

A NOVEL POCKET CAMERA.

Within the past few years the development of compact, light miniature cameras, easily operated yet capable of producing clear, distinct pictures, has been nearly as remarkable as the perfection of the bicycle. Inventors have studied the problem of making a camera so simple in its working parts that it cannot readily get out of order, yet will be so easily understood as to enable any person who may have had no previous knowledge of photography to make satisfactory pictures. In presenting illustrations of the little camera named "The Pocket Presto Camera," we show a novelty and simplicity of construction which speaks for itself, and an illustration of the actual size of one of the pictures made with it. As will be seen in the larger lower view, the camera consists of an elliptical shaped sheet metal body about three inches long, having the front end square. The cover is made of one piece of metal and is put over one side of the camera, occupying the bottom when in position, the outer lip of the cover overlapping the outside of the camera, as may be seen in the illustration, while an inner concentric lip or projection on the inside overlaps the inner edge, thereby forming a light-tight joint. By such construction the interior (see the upper right hand view) is readily accessible for loading or unloading.



THE POCKET CAMERA PICTURE, ACTUAL SIZE.

Another feature is that it is a roll holder and plate camera combined; the triangular shaped portion observed in the view just mentioned is made of metal and holds near its apex a wood spool around which the exposed film is wound after passing from a special pocket in which it is placed when loading over the straight or focal plane portion, the arrow indicating the direction of the revolution of the spool. A small hole in the face of the end of the spool engages a pin projecting from the underside of the rotating disk, and the center hole of the spool fits over another pin around which the spool rotates. The rotating disk will be noticed on the rear of the outside of the camera in the larger view and has convenient outward projections for the fingers to push against in making a revolution. It is also provided with four detents which fit over slight projections arranged at each quarter of a circle, so that a slight click is heard as each quarter turn is made. The camera is supplied loaded with sufficient film to make twenty-five pictures, but has a capacity for fifty. In rotating the spool of film the disk is turned half a revolution or until two clicks are heard. If it is desired to use plates, the film holder is removed in the usual dark room and a square shaped metal box holding a miniature glass plate on each side, four in all, is slipped over the same pins that secured the film holder. The view of this is seen in the upper left hand corner. Tongue-shaped flat springs press the plates outward as they are slipped into the grooves. When in position and the cover replaced, the camera is loaded with four plates, and it is only necessary to rotate the large disk one-quarter of a revolution to bring a fresh plate into the focal plane. Located behind the lens is a vertical plate with a rectangular aperture to cut off the marginal rays of the lens. The miniature lens is held in place by a flat spring and is adapted to be easily removed for the purpose of cleaning when necessary. The shutter directly in front of the lens is of a gravity, pivoted, segmental type, works freely and has no springs to get out of order. The operation of setting the shutter is very simple. The larger illustration shows the method of making the exposure. The rotating diaphragm disk on the front contains three openings for instantaneous and time work, and has detents and projections for stopping it at the right place and for turning similar to the film-rotating disk. The pocket device for holding the film is quite simple and ingenious, but its working need not be explained here.

Suffice it to say there has seldom been a camera made which has such a large capacity confined in so small a space and one that cannot become disarranged by rough handling. In addition to this the price is so

reasonable that any lad or lass can afford to have one, while the pleasure it will give to hundreds who never thought of taking photographs cannot be estimated.

The sole manufacturer of this camera is Mr. E. B. Koopman, 33 Union Square, New York City.

A Battleship Turret Tested to Destruction.

A trial was made last week at the Indian Head proving grounds to determine whether the internal structure of the turrets of our battleships would properly support the 15 inch armor when it was struck by a shot from the heavier guns. When a 13 inch shot strikes a turret, its 36,000 foot tons of energy are partly resisted by the dead weight of the turret, and partly by the clips which hold it down upon the turntable path on which it revolves. The blow also tends to burst in the particular plate upon which it falls, and this has to be resisted by the plate steel framework upon which the armor is built up. The turret, for the purpose of the trial, was placed upon a solid horizontal platform and rested upon large steel cylinders, representing the rollers upon which it rests when on ship.

Three shots were fired, with the following results: A 500 pound shot from a 10 inch gun struck the 15 inch plate near the top with a velocity of 1,700 foot seconds, penetrated six inches, and broke up. The framing was uninjured.

A 12 inch shot, with 1,700 foot seconds velocity, also broke up, the point remaining welded in the plate. The framing to the rear was uninjured, but one bolt holding the armor plate was sheared off, and the plate was cracked from top to bottom. The plate was not moved from its place upon the structure; but the entire turret was moved seven inches to the rear.

A 12 inch shot with 2,000 foot seconds velocity pierced the 15 inch steel plate, the backing, and the framework, and passed through the entire turret, smashing the cast iron plate on the rear face. The framework "was torn and twisted in all directions in the vicinity of the place of impact." The whole turret was again moved bodily to the rear, this time about six inches.

The results are considered to be satisfactory both as regards the 12 inch gun—which is the type to be mounted on the Iowa—and as regards the turret, which is the same as those on the Indiana. It is considered that the turrets would have furnished good protection to the guns and crew within it, and that the holding-down clips which are used in actual service would have proved amply sufficient to keep the turret in place.

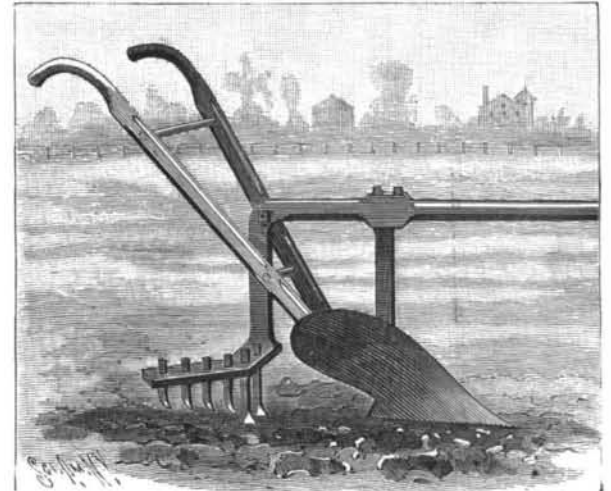
Work with the Electric Furnace.

Prof. Dewar in a recent lecture at the Royal Institution paid tribute to the work of M. Moissan with the electric furnace. M. Moissan was indeed the pioneer in the work of research comprised in the combination

combination of lime and coal in the electric furnace; second, the decomposition of the resulting carbide by water; and, third, the transformation into benzene of acetylene gas by means of heat.

A SUBSOIL AND HARROW PLOW ATTACHMENT.

The accompanying illustration shows a plow attachment, for which a patent has been granted to Tom M. Bowers, of Crockett, Texas. It will be seen that the share and handles may be of ordinary construction. The beam is extended to the rear and bolted to the left handle, where it is provided with a vertically depending portion, at the bottom of which is firmly fixed a laterally projecting wing. From the point of its attachment to the vertical bar the wing projects across the furrow at right angles to the same,

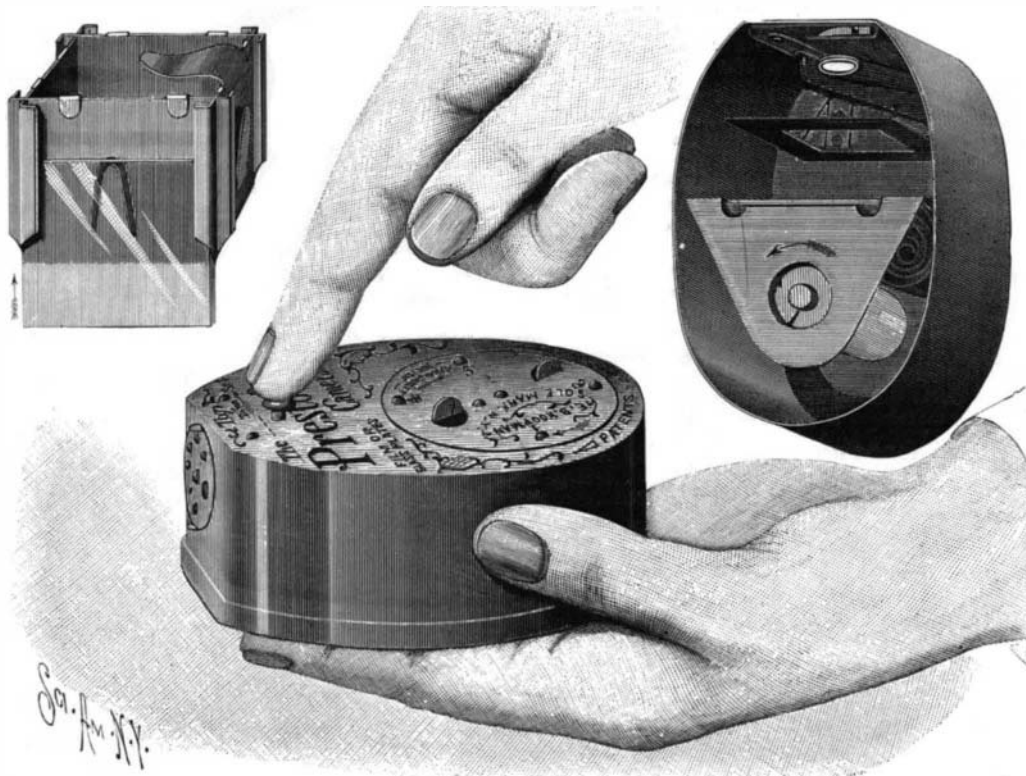


A SUBSOIL AND HARROW PLOW ATTACHMENT.

and it is then inclined rearwardly, as will be seen in the illustration. The beam, with its horizontal and vertical extensions and the projecting wing, may be made in separate parts, or integrally, as desired. The wing is slotted to receive six teeth. Two of these, which are intended for subsoiling, are made of extra length and are arranged immediately behind the share and next to the vertical extension of the beam. They are flattened out at the toe, so that they may the better loosen up the deeper soil, and tend to create underground drains, in which the surplus water may collect and be carried off. In dry weather, moreover, the loosening up of the subsoil will enable it to retain the moisture for a longer period. The harrow teeth are made of different lengths, gradually decreasing toward the outer end of the wing. The object of the invention is to secure the advantages of plowing, subsoiling and harrowing in one machine, and it is claimed that by arranging the devices for the latter work as shown the three operations are thrown into one and the draught upon the plow is but slightly increased as compared with the great gain in time and labor.

EXPERIMENTS have been carried out by Bruttini on the subject of the influence of salts on the sprouting of seeds and the results are thus described by Prometheus: "The experiments were tried in the following manner: Fifteen seeds were placed for twenty-four hours in solutions of 1 to 2 per cent of different salts, and then compared, in respect to germination, with fifteen other similar seeds kept for the same time in pure water. At the end of four days all these last had sprouted, while the others gave variable results. With potassium nitrate the fifteen seeds sprouted in equal degree, while with mercuric chloride not one sprouted. Sodium chloride exercised a marked injurious effect, and so did potassium phosphate, while potassium permanganate had only a very weak effect. Chloride of iron in a two per cent solution destroyed all germination; with a one per cent solution only two of the seeds sprouted."

It is expected that Sir William Martin Conway's expedition to Spitzbergen will occupy altogether about three months. The arrangements are not settled yet, but it is probable that the party will leave this country early in June, and return at the end of September. This practically implies the period of the year during which Spitzbergen is open to the sea. A good deal of interest attaches to the expedition, for at present the interior of Spitzbergen is not well known to us.



THE POCKET PRESTO CAMERA.

at high temperatures of carbon with various elements. Prof. Dewar, referring to the fact that many of the carbides thus obtained are decomposed by water, pointed out that many years ago Prof. Mendeleef speculated that the only way to account for the immense localization of petroleum at Baku and other centers was that it was being continuously generated by the action of water on carbides. This idea was not favorably received at the time, but it has now met with a certain degree of acceptance. Benzene, the product of acetylene, generated by some of the carbides, is the nucleus of all the colors hitherto obtained from coal tar products. Benzene by the acetylene process is reached in three distinct stages. First, the