

Diving for Gold.

Perfect success has never attended the labors of the gold miner in trying to get gold from the beds of rivers when the water is flowing over the bed. Rivers have been turned aside and wing-dams built, so as to get at the auriferous deposits, and river beds have been worked at low stages of water, but none of these devices for pumping up gold from beneath the river have been successful or practical. Large amounts of money have been expended on dredges and pumps for working river bottoms, and various plans have been adopted. In no case, however, has any money been made out of the operation. Still there are people who contrive to bring up gold from beneath flowing rivers, and make money by it. For instance, in the state of Cauca, Colombia, where there are many deposits of auriferous gravel, most of the small gulches and ravines have been worked out a hundred years ago, though more or less mining is still going on. Many large streams have auriferous beds, and the natives, unable to turn the course of the river, mine in a peculiar way. The women take a batea in their hands, and dive down in ten or fifteen feet of water, scrape the loose sand and gravel into it, and bring it to the surface. Then they climb on to the bank and pan it out. They get from a few cents to four bits a batea. Sometimes the men engage in this work, but it is mainly done by the women. After a dive, the latter sit down on the bank and smoke a while before going down again. They teach the children of twelve to dive for gold also. Sometimes rich pockets or deposits are struck. Nobody but natives engage in this sort of work. At the Saragossa, the Clara Creek, and the Tewee River a good deal of this mining by women diving is done.

—Iron.

CLOTH DRYING AND TENTERING MACHINE.

The cloth drying and tentering machine shown in our engraving dries goods upon a similar principle to out door drying under the most favorable circumstances, that is, by evaporating the water in the cloth by a soft and even heat, and carrying off the vapor as it is formed. Cloth dried by it has the appearance and feel of cloth dried out of doors, while it is dried much more rapidly, at less expense, and without regard to state of weather. This machine also gradually and very evenly tenters the cloth to width desired, without injury to the fabric, and at the same time will stretch the goods lengthwise if required.

The wet goods are taken into the machine at the top in front, the operator standing upon the elevated platform. Steel tentering pins carried on endless chains at either side, engage the edges of the goods, and the goods are carried in, the chains are made to gradually diverge for a distance of 41 to 16 feet (according to size of machine), until the desired width of goods is obtained, this being under the immediate control of the operator. The goods are then carried twelve times back and forth the entire length of machine, through and among twelve rows of steam pipes, through which steam has a free circulation, producing a uniform heat throughout, and are then passed out dry at the bottom of front of machine, then up to and between a pair of suspended rolls to the folder, which lays them in folds on a table ready to be carried away. A current of air passes through the machine carrying off the vapor. The motive power is furnished by a compact pair of horizontal engines.

This machine is built by Kinyon Brothers, Raritan, N. J.

George Gifford.

Mr. George Gifford, a well known patent lawyer, died at his home in Jersey City, N. J., July 2, at the age of 72. Mr. Gifford was for many years counsel for the principal

sewing machine manufacturers, serving Howe, Wheeler and Wilson, Grover and Baker, and Singer in that capacity. He made a success of that department of legal practice at a time—twenty-seven years ago—when there were very few of the profession who made mechanics and the subject of the patent laws a special study. Mr. Gifford not only acted as counsel for the united manufacturers under the well known combination, but he was referee and judge between them in their separate capacities, enjoying their full confidence in every position.

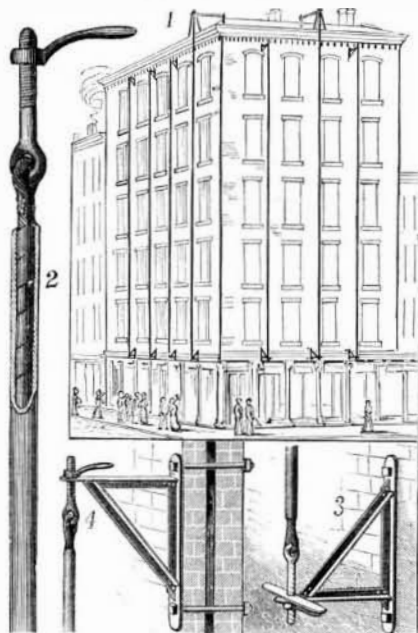
FIRE ESCAPE CABLE.

We give an engraving of a very simple, easily applied and efficient fire escape invented by Mr. A. O. Morford, of Portchester, N. Y.

The fire-escape cable is composed of a rope, preferably of wire, and an outer covering or cushion of soft rubber.

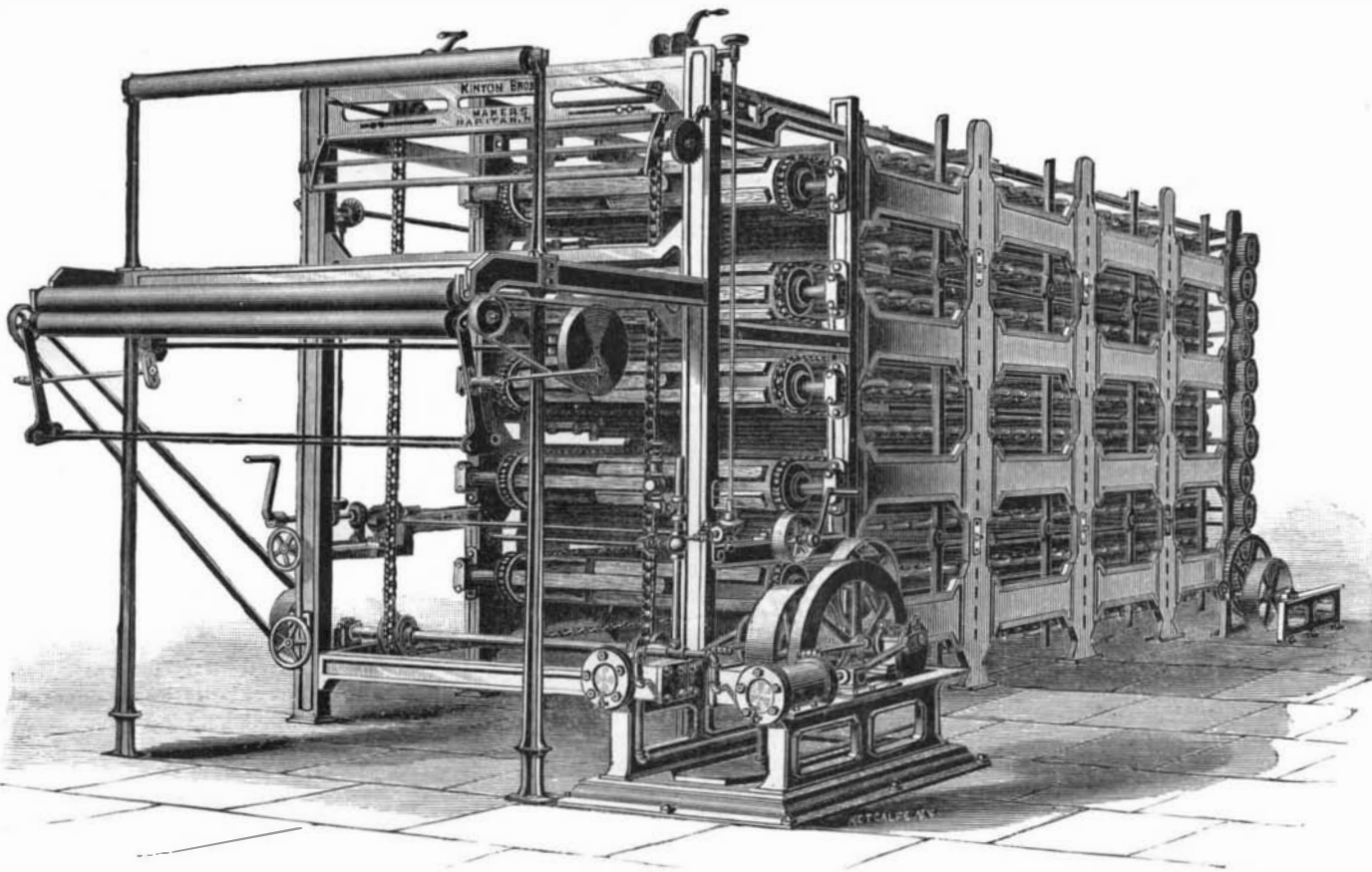
The cable is connected at each end with an eyebolt, as shown in Fig. 2. The eyebolts pass through brackets, Figs. 3 and 4, at the ends of the cable, and the nuts are screwed up tightly, making the cable taut.

In the form of cable shown the outer casing or cushion is a continuous tube of soft rubber drawn snugly upon the cable, but the covering or cushion may be composed of a strip of soft rubber wrapped spirally around the rope, with

**MORFORD'S FIRE ESCAPE CABLE.**

overlapping edges, which form spiral stop ridges or ribs. Where the edges of the strip of rubber overlap in wrapping the rope, a rubber or other suitable cement is applied to the covering for cementing the layers together, thus forming practically a continuous covering or cushion. In both cases the wrapping or covering of soft rubber will be of such thickness as not only to furnish a protection for the hands in grasping the cable, but a cushion into which the hands will embed themselves with but a slight grip, thus furnishing a firm and safe hold upon the cable with the outlay of but little strength, without cutting, burning, or otherwise injuring the hands, as would be the case with a naked rope.

In the spirally-wrapped form of cable the folds of the strip of rubber also furnish easy hand-grasps, and the ribs or ridges prevent all danger of the hand slipping upon the cable. Besides the advantage of a firm hand-grasp upon

**KINYON'S CLOTH DRYING AND TENTERING MACHINE.**

the cable, the soft rubber cushion enables the person descending to cling with his limbs to the cable, so as to cause a considerable friction between his clothing and the rubber covering, and thus diminish to a great extent the amount of strength required in the hands to effect a safe and easy descent. This fire escape is very cheap and may be readily applied without defacing the building. Its tensile strength is six tons, and the inventor informs us that sixty persons per minute can descend this escape. Further information may be obtained by addressing the inventor as above.

Rapidity of Cerebral Acts.

M. Albert Rene has, according to the *Revue Scientifique*, made a long series of experiments in the physiological laboratory of the Faculty of Medicine at Nancy on the rapidity of transmission of impulses through nerves, and the rapidity with which cerebral acts are performed. He finds that the intensity of the stimulus has a direct influence on the rapidity of nervous transmission. The stronger the stimulus the more rapid the transmission. The rate of transmission cannot therefore be stated in exact terms, since it is relative, as has been not unfrequently noted for other kinds of cellular activity. He has also confirmed the fact, now very generally admitted, that it is impossible to measure the rapidity of transmission in sensory nerves by stimulating different points of their length, for the rapidity of the response is not proportionate to the length of the nerve traversed. Thus the response to a stimulus applied to the fingers is often made with a shorter interval of time than a stimulus applied to the elbow or to the shoulder, though the length of nerve called into play is much greater in one case than in the other. In a word, it is impossible to compare the results obtained from different regions. The most exact method of measuring nervous transmission appears to be that of response to an auditory stimulus. The rapidity with which nervous impulses are here conducted he estimates at 28 meters per second, which is a little lower than the number obtained by other physiologists. For the rapidity of transmission of motor impulses M. Rene gives twenty meters per second, which is below that of experimenters, and notably below that of M. Chauveau. The duration of a cerebral act he estimates at thirty-five one-thousandths second. In young infants the duration is more considerable, amounting to 0.09 second. The duration of a reflex act—that is to say, the time occupied by the entire reflex arc, sensation, transmission to the cord, including motor impulse, and muscular movement—is 0.15 second.

A New Niagara River Bridge.

The Canada Southern Railroad Company have contracted for a bridge across the Niagara River at a point about 300 feet above the present suspension bridge, to be finished by the first of next December. The bridge will have a clear span of 500 feet between the towers on each bank and will be built of steel. It will be a cantilever truss bridge, wide enough for two tracks, and calculated to sustain the heaviest load that could be placed upon it by continuous trains of loaded freight cars. The cantilever style of bridge has never been used on very large structures, although several bridges of great length are now being constructed on this principle. Each shore section is supported by a tower at nearly its middle, or center of weight, the inner end being anchored and the outer end approaching a corresponding section from the other side. In this instance the projecting sections will be advanced 187½ feet each, making 375 feet together, and the remaining gap of 125 feet will be filled by an ordinary truss bridge resting on the ends of the cantilever spans. The steel towers supporting the cantilevers will be 130 feet high above the stone foundations, which will rise 50 feet above the water. The bridge will be stayed against the force of the wind, as well as supported from the towers, by wire cables.

Dullness in Woolen Manufacture.

From 250 requested replies to questions, received from the proprietors of woolen mills in New England, the Boston *Advertiser* ascertains that 759 sets of cards are stopped, equal to the consumption of 300 pounds of wool each, daily; in the aggregate, 230,700 pounds per day. Probably these re-

turns, which indicate a stoppage of more than one-third of the sets of cards in New England, are incomplete, and do not indicate the extent of the reduction, as no answers have been received from a number of letters of inquiry.

A NEW vegetable parasite, *Haplococcus reticulatus*, has been recently discovered in pork by Dr. Zopf. It occurs in from 30 to 40 per cent of the animals examined. Would it not be well if we paid more attention to the sanitary legislation of Moses, a fragment of the ancient medical law of Egypt?