient and expeditious manner, the improvement embracing various novel details of construction and combinations of parts.

FEED PIPE FOR VACUUM PANS. -Henry Basanta, Ponce, Porto Rico. The feed pipe is preferably ring-shaped, provided with a series of perforations, and located directly above the heating coil safe locks. of the vacuum pan. One end of the pipe is closed and the other registers with a short pipe leading to a chamber into which discharges the supply pipe, valved steam and chemical supply pipes being also connected with this chamber, the valves in the latter pipes being ordinarily closed. The regular perforations in the feed pipe cause a uniform discharge of the sirup under an equally distributed pressure, any crystals in the sirup not being liable to break, and facilitating the production of well-grained sugar in the boiling, TRANSFER PAPER.-William Schwartz, New York City. This invention relates to an improvement in the paper and in a composition for coating it, providing at a low cost a paper by means of which a number of copies of a mannscript or design may be quickly and conveniently taken on single sheets or on ; left screw bolt is made to connect the rails in the rear the leaves of books. The coating is composed of glycerine, carpenter's glue, agar-agar, and other components, in specified proportions, and is applied while hot. The compound never thoroughly dries, but always retains its absorbent qualities, and with the paper thus treated a distinct and perfect impression is in this improvement, the shank of one book being made of the matter to be copied. HARNESS. - Thomas J. Magruder, Marion, Ohio. This is a strap-attaching device for harness, of simple and durable character, especially adapted for connecting the inner and outer belly-bands. or for connecting any two straps crossing one another.

The device has side bars with upwardly curved extremities from which tongnes extend inwardly, a bridge bar connecting the side bars, the bridge bar having studs and a central aperture.

SACK HOLDER. - James C. Bratney, Sparta, Ill. This is a device for holding any kind of sack in a position to be easily filled, and is readily adjustable to suit and support tacks of different lengths. The holder has a funnel top, with depending neck to enter the sack, and on opposite sides of the funnel are downwardly-depending sockets to receive supporting legs. The funnel has projections or teeth and hooks to engage the sack, which may be fastened in place by one motion of the hand, and thus held without injury, the hooks not extending through the fabric, but simply forcing it into aligning perforations.

EMBROIDERING.—Hermann Gehnrich. New York City. Thie invention relates to a fabricholding frame for embroidering machines, and especially adapted for use with the Heilmann or Swiss machines. The frame may be secured to the machine in any well known manner, is of simple and inexpensive construction, occupies but little space, and the fabric can be readily and securely attached to it and stretched without injury. It is provided with an automatically-working lock, so that when the fabric is stretched it will be held under the desired tension.

SHOW CASE. - James C. Loughry, Freensburg, Pa. This case is especially adapted to exhibit cigars and permit them to be easily reached. It has a vertically-sliding glazed front, operated in ways by chains or cords extended over guide pulleys to the rear of the case and there weighted for operation by the salesman, there being a shield or mirror in front of the upper ends of the ways. The salesman pulls on the chain to raise the glass front when a customer de-

COMBINATION LOCK. - William H. Thompson, Winnipeg, Canada. This lock has a rotary bolt with a locking notch in which rests a tumbler on a spring bar, at right angles to and operating on which is a grooved pull-shaft, in the grooves of which play one or more adjustable slides. The lock can be opened only by one knowing the proper combination, and is adapted for use on cupboard doors, drawers, valises, and in connection with the ordinary bolts of

STOVEPIPE FASTENING. - John H. Johnston, Little Rock, Ark. Metal loops are, according to this invention, riveted to the pipe sections on the inside near their ends, a separate connecting strap or tie being bent around the loops and connecting the opposite pipe sections, thus forming a firm and secure anion of the sections to prevent them from becoming loose and falling apart, without producing any visible or unsightly effect.

cant passing out of the bearing is readily gathered by the casing and retained therein, from which it can be readily removed by a sponge or other means, the work being protected from the oil or other lubricant ordinarily liable to be scattered over the surface of the wheel.

CLAW BAR. - James W. Gray, Brooklyn. N. Y. An implement especially adapted for drawing spikes from railroad ties, and capable of speedy and convenient adjustment to any size of spikehead, is afforded by this invention. The jaw is curved on its under side to rock, and its forward end is curved downward and inward to form a beak, in the rear of which is a vertical slot in which a bar has a sliding and pivoted movement. The construction is such that one of the clamping jaws may be utilized as a fulcrum for the bar in drawing the spike, the implement being also light, durable, and inexpensive.

Agricultural.

PLOW.-Henry M. McCafferty, Montrose, Col. A combination sulky plow and roller has been devised by this inventor, an implement designed to thoroughly plow the soil and roll it nicely at the same time, the roller forming one of the main wheels

FURNITURE CONSTRUCTION. - Frank M. Haiman and Andrew L. Eaton, of Ottumwa, Iowa. This invention provides a convenient means of securing the legs to tables, stands, desks, and similar articles, temporarily for shipment. A diagonal right and of their spaced ends, the leg being clamped between the rail ends beyond the screw, which serves to connect and brace the rails when the leg is removed.

FISH HOOK.-William H. Hunter, Farnhamville, Iowa. A bowl and two hooks are combined fixed in the bowl while the shank of the other hook engages a pin or lug on the bowl to hold the two hooks in a closed position. While trolling the hooks are thus held closed to prevent them from getting caught in weeds, grasses, etc., but they are adapted to open instantly when the fish takes the bait.

WOOD AND COAL BOX.-Rudolph Federroll, New York City. This box is preferably made of metal, and has an open-topped case in which slides a wood box, the box being mounted on rollers so that it may be easily moved about. The lower portion of the box is divided into upper and lower compartments by an included partition, in which is an opening, there being also an opening closed by a vertically-swinging door in the front of the lower compartment. The box is cheap and compact, and holds the coal in such a manner that it may be easily shoveled out without spilling.

DETERGENT PASTE. - Joseph Judge, Pittston, Pa. This is a paste for scouring and polishing purposes. It may be used for polishing and scouring hot or cold metals without much labor, its action being very rapid upon rust, corrosion or discolorations of the surface, and it leaves a polish which will last for a considerable length of time

HAT.-Samuel Cohen, New York City. This is a hat more especially designed for the use of hunters, etc., having a sufficiently stiff brim to afford protection against the sun and rain, while it may be readily folded up to carry in the pocket. The brim is made in sections folding one upon the other, and the hat is made of a covering material and lining between which are interposed stiffening plates made of cardboard, rubber, leather, metal, etc., joints being formed by the covering material and lining at the ends of adjacent plates.

VAGINAL SYRINGE. - John D. Kirkwood, Pullman, Washington. This a device of novel construction, made in one piece, without joint or seam or screw thread, so that dirt or other matters cannot collect in it, while it has no weak part to break and is not liable to get out of order.

DESIGN FOR A MEDAL. - Albert O. Quinby and Thomas H. Bates, Fresno, Cal. This is a Chicago World's Fair souvenir, and has on it a representation of a spread eagle surmounting a shield like figure bearing a bird's eye view of the exposition buildings.

NOTE.-Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please send name of the patentee, title of invention, and date of this paper.

SCIENTIFIC AMERICAN BUILDING EDITION.

JULY NUMBER.-(No. 81.)

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- 1. Handsome plate in colors of a residence recently erected at Yonkers, N. Y. Perspective views, floor plans, etc. Messrs. Rossiter & Wright, architects, New York. An excellent design.
- 2. Plate in colors of a residence erected at Marina Heights, Black Rock, Conn. Perspective eleva tions and floor plans. Cost \$7,000 complete Henry Lambert, architect, Bridgeport, Conn.
- 3. Perspective view and floor plans of a brick house at Chambersburg Pa., recently designed and built at a cost of \$2,500.
- 4. A cottage near Orange, N. J., from plans prepared by Munn & Co., architects, New York. Cos \$7,000 complete. Perspective view and floo plans.
- 5. A residence at Portland. Me., erected at a cost of \$5,575 complete. Floor plans and perspective elevation.
- 6. A residence at Bensonhurst, Long Island. Cost \$9,800 complete. Messrs. Parfitt Bros., architects, Brooklyn, N. Y. Two perspective eleva tions and floor plans.
- 7. Perspective elevations and interior views of the American Yacht Club House, at Milton Point near Rye, N. Y. A handsome building of the Queen Anne style. Messrs. E. A. Sargent & Co., architects, New York.
- A dwelling at Upper Montclair, N. J., erected at a cost of \$7,000 complete. Messrs. Munn & Co., architects, New York. Perspective and floor plans.
- 9. A cottage at Babylon, Long Island, N. Y., erected at a cost of \$3,700 complete. Plans and perspective elevation.
- 10. Sketch of an Australian bush home. Cost from \$1,200 to \$1,500. A simple and economical design for a summer house.
- 11. Miscellaneous contents : Electrical cotton gin.

Business and Personal.

The charge for Insertion under this head is One Dollar a line for each insertion ; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in the following week's issu

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Minerals sent for examination should be distinctly marked or labeled.

(4465) A. R. S. wants to know what is

the best proportion of materials to make a German silver which does not tarnish. A. Nickel 35 parts, tin 20 parts, zinc 18 parts, copper 16 parts, and white cast iron 10 parts.

(4466) M. J. S. writes: Having practiced taxidermy for many years, I naturally read with interest the article on "Dangers of Arsenical Soap," in SCIENTIFIC AMERICAN of April 23, 1892. For the ast eighteen years I have used arsenical soap only, be lieving it to be less harmful than white arsenic. 1. Nov if (as this article asserts) arsenic is non-volatile, and the little arsenic it would be possible to absorb would act only as a tonic," how comes it that a singlegrain of arsenic in a square yard of wall paper is so injurious? A. The poisonous effect of mixtures of arsenic with organic matter by formation of volatile products is still somewhat in debate. The ill effect of arsenical wall paper is still somewhat uncertain. 2. The taxidermist receives many valuable specimens in the first stages of Al decay. Will not the application of white arsenic to the skins of such develop ptomaine of arsenic also? All Ptomaines may be developed in such cases. 3. If the best white toilet soap is used, can ptomaine be developed in the arsenical soap? A. Distinction in favor of AD AD AD AT olive oil or other vegetable soap might be drawn. 4. Is there any safe, reliable substitute for argenic in the Ar preparation of skins? A. Arsenic seems to hold its place as the favorite application. (4467) R. G. P. says: In the manufacture of perfumery, what portion of the plant is used? A. The odors of plants reside in different parts of them. sometimes in the roots, as in^sthe iris and vitivert; the leaves in mint, patchouly and thyme; the stem or wood in cedar and santal; the flower in the roses and violets; Be Be Bi the seeds in the tonquin bean and caraway; the bark in cinnamon, etc. Some plants yield more than one odor, which are quite distinct and characteristic. The orange tree, for instance, gives three; from the leaves one called petit grain; from the flowers we procure neroli; Bo Bo Bo Bo and from the rind of the fruit essential oil of orange named Portugal. The fragrance or odor of plants is owing in nearly all cases to a volatile oil, either con-

tained in small vessels or sacs within them or generated from time to time, during their life, as when in blossom. Some few exude, by incision, odoriferous gums, as benzoin, myrrh, etc.; others give, by the same act, what are called balsams, which appear to be mixtures of an odorous oil and an inodorous gum.

(4468) N. McH.-Commercial dextrine is obtained by heating dry potato starch to a temperature of 750° Fah., in sheet iron trays or revolving iron or copper drums, similar to those used in coffee roasting, whereby it is transformed into semi-transparent, brownish lumps, which are converted into a pale yellow powder by grinding between millstones. It is completely soluble in cold water, from which it may be precipitated by addition of excess of strong alcohol. Potato starch is generally used, but starch from other sources will answer. The best tests to ascertain its purity are to agitate briskly a few grains of the dex-

trine in a test tube with fifty times its weight of pure cold water, then set it aside for 10 minutes. Pure dextrine dissolves completely in cold water to a clear solution. If not all dissolved, pour off the solution, add a little water to the residue, heat to boiling, let cool, and add a few drops of lodine water; a blue color indicates starch.

(4469) W. A. B. asks: 1. I have an induction coil I made that gives a shock as strong as I can bear with a current from two cells of gravity battery. What would be the best kind of battery to use to occupy very little space and at the same time not be expensive? A. Use a plunging bichromate battery. 2. What length of focus, size of glasses, distance apart, and number of glasses should be in a microscope to magnify 350 diameters? I can make the glasses and mount them myself. If you have a SUPPLEMENT that gives information on this subject, tell me the number and I will send for it. A. The formula for a good microscope objective requires very careful calculation. and the lenses must be made of special glass and care. fully corrected. We do not think you will be able to do this unless you are an expert optician. You will find information on grinding lenses in SUPPLEMENT, No. 318.

(4470) W. T. B. writes: In Sloane's Arithmetic of Electricity," the strength of current that a copper wire can safely carry is given as 2.5 amperes for a No. 18 wire, Birmingham gauge. Other authors whose works I have vary but slightly from 8 amperes for No. 18 B. and S. gauge, a smaller wire than the other gauge. Now, will you please tell me what is the safe carrying capacity of say No. 18 B. and S. gauge copper wire ? A. The 2.5 amperes is credited to No. 18 B. and S. or American wire gauge-not Birmingham, There is no hard and fast rule. The figure given in the arithmetic is for electro-magnets and amatures, where the wire is insulated. A bare wire would carry considably more. 2. What is the ratio of the current capacity of wires to their diameters? A. The square of the carrying capacity varies with the cube of the diameter. See "Arithmetic of Electricity," pages 58, 59.

(4471) R. M. McG. asks for a so-called window pane barometer. A. By painting the window pane or wall paper with any one of the following solutions, different colors are exhibited npon atmospheric changes, owing to the well known properties of nickel and cobalt salts, which charge color in accordance with the variation or amount of moisture in the air. No. 1. Cobalt chloride 1 part, gelatine 1 part, water 100 parts. No. 2. Copper chloride 1 part, gelatine 10 parts, water 100 parts. No. 3. Cobalt chloride 1 part, gelatine 20 parts, water 200 parts, nickel oxide 0.75 part, copper chloride 0.25 part. In damp weather all will be colorless; in clear weather No. 1 will be blue, No. 2 yellow, and No. 3 green.

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Car top buffer, freight, H. H. Sessions Car wheel, A. Hymas.	479,020 479,366 479,327
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