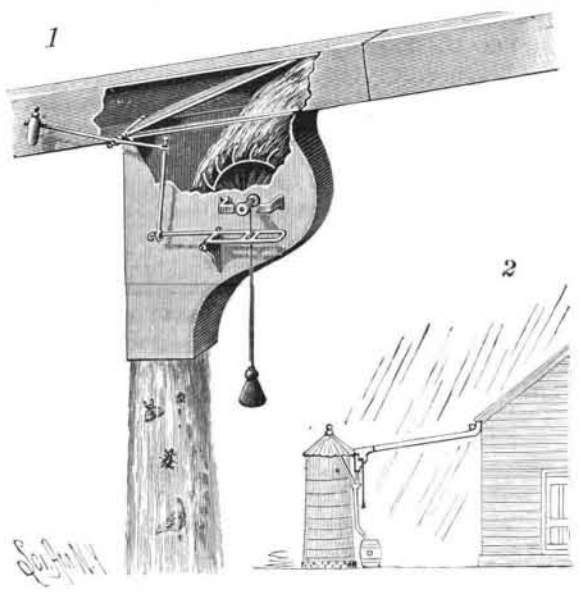
AN IMPROVED RAINWATER CUT-OFF.

The device shown in the illustration, which has been patented by Marion N. Coe, of New Orleans, La., is designed to prevent the flow of water from sheds or roofs into the tanks or cisterns until a sufficient quantity of rain has fallen to wash away the dust and dirt from the roof. This cut-off acts automatically, and also serves to prevent the passage of birds, rats, and insects into the cistern. Fig. 1 is a broken side elevation of the device with the parts in position, and Fig. 2 shows another application where the overflow pipe serves as a waste pipe. In the bottom of a conductor of the usual description is an opening, in the lower end of which a gate is fixed upon a transverse rod, the gate fitting so that the water flows readily over it when the gate is closed. On the outer end of the rod on which the gate is pivoted is a lever weighted at one end to normally raise the gate, the opposite end of the lever having an eye, through which extends a vertical rod connected with a frame pivoted on a bracket connected with the conductor. Fixed to the side of an enlarged portion of the spout beneath the conductor is a frame through which extend drum-carrying shafts, one shaft having a pinion meshing with a gear on the other shaft to transmit a slower motion thereto, and the latter shaft having a rope attached to its drum, the rope extending downwardly through the frame and having a weight attached at its lower end. Fixed to the other shaft is a waterwheel arranged beneath the opening in the conductor. With the device in its normal condition, as shown in Fig. 1, the water falling upon a roof first flows through the opening in the conductor upon the waterwheel, and by turning the latter winds the rope upon the connected drum shaft until the weight reaches the frame, the raising of the free end of which actuates the rod connected with the lever adapted to close the gate in the conductor. The water flowing through the conductor then holds the gate closed,



COE'S RAINWATER CUT-OFF.

while, the water being shut off from the wheel, the weight falls, unwinding the rope from the drum, and leaving the gate so that it rises when the flow of water through the conductor ceases. The length of time it is desired to allow the water to run to waste may be regulated by the length of rope with its weight operating the frame, while, to close the gate quickly, the rope may be attached directly to the drum of the shaft carrying the waterwheel.

For further information relative to this invention address M. N. Coe & Co., P. O. box No. 257, New Orleans, La.

A New Method for Retaining Artificial Dentures.

One of the great discomforts of artificial dentures, where all the teeth have been lost and much absorption of the gums has taken place, is the constant tendency for them to slip forward. To overcome this difficulty Mr. William Dall, of Glasgow, has developed a method of fixing dentures by means of two or more gold pins attached to the under surface, which enter holes either made by drilling the jawbone or left after the extraction of a tooth. In the former case the gum is first painted with a fifty per cent solution of cocaine, and the holes are drilled by means of the dental engine. In the lower jaw any place may be chosen between the symphysis and the mental foramen, and in the upper, almost anywhere, care, however, being taken not to pierce the floor of the antrum. Koch's solution is used as an antiseptic at the time of operation and also prescribed as a mouth wash during healing. The denture is applied a few days later, and is of course to be regularly removed for the purpose of cleaning. He believes that the bone forming the walls of the socket becomes sclerosed, and that there is little danger of necrosis. Where the holes or sockets result from the extraction of teeth, the gold pins have simply to be fixed to the denture, and in all cases it is important that they should be parallel.

During the last three years Mr. Dall has drilled ten cases in all, seven in the upper and three in the lower jaw, and in only one inflammation followed by suppuration occurred, and this quickly subsided. In fifteen cases dentures were inserted with pins entering the sockets of extracted teeth. Two cases were shown at the Odonto-Chirurgical Society of Scotland exemplifying this method of treatment. This operation can hardly be considered analogous to wiring bones together, as was suggested during the discussion of Mr. Dall's paper, for this is done under antiseptic conditions impossible in the mouth, and, moreover, every effort is made to keep the wound aseptic afterward, whereas in drilling the sockets are left open. Some objections to the operations are the risk of opening the antrum or the inferior dental canal and the difficulty of keeping the sockets clean.—*Lancet.*

To Color Brass Work.

A beautiful violet color is imparted to brass work by the application of chloride of antimony, says a writer in *Work*. Get the work perfectly bright and clean by the usual methods, either in a lathe or by dipping, etc.; heat it over gas-flame or spirit-lamp, so that water will steam off it but not fizz, and then apply the chloride of antimony liquor with a piece of rag or pad attached to a piece of wood; when the metal has assumed an even color, polish by rubbing with a soft cloth perfectly clean and dry, and protect with a coat of clear lacquer. Should you prefer a darker color, use either of the following recipes: (1) To one part oxide of iron, or iron filings, add one part arsenic and 12 parts hydrochloric acid. Dissolve the oxide of iron or filings in the acid, then add the arsenic, strain and bottle for use. (2) One pint of strong vinegar, one ounce of sal-ammoniac, one-fourth ounce arsenic, one-half ounce alum; dissolve in the vinegar and bottle. These mixtures are to be applied in the same way as chloride of antimony, and, as you are doubtless aware, the ultimate shades may be varied by treating with various lacquers. In all cases the work should be polished with a dry cloth immediately the desired color is obtained, and in the case of the two latter recipes the work should be lacquered at once; but with the chloride of antimony this is not essential. With regard to Florentine bronze the only recipe I know of is the following: The work having been finished bright and clean is covered with a coating of copper. Now make a paste with Spanish brown 12 parts, and black lead 1 part, in hot water. Dissolve a small quantity of oxalic acid—say as much as will fit on a sixpence—to one-half a pound of other ingredients, also in hot water, and thoroughly mix the whole; thin with hot water to a workable consistence and apply with a soft brush. When dry, polish with a medium brush. This done, the work is ready for lacquering, a pale lacquer being employed.

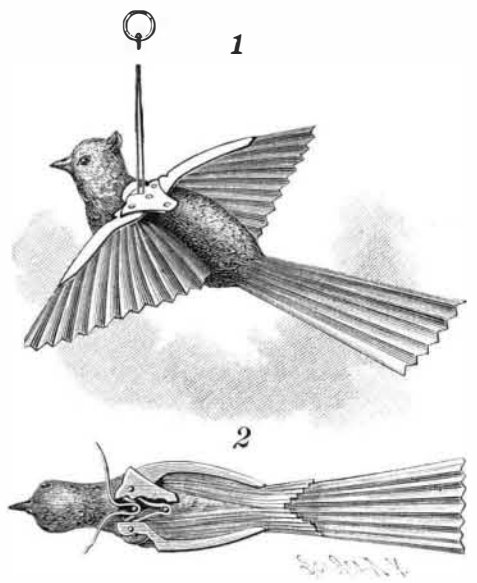
Telephoning in French.

The London and Paris telephone seems to be destined to have a far less or, at any rate, a considerably less usefulness than was at first expected of it, for a very peculiar reason. The telephone can indeed transmit sound, but it cannot enable a person who understands written French to understand spoken French, especially through a telephone. Something, some undefined, intangible difficulty, was speedily discovered by persons using the telephone for the first time, and who at first laid their inability to hear to the telephone, but the sound was well defined, and in understanding the mother tongue there is no difficulty. It is only when Englishmen accustomed to correspond or telegraph in French attempt to speak or hear it that the difficulty—one well known to every visitor to foreign lands—comes into play.

Until, therefore, our teaching of French is reformed, which we hope will be soon, or until intending users take lessons in pronunciation, they will evidently have to content themselves with telegraphing as before, or with having an interpreter at the other end who can understand. After all the trouble to obtain an absolute sound-proof chamber for isolating the stock exchange men, what a curious result it would be to be forced to employ an intermediary simply because the telephone will not talk the French of Stratford-atte-Bowe!—*Electrical Engineer.*

A TOY BIRD FOR CHILDREN.

The device shown in the engraving is designed to closely resemble a bird suspended by an elastic cord, and which may be made to appear to fly. It has been patented by Mr. Abraham Pugsley, of Jamestown, R. I. Fig. 1 shows the bird with its wings spread, and Fig. 2 is a broken top view with the wings closed. Each wing consists of a front plate or strip and a flexible connection secured thereto and to the body of the bird, the flexible portion being usually made of cloth, and crimped or crinkled to resemble feathers. The plate is curved inwardly toward its inner end, and a cut-off diagonal portion is pressed upon by a spring to hold the wing closed. The plates are pivoted near their inner ends, and have notches from which extend grooves in which the suspending cord is held. The inner ends of the wings are covered by a plate, which also supports the wings and the spring which presses against them, and the pin around which the suspending cord is passed. The suspending cord is doubled in the center and secured to an elastic cord terminating in a finger loop or ring,

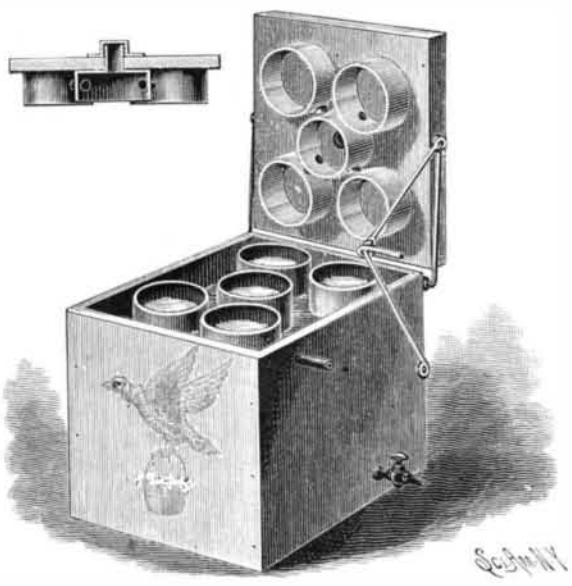


PUGSLEY'S TOY BIRD.

each member of the cord being passed through a notch of the cover plate and around a pin in opposite directions, the ends of the cord being secured in notches of the wing plates, the wings being opened to their full length by pulling upon the suspending cord. The bird is properly balanced by filling a hole in its body with lead or some heavy substance suitable for ballast. By taking hold of the finger loop and raising and lowering the hand, and giving it other movements, the bird may be made to sail through the air in very good imitation of the flight of a real bird.

A COOLER FOR HOLDING MILK CANS.

The illustration represents a convenient receptacle for holding milk cans for cooling their contents, at the same time providing for the escape of animal heat from the milk. The construction forms the subject of two patents granted to Mr. William W. Conder, of Tillamook, Oregon. The milk-holding vessels are preferably united at the bottom to form a common receptacle, held in the tank by hooks and staples, the milk being cooled by water being admitted through one pipe and flowing off by the other pipe. Upon the under side of the tank cover are depending flanges adapted to fit closely upon the milk cans or milk-receiving vessels, and serve as covers therefor, and each of these covers is connected by a branch pipe with a central pipe projecting upward through the cover, such central pipe being shown as communicating directly with the central cover. The central pipe is provided with a suitable screw-threaded cap, as shown in the small view, and when such cap is removed, the animal heat from the milk in the various receptacles passes off freely. The cover is hinged to the tank by means of a rod pivoted in suitable keepers, each end of the rod being bent to extend at the side of the cover, to which it is attached by eyes. On one side of the cover the rod is also formed into a depending arm having an eye which interlocks with an eye in another rod, the lower end of the latter rod being pivoted by a screw to the rear side of the tank, while its upper end is bent to form a crank,



CONDER'S MILK COOLER.

the whole forming a simple hinge and handle, by which the cover may be raised and lowered. With this construction the flowing water causes the milk to be cooled quickly and the cream to rise rapidly, it being designed that the water shall be admitted to the tank through the lower pipe to strike first against the bottom of the milk receptacle and flow out near its top.