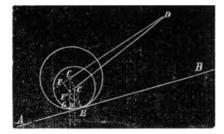
Scientific American.

(28) H. C. F. asks: 1. How can I make a so lution for plating with a battery out of old gold rings? A. Add one volume of nitric to three of muriatic acid and dissolve the rings in the menstruum so formed. When this has been done, drive off any free acid that may remain by gently heating the whole. No yellow powder should result from the operation ; if it does, a drop or two more of acid must be added to redissolve it. The solution should then be much diluted, and cyanide of potassium added as long as any precipitate is formed. Separate this from the liquid, wash, and redissolve it in cyanide of potassium, and the solution is ready for use. About half an ounce of the precipitate to a gallon of the cyanide (water and cyanide) is a good working strength. One Smee cell is sufficient to cause the deposit. The solution should be heated to about 130° Fah., and pure fine gold is needed for the anode. By properly regulating the battery power and heat, the color of the gold may be considerably modified. As cyanide of potassium is a deadly poison, too much care cannot be exercised in handling it. 2 Can I plate articles that have been nickel-plated with such a solution? A. Yes. 3. Would 5 cells Daniell's battery be sufficient? A. Five cells of Daniell's battery would probably cause the evolution of gas, which is to be carefully avoided. One cell in good condition would do well.

(29) S. A. T. savs: In an old building in Philadelphia resides a man about 75 years of age who has been at work on a machine composed of levers, without springs or weights, for years. Heis very eccentric, lives alone, and no person knows who he is or whence he came. The machine is nearly all composed of wood; it is completed, and has been running for weeks. He is now building one very much larger, from which he intends de riving power. The man is not a man to deceive any one, and there is nothing about the machine hidden from view. I understand that the man has been working at this problem for 40 years. When I say "he has a machine which supplies its own power," I say what my eyes tell me. I am no believer in perpetual motion; but what is this? A. This is the old story that we have heard so often. We have in our possession numerous circulars, de-scribing just such wonderful inventions and endorsed by the most wonderful names, but they do not seem to have much effect upon our views, and we are constrained to think that, while your eyes may be all right, you did not use them as judiciously as was desirable, directing them by your reason.

(30) C. W. P. says: I have two iron tanks in the top of my house, holding 125 barrels each. One is for soft water, the other for drinking purposes. What is the best paint or composition to coat them with to keep them from rusting? White lead will not do. A. Trautwein says: "White lead applied directly to the iron requires inces sant renewal, and probably exerts a corrosive effect. It may, however, be applied over the more durable colors when appearance requires it. Red lead is said to be very durable, when pure. instance is recorded of pump rods, in a well 200 feet deep, near London, which, having first been thus painted, were in use for 45 years, and at the expiration of that time their weight was found to be precisely the same as when new; thus showing that rust had not affected them." A slate paint is sometimes used to coat the interior of tanks. Iron, well cleaned and washed with hot linseed oil, will sometimes be thus preserved from rust ing.

(31) N. G. W. says, in commenting on M. W. W.'s answer to the question why a given load can be moved up a given incline on a small wheeled truck with less power than would be necessary to move the same load up the same incline on a large wheeled truck : Let P=power, W=weight, R=radius of wheel, b=angle of inclination of road= E C G, a=angle made by line of traction, D C, with road=FE C. E is the center of moments. Th



A. The principal difference will be that, in the first E. McD.-No. 1 contains iron and manganese, along with silver and alumina. No. 2 is galena with a small percentage of iron. Itis not arsenical. No. 3 is plumbago with silex and lime. No. 4 is silica and alumina, iron in small amount, and lime.-J. H. P.-The smaller piece contains galena, pyrite, tale and quartzite. The larger is galena in lime-stone rock.—E. W. W.—No. 1 is iron pyrites which has lost a part of its sulphur and been partly converted into oxide of iron. No. 2 is excellent iron ore. It contains neither black lead nor quicksil--H. L. C.-They are of two kinds. The glossy kind is quartz, the waxy variety is chalcedony. Tampa Bay, Fla., has long been celebrated for the chalcedony found near it.-R. W. Z.-No. 1 is zinc ore. No. 2 is willemite. No. 3 is mica schist, con-taining a small amount of red hematite. No. 4 is calamine. No. 5 is strontianite. No. 6 is calamine. -C. H. P.-It is probably a siliceous scoria, its density being only 2.14. Besides silex, of which it is mostly composed, it contains iron, lime, and carbonaceous matter.-J. J. F.'s specimen, supposed to contain silver, did not arrive.-C. A. W.-The clay contains silica, alumina, lime, iron (as sesquioxide), magnesia, potash, and traces of soda. The above ingredients are arranged in order of the amounts as existing in the specimens sent.-W.H. G .- We find none of the precious metals present. It is a deposit of carbonate of lime and magnesia upon quartz. It contains about 10 per cent of sesquioxide of iron.-C. W.-It is a fossil belemnite. These curious fossils vary in size and form; some are small, delicate, transparent like amber; others are opaque, and from ten to twelve inches in length. They are very common, having been met with in all ages and countries, and giving rise to much speculation as to their real character.-C.B. K.'s and D. M. S.'s minerals did not come to hand. -A. M. D.-No. 1 is a handsome chrysolite, which is a silky variety of fibrous serpentine. No. 2 is hornblende. No. 3 is beryl.-J. L.-The water has been examined. It has taken up alumina, lime, and organic matter. The latter is to be dreaded: and it would be safer to boil the water before using.-A. B. P.-Nos. 1, 2, 3, and 4 (both hard and soft) are varieties of shale rock containing an amount of oxide of iron. By fluxing, No. 1 gives a black slag. They are not entitled to the name of iron ores. The paints are ochers of inferior quality. No. 5 is impure iron alum.-A. B. P.-The two bottles labeled No.1 and those marked Nos. 2 and 3 contain lime and alumina with organic matters. In No. 3, the two latter substances are in considerable quantity, and there is likewise present a large percentage of iron.

## COMMUNICATIONS RECEIVED.

The Editor of the SCIENTIFIC AMERICAN acmowledges, with much pleasure, the receipt of original papers and contributions upon the following subjects : On Large and Small Wagon Wheels. By M.G.P. On the Tides in the Gulf of Mexico. By W. On a New Explosive. By E. G. A. On Steam Boiler Phenomena. By L. M. K.

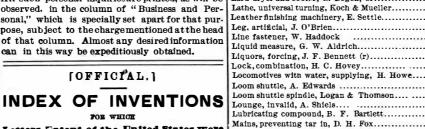
On State Laws regarding Patents. By W. W. Also inquiries and answers from the following : A. G.-J. W. D.-P. S.-C. L.-D. F.-A. L.-J. B.

## F. J. C.-J. R. N.-A. W.-E. J. N.-S. M. 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.

Enquiries relating to patents, or to the patentability of inventions, assignments, etc., will not be published here. All such questions, when initials only are given, are thrown into the waste basket. as it would fill half of our paper to print them all; but we generally takepleasure in answering briefly by mail, if the writer's address is given.

Hundreds of inquiries analogous to the following are sent: "Whose is the best process of making gas from petroleum? Who publishes working drawings of steam engines? Whose is the best steam siphon valve? Whose is the best machine for reducing sand and small gravel to a fine powder? All such personal inquiries are printed, as will be observed, in the column of "Business and Personal," which is specially set apart for that purpose, subject to the chargementioned at the head of that column. Almost any desired information can in this way be expeditiously obtained.



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	<ul> <li>Fats, etc., separating constituents of, T. M. Fell</li> <li>Fede water regulator, C. M. Bridges.</li> <li>File holder, H. Baumgartel.</li> <li>Fire arm, magazine, E. A. F. Toepperwein.</li> <li>Fire arms, elastic butt plate for, H. A. Sliver.</li> <li>Fire extinguisher, Hart and Dillon-Lee.</li> <li>Fishing lines, sinker for, E. Pitcher.</li> <li>Flower pot, C. J. Sands.</li> <li>Furnace door casing, H. F. Hayden.</li> <li>Furnace, iron and steel, W. A. Stephens.</li> <li>Furnace, hot air, H. D. Freer.</li> <li>Furnace, hot air, N. Toye.</li> <li>Game counter, C. E. Hackley.</li> <li>Gas governor, W. D. Show.</li> <li>Gassailer, extension, J. H. Seaman.</li> <li>Generator, steam, R. H. Thom.</li> <li>Glassware, manufacture of. J. C. Gill.</li> <li>Grant, J. Soute.</li> <li>Grate, J. Habermehl.</li> <li>Harness, rosette, Ulrich &amp; Hachmeister (r).</li> <li>Harrow, wheel, J. S. Snively.</li> </ul>	$\begin{array}{c} 167, 60\\ 167, 63\\ 167, 73\\ 167, 71\\ 167, 70\\ 167, 70\\ 167, 66\\ 167, 66\\ 167, 66\\ 167, 79\\ 100\\ 100\\ 100\\ 100\\ 100\\ 100\\ 100\\ 10$
	<ul> <li>Fats, etc., separating constituents of, T. M. Fell</li> <li>Fede water regulator, C. M. Bridges.</li> <li>File holder, H. Baumgartel.</li> <li>Fire arm, magazine, E. A. F. Toepperwein</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fishing lines, sinker for, E. Pitcher.</li> <li>Fishing, spoon nook for, G. R. Pierce.</li> <li>Flower pot, C. J. Sands.</li> <li>Furnace for destroying insects, W. F. Woolsey.</li> <li>Furnace, iron and steel, W. A. Stephens.</li> <li>Furnace, hot air, N. Toye.</li> <li>Gage, siding, C. Sargent</li> <li>Game apparatus, J. J. Weber</li> <li>Gaselier, extension, J. H. Scaman</li> <li>Generator, steam, R. H. Thom</li> <li>Glassware, manufacture of. J. C. Gill</li> <li>Grain dryer, J. Soute</li> <li>Harness, rosette, Ulrich &amp; Hachmeister (r)</li> <li>Harnesy, wheel, J. S. Snively.</li> </ul>	$\begin{array}{c} 167, 600\\ 167, 68\\ 167, 73\\ 167, 71\\ 167, 70\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 78\\ 167, 78\\ 167, 78\\ 167, 67\\ 167, 67\\ 167, 67\\ 167, 67\\ 167, 67\\ 167, 67\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 6, 6\\ 167, 77\\ \end{array}$
	<ul> <li>Fats, etc., separating constituents of, T. M. Fell</li> <li>Fede water regulator, C. M. Bridges.</li> <li>File holder, H. Baumgartel.</li> <li>Fire arm, magazine, E. A. F. Toepperwein</li> <li>Fire arms, elastic butt plate for, H. A. Sliver</li> <li>Fire arms, elastic butt plate for, H. A. Sliver</li> <li>Fire arms, elastic butt plate for, H. A. Sliver</li> <li>Fire arms, elastic butt plate for, H. A. Sliver</li> <li>Fire arms, elastic butt plate for, H. A. Sliver</li> <li>Fire arms, elastic butt plate for, H. A. Sliver</li> <li>Fire arms, elastic butt plate for, H. A. Sliver</li> <li>Fishing lines, sinker for, E. Pitcher.</li> <li>Fishing, spoon hook for, G. R. Pierce.</li> <li>Furnace door casing, H. F. Hayden</li> <li>Furnace for destroying insects, W. F. Woolsey</li> <li>Furnace, hot air, H. D. Freer.</li> <li>Furnace, hot air, N. Toye.</li> <li>Gage, siding, C. Sargent.</li> <li>Game apparatus, J. J. Weber</li> <li>Gas governor, W. D. Show</li> <li>Gasalier, extension, J. H. Seaman</li> <li>Generator, steam, R. H. Thom</li> <li>Grain dryer, J. Soute</li> <li>Grate, J. Habermehl.</li> <li>Harnoes, rosette, Ulrich &amp; Hachmeister (r)</li> <li>Harvester, J. Gore (r)</li> <li>Hat bodies, forming, W. H. Croke.</li> <li>Heating drum, Musson &amp; Dick.</li> </ul>	$\begin{array}{c} 167, 600\\ 167, 65\\ 167, 73\\ 167, 77\\ 167, 70\\ 167, 77\\ 167, 70\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 75\\ 167, 76\\ 167, 75\\ 167, 66\\ 167, 75\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 76\\ 167, 66\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 66\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 66\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 66\\ 167, 76\\ 167,$
	<ul> <li>Fats, etc., separating constituents of, T. M. Fell Feed water regulator, C. M. Bridges.</li> <li>File holder, H. Baumgartel.</li> <li>Fire arm, magazine, E. A. F. Toepperwein</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fishing lines, sinker for, E. Pitcher.</li> <li>Fishing, spoon hook for, G. R. Pierce.</li> <li>Flower pot, C. J. Sands.</li> <li>Furnace door casing, H. F. Hayden.</li> <li>Furnace for destroying insects, W. F. Woolsey.</li> <li>Furnace, iron and steel, W. A. Stephens.</li> <li>Furnace, hot air, H. D. Freer.</li> <li>Furnace, hot air, N. Toye.</li> <li>Gage, siding, C. Sargent.</li> <li>Game apparatus, J. J. Weber.</li> <li>Gas governor, W. D. Show.</li> <li>Gasaller, extension, J. H. Seaman.</li> <li>Generator, steam, R. H. Thom.</li> <li>Glassware, manufacture of, J. C. Gill.</li> <li>Grain dryer, J. Soute.</li> <li>Grate, J. Habermehl.</li> <li>Harrow, wheel, J. S. Snively.</li> <li>Harvester, J. Gore (r).</li> <li>Hat bodies, forming, W. H. Croke.</li> <li>Heat regulator, W. S. Hill.</li> <li>Heating drum, Munson &amp; Dick.</li> <li>Hook for hanging pictures, C. Richards.</li> </ul>	$\begin{array}{c} 167, 600\\ 167, 632\\ 167, 733\\ 167, 731\\ 167, 701\\ 167, 767\\ 167, 767\\ 167, 767\\ 167, 767\\ 167, 771\\ 167, 767\\ 167, 771\\ 167, 801\\ 167, 772\\ 167, 771\\ 167, 771\\ 167, 771\\ 167, 772\\ 167, 772\\ 167, 772\\ 167, 772\\ 167, 772\\ 167, 772\\ 167, 772\\ 167, 772\\ 167, 772\\ 167, 772\\ 167, 772\\ 167, 772\\ 167, 772\\ 167, 772\\ 167, 66\\ 167, 772\\ 167, 66\\ 167, 772\\ 167, 67\\ 167\\ 167\\ 167\\ 167\\ 167\\ 167\\ 167\\ $
	<ul> <li>Fats, etc., separating constituents of, T. M. Fell</li> <li>Fede water regulator, C. M. Bridges.</li> <li>File holder, H. Baumgartel.</li> <li>Fire arm, magazine, E. A. F. Toepperwein</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fishing lines, sinker for, E. Pitcher.</li> <li>Fishing ines, sinker for, E. Pitcher.</li> <li>Fishing spoon hook for, G. R. Pierce.</li> <li>Furnace door casing, H. F. Hayden.</li> <li>Furnace for destroying insects, W. F. Woolsey.</li> <li>Furnace, iron and steel, W. A. Stephens.</li> <li>Furnace, hot air, H. D. Freer.</li> <li>Furnace, hot air, N. Toye.</li> <li>Gage, siding, C. Sargent</li> <li>Game apparatus, J. J. Weber</li> <li>Gasalier, extension, J. H. Seaman</li> <li>Generator, steam, R. H. Thom</li> <li>Grain dryer, J. Soute</li> <li>Grate, J. Habermehl.</li> <li>Harvester, J. Gore (r)</li> <li>Har bodies, forming, W. H. Croke.</li> <li>Heat regulator, W. S. Hill.</li> <li>Heating drum, Munson &amp; Dick.</li> <li>Hoisding apparatus, N. W. Hoffman.</li> <li>Hook for hanging pictures, C. Richards.</li> <li>Horse-detaching apparatus, J. W. Glover</li> </ul>	$\begin{array}{c} 167, 600\\ 167, 63\\ 167, 73\\ 167, 73\\ 167, 74\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 66\\ 167, 75\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 67\\ 167, 67\\ 167, 67\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 67\\ 167, 67\\ 167, 67\\ 167, 76\\ 167, 77\\ 167, 66\\ 167, 77\\ 100\\ 100, 100\\ 100, 100\\ 100, 1$
	<ul> <li>Fats, etc., separating constituents of, T. M. Fell</li> <li>Fede water regulator, C. M. Bridges.</li> <li>File holder, H. Baumgartel.</li> <li>Fire arm, magazine, E. A. F. Toepperwein</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fire extinguisher, Hart and Dillon-Lee.</li> <li>Fishing lines, sinker for, E. Pitcher.</li> <li>Fishing, spoon hook for, G. R. Pierce.</li> <li>Flower pot, C. J. Sands.</li> <li>Furnace door casing, H. F. Hayden.</li> <li>Furnace, iron and steel, W. A. Stephens.</li> <li>Furnace, hot air, N. Toye.</li> <li>Gage, siding, C. Sargent.</li> <li>Game apparatus, J. J. Weber.</li> <li>Gas governor, W. D. Show.</li> <li>Gasalier, extension, J. H. Seaman.</li> <li>Generator, steam, R. H. Thom.</li> <li>Giassware, manufacture of, J. C. Gill.</li> <li>Grath dryer, J. Soute.</li> <li>Harrow, wheel, J. S. Snively.</li> <li>Harrow, wheel, J. S. Snively.</li> <li>Harvester, J. Gore (r).</li> <li>Hat bodies, forming, W. H. Croke.</li> <li>Heating drum, Munson &amp; Dick.</li> <li>Hoisting apparatus, N. W. Hoffman.</li> <li>Hook for hanging pictures, C. Richards.</li> <li>Horse-detaching apparatus, J. W. Hoffman.</li> </ul>	$\begin{array}{c} 167, 600\\ 167, 652\\ 167, 73\\ 167, 71\\ 167, 70\\ 167, 66\\ 167, 66\\ 167, 66\\ 167, 75\\ 167, 66\\ 167, 75\\ 167, 67\\ 167, 67\\ 167, 67\\ 167, 67\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167$
	<ul> <li>Fats, etc., separating constituents of, T. M. Fell</li> <li>Fede water regulator, C. M. Bridges.</li> <li>File holder, H. Baumgartel.</li> <li>Fire arm, magazine, E. A. F. Toepperwein</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fishing lines, sinker for, E. Pitcher.</li> <li>Fishing, spoon hook for, G. R. Pierce</li> <li>Flower pot, C. J. Sands.</li> <li>Furnace for destroying insects, W. F. Woolsey.</li> <li>Furnace, iron and steel, W. A. Stephens.</li> <li>Furnace, hot air, H. D. Freer.</li> <li>Furnace, hot air, N. Toye.</li> <li>Gage, siding, C. Sargent.</li> <li>Game apparatus, J. J. Weber</li> <li>Gasalier, extension, J. H. Seaman.</li> <li>Generator, steam, R. H. Thom</li> <li>Grain dryer, J. Soute</li> <li>Grate, J. Habermehl.</li> <li>Harneser, rosette, Ulrich &amp; Hachmeister (r)</li> <li>Harvester, J. Gore (r).</li> <li>Hat bodies, forming, W. H. Croke.</li> <li>Heating drum, Munson &amp; Dick.</li> <li>Hoisting apparatus, N. W. Hoffman</li> <li>Hook for hanging pictures, C. Richards.</li> <li>Horse-detaching apparatus, J. W. Glover</li> <li>Horseshoe, A. Albright</li> <li>Horseshoe, M. S. Roberts.</li> </ul>	$\begin{array}{c} 167, 600\\ 167, 63\\ 167, 73\\ 167, 73\\ 167, 74\\ 167, 74\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 71\\ 167, 66\\ 167, 71\\ 167, 66\\ 167, 71\\ 167, 66\\ 167, 71\\ 167, 66\\ 167, 71\\ 167, 66\\ 167, 71\\ 167, 66\\ 167, 71\\ 167, 66\\ 167, 71\\ 167, 66\\ 167,$
	<ul> <li>Fats, etc., separating constituents of, T. M. Fell Feed water regulator, C. M. Bridges</li></ul>	$\begin{array}{c} 167, 600\\ 167, 625\\ 167, 732\\ 167, 732\\ 167, 742\\ 167, 762\\ 167, 661\\ 167, 661\\ 167, 772\\ 167, 662\\ 167, 772\\ 167, 672\\ 1672\\ 1722\\ 1722\\ 1722\\ 1722\\ 1722\\ 172$
	<ul> <li>Fats, etc., separating constituents of, T. M. Fell Feed water regulator, C. M. Bridges</li></ul>	$\begin{array}{c} 167, 600\\ 167, 62\\ 167, 73\\ 167, 73\\ 167, 74\\ 167, 76\\ 167, 66\\ 167, 76\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 67\\ 167, 67\\ 167, 76\\ 167, 77\\ 167, 67\\ 167, 67\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 66\\ 167, 76\\ 167, 66\\ 167, 76\\ 167, 66\\ 167, 76\\ 167, 66\\ 167, 76\\ 167, 66\\ 167, 76\\ 167, 66\\ 167, 76\\ 167, 66\\ 167, 76\\ 167, 66\\ 167, 76\\ 167, 66\\ 167, 76\\ 167, 66\\ 167, 76\\ 167, 66\\ 167, 76\\ 167, 66\\ 167, 76\\ 167, 66\\ 167, 76\\ 167, 66\\ 167, 76\\ 167, 66\\ 167, 76\\ 167, 66\\ 167, 76\\ 167, 66\\ 167, 66\\ 167, 76\\ 167, 66\\ 167\\ 167\\ 167\\ 167\\ 167\\ 167\\ 167\\ $
	<ul> <li>Fats, etc., separating constituents of, T. M. Fell Feed water regulator, C. M. Bridges</li></ul>	$\begin{array}{c} 167, 600\\ 167, 652\\ 167, 73\\ 167, 71\\ 167, 767\\ 167, 66\\ 167, 66\\ 167, 75\\ 167, 66\\ 167, 75\\ 167, 67\\ 167, 67\\ 167, 67\\ 167, 67\\ 167, 67\\ 167, 67\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 16$
	<ul> <li>Fats, etc., separating constituents of, T. M. Fell Feed water regulator, C. M. Bridges</li></ul>	$\begin{array}{c} 167, 600\\ 167, 62\\ 167, 73\\ 167, 73\\ 167, 76\\ 167, 76\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 67\\ 167, 67\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 71\\ 167, 66\\ 167, 71\\ 167, 66\\ 167, 71\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 71\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 72\\ 167, 72\\ 167, 72\\ 167,$
	<ul> <li>Fats, etc., separating constituents of, T. M. Fell</li> <li>Fede water regulator, C. M. Bridges.</li> <li>File holder, H. Baumgartel.</li> <li>Fire arm, magazine, E. A. F. Toepperwein</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fire arms, elastic butt plate for, H. A. Silver</li> <li>Fishing lines, sinker for, E. Pitcher.</li> <li>Fishing ines, sinker for, E. Pitcher.</li> <li>Fishing ines, sinker for, E. Pitcher.</li> <li>Fishing ines, sinker for, E. Pitcher.</li> <li>Finace door casing, H. F. Hayden.</li> <li>Furnace for destroying insects, W. F. Woolsey.</li> <li>Furnace, iron and steel, W. A. Stephens.</li> <li>Furnace, hot air, H. D. Freer.</li> <li>Furnace, hot air, N. Toye.</li> <li>Gage, siding, C. Sargent</li> <li>Game apparatus, J. J. Weber</li> <li>Gasalier, extension, J. H. Seaman</li> <li>Generator, steam, R. H. Thom</li> <li>Grain dryer, J. Soute</li> <li>Grate, J. Habermehl.</li> <li>Harnees, rosette, Ulrich &amp; Hachmeister (r)</li> <li>Harvester, J. Gore (r)</li> <li>Hat bodies, forming, W. H. Croke</li> <li>Heat regulator, W. S. Hill</li> <li>Heating drum, Munson &amp; Dick</li> <li>Horse dtaching apparatus, J. W. Glover</li> <li>Horse dtaching apparatus, J. W. Glover</li> <li>Horseshoe, A. Albright</li> <li>Hose and pipe coupling, H. G. Koehler</li> <li>Hydrocarbons, burning, J. W. Nystrom</li> <li>Ice pick, M. Cowles</li> <li>Key fastener, J. Knight</li> <li>Lamp, B. B. Schneider</li> </ul>	$\begin{array}{c} 167, 600\\ 167, 63\\ 167, 73\\ 167, 73\\ 167, 74\\ 167, 74\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 72\\ 167, 76\\ 167,$
	<ul> <li>Fats, etc., separating constituents of, T. M. Fell Feed water regulator, C. M. Bridges</li></ul>	$\begin{array}{c} 167, 600\\ 167, 632\\ 167, 732\\ 167, 732\\ 167, 762\\ 167, 661\\ 167, 661\\ 167, 662\\ 167, 662\\ 167, 772\\ 167, 662\\ 167, 772\\ 167, 672\\ 1672\\ 1722\\ 1722\\ 1722\\ 172$
	<ul> <li>Fats, etc., separating constituents of, T. M. Fell Feed water regulator, C. M. Bridges</li></ul>	$\begin{array}{c} 167, 600\\ 167, 632\\ 167, 732\\ 167, 732\\ 167, 742\\ 167, 762\\ 167, 762\\ 167, 762\\ 167, 762\\ 167, 762\\ 167, 762\\ 167, 762\\ 167, 622\\$
	<ul> <li>Fats, etc., separating constituents of, T. M. Fell Feed water regulator, C. M. Bridges</li></ul>	$\begin{array}{c} 167, 600\\ 167, 62\\ 167, 73\\ 167, 73\\ 167, 76\\ 167, 76\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 67\\ 167, 67\\ 167, 77\\ 167, 67\\ 167, 77\\ 167, 67\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 66\\ 167, 72\\ 167, 66\\ 167,$
	<ul> <li>Fats, etc., separating constituents of, T. M. Fell Feed water regulator, C. M. Bridges</li></ul>	$\begin{array}{c} 167, 600\\ 167, 62\\ 167, 73\\ 167, 73\\ 167, 73\\ 167, 76\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 67\\ 167\\ 167\\ 167\\ 167\\ 167\\ 167\\ 167\\ $
	<ul> <li>Fats, etc., separating constituents of, T. M. Fell Feed water regulator, C. M. Bridges</li></ul>	$\begin{array}{c} 167, 600\\ 167, 652\\ 167, 73\\ 167, 71\\ 167, 767\\ 167, 66\\ 167, 75\\ 167, 66\\ 167, 75\\ 167, 67\\ 167, 6\\ 167, 7\\ 167, 6\\ 167, 7\\ 167, 6\\ 167, 7\\ 167, 6\\ 167, 7\\ 167, 6\\ 167, 7\\ 167, 6\\ 167, 7\\ 167, 6\\ 167, 7\\ 167, 6\\ 167, 7\\ 167, 6\\ 167, 7\\ 167, 6\\ 167, 7\\ 167, 6\\ 167, 7\\ 167, 6\\ 167, 7\\ 167, 6\\ 167, 7\\ 167, 6\\ 167, 7\\ 167, 6\\ 167, 7\\ 167, 6\\ 167, 7\\ 167, 6\\ 167, 6\\ 167, 7\\ 167, 6\\ 167, $
•	<ul> <li>Fats, etc., separating constituents of, T. M. Fell Feed water regulator, C. M. Bridges</li></ul>	$\begin{array}{c} 167, 600\\ 167, 62\\ 167, 73\\ 167, 73\\ 167, 76\\ 167, 66\\ 167, 73\\ 167, 66\\ 167, 75\\ 167, 66\\ 167, 167\\ 167, 167\\ 167, 167\\ 167, 167\\ 167, 167\\ 167, 167\\ 167, 167\\ 167, 167\\ 167, 167\\ 167, 167\\ 167\\ 167\\ 167\\ 167\\ 167\\ 167\\ 167\\$
	<ul> <li>Fats, etc., separating constituents of, T. M. Fell Feed water regulator, C. M. Bridges</li></ul>	$\begin{array}{c} 167, 600\\ 167, 652\\ 167, 732\\ 167, 711\\ 167, 762\\ 167, 662\\ 167, 662\\ 167, 672\\ 167, 662\\ 167, 672\\$
	<ul> <li>Fats, etc., separating constituents of, T. M. Fell Feed water regulator, C. M. Bridges</li></ul>	$\begin{array}{c} 167, 600\\ 167, 62\\ 167, 73\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 67\\ 167, 67\\ 167, 77\\ 167, 67\\ 167, 77\\ 167, 67\\ 167, 77\\ 167, 67\\ 167, 77\\ 167, 67\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 71\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167,$
	<ul> <li>Fats, etc., separating constituents of, T. M. Fell Feed water regulator, C. M. Bridges</li></ul>	$\begin{array}{c} 167, 600\\ 167, 62\\ 167, 73\\ 167, 76\\ 167, 76\\ 167, 76\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 67\\ 167, 67\\ 167, 77\\ 167, 67\\ 167, 77\\ 167, 67\\ 167, 77\\ 167, 67\\ 167, 77\\ 167, 67\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 77\\ 167, 66\\ 167, 71\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167, 72\\ 167, 72\\ 167, 66\\ 167, 72\\ 167,$

167,693	Printer's quoin, A. J. O'Shea 167,780
167,616 167,804	Printing press, A. E. Redstone 167,787 Propelling canal boats, A. Bugbee 167,641
167,750 167,767	Pumps, valve for pneumatic, W. B. Chisholm 167,604
167,718	Purifier, middlings, H. F. Notbohm 167,619 Railroad frog point, J. Johnson
167,811	Railroad switch. D. F. Cavanaugh 167.743
167,690	Railroad switch, safety, J. A. Duggan 167,652 Refrigerator. J. Schmelzer 167,695
167,646 167,658	Refrigerator, B. A. Stevens 167,706
167,778	Rein holder, Owen & Custer 167,781 Revenue guard for cigar boxes. O. T. Earle 167,752
6,642 6,647	Roll for rolling metal, A. R. Boluss 167,734
167,653	Sash balance, W. J. Lewis 167,677 Sash cord fastener. H. N. Connor 167,744
6,641 167,602	Sash fastener, P. T. Share 167,624 Saw, band, G. F. Wood 167,721
167,618 167,774	Saw bucks, wood holder for. S. Hollingsworth 167,667
167,752	Sawing machine, scroll, E. Smith 167,794 Sawing machine, stone, S. Thompson 167,806
167,742 167,673	Scales, weighing, T. D. Stetson 167,705
167,615	Scraper, road, E. Huber 167,668 Sewing machine, S. B. Brown 167,640
167,694 167,708	Sewing machine. C. S. Cushman 167,747 Sewing machine caster, L. A. Parker, 167,782
167,751 167,691	Sningling bracket, W. H. Seymour 167,699
167,799	Shoes. elastic goring for, H. A. Blanchard 167,732 Sifter, ash, A. C. Ferris 167,655
167,719 167,642	Sleigh, T. Brown
167,679 167,661	Snow plow, S. M. Miner 167,775
167,704	Soap, compound for, G. L. S. Jenifer 167,669 Soap holder, W. J. Johnson 167,769
167,758 167,735	Soda water fountains, making, A. D. Puffer 167,688
167,813	Spark arrester, Brayton, June, & French 167,7 <sup>3</sup> 8 Speculum, E. W. Higbee 167,666
167,648 167,805	Speeders, etc., bearing for, S. Dyer 167,654 Sphygmoscope, W. R. Pond 167,'85
167,606 167,605	Stamp, hand, S. F. Robinson 167,621
167,727	Stone sawing machine. S. Thompson 167,806 Stove, hot blast, Cochrane & Cowper 167,644
167,776 167,766	Swaging machine feed, R. Thompson 167,630
167,659	Table, steaming, A. J. Randell 167,689 Telegraph, electromagnetic, J. Olmsted 167,685
167,801 167,696	Tooth pick, G. S. Boice
167,637 167,692	Torpedo envelope machine, Wolfe & Lilliendahl 167.814 Toy, balancing, F. Markoe 167,771
167,803	Toy, chime, E. C. Barton (r)
167,808 6,645	Trunk stay, M. A. Waas 167,809
167,670 167,682	Tubing, making of metal, D. M. Somers 167,796 Type setting machine, R. T. P. Allen 167,726
167,623	Tyre setting machine. I. H. Spelman 167,798
167,632 167,607	Universal joint and clamp. T. J. Carrick 167,603 Valve, oscillating balanced, A. W. Eldredge 167,754
	Vinegar, apparatus for making, E. Burlingame 167,643
167,639	
167,639 167,731 167,712	Wagon, dumping, T. Weaver
167,731 167,712 167,701	Wagon, dumping, T. Weaver 167,715
167,731 167,712 167,701 167,664 167,687	Wagon, dumping, T. Weaver         167,715           Wagon lamp support, Boedren & Johnson         167,735           Washing machine. G. Friend.         167,757           Washing machine, G. W. Grubb.         167,761           Watches, hollow staff for, Belcher & Plume.         167,634
167,731 167,712 167,701 167,664 167,687 167,784	Wagon, dumping, T. Weaver       167,715         Wagon lamp support, Boedren & Johnson       167,736         Washing machine, G. Friend.       167,757         Washing machine, G. W. Grubb.       167,761         Watches, hollow staff for, Belcher & Plume.       167,634         Water closet, R. D. O. Smith.       167,702         Wells, tools for setting tube, J. B Stellwagen.       167,626
$\begin{array}{c} 167,731\\ 167,712\\ 167,701\\ 167,664\\ 167,687\\ 167,784\\ 167,790\\ 167,765\\ \end{array}$	Wagon, dumping, T. Weaver         167,715           Wagon lamp support, Boedren & Johnson         167,735           Washing machine, G. Friend.         167,757           Washing machine, G. W. Grubb.         167,761           Watches, hollow staff for, Belcher & Plume.         167,763           Water closet, R. D. O. Smith.         167,624           Weils, tools for setting tube, J. B Stellwagen.         167,724
167,731 167,712 167,701 167,664 167,687 167,784 167,790 167,665 167,722 167,800	Wagon, dumping, T. Weaver       167,715         Wagon lamp support, Boedren & Johnson       167,736         Washing machine, G. Friend       167,757         Washing machine, G. W. Grubb       167,751         Watches, hollow staff for, Belcher & Plume       167,634         Water closet, R. D. O. Smith       167,702         Wells, tools for setting tube, J. B Stellwagen       16,626         Windmill, J. A. Allen       167,625         Window sash tightener, J. Benson       167,635         Window shade clasp or fastening, H. M. Wells       167,810
167,731 167,712 167,701 167,664 167,687 167,784 167,790 167,665 167,722 167,800 167,657	Wagon, dumping, T. Weaver         167,715           Wagon lamp support, Boedren & Johnson         167,735           Washing machine, G. Friend.         167,757           Washing machine, G. W. Grubb.         167,761           Watches, hollow staff for, Belcher & Plume.         167,634           Water closet, R. D. O. Smith.         167,626           Windowids, J. A. Allen.         167,724           Window sash tightener, J. Benson.         167,635
$\begin{array}{c} 167,731\\ 167,712\\ 167,701\\ 167,664\\ 167,687\\ 167,784\\ 167,784\\ 167,790\\ 167,765\\ 167,722\\ 167,800\\ 167,657\\ 167,631\\ 167,791\\ \end{array}$	Wagon, dumping, T. Weaver       167,715         Wagon lamp support, Boedren & Johnson       167,756         Washing machine, G. Friend.       167,751         Watches, hollow staff for, Belcher & Plume.       167,751         Watches, hollow staff for, Belcher & Plume.       167,751         Watches, hollow staff for, Belcher & Plume.       167,626         Weils, tools for setting tube, J. B Stellwagen.       167,626         Windmill, J. A. Allen.       167,625         Window sash tightener, J. Benson.       167,625         Window sahe clasp or fastening, H. M. Wells.       167,810         Wire, machine for screw threading, L. Goddu       167,760
167,731 167,712 167,701 167,664 167,687 167,784 167,790 167,665 167,722 167,800 167,657 167,631	Wagon, dumping, T. Weaver       167,715         Wagon lamp support, Boedren & Johnson       167,735         Washing machine, G. Friend.       167,761         Watches, hollow staff for, Belcher & Plume.       167,761         Watches, hollow staff for, Belcher & Plume.       167,761         Watches, hollow staff for, Belcher & Plume.       167,762         Weils, tools for setting tube, J. B Stellwagen.       167,626         Windmill, J. A. Allen.       167,724         Window sash tightener, J. Benson.       167,635         Window shade clasp or fastening, H. M. Wells.       167,760         Wre, machine for screw threading, L. Goddu       167,717         Yoke coupling, neck, N. E. Irish.       167,768         DESIGNS PATENTEL.       167,768
$\begin{array}{c} 167,731\\ 167,712\\ 167,701\\ 167,664\\ 167,665\\ 167,784\\ 167,665\\ 167,722\\ .167,665\\ 167,722\\ .167,800\\ .167,657\\ 167,631\\ 167,791\\ .167,716\\ .167,716\\ .167,795\\ \end{array}$	Wagon, dumping, T. Weaver
$\begin{array}{c} 167,731\\ 167,712\\ 167,671\\ 167,676\\ 167,678\\ 167,784\\ 167,784\\ 167,784\\ 167,790\\ 167,675\\ 167,672\\ 167,670\\ 167,671\\ 167,671\\ 167,795\\ 167,795\\ 167,697\\ 167,697\\ 167,697\\ \end{array}$	Wagon, dumping, T. Weaver       167,715         Wagon lamp support, Boedren & Johnson       167,756         Washing machine, G. Friend.       167,751         Washing machine, G. W. Grubb.       167,751         Watches, hollow staff for, Belcher & Plume.       167,761         Watches, hollow staff for, Belcher & Plume.       167,761         Watches, hollow staff for, Belcher & Plume.       167,626         Weils, tools for setting tube, J. B Stellwagen.       167,626         Windmill, J. A. Allen.       167,625         Window sash tightener, J. Benson.       167,625         Window shade clasp or fastening, H. M. Wells.       167,672         Window shade clasp or fastening, H. M. Wells.       167,717         Yoke coupling, neck, N. E. Irish.       167,768         DESIGNS PATENTEL.       8,647MEDALW. B. Cunningham et al., Phila., Pa.         8,648PLANOFORTE LEGC. E. Hoffmeister, N. Y. city.       5. 649CASTINGA. P. Reger, Philadelphia, Pa.
167,731 167,712 167,674 167,668 167,678 167,784 167,784 167,790 167,655 167,657 167,631 167,716 167,795 167,795 167,791 167,795	Wagon, dumping, T. Weaver
167,731 167,712 167,674 167,678 167,687 167,784 167,784 167,780 167,782 167,782 167,780 167,722 167,800 167,657 167,711 167,716 167,679 167,711 167,608 167,709	Wagon, dumping, T. Weaver
$\begin{array}{c} 167,731\\ 167,712\\ 167,671\\ 167,674\\ 167,687\\ 167,687\\ 167,784\\ 167,784\\ 167,784\\ 167,790\\ 167,675\\ 167,672\\ 167,681\\ 167,791\\ 167,716\\ 167,716\\ 167,791\\ 167,716\\ 167,797\\ 167,708\\ 167,797\\ 167,708\\ 167,797\\ 167,703\\ 167,7$	Wagon, dumping, T. Weaver
$\begin{array}{c} 167,731\\ 167,701\\ 167,701\\ 167,671\\ 167,664\\ 167,687\\ 167,784\\ 167,687\\ 167,784\\ 167,784\\ 167,678\\ 167,722\\ 167,675\\ 167,673\\ 167,671\\ 167,671\\ 167,791\\ 167,791\\ 167,797\\ 167,791\\ 167,795\\ 167,795\\ 167,796\\ 167,796\\ 167,796\\ 167,790\\ 167,703\\ 167,7$	Wagon, dumping, T. Weaver
$\begin{array}{r} 167,731\\ 167,712\\ 167,671\\ 167,671\\ 167,671\\ 167,687\\ 167,784\\ 167,687\\ 167,784\\ 167,780\\ 167,680\\ 167,722\\ 167,681\\ 167,722\\ 167,662\\ 167,795\\ 167,673\\ 167,795\\ 167,795\\ 167,608\\ 167,795\\ 167,608\\ 167,793\\ 167,608\\ 167,703\\ 6,640\\ 167,703\\ 6,640\\ 167,761\end{array}$	Wagon, dumping, T. Weaver
$\begin{array}{c} 167,731\\ 167,731\\ 167,701\\ 167,671\\ 167,687\\ 167,780\\ 167,780\\ 167,782\\ 167,782\\ 167,782\\ 167,673\\ 167,657\\ 167,657\\ 167,657\\ 167,657\\ 167,673\\ 167,716\\ 167,716\\ 167,768\\ 167,797\\ 167,609\\ 167,793\\ 167,609\\ 167,609\\ 167,703\\ 167,609\\ 167,746\\ 167,746\\ 167,746\\ 167,746\\ 167,761\\ 167,762\\ 167,7$	Wagon, dumping, T. Weaver
$\begin{array}{c} 167,731\\ 167,712\\ 167,671\\ 167,671\\ 167,674\\ 167,687\\ 167,784\\ 167,687\\ 167,784\\ 167,784\\ 167,675\\ 167,722\\ 167,665\\ 167,722\\ 167,681\\ 167,791\\ 167,681\\ 167,791\\ 167,795\\ 167,795\\ 167,795\\ 167,795\\ 167,797\\ 167,799\\ 6.643\\ 167,703\\ 6.640\\ 167,777\\ 167,773\\ 167,773\\ 167,773\\ 167,773\\ 167,773\\ 167,773\\ 167,773\\ 167,776\\ 167,776\\ 167,763\\ 167,763\\ 167,678\\ 167,678\\ 167,678\\ 167,678\\ 167,678\\ 167,678\\ 167,678\\ 167,678\\ 167,678\\ 167,678\\ 167,678\\ 167,68\\ 167,678\\ 167,68\\ $	Wagon, dumping, T. Weaver
167,731 167,712 167,671 167,671 167,664 167,664 167,687 167,784 167,784 167,784 167,665 167,722 167,657 167,671 167,671 167,716 167,795 167,797 167,795 167,797 167,799 6.643 167,703 6.640 167,746 167,774 167,774 167,773	Wagon, dumping, T. Weaver
$\begin{array}{c} 167,731\\ 167,731\\ 167,712\\ 167,671\\ 167,664\\ 167,664\\ 167,687\\ 167,784\\ 167,784\\ 167,784\\ 167,784\\ 167,675\\ 167,657\\ 167,657\\ 167,657\\ 167,671\\ 167,791\\ 167,791\\ 167,795\\ 167,795\\ 167,797\\ 167,703\\ 6,643\\ 167,703\\ 6,640\\ 167,773\\ 167,773\\ 167,673\\ 167,703\\ 6,640\\ 167,773\\ 167,763\\ 167,599\\ 100,599\\ 10$	Wagon, dumping, T. Weaver
167,731 167,712 167,614 167,664 167,664 167,687 167,784 167,784 167,784 167,784 167,655 167,722 167,657 167,657 167,671 167,716 167,716 167,795 167,797 167,709 6.643 167,760 167,760 167,760 167,763 167,774 167,763 167,774 167,763 167,789 167,789 167,789	Wagon, dumping, T. Weaver
167,731 167,731 167,712 167,674 167,664 167,664 167,665 167,722 167,670 167,673 167,675 167,671 167,671 167,679 167,797 167,797 167,799 6.643 167,799 6.643 167,774 167,769 167,779 167,799 17,799	Wagon, dumping, T. Weaver
167,731 167,731 167,712 167,661 167,687 167,780 167,780 167,782 167,782 167,655 167,757 167,651 167,651 167,671 167,671 167,716 167,716 167,760 167,797 167,703 6,640 167,746 167,746 167,745 167,753 167,620 167,759 167,539	Wagon, dumping, T. Weaver
167,731 167,731 167,712 167,671 167,664 167,664 167,665 167,722 167,665 167,722 167,657 167,657 167,657 167,671 167,791 167,795 167,797 167,797 167,799 6.643 167,709 6.643 167,709 167,703 167,703 167,746 167,609 167,746 167,765 167,675 167,675 167,675	Wagon, dumping, T. Weaver
167,731 167,731 167,712 167,671 167,673 167,780 167,780 167,782 167,782 167,675 167,673 167,671 167,671 167,671 167,716 167,672 167,797 167,797 167,793 167,693 167,693 167,693 167,793 167,793 167,793 167,793 167,746 167,746 167,747 167,748 167,759 167,759 167,620 167,759 167,650 167,759 167,650 167,755 167,650 167,755 167,650 167,755 167,650 167,755 167,650 167,755 167,650 167,755 167,655 167,655 167,655 167,755 167,755 167,755	<ul> <li>Wagon, dumping, T. Weaver</li></ul>
167,731 167,731 167,712 167,671 167,664 167,664 167,665 167,729 167,665 167,729 167,657 167,671 167,671 167,671 167,791 167,791 167,791 167,791 167,791 167,791 167,791 167,793 167,791 167,793 167,793 167,793 167,703 167,703 167,703 167,703 167,760 167,760 167,760 167,760 167,760 167,760 167,760 167,763 167,773 167,773 167,763 167,763 167,763 167,765 167,764 167,773 167,765 167,755 167,755	Wagon, dumping, T. Weaver
167,731 167,731 167,631 167,641 167,664 167,687 167,780 167,780 167,655 167,722 167,600 167,657 167,671 167,671 167,671 167,716 167,716 167,717 167,705 167,705 167,707 167,703 167,703 167,703 167,703 167,703 167,703 167,703 167,760 167,746 167,746 167,745 167,755 167,676 167,676 167,676 167,676 167,755 167,676 167,674 167,772	Wagon, dumping, T. Weaver
167,731 167,731 167,712 167,671 167,664 167,664 167,665 167,722 167,665 167,722 167,655 167,671 167,671 167,671 167,760 167,777 167,716 167,709 167,709 167,709 167,709 167,709 167,709 167,709 167,709 167,709 167,709 167,709 167,709 167,709 167,709 167,709 167,709 167,709 167,760 167,775 167,763 167,760 167,775 167,763 167,760 167,775 167,765 167,660 167,75 167,765 167,660 167,75 167,765 167,67 167,765 167,67 167,765 167,67 167,765 167,67 167,765 167,67 167,765 167,67 167,765 167,67 167,765 167,67 167,765 167,765 167,67 167,765 167,67 167,765 167,67 167,765 167,67 167,765 167,67 167,765 167,67 167,765 167,67 167,765 167,765 167,765 167,765 167,765 167,765 167,765 167,765 167,765 167,765 167,775 17,77	<ul> <li>Wagon, dumping, T. Weaver</li></ul>
$\begin{array}{c} 167,731\\ 167,731\\ 167,731\\ 167,701\\ 167,671\\ 167,687\\ 167,780\\ 167,780\\ 167,780\\ 167,782\\ 167,782\\ 167,790\\ 167,655\\ 167,722\\ 167,671\\ 167,671\\ 167,671\\ 167,671\\ 167,716\\ 167,672\\ 167,797\\ 167,608\\ 167,797\\ 167,609\\ 6.643\\ 167,774\\ 167,746\\ 167,746\\ 167,746\\ 167,746\\ 167,746\\ 167,763\\ 167,620\\ 167,763\\ 167,620\\ 167,763\\ 167,620\\ 167,763\\ 167,630\\ 167,763\\ 167,651\\ 167,651\\ 167,651\\ 167,651\\ 167,651\\ 167,652\\ 167,652\\ 167,652\\ 167,652\\ 167,652\\ 167,652\\ 167,652\\ 167,652\\ 167,652\\ 167,652\\ 167,652\\ 167,736\\ 167,736\\ 167,736\\ 167,736\\ 167,736\\ 167,652$	<ul> <li>Wagon, dumping, T. Weaver</li></ul>
$\begin{array}{c} 167,731\\ 167,731\\ 167,731\\ 167,712\\ 167,64\\ 167,664\\ 167,687\\ 167,784\\ 167,687\\ 167,784\\ 167,784\\ 167,784\\ 167,784\\ 167,655\\ 167,722\\ 167,657\\ 167,651\\ 167,671\\ 167,671\\ 167,791\\ 167,791\\ 167,791\\ 167,797\\ 167,797\\ 167,797\\ 167,797\\ 167,799\\ 167,799\\ 167,799\\ 167,608\\ 167,797\\ 167,608\\ 167,797\\ 167,608\\ 167,793\\ 167,608\\ 167,793\\ 167,608\\ 167,746\\ 167,763\\ 167,660\\ 167,746\\ 167,763\\ 167,660\\ 167,789\\ 167,660\\ 167,789\\ 167,660\\ 167,789\\ 167,660\\ 167,792\\ 167,660\\ 167,792\\ 167,660\\ 167,661\\ 167,66$	<ul> <li>Wagon, dumping, T. Weaver</li></ul>
$\begin{array}{c} 167,731\\ 167,731\\ 167,731\\ 167,701\\ 167,671\\ 167,702\\ 167,687\\ 167,782\\ 167,782\\ 167,782\\ 167,782\\ 167,687\\ 167,673\\ 167,673\\ 167,673\\ 167,673\\ 167,673\\ 167,711\\ 167,716\\ 167,760\\ 167,797\\ 167,703\\ 167,603\\ 167,703\\ 167,703\\ 167,703\\ 167,733\\ 167,733\\ 167,763\\ 167,746\\ 167,746\\ 167,746\\ 167,746\\ 167,745\\ 167,753\\ 167,620\\ 167,753\\ 167,630\\ 167,753\\ 167,630\\ 167,753\\ 167,636\\ 167,642\\ 167,753\\ 167,654\\ 167,653\\ 167,654\\ 167,653\\ 167,664\\ 167,653\\ 167,654\\ 167,654\\ 167,654\\ 167,654\\ 167,654\\ 167,765\\ 167,654\\ 167,765\\ 167,654\\ 167,765\\ 167,654\\ 167,765\\ 100,765\\ 100,765\\ 100,765\\ 100,765\\ 100,765\\ 100,765\\ 100,7$	<ul> <li>Wagon, dumping, T. Weaver</li></ul>
167,731 167,731 167,712 167,671 167,664 167,664 167,665 167,722 167,670 167,670 167,670 167,671 167,671 167,671 167,771 167,771 167,770 167,771 167,709 167,709 167,709 167,709 167,709 167,709 167,709 167,709 167,709 167,709 167,709 167,709 167,709 167,709 167,709 167,760 167,760 167,760 167,760 167,760 167,760 167,760 167,760 167,760 167,760 167,760 167,760 167,760 167,765 167,674 167,675 167,674 167,675 167,674 167,676 167,674 167,676 167,674 167,765 167,674 167,765	<ul> <li>Wagon, dumping, T. Weaver</li></ul>
$\begin{array}{c} 167,731\\ 167,731\\ 167,731\\ 167,712\\ 167,614\\ 167,664\\ 167,687\\ 167,784\\ 167,784\\ 167,784\\ 167,784\\ 167,784\\ 167,784\\ 167,722\\ 167,722\\ 167,655\\ 167,722\\ 167,657\\ 167,657\\ 167,662\\ 167,795\\ 167,795\\ 167,795\\ 167,795\\ 167,795\\ 167,795\\ 167,795\\ 167,703\\ 167,703\\ 167,703\\ 167,703\\ 167,703\\ 167,760\\ 167,760\\ 167,763\\ 167,763\\ 167,763\\ 167,763\\ 167,763\\ 167,763\\ 167,763\\ 167,763\\ 167,763\\ 167,656\\ 167,664\\ 167,789\\ 167,763\\ 167,674\\ 167,789\\ 167,674\\ 167,789\\ 167,674\\ 167,789\\ 167,674\\ 167,789\\ 167,674\\ 167,789\\ 167,674\\ 167,789\\ 167,674\\ 167,789\\ 167,674\\ 167,764\\ 167,764\\ 167,774\\ 167,763\\ 167,610\\ 167,610\\ 167,764\\ 167,774\\ 167,774\\ 167,764\\ 167,774\\ 167,774\\ 167,764\\ 167,774\\ 167,764\\ 167,774\\ 167,764\\ 167,774\\ 167,764\\ 167,774\\ 167,764\\ 167,774\\ 167,764\\ 167,774\\ 167,764\\ 167,774\\ 167,764\\ 167,774\\ 167,764\\ 167,774\\ 167,764\\ 167,778\\ 167,764\\ 167,778\\ 167,764\\ 167,778\\ 167,788\\ 167,778\\ 167,788\\ 167,788\\ 167,788\\ 167,788\\ 167,788\\ 167,788\\ 167,788\\ 167,788\\ 167,7$	<ul> <li>Wagon, dumping, T. Weaver</li></ul>

power, P. acts to raise the weight. W. over the point, P; the weight, W, resists the action. FE, the lever arm of  $P=R \sin a$ . G E, the lever arm of W=R cos. b. Writing out the equation by moments, we have P R sin.  $a = W R \cos b$ , or (reducing) we have P sin.  $a = W \cos b$ , that is, the power multiplied by the sine of the angle made by the line of traction with the road is equal to the weight multiplied by cos. angle of inclination of the road. The angle, a, varies inversely as R ; hence, as the wheel becomes smaller, the angle, a, increases, as is shown in the figure. The sine of an angle varies directly as the angle, consequently, as a increases, sin. a increases. Resuming the last equation: Considering the weight constant and the angle of inclination of the road also, it would follow, to keep up the equality, that, as the diameter of the wheel is diminished, less power would be required to move a given weight up a given incline.

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

J. N. D.-Both are argillaceous shale, containing 

	Terrelle Latente AI ente Chitten States Mere	Measure, liquid, G. W. Aldrich 167,601	for acids. Sept. 20, 1875.
e	Granted in the Week ending	Meat cutter, D. I. Degroat 167,649	
<u>,  </u>	September 14, 1875.	Meat in cutting, holding, W. Tetley 167,710	flour-saving fan. Sept. 20, 1875.
ńľ		Medical composition, L. P. Brand 167,737	
-	AND BACH BEARING THAT DATE.	Mill, smut, Richmond, Ryan, and McGill 167,788	A August Company
	[Those marked (r) are reissued Datents.]	Nail extractor, I. N. Burdick 167,740	Advertisements.
-		Nipple, rubber, A. M. Knapp 167,613	
1	Alarm, burglar, J. B. Allen 167,725	Ore crusher and amalgamator, C. Braids 167,638	Back Page \$1.00 a line.
٦	Alphabet exhibitor, B. B. Whaley 167,812	Ore feeder, C. P. Stanford 161,025	Inside Page 75 cents a line.
۶I	Auger, earth, J. P. Summers 167,628	Paint oil compound, D. S. Robinson 167,622	Engravings may head advertisements at the same rate
I	Awnings, frame for hinged, H. Sykes 167,709	Painting cloth machine for, H. H. Phillips 167,783	per line, by measurement, as the letter press. Adver-
1	Baby walker, Nickerson and Tripp 167,683	Paper box, C. A. Young 167,723	tisements must be received at publication office us
ı,	Permale device for nitching G Meyer 167,681	Paper box machine, G. L. Turney 167,807	early as Friday morning to appear in next usue.
f	Red comp H P Mills 167.617	Paper, machine for cutting roll, Cohen & Frank 167, 645	
t-	Redatord sofe R S McEntire	Paper pulp from palm, making, J. P. Herron 0,640	O FOR ONE OF THE BEST FILE GUIDES EVER
e	Plind stop W Wright 167.815	Pen holder, E. Barberot	Da made, for guiding the file while filing saws. Manu-
ıt	Beate propolling canal A Bughee 167.641	Pen.ruling, J. R. Gisburn 101,139	factured by E. ROTH & BRO., New Oxford, Pa.
it	Boiler, wash, O. Davis 167,748	Picker staff check, Stevenson & Nuttall	5000 AGENTS WANTED-To Sell the Oriental
e	Boot heels, making, S. W. Baldwin 167,728	Pictures, etc., hanging. H. D. Pope 167,786	Stationery and Jewelry Package, the largest
er	Boot-pegging stand, A. Stone 167,802	Pipe cutter, F. I. Maule	and fastest selling backage in the world. Mailed for 20c. Address R L. FLETCHER. 111 Chamber St. Nor. 2001
a	Boots, insole for, C. F. Hill 167,762	Plane, carpenter's, M. C. Mayo	
	Boots, lasting, R. C. Lambert	Planer chuck, J. C. Mulberry	
~	Bottle stopper fastening, W. H. Bate 167,633	Planing machine, Doane & Passel	TOOLCHISIS
9-	Bottle stoppers, bending wire, C. De Quilifeidt. 167,650	Planing machine cutter holder, W. B. Smith 167.793	
d	Brick machine, wilson and Smithson 167,720	Planter, corn, J. Kelly	WITH BEST TOOLS ONLY
	Burner, gas, T. Trudeau 167,115	Plow, M. Ormond	JTPRATT& CO
	Burner, lamp, P. S. Undernill 101,114	Pocketbook lock, Hanau & Bendit	
ıВ	Calendar, J. F. Tapley 161,629	Discher and har W H Dungage 167 747	53 FULTON ST NY