of nomenclature and the registration of patterns and materials, the first part includes nine large sheets illustrative of Messrs. F. Pearn & Co.'s method of registering the pattern numbers to simplify the work of ordering.

Part II. treats of the recording and analysis of labor. To insure correct recording of quantity and job number, a job number ticket is issued from the casting stores with the castings, and this ticket remains in the hands of the workman until the work is completed, when the quantities are checked to it. This ticket has its use in securing the correct booking of the work, for "the time sheets are prepared from the workman's job tickets by time clerks, so that when the sheets are brought into the office they are clean and legible." Specimens of these time sheets are illustrated, and the method of making them up, comparing with the time book, etc., is explained.

The third part is entitled "Manufacture or Repetition Work," and it deals more especially with the preparation of the cost sheets by the cost clerk; the ordering of material from the iron foundry, brass foundry and smithy; the delivery notes accompanying from the foundry to stores; and the booking of the information acquired upon the cost sheets. It is interesting to observe that the cost sheets are made out at the beginning, before ordering the material, which is done from the cost department, and that they contain a full schedule of parts to complete the pump, and that against each part the programme of operations is put down. This "identifies the wages with material." As the job progresses, at each stage the time is booked as money against the operation; thus, as there is only one entry for each operation, a second booking in error or on work replacing waste is readily detected. To quote from the book: "The detail of operations on the cost sheets prevents the following mischances by causing immediate inquiry from the cost department on receipt of bookings from the shops: the same operation being booked twice; two men booking the same operation; the booking of fictitious operations. Thus a detective-like system is established by this detailed tabulation of material and labor."

As the sheets are schedules of all work to be done, and as they are filled up systematically as the operations are completed, they show upon inspection the progress that has been made and the amount of money spent; thus an estimate can readily be made of the time required to complete the contract.

Various sheets are illustrated that are used for posting and preserving the detailed information; such as stock sheets, a page out of the weight book in which the weights of all standard parts are tabulated, and the stocktaking sheet.

Part IV. cannot be strictly called cost keeping, although indirectly it has to do with it, as it deals with the operation of the finished work stores, and the issue of work to the assemblers. By the methods therein advocated economy undoubtedly results, for it provides that all details shall be collected ready for the erector and then issued to him to assemble. All parts being ready to the erector's hands there is no occasion for delay in carrying out the work. It also reduces to a minimum the work of charging up stock parts to an engine number, as it is done all at once, the cost department being advised of the issue by the stores issue sheet.

The last section of the book explains the modifications for costing contract and special work where the details are not of the usual standard.

Speaking of the book as a whole, it is particularly interesting to works managers, for it goes into important details of workshop organization, as affected by the judicious operation and use of a complete system of cost-keeping in detail. The arrangement of the book is good, and its value is greatly enhanced by the full-size sheets and folios from various cost-books, etc., which show the columning arrangement and ruling.

The system as described is essentially a sheet-and-book system, and although the method of nomenclature reduces the actual clerical work to a low point, yet there is still a considerable amount of it to do which by modification could be reduced. The general scheme of ordering from the cost department is the right thing, but the subsequent rewriting of information on job tickets, time sheets, lists of parts, etc., leaves room for further improvement. When time sheets are written up in the shops by time clerks in consultation with the men, it is slowly done, and the men's time is partly wasted by the interruption. Moreover, there is room for error, either accidental or deliberate; as the time clerk has to depend upon the man for the accuracy of the information as to time that he receives.

The book is a valuable addition to engineering literature, and it is with pleasure that the reviewer would urge every works-manager who desires to be well posted to become a possessor of this most excellent work.

The Problems of Fire Prevention

By Powell Evans, President Merchant & Evans Co., Philadelphia in American Industries.

In our cities to-day but few know the risk of some "Tarrant" explosion because some individual is permitted by carelessness or worse, and in secret for his own self-interests, to follow the dangerous course of storing explosives within thickly populated areas. Such instances as the Slocum disaster in New York harbor; the Iroquois Theatre fire in Chicago; the Boyertown, Pa., theatre holocaust; the Collingwood, Ohio, school horror, and numberless fatal fires in factories, hotels, stores, residences and every sort of place of assemblage, should make all citizens realize how constant is the life danger from present fire loss conditions to themselves and their families, apart from and above the money loss involved. Proper regulations may not exist, be applied, or be enforced; and all three or any one of these loopholes constitute a great and ever-present danger everywhere.

The average business man at present is not sufficiently alive to the situation to think or care much about it. The average municipal government is none too active in the matter because it might trouble some voter. The average insurance man is not troubling much about it, as he takes property as he finds it, and charges a sufficient rate to cover the risk, whatever it may be. It is necessary for some one to change his attitude, if this condition is to be bettered, and of all the possible avenues to an awakening in the matter of sufficient force to really set in motion an effective change, I believe that most progress can be made by organizing those interests which have most to lose—viz.: who pay the greater part of the cost—the American merchants and manufacturers.

Those not fully informed on the subject may now ask whether the means are known and understood which will operate, if applied, to materially reduce fire loss. I answer "Yes,"—that the detailed experience of the fire insurance organizations in the field and in the laboratory—thoroughly detailed, classified and digested for years—provides a fund of sure knowledge, which, if widely known and applied would yield certain results (not conjectured, but proven by large practice over a long period). No one can sincerely question the fact that these great organizations—solely for their own interests if for no broader reason—are and have been earnestly seeking to learn the true causes and facts relating to fire loss, and to discover and apply remedies to lessen it. From my observation they know a host of important facts and remedies; but this knowledge is now bottled up in a small expert circle and is not sufficiently widely diffused among the public to enlighten, stimulate and guide the average individual.

The insurance organizations as commercial bodies selling fire policies may be as selfish and as much in combination to get good prices for their commodity as many other of our industrial aggregations, but as an expert fire prevention and protection body they are watchful, careful and accurate—and they now invite all interested in the great problem to share their knowledge and help reduce fire loss. The old trade device of committees to attack the insurance bodies and hammer the rate without touching the cause has always failed and always will. It is not a sound effort for one reason, as it attacks the effect instead of the cause, and for another it attacks an opponent who cannot be caught. To understand why this is true it is necessary at this point to inquire into the character of the insurance organization.

Insurance abroad is practically all written by stock companies, conducting their business with their own capital, at their own risk and profit, at fixed rates. The policies there are usually for ten years, and by virtue of this long term and their incorporation in mortgages