Printing of Woolen Tissues.

Of late years the printing of woolen tissues has developed to a very great extent and has become a by no means inconsiderable branch of the textile printer's art. Consequently printers are giving much attention to it, and the printed tissues have become favorites with the ladies, who, after all, exercise a considerable influence, by creating the demand for certain textile fabrics, in developing the production of those fabrics.

There is no doubt that the great development which has of recent years taken place in the production of coal-tar colors and the many brilliant and fast dyestuffs now at the disposal of dyers and printers have contributed much toward the increased attention which has been paid to woolen printing. The woolen printer is enabled by their means to produce his effect with great ease, and with successful results, and in these respects the coal-tar colors offer superior advantages to the older natural dyestuffs. The use of these in printing presented many difficulties, and only a limited number of colors and shades could be produced by their means.

It is now customary to prepare woolen cloths which are intended to be printed on by a passage through a bath made with bleaching powder and hydrochloric acid. Dyes printed on cloth thus prepared with chlorine give colors which are much more intense and are faster than if printed on unprepared cloth. Still, although the colors obtainable on chlorine-prepared woolen tissues possess a sufficient degree of brilliancy, deft, and fastness, there are other points in connection with the prepared cloth which are not so satisfactory; thus the cloth may take a yellow tone and a harsh, unpleasant feel, and often is rather brittle. All these things are undesirable, and are no doubt due to an over-oxidation of the woolen fiber, which is not always easy to prevent. In a paper lately communicated to the Society of Dyers and Colorists, Mr. E. Lodge has shown that, by a careful regulation of the strength of the chlorine baths, this over-oxidation of the woolen fiber may be avoided and the cloth left white and comparatively soft, although its attraction for coloring matters is not less than in over-oxidized woolen cloth.

Mullerus has lately suggested another principle. One defect of the chlorine method is the harshness which is imparted to the woolen cloth. Now printing can be considered simply as localized dyeing, and as the color is thus produced in places on the tissue, Mullerus considered that the oxidation of the fiber might also be produced locally and in the places where required by the design printed on the tissue. To carry out this idea he mixes the ordinary printing color with oxidizing agents like chlorate of soda, barium peroxide, etc., with excellent results so far as regards brilliance, intensity, and fastness of color, while the harshness of the fabric is prevented.—*Dyer and Calico Printer.*

Disinfection by Means of Sulphur.

We do not think that sufficient publicity has ever been given to the remarkable experiment made at Detroit, during a severe epidemic of diphtheria and scarlet fever, in checking the spread of the disease by disinfecting the sewers with sulphur, tons of which were burned in them. The experiment seems to have been signally successful. Of course, it would be rash to infer, from a single trial, the causal connection of things which may possibly have been simply coincident; but it is certain that as soon as the sewers had been saturated with the fumes of the burning sulphur, the epidemic declined rapidly, and both diphtheria and scarlet fever soon disappeared. The probability that cholera will make its appearance next summer in at least some of our large cities suggests the propriety of adopting this simple and inexpensive precaution, in case of the introduction of the epidemic into any sewered town. Every one knows that the fumes of burning sulphur form the most potent of disinfectants, and cholera would, in our cities, probably spread more rapidly through the sewers than in any other way. It will be remembered that at Croydon, after the introduction of sewers, typhoid fever, which had previously been endemic in the lower parts of the town, but was almost unknown in the upper regions, inhabited by the rich and well cared for people, suddenly appeared in an alarming form in the upper quarters, as if the new sewers had conducted the contagion from the abodes of filthy misery to those of wealth and cleanliness. The same thing may be expected to happen with cholera germs, which, if once introduced into the sewers, would, if they will float in the air when dried, which seems to be the case, have plenty of opportunities to escape through street ventilators, dry traps and leaky soil pipes, all over the city. The saturation of the sewers at short intervals with sulphur vapor would destroy the germs contained in them, and, it would seem, do much to localize any sporadic case, or group of cases, while no harm could be done by the operation. Indeed, the principal homeopathic prophylactic against Asiatic cholera is sulphur; so that the inhalation of a few stray fumes, although perhaps unpleasant, ought to make the person into whose nose they accidentally penetrated feel himself doubly protected.—*Amer. Architect.*

A FAN ATTACHMENT FOR ROCKING CHAIRS.

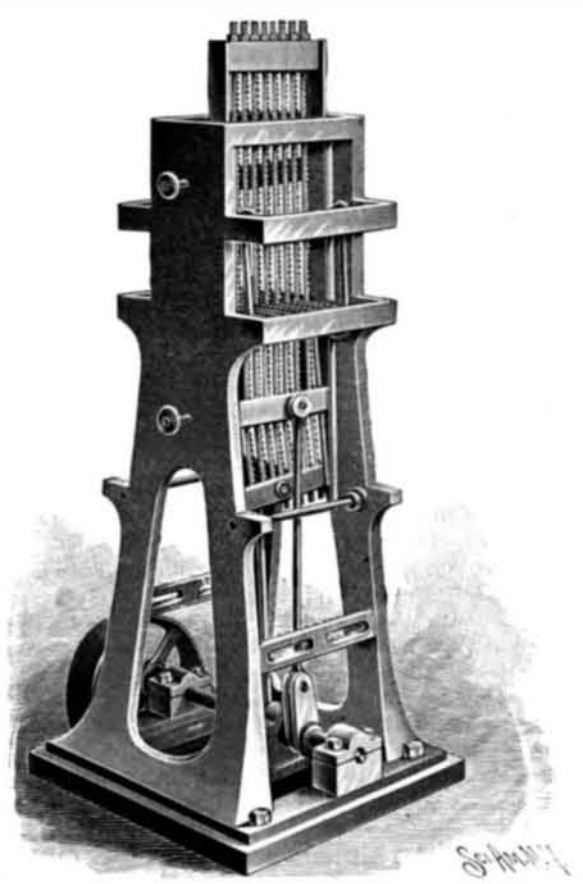
This is a device to be applied to a platform rocker, and, as one rocks backward and forward, a continuous rotary movement will be imparted to a fan held above the occupant of the chair, affording a constant and refreshing current of air. The improvement has been patented by Mr. Horace M. Baker, of No. 203 Macon Street, Carthage, Mo. The larger view shows the application of the attachment to a chair, parts of which are broken away, while the smaller view represents the details of the mechanism. At the back of the platform is

BAKER'S ROCKING CHAIR FAN.

the drive shaft, a crank arm on which is adjustably connected with a pitman whose upper end is pivoted on the back of the chair. On the drive shaft are also two other crank arms extending in opposite directions, each being connected by a rod with the crank arm of a different segmental gear on another shaft, so that, when one segmental gear is rotated downward, the other has an upward direction. By means of loose pinions, a ratchet wheel, and spring-pressed dogs, these opposite movements are made to impart a continuous revolution to a central shaft journaled in bearings transversely of the platform. On the outer end of this shaft is a crown wheel or gearing meshing with a pinion on the lower end of an upright fan shaft journaled at one side of the chair, the fan shaft carrying on its upper end a fan, the blades of which may be made, if desired, to open outward as a person is seated, and automatically fold down around the shaft when the chair is vacated. The fan shaft may be also entirely removed from the chair. With this attachment in position, the fan is kept constantly in motion while the occupant of the chair continues to rock.

AN IMPROVED GANG SAWMILL.

The gang sawmill shown in the illustration, although it may be adapted for sawing different kinds of material, is especially designed to saw shingles, operat-



MACREY'S GANG SAWMILL.

ing two gangs of saws in such a way as to saw up an entire bolt at one operation, without waste of stuff, the saw gangs being independently adjustable in relation to each other to give the desired pitch or bevel to the shingles. The improvement is the invention of Mr. William T. MacRey, of Vancouver, British Columbia. Each frame, with its gang of saws, is reciprocated in the standard by a pitman, connected with a crank on the driving shaft, the frames being arranged in their guides so that the wear may be readily taken up. One saw frame slides vertically in the standard, and just behind it the other saw frame slides in inclined guides, so that its saws will be at a slight angle to those in the first frame, the guide frame being quickly and accurately adjusted by the set screws projecting through the sides of the standard. In operation, one frame goes up while the other goes down, the vertical saws cutting the bolt into straight strips and the oblique saws then cutting these straight pieces to the desired pitch or bevel. At a convenient height for the insertion of the bolts to be sawed the standard has projecting portions, one above the other, which form supports for upper and lower feed bars, adapted to move back and forth at right angles to the saw frames. These feed bars have teeth in their faces to engage the bolt, and move toward each other to clamp it in place, reciprocating to feed the bolt through the machine, the lower feed bars being lifted upward and thrown forward, while the upper ones are thrown downward and forward. The inclined guides may be arranged vertically if desired, so that the bolt may be sawed into staves of uniform thickness. It is said that this sawmill, cutting shingles, will cut from three hundred to four hundred thousand per day of ten hours.

This improved mill is being placed on the market by the MacRey Patent Gang Mill Co., of Vancouver, Toronto, and Buffalo.

Rubbers.

I know it is the custom and the habit to sneer at rubbers. It is the custom and the habit to say: "Why don't you give us something that is good for something?" We give you, gentlemen, just what you called for. I will guarantee that in my mail (and we average perhaps a hundred letters a day) there is not one letter out of 5,000 which says: "What is the best thing you have got?" but it says: "What is the cheapest thing you have got?" Now, when you ask for the cheapest thing, we are going to give you lampblack and whiting and resin, and everything else that will make the goods cheap. When you turn around and say: "Give us good rubbers that will pull and stretch and hold," and pay for them, we will give them to you; and we won't give them to you until you do ask for them.

We are glad to see you gentlemen here as representatives of the trade. No gentlemen can get together in any one line of trade and rub their heads and ideas together without imparting knowledge to one another. We take more in by absorption than by reading and study.

I want to say to you, gentlemen of the national association, that if you never accomplish another thing, the fact of your establishing what is recognized throughout the United States, and almost throughout the world, the standard measurements, is a monument to your enterprise and your energy. There is not a manufacturer now that goes to work to make shoes but what consults that standard. It is the standard. There is no standard among us rubber fellows. I expect you will go for us next. But that is a very difficult thing to accomplish, more difficult than you have any idea of. You sell a woman a pair of shoes, 4 D, and you think a 4½ rubber ought to fit her. Perhaps it will and perhaps it won't. If it is a grain button boot, it won't fit. If it is a square edge, it won't fit; if it is a bevel edge, it will. Then you want to recollect that the lasts upon which the rubbers are made are put into a heater. They are all supposed to be made out of upland maple. Well, these dear countrymen get the maple out for us, and sometimes we find a good deal of swamp maple in it. That is put into a heater, 268° F. The heat will affect one piece of wood in one way and another piece in another.—*W. L. Sage.*

Storage Battery Monopoly.

After a struggle lasting for about ten years, beginning in the Patent Office and carried successively through the United States Circuit Courts in several States, the United States Circuit Court of Appeals on the 4th inst. handed down a decision sustaining the decree of Judge Coxe rendered in July, 1891, in the suit of the Brush Company against the Electrical Accumulator Company. The sole right to use storage batteries with the active matter mechanically applied is now owned by the Consolidated Electric Storage Company, the licensees of the Brush Electric Company. Consequently, this decision gives to the Consolidated Electric Storage Company a monopoly of the storage battery business throughout the United States for a period of over ten years next ensuing.

The Electrical Salesman.

Perhaps no other industry has developed so many peculiar conditions surrounding the disposal of its product as has the electrical field. A unique genius is the fruit of this set of conditions. The genius is known as "the electrical salesman." The causes for his being have been natural only to a certain extent. There were things, peculiar things, to be disposed of by barter and trade to the people, and some one had to be found to do it. The electrical salesman was not born—he has evoluted.

In ancient days, ten years ago, the difference between the office boy and the electrical salesman was merely one of age; each knew about as much regarding electrical apparatus and its sale as did the other. But as the business grew, conditions arose which acted as the pyro solution on a photographic negative—they developed. Existing manufacturing companies attained greater proportions, alliances with other companies were made, contracts were drawn up, subcontracts were let and relet, territories were defined, cut, recut and defined all over again, price lists changed nearly every hour, and at last combinations, consolidations, and complications (for the salesman) were effected, bringing us down to the present day, and all the time competition kept getting keener. During this tremendous advance the factories were belching forth thousands of tons of all kinds of electrical apparatus, which must be disposed of. It was then that the electrical salesman began to evolute. He was the all-important medium between producer and consumer, employed to tell the merits of apparatus to the buyer and to report defects, as they came under his notice, to the manufacturers, that they might apply the remedy.

The electrical salesman, in all truth, has been *the* factor on the commercial side of electrical development: he is the king pin of the electrical car of progress. He has been maligned, insulted, given the lie, and generally maltreated by the public at times, but only at times, because he has many friends, and deserves more. It is only the absurd few who do not understand his genius that have abused him, and even these few, we dare say, will change their opinions of him ere long.

There are many electrical salesmen who hold responsible and valuable positions to-day, all owing to the experience acquired during their evolution. These will move up higher and others will follow along after them. It is probably true that nine-tenths of our electrical brethren have been or will be salesmen before they die.

To be the *beau ideal* of electrical salesmen, a man should begin with perfect confidence in himself, supreme assurance as to his certainty of victory, and a *quantum sufficit* of technical knowledge. In addition, he must possess the detective's instinct in ferreting out "jobs," the reporter's "nose for news," so that he will know a customer when he sees one, an ability for making and keeping friends, good conversational powers, the wiles of a diplomat, the silver tongue of an orator, and the sincere and convincing arguments of a practiced debater. And he must be always resourceful and ready at any and all times to have recourse to expedients to overcome his competitors. As we said before, an electrical salesman is not born with all these attributes of genius, but he assimilates them as he evolutes and ends by surprising himself at his own abilities.—*Electrical Review.*

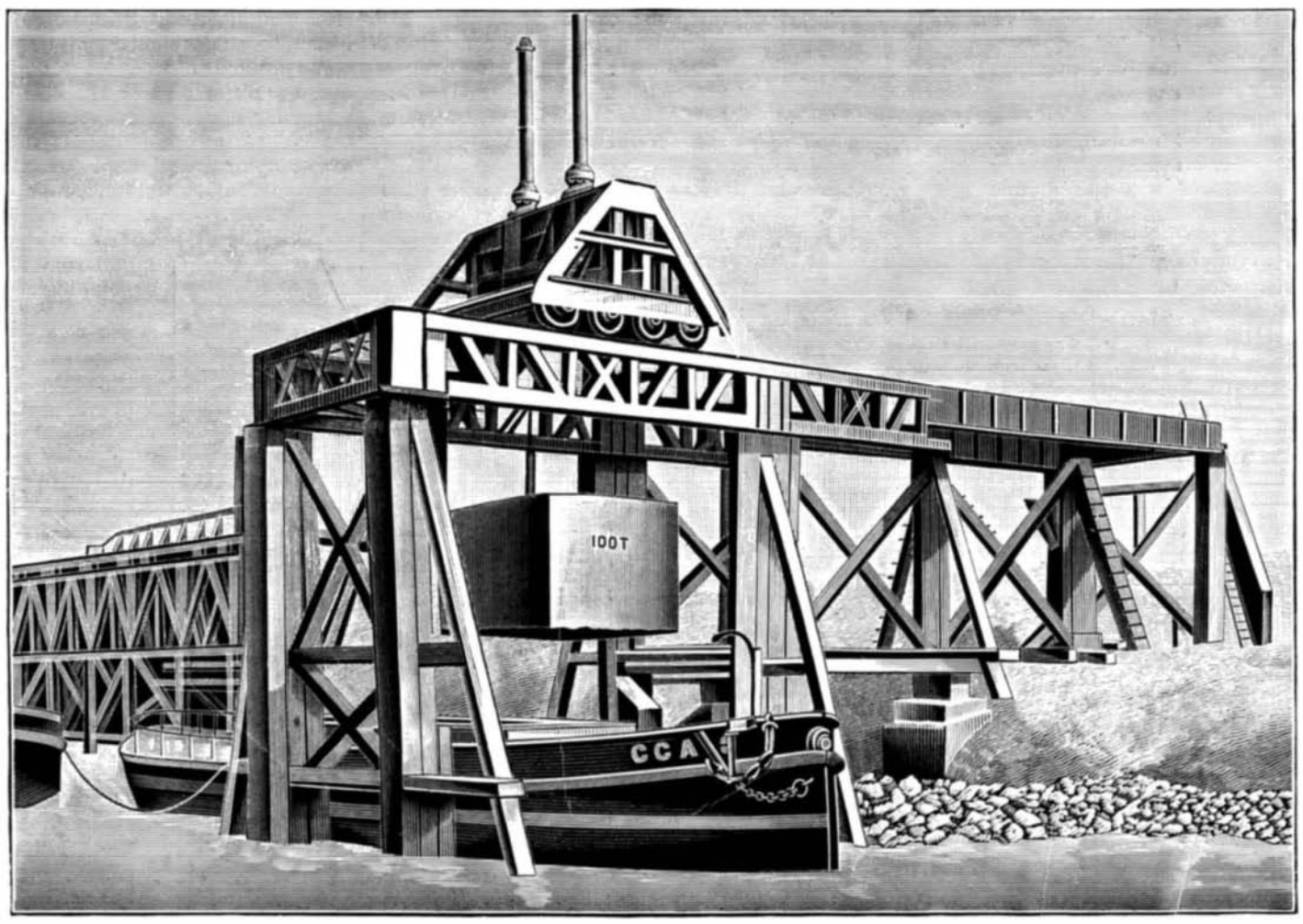


Fig. 1.—WORK AT THE PORT OF BILBAO—FRAMEWORK AND APPARATUS FOR LIFTING BLOCKS OF BETON AND LOADING THEM ON A BARGE.

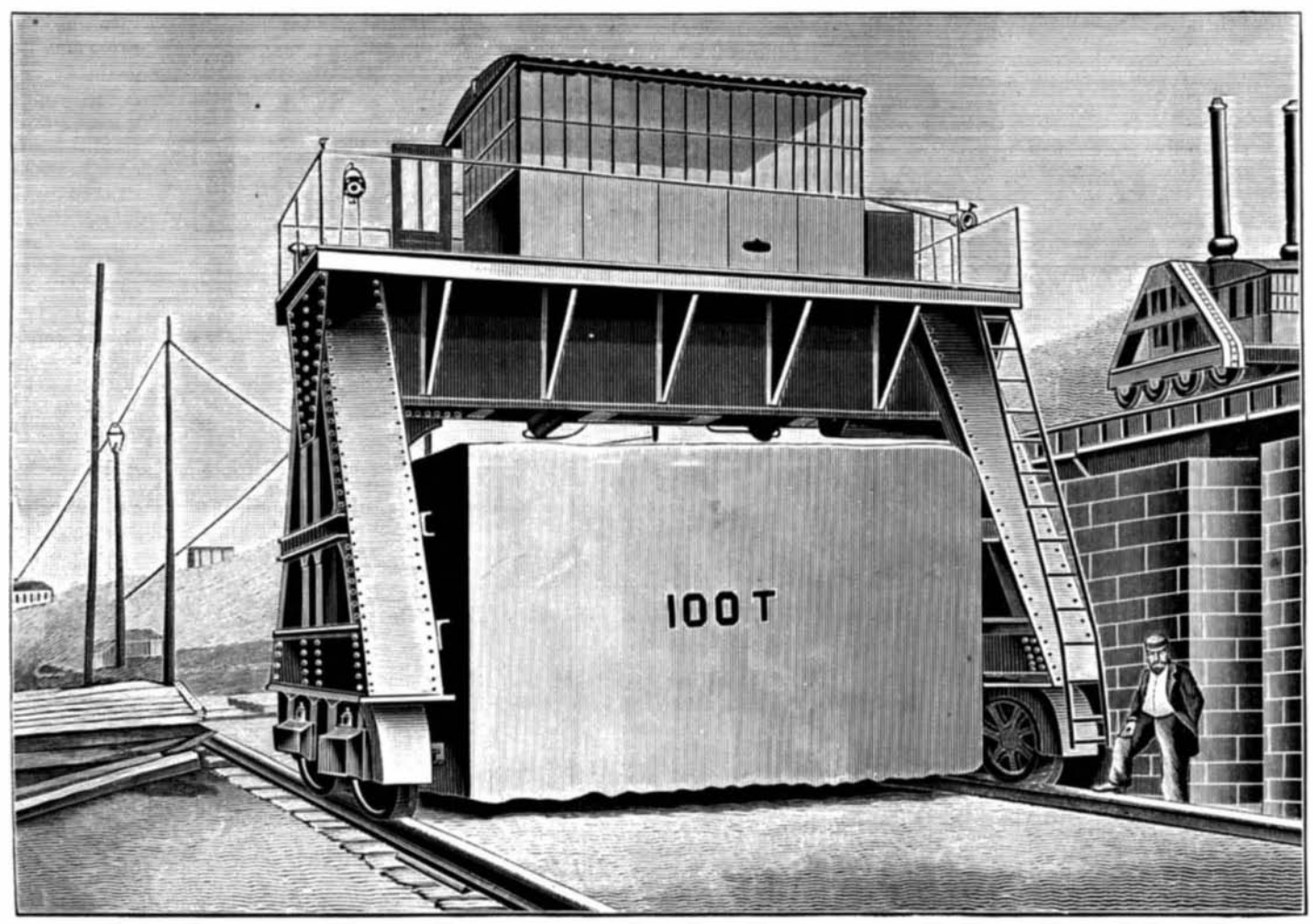


Fig. 2.—FRONT VIEW OF THE APPARATUS FOR LIFTING BLOCKS OF BETON AND CARRYING THEM TO THE CAR.

APPARATUS FOR MANUFACTURING AND LIFTING BLOCKS OF BETON AT THE PORT OF BILBAO.

As the method of manufacture of the blocks of beton used in the construction of an external port at Bilbao, and the apparatus employed for lifting and carrying them, present some novelty, we propose to enter into some detail upon the subject.

The beton apparatus, constructed by Carey & Lathan, an English firm, consists of a cylinder 3 meters in length and 0·91 meter in internal diameter, movable around its axis, which makes an angle of about 3° with the horizontal. In the interior of this cylinder there operate sixteen helicoidal paddles fixed upon a tubular axis, which makes fifteen revolutions per minute, while the external cylinder makes twenty. Into the interior of the latter, two chains of buckets, though lateral hoppers, empty the stone and sand in the proper proportions. The cement is put into a hopper placed upon a covered platform, whence it is taken up by a screw and carried to the interior of the cylinder in which the beton is under preparation. The velocity of this screw is independent of the general motion of the apparatus. It is so regulated that the quantity of cement that it introduces into the cylinder may be varied at will.

The materials, that is to say, the stone, sand, and cement, enter simultaneously at the top of the cylinder, and, during the first third of their travel, are mixed, while dry, through the motion of the paddles and that of the external cylinder. The water, the quantity of which can be regulated at will, enters continuously through a tube that debouches in the second third of the length of the cylinder, so that the elements that form the beton are intimately incorporated before leaving the apparatus. When finished, the beton falls into Decauville cars, which carry it to the spot where the blocks are to be manufactured. The