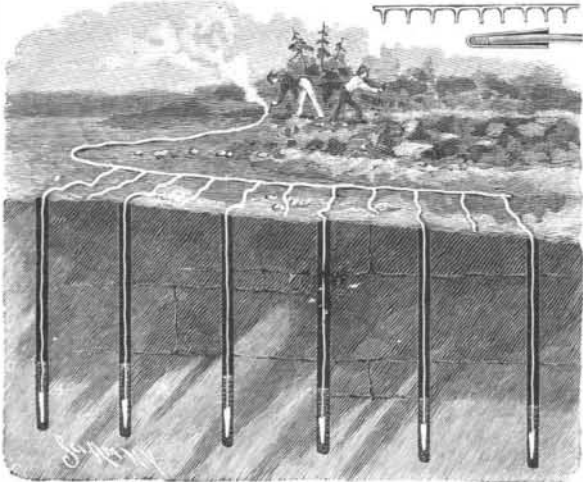


**A MULTIPLE BLASTING FUSE.**

This is a safety fuse having a series of branch fuses and a waterproof blasting cap for each fuse, the arrangement being such that all may be discharged by lighting a common fuse, when the several caps will be exploded in the desired succession, any required number of charges being thus set off. The improvement has been patented by Mr. William C. Doyle, 216 West Hallam Street, Aspen, Col.

The main fuse is of common construction, and the branch fuses may be of different lengths and

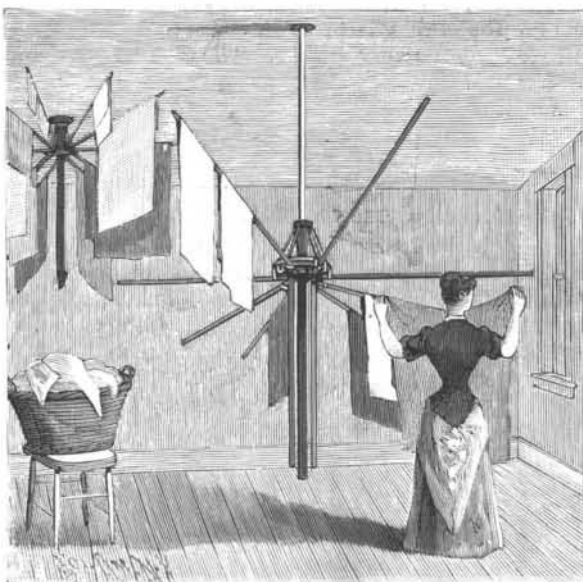


DOYLE'S MULTIPLE BLASTING FUSE.

lead from opposite sides, being plaited or otherwise joined to the main fuse, and fine black powder being used at this point to make it certain that every branch fuse will be ignited. Where the branch fuse terminates in the blasting cap, as shown in the small view, it is held in place by glue, rendering it waterproof. It is designed to manufacture these fuses in fifty-foot coils, with branches every four or five inches, so that those using them may cut off any number they want, there being less liability to waste by leaving over odd ones when the bunches are made so large.

**AN IMPROVED CLOTHES DRIER.**

This clothes drier is designed to be hung from the ceiling of a room and lowered as required for convenience in placing the clothes thereon, it then being raised out of the way in the upper portion of the room where the air is warmest. The improvement has been patented by Mr. James Reilly, of Calgary, Canada. The supporting spindle, adapted for attachment to any overhead support, is preferably of metal, and has at its lower end a recess in which is pivoted a catch. Over this spindle is passed a tube, expanded at the top, and carrying a horizontal partition or table having on its periphery metal loops or keepers for clothes-carrying arms in rod form. These arms when not in use hang perpendicularly around the tube, with which their inner ends are pivotally connected. When the wet clothes are to be placed on the drier, the body drops down to the proper position, on pushing in the catch, when the arms are carried to a horizontal position, one by one, and each engaged by a keeper, the operator thus working around the entire device until all the clothes have been placed, when it is pushed



REILLY'S "OUT OF THE WAY" CLOTHES DRIER.

upward to its upper position. The apparatus may also be applied to a stand upon the floor, or the spindle may be attached to the floor, and the body slid upward, thus utilizing all available space for drying.

EXCLUDING about 62,000 small craft, it is said, the commerce of the world is carried on by 45,000 vessels of 20,500,000 registered tons.

**Ferdinand de Lesseps.**

Count Ferdinand de Lesseps, engineer of the Suez and Panama Canals, passed away at the Chateau la Chesnaye on the afternoon of December 8. De Lesseps' last years were clouded by the Panama scandals and he died a disappointed, heart-broken man, almost in poverty. He was born at Versailles, France, in 1805. He was descended from a noble family and was educated for the diplomatic service. He occupied various positions in the East, and in 1838, when he was appointed consul to Rotterdam, he began the study of canals, which was to be his life work. In 1854 his plan of piercing the Isthmus of Suez began to take shape. He was warmly seconded in his designs by the Empress Eugenie, and in a few years a large fund was raised to prosecute the work, which was actually begun in 1859.

In November, 1869, the canal was opened to the commerce of the world by the Empress Eugenie. The brilliant success of this undertaking led to the establishment of the ill-fated "La Compagnie Universelle du Canal Interoceanique de Panama." At this time De Lesseps was hardly possessed of the powers of his younger days, so that unscrupulous men were allowed to fill the important executive offices in the company. The administration of this vast company was rotten to the core, and De Lesseps was overwhelmed in the crash which followed, a crash which shook France to the very foundations and left the illustrious engineer, who had been a mere figurehead, a physical and mental wreck.

There is hardly a more pathetic incident in the history of the nineteenth century than the old man who was once the glory of France, and who was called "the great Frenchman," sitting with bowed head in the Chateau de La Chesnaye, while in Paris he was being tried for alleged crimes. He was convicted, though he never knew of it, and was sentenced to fine and imprisonment, but to the credit of the French nation the sentence was not carried out, for once the hand of justice was suspended by an overwhelming wave of popular opinion. The career of this man was without a parallel, and Vicomte Ferdinand de Lesseps has passed into history as one of the most picturesque and romantic figures of modern times.

**An Exhibition of Photo-mechanical Work.**

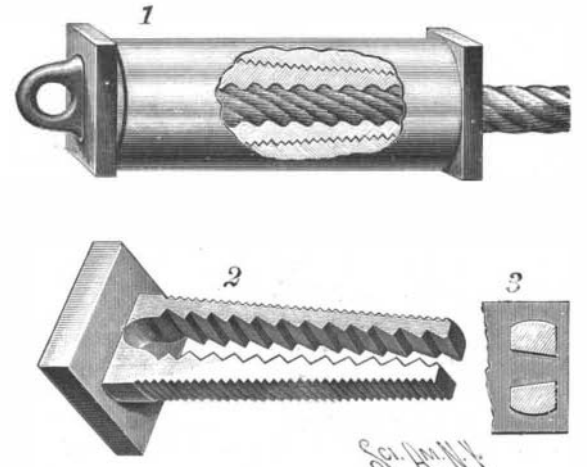
The Society of Amateur Photographers, of New York, announces that a free exhibition of photo-mechanical prints and printing processes is to be held at the rooms of the Society of Amateur Photographers, of New York, 111-115 West 38th Street, from December 3 to December 15. Besides a large collection of foreign work collected by the European agent of the society, all the leading photo-mechanical printers of this country will exhibit specimens of their best work. A feature of the exhibition will be the large display of prints in colors, a process which is now engaging the attention of many photo-mechanical printers. During the exhibition lectures and demonstrations will be given by Prof. Chandler, of Columbia College; Fred. E. Ives, of Philadelphia; Mr. Koehler, of the Smithsonian Institution; Mr. Ernest Edwards, Mr. Walter E. Woodbury, and others.

**AN IMPROVED FEED WATER HEATER.**

The illustration represents a feed water heater which also removes grease, oil, etc., entering with the feed. It is adapted for use on all kinds of steam boilers, obviating the necessity for using chemicals, and preventing internal corrosion and pitting of the tubes. The improvement has been patented by Mr. G. M. Mullen, 106 South G Street, Baltimore, Md. The heater, B, has a water space with end inlet and outlet chambers, as shown in Fig. 2, tubes connecting the chambers, and there being a surrounding steam and water space. The supply pipe, C, from the pump, leads into the inlet chamber, and a pipe, D, leads from the outlet chamber to a water leg of the boiler, this pipe having a check valve, G, to prevent back pressure. A surface blow pipe, A, leads from the boiler to the top of the heater, a valve regulating the passage of steam through this pipe. A pipe connects the heater near its bottom with the supply pipe, a check valve, E, in this pipe, permitting steam and water from the boiler under excessive pressure to pass into the supply pipe, and yet preventing the feed water from passing into this pipe. From the latter pipe, a pipe, F, leads overboard or to the condenser. A small amount of extra feed is kept on to make up the loss from blowing, and this is more than compensated for by the additional heat imparted to the feed water. The inventor has employed these heaters for more than a year with boilers using surface condensers on his own towboats, and has found them of great advantage.

**AN IMPROVED ROPE CLAMP.**

The device shown in the illustration was primarily designed for connecting the wheel rope to the steering rod aboard vessels, for which purpose it has been a long time employed by the inventor. It is preferably made of brass, and may also be employed to secure the ends of clothes lines to hooks, and for a variety of similar uses. It has been patented by Mr. G. M. Mullen, 106 South G Street, Baltimore, Md. Fig. 1 is a view in perspective, partly broken away, of the device as applied, Fig. 2 showing the clamp section and Fig. 3 a cross section centrally of the latter. On



MULLEN'S ROPE CLAMP.

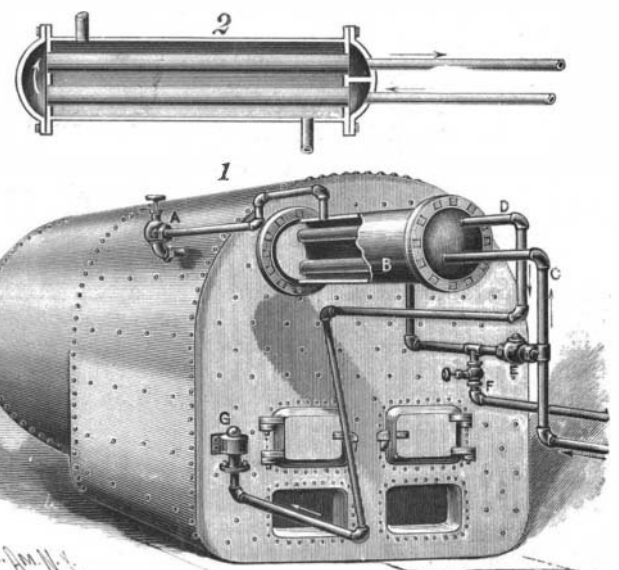
the outer side of the head of the clamp section is an eye, to facilitate its connection or attachment when desired, and the clamping jaws have tapering threaded edges upon which a case section is screwed to press the jaws together and clamp the rope between them. From the manner in which the jaws are set the rope may be inserted laterally, so that a very efficient clamping may be effected with but a slight compression.

**Canal Traction in Europe.**

In a paper on boat traction on canals, presented to the Paris Academie des Sciences, M. Maurice Levy states that the cable system has given excellent results in an experimental installation tried on a three mile length of canal in the suburbs of Paris. A somewhat similar plant, erected by the German government on the Oder and Spree Canal, has been less successful. The winding engines should, M. Levy states, be placed twenty-five miles apart when the traffic is 1,000,000 tons per annum; for 2,000,000 tons they should be placed at about twenty miles apart; for 3,000,000 tons at about sixteen and a half miles apart; and for 4,000,000 tons at about fourteen miles apart. The system is not economical for a traffic smaller than 1,200,000 tons per annum. The first cost of the system is about \$8,000 per mile.

**Providing Anti-Toxine for New York.**

The health authorities of Paris have found that the death rate from diphtheria has recently been reduced ten per cent by the use of anti-toxine. The contrast between this report and that of the Board of Health of New York for last week is very significant. There were fifty-four deaths from diphtheria in New York, an increase of fourteen over the previous week. The bacteriological department, however, is busy collecting



MULLEN'S FEED WATER HEATER.

germs for the infection of animals. Some twelve or fifteen horses have been inoculated, and it is expected that by the first of the year there will be a plentiful supply of anti-toxine ready for use. In the meantime, however, Dr. Biggs of the Board of Health will purchase \$1,000 worth of the drug from Europe. The purchase will consist of 130 vials of the first, second and third grades of virus. The result of this measure will be watched with great interest.