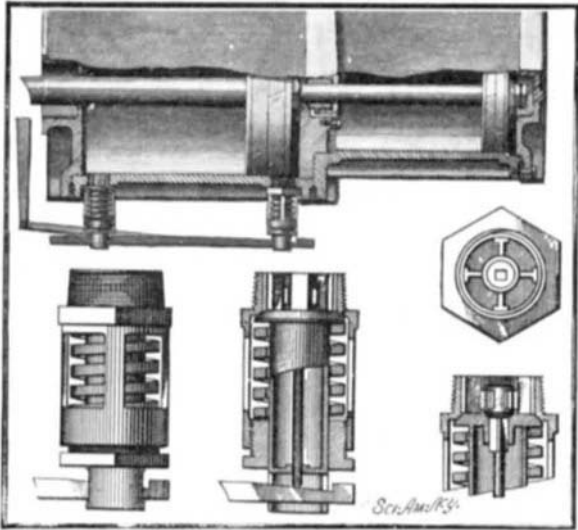




CYLINDER-COCK FOR COMPOUND LOCOMOTIVES.

In the accompanying engraving we illustrate an improved cylinder-cock adapted especially for use on cylinders of compound locomotives, to provide means whereby the engineer may open communication between the ends of the cylinder and the atmosphere upon starting, and which will also prevent any undue excess of pressure while running. In the upper fig-



CYLINDER-COCK FOR COMPOUND LOCOMOTIVES.

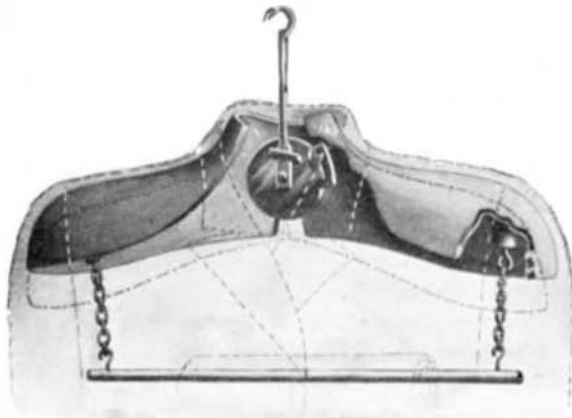
ure of the engraving the high-pressure cylinder is shown at the right and the low-pressure cylinder at the left. A cylinder-cock is threaded into each end of the low-pressure cylinder. The details of the cylinder-cock are shown clearly in the lower figures, the one at the left being a side view, and the center figure a partial section. The device comprises a casing formed with large openings inside and closed at the bottom by a plug threaded therein. A valve-seat is formed at the upper end of the casing to receive a valve. A heavy spring normally keeps this valve seated. The valve is formed with a tubular extension, which passes through an opening in the plug and extends below the bottom of the casing. Near the lower end of this extension is a spider, in which is a central opening, which serves as the bearing for the stem of a second smaller valve. The latter closes an opening in the larger valve above referred to. The valve stem is guided at its upper end by radial extensions bearing against the sides of this opening. The smaller valve, as shown in the section at the extreme right of our engraving, operates within a cage extending upward from the face of the larger valve. The top of this cage is closed by a plug. The smaller valve may be opened by means of a rod, which has bearings in the bottom extension of the larger valve, and which is formed with an inclined face engaging the end of the valve stem.

On account of the lower temperature of the steam in the low-pressure cylinder, it is liable to considerable condensation previous to exhaust while the locomotive is running, and this accumulating is liable to break the intermediate head, or that of the low-pressure cylinder. But with these cylinder-cocks in use, when this accumulation becomes sufficient to create a dangerous pressure, the larger valve is pressed from its

seat, permitting escape of the fluid through the side openings in the casing. At the same time the downward movement of this valve carries the seat from the smaller valve and furnishes an additional opening, the escape therefrom being through the spider. When the pressure falls below the tension of the spring, the larger valve is returned to its seat, thus closing both valves. When the engineer in starting desires to release the water from the cylinders, it is only necessary to move the cylinder-cock rod. The operating faces of this rod will then press against the lower ends of the valve stems, raising the smaller valves in their seats, the larger valve remaining in place. This opens communication with the atmosphere through the opening in the larger valve and through the spider. The invention thus provides a compact and effective means both for relieving the cylinder of water, through manual operation by the engineer, and for performing this operation automatically when it accumulates excessively. Mr. Charles B. Alvis, of Las Vegas, New Mexico Ty., is the inventor of the improved cylinder-cock.

IMPROVED GARMENT HANGER.

In the accompanying engraving we illustrate an improved coat and trousers hanger, which is made adjustable to accurately fit any coat, so as to keep it in perfect shape and in the exact position which it will assume when upon the wearer. The hanger, it will be observed, comprises two wings or shoulder pieces, pivoted together. These wings are formed with circular extensions, an extension on one wing fitting between the two on the other; the outer extension is covered with a plate having a central pivot pin passing through all the extensions. This plate is provided with an arc-shaped slot at one side, through which passes a pin secured to the inner extension. The pin, which is threaded, is provided with a thumb nut adapted to lock the parts in any relative position desired. Pivoted on a central extension of the circular plate is a hook, which is limited in its movements by a strap. A bar on which trousers may be hung is suspended below the main hanger frame by chains attached to the shoulder pieces. It will be obvious that a hanger of this character can be so adjusted that it will exactly fit any coat whether having square or drooping shoulders, and will also fit the neck of the garment in such a manner as to prevent any alteration



IMPROVED GARMENT HANGER.

in shape when the coat is left on the hanger any considerable length of time. Thus the original shape of the coat is effectually preserved—an advantage gained which, we believe, has not been attainable with any previous form of coat hanger. The inventor of this improved garment hanger, Mr. John A. Carlson, of 1210 Sterling Place, Brooklyn, N. Y., is a custom cutter, and his experience with the many unsatisfactory garment hangers on the market led him to produce this garment hanger, which he believes will fully meet all requirements.

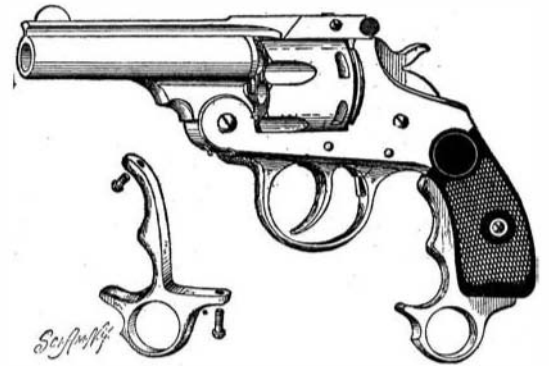
NOVEL ATTACHMENT FOR AUTOMOBILES.

A resident of Canada proposes to humor the skittish horse by attaching life-size dummy horses in front of automobiles, so that they will present the appearance of horse-drawn vehicles. Aside from its office of deceiving timid and high-strung horses, such an attachment would prevent the fear often experienced by the novice, of being pitched over the dashboard of his automobile. The accompanying illustration shows how it is proposed to attach the dummy horse to a motor vehicle. The forward part of the horse, it will be observed, is carried on a roller, mounted on a

swivel fork, while the rear is supported by plates attached to the legs and fitted to the forward axle of the vehicle. The body of the horse is made hollow and provides ample storage place for fuel, tools, extra tires, and any other equipment with which it is desired to provide a motor vehicle. Entrance to this tool chest is had through a door in the rear, the tail of the figure serving as the door handle. In the head of the horse a chamber is formed to receive a search light for use at night, and colored lenses at each side serve as eyes for the creature. In its mouth the animal carries an automobile horn. The reins are attached to the lower jaw of the figure, and must be normally held taut, permitting the bulb of the horn to expand and fill with air. When, however, the tension on the lines is relaxed, the jaw, under action of the spring, closes onto the bulb, causing the horn to sound. A patent on this invention has recently been secured by Mr. Henry Hayes, of Fort Thomas, Ontario (Box 620).

ODDITIES IN INVENTION.

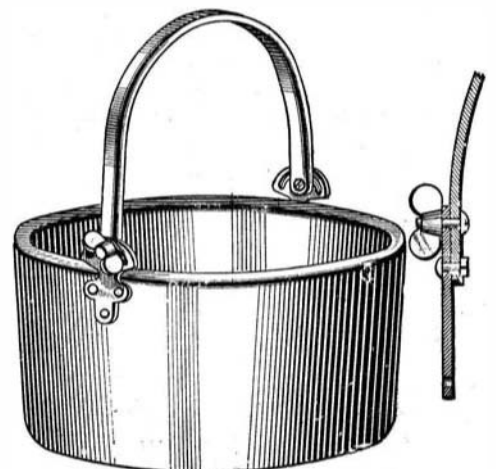
REVOLVER GRIP.—The accompanying engraving illustrates a useful attachment for revolvers which is



REVOLVER GRIP.

adapted to provide a firm grip on the weapon. Heretofore, to obtain a strong grip on a revolver, it has been necessary to design the same with a long sweep of the handle, which presents the disadvantages of weight and cumbersomeness. The grip here shown provides a hold for the entire hand, without adding any appreciable amount of weight to the weapon. Its use would prevent the very common occurrence of having a revolver knocked from the hands of the holder, and would preclude the possibility of its being wrenched from the hands by superior strength at just the very moment when it is most desired for defense. The grip is attached to the revolver by means of screws, and it may, therefore, be easily removed at the option of the user. The attachment is manufactured by the Iver Johnson's Arms and Cycle Works, Fitchburg, Mass.

HANDLE ATTACHMENT FOR KITCHEN UTENSILS.—A useful handle for pots, kettles, and utensils of various kinds is illustrated herewith. It is especially adapted for use on those receptacles which have to be heated and which have a pivoted bail or handle that hangs down in contact with the receptacle while it is being heated. The handle, when in such position, becomes hot very quickly, and it is the object of the invention here shown to remedy such undesirable conditions. As indicated in the engraving, the improved handle is so arranged that it may be secured in any desired position. At opposite sides of the utensil pivot plates are attached to which the ends of the handle are pivoted. These pivot plates are formed with semi-circular slots through which screws on the handle extend. By means of thumb nuts on these screws, the handle may be prevented from turning on its pivots. When the utensil is being heated the handle may be moved to vertical position, and clamped in place by tightening the thumb nut. This will prevent excessive heating. Furthermore, the handle may be secured at any in-



HANDLE ATTACHMENT FOR KITCHEN UTENSILS.

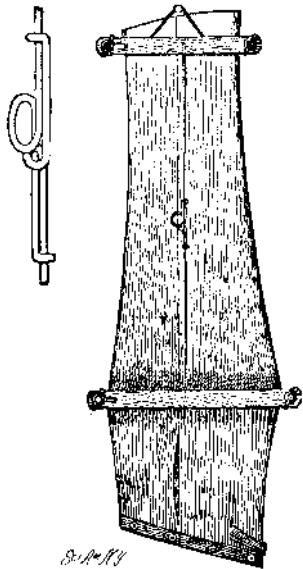
cline desired, as for convenience in pouring out the contents of the vessel. If desired, the handle may be pivoted to the utensil in the usual manner at one end



NOVEL ATTACHMENT FOR AUTOMOBILES.

and the pivot plate with its adjusting means used at the other side only. Mr. William Chambers, of 81 Artisan Avenue, Chicago, Ill., is the inventor of this handle attachment.

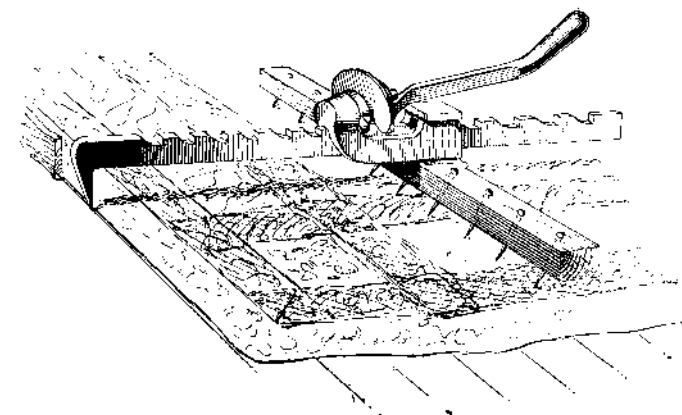
TROUSERS STRETCHER.—A simple trousers stretcher has recently been invented by Mr. David P. Cooper, of Struthers, Ohio. This stretcher comprises a pair of clamps which are attached securely to the garment and are forced apart by an extensible rod. The invention resides in the novel and effective means for locking the extensible rod in an extended position, and also in the arrangement of the parts which permit of folding the stretcher in a small compass. The clamps above referred to consist of flat wooden bars, held together by bolts which pass through slots therein and are secured by thumb nuts. The extension rod is formed of two sections which, at their outer ends, enter sockets in the wooden bars. Each section at its inner extremity is formed with an eye through which the body of the other section passes. This forms a telescopic connection of the two sections. Adjacent to the end of its inner extremity each section is formed with a loop as illustrated. When it is desired to extend and lock the extensible rod, the loops are drawn together and one is hooked over the other. Owing to the telescopic connection of the sections of the extensible rod, the stretcher may be folded up into a neat and compact parcel not exceeding in length that of the lower clamp bars.



TROUSERS HANGER.

CARPET STRETCHER.—An inventor in Chicago has produced a carpet stretcher of very original type. As will be seen from the illustration, the stretcher comprises a bar provided with a series of projecting pins. The bar is attached to a bracket which slides over a rack formed with a spike at its forward end. Mounted upon a spindle carried by the bracket is a worm adapted to engage the teeth of the rack. In operation the spike on the rack is forced into the floor and then the bar carrying the pins is fed forward by revolving the worm, a handle being provided for the purpose. In this manner the carpet is stretched, being drawn forward by the pins.

SUBAQUEOUS RAILWAY.—A novel amusement device has recently been devised by a Yankee inventor. As indicated in the illustration, it consists of a boat-shaped car adapted to run down a steep track into and through a body of water with such speed that the shovel nose at the front of a car will throw the water clear over the car, without permitting it to come into contact with the occupants. To prevent derailment of the car, it is provided with double concentric wheels. The larger ones travel on the lower rails, and the smaller ones on the under side of the guide rails above and parallel to the lower rail. The patent from which our information is taken gives no data as to the pos-



CARPET STRETCHER.

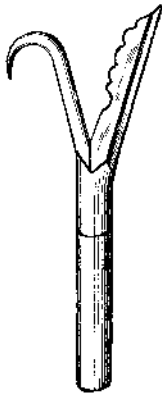
sible speed of the car or the tremendous amount of work it will have to perform in lifting the large volume of water over itself.

A NOVEL SEAM RIPPER.—A most useful invention for a sewing table is a little instrument called the Seam Ripper.

It is a double-edged knife, with one edge jagged to do the ripping. A hook is formed from the knife handle by which the threads can be pulled out by a slight turn of the wrist. Instead of using four articles to rip with—pin, needle, scissors, and knife—this implement does the entire work.

They are a curved needle for picking thread, and also for hem-stitching; a ripper to follow seams to cut open; a jagged knife blade, very sharp, for cutting heavier seams; and an ordinary knife blade.

It is the patented invention of a western woman, and is very useful as a new combined article for this kind of work. Ripping seams, in the making over of old clothes, is a mean and irksome task; and while ripping some baby clothes, the inventor thought out this idea. Making a rude drawing, she gave it to her husband, an expert blacksmith, who constructed a model of same, having sharpened and tempered it.



SEAM RIPPER.

Brief Notes Concerning Patents.

W. B. Cowles, formerly a lieutenant-commander in the United States navy, is the inventor of a system, which he calls the "long arm," designed to be installed on shipboard. In a moment of peril, all the bulkheads and doors of the boat are closed by the mere touch of a button on the bridge or in the wheel house. Arrangements have been made, it is said, to place this device on a number of vessels now being built for this government. A somewhat similar apparatus is being placed on all the boats of one of the transatlantic lines, and a demonstration of its operation was recently given on one of these craft as she lay at the wharf. Instead of a button, this system is operated by a handle. As this is moved, all the bulkhead doors on board are slowly closed, an alarm having been given first, in order to permit the escape of anyone who happened to be standing or working in the doorway, and to enable workmen and others who might happen to be in the vicinity to get on whichever side of the door would best suit their convenience.

A mercury vapor lamp, somewhat different in its general appearance and construction from those which have been brought out in this country, is being introduced in England by Messrs. Rumney & Rumney, of London. The lamp is the invention of Messrs. C. Orme Bastian and A. E. Salisbury, and is known as the Bastian mercury lamp. A description of the lamp received by an American firm from its London agent reads as follows: In external appearance it resembles the Nernst lamp and is about the same size. The light-producing part consists of an H-shaped glass tube, the lower extremities of which are formed into bulbs having platinum wires fused through the bottom and projecting inward. The tube, which is exhausted of air, contains sufficient mercury to fill the bulbs and just flood the cross-tube, which is slightly curved downward. It is held in a horizontally-pivoted frame and normally hangs so that the legs are vertical. In the metallic cylinder above the globe is a small solenoid connected in series with the mercury in the tube, the current entering and leaving the latter through the platinum wires already mentioned. When the switch is closed, the solenoid attracts an iron armature which tilts the tube. The consequent inclination of the horizontal part of the tube causes the mercury in it to divide, and some of it running into the lower leg and across the gap thus formed, a short arc is left. The arc gradually lengthens, forcing mercury up into the vertical tube until a balance of pressure is obtained, the arc then being about three inches long and giving a vivid light. In order to supply the red rays in which all mercury lamps are deficient, the inventors have fitted a red glow lamp alongside of the tube, which is said to effectually correct the otherwise abnormal color of the light. Even without this addition, the light from this lamp is said to be quite satisfactory for most purposes, the absence of the red rays being noticeable only with the use of a spectrum or when viewing some red substance, when the color appears black. The average life of the lamp is said to be about 3,000 hours, and it is stated that some of them have been in contin-

uous operation for 1,500 hours. It will be noticed that there is no complicated starting device, which is part of some of the lamps of American origin.

Elijah Daniel Fulford, of Utica, N. Y., a man who had a national reputation as the constructor of electrical lines and also as a marksman, died at his home in Utica, N. Y., on October 15. He worked on some of the most important lines in this country, notably some of the transcontinental railroad lines of the southern part of the country. Latterly he was employed by the American Telegraph and Telephone Company in the construction of lines through the Middle West. In this connection he was the originator of a number of important devices used in telegraphy and the construction of lines for this purpose. He developed a reputation as a live-bird marksman in early life, and later entered the field of trap shooting.

In "Looking Backward," by Edward Bellamy, issued some years ago, the author outlines an apparatus by which music of any character to suit the taste of the subscriber may be had by the mere pressing of a button conveniently located in the library or the parlor of a home. This dream is about to be realized, as a company to promote such an invention has been recently organized in Boston, Mass., composed of moneyed men of that city, Philadelphia, and Baltimore. This company has secured the rights to the invention of Thaddeus Cahill, who has been at work on the matter for nearly fifteen years and recently demonstrated its successful operation at Holyoke, Mass. The list of names of those back of the scheme presents a number of the strongest financial men of the cities named, and it is announced that the first service will soon be established in Boston and afterward extended to other cities. One of the officers of the company stated that the apparatus had been examined by Lord Kelvin, when he paid a visit to this country some time ago, and he pronounced it entirely practical. The corporation will be known as the Cahill Teleharmonic Company, the controlling concern being the New England Electric Music Company, which has a capital of \$200,000. Mr. Cahill, the inventor, is a graduate of Oberlin College. The difficulty in making an instrument to do this work has heretofore been found in securing the means of accurately registering the great range of vibrations indicating the different musical notes, some being as low as 16 per second and others as high as 8,000. It is planned to have six classes of selections and the annual cost of the subscription will be from \$50 upward. The service will become cheaper, it is promised, as the number of subscribers increases. The promoters think that this device will put the piano largely out of business, for the reason that the initial outlay of purchasing a piano is unnecessary.

An interesting paper was read at a recent meeting of the Institution of Naval Architects, which may lead to a very important improvement in the construction of passenger-carrying boats plying the high seas. The paper was read by Herr Otto Schlick, who called the attention of the body to his proposition to increase the period of oscillation of a vessel by means of the gyroscopic action of the flywheel, and at the same time effectively lessen the craft's angle of heel. A large flywheel is set up on board the boat, and revolved at a great speed, and being held in a suitable framework which is somewhat flexible, the wheel and its frame is capable of some lateral movement, to enable it to counteract the motion of the boat. The paper was illustrated by means of models, the conduct of which was pronounced entirely satisfactory by those present, and the gathering included a number of the foremost engineers of England. As soon as any outside influence begins to heel the vessel over in a direction at right angles with its length, the flywheel frame will incline considerably, with the result that moments are produced which not only render the oscillations of the vessel considerably slower, but also very considerably reduce their extent. But these two conditions are exactly the ones which alone are calculated to destroy the rolling motion caused by the waves. A vessel fitted with the appliance would only be subject to insignificant rolling motion. The author and inventor suggested means for the proper regulation and control of the wheel. In the case of a medium-size boat, say six thousand metric tons, it was calculated that a flywheel of 13 feet in diameter, weighing 10 tons, would very materially reduce the amount of oscillation. The vessel having been inclined about four degrees from the upright, will at the next roll reach an angle of only about one degree of inclination, and will have come almost to rest again at the second roll, while the same vessel without the flywheel would probably come to a point of rest after six or seven rolls. This is not the first effort to make use of the gyroscopic action to the same end, for Sir Henry Bessemer spent a great deal of money in the attempt to successfully apply it to the Bessemer saloon, which was to be established on board a steamer, with the view of giving a steady chamber, in which attempt Sir Henry failed completely.