Manufacture of Glass Beads.

The above manufacture includes turned massive beads, pressed, drawn, and blown descriptions. The first named kind was first manufactured in Venice, and about 200 years ago was introduced into the Fichtelgebirge district of Bavaria. At first the beads for rosaries were the principal articles made, and they are still produced in Bavaria, whence they are exported in quantities to Spain, Portugal, etc. The manufacture is, however, less important than formerly. As an illustration of the scale of production, it is remarked that a workman can make of some kinds of beads as many as 36,000 per day.

In contrast to the heavier Bavarian descriptions come the Venetian productions. These are mostly beads for embroidery. The process of manufacture is a curious one. The glass is drawn into thin tubes and then cut up. The beads are afterward placed in heated drums, where the sharp corners are rounded off. After being rubbed in chalk and charcoal, they are strung together. In Bohemia a kind of bead for trimming is made in a similar manner.

In making the blown or so-called lamp beads, a bellows is employed, with which a paraffine or gas flame is brought to a blowpipe flame. In this process, as carried out in Venice and Thuringia, drawings are made on the glass balls or beads with pointed implements made of glass, and these designs are burnt in by the flame. The deadening process so extensively employed is both chemical and mechanical in its character. In the chemical operation, hydrofluoric acid is used, by means of which the surface of the glass is removed. There was formerly another process used in France which was a secret. A German workman, however, found it out by accident. This is the sand process, which is now used in Thuringia for the operation of deadening.

The manufacture of pressed beads is effected by pincers, of suitable form. The glass is heated on a moderate fire and brought into the mould. In this manner beads and buttons are produced in very effective styles, both plain and colored. Of course the beads have to pass many times through the workman's hands before completion. To this branch belong the amulets, which are sent to the Gold Coast, and are used in various sizes according the rank of the wearer. Originally these amulets were made of agate, but as this substance is eight or ten times dearer than glass, the latter material has been adopted.

The Central German Society of Industrial Art has lately been giving attention to this subject, on which a lecture was delivered by Herr Bettmann, of Frankfort, himself a manufacturer of the articles in question.

A RUSSIAN FLOWER BASKET.

The accompanying illustration gives a good idea of a unique style of flower basket which was shown at the late

A RUSSIAN FLOWER BASKET.

International Horticultural Exhibition at St. Petersburg. It represents what many ladies will consider a great convenience when carrying flowers, as it obviates the necessity of carrying a basket, or of stooping to place the flowers in a basket on the ground, and may be used if desired as a walking stick. The standard of the basket may be stuck into the ground in any convenient place, and moved about as required, while it may be made as light to carry as ordinary sun umbrellas. In fact, the device shown seems to suggest the idea of making the basket so it may be closed up umbrella like.

AN AUTOMATIC FIRE EXTINGUISHER.

The apparatus herewith illustrated, which has been perfected by Mr. Grinnell, of Providence, R. I., and is known as the Grinnell sensitive automatic fire extinguisher, is intended to arrest a fire in its earliest stage by the action of the heat of the fire itself. Although this apparatus has been used extensively in this country for several years, it was but recently introduced in England. The essence of the extinguisher, says *The Miller*, in describing a recent experiment in London, resides in the fact that metal sprinklers, connected with pipes leading to water under pressure, can be closed by solder, which when cold is perfectly capable of holding a previously locked device; and yet which is certain to fuse at a temperature of say 155° Fah. To protect any building from fire by this extinguisher, lines of small pipe are carried through the building near the ceilings, and from eight to ten feet apart; these are all connected with a larger pipe leading from the public water main, or any source of supply that will keep the water in the pipes under pressure. Should a fire start at any point the heat an once rises to the ceiling, where the temperature is very soon raised sufficiently to melt the solder, which then releases the valve, and the water is profusely distributed on the fire.

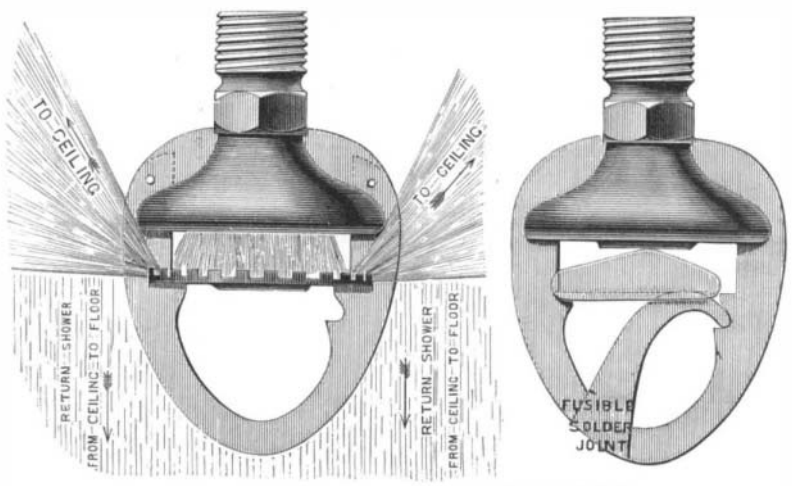


Fig. 2. GRINNELL'S AUTOMATIC FIRE EXTINGUISHER. Fig. 1.

Fig. 1 shows the sprinkler closed; Fig. 2 shows it in action. The base of the extinguisher is formed by a thin metallic diaphragm, capable of yielding to the internal water pressure, and in the center of which is an opening through which the water is discharged. Around the opening is the valve seat, the valve being a disk of soft metal held in a circular brass plate, which has a toothed edge and acts as a deflector, by which the stream of water is cut into spray and distributed on both ceiling and floor. The valve is held against the seat by a pair of compound levers, one of which bears centrally on the deflector. Both levers fulcrum on a thin brass yoke secured to the body of the extinguisher, and the long arm of the second lever is secured to the yoke by the fusible solder.

When the heat of a fire softens the solder joint between the second lever and the yoke, the diaphragm, with its valve seat and the valve, moves a sufficient distance to completely sever the joint before the water can escape to cool it. The levers are thrown from the yoke; the deflector is forced from the opening to the notches which form the fulcrums that held the levers, and the deflector is in the position shown in Fig. 2.

The system includes an alarm gong or whistle, that works simultaneously with the fire extinguisher, and thus calls attention to the fact that a fire has started somewhere in the building. The test is thus described by our contemporary: "The flooring of a light wooden shed, 30 feet by 20 feet, which was fitted with a system of piping and six jets, was covered with wooden shavings, which were in a moment kindled into a fire that threatened the whole structure with speedy destruction. The flames, however, had not raised their head for more than half a minute before the extinguisher began to rain down a shower that in fifteen seconds left no other trace of the fire beyond some blackened bits of shavings. We left the scene with the conviction that the Grinnell automatic extinguisher is a most powerful weapon against fire, and that it deserves the closest attention of millions."

Test for Sulphite of Soda.

By the use of sulphite of soda in the pyro developer, negatives of a superior color and quality are produced. The purity of the soda is quite important, and a simple method of testing a given quantity has been recently suggested in the *Photo. News* as follows:

The best method of testing a sample of sulphite is to add nearly sufficient of a strong acid to convert the salt into bisulphite, and to notice if any effervescence occurs. If effervescence takes place, carbonate of soda is present, and the sample of sulphite should be rejected.

To be more exact, first put 4 drachms of the sodium sulphite into a glass flask; add 6 fluid drachms of water, and heat gently, so as to cause the salt to dissolve. Allow the solution to cool down to about 85° Centigrade, and add a mixture of 1 fluid drachm of strong hydrochloric acid and 2 fluid drachms of water. The slightest effervescence or the formation of minute bubbles of gas on the sides of the flask will indicate the presence of carbonate in the sulphite.

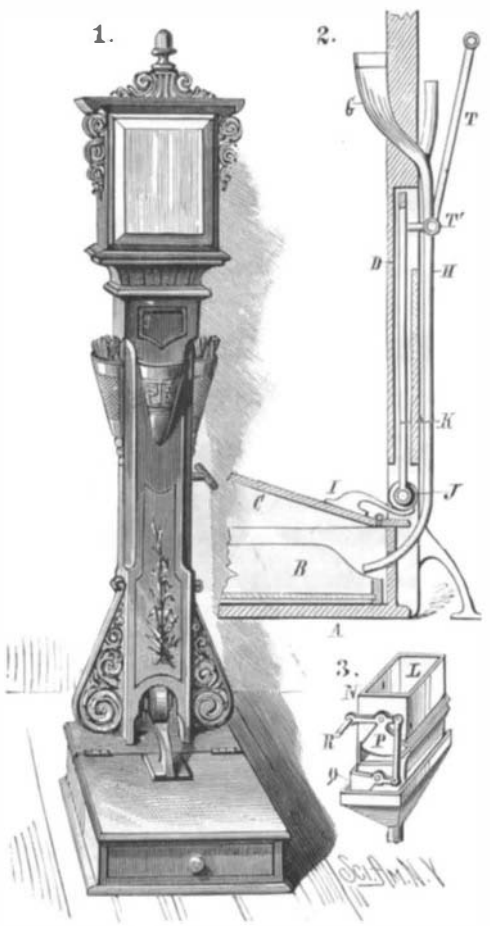
Gas from Seaweed.

In the course of a lecture on the "Economic Applications of Seaweed," recently delivered before the Society of Arts by Mr. Edward Stanford, F.C.S., the lecturer spoke of the establishment in the Hebrides of works for the recovery and treatment of seaweed. The principal product sought to be made in these works was iodine; but, in the process, the weed was calcined in retorts, and the works were lighted by the gas produced during distillation. It was stated, however, that, owing to the presence of salts of sodium, the gas after passing through a series of purifiers still burnt with a strong monochromatic yellow flame. Iron retorts, heated by coal or peat, were first used, but have been superseded by brick ovens. The tangle weed swells in the oven, and produces a very light and porous charcoal, without sulphides, from which the salts are easily washed out. This charcoal is more like animal than wood charcoal. Ammonia is collected from the distillate, and is used on the farm attached to the works, and the tar is utilized on the roofs, etc.

CUSPIDOR STAND.

This is a useful and ornamental device, and, as represented in Fig. 1, entirely conceals the purpose for which it is designed, except as that might be in part apprehended from the lighters or matches in the receptacles at either side, or the ash receiver at the front of the stand, which is tastily designed, with a mirror in the top. The principle on which this cuspidor stand is constructed will be readily understood by an examination of the cross sectional elevation in Fig. 2, where may be seen the box, A, drawer, B, with hinged cover, C, the latter operated by the curved arm, I, through the roller, J, and the rod, K, sliding vertically in the standard, D, the rod, K, having a projecting arm, T', with a connecting rod, T, pressing down on which opens the cover. At the back of the top of the standard is hung an ingeniously contrived sand box, shown in Fig. 3, formed of two troughs, the upper one of which is shown at L, and both secured on a plate, N. These sand troughs have end pieces, P and Q, connected by a bar and operated by a handle, R, with which the rod, T, may also be connected when it is desired to cover with sand the expectorations in the box, B; the sand from the sand box, as also the ashes and other deposits from the cup, G, flowing down the tube, H. The drawer is supposed to always contain a portion of sand, sawdust, or some similar material, and of course permits of as frequent change as desired; while, for use in a sick chamber, the sand may be mixed with any approved disinfectant.

For further information relative to this patent apply to



SCHEIDLER'S CUSPIDOR STAND.

Mr. Andrew A. Scheidler, of No. 103 West 56th Street, New York city.

A LOCAL paper of Dakota is responsible for the following: A Dakota farmer in 1881 planted a single grain of spring wheat and from it grew twenty-two stalks, each bearing a full head of wheat, yielding in all 860 grains of wheat; 760 of these were planted the next year, producing one-fifth of a bushel of splendid wheat. This was planted last spring, yielding seventeen bushels, making 1,020 pounds of wheat from one grain in three years.