

RECENTLY PATENTED INVENTIONS. Pertaining to Apparel.

SHIRT-WAIST AND SKIRT ADJUSTER.—I. BARNETT, Millville, N. J. The object of this invention is to provide an improved shirt waist and skirt adjuster, arranged for convenient attachment to the waist and skirt, to allow of readily connecting and disconnecting the same at the back, to hold the skirt up and the shirt waist down, and to keep the slit of the skirt securely closed.

Electrical Devices.

THERMOSTAT.—J. M. HARRISON, New York, N. Y.—The more particular object in this case is to produce a type of thermostat of general service in the various arts, and adapted to produce considerable variations in heavy currents, and yet being peculiarly sensitive in heat. The special object, in other words, is to enable comparatively trivial variations in heat to produce great variations in the flow of a heavy current.

SIGNAL.—C. R. DOWLER, Denver, Col. The invention consists of means on the semaphore device, adapted for holding it at safety display, circuit "closers" operated by floats or other automatic means, suitable circuit wiring with any source of electric current supply, and automatic means whereby to adjust the semaphore to danger display. The invention relates to railway signals.

Of General Interest.

FIRE-HOSE HOLDER.—J. KENLON, New York, N. Y. The object in this improvement is to produce a holder which may be quickly set in position, and which will operate to hold a fire hose near the nozzle in such a way as to support the back pressure and enable the nozzle to be adjusted to give the stream any direction.

SURGICAL OR MEDICAL BANDAGE.—P. F. W. KAPPEMEIER, 173 Staderstrasse, Alt Kloster, Germany. In this patent the inventor has for his object a wet compress adapted to be heated and more particularly intended for the treatment of sea sickness. In view of compresses and bandages of other kinds, it is essential that with this new compress surface heating and surface compression cooperate one with the other. Applied as hot and as firmly as bearable, it reduces to normal the circulation of blood between the head and stomach.

NON-REFILLABLE BOTTLE.—O. JOHNSON, Beatty, Nevada. In the operation of this improvement it will be found that when the stopper is applied, it cannot be withdrawn without breaking the bottle and the contents of the bottle can be freely dispensed, a valve opening to permit the outlet of the liquid and the air in the bottle through a venting tube when the cap is removed.

DISPLAY-COVER.—G. E. H. RICHTER, Chattanooga, Tenn. The improvement is in display covers for use on tubs or pails containing candy, fruit, etc. The cover is applied to a tub and secured by screws, which latter permit the application of the cover to tubs of different sizes. The cover comprises a base ring adapted to rest on the top of the tub and provided at its inner edge with depending lugs having threaded openings for the screws so the devices for securing the cover on the tub will be entirely within the latter and not exposed.

GUTTER-INSERTER.—D. A. SAITP, Towns, Ga. The device in this invention is a very effective substitute for the ordinary hammer commonly used in inserting gutters according to the old method. Such insertion is a work of considerable difficulty, and the inventor has devised a tool by which it can be effected easily, quickly, and accurately, and also without any danger of injury to the hands of the workmen in operation.

MINER'S PAN.—P. A. HARDWICK, Colorado City, Col. The invention relates to improvements in hand-operated pans for separating gold or like values from sand, gravel, etc., the object being to provide a pan so constructed that with its use a much greater percentage of values may be saved than is possible with the usual pan, in which a considerable amount of the fine gold is washed over the edges of the pan with the sand and gravel, especially by an inexperienced person.

FIRE-ESCAPE.—S. P. DEEDS, Circleville, Ohio. A purpose in this invention is to provide a portable fire escape that can be readily carried in a hand bag and secured to any convenient support or article of furniture or which may be a fixture in a building, in which event the device is placed convenient to the window or other opening.

Machines and Mechanical Devices.

WHEEL-SCRAPER.—C. W. GOODSMAN, St. Johns, Ore. This improvement refers to scrapers mounted on carrier wheels and has for an object to provide a device adapted to be readily controlled in its movements. In operation the scoop is readily unloaded, and by releasing the draft from the free ends of the fulcrum levers and applying it to the cable, the former may be again brought over onto the back of the scoop, thereby raising the carrying wheel from the ground and supporting the scoop on the scraping blade, when the former scraping operation is repeated.

HOISTING AND CONVEYING APPARATUS.

—G. A. FOX and D. DAVIDSON, Tustin, Mich. The apparatus is particularly useful in logging operations. An object of the invention is to provide an apparatus by means of which heavy objects may be moved from place to place without danger of accidentally releasing the same from the holding device. It provides a device in which a slack rope carriage is used to pay out or take up the necessary slack in the fall rope required for transporting objects.

Prime Movers and Their Accessories.

INTERNAL-COMBUSTION ENGINE.—H. G. WOOD, Newport, R. I. The prime object here is to improve a means for scavenging the cylinder of an internal-combustion engine. A scavenging piston operates so as to clear out the product of combustion from the cylinder, and avoids using the power piston at times as a pump for forcing out the burned gases. The apparatus also involves means for introducing the fuel charge into the cylinder, and further means for cooling the scavenger piston by circulation of cooling fluid therein. Claims for the last named means are not incorporated in this application.

Railways and Their Accessories.

SWITCH.—B. L. MURPHY, Colorado Springs, Col. The object in this case is to provide a switch at which the main line track is continuous and unbroken, which can be operated manually at the switch itself, and which can be operated from a moving train approaching the switch from either direction. By means of this switch a train in passing from the main track to the branch track rides upon elevated rails and passes over the rails of the main line track without coming in contact with the same.

MINE-CAR.—T. M. EDMONDSON, Los Angeles, Cal. The main object in this invention is to provide means whereby a mine car may be loaded with the least expenditure of time and labor. It frequently becomes necessary to remove the drill machinery and column out of a mine. This cannot be done conveniently with the ordinary box car now in use, and one of the objects is to provide a car capable of quick and ready loading, and adapted to receive and transport mining appliances out of the car.

Pertaining to Recreation.

ROLLER-SKATE.—B. DOMIS, Covington, Ky. Each skate is provided with two wheels with axles disposed in parallel planes at right angles to the center line of the shoe rest or plate, but with axle bearings disposed obliquely to each other, so that the skater moves the center of gravity of his body over the skates, which enables him to preserve equilibrium and cut figures with easy body movements, and not done with roller skates now used. The skate has fewer running parts than others, which lessens friction and the skater's exertion.

Pertaining to Vehicles.

BRAKE MECHANISM.—W. H. DOUGLAS, Belleville, N. J. The improvement relates to brakes having a brake wheel and a flexible band for engagement with the rim of the brake wheel. The object is to provide a brake mechanism for use on automobiles and other machines and arrange to permit the operator to conveniently and forcibly apply the mechanism when desired, and to instantly release the brake mechanism when required.

DRIVING-GEAR FOR MOTOR-VEHICLES.

H. DOUGLAS, Belleville, N. J. This invention relates to driving gears in which the steering wheels are positively driven, as shown and described in the Letters Patent of the United States, formerly granted to Mr. Douglas. The object is to provide improvements in driving gears for motor vehicles, whereby power is transmitted without undue loss and a proper lubrication of the parts is had to insure an easy running thereof.

FLEXIBLE SHAFT.—W. H. DOUGLAS, Belleville, N. J. In the present patent the invention has for its object the provision of a flexible shaft which is simple and durable in construction and arranged to readily flex in any desired direction without undue binding or straining of the parts or loss of the power to be transmitted.

CONTROLLER FOR DRIVING-GEARS. W. H. DOUGLAS, Belleville, N. J. The invention relates to automobiles and other motor vehicles, and its object is to provide a controlling device for the driving-gear of motor vehicles, arranged to enable the operator to change speed gradually when running forward or backward, and to compel the operator to reduce the speed to zero before being able to reverse the driving-gear.

WHEEL.—W. H. DOUGLAS, Belleville, N. J. The improvement has reference to the traction wheels of motor cars and other vehicles, and its object is to provide a new and improved wheel having a readily detached rim, to permit an exceedingly quick removal of the rim and tire in case of accident, and replacing by a rim and tire constructed and arranged for immediate use.

NOTE.—Copies of any of these patents will be furnished by Munn & Co. for ten cents each. Please state the name of the patentee, title of the invention, and date of this paper.

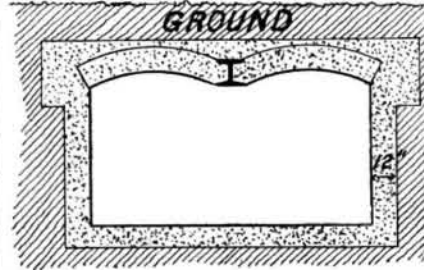


HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters or no attention will be paid thereto. This is for our information and not for publication. References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and though we endeavor to reply to all either by letter or in this department, each must take his turn. Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same. Special Written Information on matters of personal rather than general interest cannot be expected without remuneration. Scientific American Supplements referred to may be had at the office. Price 10 cents each. Books referred to promptly supplied on receipt of price. Minerals sent for examination should be distinctly marked or labeled.

(10617) I. J. S. asks: Which will require the more energy—to raise 100 gallons of water to the height of 46 feet, or to fill the 100 gallons space with compressed air to the consistency of 40 pounds pressure? Suppose the 100 gallons space to be at 20 pounds pressure, then you want 20 pounds more in said space, will it require more energy to get the air to the 40-pound mark, starting at 20-pound mark, than it would to raise water 46 feet? If so, what per cent difference would there be, and which is the less labor? A. Theoretically, it would require 38,333.18 foot pounds of energy to raise 100 gallons of water to a height of 46 feet. In order to compare this with the amount of energy required to compress the same volume of air to 46 pounds per square inch, and from 20 pounds per square inch to 40 pounds per square inch, it will be necessary to assume that the 100 gallons water is raised 46 feet every minute and that the air is compressed to the pressures stated every minute. It will then be possible to reduce the energy required to horse-power and in this way arrive at a comparison. 38,333.18 foot pounds per minute is equivalent to 1.16 horse-power. It will require 1.38 horse-power to compress enough free air to occupy 13.36 cubic feet at 40 pounds gage pressure every minute, and just one-half that amount to compress enough free air to change the pressure in a space of 13.36 cubic feet from 20 pounds gage pressure to 40 pounds gage pressure every minute. From these figures you will see that to raise 100 gallons of water 46 feet per minute requires 1.16 horse-power; to compress air to fill the 100-gallon space or 13.36 cubic feet at 40 pounds gage pressure per minute requires 1.38 horse-power; to compress air to change the pressure in the 100-gallon space (from 20 pounds gage pressure) to 40 pounds gage pressure would require 0.69 horse-power. These amounts do not allow for losses in operation, but you can safely assume these losses at about 15 per cent in each case.

(10618) C. E. H. says: We are interested in the automobile business, and use gasoline in large quantities, and we are somewhat embarrassed in the matter of storing it in bulk with a minimum of risk. We are making considerable addition and enlargement in our place, and the thought has occurred to us that if it were possible to build underground away from our building a concrete storage tank holding anywhere from 50 to 75 barrels of gasoline, it would help us out of the embarrassing situation very much. We were uncertain however whether concrete was a suitable medium in which to store gasoline. I am aware of the fact that it is somewhat porous, but I thought it probable that you could suggest some coating by which its porosity could be overcome, so that it might be



made absolutely tight. We much prefer to use concrete instead of an iron tank if such a thing is possible. The former being practically indestructible and everlasting, while the latter would be much more expensive, and being buried in the soil, we fear it would have a comparatively short lifetime. A concrete tank such as you describe is entirely practical, and could be made leak-proof in the following manner: After the bottom and sides of the tank are constructed, and the concrete thoroughly dried, saturate every part of the concrete with hot paraffin wax, heating small portions of the wall at a time with a blow-pipe before the hot wax is applied. Hot irons can be used to press in the wax as soon as it begins to lie on the surface of the concrete. After every part of the concrete is thoroughly saturated with the wax, and completely cooled, the cover may be put on. This must be saturated with wax from the top or out-

side, but as the wax works its way through the concrete, it will stop up all of the pores of the concrete, and form a leak-proof tank.

NEW BOOKS, ETC.

THE ELEMENTS OF MECHANICS. A Text-book for Colleges and Technical Schools. By W. S. Franklin and Barry Macnutt. New York: The Macmillan Company. 8vo.; cloth; 283 pages. Price, \$1.50.

So many works on mechanics have been written that a new book on the subject must have great originality of treatment or facility of explanation to rise above the level already established. "The Elements of Mechanics" is rather below this level than above it. Certain simple concepts are explained at length, while other more complex ideas are merely hinted at. In the main, the analogies, drawn from common-place happenings, are not sufficiently marked to be of assistance in driving home the points they are intended to make clear. The result is a work that is too childish for colleges and too difficult for less advanced students.

AMERICAN BREEDERS' ASSOCIATION. Vol. I., 1905. Washington, D. C.: W. M. Hays, American Breeders' Association. 8vo.; cloth; 243 pages.

The plant and animal products of the United States help swell our national prosperity to an enormous extent, and every addition to the knowledge of their production increases the permanent wealth of the country, for agriculture and breeding can be carried on indefinitely, if only the rules of science are observed. The American Breeders' Association, founded for the furthering of this knowledge, has recently published its proceedings in two volumes. They are interesting and important. Such an association should receive universal support, for the entire country benefits by its findings.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending September 17, 1907.

AND EACH BEARING THAT DATE

[See note at end of i about copies of these patents.]

Table listing various inventions and their patent numbers, including items like Abdominal support, Account keeping apparatus, Acid dipping basket, etc.