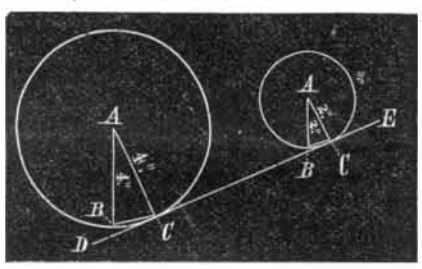
(36) W. A. says, in reply to W. H. P., who asked how a solution of ammonio-sulphate of copper may be rendered colorless and still retain all the copper in solution: Add potassic cyanide. The composition of the solution is altered, but the copper is all there. It may appear dark brown when fresh, but this is due to a little iron in the copper sulphate, aud will subside on standing.

(37) M. W. W. says, in answer to the question: Shall we attach a horse to his load at a high point or a low? If the load is light and is to be propelled at considerable speed, it perhaps makes but little diference. Possibly it might be advantageous to put it level with the point of draft, as (see your reply to K. C. & Co., No. 40, July 10, 1875, would seem to be your opinion. But if the load is heavy. and the hOtse will have to exert himself to propel it, it will bf, as experience has demonstrated fully, not ouly advantageous, but frequently absolutely necessary to make the attachment so low that he may have to exert some lifting as well as propelling force; and the *rationale* of this is that the animal has not weight enough to keep him from pushing his feet ba kwardi instead of pulling his load forward, and he requires to be supplied with it from some other source. I have seen a horse pull a load with a man on his back that he was unab e to move without; and any person wbo has not tried it will be surprised to see how light a load will stall a t am when the attachment is such that it is required to exert some downward pulling force. This consideration is also implicated seriously in the prBctical operation of tract ve engines, and their efciency would be greatly increased by any device by whilh the engine could be given the benefit of a portion of the load to hold it to the ground or track, preventing slipping and cacrying unnecessary weight.

(38) M. W. W. says, in reply to several inquiries in regard to the draft of high and low wheeled vehicles: A high wheel will be more easily drawn over any small obstruction iu the road (such a. a stone Or sticki or out of a rut, or through mud; but whether this is the case on an ascending grade is a question not eaoily determined. It has been asserted that a man will draw a heavier load up a given incline on a small wheeled truck than on a large wheeled one, and the theory for it is that a perpendicular line drawn from the center of the axle falls nearer to the pomt of contact between the wheel and toor; this is equivalent to the short end of a lever, the dlstance from the axle to the point of contact b g the long end. At frst this might seem plausible, but an examination of the accompanying engraving will show



that the long ends of the levers, A C. are lengthened or shortened in the same proportion as the short ends, B C, and therefore no advantage is gained by that means. We must, therefore, look for some other explanaton, and perhaps the read, el8 of the SCIENTIFIC AMERICAN can clear up the difcul:y.

(39) E. D. R. fays: If E. B. W. would mix a strong infUSIOn of quassia with his ink, he would have no more trouble with ties eating his inked lines.

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

E. G. A. - No. lis magnetic oxide of iron. No. 2 is probably an alloy of tin and lead; but the sample is too small for a decisive report. No. 3 is a variety of bituminous coal containing considerable percentage of ash. - J. M. B. Jr. - It is a poor variety of porcelain clay. - M. S. - It is a poor pig iron, contining an unusual amount of earthy material. - C. G. - It is quartz, inclosing particles of iron pyrites. It is of no value as an ore. - R. L. - It consists of felspar and calcite, inclosing mica and a few crystals of garnet.—S. G. R. - Ltis refined tin. It never occurs native as you found it, and was undoubtedly left there by some person. - J. H. T. - It is a formation of variegated clay upon shale. It has been hardened by exposure. - W. B. H. - No. 1 consists principally of antimony. No. 2 is galena. No. 3 is impure galena. No. 4 is a fne conglomerate. - D. W. W. - To determine the "alue of an ore, it is necessary to have a quantitative analysis made.

HINTS TO CORRESPONDENTS.

Correspondents whose inquiries fall to appear should repeat them. If not then published, they may oonclude 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, aasignment, etc., will not be published here. All such questions, when initials only are given, are thrown into the waste basket, as it wOlld fll half of our paper to print them all; but we generally t a pleasure in answer ng briety by mail, if the writer's address is given.

Hundreds of inquiries analogous to the following are ent: "Who sells itro-glycerin? Who makes canvas tents? Who buys corundum in lump? Who sells al. minum in sheet and wire?" 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 charge mentioned at the head of that oolumn. Almost any deired informaton can in this way be expeditiously obtained.

[OFFICIAL.]

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8,563.—HEATING STOVE.—W. C. Davis, Cincinnati, Ohio.
8,564 to 8,566.—CARPETS.—A. Heald, Philadelphia, Pa.
8,567.—HEATER.—P. Rollhaus, Jr. Brooklyn, N. Y.
8,568.—RANGES.—W. Whitman, Bangor, Me.
8,569.—CLOCK CASE DOORS.—L. E. Jerome, New Haven, Conn.
8,570.—CAN HANDLES.—H. Miller, New York city.
8,571.—FORK HANDLES.—L. R. S. White, Waterbury, Conn.

SCHEDULE OF PATENT FEES.

On each Caveat	$1
On each Trade mark	$25
On filing each application for a Patent (17 years)	$15
On issuing each original Patent	$20
On appeal to Examiners-in-Chief	$10
On appeal to Commissioner of Patents	$20
On application for Reissue	$30
On filing a Disclaimer	$10
On an application for Design (3½ years)	$10
On application for Design (7 years)	$15
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CANADIAN PATENTS.

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5,076.—H. E. Casgrain, Quebec. Illuminating gas machine. August 19, 1875.
5,077.—E. V. Wingard, Pittsburgh, Pa., U. S. Burning bricks. August 24, 1875.
5,078.—J. Hewitt, Hamilton City, Pa., U. S. Ore crusher and stone breaker. August 24, 1875.
5,079.—A. Nye. Jr., Boston, Mass., U. S. Telescopic feed bag. August 24, 1875.
5,080.—J. Steger, New York city, U. S. Air brake. August 24, 1875.
5,081.—E. H. Gratiot, Plattsville, Wis., U. S. Wheat steamer. August 24, 1875.
5,082.—G. R. Moore, Westford, Mass., U. S. Scull propeller. August 24, 1875.
5,083.—G. Isles, Montreal, P. Q. Differential compass. August 24, 1875.
5,084.—T. Saunders *et al.*, Toronto, Ont. Burglar and fire proof safe. August 24, 1875.
085.—D. M. Kelley, Athelston, P. Q. Bolt and rivet trimmer. August 24, 1875.
5,086.—C. G. Force, Jr., Cleveland, Ohio, U. S. Device for excavations for sewers. etc. August 24, 1875.
5,087.—W. Lightfoot *et al.*, Toronto, Ont. Lawn sprinkler. August 24, 1875.
5,088.—T. H. Marsh, Toronto, Ont. Clamp. August 24, 1875.
5,089 —E. A. Calanan, Brooklyn, N. Y., U. S. Signa and alarm telegraph. August 24, 1875.
5,090.—W. Johnston, Shelby, N. Y., U. S. Door hanger. August 24, 1875.
5,091.—J. Gerhardt *et al.*, Montreal, P. Q. Portable resawing gang saw. August 24, 1875.
5,092.—P. M. Thompson, Derbey, Vt., U. S. Pipe wrench. August 24, 1875.
5,093.—J. Klink, Keswick, Ont. Meat-preserving process. August 24, 1875.
5,094.—J. J. Curran *et al.*, Chicago., Ill., U. S. Lumber dryer. August 24, 1875.
5,095.—P. C. St. Marie, Montreal, P. Q. Screw windlass for vessels. August 26, 1875.
5,096.—J. J. Stewart, Sargentville, Me., U. S. Pegging jack. August 26, 1875.
5,097.—F. Van Doren, Adrian, Miss., U. S. Corn planter. August 26, 1875.
5,098.—H. Sprague, Churchville, N. Y., U. S. Wagon. August 26, 1875.
5,099.—D. P. Sharp, Ithaca, N. Y., U. S. Horse rake. August 26, 1875.
5,100.—J. and F. A. Bailey, Farmington, Mass., U. S Fruit pickler. August 26, 1875.
5,101.—J. Clay *et al.*, Montreal, P. Q. Fire lighter August 26, 1875.
5,102.—J. B. Fayette, Oswego, N. Y., U. S. Lifting jack. August 26, 1875.
5,103.—M. and W. Fitzgibbons, Galt, Ont. Washing machine. August 26, 1875.
5,104.—J. Benson, South Boston, Mass., U. S. Vapor burner. August 26, 1875.
5,105.—J. C. Moore *et al.*, Philadelphia, Pa., U. S. Cans forshipping oils. etc. August 26, 1875.
5,106.—N. Silverthorn, Toronto, Ont. Hog-cleaning machine August 26, 1875.
5,107.—W. R. Anderson, Cleveland. Ohio, U. S. Boiler flue cleaner. August 26. 1875.
5,108.—S. Ballerchey, Elderslie, Ont. Adjustable plow heel. August 26. 1875.
5,109.—S. Mitchell, Lima, N. Y., U. S. Carriage hub. August 26, 1875.
5,110. —J. T. Burns, Springhill, Ont. Root cutter. August 26, 1875.
5,111.—R. Sadler, Owen Sound, Ont. Elevator and snow shovel. August 26, 1875.
5,112.—J. W. Grover, Westminster, Eng. Spring washer. August 26, 1875.
5,113.—J. H. Hussey, Baltimore, Md., U. S. Protective toe shoe. August 26, 1865.
5,114.—D. McPherson, Caledonia, N. Y., U. S. Binder. August 26, 1875.