could not be melted. I put some of it, with some borax for a flux, in an anthracite coal furnace, and obtained something like the inclosed sample. Is it of any value? A. The sample probably consists of the double borate of manganese and sodium, used in Germany as a substitute for litharge in the manufacture of paint driers, japans, etc. It would hardly command a remunerative return here.

(12) W. C. B. asks: How much more (if any) than its own weight, can a railroad engine start on a perfectly level track, assuming that there is no slack between the engine and cars? A. It depends upon the style and proportions of the loco:notive, number of made to burn petroleum oils (that could be used instead drivers and diameter, proportion of weight on drivers, of coal or wood in hot climates) sufficient to heat a largeand steam carried, also the style of the cars in the

(13) J. W. M. asks: How many feet should the piston head of a steam engine travel per minute? A. There is no fixed rule for the speed; it depends upon the length of stroke and the work that is to be driven. in other words, the speed of the piston is adapted to the work to which the engine is applied.

minute. Can I increase the capacity for work by double troleum jelly," or vaseline, is manufactured on a large gearing: if so, I would like to reduce the driving wheel scale. It is a proprietary article. to 16 feet? A. No, it would be better, if you wish to reduce the pulley to 16 feet, to increase the speed of the

(15) L. M. D. asks: 1. What is the best way to pack the screw shaft of a toy propeller? A. Pack with cotton wicking. 2. What should be the dimensions of cylinder for running the boat, which is two and a half feet long? A. From 1 inch to 11/2 inch diameter, and 2 inch to 214 inch stroke. 3. What is the best shape of boller? A. A vertical tubular.

(16) J. C. M. asks: 1. In a flour belt is it usual to put on two widths of bolting cloth; what would be the objection to putting on three? A. Two, three, or four are used; it is common to put on three; it depends upon the number of grades you wish to turn out. 2. I have built my dam V shaped, sharp part down stream; think the main pipe should not be less than 6 inches and the branch pipes, 4 inches diameter. would that shape cause the water to rise less on the abutments? A. In strong currents there will be less rise on the shore abutments. 3. At what speed should an made one and wish to know what lacquer to put on it. overshot water-wheel run? A. 4 to 8 feet per second. 4. Can a horse pull as much 500 feet from his load (on a level with his shoulders) as if within 5 feet? A. Yes, all

(17) W. N. R. writes: In a late number, p. finding pressure in steam boiler with weight at a certain point on lever. Now, will you please give as simple weight so that steam will blow off at any required pressure? A. 1st, Multiply the pressure per square inch by required upon the valve. 2d, Divide this total pressure by the weight to be hung on the valve lever; the quotient is the number of "leverages" which you must give the weight from the fulcrum. Suppose 100 lb, steam and 12 inches area of valve: then total pressure on the valve is 1,200 lb.; and if the weight be 80 lb., then 1200-:-80=15 "leverages." Now, if the distance from fulcrum to center of valve be 3 inches, then the weight must be set at of valve. Of course this does not take into account the effect of the lever or weight of the valve.

(18) E. F. W. asks: Can you inform me of a place where engineering ability is appreciated and paid for, and where men are obliged to be engineers who have charge of engines? A. We know of no such paradise. The ability of a competent engineer is not appreciated. So long as men will employ any one at the Camacho electro magnet, as illustrated in the Scienlow wages who can stop and start an engine, so long real engineers will not be put in their proper place.

(19) J. S. A. asks: 1. How fast an engine, with cylinder 314 inch diameter and 3 inch stroke, and 80 or 100 lb. of steam, and connected with paddle shaft by gears (bevel), would propel a flat-both med skiff 15 feet 6 incheslong and 30.5 inches wide, and drawing 5 or 6 inches of water? A. If geare 3 or 4 to one, would probably drive the boat about 5 miles per hour. 2. What would be the dimensions of the boiler to supply 100 lb. steam, and how thick should the iron or steel plates be of which it is constructed to safely withstand the pressure and at the same time be as light as possible? A. The size of your boiler and thickness of iron depend upon the speed you run the engine and the design of the boiler.

(20) M. B. writes: We have placed a hydraulic ram to force water to the barn, a distance of 1,300 feet, and 40 feet rise and 2 feet fall for a 2 inch inch, with a battery of 12 elements (large size), such as feed pipe 40 feet long. We had at first a No. 4 ram, is illustrated and described in Scientific American which furnished but a 1/4 inch stream, and have now Supplement, No. 149, page 2363? A. It would be diffiplaced a No. 5 ram, which will not strengthen the stream. | cult to estimate the attractive force of such a magnet We were advised to place a 34 inch discharge pipe, which we did. I would like to know if it would not cumstances under which it is used, throw a stronger stream with $\frac{1}{12}$ inch pipe, and work more freely. A. According to the tables the ram should have 1 inch pipe instead of 14 inch. Apply to the maker of the ram for advice. 2. How much water is contained examined, with the results stated: in the air chamber? A. The quantity of water in the air chamber will depend upon the pressure under which the water is delivered.

(21) J. N. T. asks: What is a suitable size of engine for a boat 35 to 40 feet long and 8 feet beam? A. A high pressure engine of 8 inch cylinder and 9 or 10 inches stroke will give your boat good speed.

(22) B. T. L. asks: 1. Supposing a horse attached to an empty wagon runs rapidly around a sharp curve, which wheels of the wagon bear hardest on the ground? Or, in other words, if the velocity be sufficient to raise any of the wheels from the ground, from natural causes which will be raised, the inner or the outer wheels? A. Inside wheels. 2. If a man be in a wagon rapidly turning a curve, will he, to preserve his balance, instinctively lean toward the outer or inner edge of the curve? A. Toward the inner side of curve. 3. Why. on railroad curves, is the outer rail raised several inches

of the ore in a comminuted state, and was told that it above the inner? A. To counteract the effect of centrifugal force in running the curve.

> (23) C. R. J. asks: Will black lead do for a substitute for gas coke in batteries? A. Yes, Professor Silliman, Jr., used it in the Grove form of battery as a substitute for platinum, in 1842. Gas carbon is found to answera better purpose,

(24) L. H. H. asks: 1. Does a low pressure engine gain power by condensing its steam? A. Yes, the gain is considerable. 2. Are high pressure engines made with walking beams? A. Yes, in great numbers

(25) "Tropic" asks if there are furnaces sized fruit evaporator continuously, and where such can be got. A. There are several petroleum furnaces now in the market, one of which would doubtless answer your purpose. See "Business and Personal" column. 2. Cau you inform me if any material can be had that would absorb the moisture from the saturated air in a large sized drier so that the heat may be confined and yet the water or vapor disposed of? A We know of nothing likely to be if any practical service in this connection. (14) C. E. B. writes: I am running an en- 3. Do you know of any of the refiners of petroleum oils gine in a saw mill, criving wheel 20 feet, drum on saw door will prepare the "petroleum jelly" made with shaft 2 feet, engine makes about 35 revolutions per digested soap wort and refined kerosene oil? A. "Pe-

> (26) T. F. writes: We have a natural supply of water at an elevation of about 100 feet and 1,500 feet distant from the center of our village, and we pro pose bringing the water down in pipes for the purpose of extinguishing fires. The main pipe will enter the main street at right angles, and a branch run not to exceed half a mile, and, as it is not probable that we can have hydrants near enough together, or have hose enough to bring more than two streams of water to bear upon one building, now what size should main pipe and branches be, or rather, what is the smallest size that can be used and make it effectual, and of what size should the hose and the discharge nozzles be? A. The larger the pipes the less the loss of head by friction. We

(27) A. W. S. asks what is put upon mi-A. A thin coating of fine alcoholic shellac varnish applied to the work, which has been previously warmed, will preserve the color of the brass. The color of the other things being equal; but if there is 500 feet of rope | lacquer may be heightened by adding turmeric or; dragging on the ground, its friction is a part of the load. dragon's blood, or both. 2. How can I resilver or recoat the back of a concave mirror or reflector for mi-267, SCIENTIFIC AMERICAN, you gave a simple method of croscope? A. See article on silvering glass in SUPPLE-MENT, No. 105. 3. I am a brass finisher by trade, and would like very much to know how yellow brass may be a method of finding the point at which to place the made to keep its color without appearing varnished. A. A thin varnish of white shellac or a coating of collodion will do this. It will retain its color for a long time the area of the valve; the product is the total weight without a protective coating of any kind, if the finish is sufficiently fine. A light film of gold is the best possible coating for fine brass work.

(28) D. J. T. O. asks for a good receipt for making wine for home use out of our common grapes. A. Put 20 lb. of ripe, fresh picked, and well selected grapes into a stone jar, and pour on them 6 quarts of boiling water. When the water has cooled enough, squeeze the grapes well with the hand; cover the jar 3x15=45 inches from fulcrum, or 42 inches from center, with a cloth, and let it stand for three days; then press out the juice, and add ten pounds of crushed sugar. After it has stood for a week, scum, strain, and bottle it, corking loosely. When the fermentation is complete, strain it again and bottle it, corking tightly. Lay the bottles on their side in a cool place.

> (29) J. S. writes: 1. I propose making an electric motor, and would like to use in its construction THEIC AMERICAN SUPPLEMENT, No. 182, page 2,900. Is the yoke made of iron or wood? A. Iron. 2 If of irou, would pieces of ordinary gas pipe, soldered to the yoke, do for the tubes? A. Gas pipe will do, but it must not be soldered. The iron of the yoke must make a good contact with the iron of the tubes. 3. Would & inch (outside diameter) gas pipe be too large for first, or inside tube? A. It would be better to use a smaller size, say 1/2 inch. 4. Must the inside of each outer tube press tightly against the insulated wire of each inner tube? A. It need not necessarily press tightly, but the space between the two should be small. 5. The battery will be close to the magnets: will No. 16 cotton covered wire be suitable? A. Yes. 6. I propose making the cores five inches long, and use three or four thick tubes: how thick should the yoke be? A. $\frac{1}{2}$ inch. 7. If four tubes are used in each core, about what attractive force would such a magnet exert, at a distance of 1/2 of an without knowing more of its construction and the cir

MINERALS, ETC. - Specimens have been received from the following correspondents, and

G. A. B.-No. 1. Limonite, a very fine iron ore. No 2. Clay, aluminum silicate, containing much silica. If properly washed, of some value for the production of cheap pottery ware. No. 11. Hematite, an iron ore of good quality. No. 12. Chiefly iron pyrites, sulphide of iron. No. 10. Partially altered calcium carbonate, calc spar, containing traces of strontium carbonate and manganese oxide. No. 8. Ferruginous limestone. The other specimens are limestones. No. 6 will probably yield the best lime. - J. M. G .- It is a syenitic gneiss rock of little value.

COMMUNICATIONS RECEIVED.

On Boiler Explosions. By R. H. B. Plan for the Darien Canal. By C. A. On Fire Alarms and Fire Escapes. By W. A. A Positive Discovery. By T. B. M. On the Holloway Process. By L. C.

[OFFICIAL.]

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Fire escape, T. McCabe Fire kindler maker, A. F. Temple. Fish trap, W. J. Henderson Fluting machine, H. Albrecht Fork, C. W. Robison Fruit jar fastener, R. R. Richardson Furnace grate supporting bar, Barthel & Jahr Garment supporter, T. Powell (r) Gas retort furnaces with ignited coke from the retorts, device for feeding, F. A. Sabbaton Gas retort lid fastening, J. Green Gate and door closer, W. H. Williams Glove, husking, W. E. Hall Grain binder, S. D. Locke (r) Grain binder, S. D. Locke (r) Grain grader and separator, R. F. Fowler Grate, E. Kuhn Gun wad, A. C. Hobbs Halter trimming, J. Hudson Harvester reel, S. D. Locke Hat flange, stiff, Smith, Knable & Smith Heat regulator for furnaces, E. L. Dodge Horseshoe nail ma hine, C. H. Mayo Horseshoe nail ma hine, C. H. Hall Hose, C. Callahan Hub mortising machine attach, P. H. Parsons.	218,680 218,794 218,695 218,695 218,665 8,864 218,677 218,689 218,672 218,672 218,625 8,863 218,774 8,862 218,752 218,752 218,634 218,752 218,752 218,634 218,752 218,752 218,753 218,753 218,753 218,753 218,753 218,753 218,753 218,753 218,753 218,753 218,753 218,753 218,753 218,753 218,753 218,753 218,753 218,753	Windmill, C. H. Cary
Fire escape, T. McCabe	218,680 218,794 218,696 218,695 218,665 8,864 218,677 218,655 8,864 218,677 218,625 8,863 218,726 218,726 218,726 218,726 218,726 218,726 218,726 218,726 218,736 218,736 218,736 218,736 218,737 218,737 218,738 218,	Windmill, C. H. Cary
Fire escape, T. McCabe Fire kindler maker, A. F. Temple. Fish trap, W. J. Henderson Fluting machine, H. Albrecht Fork, C. W. Robison Fruit jar fastener, R. R. Richardson Fruit jar fastener, R. R. Richardson Fruit jar fastener, R. R. Richardson Furnace grate supporting bar, Barthel & Jahr Garment supporter, T. Powell (r) Gas check valve, double self-acting, P. Keller Gas retort furnaces with ignited coke from the retorts, device for feeding, F. A. Sabbaton Gas retort lid fastening, J. Green Gate and door closer, W. H. Williams Glove, husking, W. E. Hall. Grain binder, S. D. Locke (r) Grain binder, S. D. Locke (r) Grain grader and separator, R. F. Fowler Grate, E. Kuhn Goun wad, A. C. Hobbs Halter trimming, J. Hudson Harvester reel, S. D. Locke Hat flange, stiff, Smith, Knable & Smith Heat regulator for furnaces, E. L. Dodge Horseshoe nail maker, G. L. Hall Hose, C. Callahan Hub mortising machine attach, P. H. Parsons. Husking implement, W. E. Hall Hydrocarbon burner, T. B. Dexter Inkstand, J. Adair.	218,680 218,794 218,696 218,696 218,665 218,665 218,667 218,667 218,672 218,672 218,672 218,625 8,863 218,774 218,634 218,752	Windmill, C. H. Cary
Fire escape, T. McCabe Fire kindler maker, A. F. Temple. Fish trap, W. J. Henderson Fluting machine, H. Albrecht Fork, C. W. Robison Fruit jar fastener, R. R. Richardson Furnace grate supporting bar, Barthel & Jahr Garment supporter, T. Powell (r) Gas check valve, double self-acting, P. Keller Gas retort furnaces with ignited coke from the retorts, device for feeding, F. A. Sabbaton. Gas retort lid fastening, J. Green Gate and door closer, W. H. Williams. Glove, husking, W. E. Hall Grain binder, S. D. Locke (r). Grain binder, S. H. Richardson. Grain cutter and binder, S. D. Locke (r). Grain grader and separator, B. F. Fowler. Grate, E. Kuhn. Goun wad, A. C. Hobbs Halter trimming, J. Hudson. Harvester reel, S. D. Locke. Hat flange, stiff, Smith, Knable & Smith Heat regulator for furnaces, E. L. Dodge. Horseshoe nail maker, G. L. Hall. Hose, C. Callahan. Hub mortising machine attach, P. H. Parsons. Husking implement, W. E. Hall. Hydrocarbon burner, T. B. Dexter Inkstand, J. Adair. Ladder, step and extension, J. Hill.	218,680 218,794 218,696 218,695 218,642 218,655 8,864 218,677 218,689 218,672 218,801 218,625 8,863 218,772 218,726 218,726 218,726 218,726 218,726 218,726 218,726 218,732 218,634 218,636 218,767 218,636 218,767 218,636 218,767 218,636 218,767 218,636 218,767 218,636 218,767 218,636 218,636 218,767 218,636 218,636 218,767 218,636	Windmill, C. H. Cary
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Fire escape, T. McCabe	218,680 218,794 218,696 218,695 218,695 218,665 8,864 218,677 218,689 218,677 218,689 218,672 218,625 8,863 218,772 218,625 218,722 218,632 218,728 218,632 218,732 218,632 218,732 218,632 218,732 218,632 218,732 218,632 218,732 218,632 218,732 218,632 218,732	Windmill, C. H. Cary
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Fire escape, T. McCabe	218,680 218,794 218,696 218,695 218,695 218,695 218,677 218,689 218,677 218,689 218,677 218,689 218,762 218,762 218,762 218,762 218,762 218,762 218,763 218,763 218,761 218,661 218,762 218,762 218,763	Windmill, C. H. Cary
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Fire escape, T. McCabe	218,680 218,794 218,696 218,695 218,695 218,665 8,864 218,677 218,689 218,677 218,689 218,774 8,862 218,774 8,862 218,774 8,862 218,772 218,623 218,787 218,623 218,787 218,626 218,787 218,626 218,787 218,628 218,787 218,628 218,787 218,628 218,787 218,628 218,787 218,628 218,787 218,629 218,788 218,789 218,789 218,789 218,793 218,765	Windmill, C. H. Cary
Fire escape, T. McCabe Fire kindler maker, A. F. Temple. Fish trap, W. J. Henderson Fluting machine, H. Albrecht Fork, C. W. Robison Fruit jar fastener, R. R. Richardson Furnace grate supporting bar, Barthel & Jahr Garment supporter, T. Powell (r) Gas check valve, double self-acting, P. Keller Gas retort furnaces with ignited coke from the retorts, device for feeding, F. A. Sabbaton. Gas retort lif fastening, J. Green Gate and door closer, W. H. Williams Glove, husking, W. E. Hall Grain binder, S. D. Locke (r) Grain binder, S. D. Locke (r) Grain binder, S. D. Locke (r) Grain grader and separator, B. F. Fowler. Grate, E. Kuhn. Goun wad, A. C. Hobbs Halter trimming, J. Hudson. Harvester reel. S. D. Locke. Hat flange, stiff, Smith, Knable & Smith Heat regulator for furnaces, E. L. Dodge. Horseshoe nail maker, G. L. Hall. Hose, C. Callahan Hub mortising machine attach, P. H. Parsons. Husking implement, W. E. Hall. Hydrocarbon burner, T. B. Dexter Inkstand, J. Adair. Ladder, step and extension, J. Hill Lamp, J. Gallinger Lamp, electric, J. C. Jamin Lantern, W. Roush Leveling instrument, J. Clark Lightning conductor, G. W. Copeland. Leveling instrument, J. Clark Lightning conductor, G. W. Cain Liquid cooler, J. H. Schroeder Lock, W. H. Garlock Lock, J. R. Winsor. Locomotive, compressed air, J. H. Gray. Measuring machine, surface, J. H. Williams et al. Meat can, cooked, W. S. George Milk, centrifugal machine for creaming, Lefelat & Lentsch. Milk cooler, F. W. Moseley Mill burr dress, L. Strayer Mill stone dressing machine, C. H. Browne Musical instrument, mechanical, M. Gally (r) Musical instrument, mechanical attachment for key board, J. W. Chambers	218,680 218,794 218,696 218,696 218,695 218,695 218,665 8,864 218,677 218,689 218,672 218,689 218,672 218,861 218,672 218,752 218,752 218,752 218,752 218,753 218,634 218,636 218,636 218,767 218,767 218,763 218,767 218,767 218,767 218,768 218,769 218,765 218,769 218,765 218,766	Windmill, C. H. Cary
Fire escape, T. McCabe Fire kindler maker, A. F. Temple. Fish trap, W. J. Henderson Fluting machine, H. Albrecht Fork, C. W. Robison Fruit jar fastener, R. R. Richardson. Gas net ort supporter, T. Powell (r) Gas check valve, double self-acting, P. Keller. Gas retort furnaces with ignited coke from the retorts, device for feeding, F. A. Sabbaton. Gas retort lid fastening, J. Green Gate and door closer, W. H. Williams Glove, husking, W. E. Hall. Grain binder, S. D. Locke (r). Grain binder, S. D. Locke (r). Grain minder, S. D. Locke (r). Grain grader and separator, R. F. Fowler. Grate, E. Kuhn. Goun wad, A. C. Hobbs Halter trimming, J. Hudson. Harvester reel, S. D. Locke. Hat flange, stiff, Smith, Knable & Smith Heat regulator for furnaces, E. L. Dodge. Horseshoe nail maker, G. L. Hall. Hose, C. Callahan. Hub mortising machine attach, P. H. Parsons. Husking implement, W. E. Hall. Hydrocarbon burner, T. B. Dexter Inkstand, J. Adair. Ladder, step and extension, J. Hill Lamp, J. Gallinger Lamp, J. Gallinger Lamp, electric, J. C. Jamin Lantern, W. Roush Leather fastening strip, G. W. Copeland. Leveling instrument, J. Clark Lightning conductor, G. W. Cain Liquid cooler, J. H. Schroeder Lock, W. H. Garlock Lock, J. R. Winsor. Loccomotive, compressed air, J. H. Gray. Measuring machine, surface, J. H. Williams et al. Meat can, cooked, W. S. George Milk, centrifugal machine for creaming, Lefelat & Lentsch. Milk cooler, F. W. Moseley Mill burr dress, L. Strayer Millstone dressing machine, C. H. Browne Musical instruments, automatic attachment for key board, J. W. Chambers Oil cup, E. Robinson Ore furnace, Helbig & Hasenclever	218,680 218,794 218,695 218,695 218,695 218,662 218,667 218,662 218,677 218,689 218,672 218,801 218,625 8,862 218,752 218,752 218,752 218,752 218,634 218,634 218,752 218,752 218,752 218,634 218,752 218,753	Windmill, C. H. Cary
Fire escape, T. McCabe Fire kindler maker, A. F. Temple. Fish trap, W. J. Henderson Fluting machine, H. Albrecht Fork, C. W. Robison Fruit jar fastener, R. R. Richardson Furnace grate supporting bar, Barthel & Jahr Garment supporter, T. Powell (r) Gas check valve, double self-acting, P. Keller Gas retort furnaces with ignited coke from the retorts, device for feeding, F. A. Sabbaton. Gas retort lif fastening, J. Green Gate and door closer, W. H. Williams Glove, husking, W. E. Hall Grain binder, S. D. Locke (r) Grain binder, S. D. Locke (r) Grain binder, S. D. Locke (r) Grain grader and separator, B. F. Fowler. Grate, E. Kuhn. Grain cutter and binder, S. D. Locke (r). Grain grader and separator, B. F. Fowler. Grate, E. Kuhn. Gun wad, A. C. Hobbs Halter trimming, J. Hudson. Harvester reel, S. D. Locke. Hat flange, stiff, Smith, Knable & Smith Heat regulator for furnaces, E. L. Dodge. Horseshoe nail maker, G. L. Hall. Hose, C. Callahan Hub mortising machine attach, P. H. Parsons Husking implement, W. E. Hall. Hydrocarbon burner, T. B. Dexter Inkstand, J. Adair. Ladder, step and extension, J. Hill Lamp, J. Gallinger Lamp, electric, J. C. Jamin Lantern, W. Roush. Leather fastening strip, G. W. Copeland. Leveling instrument, J. Clark Lightning conductor, G. W. Cain Liquid cooler, J. H. Schroeder Lock, W. H. Garlock Lock, J. R. Winsor. Locomotive, compressed air, J. H. Gray. Measuring machine, surface, J. H. Williams et al. Meat can, cooked, W. S. George Milk, centrifugal machine for creaming, Lefelat & Lentsch. Milk cooler, F. W. Moseley Mill burr dress, L. Strayer Mill stone dressing machine, C. H. Browne Musical instrument, mechanical, M. Gally (r) Musical instrument, mechanical attachment for key board, J. W. Chambers Oil cup, E. Robinson Ore furnace, Helbig & Hasenclever Orea, Oth	218,680 218,794 218,696 218,696 218,697 218,695 8,864 218,677 218,689 218,672 218,689 218,672 218,692 218,752 218,752 218,752 218,752 218,752 218,753 218,636 218,767 218,636 218,767 218,767 218,767 218,767 218,778 218,778 218,778 218,778 218,778 218,778 218,789 218,789 218,765 218,765 218,763 218,765 218,763 218,765 218,763 218,765 218,763 218,663 218,663 218,765 218,779 218,765 218,779 218,765 218,765 218,765 218,763 218,663	Windmill, C. H. Cary
Fire escape, T. McCabe	218,680 218,737 218,636 218,642 218,655 8,864 218,677 218,689 218,678 218,689 218,678 218,689 218,774 8,862 218,774 8,862 218,752 218,752 218,623 218,763 218,632 218,787 218,632 218,787 218,632 218,787 218,632 218,787 218,632 218,787 218,632 218,787 218,632 218,787 218,742 218,742 218,742 218,742 218,742 218,742 218,742 218,742 218,742 218,742 218,742 218,742 218,742 218,742 218,742 218,742 218,742 218,742 218,742 218,743 218,665 218,763 218,763 218,763 218,763 218,763 218,763 218,763 218,763 218,763 218,763 218,763 218,763 218,763 218,763 218,763 218,763 218,763 218,663 218,663 218,663 218,663 218,663 218,663 218,663 218,663 218,663 218,663 218,663 218,663 218,663 218,663 218,663	Windmill, C. H. Cary
Fire escape, T. McCabe Fire kindler maker, A. F. Temple. Fish trap, W. J. Henderson Fluting machine, H. Albrecht Fork, C. W. Robison Fruit jar fastener, R. R. Richardson Furnace grate supporting bar, Barthel & Jahr Gament supporter, T. Powell (r) Gas check valve, double self-acting, P. Keller Gas retort furnaces with ignited coke from the retorts, device for feeding, F. A. Sabbaton. Gas retort lid fastening, J. Green Gate and door closer, W. H. Williams Glove, husking, W. E. Hall. Grain binder, S. D. Locke (r) Grain binder, S. D. Locke (r) Grain binder, S. D. Locke (r) Grain grader and separator, B. F. Fowler. Grain grader and separator, B. F. Fowler. Grate, E. Kuhn. Gun wad, A. C. Hobbs Halter trimming, J. Hudson. Harvester reel, S. D. Locke. Hat fange, stiff, Smith, Knable & Smith Heat regulator for furnaces, E. L. Dodge. Horseshoe nail ma hine, C. H. Mayo. Horseshoe nail maker, G. L. Hall. Hose, C. Callahan. Hub mortising machine attach., P. H. Parsons Husking implement, W. E. Hall. Hydrocarbon burner, T. B. Dexter Inkstand, J. Adair. Ladder, step and extension, J. Hill. Lamp, J. Gallinger Lamp, electric, J. C. Jamin Lantern, W. Roush. Leather fastening strip, G. W. Copeland. Leveling instrument, J. Clark. Lightning conductor, G. W. Cain Liquid cooler, J. H. Schroeder Lock, W. H. Garlock Lock, J. R. Winsor. Locomotive, compressed air, J. H. Gray. Measuring machine, surface, J. H. Williams et al. Meat can, cooked, W. S. George. Milk centrifugal machine for creaming, Lefelat & Lentsch. Milk cooler, F. W. Moseley Mill burr dress, L. Strayer Mill burr dress, L. Strayer Mill store dressing machine, C. H. Browne Musical instrument, mechanical, M. Gally (r). Musical instrument, mechanical, M. Gally (r). Musical instrument, mechanical, M. Gally (r). Ores, chlorinating, J. H. Mears (r). Ores, chlorinating, J. H. Mears (r). Ores, chlorinating, J. H. Wearer. Packing, stuffing box. H. W. Winan	218,680 218,794 218,696 218,696 218,695 218,695 218,695 218,697 218,692 218,692 218,726 218,692 218,726 218,726 218,726 218,726 218,726 218,726 218,726 218,726 218,726 218,726 218,726 218,726 218,726 218,727 218,749 218,636 218,636 218,636 218,727 218,749 218,749 218,749 218,749 218,753 218,765 218,766 218,766 218,766 218,766 218,766 218,766 218,766 218,766 218,766 218,763 218,765 218,766 218,763 218,663 218,663 218,663 218,663 218,663 218,663	Windmill, C. H. Cary
Fire escape, T. McCabe Fire kindler maker, A. F. Temple. Fish trap, W. J. Henderson Fluting machine, H. Albrecht Fork, C. W. Robison Fruit jar fastener, R. R. Richardson Gar eard supporter, T. Powell (r) Gas check valve, double self-acting, P. Keller Gas retort furnaces with ignited coke from the retorts, device for feeding, F. A. Sabbaton. Gas retort lid fastening, J. Green Gate and door closer, W. H. Williams Glove, husking, W. E. Hall. Grain binder, S. D. Locke (r) Grain binder, S. D. Locke (r) Grain minder, S. D. Locke (r) Grain grader and separator, B. F. Fowler. Grate, E. Kuhn. Goun wad, A. C. Hobbs Halter trimming, J. Hudson. Harvester reel, S. D. Locke. Hat flange, stiff, Smith, Knable & Smith Heat regulator for furnaces, E. L. Dodge. Horseshoe nail maker, G. L. Hall. Hose, C. Callahan. Hub mortising machine attach, P. H. Parsons. Husking implement, W. E. Hall. Hydrocarbon burner, T. B. Dexter Inkstand, J. Adair. Ladder, step and extension, J. Hill Lamp, J. Gallinger Lamp, electric, J. C. Jamin Lantern, W. Roush Leather fastening strip, G. W. Copeland. Leveling instrument, J. Clark Lightning conductor, G. W. Cain Liquid cooler, J. H. Schroeder Lock, W. H. Garlock Lock, J. R. Winsor. Locomotive, compressed air, J. H. Gray. Measuring machine, surface, J. H. Williams et al. Meat can, cooked, W. S. George Milk, centrifugal machine for creaming. Lefelat & Lentsch. Milk cooler, F. W. Moseley Mill burr dress, L. Strayer. Millstone dressing machine, C. H. Browne Musical instruments, automatic attachment for key board, J. W. Chambers Oil cup, E. Robinson Ore furnace, Helbig & Hasenclever Ores, chlorinating, J. H. Weaver Packing, stuffing box. H. W. Winans Patlock, H. A. Dodge. Paint mill feed and deliverer, M. P. Ismay.	218,680 218,794 218,696 218,696 218,696 218,697 218,695 8,864 218,677 218,689 218,672 218,625 8,863 218,752 218,752 218,752 218,752 218,752 218,752 218,752 218,752 218,763 218,634 218,6364 218,767 218,6364 218,767 218,767 218,767 218,767 218,767 218,768 218,769 218,768	Windmill, C. H. Cary
Fire escape, T. McCabe Fire kindler maker, A. F. Temple. Fish trap, W. J. Henderson Fluting machine, H. Albrecht Fork, C. W. Robison Fruit jar fastener, R. R. Richardson Fruit jar fastener, R. R. Richardson Furnace grate supporting bar, Barthel & Jahr Garment supporter, T. Powell (r) Gas check valve, double self-acting, P. Keller Gas retort furnaces with ignited coke from the retorts, device for feeding, F. A. Sabbaton. Gas retort lid fastening, J. Green Gate and door closer, W. H. Williams Glove, husking, W. E. Hall. Grain binder, S. D. Locke (r) Grain binder, S. D. Locke (r) Grain binder, S. D. Locke (r) Grain grader and separator, B. F. Fowler. Grain grader and separator, B. F. Fowler. Grate, E. Kuhn. Gun wad, A. C. Hobbs Halter trimming, J. Hudson. Harvester reel, S. D. Locke. Hat flange, stiff, Smith, Knable & Smith Heat regulator for furnaces, E. L. Dodge. Horseshoe nail ma hine, C. H. Mayo. Horseshoe nail maker, G. L. Hall. Hose, C. Callahan. Hub mortising machine attach., P. H. Parsons Husking implement, W. E. Hall. Hydrocarbon burner, T. B. Dexter Inkstand, J. Adair. Ladder, step and extension, J. Hill. Lamp, J. Gallinger Lamp, electric, J. C. Jamin Lantern, W. Roush. Leveling instrument, J. Clark Lightning conductor, G. W. Copeland. Leveling instrument, J. Clark Lightning conductor, G. W. Cain Liquit cooler, J. H. Schroeder Lock, W. H. Garlock Lock, J. R. Winsor. Locomotive, compressed air, J. H. Gray. Measuring machine, surface, J. H. Williams et al. Meat can, cooked, W. S. George. Milk centrifugal machine for creaming, Lefelat & Lentsch. Milk cooler, F. W. Moseley Mill burr dress, L. Strayer Millstone dressing machine, C. H. Browne Musical instrument, mechanical, M. Gally (r). Pallock, H. A. Dodge. Pale Robinson Ore furnace, Helbig & Hasenclever Ores, chlorinating, J. H. Mears (r). Organ, J. L. De God. Packe	218,680 218,794 218,696 218,696 218,695 218,695 218,695 218,697 218,692 218,692 218,726 218,726 218,726 218,726 218,726 218,732 218,732 218,732 218,732 218,732 218,732 218,732 218,732 218,732 218,732 218,733 218,634 218,734 218,735 218,73	Windmill, C. H. Cary

Planter, corn, A. F. Hall	218.732
Planter, corn, J. Kelly	218,633
Planter, corn, J. A. Werner	218,800
Plow, sulky, T. T. Harrison	
Portable folding boat, J. D. Coughtry	
Pruner, vine and plant. L Thompson	
Pulley crane for clothes lines, Raisbeck & Green.	218.773
Pump bucket, chain, E. Hoyt	
Pump, direct acting, J. H. Gray	218,731
Pump operating mechanism, J. J. Verckler	218,694
Pump, steam, M. Schultz	218,644
Punch, conductor's ticket, H. Schilbach	218,780
Railway crossing, H. Jeffrey Railway signal apparatus, electric, C. D. Tisdale	218,632
Railway support, elevated, F. A. Williams (r)	8,860
Railway tie, C. F. Wagner	218 648
Raker, self, J. Bordwell	218,615
Reclining chair adjustable brace, C. J. Petersen	218,769
Refrigerating and ice making apparatus, J. Horton	
Refrigerator, C. B. Shaw	
Rope spinning machinery, J. C. Todd	
Rowing exercise machine, J. W. Heenan	
Safe spindle, J. D. Bruner	
Sawdust conveyer, F. Martin. Jr	
Saw filing machine, R. W. Basom	218.656
Saw mill, D. Cilley	
Sawing machine, drag, D. L. Towslee	218,798
Sewing machine, A. E. Moltz	218,682
Sewing machine, E. Shaw (r)	8 865 218 744
Shingle sawing machine, E. Drake	218.620
Shoe, etc., fastening, J. Howenstine	218,745
Sign, transparent, J. G. Jory	218 750
Sliding box and valve, L. H. Baker	218.697
Snatch block, C. Spencer	218,691
Sowing machine, fertilizer, E. D. Mead Spark arrester, M. Rumely	218759
Spinning ring and method of forming the same,	210,049
G. F. Wilson	218,803
Spool, H. Eldridge	218.722
Spool, T. F. Taft	
Spur, A. Buermann	
Stamp, perforating canceling, W. S. Greene Steam boiler, E. A. & W. E. Wood	210,022
Steam boiler cleaner, H. Poe	
Steam engine, Cope & Maxwell	218,666
Stove, J. G. Smith	
Stove, parlor, J. Jewett	
Stump puller, L. W. Frederick	
Telegraph, fire alarm, W. Fix	
Telephone and microphone switch, A. E. Briggs	218,702
Telephone, electric, H. L. Roosevelt 218,775,	
	218,684
Telephone, mechanical, Billings & Maxwell	218,707 218,623
Terret, C. T. Grilley	210,025 918 675
Thrashing machine, Bitner & Gentzel	218,657
Thrashing machine feeder, Norton & Edgar	
Timber, solution for preserving, E. Bouvier	
Toy car and station, M. Bradley	218,700
Toy pistol, A. Blewett	
Trace supporter, C. A. Brooks	218,703
Treadle and hand lever, H. R. Saunders	218 779
Trimming, G. Simon	
Trucks, spring equalizer for car. J. J. Thomas	218.796
Vehicle, C. M. Murch	218.637
Vehicle spring, J. Hironimus	218,62 8
Ventilating sewer pipes and water closets, L. Ullo	218,799
Violin, E. P. Mollenhauer	218 60A
Washing machine, J. H. Craig	218.717
Washing machine, B. J. Williams (r)	8,861
Washing machine, B. J. Williams (r)	218,770
Wick tube, H. McConnell (r)	8,858
Windmill, C. H. Cary	218,662
Window frame machine, W. H. H. Kesler	218,751
Window frame machine, W. H. H. Kesler	218,754
Wood, process and apparatus for preserving and	
curing. W. D. Grimshaw	218,624
mD + DE M + DEG	
TRADE MARKS.	
Beefsteak tenderer, F. E. Clark	7,597
Calf skins and kips, Loeb & Brothers	
smoking tobacco and snuff, Dohan, Carroll & Co	7,604
Cut smoking tobacco, fl. Mandelbaum	
Diaries, J. Gladding & Son	
Dress shirts, cotton and woolen shirts, undershirts	
and collars. H. Wallach's Sons	7,008
Flour, T. J. Cox	7 609

Beefsteak tenderer, F. E. Clark	7,597
Calf skins and kips, Loeb & Brothers	7,666
Cigars, cigarettes, plug, and fine cut chewing and	
smoking tobacco and snuff, Dohan, Carroll & Co.	
Cut smoking tobacco, fl. Mandelbaum	
Diaries, J. Gladding & Son	7,595
Dress shirts, cotton and woolen shirts, undershirts,	
and collars. H. Wallach's Sons	7,608
Flour, T. J. Cox	7,601
Kid and lamb skin gloves. G. Cramer	7.602
Medicina) preparation, J. R. & E. A. Griffith	7,593
Preparation for the toilet, H. C. Parker	7,600
Scwing machine, St. John Sewing Machine Co	7,607
Smoking tobacco and cigarettes, J. R. Day & Bro	7,598
Starch for laundry use, Glen Cove Starch M'f'g Co.,	7,605
Watches and watch movements, A. Saltzman	7,596
Whisky, I. Massman & Co	7.603
Whiskies, A. Hoffheimer	7,594

DESIGNS.

'n	Carpet, J. Fisher	11,340
i	Carpet, E. Fisher	11,352
	Carpet, C. W . Swapp11,353 to	
	Printed fabrics, J. B. Altemus	
ì	Scarf pin, J. L. Remlinger	11,359
3	Toy savings bank, Keyser & Rex	11,358
i	Umbrella tip cup, W. H. Blake	11 356
	Watch charm, W. Ludlum	11,357

English Patents Issued to Americans.

From August 8 to August 12, inclusive. Barbed fence wire, manufacture of, A. Cary, N. Y. city. Bed bottoms, C. D. Flynt, Brooklyn, N. Y. Boiler flue, regulating draught in, A. C. Harrison, Phila-

Burnishing screw heads, machinery for, C. D. Rogers. Providence, R. I. Carding engines, J. Abbott, Philadelphia, Pa.

Clasps, B. Greig, New York city.
Deaf, instrument for, R. S. Rhodes, Chicago, Ill. Glazed surface, treatment of, W. Gibson, N. Y. city. Governor, automatic for marine engines, C. W. Cooper,

New York city. Grinding machine for cards of carding engines, B. S. Roy, Worcester, Mass. Motors, Molera & Cebrian, San Francisco. Cal.

Plaster and pad therapeutic, R M. Kennedy, Pittsburg, Pa. ewing machine, carpet, J. Hess. San Francisco, Cal

Ventilating buildings, apparatus for, F. L. Norton, New eneer cutting machine, H. T. Bartlett. New York city.