should a fire occur in the front room of the building, the rear portion may be preserved intact, and *vice versâ*. The outside walls are hollow from foundation to roof. The floor, beams, and rafters are wood, protected from fire by concrete one and one half inches on the ceilings and underneath the floors, and the roof is covered with tin on the top of the concrete. Thorough ventilation is provided by flues adjoining the fire flues, and topped out in the chimney. There is an air space ventilated underneath the ground floor, preventing dampness from arising; and there is also an air space ventilated between the ceilings and roof, to prevent the heat of summer from affecting the rooms. The fire flues will be lined with burnt clay pipes, eight inches square, to prevent fires from defective flues. There will be a drain pipe, connected with sinks and closets, and with main sewer, to carry off all surface water, slops, etc.

The two-story dwelling is a building 26 feet 6 inches x 18 feet, with five rooms, two on the ground or principal floor, and three on the upper floor, the sizes of which are: Parlor, 12 x 10; kitchen, 12 x 12. The three upper rooms are for bedrooms, the sizes of which are, respectively, 11 x 9, 8 feet 9 inches x 7 feet 9 inches, and 8 feet 9 inches x 7 feet 9 inches.

This building has a cellar for coal and wood, and fitted up with water closet. The size of cellar within walls will be 12 x12. The upper story will be 9 feet in hight, and the principal story 10 feet; the cellar 6 feet 6 inches.

The building with store and dwelling combined is 25x59. The entire principal story is occupied with store room. The upper story is divided into seven rooms, consisting of two parlors, 11x12 each, bedroom, 11 feet x10 feet 6 inches, bedroom, 13 feet x 9 feet 6 inches, bedroom, 10 feet 6 inches x 9 feet 6 inches, kitcben, 13 feet x 11 feet 1 inch, dining room, 13 feet x 11 feet 1 incb.

Four model brick buildings are now being erected on Sacramento street, and will be known as Sacramento terrace, besides seventeen others in very desirable sections of the city. The exterior walls are hollow, one being eight inches thick, the other four, with a space of three inches between. The shells are tied together with wrought iron bolts. All rafters and floor beams are protected from above and below by artificial stone plastering one and a half inches thick,and no wooden lathing or furring is allowed. Each house is furnished with a bath room, and also a white stone front stoop, stone sills, and terra cotta caps. The façades are painted, and the brick cornices and water pipes are brought into relief by having a darker coating. The purchaser is required to pay down a given sum at the time of purchasing, and can then give a mortgage for one half the entire amount, and pay the remainder in monthly instalments. Over fifty acres of ground have been bought near the West Side Parks, upon which houses of these general plans will be erected.

One of the most striking features of these buildings is the fireproof plastering, which is applied as follows: A twelvepenny nail is driven into bottom of joist, less say three fourths of an inch, every three or four inches; an endless strand of strong wire is then wound once around the head of a nail, and passes from one to the other. A movable platform is then built, the top surface of which is one and a quarter inches from lower line of ceiling joist. This concrete material is then put in from top of joist on to platform, say from one and a half to two inches in thickness. As soon as the plaster sets, the platform is lowered, moved along, and readjusted, etc. A man weighing two hundred pounds has walked and stamped on this plastering in thirty minutes after it has been put on. By a little different method of applying the wire, and arranging the strands half an inch apart, it can be plastered in the ordinary way from the under side.

The composition, when put in from the top, is as follows: About one half cinders, crushed furnace slag, or brick bats; one fourth ordinary good plastering hair mortar; and one fourth coarse, strong plaster of Paris. It will be observed there is no plastering from the underside, except putting on the hard finish—the platform forming the surface to receive the hard finish.

This is considered, to all intents and purposes, a fireproof plastering, and would, in all ordinary cases, prevent fire from communicating with the joist.

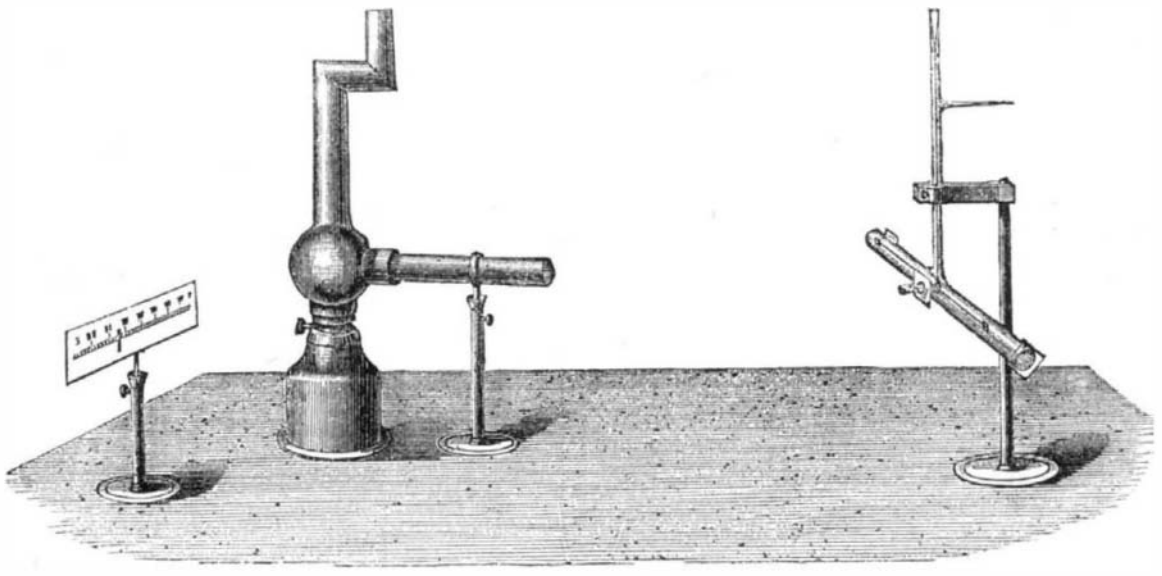
Lining Boilers with Copper.

M. F. Pupka, a Viennese engineer, gives the following facts regarding experiments in lining steam boilers with sheets of copper in order to hinder incrustation: Of the three plates which formed the bottom of a locomotive boiler, the two at the ends were covered with a sheet of copper 0·04 inch in thickness, the middle one being left bare. The machine was used steadily for two years and in districts where the water is of excessively bad quality. On removing the tubes recently a layer of incrustation 4 inches thick was found on the iron surface, while a deposit varying from only 0.08 to 0.12 inch thick appeared on the copper. The iron also was corroded in many places to a depth of 0·02 inch, but the copper had remained perfectly clean and bright. The texture of the incrustations showed larger grains on the iron than on the copper.

THE RADIOMETER.

We have already mentioned the important invention, by Professor Crookes, of a motor actuated by solar light radiation, exhibited at a recent *soirée* of the Royal Society, London. We give herewith illustrations of this wonderfully sensitive machine.

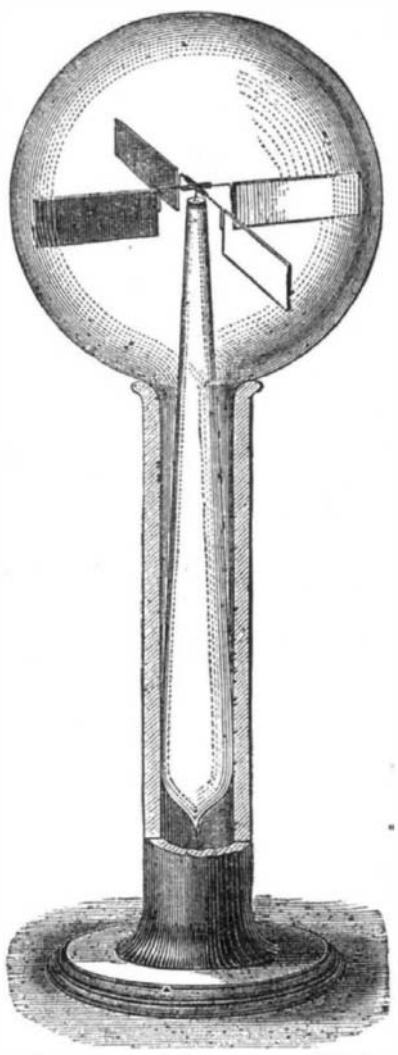
Mr. Crookes began by stating that, in the paper which he had previously read to the society, he had made known how a lever arm of pith, delicately suspended in a very perfect vacuum, was repelled by the impact of light or radiant heat. A great condition of success in the experiments was to work with the highest possible rarefication; consequently the lever arms were suspended in glass bulbs from which the air had been exhausted by means of the Sprengel pump, which gives a far more perfect vacuum than can be obtained by the use of any other apparatus. Until these experiments were made it was supposed that light had no action upon a lever arm of small ponderosity suspended in vacuo. Indeed, the circumstance that light could not turn a lever arm so suspended has been quoted in standard scientific text books, by Dr. Balfour Stewart and others, as one point in the long chain of evidence against the truth of Newton's emission theory of light.



PROFESSOR CROOKES' RADIOMETER.—Fig. 1.

Mr. Crookes has since exhibited a bar of pith suspended by a cocoon fiber in a large glass bulb very well exhausted. When a lighted candle was placed about 2 inches from this bulb, the pith bar began to swing to and fro, the swing gradually increasing in amplitude until the dead center was passed over, when several complete revolutions were made. The torsion of the suspended fiber then offered resistance to the revolutions, after which the bar began to turn in the opposite direction, and so on alternately. These movements were kept up with energy and regularity so long as the candle continued to burn. When instead of a candle a piece of ice was placed near the bulb, one end of the lever arm came toward it as if attracted; but the truth was, as explained by Mr. Crookes, that radiant heat was acting upon the pith bar from all parts of the room, and that the presentation of the piece of ice lowered the radiation on one side; consequently the movement was really caused by repulsion from the opposite direction.

Fig. 2.



In order to measure some of these effects, Mr. Crookes uses a piece of tubular glass apparatus in the shape of an inverted T, Fig. 1, containing a horizontal glass beam, suspended by a very fine glass thread. At the extremities of the beam were attached the substances to be subjected to experiment. In the center of the beam was a small mirror, from which a ray of light was reflected on to a graduated scale, just as in Sir William Thomson's reflecting galvanometer. Thus the amount of repulsion produced could be measured. The advantage which a glass thread possesses over a cocoon fiber is that the index always goes back to zero. The fiber used to suspend the arms are so excessively fine that, when the end of one of them is held in the hand, the fiber usually curves upwards like a cobweb until the other end of it floats almost vertically in the air.

As the vacuum becomes less perfect, the repulsion grows less, until at last the neutral point is reached, where there is no action at all. If still more air be then admitted, attraction instead of repulsion sets in. The barometric pressure of the neutral point varies with the density of the suspended substance on which the radiation falls; it varies also with the ratio of its mass to its surface, and with several other conditions. Thus the neutral point for a thin surface of pith being low, while that for a moderately thick piece of platinum is high, it follows that, with a rarefication intermediate between these two points, pith will be repelled while platinum will be attracted by the same power of radiation. Mr. Crookes proved this experimentally, by showing simultaneous attraction and repulsion by the same ray of light.

When these experiments were first made known, some of the observers tried to account for the effects by the assumed action of feeble air currents or of electricity, but both these hypotheses were considered by Mr. Crookes to be abundantly disproved. Professor Osborne Reynolds suggested that the movement might be due to evaporation and condensation at the surface of the suspended body. Mr. Crookes had a thick and strong bulb blown at the end of a piece of difficultly fusible green glass, specially made for boiler gages. In it he supported a thin bar of aluminum at the end of a long platinum wire, the upper end of which wire was passed through the top of the tube and well sealed, for electrical purposes. The apparatus was sealed by fusion to the Sprengel pump, and the exhaustion was kept going on for two days, until an induction spark refused to pass across the vacuum. During this time the bulb and its contents were several times raised to a dull red heat. At the end of the two days' exhaustion, the aluminum bar was found to behave in the same manner as, but in a stronger degree than, it would in a less perfectly exhausted apparatus, namely, it was repelled by heat of low intensity and attracted by cold.

The most remarkable of all the facts made known by Mr. Crookes was an apparent difference between the action of radiant light and radiant heat. At the highest exhaustions, dark heat appeared to act almost equally on white pith and on pith coated with lampblack, repelling either with about the same force; but strange to say, the luminous rays repelled the black surface with more energy than the white one. This is all the more remarkable because, light being reflected from a white surface, it might have been supposed that the consequent rebound would have repelled the white surface more than the black one.

The apparatus is shown in Fig. 2, and consists of four arms suspended on a steel point resting on a cap, so that the arms are able to revolve horizontally upon their central pivot, just the same, in fact, as the arms of an anemometer revolve. To the extremity of each arm of straw, in the apparatus made by Mr. Crookes, is fastened a disk of pith, white on one side and black on the other, the black surfaces of all the disks facing the same way; the pith disks are each about the size of a sixpence. The whole arrangement is inclosed in a glass globe, which is then exhausted to the highest attainable point and hermetically sealed.

This arrangement rotates with more or less velocity under the action of light. With one of the instruments, the arms revolved once in 182 seconds when a candle flame was placed at a distance of 20 inches. When the same candle was placed at a distance of 10 inches, one revolution in 45 seconds was the result; and at 5 inches, one revolution was given in 11 seconds. Thus it will be seen that the mechanical effect varies almost exactly inversely with the square of the distance, so that the theory and the experiment coincide as to their results.

In these experiments Mr. Crookes had to be very careful to guard against the effects of undesired radiation. The lighted sun burners of the roof of the hall of the Royal Society interfered with some of the results, and a candle placed incautiously near his bulbs would send the contents of some

of them spinning. As the velocity with which they spin varies with the intensity of the light, in these instruments we have a new form of actinometer. At present there is no good and scientifically exact method of making actinometrical measurements; but these discoveries may possibly result in the production of a more perfect instrument for this purpose.—*The Engineer*.

HOUSEHOLD HINTS.---II.

We have often wondered by what powers of designing the makers of moderate priced furniture contrive to make chairs and sofas, as a rule, in such outrageously uncomfortable shapes. Why, indeed, should chairs be constructed with seats inclining forward, or with backs hollowed in below and protruding above, so as to furnish support to but two points, and these exactly beneath the shoulder blades? It is a positive labor to sit in such chairs, and no amount of disguise, in the shape of fancy covering or upholstery, should ever beguile a person into purchasing one. The proper shape for a chair is a broad, moderately low seat inclined rearward, and the back should be just the reverse of the form above described—in other words it should conform to the natural curvature of the spine. The frame becomes a support and comfortable rest for the body, while otherwise its tendency is to push the shoulders forward while the lower part of the person slides in the same direction on the seat, the result is that the occupant must either sit back in a round-shouldered position, or else balance himself on the very edge of the seat; in both cases finding himself the reverse of comfortable. The same remarks apply to sofas, and especially to those made with straight backs and in the pretty gothic forms which are now so fashionable. Buying furniture for comfort and buying it for looks are very different matters—in fact, there is a distinct class of furniture which is gorgeous to the eye but simple martyrdom to the body. It includes pine or whitewood chairs, covered with plaster of Paris, gilding, and satin, which are meant to be admired but not to sit in; and an endless variety of brass-mounted tables, footstools, cabinets, and like objects the cost of which appears to augment in exactly invese ratio to their utility. With such, we have nothing to do here. We propose simply to talk about articles that can be used, and used comfortably.

For stuffing furniture, there is nothing equal to good white curled horse hair. It will last indefinitely, for it is susceptible to almost perpetual regeneration. There is no economy whatever in paying twenty or thirty dollars less for a set which is filled with tow, moss, excelsior, or any other of the numerous materials used as substitutes. To be sure, the articles look exactly as well in the beginning as if stuffed with hair; but a year's wear, evidenced by the sunken seats and cushions, will speedily show the difference. It is better to select furniture before it is covered, as then a small hole, surreptitiously, if need be, poked in the side of a seat or back, will soon prove whether the salesman's too frequent protestations that "we use only the best hair" are founded upon fancy or on fact.

While horse hair is most suitable for the inside, we have very little liking for the same material made into cloth as a covering for the exterior, although it is the most enduring of all materials. Hair cloth is black; and as the articles upon which it is used are the principal objects in the room, the general effect to our minds is funereal and depressing. The heavy deep shade cannot, when in such masses, be acceptably toned down by contrasts, nor can it be enlivened so that the general appearance of the room is rendered bright and cheerful.

Good stout woolen reps are among the best fabrics to wear. Silk rep is just the reverse, while not one person out of ten can tell the difference in the fabrics across a room. Plush is also very strong and lasting, though it is not suitable for a modestly furnished room. Satine, though not equal to rep in wearing qualities, showing spots and dirt much easier, is by some considered handsome, and probably is better suited than the latter for a parlor.

In regard to color, the hues of the carpet, unless Turkish rugs are used, and that of the wall paper are again to be taken into consideration. With a gray toned wall and carpet, crimson is the proper shade for the furniture. Blue looks nicely with a rich dark carpet having no green in it, or with a blue carpet of a harmonizing shade. Crimson or green furniture accords well with either brown or green carpeting. Brown upholstery requires a green carpet. Covering furniture with two distinct colors or shades is now quite common, and is preferred by many to a single shade or color throughout. The body of the piece is upholstered in gray rep, for example, and the edges surrounded with blue puffings. There is a variety of pretty combinations of colors, of which in such a case advantage may be taken. Deep blue and golden brown, chocolate and bright blue, gray and pink, maroon and warm green, claret and buff, are instances in which the tints make pleasing contrasts.

Wood work enriched with gilding is now extensively made, and even enters into the construction of the cheapest grades of furniture. We do not counsel its purchase, as the gilding, especially in cheap goods, wears off very easily, leaving the articles badly defaced. A few pieces of furniture about the room differing from the principal set will be found to give a pleasant and furnished look to the apartment. A very neat chair, made by the Shakers and at some of the penitentiaries, is now sold at from five to ten dollars. It has a light though stout wooden frame, of simple pattern; and the seat and back are made of plaited webbing of two colors, either red and blue, or green with gray or black. One red chair of this kind makes an attractive spot of color to a room furnished in green. Then there are the so-called oriental chairs, something after the camp stool pattern and having high backs. These may be purchased as low as ten dollars apiece, and may well take the place of the much more expensive stuffed easy chairs.

We prefer a wooden top covered with a handsome cloth, to a marble slab, for a table. There is something cold and uncozy about marble; it makes us think of a burial tablet, such as one sees in country churches.

About the cloth we shall have something to say in another paper; but just here we desire to remark that a number of small tables, on which one can place ornaments without fear of obscuring either inlaid work or fancy marble, can be arranged about a room so as to be much more ornamental than one large table deposited in the center. Stands of very pretty and graceful shape can be obtained, made of bamboo. These are quite cheap, and their light yellow color contrasts nicely with the darker wood of the heavier furniture. We have seen very tasteful home-made tables of cane, dried and varnished; also of white wood, ornamented with bracket saw carvings. Holly wood, if attainable, when smoothed can be painted upon in water colors and afterwards varnished; or the material may be even pine painted black, and have fall leaves arranged upon it in pretty designs, and then covered with two or three coats of copal varnish.

In arranging furniture about a room, bear in mind that it is not necessary to push every article primly out to the sides, so that sofas and chairs look as if they were glued to the wall. Pull them out; put a sofa across one corner; stand the big easy chair in the light, with a little table close by, handy for sewing or books; leave a chair or two in front of the sofa; and in general so dispose the articles that the room shall not appear as if its owners never entered it save on ceremonial occasions. Whether a room is pleasing and cosy or not does not depend upon the elegance or costliness of its fittings. The simplest furniture, if tastefully arranged as regards color and position, often looks better than the handsomest products of the cabinet maker's skill. In our next paper, we shall discuss a few simple styles of curtains and decorations.

Miniature Steam Engines for Light Work.

We have frequently stated our belief that there is a growing want in the community for small steam engines, machines of one horse power and under, which might advantageously serve as a source of power in a variety of uses. As no greater skill would be required in the generation of such power than in the boiling of a teakettle, it would seem that a simple steam engine, driven by a boiler thoroughly protected against explosion, might find employment both as a domestic motor and for light work in the shop. It could turn wringers, churns, washing machines, or ice cream freezers, run coffee mills, pump water through a house, actuate foot lathes, scroll saws, or light box-making machinery, run knitting or sewing machines, turn a grindstone or emery wheel, work ventilating fans, hand thrashing machines, cutters, meat or feed choppers, or sausage machines, drive small blowers for pneumatic dispatch tubes in a building, or for a blacksmith's forge, or compress air or work an air pump on a small scale in the laboratory. These are but a few of the applications which suggest themselves as we write, and the reader will doubtless be able to recall many more.

The principal obstacle to the employment of the steam engine hitherto, for such uses as above detailed, has been its cost. No manufacturer, so far as we are aware, has ere this prepared the necessary patterns and mechanism for producing small engines on a large scale, so as to allow of their sale at low rates, so that there has been no way of obtaining the machines save by employing workmen especially to build the same, a course involving considerable expense.

A couple of small engines have, however, recently been forwarded to us for examination, which, if we may take them as specimens of the general product of their manufacturer, abundantly prove that he has read our oft repeated assurance that such motors were in demand, and is taking proper steps to meet it.

The two engines submitted to us are certainly admirable pieces of mechanism. One would probably develop half a horse power, perhaps more, and the other, which is running at full speed on our desk as we write, is intended as a toy. The larger machine has a copper boiler, 10 inches in diameter by 18 inches high, with furnace and all necessary gages and fittings. The cylinder of the horizontal slide valve engine is 1⅝ by 2½ inches, and the fly wheel 12 inches in diameter. The small engine is of similar type and is furnished as perfectly and in as workmanlike a manner as if made entirely by hand.

The miniature sizes of engines are of course designed more as playthings for the boys; but the maker, Mr. George Parr of Buffalo, N. Y., has devised an ingenious way of rendering them at the same time a really valuable source of knowledge. To this end, besides finished machines, he prepares rough castings which he furnishes at reduced prices. These portions require no expensive nor elaborate tools to finish them. Any youth with a little mechanical skill can easily trim them, and then, putting them together, build his engine for himself. This we think an excellent plan, and one which cannot but result in the young machinist gaining ideas certain to be of much practical use to him in the future.

Mr. Parr's advertisement may be found in another column.

DECISIONS OF THE COURTS.

United States Circuit Court---District of Massachusetts.

PATENT TREMOLO.—GEORGE G. SAXE *et al. vs.* A. H. HAMMOND *et al.*

[In equity.—Before SHEPLEY, J.—January, 1875.—

SHEPLEY, J.:

This bill in equity alleges that the respondents infringe certain letters patent reissued to the complainants, as assignees of R. W. Carpenter, on the 5th of October, 1869, No. 3665, for a "tremolo" attachment to musical instruments. The defendants deny infringement, and allege prior knowledge and use of the patented invention by La Fayette Louis and others more than two years before the date of the application of R. W. Carpenter; and also, that the same invention and discovery, and the same device described in said patent, and substantial and material parts thereof, were patented on the 13th day of November, 1856, to La Fayette Louis.

If the defendants could be held as infringers of the Carpenter patent, if it be a valid patent, and not anticipated by the devises which were made and used by La Fayette Louis at Chicago and other places, it would be necessary carefully to consider and decide upon the probative force and effect of the testimony in relation to those devices of Louis, which, if the testimony of the witnesses in relation to them is to be received with full credit, acted substantially as agitators so, or reflectors of, the waves or currents of air passing through the reeds of the musical instrument, and not as valves to interrupt the continuity of the musical notes. If they are operated in the way first described, they would seem to have operated in the same manner and with the like result as Carpenter's fan-tremolo, although Louis appears to have been ignorant of the philosophy of the operation—a want of knowledge which is imputable as well to Carpenter, and even to those who have the benefit of the theories (which are only claimed to be theories) of the most learned scientists who have testified as experts on this subject.

If, however, the evidence in this record is not sufficient to charge the respondents as infringers of the complainants' patent, it is not necessary to decide that question in this case.

The respondents are manufacturers of supplies of materials which are elemental parts of organs and other musical instruments. They sell to the organ manufacturers. It is not claimed that they have made any musical instruments or sold any in which the tremolo attachments of any kind are arranged, or to which they are applied in any manner. The complainants allege that they (the complainants) have licensed large numbers of manufacturers to put these fans in their organs, and proved that they agreed to license every reputable manufacturer who should apply. There is no evidence in this record of a sale to an unlicensed manufacturer of organs. The thing made by the defendants is shown by the exhibit produced in the case; a wooden structure of the simplest kind, which is in itself no infringement, and which, in order to constitute an infringement of the complainants' patent, must be placed by an unlicensed manufacturer in a musical instrument, and placed in a certain position in that instrument, external to the wind chest. A revolving fan is not new. All the respondents make is a fan capable of being made to revolve.

The complainants claim as their invention the application of any means to the musical instrument whereby the air may be agitated to produce a tremulous note "by agency *external to the wind chest*, which shall not check the flow of the air past the reeds," so as to give a continuous tremulous note, but not cut off the sound and make a succession of notes, instead of a continuation of one note. Whether the fan made by the respondents would infringe this claim when placed in the instrument depends upon the position and arrangement of it in the organ, whether or not it be placed external to the wind chest, whether it be placed so as to cut off the sound and produce a succession of notes, or merely to agitate the air and vary the musical notes without interrupting their continuity. Even if all these alternative conditions were on the side of infringement, there must be the additional element of a sale for use by an unlicensed manufacturer, which is not proved in this case.

The complainants rely upon the case of Wallace *vs.* Holmes, 9 Blatchford C. C. R., 65.) There can be no doubt of the soundness of the conclusions of the court in that case, or the cogency of the reasons given by the learned judge (Woodruff) in his opinion. But, without rehearsing the facts in that case, it is sufficient to say that they were very different from the case now before the court; the gist of the decision in that case was that the actual concert of the makers of the different elements in the combination was a certain inference from the fact in that case, and the distinct efforts of the defendants to bring into use those elements of the combination which comprised the whole invention, although they could not be used without adding one other element, were found to be proved. No such state of facts is proved in this case, as has already been shown.

I must, therefore, repeat what I stated to counsel at the argument of the cause. As defendants only make one element of the patented invention, in order to hold them guilty I must find proof connecting them with the infringement. Different parties may all infringe by respectively making or selling, each of them, one of the elements of a patented combination, provided those separate elements are made for the purpose and with the intent of their being combined by a party having no right to combine them. But the mere manufacture of a separate element of a patented combination, unless such manufacture be proved to have been conducted for the purpose and with the intent of aiding infringement, is not, in and of itself, infringement. A patent is valid for a new combination of old elements. A person who uses one or more of the old elements is not an infringer, unless he uses the new combination. (Prouty *vs.* Ruggles, 16 Peters, 336, 341; Byam *vs.* Farr, 1 Curtis, C. C. R., 260, 265; Foster *vs.* Moore, 1b. 279, 288; Eames *vs.* Godfrey, 1 Wall., 78, 79.) The use of a part less than the whole is no infringement.

I infer from the remarks of counsel at the argument that, although respondents deny infringement, and do not waive this defense, it is desired that the court should pass upon the question of the validity of the interfering patents for the respective inventions of Louis and Carpenter. If the court should find the complainants' patent to be valid, no decree could be made in their favor, as respondents do not infringe. To find the complainants' patent invalid, in a case in which the defendants do not infringe, would partake too much of the nature of a moot case.

Complainants' bill dismissed.

[*Whitney* and *Betts*, for complainants.
R. E. Valentine and *W. W. Blackmar*, for defendants.]

Inventions Patented in England by Americans.

[Compiled from the Commissioners of Patents' Journal.]

From April 14 to May 15, 1875, inclusive.

ASTRONOMICAL APPARATUS.—H. Allen, New York city.
BLAST FURNACE.—W. A. Stephens, Succasuna Plain, N. J., *et al.*
BLIND REGULATOR, ETC.—J. T. O'Donoghue, New York city.
BLIND ROLLER.—E. Putnam (of Chicago, I.), London, England.
BREECH LOADING ARM.—E. Whitney, New Haven, Conn.
BUTTON HOLE CASING.—V. V. Balmforth, Oakland, Cal.
CARRIAGE SAFETY SHOE.—J. Tiffany, Chicago, Ill.
CHAIR SEATS, ETC.—C. Mason, New York city.
CONDUCTOR'S ALARM, ETC.—T. B. Doolittle, Bridgeport, Conn.
CORK SCREW.—W. R. Clough, Newark, N. J.
DAMPING PRINTING ROLLERS.—W. H. Woodcock, Brooklyn, N. Y.
DRAWING NAILS, ETC.—M. D. Converse, New York city.
ELEVATED RAILWAY.—R. P. Morgan, Jr., Bloomington, Ill.
EMBROIDERING DEVICE.—J. I. West, New York city.
EXCAVATOR.—O. S. Chapman *et al.*, Boston, Mass.
EXPANDING TUBES.—O. Pagan *et al.*, Philadelphia, Pa.
FERTILIZER HOLDER.—W. F. Wheeler, Dorchester, Mass.
FINISHING CLOTH, ETC.—I. E. Palmer, Middletown, Conn.
GOVERNOR.—D. L. F. Chase, Boston, Mass.
GRAIN-BINDING MACHINE.—C. L. Travis, Minneapolis, Minn.
HAMMER EYE MACHINERY.—L. Chapman, Collinsville, Conn.
HARVESTER.—W. Y. Selleck, New York city.
KNITTING MACHINE NEEDLES.—S. Peberdy *et al.*, Philadelphia, Pa.
LAMP.—G. H. Lomax, Massachusetts.
LAMP REFLECTOR, ETC.—H. Craighead, New York city.
LIFE-PRESERVING DRESS.—P. Boyton (of New York city), London, Eng.
LOCKING NUT.—F. L. Bates, Carrollton, Miss.
MAKING SWIVEL HEADS.—W. Edge, Newark, N. J.
MARINER'S COMPASS.—D. Baker, Boston, Mass.
OPENING WINDOWS, ETC.—J. T. Parlour, Brooklyn, N. Y.
PADDLE WHEEL, ETC.—N. T. Edson *et al.*, New Orleans, La.
PEAT FUEL MACHINE, ETC.—F. Dodge, New York city.
PRINTING FROM GELATIN.—E. Edwards, Boston, Mass.
PRINTING MACHINE.—W. H. Woodcock, Brooklyn, N. Y.
RAILWAY BRAKE.—A. Barker, Wyoming, Pa.
RAILWAY SIGNAL.—H. Flad, St. Louis, Mo.
ROCK DRILL.—C. Burleigh, Fitchburg, Mass.
ROTARY ENGINE.—B. T. Babbitt, New York city.
SCREW DRIVER, ETC.—A. Cummings, New York city.
SEWING MACHINE.—J. L. Follett, New York city.
SPOOLING MACHINE.—G. W. Paine, Pawtucket, R. I.
SURGICAL NEEDLE, ETC.—J. C. Holland, New York city.
THREAD-HOLDING DEVICE.—H. Sutro, New York city.
THREAD SPOOL MACHINE, ETC.—D. T. Lyman, Providence, R. I.
TRACTION ENGINE.—W. H. Milliken, Sacramento, Cal.
TREATING SUGAR.—F. O. Matthiessen, New York city.

Recent American and Foreign Patents.

Improved Sight Protector.

Marmaduke H. Mendenhall, Wabash, Ind.—This device is an improvement upon that for which letters patent No. 158,726 were granted January 12, 1875, to the same inventor. The lamp case is pivoted at the bottom to adapt it to rotate. It is also cut away on all sides, and a hinged flap or plate swinging vertically, and a door swinging horizontally, are so combined with the case that, when opened, the lamp may be readily inserted or removed, or the light allowed to diffuse itself freely into the room; or the flap may be turned up while the door remains closed to allow the light to strike the ceiling and illumine the upper portion of the apartment, while the eyes of the persons reading or otherwise employed are shaded and protected.