Funeral Ceremonies in Paris.

In all countries death and the ceremonies of burial are sad and repulsive. In France, perhaps, decency is observed as well as in any country, thanks to the excellent organization of the Compagnie des Pompes Funebres, which forms, so to speak, the administration of all the churches in Paris, exercising on their behalf the monopoly of funeral ceremonies. This company, whose monopoly is regulated by law, is a vast enterprise, possessed of exceptional resources, an immense number of horses and carriages, a numerous and well disciplined personnel. Every year it takes charge of about fifty thousand funerals, about half of which are those of the poor. Thanks to this enterprise, even the poorest citizens are buried with some show of decency and in conformity with strict rules. The administration of the Pompes Funebres is situated in Paris in the Quaie d'Aubervilliers. It is a big, heavy, white stone building, built round a vast glass-roofed court yard. To the right and left of the entrance doors are the offices of the director and the bookkeeping department. In the court yards are the store rooms, the stables, the coach houses, and the harness rooms. Everything is black, somber, and silent; everything is rigorously numbered and ticketed, classified, and arranged for immediate use. The porteurs, or bearers, commonly called *croquemorts*, have a big room furnished with oak benches, where they assemble every morning, four hundred in number, to await orders—gloomy, serious, clad in various styles, some with blouses, but most of them in jackets. Over this room are other rooms with cupboards running down the middle in double rows. Each cupboard is numbered and fitted with a lock, the key of which the correspondingly numbered *croquemort* keeps. In these cupboards are kept the uniforms of the bearers, who dress before going out on service and undress when their service is over, only wearing their regulation costume while on duty. The masters of ceremonies have each a private room to dress in. Their uniform consists of a cocked hat, coat, knee breeches, silk stockings, buckled shoes, a court sword, and a wand. This personage is paid by the day, so much for each funeral. His duty is to arrange the procession in proper order, to fix the order of the precedence among the mourners, and to start the funeral.

Beneath the vast building of the Pompes Funebres are cellars dimly lighted with gas jets and full of rows and rows of coffins of all sizes and qualities. This cellar contains a stock of fifteen thousand coffins ready for use, varying in length from six feet two and one-half inches down to twenty-seven and one-half inches, which are the regulation maximum and minimum sizes of dead French humanity. For persons taller than six feet two and one-half inches a coffin has to be built on purpose, and to order. On one side of the cellar are the lead coffins, and in one corner a stock of square boxes in which coffins are packed for traveling by rail or steamer without attracting attention. Near the door of the cellar are some huge coffins, with a circumference of six to nine feet, destined for the accommodation of very obese corpses. Likewise near the door are thirty hand-carts of peculiar form, on two wheels, painted green and lined with black. These carts are used only when some terrible epidemic is decimating the population. The price of the coffins, of the inner lining, and of the covering pall, are all regulated by an immutable tariff. In 1870, during the siege, the little hand-carts, painted green and lined with black, had to serve universally as hearses, for all the horses had been killed for food.—*New York Mail and Express.*

Friction of Steam Engines.

According to recent experiments of Dr. R. H. Thurston, the friction of a Sweet straight line engine, cylinder 6 inches by 12 inches, rated at 20 horse power, without load and with ordinary slide valve, was 12 per cent of the rated power. When arranged with a balanced valve, the friction was 9 per cent of the rated power.

A Lansing high speed automatic engine, with cylinder 12 inches by 18 inches, rated at 100 horse power, the friction without load was found to be 8·88 per cent of the rated horse power.

A traction engine, locomotive type, with cylinder 7 inches by 10 inches, rated at 20 horse power, the friction without load was found to be 9 52 per cent of the rated horse power. In a condensing engine with cylinder 21 inches by 20 inches, being part of a compound engine, the low pressure cylinder indicating 71 horse power, the friction without load was 7 horse power, or 10 per cent of the indicated power.

In conclusion he remarks that it may be fairly conceded, after many years of engineering opinion to the contrary, that the friction of engines, loaded or not loaded, is nearly a constant, variable only with the condition of lubrication, and slightly only with great variations in speed. The friction of unbalanced valves was found to be about one-third of one per cent of the gross friction, and of the balanced valves about 0·025 of one per cent of gross friction.

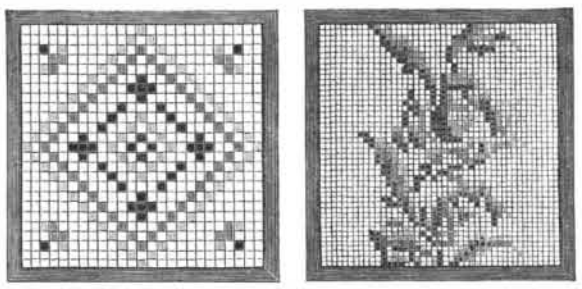
And finally that, in the various makes of engines tested, the maximum cofficient of friction may rise to 20 per cent of the indicated power, or fall to less than one per cent in the best engines.

METHOD OF PRODUCING DESIGNS ON WIRE CLOTH.

BY GEO. M. HOPKINS.

An experiment showing a phase of capillarity is illustrated by the annexed engravings. This experiment was originally intended for illustrating tapestry and other designs formed of small squares, in colors, upon the screen; but it has another practical application, which is capable of considerable expansion. For projection, a piece of brass wire cloth, of any desired mesh, say from 12 to 20 to the inch, is mounted in a metallic frame to adapt it to the slide holder of the lantern, and the wire cloth is coated lightly with lacquer and allowed to dry.

The slide thus prepared is placed in the lantern and focused. The required design may now be traced by means of a small camel's hair brush, colored inks or aqueous solutions of aniline dyes being used. The small



METHOD OF PRODUCING DESIGNS ON WIRE CLOTH.

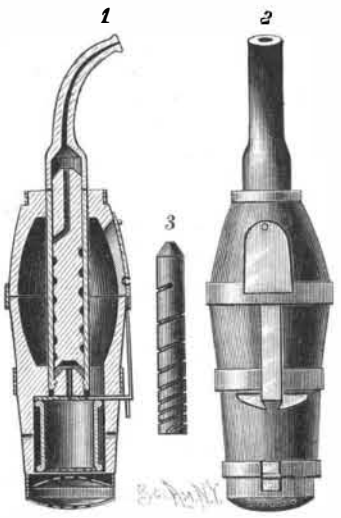
squares of the wire cloth are filled with the colored liquid, and show as colored squares upon the screen. Different colors may be placed in juxtaposition without liability to mixing, and a design traced without special care will appear regular, as the rectangular apertures of the wire cloth control the different parts of the design.

The colored liquid squares are retained in the meshes of the wire cloth by capillarity. A damp sponge will remove the color, so that the experiment may be repeated as often as desired. In this experiment the colored squares have the appearance of gems.

These designs may be made permanent by employing solutions of colored gelatine; but in this case the squares are so small that they are not very effective without magnification. Really elegant designs may be produced in this way for lamp shades, window and fire screens, signs, etc. The mesh of the wire cloth should be quite coarse, say 10 to the inch. The wire cloth is supported a short distance from a design drawn on paper, and the different colors are introduced into the meshes by means of an ordinary writing pen. The gelatine solution should not be very thick, and it must be kept warm. Ordinary transparent gelatine may be colored for this purpose by adding aniline. Colored lacquers answer admirably for filling the squares. The beauty of this kind of work and the simplicity of the method by which it is produced recommend it for many purposes.

AN IMPROVED TOBACCO SMOKING PIPE.

The accompanying illustration represents a pipe designed to prevent the nicotine and other unhealthy substances from entering the smoker's system. It has been patented by Mr. George F. Colquitt, of No. 906 Walker Street, Denison, Texas. The pipe has an oval shaped barrel surrounding the central tube, as shown in Fig. 1, for the storage of tobacco, the tobacco being introduced by an outside door, shown in Fig. 2, while immediately beneath this door is a gate, closed by a spring bar, by means of which the tobacco is admitted to the combustion chamber below, having a perforated bottom. A tube is held centrally in the barrel, the pipe stem being held in this tube, a spiral groove being cut on the stem, as shown in Fig. 3, leading to a central aperture in the upper part of the stem, opening at the top into the mouth piece. The tobacco in the barrel is separated from that in the combustion chamber by the spring gate, after sufficient has been allowed to pass down, and fire is communicated through an opening in the bottom cover. In smoking, the nicotine will be mainly deposited on the conical end of the plug in the lower part of the central tube, while the smoke travels a long distance around the spiral groove before it reaches the smoker's mouth.



COLQUITT'S TOBACCO PIPE.

The Sacredness of Seven.

A writer in the *Agricultural Implement* has been studying over the mystical number seven, and concludes that it is undoubtedly the sacred number. There are seven days of creation; after seven days' respite the flood came; the years of famine and plenty were in cycles of seven; every seventh day was a Sabbath, every seventh year is the Sabbath of rest; after each seven times seven years came the jubilee; the feasts of unleavened bread and the tabernacles were observed seven days; the golden candlestick had seven branches; seven priests with seven trumpets surrounded Jericho seven times and seven times the seventh day; Jacob obtained his wives by servitudes of seven years; Samson kept his nuptials seven days, and on the seventh day he put a riddle to his wife, and he was bound with seven green withes and seven locks of his hair were shaved off; Nebuchadnezzar was seven years a beast; Shadrach and his two companions were cast into a furnace heated seven times more than it was wont. In the New Testament nearly everything occurs by sevens, and at the end of the sacred volume we read of seven churches, seven candlesticks, seven spirits, seven trumpets, seven seals, seven stars, seven thunders, seven vials, seven plagues, seven angels, and a seven-headed monster.

Ventilating Our Homes.

An old writer says: "When men lived in houses of reeds, they had constitutions of oak; when they live in houses of oak, they have constitutions of reeds."

Evidently the truth inculcated is that the better the air and more bountiful its supply, the healthier is the inmate of a house, be it palace or cottage. Too often the very wealth of a house builder militates against his splendid mansion becoming that ideal home of comfort that it should be, and the inmate of some wretched, leaky little hovel, perched on a rocky hillside, will have every advantage over such a one as regards vigor of body and elasticity of spirits.

Science tells us that there is a needed respiration for the walls of our houses, and that, fortunately for us, whether conscious of it or not, the materials of which our modern houses are made admit of the passage of air in a greater or less degree. Brick, stone, wood, and mortar, solid as they look to us, are easily pierced by that volatile fluid which we call air.

Such is the elasticity of air that, fortunately for us, a slight force only is needed to put and keep it in motion. The difference of 20° Fahrenheit in temperature between outdoor air and indoor air will cause the passage of about eight cubic feet of air each hour through every square yard of wall surface made of brick. A plastered wall also admits of the free passage of air, and actually serves as an efficient filter by arresting the progress of dust or any of those particles—often injurious—with which the atmosphere is laden.

Heat is the great motor for ventilation, whether natural or artificial, and the great problem in winter is to introduce a sufficient quantity of pure warmed air to make one's room comfortable without attendant draughts that shall imperil the health of their occupants.

Open fireplaces, whether the fuel consumed in them be wood or coal, are among the very best ventilators that we have, and yet the question of expense is bringing them more and more into disuse. But there is no need to be discouraged on that score, because the eyes of all practical people are being opened to the importance of combining the twin forces of heat and ventilation in such a manner as shall tend, in the future, to prolong life as well as render it more comfortable and enjoyable.—*N. Y. Fashion Bazar.*

Easy Experiment in Chemistry.

The *Practical Teacher* gives the following simple experiment in chemistry, which any child can try:

Cut three leaves of red cabbage into small pieces, and, after placing them in a basin, pour a pint of boiling water over them, letting them stand an hour; then pour off the liquid into a decanter. It will be of a fine blue color. Then take four wineglasses—into one put six drops of strong vinegar; into another, six drops of solution of soda; into a third, the same quantity of a strong solution of alum; and let the fourth glass remain empty. Fill up the glasses from the decanter, and the liquid poured into the glass containing the acid will quickly change to a beautiful red; that poured with the soda will be a fine green; that poured in with the alum will turn to a pretty purple; while that poured into the empty glass will remain unchanged.

Underpinning of Houses.

The walls under houses and barn basements, if they have been built several years, always need some attention on the approach of winter. Our climate, so moist in fall and so cold in winter, makes sad havoc with walls. Mortar being largely composed of lime readily absorbs dampness, and freezing when moist disintegrates it. A little fresh mortar and a few hours' work with the trowel will save the ingress of much cold every winter.