

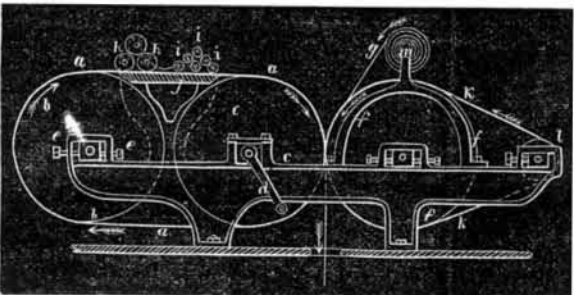
Printing Photographs by Machinery.

The name of M. Despaquis has for several months past been associated with earnest efforts made, not unsuccessfully, to hasten the advent of the time when the production of photographs at the printing press may be effected with a degree of celerity rivaling the production of typographic works at the platen printing machine.

Like, we believe, all typographic machines in which rapidity is a desideratum, the printing surface in this process is curved; but unlike the typographic processes, the "surface" in this case is that of a flexible endless band, which passes over two rollers.

Before describing the press and its mode of action, we shall explain the construction of the flexible printing band. A web of flax or hemp (not of cotton or wool) is faced with bichromated gelatin, on the surface of which the light has been allowed to act through the negative, and this it is which becomes the printing band. But a certain method of procedure is requisite in the preparation of this gelatined linen. A single pellicle of gelatin is treated by itself under the negative, and when exposed to light it is sponged on the surface with cold water containing a little glycerin, which retains the surface in a state of moisture, and thus prevents it from becoming insoluble during the operation which follows. This latter consists in laying down the cloth referred to upon the back of the pellicle thus treated, and saturating it thoroughly with bichromated albumen, in consequence of which, after it has been exposed to light, no water can penetrate the film or, at any rate, act upon the linen in such a way as to cause it to swell or become altered. The albumen is applied by means of pouring it over the surface of the linen, by which the albumen, linen, and original pellicle of gelatin, which bears the impression on its opposite side, are incorporated and form a strong flexible web. By exposing the back to the light, the entire body of the band is rendered insoluble, except on the extreme surface already exposed under the negative, and upon which the light has now no more action, owing to its being still moist with the glycerin.

This forms the flexible printing surface, and it is impossible not to admire the ingenuity displayed in its production. We now arrive at the press in which this endless printing band is to be utilized. The following is a view of the press in elevation:



In the above, *b* and *c* represent two rollers or drums, to one of which is attached a handle, *d*, for the purpose of rotating it. Over these rollers passes a cloth either of ordinary material or of metallic gauze, to which is attached the flexible printing pellicle just described. Three rollers, at *h*, *h*, serve to moisten the printing surface in the same way as a lithographic printer moistens the surface of his stone by a wet sponge, while a series of other rollers, shown at *i*, *i*, serve to ink the surface wherever the moisture absorbed admits of the ink adhering. At *e* is an adjusting screw, by which the large rollers are separated to such an extent as to insure the printing band being retained in a tight state.

A third roller, *f*, is placed so as to act against *e*, and produce the pressure of the paper, *g*, against the printing cloth. On this roller turns an endless cloth, *k*, in flax or zinc, which passes over a second movable roller, *l*, which serves to stretch it more or less. Connected with the roller, *m*, is the paper, in a band, which unrolls by the action of the two large rollers, *f* and *c*.

It is, of course, necessary that the ends of the printing cloth should be united by sewing—not forming a thick seam, but so as to pass smoothly between the two cylinders.—*British Journal of Photography.*

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

The regular annual meeting of the above named association convened at Detroit, Mich., on the 11th of August. Hon. C. J. Walker, of Detroit, delivered an address of welcome, to which Professor Hilgard, as President of the Association, made a suitable response. Up to the time of writing the members have been engaged in organizing details, so that, with the exception of the speech made by the retiring President, Dr. Le Conte, a brief *resumé* of which is given below, we defer publication, of our usual abstracts of papers of interest read, until our next issue.

Dr. Le Conte's address dealt with the evidences of evolution, and he endeavored to show that, while change of species may be admitted in creation, there still is reconcilable evidence of intelligence and design. He discussed the strict relation of natural history or biology to that great mass of learning and influence which is commonly called theology, and to that smaller mass of belief and action which is called religion; and in reference thereto stated that it will be necessary to separate the essential truths of religion from the accessories of tradition, usage, and, most of all, organizations and interpretations, which have in the lapse of time gathered around the primitive or revealed truth. In conclusion, the speaker considered that the influence of Science upon religion has been beneficial. Scholastic interpretations founded

upon imperfect knowledge, or no knowledge but mere guess, have been replaced by sound criticism of the texts and their exegesis, in accordance with the times and circumstances for which they were written.

The Most Powerful War Vessel in the World.

The British ironclad *Inflexible* is now about one fourth completed, work having been begun upon her in February, 1874. Unless the progress of invention results in the projecting of a still more formidable engine of marine warfare before the *Inflexible* is launched, she will possess the thickest armor, the heaviest guns, the largest displacement in tons, the most machinery in the world, and probably prove more expensive than any other war vessel hitherto constructed. She will have engines for steering, for loading guns, for hoisting shot and shell, for ventilation, for moving turrets, for lowering boats, and for turning the capstan as well as for propulsion. The vessel is little more than a floating castle, rectangular above water, 100 feet long, by 75 feet in width, and protected by 24 inches total thickness of iron. The two turrets which are placed within the citadel are formed of iron of a single thickness of 18 inches, and within each of them are two 80-ton guns, which can be trained to any point of the compass.

The main engines work up to 8,000 indicated horse power, and the bunkers carry 1,200 tons of coal. The total cost of the vessel is placed at 2,605,000 dollars.

Centennial Notes.

Egypt is to make an exceptionally fine display at the centennial. The Viceroy's Commissioner has arrived in this country, and is pushing preparations vigorously. Egypt acts in conjunction with Germany.

The General Transatlantic Steamship Company offer reduced rates to freight and passengers coming from France to the Centennial.

Application has been made by the Royal Academy to the English Government for the latter to defray the cost of transporting works of art for exhibition in the Centennial. The request was favorably received, and is now under consideration.

Mr. John Jay recently gave his views regarding the Centennial in an extended letter to the *Tribune*. He advocates the division of space into national and State plots. Such a plan, he thinks, would do much to develop that international rivalry to which the Vienna Exposition chiefly owed its success, while it would be less expensive to the Centennial Commission. He also advocates international scientific discussion upon a list of subjects to be selected by the Smithsonian Institute, congresses of scientific men being summoned from all parts of the world for the purpose, and national vessels being sent to transport them. Mr. Jay also suggests a congress which shall decide upon an international patent system which will give to an inventor in one country protection throughout the world.

A Brilliant Light.

Fill a small vessel of earthenware or metal with perfectly dry saltpeter or niter, press down a cavity into its surface, and in this cavity place a piece of phosphorus; ignite this, and the heat given off melts a sufficient quantity of the niter to evolve oxygen enough to combine with the phosphorus, and the effect is to produce the most magnificent white light which chemistry can afford.—*Photographic News.*

DECISIONS OF THE COURTS.

United States Circuit Court—District of Massachusetts.

PATENT SHADE FIXTURE.—STEWART HARTSHORN vs JAMES F. ALMY *et al.* [In equity.—Before Shepley, J.—Decided April, 1875.]

SHEPLEY, J. The bill in this case is brought for alleged infringement of released letters patent No. 2,756, dated August 27, 1867, granted to Stewart Hartshorn, for improvement in spring fixtures for shades.

The claim is for—
The application to a shade roller, provided with a spiral spring for automatically raising and rolling up the shade of a pawl and ratchet or notched hub, so arranged that the former will engage with the latter at any point or height of the shade by simply checking the rotation of the roller and the upward movement of the shade under the influence of the spring, substantially as set forth.

Upon the construction of this claim depends the question of infringement in this case. Defendants contend for a construction which will limit the claim to the peculiarly shaped pawl and the peculiarly shaped ratchet described in the specification of the patent. Complainant contends for a construction which will embrace, in combination with the other elements, any pawl and ratchet or notched hub so arranged that the former will engage with the latter at any point or height of the shade by simply checking the rotation of the roller and the upward movement of the shade under the influence of the spring, substantially as set forth.

The state of the art before the invention of Hartshorn was this: A roller was used, having within it a coiled spring, one end fixed to the roller and the other end to a loose journal of the roller. A pawl and ratchet were so applied to the roller that the pawl would hold the roller against turning under the action of the spring, but allow the roller to be turned against the action of the spring. The ratchet lifted and disengaged the pawl from the ratchet in a downward pull of the curtain. These rollers were adapted, like the Hartshorn, to be hung in brackets. In the form of spring fixtures for shades which was known as the "Coach Fixture," and in use prior to Hartshorn's invention, a cord was used to lift the pawl and disengage it from the ratchet when it was desired to allow the curtain to roll up under the action of the spring. Hartshorn's invention differed from those which had preceded it, in that it dispensed with the cord used to disengage the pawl from the ratchet when the curtain is to be rolled up, and operated the fixture wholly by means of the shade or curtain.

The operation of Hartshorn's fixture, so far as concerns winding up the curtain and stopping it any desired height, is as follows: A pawl is attached by a pivot to one of the brackets in which the shade roller is hung. The end of the pawl opposite the pivot end has a tendency to fall by gravity on a hub attached to one end of the roller. Two notches are made in the periphery of this hub. The width of these notches is but slightly in excess of the width of the toe of the pawl. The ratchet supports the pawl for the full extent of its periphery, except as to the slight difference in excess between the width of the ratchet notch and the width of the toe pawl. Should the roller be revolving rapidly the width of the ratchet notch will pass under the width of the toe of the pawl before the toe of the pawl has had sufficient time to gravitate into the ratchet notch. This space of time is very short, for it is only while the excess of width between the width of the notch and the width of the toe of the pawl is passing under the toe of the pawl. This only allows the pawl toe to gravitate into and engage with the ratchet notch under a slow movement of the roller. Under a quick revolution of the roller the pawl toe will not be engaged by the ratchet, and has a tendency to fall by gravity into a space of time sufficiently long to allow it to gravitate a sufficient distance into the ratchet notch to become engaged with it while the ratchet notch is passing under it.

The patentee also states that, if desired, the pawl may be placed underneath, or at one side of, the hub, instead of over it, as represented, and a spring may be made to bear against it, in order that its projection may engage with the notches.

It will thus be seen that the invention of Hartshorn consisted, so far as concerned the spring roller shade fixture, in dispensing with the weights, counterpoises, and pulleys which had been previously employed, and also with the cord which had been employed to operate the pawl and disengage it from the ratchet notch, and so arranging the pawl and ratchet that the shade may be stopped and retained at any desired point within the scope of its movement by a simple manipulation of the shade itself, the arrangement of the pawl and ratchet being such that the former will engage with the lat-

ter at any point by simply checking the rotation of the roller and the upward movement of the shade under the influence of the spring.

In the fixture of the defendants the pawl or pin engages with the notch by the force of gravity acting on the pin. This mode of engagement is like that in the Hartshorn fixture. In the Hartshorn fixture the pawl is kept away from its engagement in the ratchet notch by being raised by the periphery of the hub, and kept up by portions of the periphery of the hub until the ratchet notch is under it; and it is raised so high by the non-holding wall of the notch that, when the roller is rotating freely under the action of the spring, it will not have time to fall far enough to engage with the holding wall of the notch during the time the notch is passing under it. In the defendants' fixture the pin or pawl is kept from engagement in the ratchet by centrifugal force. It is not supported by the periphery of the hub, or raised by the non-holding wall of the ratchet, or knocked up slightly by the blow of the holding wall of the ratchet, as in Hartshorn's fixture.

In the Almy roller there is a thimble with a side aperture, surrounding the hub, forming a closed chamber when covered by the end cap of the roller. In this chamber is placed a little roller or pin, lying horizontally, and allowed to revolve loosely, and in the rapid revolution of the roller to be thrown above the periphery of the notched hub by centrifugal force; but when the roller is revolved slowly, or its motion is arrested, the loose pin, roller, or pawl falls on to the hub and into the notch, and in rolling up the curtain, it is caught between that part of the notch which is at right angles with the axis of the hub and the shoulder formed in the thimble at the pin chamber. In this respect the pawl and ratchet in the defendants' may properly be said to have a different operation from the pawl and ratchet in the Hartshorn fixture. In a similar sense the pawl and ratchet in the Hartshorn patent operate in a different manner when actuated by a spring in one of the modes described in the patent, and when left to engage by the pawl falling into the ratchet notch by gravitation, as in the mode stated as the preferable mode in that patent.

In both the Hartshorn and the Almy roller the pawl and ratchet are so arranged that the one will engage with the other at any point or height of the shade by simply checking the rotation of the roller and the upward movement of the shade under the influence of the spring, by simply manipulating the shade, dispensing with counterpoises, or the usual cord for operating the roller, or the cord for holding the pawl disengaged.

In this respect, wherein Hartshorn differed from all that had preceded him, the mode of operation is the same; and even if Almy's fixture has some advantages over Hartshorn's, it clearly embraces what was his invention, and is secured by the claim of his patent, and is an infringement. As stated by Judge Blatchford in the case of *Hartshorn vs. Tripp et al.*, in the circuit court for the southern district of New York: "There is no difference between these two modes of operation in the withholding from engagement, so far as regards the real invention of the plaintiff and the scope of the claim of his patent."

Decree for complainant for injunction and account, as prayed for in the bill.

[S. D. Law, for complainant.
J. E. Maynard, for defendants.]

Supreme Court of the United States.

PATENT RUBBER PENCIL HEADS.

The Supreme Court of the United States, Chief Justice Waite reading the decision, has decided, in the case of the Rubber Pencil Company, appellants, vs. Samuel E. Howard, *et al.*, defendants, that what is known as Blair's patent for rubber pencil heads was not a fit subject for a patent. The description named a combination of rubber with some other substance to increase the elastic power which the opinion decides was not a novel device, and of length limits the claim of originality to the fixing of the head to the end of the pencil in extended and longitudinal shape. The opinion avers that any piece of rubber could be so treated, and says, in closing: "An idea of itself is not patentable, but a new device by which it may be made practically useful is. The idea of this patentee was a good one, but his device to give it effect, though useful, was not new; consequently he took nothing by his patent."

United States Circuit Court—Southern District of New York.

PATENT GAS MACHINE.—GILBERT AND BARKER MANUFACTURING COMPANY vs. ABRAHAM BUSSING.

[In equity.—Before Woodruff, C. J.—January, 1875.]

This was a suit under letters patent granted to C. N. Gilbert and J. F. Barker, August 3, 1869, for an "improved apparatus for carbureting air." The patent had been sustained at final hearing in a suit against Oakes Tirrell, decided by Judge Woodruff in July, 1874, and the complainants had obtained an interlocutory decree for an accounting as to gains, profits, and damages. Tirrell was a manufacturer of the infringing machines, and the defendant in the present suit had purchased one of the machines so manufactured by Tirrell, and was using it to light his own residence.

A mere interlocutory decree for gains, profits, and damages against the manufacturer of infringing machines cannot operate as any defense in behalf of the purchaser of one of such machines.

A patentee cannot take compensation for an infringement, including manufacture, sale, and use, and thereafter enjoin that use for which he has taken compensation.

When a patentee claims and recovers, not only the actual gains and profits of the manufacture and sale of the infringing machine, but all the damages which he has sustained therefrom, it is at least to be presumed that such recovery embraces all the profit which the patentee would have received had he made and sold the machine with the incidental and consequential right to use it.

Where the complainants had obtained an interlocutory decree for an accounting of gains, profits, and damages against the manufacturer of the infringing machines, an unqualified injunction *pendente lite* against the purchaser and user of one of the machines was refused. The defendant, however, was put under bonds.

On final hearing the complainants might become entitled to a perpetual injunction against such defendant, as they cannot be compelled, against their will, to permit the defendant to use their invention.
[E. W. Stoughton and W. Stanley for complainants.
Edmund Wetmore for defendants.]

United States Circuit Court—Southern District of New York.

FREDERIC A. KURSHIEDT vs. ROBERT WERNER.

[In equity.—Before Blatchford, J.; June, 1875.]

[The case came upon motion for preliminary injunction.]

The letters patent sued on herein are reissue No. 3,000, granted to George E. King, June 23, 1868, the original letters patent having been granted to him, as inventor, February 26, 1867.

The patent is for "an improvement in fluting machines." The specification of the invention is designed for making puffing applicable to shirt bosoms, trimmings, or other purposes of dress, in which the article, as it issues from the machine, is (without having recourse to laundering) delivered in a complete form, either single or in two or more series or rows, composed of flattened borders, with flutes running along their inner edges, and puffed or crinkled surfaces between the flutes. The invention consists in a guide composed of one or more curved or arched portions, in combination with one or more suitable fluting rollers, whereby the material, in passing through the machine, is fluted and contracted laterally, as it were, or drawn up between the flutes to produce the required crinkled surface or surfaces in the puffing.

The main feature of the machine is the arched guide, in combination with two rollers, one above the other, and opposite and near to the guide. The rollers are so formed that the strip of material, after being acted on by the guide, passes between the two rollers. The rollers have such configuration externally on their surfaces as to produce a finished fabric which has a longitudinal strip that is puffed or crinkled in such manner as to possess an irregular wavy surface, and on each side of such crinkled strip a longitudinal strip that is fluted, and on each side of, and outside of, each of such fluted strips a longitudinal flattened strip, through which stitching may be made longitudinally, to render permanent the conformation of the puffing. The portions of the rollers from between which the crinkled part of the finished fabric issues are plain, and so are the portions from between which the flattened parts of the finished fabric issue, while the portions of the rollers from between which the fluted parts of the finished fabric issue are grooved. Each part of the rollers is fluted and fluted on each roller—a groove alternating with a flute, and the flute on one roller taking into the groove on the other. Each part of each roller is of the same width as that portion of the finished fabric which it is designed to shape. The parts of the rollers from between which the crinkled part of the finished fabric issues are of such diameter that, when the rollers are in proper position, the face of that part of one roller is situated at such distance from the face of that part of the other roller that no considerable pressure is exerted upon the fabric in passing between them. It is the action of the guide, in connection with the grooved and fluted parts of the rollers and the plain parts of each roller that lies between the two grooved and fluted parts of each roller, that produces the crinkled part of the finished fabric.

The claim designates as the invention the curved or arched portion of the guide, in combination with suitable fluting rollers, substantially as set forth in the specification, for the purpose therein specified. The patentee calls the whole instrument in front of the rollers a guide; but the only material part of it is the curved or arched portion. The expression in the claim, "the guide, constructed with a curved or arched portion," is the same thing as saying "the curved or arched portion of the guide."
There has been the construction heretofore given to this patent. *King vs. Maudelbaum* (8 Blatchf. C. C. R., 468).

The same patent was again before this court in the case of *King vs. Werner* (decided August 13, 1874).

The defendant in the suit last referred to is the defendant in this suit. He has altered his machine by taking off the detector finger and putting in place, of it an arched projection, raised up in front of the plain parts of the rollers, and like the arched projection in the said *Muller* case No. 5; but he dispenses with the Muller embossing rings, and uses instead rollers like King's, which have plain parts between the fluting parts and opposite the arched projection. He has removed from the King machine those parts before spoken of as immaterial to King's invention, namely, the upper piece of metal in King's guide, and the metal on each side of the arched projection. He retains all that there is essential in King's guide, that is, its curved or arched portion opposite the plain parts of the rollers, which are between the fluted parts of the rollers; and he uses such curved or arched portion in connection with rollers which have parts suitable for fluting each side of plain parts, in a machine which operates by means of such fluting parts and such plain parts of the rollers, and such curved or arched piece in front of such plain parts with the fluted parts of it. The mode of operation of the parts is the same as in King's machine, in all features that are essential to King's invention, as described and claimed, and the result in the finished fabric is the same. The defendant takes up an extra width of material by causing the material to ride over and be raised by the arched or curved projection, and this extra width is crinkled as and because the adjacent parts are fluted.

The plaintiff is entitled to an injunction, as prayed for.
[F. H. Betts, for complainant.
A. V. Briesen, for defendant.]