

**MECHANICAL INVENTIONS.**

Mr. Robert P. Dake, of Colby, Wis., has patented a hand power for driving light machinery, such as straw cutters, pumps, churns, grindstones, sawing machines, lathes, boats, and other light machines where other power is not attainable.

Mr. James B. Carlin, of Carthage, Mo., has patented a grain mill for grinding corn, oats, and other grains for feed for stock, and for other purposes where a coarse meal is required.

Mr. Benjamin C. Senton, of Whitehall, N. Y., has patented a propelling device especially adapted for propelling vessels in shallow waters and canals. The invention consists in reversing mechanism by which the paddle shaft may be turned, so that the paddles reverse their action.

Mr. John F. Mathews, of Stamford, Conn., has patented an improved dumping car for coal and other substances, so constructed that it can be dumped with ease and certainty, and readily readjusted to receive another load.

**NEW PROTECTIVE SUIT FOR FIREMEN.**

Several years ago a fireman's suit, invented by Oestberg, a Swede, was the object of considerable attention. It was made of felt, which was continually soaked with water, thus protecting the wearer from the effects of the flames and heat. The wearer was protected from suffocation by a supply of fresh air conducted to him through a flexible tube connected with an air pump.

The disadvantage of this suit was that the water and air had to be conducted to it through flexible tubes, and if the wearer was compelled to operate some distance from the pumps the dangers arising from entanglement or rupture of the tubes was so great as to render the apparatus impracticable in the majority of cases.

Mr. August Beyer, of New York city, recently obtained a patent for an improved fireman's suit, which is devoid of the imperfections of Oestberg's device. His suit is made of some thick fabric, serving as a non-conductor of heat, and has a lining of oil cloth, which is covered on the inner side with a layer of compressed wool impregnated with coal dust, mineral wool, or like material, and is protected on the outer side by a thick woolen fabric having a thick coating of a mixture of red ocher, glue, and sulphur. The metal helmet has a projecting part with a thick bullseye glass in front; from this projection a flexible tube, resembling an elephant's trunk, hangs down. The lower end of this trunk is provided with a perforated plate, which retains a quantity of small pieces of sponge, that cool the air as it passes through them and frees it from smoke. A spiral spring gives the trunk the required strength and prevents it from collapsing. A collar is attached to the bottom of the helmet, as is shown in dotted lines, and serves to connect the jacket and the helmet.

The heat of the fire evaporates the moisture of the wool in the inner lining and thus cools the body. The outer coating of the suit is fire and water proof, and blisters under the effects of the heat, but protects the inner layers.

The fresh coat of the ocher, glue, and sulphurpaint is applied to the suit after use. A fireman provided with one of these suits can enter into the midst of the fire without suffering from the effects of the heat or smoke.

This device will be of great service in hotels and public buildings, and it is very valuable for private use, enabling its possessor to escape from a burning building in cases where it would otherwise be impossible. The inventor informs us that it has been subjected to severe tests and has proved efficient in every case.

Further information may be obtained by addressing the inventor, Mr. Aug. Beyer, 149 Avenue B, New York city.

**A Blind Man Climbs Mont Blanc.**

That a blind man should undertake to climb the highest peak in Europe would seem at first sight to be about as useless and foolhardy an undertaking as could well be conceived. It appears, however, from the mountain climber's own account to have been a fair climb, pluckily undertaken and manfully carried out for a reasonable purpose. The climber, Mr. F. J. Campbell, of the Royal Normal College for the Blind, has devoted his life to the elevation of the condition of his sightless countrymen, and he finds that in order to carry on his work it is necessary to keep up his pluck, energy, and determination by all sorts of athletic efforts. Skating, swimming, rowing, riding, have contributed their share to this end, and last year he went to Switzerland to try mountain climbing. He went again this year, ending with the ascent of Mont Blanc, a task that taxes the capacity and all the powers of those who have no lack of human faculties and can enjoy by sight the grand views which the mountain summit offers as a reward for the hazardous undertaking.

**Practical Suggestions on Stuffing.**

If hair is confined, and the curl taken out of it by the use of the stuffing stick or wire, it has no power to act, as curled hair is intended to do; the life is twisted out of it with the stuffing stick; it lies dead, and we have to keep pushing more in to fill up the space between the tufts, so when the square or diamond is finished, it contains one-third more hair than it would if the stuffing stick had not been used. The job also is lumpy and heavy, and in a short time the cloth becomes loose by the settling of the hair, for the power to act has been taken out of it. If the tuft cords were cut and the cloth removed, the little ball of hair would scatter over the bench like so many walnuts. Now, if the hair had been laid, and the cloth tufted down through it, it would not do this, for the hair would be just as lively as when taken from the bag. We here give two practical ways to stuff a cushion.

A good cushion can be stuffed up in this way: Make the top up on a frame—lay the hair—and in sewing it to the facings, leave the back part open from corner to corner. Takesheeting or muslin, and make a pad one inch larger all round than the cushion facing and one inch thicker; fill the pad full of good hair—not with the stuffing stick, but

**BEYER'S PROTECTIVE SUIT FOR FIREMEN.**

with the hand—in the same manner that a mattress is filled; sew up the mouth, and quilt edge, bottom, and top, and also through the middle, with coarse shoe thread; fasten the cushion on the bench and fill the two front corners with cotton, and force the pad into the cushion. If not full enough, lay hair on top of the pad, and while sewing the mouth up, lay a little hair between the pad and facing; draw in tufts level with the top of facing. A cushion stuffed in this way must be comfortable to sit on, and it will keep its shape if the pad is properly filled and quilted; all with no thanks to our venerable stuffing stick.

Another way, and one that is quick for stuffing a cushion, is: Make the cushion with plain top, and when ready to stuff, fasten it on the bench, leaving mouth large enough to get the arm in. Commence filling the top first, using the hand. When a few layers are in, go to the bottom and fill that in the same way, but keep the top stuffing ahead. Continue this until the cushion is filled. It may be that the stuffing wire will be needed at the back corners, but only there. This is a much quicker and smoother way of filling a cushion than the old method.—*The Carriage Monthly.*

**The Oregon Salmon Fisheries.**

From the annual report of the Oregon Board of Trade we learn that the salmon catch of the past spring and summer has exceeded anticipations, yielding 530,000 cases. In 1875 a catch of 231,500 cases was considered enormous; 1877 yielded 400,000 cases, and 1879 as many as 435,000 cases. This rapid increase shows the vast extent and financial value of the Oregon salmon fisheries. Of the half million and more cases packed this year, 211,522 cases were sent to San Francisco, and 239,241 cases were shipped direct to Great Britain.

**Growth of Inventions.**

"Confound those ancients, they always get hold of one's best ideas." As it has been found in literature so in science, and the disappointed inventor, tumbling for the twentieth time over an anticipation of his cherished scheme, is tempted to redeclare that there is "nothing new under the sun," and that all is vanity and vexation of spirit. We give a few interesting examples of clear theoretical, if unpractical, anticipations of a notable modern discovery.

Professor Stanley Jevons, ten years ago, found allusions to a magnetic telegraph running through many scientific or quasi-scientific works of the sixteenth and seventeenth centuries. The poet Addison speaks of "a chimerical correspondence between two friends by the help of a loadstone." Sir Thomas Browne, in his "Pseudodoxia Epidemica," says: "The conceit is excellent, and if the effect would follow, somewhat divine;" and he speaks of it as a conceit "whispered thow the world with some attention, credulous and vulgar auditors readily believing it, and more judicious and distinctive heads not altogether rejecting it." Sir Thomas, it would seem, submitted the matter to experiment, but found that although the needles were separated but half a span, when one was moved the other would stand like

Hercules' pillars. Joseph Granville, in his "Scepisis Scientifica" (1665), discusses the objections of Sir Thomas Browne, and concludes that "there are some hints in natural operation that give us probability that is feasible." Glanvill, more than 200 years ago, said: "Though this pretty contrivance possibly may not yet answer the expectation of inquisitive experiment, yet 'tis no despicable item that by some other such way of magnetic efficiency it may hereafter with success be attempted, when magical history shall be enlarged by riper inspections; and 'tis not unlikely but that present discoveries might be improved to the performance." The earliest book in which Mr. Jevons found allusions to a magnetic telegraph is the "Natural Magic" of Baptista Porta, published in 1589. In the seventh book he describes the "wonders of the magnet," saying in the preface, "I do not fear that with a long absent friend, even though he be confined by prison walls, we can communicate what we wish by means of two compass needles circumscribed with an alphabet." In the eighteenth chapter of the same book he describes the experiment of putting a magnet under a table, and moving thereby a needle above the table. This experiment, as Porta remarks, was known to St. Augustine, and an exact description will be found in his "De Civitate Dei," a work believed to have been begun A. D. 413. It seems probable that this passage in St. Augustine suggested the notion either to Porta, Bembo, or some early Italian writer, and that thus it came to be, as Sir Thomas Browne says, "whispered thow the world." Mr. William E. A. Axon refers to the passage in Strada, in which he supposes the loadstone to have such virtue that "if two needles be touched with it, and then balanced on separate pivots, and the one be turned in a particular direction, the other will sympathetically move parallel to it. He then directs each of these needles to be poised and mounted on a dial having the letters of the alphabet arranged around it. Accordingly, if one

person has one of the dials, and another the other, by a little prearrangement as to details, a correspondence can be maintained between them at any distance by simply pointing the needles to the letters of the required words."—*Design and Work.*

**An Automatic Fire Extinguisher.**

An engineer in the Brooklyn Fire Department has invented an automatic fire extinguisher, which was recently tested as follows: An experimental shed was half filled with barrels of shavings and chips. Near the roof was an iron pipe for the conveyance of water, to the end of which was attached a bulb perforated with numerous holes. In the center of the bulb was a cartridge, held in position inside a plug, to prevent the water from flowing, and on the outer side was a telegraphic attachment. The inflammable material having been lighted, in thirty five seconds the fuse of the cartridge became ignited, resulting in the explosion of the cartridge. This released the plug in the bulb, allowing the water free course, and at the same time released the telegraphic attachment and sounded an alarm on an instrument at a distance. The experiment was in every way satisfactory, as the fire was extinguished without damage to the shed.

**The Baking Powder Controversy.**

Shortly after the publication in this paper of the valuable report on alum in baking powders, by Dr. Henry A. Mott, Jr., a bitter attack upon Dr. Mott's professional character was made by the editor of the *Spice Mill*. Suit for damages for libel was brought by Dr. Mott, in the Superior Court of this city, and a verdict in his favor was given October 16. The damages awarded were \$8,000, to which the court added an allowance of \$150.