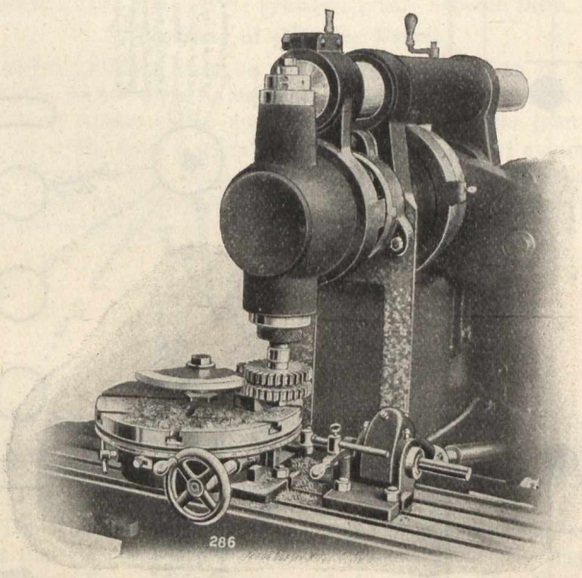
MACHINE SHOP NOTES FROM THE STATES.

By CHARLES S. GINGRICH. M.E.

XVII.

The accompanying illustration shows a job of machining, which is of more than ordinary interest, not only because of the rate at which it is done, but also because of the methods employed.

The work to be finished consists of about one-third of a cast-iron disk 13⅜" diameter, and 7-16" thick, and is finished about its periphery, and for a distance of about 1" on both faces. It is the sort of job that one usually puts on a lathe. The illustration shows how it is done on a "Cincinnati" Miller, fitted with vertical and circular attachments. The cutters are 3" and 6" diameter, run about 45 revolutions per minute, removing about 1-16" metal all around, and the total time for finishing the job takes just about 11½ minutes, including chucking, and the pieces are, of course, accurate as to size and entirely interchangeable. The advantages of this method of doing the work, are at once apparent, and it does not require a special machine, but is done on a standard miller fitted with standard attachments.



SYSTEM FOR INDUSTRIAL ESTABLISHMENTS.

By A. J. LAVOIE.

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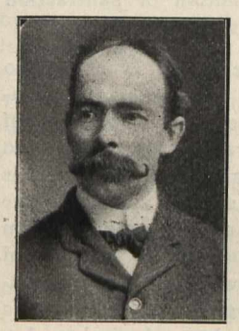
Science has been defined as "systematized knowledge." I propose, in a series of graphically illustrated articles, to set forth with the exactitude of science, experiences and knowledge gathered at the Accountant's desk, in the Engineer's Office, in the Storeroom, and, above all, by actual work on the pattern shop bench, machine shop tools, foundry floor, blacksmith's forge, etc. In these days of specialization, division of labor, and keen competition, everyone responsible for the good management of factories and workshops, perceives the necessity of system; and this universal want has evoked a number of fancy schemes for organizing factories and cost systems—mostly written by office desk amateurs, and consequently doomed to go into the waste paper basket; since they are altogether too complex, complicated, and provocative of profanity by their impracticability. In Engineering, simplicity is the secret of success. Any tyro can design a complicated machine, but it soon finds its way to the scrap pile.



An efficient system, must be clear, simple, economical, and elastic.

Clear.

A system to be clear, must consist of as few forms as possible; and each form complete in itself. The respective forms must be similar in arrangement, to facilitate quick finding on the one hand, and to avoid unnecessary searching and useless reading on the other.

A factory consists of various shops and office departments. In preparing an industrial system, therefore, it was necessary to collect and organize all the conceivable departments in a modern workshop or factory under one comprehensive plan, as indicated on Chart, Fig. 59.

The respective departments are independent of each other; hence, it is possible to add or cancel any one of them without changing the general system.

An important feature of this system is, that each department is represented by one distinct color and number; i.e., all time cards, cost cards, note pads, etc., relating to a particular department or section thereof, are of the same color, and bear the same departmental number; so that the seeker has three things by which to identify the cards of any particular department, viz., color, name, and number.

After becoming accustomed to the respective colors which differentiate one department from another, the receiver of a time card, cost card, or superintendent's notice, perceives at a glance what department it is from. A like advantage is found when searching for, say, a machine shop cost card, the distinctive color of which is white. You heed not blue, yellow, green, or any other color, but keep your eye on the lookout for white only. To those who have anything to do with the management of a comparatively large manufacturing plant, the advantage of this part of the "Lavoie system" will be manifest; especially in the dividing and assorting of correspondence, or any other data, from the diverse sections of the works. Even supposing you are not familiar with all the colors of the different divisions on the chart, you still have two strings to your bow; for the name of each department and distinctive number of same are legibly stamped on each form issued therefrom. Therefore, it is almost impossible to make mistakes, which is the virtue and reward of a well-carried-out system.

Simple.

All the forms in this system are simple. Everything necessary to aid production of work, and to economize time in the different departments is printed on the form. This printed matter consists mainly of questions, so that the user has only to write answers, which are nearly all figures. And to still further economize time and labor, the forms are printed on both sides, by which there is a considerable saving in the writing of names of articles, weights, time, etc.

Further. All the printing upon these colored cards is done in different colored inks, so that all ink and pencil writing can readily be distinguished from the printing.

All time cards, cost cards, requisitions to stores, etc., are filed together according to Drawing number, under Job number, while the job is in progress of construction.

While a particular job is in progress of construction, it is possible,—if the system has been properly carried out, to give or get, any information desired about drawings, patterns, castings, forgings, finished materials, etc., together with cost of anything made and passed by the inspector. By this practically perfect system of recording, the management is kept in touch with the live work only; all completed jobs being filed away, but always ready for reference.