sal fin has thirteen hard and twenty-one soft rays, and the anal fin has three hard and nineteen soft rays. This beautiful fish is found in the waters between Eastern Africa and the Society Islands.

Fig. 4 represents a remarkable fish which, on account of the peculiarly elongated dorsal spine, has received the name of long-spined chætodon or charioteer. It also exhibits well the scale covered fins. Both of the scientific names *Heniochus monoceros* are of Greek origin, the former signifying a charioteer—the long slender spine representing the whip; and the latter signifies "single horned," in allusion to the same peculiarity. The fourth dorsal spine is enormously elongated and whip-like, its use not being as yet ascertained. The prevailing color is grayish-yellow, which passes upon the breast and throat into a silvery white; the head is partially or wholly black, the side of the snout light. Two very broad black bands are drawn across the body touching the fins. The first extends from the back to the abdomen; the second is almost parallel with the first, and runs from the fifth to the eighth spine of the dorsal fin downward to the extreme end of the anal fin. The fins are lemon color where they are not touched with the bands. This fish inhabits the whole of the Indian Ocean.

Nearly forty species of the genus to which the duke fish (*Holocanthus diacanthus*), Fig. 5, belongs are now known. They all possess some remarkable peculiarity of coloring, and the front gill cover is armed with a strong sharp-pointed thorny spine. The ground color of the body is lemon yellow. There are eight or nine pale blue bands broadly edged with black extending diagonally across the body. The back of the head is black, and beautifully marked with blue longitudinal and diagonal lines. A blue stripe surrounds the eye, another runs down to the edge of the front gill cover. The pectoral, abdominal, and caudal fins are yellow. The soft part of the dark brown dorsal fin is striped with black and blue at the edge; the remainder is spotted with dark blue. The brown anal fin is ornamented with six or seven curved bright brown bands. Fourteen hard and nineteen soft rays support the dorsal fin; three hard and nineteen soft rays, the anal fin.

The emperor fish (*Holocanthus imperator*), Fig. 6, is still more beautiful. The smutty sulphur-yellow head is adorned with a brownish black brow and eye band, which is edged with bright blue. The region over the pectoral fins has a large black spot bordered with yellow which stands out distinctly from the violet blue color of the body. The body is ornamented with a large number of curved yellow stripes extending throughout its entire length. The abdomen and breast are a greenish brown, the fins bluish, their rays brighter or darker orange color merging into black. The brown anal fin is decorated with blue curved longitudinal lines. This fish has also the thorny spine on the front gill cover. It is an inhabitant of the Indian Ocean.—*Brehm's Animal Life.*

MISCELLANEOUS INVENTIONS.

An improved buckle has been patented by Mr. N. L. Anderson, of Sioux Falls, Dakota Ter. The invention consists of a curved, looped, and barred frame, through which the trace is designed to pass, having a vertical stud projecting from the upper edge of the rear bar and designed to enter the trace, and, in combination therewith, of a tongueless barred and curved frame designed to be secured in the hame tug, locking with the tongue frame in such a manner that a strain upon either trace or tug will apply a corresponding pressure to compress the trace between the tongue bar of the one frame and the cross bar of the other frame.

Messrs. Cristobal Benavides and Joshua P. Arthur, of Laredo, Texas, have patented an improved sheep shears, so constructed that the blades are separable from the handle.

Mr. Minard M. Smith, of New York city, has patented a series of coated alkali balls attached together and traversed by a common wire passing through the entire series.

An improved shoulder pad has been patented by Mr. Isaac N. Stern, of New York city. This invention consists in a hollow segment-shaped pad, made of some air-tight material, such as rubber or oiled silk, which pad is inflated and placed between the cloth of the coat and its lining at the joint of the sleeve and shoulder.

An improved stop for oil can spouts, which allows for inlet of air when oil is poured from the can, has been patented by Messrs. Winfield S. Ricker and Robert H. M. Barker, of Cambridgeport, Mass. The invention consists in a spring finger lever provided with disks covering the neck and spout of the can, and fitted so that they may be simultaneously opened by pressing the lever, to permit of the oil being poured out and to admit air into the can, the lever being also adapted to be moved aside to open the neck for filling.

Mr. John D. Brooks, of Jersey City, N. J., has patented a surface condenser, more particularly for marine engines, which provides large condensing surface in a small space. It is constructed with a series of narrow steam condensing spaces of annular corrugated form in cross section with intervening cold water spaces of similar form.

Mr. George B. Stetson, of New Bedford, Mass., has patented a twist drill grinding machine. The invention consists of a sliding head adjustable on a suitable standard, so as to be moved toward or from the grinding wheel, and supporting a horizontally swinging bed, on which is mounted a chuck or jaws for holding the drills to be ground, and supporting also a sliding plate or fulcrum, a system of levers connecting the same with the chuck or jaws, whereby the latter may be vertically adjusted. And it consists, further, of a stop and a drill guide attached to the chuck, and of novel arrangements of grinding wheels and other parts of the machine.

Mr. Samuel H. Bakewell, of Lansing, Iowa, has patented a pump which reduces the comparative pressure of the water on the piston, and the power required to work the pump, and which throws water both during the ascent and descent of the piston.

Mr. William D. Peebles, of Breckenridge, Texas, has patented a balanced piston engine, which may be operated by water, steam, air, or other gas, and may be run at high speed.

Mr. Edward A. Eustice, of Greenvale, Ill., has patented a sulky plow so constructed that it can turn a square corner and can be readily adjusted to deep or shallow furrows. As the team starts forward in a new direction the plow is turned at right angles or at the angle which the new direction makes with the former direction, and at once begins to cut a furrow, no ground being left unplowed and no wide space being required for turning the machine. The machine is turned by the draught applied to the draw-rod (each horse drawing his own share) instead of by side pressure upon the tongue.

Mr. Edward A. Fisher, of Worcester, Mass., has patented a castanet which consists of two pieces or strips of wood, the longer of which has an aperture made through it from side to side near its lower end, and an insulated plate secured over the aperture, while the shorter piece has a ball, preferably of wood, attached by a rigid shank to its lower end, the castanets being operated by holding them between the fingers of one hand and striking the ball against the metal plate. The tone produced is musical, and by using a number of the instruments on each hand a tune can be played.

Mr. Rector R. Wilson, of Stewart, Ohio, has patented a locomotive which provides a substitute for springs supporting a locomotive engine on driving wheels and trucks. The engine is free to swing laterally as well as longitudinally, and rides more easily and with less wear upon the rails. The supporting frame is itself supported upon standards resting upon the boxes of the driving wheels.

Mr. Henry S. Rogers, of Auburn, N. Y., has patented a boot and shoe shave and head cutter. It is a combination tool for trimming edges of boot and shoe soles, cutting beads, and cutting strips on the bottom of the soles. A handle carries an adjustable slide having an adjustable stripe-cutting knife attached and also carrying a combined shave and bead cutting knife.

Oil, Tallow, and Tow.

Considering that the materials referred to in the heading of this article are in such general use in coal and other mines, a few remarks upon them will probably be read with interest, especially if we point out some simple ways in which their qualities may be tested.

Olive oil used for engine lubricating should not be contaminated by earthy or other impurities, nor should it contain any acids, which act detrimentally on machine journals, springs, and the sliding surfaces of the steam distributing organs. The presence of acid in oils may be detected by immersing litmus paper into the oil. The paper will be reddened in color if acid be present in the liquid. It may be safely asserted that every impurity or oil adulteration is detrimental to lubricating purposes. By them the oil becomes thickened and soils the lubricating wicks. Care should also be taken to retain the oils as pure as possible, which can be done by keeping the lubricating vessels well closed. Egg like substances, which cause the oil to turn bad and to become sticky, rendering it quite unfit for lubricating purposes, may be more or less distinctly detected by their turbid appearance.

Lubricating oils should not be too thick, in order that they may be easily absorbed and able to run between the bearing brasses; nor should oil, on the contrary, be too thin, so that it may remain for some time between the bearing surfaces of rotating shafts, etc., without losing its lubricating property. If the oil runs too easily, a waste must ensue by a too rapid consumption.

Perhaps the simplest way to test the consistency of various oils would be by the employment of a flat iron bar, 4 or 6 feet long, and channeled with equal grooves. This should be inclined, and an equal number of drops of the various oils allowed to fall on the top of the bar, care being taken to observe which quality travels the greatest distance in certain times. This will at once indicate which of the oils is the thinnest or the most liquid. The narrower the streak which the oil leaves behind it in traveling down the bar the greater is its consistency. For lubricating purposes, that quality is the best which has traveled furthest after the lapse of several days, provided, of course, that the oils have been poured in precisely equal quantities on to the bar. Oil which has dropped, or which has been taken out of the lubricators, should not be again used for oiling journals and brasses; it is far better to collect it in separate vessels, and after letting it stand, to use it up for the guide bars.

The most common and the most pernicious adulteration—which may be detected both by smell and taste—is the oil obtained from the cotton seed. This substitute is much thicker, and deteriorates the quality of olive oil. It speedily turns the latter bad, and so renders it worse than useless.

Engine parts which come in contact with the live steam are best lubricated by tallow, because the high temperature of the steam easily evaporates oil. It is not economical to pour melted tallow into the cylinders or valve boxes; the steam mostly carries this away into the condenser or into the open air. Consequently, tallow is best to be used in the lubricators adapted to receive it, as then the whole of the rubbing surfaces are covered with a thin film of tallow, because of its falling drop by drop into the main steam pipe, whence the live steam takes it into the valve box and passes it on to the cylinder, where it then falls on to the rubbing surfaces.

The stuffing glands of both cylinder and valve chest should be amply lubricated with tallow. It is unquestionable that much annual expense might be saved to steam users were they to take more active interest in watching and checking the wasteful modes in which their engines are lubricated, and in enforcing upon their engine drivers greater economy in this respect. Thus, the use of large oil cans with small lubricators, the pouring of oil on to gliding surfaces, which usually gives more oil to unexposed surfaces than to the bearings, and the overfilling of lubricators, are some of the most prevalent of wasteful habits practiced in engine houses.

As with oil, so tallow also should be as pure as possible, and be free from all foreign matters, which are to be detected in a turbid appearance. If the use of impure tallow is at times rendered compulsory, it should be melted down before use. After scumming the surface, the pure tallow may be poured off, but the bottom sediment should be rejected. As the bottom of tallow casks are generally dirty, it is also advisable to go through the same melting-down operations when the bottoms are nearly reached. Tallow contains more or less of fatty cells, which, though not injuring the appearance, deteriorate the quality of the tallow very much for lubricating purposes. To test tallow in this respect, all that is required is to take a sample and to boil it well with water. The fat collects together on the water surface, when it is allowed to go cold. If the tallow is free from these fatty cells, then its under surface will be comparatively even; but if otherwise these cells will show themselves there not unlike roots. According to the greater or less abundance of these roots, the purity or impurity of the tallow may be judged. As a proof against the tallow being rancid, the water in which it is boiled should not act as an acid on litmus paper.

Tow which is intended for engine purposes should be clean, free of roots, sand, etc. Its fiber should be solid and strong, or it is otherwise rotten and not wall adapted to this purpose. Tow which is rough to the touch and which contains much unbroken fiber, is of secondary quality. Prime qualities are advantageously chosen, and in this state tow presents long, delicate, and soft fibers of white color. It is true the cost of purchase is in this case enhanced, but the ensuing smaller consumption more than amply covers the extra expense of prime cost. Cotton-waste may be equally advantageously used.

To utilize cotton-waste or tow over again, *i. e.*, to clean it, water-glass may be diluted with three parts of water, and the tow or waste immersed and worked round with a stick. After half an hour's soaking the liquid may be let off, and hot water poured on to the waste, which should be then well rinsed. If the original soft touch is required to be regained, the waste or tow may be rinsed a second time in lukewarm water, when it will be found, after drying, to be equal to new. Particular care should be taken when using the water-glass not to allow it to touch the skin, hence the stirring of the liquid should not be done by the bare hand.

Tow which has been once wet is not so efficacious, because it does not absorb the oil so well. If it has by mistake been steamed, it should be aired, to prevent it from moulding, etc. If the tow is not clean it should be carefully beaten in small parcels to cause the impurities to fall out. Oily tow which is merely kept for lighting up fires should not be allowed to be thrown anywhere. It should be kept carefully in a place by itself, and caution observed to prevent spontaneous combustion.—*Colliery Guardian.*

Gold and Silver Statistics.

The Director of the Mint has submitted to the Secretary of the Treasury a report upon the production of precious metals in the United States for the fiscal year ending June 30, 1880, which shows the following amounts by States and Territories:

	Gold.	Silver.	Total.
Alaska	$6,000		$6,000
Arizona	400,000	$2,000,000	2,400,000
California	17,500,000	1,100,000	18,600,000
Colorado	3,200,000	17,000,000	20,200,000
Dakota	3,600,000	70,000	3,670,000
Georgia	120,000	—	120,000
Idaho	1,980,000	450,000	2,430,000
Montana	2,400,000	2,500,000	4,900,000
Nevada	4,800,000	10,900,000	15,700,000
New Mexico	130,000	425,000	555,000
North Carolina	95,000		95,000
Oregon	1,090,000	15,000	1,105,000
South Carolina	15,000		15,000
Utah	210,000	4,740,000	4,950,000
Virginia	10,000	—	10,000
Washington	410,000		410,000
Wyoming	20,000		20,000
Other sources	14,000		14,000

Daniel Atley Webster.

Daniel Atley Webster, for forty years connected with the Croton Aqueduct Department, died recently in this city. It is said that there are not more than a thousand dwellings in this city in which Mr. Webster did not personally superintend the introduction of Croton water. The method of tapping street mains for the introduction of house pipes, invented and patented by him, is in use wherever there is a public water system. Mr. Webster's name is associated with many other important inventions.

Silk Growing in America.

The rapid growth of the silk manufacturing interest in this country was recently made evident in these columns by a review of the census statistics gathered by Mr. Wycoff. Commenting upon the same facts, and the superior quality of American manufactured silk, the Philadelphia *Public Ledger* gives a large amount of interesting information touching the production of raw silk and its possibilities in the United States. The *Ledger* says:

"It is as easy to raise cocoons as sheep—easier. The intermediate stages between the cocoon and the factory have yet to be undertaken, but cocoons and eggs are both raised in this State, in North Carolina, and in Missouri, for sale and export. The shearing of the cocoons, or the filature, is the step that has to be taken on an extended scale. The great cocoon market for the world is Marseilles. The silk filatures are grouped in the departments around Lyons, and the French raised cocoons are consumed in the immediate neighborhood in which they are raised; but the foreign cocoons, coming from all countries, are distributed from Marseilles, and there they are purchased to the best advantage. Consul Peixotto points out, in a private letter to the American Minister at Paris, in answer to some inquiries made through Mr. Noyes by the Philadelphia silk school, that American-grown cocoons can be sold at Marseilles as readily as any others, as soon as the quality, and especially the uniformity, of the cocoons become known in the markets. By the efforts of this school American-grown cocoons will doubtless soon be placed on sale in this important depot to direct the attention of American silk raisers to this point. There have been already given in the *Ledger* such details of silk growing under the management of this school as will satisfy any one that all that is needed is such a point to which the numerous little harvests all over the country can be gathered and forwarded. Here is one experience from Gwynedd, Pa., representing six weeks' care of one crop. There were raised in one farmhouse, just as an experiment and to see how it would work, thirty pounds of cocoons and fifteen ounces of eggs. The cocoons are worth at a market two dollars a pound; the eggs, from three to four dollars an ounce. From a North Carolina farmer comes a letter on a larger scale. He has put up one hundred and fifty racks this year, four feet long by three wide, and each rack is to accommodate two thousand worms. He expects to raise this summer one thousand barrels of cocoons (North Carolina cocoons, pure white, took a premium at the Centennial); but this grower raises also from the French eggs the large flesh-colored cocoons, of which about one hundred and ninety weigh a pound, and from the Japanese eggs also a fine cocoon.

"But why, asks the protective and otherwise thoughtful reader, need the cocoons be sent abroad to be sold, and this golden fleece sheared by French hands? Why can they not be kept at home, seeing that the silk manufacturer can, or at least could, take all that can be raised for years to come? That is the point which is now occupying the minds of *sericulturists*—seriously occupying them. Cocoons and eggs and all that, they know. They know that the mulberry will grow wherever the apple tree does, and that the osage orange does about as well as the mulberry. They know that the season begins on the eleventh of May and lasts six weeks, and that it is possible, by skillfully retarding some of the eggs, to make two seasons in the year. What they have not yet reached is the perfection of reeling, although they are experimenting upon it. The hand reeling of Italy and France is an old story. Silk has been reeled by hand here, and is still, and if the farmer's daughter puts her reeling at the same price as her knitting or crochet, to fill up the unemployed time, and not for an occupation to live by, hand reeling would pay to that extent. For an extended business the great filatures are needed, where American cocoons can be reeled at home by machinery, the only thing that can come into competition with the cheap day labor of the Italians, French, and Japanese hand reelers. A young American engineer is at this time in France, experimenting on the reeling of silk by electricity, which is the motive power destined to lighten labor as well as streets. This is the one missing link that is needed to complete the chain between Horstmann's fringes and ribbons and the New Jersey silk dress goods and handkerchiefs, the Connecticut sewing silks, etc., and the cocoon racks in American farmhouses. The Philadelphia school, that has done so much in gathering up these threads of detail, and in sending out its cocoons and instruction over the country, is a real credit to the city and the State."

American Goods.

The *American Register* boasts, and not without reason, adds *Land and Water*, of the slow but sure manner in which American goods are forcing their way into and successfully competing in all foreign markets with European manufactures. "Our cotton goods, both heavy and fine, and our spool thread, are rapidly taking the place of English. Our printing and wrapping paper is finding a ready sale in the East and West Indies, while even bank note and bond paper is in demand in Italy, Austria, and Spain. American cutlery is sold in Birmingham, our locks are supplanting those of English make in English houses. American jewelry is sold in Paris, and if we are not sending coals to Newcastle, London is talking of supplying her grates and furnaces with anthracite from Pennsylvania." English manufacturers must stir up and put their shoulders to the wheel, or they will be nowhere in the race for wealth.

Why some Confectioners do not Make Money.

The following, by C. F. Gunther, in the *Confectioners' Journal*, is *apropos* to many people in other trades:

They are lazy.
They neglect details.
They overlook the small things.
They have no eye to business.
They hope for fortune to drop in their lap.
They are not careful in weighing.
They let their clerks eat and give them away.
They let their help waste and destroy.
They let their fires burn at will.
They are slovenly in their shops.
They let their shops get filthy and dirty.
They fail to clean their jars and cases.
They make no changes in goods.
They fail to furnish good tools.
They try how cheap they can do everything.
They make no window changes.
They fail to advertise.
They try not to excel or improve.
They think cheapness recommends articles.
They have too much outside business.
They talk politics too much.
They philosophize on everything but *their* b iness.
They fail to invent or have new ideas.
They employ too cheap help.
They fail to show what they have.
They try to sell stale goods.
They are penny wise and pound foolish.
They think inferior will take the place of good.
They imitate their neighbors.
They fail to clean their windows.
They sit and read newspapers too much.
They are not polite or accommodating.
They think most things take too much trouble.
They fail to use plenty of light.
They do not furnish good materials.
They are not neat or cleanly in person.
They fail to push business.
They are not awake to the seasons.
They know not imitations are but shadows of the real.
They do not study light or shade.
They ought to make goods in a strong light.
They ought to sell them in shaded light.
They know that there is an idea in flavors.
They know not the weakness of humanity's stomach.
They should throw ether flavors to the dogs.
They know not the best is the cheapest.
They put goods up in poor style
They use poor judgment in colors.
They fail to shine up and clean store up daily.
They fear to buy stock. No stock, no trade.
They know not the power of method.
They fail to pile stock up and let the people see it.
They fail to keep signs and fronts bright.
They fail to give loafers the cold shoulder.
They have hangers on who eat them up.
They are too social where it don't pay.
They fail to shake sponges and dead-beats.
They go out too often to see a man.
They don't treat travelers or drummers politely.
They can get many ideas from them that pay.
They are illiberal to home enterprises.
They do not use cheap fruits to advantage.
They attend to everything but their own business.
They have their head muddled with beer.
They have their tongues thickened with drinks.
They let their breaths reek with alcohol.
They fail to keep system and good order.
They smoke or chew tobacco in business.
They make no changes in spring or autumn.
They fail to meet the wants of the season.
They always stay at home, and travel not.
They become rusty and lose ambition.
They do not progress with their cities.
They try not to better their stores.
They fail to paint and rejuvenate the interior.
They think money thus spent is thrown away.
They know not the power of printer's ink.
They fail to remember their art is a science.
They know not it is allied with the fine arts.
They know not it has been so considered for ages.
They fail to consider their weak points.
They must wake up to the idea of improvement.
They will then find business and prosperity.

Tele-Photography.

Mr. Shelford Bidwell describes in *Nature* the result of some experiments in sending pictures by the telegraph. This he accomplished by using an apparatus resembling Bakewell's well known copying telegraph. In the transmitter the image was focused upon a revolving cylinder, to which a selenium cell is attached. At the other end of the wire a platinum point presses against the surface of sensitive paper prepared by passing it through a strong solution of equal parts of iodide of potassium and water. The arrangement is such that the selenium cell, by intercepting the current, causes a white spot to appear on the receiver corresponding in shape and size to the picture focused on the transmitting cylinder. The experiments are as yet crude, but full of promise.

How Manchester, England, is Lighted.—Cheap Gas and Public Profit.

The *Examiner*, of Manchester, England, gives an interesting account of the management of the public gas works of that city. The gas works in Manchester have always been the property of the inhabitants. Originally they were directed by a body of thirty directors selected from the commission of police. Up to 1835 they had a debt of £80,000. It has been the custom from the first to apply the gas profits to town improvements. In 1831 the sum paid for this purpose was £6,900; in 1835 it had risen to £10,133. The price of gas has steadily been reduced. In 1838 it was 12*s.* per 1,000 cubic feet; in 1844, 6*s.*; up to 1870, 5*s.*; then, by a series of gradual reductions, it has come down to last year's figure of 3*s.*; and a further reduction was promised in December last to 2*s.* 10*d.* per 1,000 cubic feet for gas having an illuminating power of 21·32 candles. The profits turned over to the public in 1879 were equivalent to 9½*d.* per 1,000 feet. There is no committee of the council that does more work than this. They are great manufacturers and traders, and, as in any business, every point in connection with buying and selling has to be watched, so as to obtain a satisfactory result. In the mere purchasing of coal cannel, the penny per ton is equal to a thousand pounds a year, as will be seen when we say that 240,000 tons were carbonized last year. On the other side, a reduction in the price of gas of 1*d.* per 1,000 cubic feet means over £8,000 per annum. The committee have been very busy of late years watching the many valuable improvements in gas making, and notably in all labor-saving appliances. They have lately engaged an engineer of ability, whose business it is to watch over the details of production and all the multifarious appliances at the immense works. The heaviest day's consumption has been over thirteen million cubic feet, and the storage capacity of all the holders is over eleven millions. A most important part is the sale of the by products, ammoniacal liquor, tar, and coke, which in 1879 produced £80,000. New contracts have been entered into for the sale of these residuals, and the committee hoped to realize a still larger amount under this head, and to be in a position this year to consider a further reduction in the price of gas. The committee are alive to all the uses their materials may be put to, and they make exceptionally good bargains for them on behalf of the citizens. The monetary operations of the committee are necessarily on a scale of great magnitude, the total income being nearly £400,000 per annum. They employ about 600 men in summer and 1,300 in winter. For interest on their debt they need £25,000 a year; for sinking fund, £30,000; they light the streets at a cost of £24,000, pay rates, rents, and taxes amounting to £13,000, and charge themselves with depreciation, £27,000. These items come annually to the enormous sum of £119,000, and yet the committee can hand over a profit of £52,000 to the Improvement Committee, and save the rates to that amount. The total sum paid for this latter purpose in relief for rates is about £1,250,000.

The Color Organ.

This consists of a musical instrument, such as an organ, on which a series of colored glasses are placed, having shutters behind them. The shutters are connected with the key board in such a manner that when a given key is touched a shutter drops and the light shines through the corresponding colored glass, and thus, by touching different keys, different colors are shown, or combinations of colors.

In the thirteen whole notes and semitones embraced in a single octave the colors flashed upon the plates appear and correspond with the notes as follows: C, red; C flat, orange red; D, orange; D flat, orange yellow; E, yellow; F, yellow, green; F flat, green; G, bluish green; G flat, blue; A, violet blue; A flat, violet; B, violet, red, or crimson.

These colors are produced mechanically. In each pipe at the rear of the organ is a small shutter facing the light. This color shutter is connected with its appropriate key by a wire. So when C is sounded the C shutter is opened. The light falling on the red glass belonging to C, the ray is reflected on the ground glass plate facing the spectator; D opens the shutter admitting the light through the orange colored plate, and so on with the rest.

The play of color during the performance of a quick air fascinates the eye, and as the tints rapidly appear, disappear, and blend into each other, the beholder is charmed by the gratification of two senses at once, and feels more than understands the harmony established betwixt melody and color. Mr. Bishop, of this State, is the author of this novel instrument.

Postal Money Orders.

Though but sixteen years old the postal money order system has become a gigantic business. The present head of the Money Order Department, Mr. C. F. McDonald, was its originator. The money handled last year amounted to over $100,000,000, and the work of the department is rapidly increasing. About one-eighth of the business is done in this city. In 1879 the transactions numbered 1,161,378, amounting in money to $43,652,273.37. This was an increase over 1878 of 100,119 transactions and $5,000,000. The next year showed 1,351,095 transactions, amounting to $51,231,749.04. This was a gain over the previous year of 189,720 transactions and $7,579,475 67. The money orders issued during the last fiscal year numbered 7,240,537 for the whole United States. This in money reached the enormous sum of $100,352,818.83. The fees paid to the Post Office Department amounted to $916,452.80.