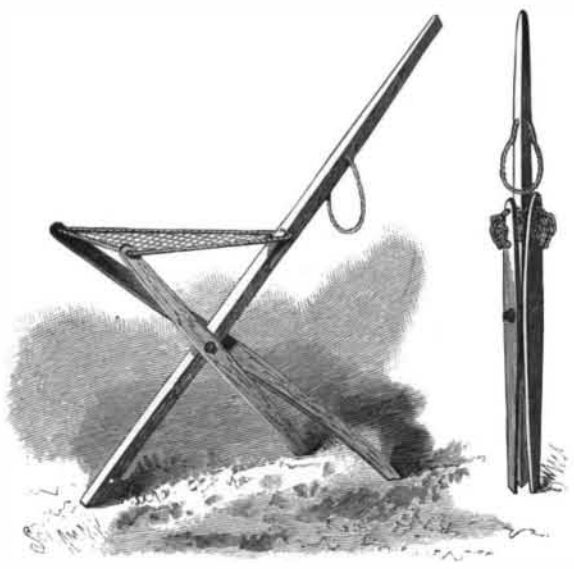
A NOVEL FOLDING CHAIR.

The illustration represents a folding chair whose back is a continuation of one of the legs, the parts being adapted to be folded and carried after the manner of a walking stick, as shown in the smaller figure. The chair may thus be taken into a railroad car or in a crowd of people much as a cane or umbrella would be carried, or it may be borne on the arm by a loop in its back provided for that purpose. It has been patented by John H. Hortman, of No. 323 Rutherford Avenue, Trenton, N. J. The leg forming the back is triangular in cross section, and the other two legs are pivoted on its side faces. The seat is formed of netting or a flexible fabric attached to a marginal rope or cord whose ends are secured in the back leg, and at two side faces of the latter, near the bottom, are studs or projections which engage the other legs when the parts are folded together.



HORTMAN'S FOLDING CHAIR.

A ROCKING CHAIR WITH FAN AND MUSIC BOX.

The illustration represents a rocking chair provided with an air-compressing device adapted to deliver a current of air for cooling the occupant of the chair, for sounding a music box or for any purpose for which compressed air may be applied. A patent has been granted for the improvement to Charles J. Michaelson, of No. 5 Elmwood Avenue, Charleston, West Va. Beneath the chair seat are two bellows, having the usual valves, and discharging into a receiver above, the lower portions of the bellows being extended to form arms with rollers which run on a bar beneath the chair, the bar having upwardly inclined ends, and the arms being normally depressed by springs. As the chair rocks, therefore, the air is forced into the receiver, from which a tube leads into a small compressed air reservoir at the top of the chair back, and in this reservoir is a passageway with reeds and adapted to be used as a music box. The music box is operated in the usual way, and is covered by a sheet of perforated paper wound on rollers, one of which has a pulley operated by a belt from a pulley which carries a fan, upon which air is discharged from the reservoir. The music box may be detached, if desired, and the blast of air be turned directly upon the occupant of the chair. The compressed air may, otherwise, be conveyed by tubes to any point where it is desired to use compressed air for other purposes.

MICHAELSON'S ROCKING CHAIR.

DRIVING away mice from infected cellars is said to be successfully accomplished by woolen rags soaked in oil of turpentine and placed in front of the holes by which mice enter.

Flying Without Wings.*

BY C. F. HOLDER.

One of the most interesting sights one observes in Southern California waters is a flock of flying fishes in the air; not one or two, but often fifty or one hundred, ten or twenty feet from the water, lifted by the wind and whirling away like quail or a flock of insects, scintillating in the sunlight—a startling picture. The fish appear to be flying, but they are simply one variety of many animals which apparently fly without wings. The writer has had these fliers pass within a foot of his face, and has known several persons who have been struck by them; but while the fishes dash through the air and cover distances of an eighth of a mile out of water, they are not strictly fliers, as they have no power to move the wings, as in legitimate flight. The wings are merely enormously developed fins, the pectorals resembling wings, with powerful branches or veins, the anals being smaller. The fish, then, has not four wings in the strict acceptation of the word, but four wing-like fins which it holds firmly, and which serve as sails or parachutes, bearing it up against the current which it forms as it rushes along. In this way these fish fly or soar for long distances.

In the Gulf of Mexico there is a fish known as the flying gurnard, a really magnificent creature, which bounds into the air when alarmed, spreading its wide pectoral fins and darting away like some gorgeous insect. It has vivid colors of blue, purple, and red, while its large winglike fins sparkle and gleam in the sun as though they were inlaid with gems. This flier possesses a singular armor, its head being incased in bone, so that a blow from the fish in its headlong flight through the air is liable to result seriously. There are instances known of men being knocked down and stunned by them.

Certain fishes have the faculty of propelling themselves into and through the air in other ways. Such is the large gar of the South Pacific, which, when alarmed, bounds from the water by a twist of its tail and goes whizzing away, a living arrow and a dangerous one. When the ship Challenger made her famous trip around the world, the naturalists on board had many opportunities to observe the flier without wings. One struck the cap of an officer, and several instances came to the notice of the naturalists of fishes which had struck natives who were wading in the water, inflicting fatal wounds.

The most perfect fliers without wings are found among the mammals and reptiles. One of the lizards has a peculiar frill connecting its limbs; this frill is braced by a series of false ribs. When the lizard wishes to escape from some enemy, it darts into the air and soars away downward, upheld for a long distance by the side wings, which are boomed out by the false ribs. The little animal now resembles a large dragon fly, its rich metallic colors and tints flashing in the sunlight. On it rushes, making a graceful curve, rising and grasping the trunk of a tree, when it seems to disappear, so close is the protective resemblance. If still followed by some bird enemy, it will repeat the action, continually dipping down and rising, ultimately escaping.

The flying squirrel well illustrates this curious faculty of soaring like a bird. Its fore and hind limbs are connected by a web of flesh that hangs in a wrinkle when the animal is at rest, and would not be noticed; but the moment the little creature darts into the air and moves away, the pure white parachute, winglike arrangement is seen. It catches the wind or rushing air as the squirrel bears down, and seems to expand and extend outward, taking the little flier safely upward, and enabling it to cross long distances and reach another point of vantage.

The flying lemur is one of the largest and most remarkable examples of this device of nature. Here not only are the limbs connected by a web, but the tail and hind legs are booms for a fleshy, furlined sail, so that the lemur, with its young clinging to it, leaps boldly into the air and darts away, swooping down with great velocity, rising again to grasp a branch or trunk, to rush to the topmost bough and launch itself again into space. In this way a lemur will, if followed persistently, cover miles in a forest, and as a rule escape its enemies. The grace, ease, and facility with which these flights are made is more than remarkable. The animal has but to extend its limbs, as one intuitively does in diving or swimming, and plunge down into space.

The islands of Sumatra and Borneo have produced some remarkable fliers of this kind. A party of explorers in passing through a forest one day saw what they supposed to be a bird swooping down from a limb. A native was sent in pursuit of it, but the creature rose at the end of its flight and alighted upon a tree, up which it seemed to crawl, then flung itself into the air again. It was finally captured after a long chase, proving to be a large tree toad. Instead of wings it had large elastic webs between its toes, which caught the air as it dashed away, buoying it up and acting as parachutes. The feet of the animal resembled those of a gull or a duck, so far as the webs were concerned, the four little parachutes offering surface sufficient to bear up the animal in its long flights from tree to tree.

A spider with a flying or soaring apparatus has been discovered. On each side of the abdomen extends a triangular lobe which catches the wind when the spider leaps into the air, aiding its flight to some extent, and well illustrating this remarkable method of flying without wings.

*In the Outlook of July 17.

A NICOTINE ABSORBENT VENTILATED TOBACCO PIPE.

Users of tobacco in the form of pipe smoking do not need to be told of the annoyance and vexation frequently experienced by the clogging of the pipe, from the accumulation of moisture, nicotine, and impurities at the base of the bowl and in the stem. The pipe thus not only becomes strong and foul, greatly impairing the real flavor of the tobacco, but it is difficult to keep it lighted, and much of the asserted unhealthfulness of smoking and its offensiveness to non-smokers doubtless come from these causes. An improvement forming the subject of three different patents, and designed to obviate these difficulties, is illustrated herewith, the improved pipes being made in various popular designs by the Harvey & Watts Company, of Philadelphia, Pa. The bowl, 1, is connected with the mouthpiece, 3, by a perforated metallic central stem portion, 4, inside of which is placed an absorbent blotting paper tube, 2. The absorbent tube is made of fourteen layers of interleaving blotting paper, and the perforated stem allows the free circulation of cold air around the paper tube, thus evaporating all moisture and cooling the smoke, the nicotine being condensed upon and absorbed by the blotting paper. When the paper tube becomes saturated, which may be in from one to three weeks, according to the practice of the smoker, a new tube is inserted, which may be done without soiling one's fingers, thus cleaning and renovating the pipe. A package of tubes is furnished with each pipe, and fresh supplies may be obtained as desired. Eminent physicians recommend this improved pipe as taking away from smoking its most deleterious effect and rendering it a harmless enjoyment.

THE MALLINCKRODT NICOTINE ABSORBENT TOBACCO PIPE.

Transparency of Ebonite.

In a note to the Academie des Sciences, of Paris, last April, M. Perrigot showed that plates of ebonite are transparent, and that the phenomena attributed to what M. Gustave le Bon calls "black light" are explained by the fact of photographic inversion. Since the above date M. Perrigot has resumed these researches, in surrounding himself with the minutest precautions, with perfectly polished plates of ebonite 0·5 mm. in thickness and with Carbutt films. The ebonite appeared to act after the manner of a colored screen. If, in fact, we examine a thin plate of ebonite exposed to an intense pencil of white light, the eye perceives a feeble light in which orange red radiations prevail. In resuming the experiments described in his first note, but in making use of orthochromatic plates particularly sensitive to red and yellow, M. Perrigot always obtained the same results, but notably more marked. He adds that plates 2 mm. in thickness do not appear transparent to the eye, but that they still transmit the photographic impression, particularly when plates sensitive to red are used. Besides, if the author's first experiments are repeated with plates of ebonite 2 mm. in thickness, and an intense light, such as that of the sun or of electricity, be employed, the same results, either inverse or direct, are obtained, according as the photographic plate has or has not received a previous exposure.

The conclusion reached by M. Perrigot is, according to him, in perfect concordance with the experiments described by M. H. Becquerel in a recent memoir, in which the author speaks of M. Le Bon's "black light" as the "pretendue lumiere noire" due to radiations the principal properties of which have been well known for fifty years.