

forms. The sculpins of the Atlantic seaboard rest under a ban. They are usually thrown away and have no market value, in fact, are never offered for sale. Their extraordinary appearance, horns, barbels, large fiery eyes, strange coloring, all create a prejudice in the minds of the observer. On the Pacific coast, on the contrary, they are highly esteemed, and considered, as they rightly are, one of the most delicate of all the food fishes.

The fish and its allies present an extraordinary range of grotesque forms. All are protected in the same way, and many by strange curious barbels which cause them to still more closely imitate the weed in which they lie and in whose imitation lies their safety.

SOME RECENTLY PATENTED NOVELTIES.

From time to time it is our practice to publish brief illustrated descriptions of patented devices, which, by reason of the exceptional simplicity that characterizes their construction or the rare mechanical skill dis-

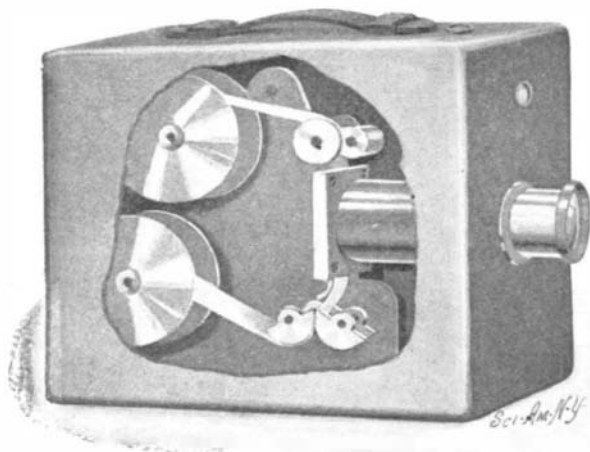


Fig. 1.—IMPROVED FEEDING FOR MOVING PICTURE FILMS.

played by their inventors, have doubtless been found of interest by our readers. We have, therefore, selected a few inventions which, from their novelty or ingenuity, deserve more than a passing notice.

The sensitized film employed in moving-picture cameras is usually perforated along its edges and is fed by catch-hooks or revolving pin-wheels which engage the holes in the strip. Sometimes these holes are torn out, and sometimes they fail to catch the feeding pins. The negative produced is thereby distorted and perhaps destroyed. In an invention patented by William V. Esmond, the strip is not perforated, and is not fed by the ordinary means. From the main reel the film passes between two guide-rollers downward upon a

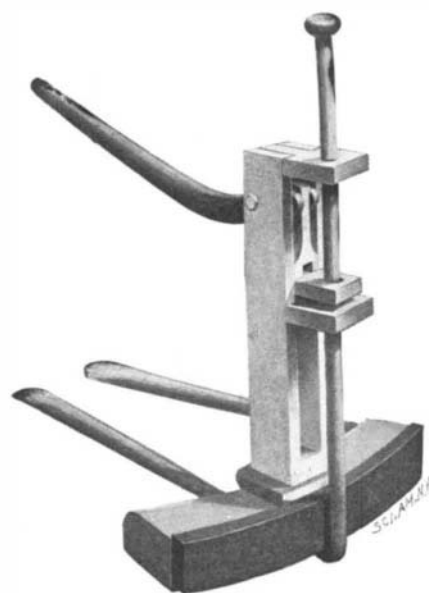


Fig. 2.—TIRE-REMOVER.

sustainer-plate, which is mounted in the focal plane and which serves the purpose of keeping the film smoothly extended during the period of exposure. The film is fed by mutilated rolls, which bite and advance the interposed strip only during the period when the unmutated or full portions of the rolls confront each other. The feed-rolls and shutter of the camera are driven in unison.

In order easily to remove tires from wheels, Mr. Bradford M. Buckland has invented the tire-remover shown in Fig. 2. Between two posts, mounted on a base plate, a lever is journaled, the outer forked end of which, through the medium of a link, is connected with a clutch. Through an opening in the clutch a rod passes, the lower end of which is bent. The wheel is laid flat upon the hub; the device is placed on the felly; the lower bent end of the rod is made to engage the edge of the tire, as shown in the illustration; the lever is forced down, and the clutch is made to grip the rod and lift the tire as the lever is depressed.

Our third illustration represents a wrench provided with novel means for adjusting the jaws to the nut to be turned. The jaws slide on a central rod inclosed in a sleeve and provided at its ends with screws which co-act with the jaws. The screws are fitted with handles. From the sleeve a spindle projects, upon which a handle is swiveled. The swiveled handle is held in

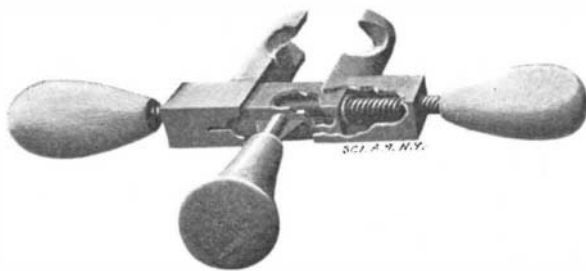


Fig. 3.—A NOVEL WRENCH.

one hand, and either of the other handles is turned, so as to adjust the jaws to the nut. The handles on the screws are used to turn the wrench upon the swiveled connection with the other handle.

A very simple means of extinguishing the candles of Christmas trees is the subject of an invention patented by Martin Hagan. At its upper end the candle carries a plate, which moves downwardly as the wax burns away. The plate is provided with a doubly-bent arm, each member having a slot through which a vertical guide-rod extends, forming part of the candle holder. To the upper member of the doubly-bent arm a combined reflector and extinguisher is hooked which has a downwardly projecting arm sliding on the guide-rod. As the wax burns away, the plate on the candle moves down, carrying with it the reflector and extinguisher. When the candle is nearly burnt away, the arm of the reflector and extinguisher strikes the bottom of the guide, so that as the candle-plate moves down still further, the combined reflector and extinguisher drops on the wick. The hooked upper end of the guide-rod serves the purpose of carrying a shield to prevent the flame from igniting the upper branches of the Christmas tree.

Fig. 5 explains itself. The back-piece and base, which constitute the shelf there pictured, are each provided with a series of holes which receive the downwardly bent ends of wires serving as partitions. It is

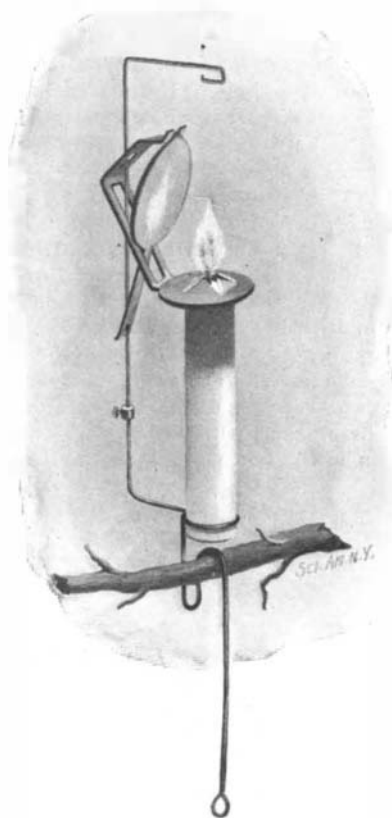


Fig. 4.—A COMBINED REFLECTOR AND EXTINGUISHER FOR CHRISTMAS-TREE CANDLES.

evident that the wire can be made to divide the shelf into spaces of any desired size.

The last of the inventions illustrated is a process of puddling iron, devised by Mr. James P. Roe. The molten metal has, as a general rule, been agitated by hand, entailing the most exhausting labor on the part of the puddler. In this invention pig-iron is converted into wrought-iron by causing a mixed charge of molten cast-iron and cinder to flow back and forth in the presence of hot gases, and by abruptly arresting the flow of the charge before each change in direction until the iron comes to nature. The oscillation and the abrupt stoppages are continued until the particles of purified iron are compressed and solidified. In carrying out the process, a hearth is employed which is provided at each end with a chimney, and is rocked by a rack and pinion mechanism, so that the iron and cinder can flow by their own weight from end to end of the hearth.

Harmless Sugar Colors.

The following receipts, says *Deutsche Drogisten Zeitung*, do not conflict with the food law, and give very handsome colors for sweetmeats and other edibles.

Red.—Mix cochineal, burnt alum and purified potash, 1 part each, and cream of tartar, 2 parts, all finely powdered. Grind with water according to need and concentration, let stand alone for some hours with stirring, and filter.

Blue.—Indigo carmine in pulp and enough water to obtain the desired shade.

Yellow.—Saffron 1:10 diluted spirit of wine — 0.7+8. Treat the saffron after the pressing once more with diluted spirit of wine, 5, and mix both extracts. For cheaper sweetmeats—tincture of turmeric, 1:5.

Green.—Mix yellow and blue.

Orange.—Mix yellow and red.

Also, aniline colors free from arsenic.

The Builders of Our New Battleships and Cruisers.

The Board of Construction has recommended the distribution of contracts for battleships and armored

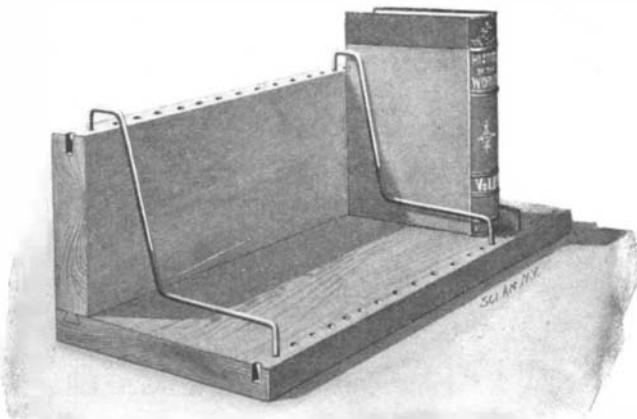


Fig. 5.—A DIVISIBLE BOOK-SHELF.

cruisers among the shipyards of the country, as follows: Fore River Engine Company, Quincy, Mass., two unsheathed battleships for \$6,810,000; William Cramp & Sons, Philadelphia, Pa., one sheathed battleship, one sheathed armored cruiser, and one unsheathed armored cruiser, \$11,270,000; the Newport News Company, of Newport News, Va., one sheathed battleship, one sheathed armored cruiser, and one unsheathed armored cruiser, for \$11,253,000; the Bath Iron Works, Bath, Me., one sheathed battleship, \$3,590,000; Union Iron Works, of San Francisco, Cal., one sheathed armored and one unsheathed armored cruiser, for a total contract price of \$7,550,000.

The Current Supplement.

The current SUPPLEMENT, No. 1304, is very interesting. "The Looting of the Pekin Observatory" is accompanied by a number of illustrations of the bronze

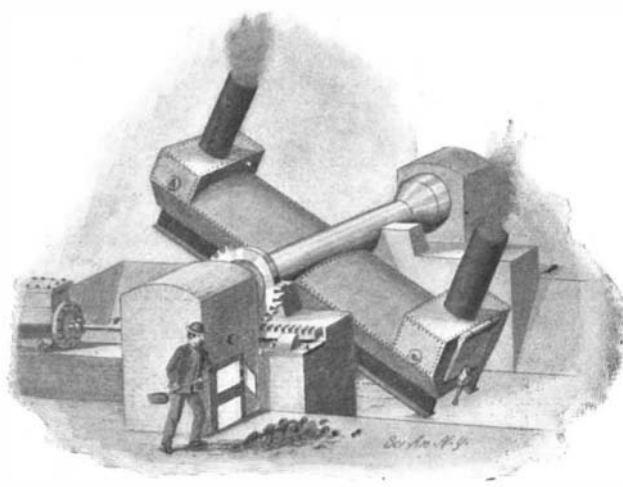


Fig. 6.—OSCILLATING HEARTH.

astronomical instruments of the thirteenth and seventeenth centuries. "Recent Discoveries in Crete" describes the uncovering of the "Ancient House of Minos." "New and Simple Method of Making Telescopic Objectives" is continued and is accompanied by working drawings. "French Locomotives at the Exposition of 1900" is continued and is accompanied by a number of engravings. "Wireless Telegraphy" describes the Popoff, Righi and Marconi devices.

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