

Correspondence.

The Apprenticeship System.

To the Editor of the SCIENTIFIC AMERICAN :

We have read with interest your editorial "Decadence of the Apprenticeship System" in the SCIENTIFIC AMERICAN of May 23, 1896, and, noting your expression of regret that the old system is no longer generally in use, we have thought you would be pleased to learn that it is still common in machine shops and foundries in Providence, and to some extent in use in Philadelphia, Worcester and other mechanical centers.

In Providence apprentices serve from two to four years, and are taken by almost every important machine shop and foundry. In our own works there are 81 boys serving three years. In the drawing room there are 7, in the pattern shop 3, in the foundry 10, and in the machine shop 61. The terms on which we take apprentices are shown by the inclosed blank, copies of which we are pleased to send to any who are interested. [This contract blank was received and is alluded to editorially.—Ed.]

We pledge ourselves to give the boys thorough instruction, as you will note, and they are moved from place to place in the shops under a prescribed routine as they acquire a certain degree of skill; and we endeavor to give them some degree of responsibility, and do not allow them to be treated as mere helpers.

There is little or no direct profit to us in having them, but indirectly there is a very great advantage, for in no other way are we as sure of obtaining satisfactory workmen, and there is always a probability that among our apprentices are some whom we can train to fill important positions. A number of our assistant foremen and several of the foremen and heads of the manufacturing departments served their apprenticeship with us; and a great many of our former apprentices are foremen or superintendents of important establishments.

A great many of our boys, probably the majority, attend the night sessions of the Rhode Island School of Design and obtain a sufficient knowledge of mathematics and mechanical drawing. They thus, between the school and the shop, are able to have most of the advantages offered by trade schools, and without disparaging these schools, which in many places and in many industries are doing excellent work, we may say we think the greater skill is obtained under the system which gives the greater number of hours to actual shop practice, especially in the trade of a machinist.

One feature of the system, as it existed in former times, is certainly lost. The boys cannot now live in the home of the head of the establishment, and, when they are suffered to drift into cheap boarding houses, this is a distinct loss and injury. But in most cases it is possible to find motherly women who are glad to take the boys into their households, and the boys whose parents live in town are best off in their own homes.

We feel, therefore, that in its most important features the old apprentice system can be maintained under existing conditions in our line of business, and we believe manufacturers should be urged to continue it, and that every influence should be brought to bear upon parents and upon boys, as well as upon manufacturers, to place it first in importance, and not to have it considered as secondary or subordinate to a system of trade schools, however excellent they may be.

BROWN & SHARPE MANUFACTURING COMPANY.  
Providence, R. I., June 23, 1896. Per Z. Chafee.

The Future of Chemistry.

Has chemical analysis, like other dogs, had its day? Or is chemistry about to enter upon a new phase? Analysis certainly does not tell us enough. Nearly, if not quite, all the prominent steel makers of the United States, for example, have made steel springs to the specifications of the Pennsylvania Railroad. These specifications require that the steel shall show a certain chemical analysis; and yet it is stated to be a fact that one certain maker who makes steel which conforms to the requirements, so far as chemical test can determine, yet not more closely than the other makers conform to it, gets in the open market a considerably higher price for his springs than any other maker. And the railroad company in question has demonstrated to its satisfaction that it can afford to pay this higher price because the springs, notwithstanding that chemical analysis shows them to be precisely identical with the others, give enough better results in service to more than justify the higher price. It is the same with fine irons.

Take Swedish iron as an example. It is well known that this iron possesses certain qualities not possessed by any other iron known; yet irons have been produced elsewhere which, so far as the most exhaustive chemical tests can show, are precisely identical with the Swedish iron. It seems, therefore, that a chemical test will not tell us all we must know about such matters. Where chemical analysis fails to show the difference between two specimens of steel or iron, the microscope as now used will show a very decided dif-

ference between them, and the difference thus shown seems to bear some relation, more or less exact, to the differences that are shown by the same specimens under physical tests. We are therefore likely to see a much larger use of the microscope in the future. Will metallurgical chemists, therefore, be at a discount?—Iron and Coal Trades Review.

Recent Patent and Trade Mark Decisions.

Office Specialty Manufacturing Company v. Cook & Cobb (U. S. C. C. N. Y., Wheeler, J.), 73 Fed. Rep., 684.

Paper Holder.—The Smith & Shannon patent, No. 217,909, has been held valid and infringed, following prior adjudications.

Expiration Because of Foreign Patent.—A U. S. patent terminates with a foreign patent on the same thing that was obtained not in the American patentee's name, nor that of his employers, but was obtained in connection with their interests. This clause of the statute is not confined to the inventor.

Compressor for Paper Files.—The Cleague patent, No. 312,086, has been held to have expired with the previous German patent.

Invention.—There is no patentable invention in extending every other letter of an alphabetical index outward from, instead of in front of, the one above, making two rows instead of one, whereby the total length of the sheets is reduced one-half.

Index for Paper Files.—The Shannon patent, No. 331,259, has been held void for lack of invention.

Miller v. Donovan (U. S. C. C. A., 2d Cir.), 73 Fed. Rep., 682.

Infringement of Patent for Road Cart.—The Miller patent, No. 371,090, is restricted as to its first two claims, by the prior state of the art, to combinations having longitudinal springs of the precise form shown; hence these claims are not infringed by a cart which does not have the two part spring described in the patent.

Limitations of Patents for Road Carts.—The Miller patent, No. 459,098, designed to give to the longitudinal springs an increased longitudinal motion, and its first two claims are, in view of the prior art, limited to the precise form of spring shown, for it was old therefore to give play to the spring for running one or both ends through eyes or slot with rubber packing, washers, etc., to prevent rattling or too free play of the ends of the spring.

Jackson v. Vaughn (U. S. C. C. Cal., Morrow, J.), 73 Fed. Rep., 837.

Purchase from Territory Licensees to Sell in Forbidden Territory.—The owners of certain patents on horse hay forks granted a license to a firm in Ohio to exclusively manufacture and sell such hay forks within the territory of the United States lying east of the Rocky Mountains. The licensees agreed that they would not permit any of such hay forks made by them to be sold west of a line drawn north and south along the western margin of the Great Salt Lake Valley, and extending north and south therefrom to the boundary lines of the United States. The agent of the Deere Implement Company, of Illinois, who was located at San Francisco, ordered 100 horse hay forks covered by the patents referred to, of the Illinois company, which in turn bought them from the Ohio firm and then shipped them to San Francisco, where they were sold by the agent of the Illinois Company. The court held that the San Francisco agent was not liable for infringing the patent.

Right to Buy and Sell Patented Articles.—One who buys patented articles from one authorized to sell them at the place where they are sold, becomes possessed of an absolute property in such articles and can sell them at any time or place.

Bonsack Machine Company v. Elliott (U. S. C. C. A., 2d Cir.), 73 Fed. Rep., 834.

Infringement of a Patent for Cigarette Machines.—The Emery "belt" patent, No. 216,164, for a cigarette machine is limited, as to claims 10 and 12, to an endless belt curved transversely into tubular form to constitute a mould for compressing the tobacco into a filler, and such claims do not cover a flat belt that merely supports and carries the filler after it has been formed by some other device.

Bernheim v. Boehme (U. S. C. C. A., 3d Cir.), 73 Fed. Rep., 833.

Catches for Satchels.—The Lieb patent, No. 242,944, has been held void because of the prior Lagowitz spring catch.

Limitation of Patent for Catches for Satchels.—The Flocke patent, No. 303,716, if sustainable at all, must, in view of the Lagowitz spring catch, be limited to a catch having three cam projections placed equidistant on the shaft, and is not infringed by a catch having two such projections.

Fenton Metallic Manufacturing Company v. Chase (U. S. C. C. N. Y., Lacombe, J.), 73 Fed. Rep., 833.

Invention.—No invention is required to provide skeleton frame, roller-shelf book cases with "hand holes" or recesses to facilitate lifting the books from

the shelves, because of the hand holes in the old-fashioned wooden shelves.

Prior Decision in Support of Preliminary Injunction.—A prior decision by the Supreme Court of the District of Columbia, granting an injunction in a case where the defendants had been bound by the result of a former interference proceeding in the Patent Office, is not sufficient to support a motion for a preliminary injunction against one who was a stranger to such interference proceeding.

Book Cases.—The Hoffman patent, No. 450,124, has been held void for lack of invention.

Consolidated Fastener Company v. Columbia Fastener Company (U. S. C. C. N. Y., Coxe, J.), 73 Fed. Rep., 828.

Jurisdiction of Corporations in Patent Cases.—A New York corporation whose certificate of incorporation provides that its principal business office is to be in the city of New York, but that its business is to be in the city of New York and such other places as the company may select, may be sued in the northern district of New York for an infringement committed there, where it had advertised that its place of business was at a certain town in that district and such was found to be the fact. It is doubtful whether a corporation can be sued in the southern district if the infringement of the patent was committed in the northern district, although its charter provides that its principal office is to be in New York City.

Preliminary Injunction.—Where there have been no court decisions sustaining a patent, if the court can see that there is a fair controversy on the two vital questions of patentability and infringement, the wiser course is to postpone their consideration until the final hearing, and without a preliminary injunction, although a bond might be required of the defendant.

Albany Steam Trap Company v. Worthington (U. S. C. C. N. Y., Townsend, J.), 73 Fed. Rep., 825.

Limitation of a Patent for Pump Regulating Valves.—The Blessing patent, No. 207,485, has been construed in connection with the disclaimer and held to be limited to the precise means described for automatically regulating a pump for returning to a steam boiler the water of condensation by means of a system that is not open to the atmosphere.

Northall v. Bernardin (Pat. Comm.), 75 O. G., 1853.

Reopening Interference Case by the Commissioner After Decision in Court of Appeals.—In this case, after the decision in the Court of Appeals, entirely new evidence was discovered in the nature of a fraudulent alteration prior to the suit of the date of a drawing exhibit which had been used in the case, but the commissioner refused to open the case and admit such evidence after the decision of the Court of Appeals, because of a doubt as to his authority to do so, and also because the petitioner has a remedy by a bill in equity in the United States courts, where such evidence could be introduced and the case properly heard and decided.

Ex Parte Briggs (Pat. Comm.), 75 O. G., 1854.

Appeal from Rejection of Claims.—In an appeal from the rejection of a claim to the examiners-in-chief the appellant must be prepared to show that the claim is allowable when viewed from every standpoint, and the action of the examiners-in-chief is not confined to the determination of the sufficiency or insufficiency of the reasons for the examiner in rejecting the claim.

Invention.—The use of a rack and pinion for raising and lowering a cutter head used in an ice planer involves no invention, in view of the previous use of such rack and pinion for adjusting a wood planer, as such planers are analogous devices.

Slow Crystallization of Amorphous Powders.

To a certain degree most metals will weld at temperatures considerably below their melting points, at which we, therefore, have to presume them to be in a semi-liquid state. Alloys are formed under similar circumstances, and Mr. Walthère Spring has shown that not even actual contact is required for this purpose. For instance, lumps of copper and of zinc, a slight distance apart from one another, united to brass. If we explain this observation, with Mr. Spring, by the plausible assumption of a volatilization of both constituents from the solid state, we really introduce another factor, and can dispense with the semi-liquid state, although the one phenomenon does not exclude the other. But we need not strain our imagination to conceive partial fusion. The molecules of solid bodies need not all vibrate with the same velocity at a certain average temperature. A complete uniformity of temperature does certainly not exist, and welding may be due to molecules which are substantially warmer than the bulk of the metal, while other particles may, at the same time, still be at a lower temperature. This explanation is independent of the chemical nature of the body, and should generally apply to bodies which can bear a certain heating without undergoing chemical decomposition. According to this view, a solid is not a finished mass incapable of changing its shape.—Engineering.