

## Xerox Puts New Life Into A Punched Card Filing System\*

ISABELLA ANDERSON\*\* and JANET VERNON  
Stauffer Chemical Company, Chicago Heights, Illinois\*\*\*

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**The Xerox 914 has been combined with a manual punched card filing system of patent and literature abstracts. Abstracts are Xeroxed directly onto punched cards in tandem, thus accelerating considerably the preparation of these cards for the file. Xerox masters of these abstracts are used for preparing current-awareness bulletins.**

A hand-sort punched card file of abstracts of technical literature has been maintained at this company's Chicago Heights Library (formerly the Victor Chemical Works Library) since 1947 (1). These abstracts, prepared by the library staff, cover both United States and foreign patents as well as current periodical literature in the field of phosphorus chemistry. The number of cards in this file is now approximately 65,000.

As the volume of literature continued to increase annually, it became necessary to devise a better method of preparing and duplicating cards, and also a means to convert the abstracts into the "current-awareness" bulletins. For a number of years a robot typewriter served the purpose well by permitting us to type two abstract cards at once. However, with the present literature growth, it became apparent that, even with the robot typewriter, it would be impractical to keep pace without a great increase in clerical help. Therefore, the Xerox 914 was combined with the manual punched card system in order to continue the information storage and retrieval system and the current-awareness program for the research department.

### SUPPLIES AND EQUIPMENT

A tandem card stock with two 8" × 5" cards joined on the long side (Figure 1) is used. This gives a sheet 8" × 10" which, with a simple adjustment, feeds satisfactorily through the Xerox machine for direct reproduction of two cards at once. The minimum size paper supply the machine can accommodate is 7" × 7".

Another application using tandem cards and the Xerox machine has been described by Burton and Shuyler (2) in which they outline a method for duplicating existing cards. Their procedure is somewhat similar except that they reproduce only the existing cards, whereas in this system bulletins and new cards are generated.

As the Xerox accommodates a thickness up to 0.006 inch, the tandem card stock is slightly lighter in weight

than the original single card. The lighter weight card is more susceptible to bending or curling than a heavier weight card might be, but it flattens out after leaving the Xerox machine and interfiles satisfactorily with the heavier cards.

The possibility of using three cards in tandem was considered. Although the image area of the Xerox 914 is 9" × 14", the size of the paper supply that can be accommodated is 10" × 15½". Three 8" × 5" cards in tandem (8" × 15") would feed satisfactorily. If allowance is made for the top and bottom edge-printing and holes, which would be blocked out by using a template, there is 13½" of printing area left. By making three images at one time instead of two, speed would be increased and cost reduced.

The desired information can be reproduced by Xerox on the tandem card stock with or without the use of a template. However, a template enables the operator to position the material being reproduced exactly. The use of the template gives a much neater appearance to the copied product and prevents the duplication of the holes and the code printing around the edge of the card. Without the template it would be almost impossible to prevent a double image of this preprinted edge and the holes. When copying card on card, this could be confusing, particularly if the original card has already been coded and punched.

A template made of a white, opaque, lightweight plastic material gives the best results. White paper may be used but it is too fragile for repeated use. Several other materials were tested and compared as sample templates; neither thin sheet metal nor a heavy gray cardboard is satisfactory because both leave a gray smudged appearance over the area covered by the template.

When bibliographical data in report form are desired for literature work, a template is also used, and only the journal or patent reference and the abstract are copied from each card. Here the reproduction of the edge printing and punches is no drawback, but the copied material has a neater appearance without it. A special template with two sliding center partitions is now being considered. This would make it possible to copy three short abstracts instead of two onto one sheet of paper, thereby saving space when compiling literature reports.

Because the holes of punched cards must be in complete alignment to allow the needle to pass through when sorting, these tandem cards must be separated with high precision.

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\*\*Present address: Public-Standard Technical Center Library, Hammond Ind. 46301.

\*\*\*Research Library now located at Eastern Research Center, Dobbs Ferry, N. Y. 10522.

# XEROX PUTS NEW LIFE INTO A PUNCHED CARD FILING SYSTEM

Two-tandem punch card showing two identical forms stacked vertically. Each form contains a header section with fields for PRODUCT, CONTENT, and APPLICATION, followed by a table with columns for PRODUCT, CONTENT, APPL'N, COMPANY, AUTHOR, CO., SOURCE, DATE, COUNTRY, ARTICLE, PATENT, MICRO., LIBRARY, and PAM. The card is perforated along the edges and has punch holes for data entry.

Figure 1. Two-tandem punch card.

An electric paper cutter is used for this purpose. A manual paper cutter is definitely not satisfactory. The "in-use" cutter cuts a stack about one inch high, or approximately 100 cards, at one time, and the precision of the cut has been satisfactory.

Perforated cards, which would eliminate the necessity of precision cutting, have been tried. The slightly ragged edges left when the cards are torn apart tend to catch and cause sticking when the cards are needle sorted. However, the perforations do not seem to present any problems when the cards are put into the Xerox machine.

## PROCEDURES AND METHODS

**United States Patents.** Each issue of the *Official Gazette of the U. S. Patent Office* is checked immediately upon receipt by technically trained library personnel and evaluated for patents of interest. All information given for each of these patents is then clipped directly from the *Gazette* by a clerical assistant who Xeroxes the clippings onto a punched card. The assistant prepares a caption showing "U. S. Patent" and the date of issue to be Xeroxed onto the punched card along with the clipping. This card

is then processed for the file by coding and punching as in the original system, which was based on an abstract prepared from the patent specification itself.

The clippings used to prepare the punched cards for the file serve another important purpose. They are pasted in numerical order by patent number on sheets of white paper and multilith masters are prepared on the Xerox. These masters are duplicated on the multilith machine for distribution to technical personnel throughout the company. Rubber cement is the best adhesive to prepare the masters from the clippings.

An original copy of each patent noted by the library staff is ordered for the files. By the time the multilithed sheets are distributed and the research staff has had time to digest the contents, a copy of the original patent is usually available.

Some may feel that the one claim which is given in the *Official Gazette* is inadequate as an abstract, but the merit of the system lies in promptly alerting the technical staff to new patents. The original patent is actually available to them sooner than when a handwritten abstract was prepared from the patent specification itself and then typed onto a multilith master for the current-awareness bulletin. Now there is no time lapse between receipt of the U. S. patent in the library and its release to the research staff. By utilizing the Xerox in this way the patent reference collection is kept current without strain.

If the one claim from the *Gazette* does not contain sufficient information to code the card properly and ensure adequate retrieval, then the entire patent, when received, can be scanned for the necessary information.

**Foreign Patents.** Subscriptions to the Derwent Information Service for Belgian, British, and German patents are maintained, and the procedure for processing these abstracts is essentially the same as for the U. S. patents. However, there are some variations from the procedure for U. S. patents.

First, relatively few of the actual patents are ordered. Because of expense and the language barrier only a small file of foreign specifications is maintained.

Secondly, only one subscription to each Derwent publication is ordered. These are available printed on one side only, so one copy is adequate for clipping. After the desired abstracts have been clipped, the remaining portion is destroyed. No effort is made to maintain a permanent file of the complete Derwent publications and no great disadvantage has resulted from this policy. However, the index from each Derwent issue, as well as the list of Netherlands equivalents which is now being published for the Belgian patents, is saved and has been found useful.

Finally, the clippings are not pasted in numerical order as with the U. S. patents, but are divided by subjects. It is convenient to use the same section headings as used by Derwent. As there are seven divisions in the Chemistry Section of each Derwent publication, seven envelopes labelled 1 through 7 are used. Each clipping, when removed from a section in the Derwent issue, is put into the envelope marked with the corresponding number. The clippings are automatically divided by subject and all that is necessary, after pasting, is typing of section headings in the proper spaces between the groups of clippings.

Because the name of the country does not appear with each patent number and its abstract, this is noted by the technical person when the first check is made. A handwritten abbreviation for the country is written in the margin beside the patent number. This also guides the assistant as to which abstracts should be clipped.

**Literature Abstracts.** The procedure for abstracts prepared from the current technical journals is somewhat different than that for patents because it necessarily involves more typing.

Technical library personnel scan the journals as received and abstract all pertinent articles. The part of the punched card coding which requires a technical background is also determined at this time by the abstractor and indicated on the sheet with the abstract. The clerical assistant then types this abstract along with its identifying reference material onto a punched card. If duplicate cards are necessary as indicated by the codes furnished by the abstractor, the typist uses the robot typewriter to prepare two cards with one typing. Extra cards, if necessary, are prepared on the Xerox machine. Prior to the use of the Xerox machine and tandem card it was necessary to type all extra cards. Even with the robot typewriter this was time consuming and proved to be a bottleneck.

After the punched cards have been prepared for the file, either by typing or Xeroxing, the routine coding of identifying material and the punching is completed by a clerk.

Because of copyright restrictions it is impossible to utilize the Xerox machine to the same extent in preparing "Literature Abstracts" bulletins. Most abstracts must be transferred by typing to the master for duplication. Whenever possible, material such as a complicated equation is copied directly from the text by Xerox and used as the abstract along with any further notations necessary to make it readable. The same clipping is used to prepare the bulletin as well as the punched card. This is indeed a time-saver, whenever it can be used, because it not only saves typing time but also eliminates proofreading of complicated chemical formulas.

#### SUMMARY

With the help of Xerox, and no increase in personnel, new life has been put into a well-established information system. At the same time the preparation of punched cards for the file has been accelerated and the current-awareness bulletins are providing more information in less space and in less time than was previously possible.

#### ACKNOWLEDGMENT

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#### LITERATURE CITED

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