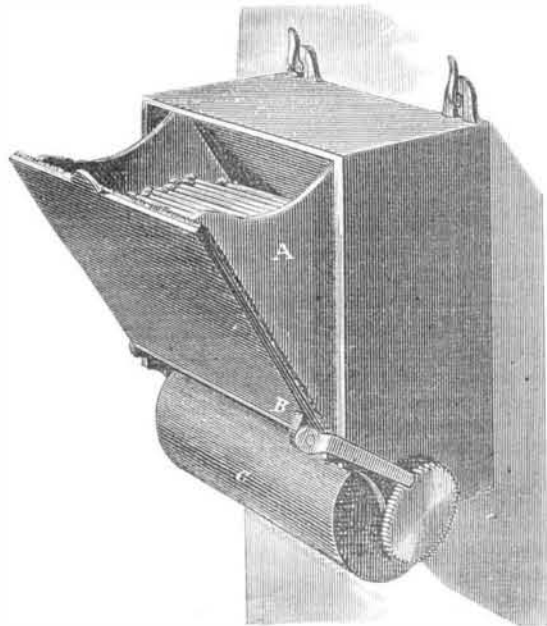


## HOYT'S PATENT MATCH BOX.

Match safes are not always correctly designated; some of them are not safe. Beyond this, some of them are not handy in using, and hold so few matches that they require very frequent replenishing. Matches have become so much a common necessity and so cheap that we use them without a thought as to their value—except when we are deprived of them—when one or two matches under some circumstances are worth almost their weight in silver. But when matches are plenty many are wasted for want of a proper frictional surface on which they may be ignited. The little device shown in the engraving is designed to obviate these difficulties. It can be hung against the wall or secured to anything upright.



The match receptacle, A, is pivoted at B to the body of the safe, opened by means of a thumb piece at the top of the lid, and closed by a spring concealed inside. When the thumb or finger releases the lid after opening, the spring promptly shuts it. The outward and inward action of the lid partially rotates a roller, C, at the bottom of the device, coated with quartz or emery, and turned by a pawl attached to the lid and a ratchet on the axis of the roller. This partial rotation presents perpetually a new surface to the end of the match for igniting purposes. The receptacle may be made large enough to contain the contents of several boxes of matches, and the roller will last for years with constant use without re-covering.

The patent for this improvement was issued June 31st, 1868, through the Scientific American Patent Agency, to Alfred Hoyt, and all communications on the subject should be addressed to him at 199 East 26th street, New York city.

## The Torpedo Trade of Long Island.

Few people, even of those residing where the work is carried on, have any adequate idea of the extent to which the business of torpedo making (not the contrivances which blow up ships, but the little explosive pellets which delight the souls of children) is prosecuted in the town of Southold, L. I. During the past month, preliminary to the great national holiday, which is always a season of extreme activity in the torpedo trade, the steamer *Escort* has taken to New York, on almost every trip, a large number of barrels packed full of torpedoes, put up in packages of one hundred. On several occasions she has had on board, shipped by makers in Greenport and Southold village, over 10,000,000.

It is estimated, says the *Greenport Watchman*, that the total number manufactured in the town during the past year is between 110,000,000 and 120,000,000. They are sold to wholesale dealers, who ship them to all parts. So long as they are kept dry, torpedoes do not deteriorate by age, but, on the contrary, the volume of sound is increased. They range in price from thirty cents per thousand, or under, at which they are sometimes sacrificed by poor and needy makers, in the winter season, to forty and fifty cents in the summer. Formerly the Southern States used to be one of the best markets for the sale of torpedoes, but the war changed all that.

The manufacturers in Greenport consume annually a large amount of silver, mostly American coin, in preparing the fulminating powder which explodes the torpedo on coming in contact with any hard substance. The premium on silver, joined with the high price of alcohol, tissue paper, and other material, at one time reduced the profits of the business to so low a figure as to cause a partial suspension, but it has since improved considerably. The makers are mostly Germans, and are an industrious, frugal class, whose labor adds constantly to the wealth and prosperity of the town.

## Drooping Ears of Animals.

Darwin, in his treatise on animals and plants, under domestication says:

"Our domesticated quadrupeds are all descended, so far as is known, from species having erect ears; yet few kinds can be named, of which at least one race has not drooping ears. Cats in China, horses in parts of Russia, sheep in Italy and elsewhere, the guinea pig in Germany, goats and cattle in India, rabbits, pigs, and dogs in all civilized countries, have dependent ears. With wild animals, which constantly use their ears like funnels to catch every passing sound, and especially to ascertain the direction whence it comes, there is not, as Mr. Blythe has remarked, any species with drooping

ears except the elephant. Hence the incapacity to erect the ears is certainly in some manner the result of domestication; and this incapacity has been attributed by various authors to disuse, for animals protected by man are not compelled habitually to use their ears. Col. Hamilton Smith states that in ancient effigies of the dog, 'with the exception of one Egyptian instance, no sculpture of the early Grecian era produces representations of hounds with completely drooping ears: those with them half pendulous are missing in the most ancient, and this character increases, by degrees, in the works of the Roman period.' Godron has also remarked that 'the pigs of the ancient Egyptians had not their ears enlarged and pendent.' But it is remarkable that the drooping of the ears, though probably the effect of disuse, is not accompanied by any decrease in size; on the contrary, when we remember that animals so different as fancy rabbits, certain Indian breeds of the goat, our petted spaniels, bloodhounds, and other dogs, have enormously elongated ears, it would appear as if disuse actually caused an increase in length. With rabbits, the drooping of the much elongated ears has affected even the structure of the skull."

## Prevention of Disease.

Dr. A. L. Wood, in the *Herald of Health*, makes the following excellent remarks upon the prevention of disease:

Disease consists in the obstruction, depression, or perversion of those vital changes and transformations throughout the system which, in their normal condition, constitute health. Disease is simply disturbed physiological or healthy action caused by non-observance or disregard of the laws which govern the human organization in respect to diet, air, exercise, rest, water, clothing, sleep, etc., and may be prevented by obedience to those laws. This being an incontrovertible fact, how necessary is it that people should understand these truths, that they may obey the laws of their being, and thus escape the penalties of their transgression. The principal means by which this knowledge must ultimately be diffused among the masses, is through the common schools—by placing Physiology and Hygiene among the principal branches of education, and thus early impressing upon the youthful mind a knowledge of himself, of the uses of the different parts of his body, and of the means which he must take to preserve its health, strength, and vitality. When this is done, sickness and premature death will rapidly diminish throughout the land; apothecary shops will not occupy, as now, the most desirable corners, and by day and by night, and on Sundays, dispense their deadly drugs to a deluded people, but will be converted into fruit stores to furnish to all who wish the purest, best, and most healthful food to nourish and strengthen "the human form divine;" doctors of all the different schools, whether regular, irregular, or defective, whether Allopathic, Homeopathic, Hydropathic, Eclectic, Botanic, Spiritual, or what not, will find their occupations "passing away" and will soon see the necessity of their learning some other trade by which to earn their bread. When Physiology and Hygiene are taught as thoroughly in our schools as Reading and Arithmetic are now, people will seldom be sick, and when they are, they will know enough to treat themselves, without the aid of doctors or drugs.

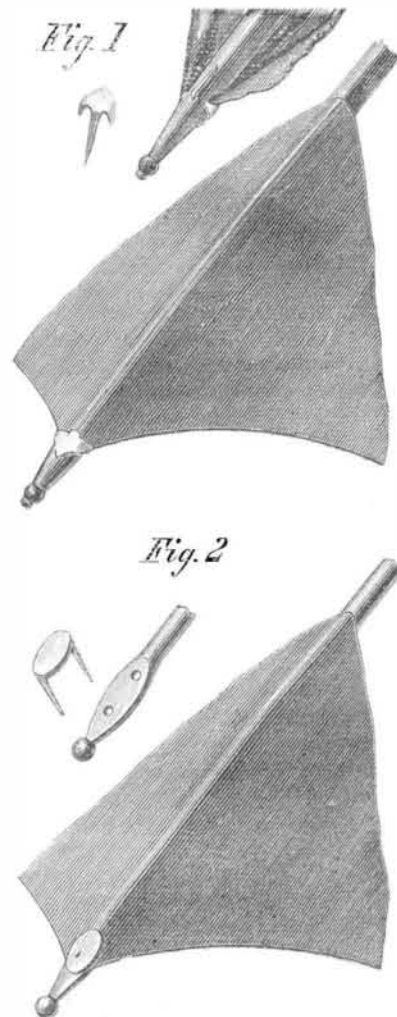
## Manufacture of Artificial Diamonds.

The French publication, *La Propagation Industrielle* publishes a description by M. Caliste Saix of his method of producing colorless, colored, or black diamonds. The system is based on the principle that when a current of chlorine or of hydrochloric gas passes through cast iron in a liquid state perchloride or protochloride of iron is formed, both of which vaporize, the carbon contained in the cast iron remaining in both cases perfectly intact, because the chlorine cannot directly unite with it. The crystallization of the carbon is then within the general rule, for in a body which is dissolved and capable of crystallization, crystallization takes place each time that the dissolving agent evaporates, the size of the crystals depending always on the slowness of the operation. 1st. To obtain colorless diamonds, a current of dry chlorine must be brought to the bottom of the crucible, containing the cast iron, by means of a bent tube of china or fire-clay. No organic coloring matter resists the action of chlorine, so that the perchloride of iron in evaporating leaves the carbon to become a colorless crystal. 2dly. When it is desired to give the crystal a blue, green, pink, or yellow tint it is only necessary to mix with the cast iron certain metallic oxides in sufficient quantity, such as those of chromium, cobalt, and others, or their salts, which will give these colors. 3dly. To obtain black diamonds, hydrochloric gas must be brought to the bottom of the crucible in the same manner as for colored or colorless diamonds. Protochloride of iron will be formed, which is volatile, but in this case the carbon will remain black, in consequence of the presence of hydrogen. This explains the fact of all diamonds having the same chemical and mineral properties, and why in nature the black diamond is found in the greatest quantity, because its formation in alluvial soils requires only the presence of sulphuric acid and marine salt, whereas the others require the presence of particular oxides which are often wanting. To obtain all these varieties of diamonds special furnaces are not necessary; the crucibles must be covered to prevent the oxidization of the cast iron, which might change the carbon into carbonic oxide, and diminish, in consequence, the yield of the operation; these crucibles should be provided with a small tube, reaching outside the furnace, which will enable the chlorides resulting from the reaction to be gathered. When the liquid cast iron has been almost completely evaporated out of the crucibles, the diamonds can be removed without disturbing the crucibles, and by means of solvents any cast iron which might be adhering to them can be removed; the operation of

cutting will thus be shortened for there will be no more oxidized particles to remove, and the crucible will be ready for a fresh operation. According to M. de Saix one kilogramme of cast iron will yield at least sixty grammes of diamonds. The cost price of the colorless diamonds will be about 20f. per sixty grammes, which, at the current price, would be 75,000f. The cost of the black diamonds will be under 5f. per sixty grammes, representing a value of 14,200f.

## PIERCE'S DEVICE FOR FASTENING UMBRELLA COVERINGS.

The covering of umbrella and parasol frames is usually secured at the tip of the stay rod by sewing, which is not always neat and seldom effectual, the umbrella often giving



out at this point before being otherwise much worn. The object of the little device herewith illustrated is to afford a cheap, secure, and ornamental fastening of the covering to the tips of the stay rods. It is of two forms; Fig. 1 showing a clasp with one point passing through the covering and the rod and clinched on the inside. Fig. 2 gives a more elaborate form of the stay with two points, both passing through the material of the covering and the rod, which is flattened for ease of workmanship. When in place the clasp presents an elegant appearance on the outside, as it may be silvered or lacquered to any color to suit the shade of the cover.

The patent was issued to G. Willis Pierce, June 16th, 1868, who may be addressed Box 10, P.O., Charlestown, Mass.

## Curious Incident.

A very pretty and curious incident illustrative of the reasoning powers possessed by inferior animals, recently occurred in the case of a canary bird. The door of the bird's cage was occasionally left open, that he might enjoy the freedom of the room. One day he happened to light upon the mantle shelf whereon was a mirror. Here was a new discovery of the most profound interest. He gazed long and curiously at himself, and came to the conclusion that he had found a mate. Going back to his cage he selected a seed from its box, and brought it in its bill as an offering to the stranger. In vain the canary exerted himself to make his new found friend partake, and becoming weary of that, tried another tack. Stepping back a few inches from the glass, he poured forth his sweetest notes, pausing now and then for a reply. None came, and moody and disgusted he flew back to his perch hanging his head in shame and silence for the rest of the day and although the door was repeatedly left open, he refused to come out again.

## Alaska.

Humboldt tells us that in Siberia, as for example at Yakoutsk, lat. 62½° N., at Bogolowsk, lat. 60° N., the soil remains continually frozen to a great depth, the surface only thawing in summer to the extent of three or four feet. In one case diggings were carried down 350 feet without passing through the frost. Now, as nearly one half of our recently acquired possessions of Alaska are situated above the latitude of 60°, it becomes an interesting question whether the soil is not a mass of perpetual ice, like the Siberian lands. If so our miners will have a tough time of it in digging for precious metals, sinking wells, etc.

MELTED alum mixed with burr stone reduced to the consistency of sand, is the cement used for filling holes in burr stones. If the holes are large coarse pieces of burr stone may be used at first, finishing with the finer material.