

A NEW METHOD FOR ACHIEVING REGISTER IN CHART CONSTRUCTION AND PRINTING

IHB NOTE

The following description of a new method of obtaining register between plastic-sheet originals of the same nautical chart, and in printing from the corresponding printing plates, has been received from the Swedish Hydrographic Office.

In the Swedish Hydrographic Department a method of obtaining register between different plastic sheets serving as originals for the same nautical chart has been in use for about a year. Previously, register marks were used, so arranged that with the aid of crosses or similar marks inserted in the corners of the plastic sheets the desired register was produced in

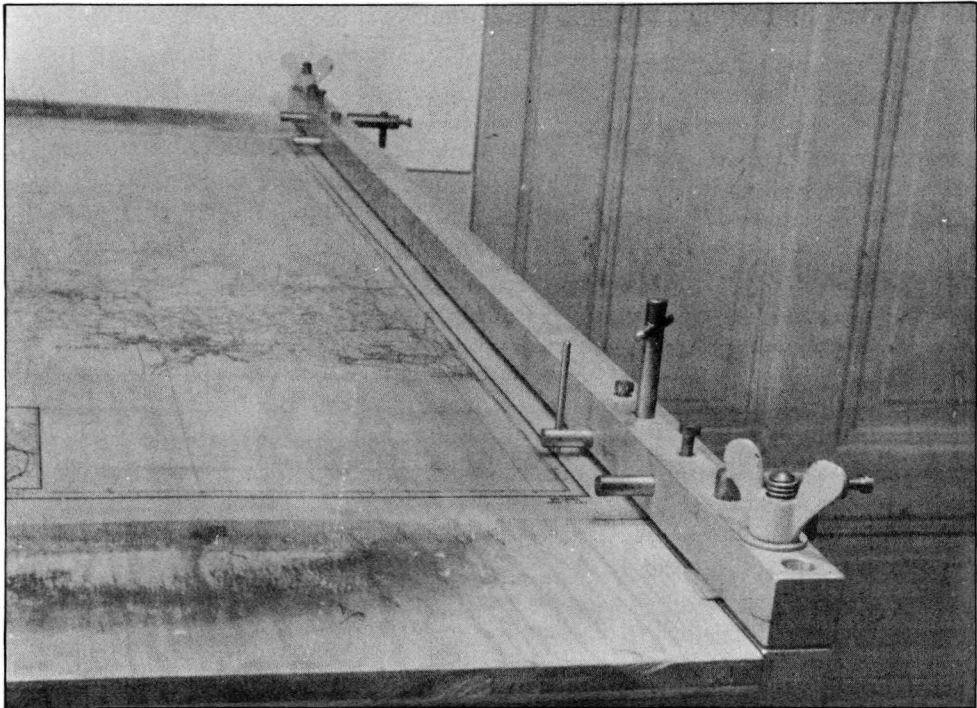


Fig. 1. — The equipment. The two light metal rulers, the two threaded bolts with their wing nuts, the hole punches with their pins can be seen.

different kinds of reproduction work. This system meant that several register marks in different corners of the plastic sheets had to be reciprocally examined and the sheets adjusted so that coincidence was obtained. It was then essential that they should not be mutually displaced before the next operation, for example copying, was completed. The *new* method, which has been observed abroad, amongst other places in the U.S.A., involves inserting the plastic sheets which are to be used as originals for

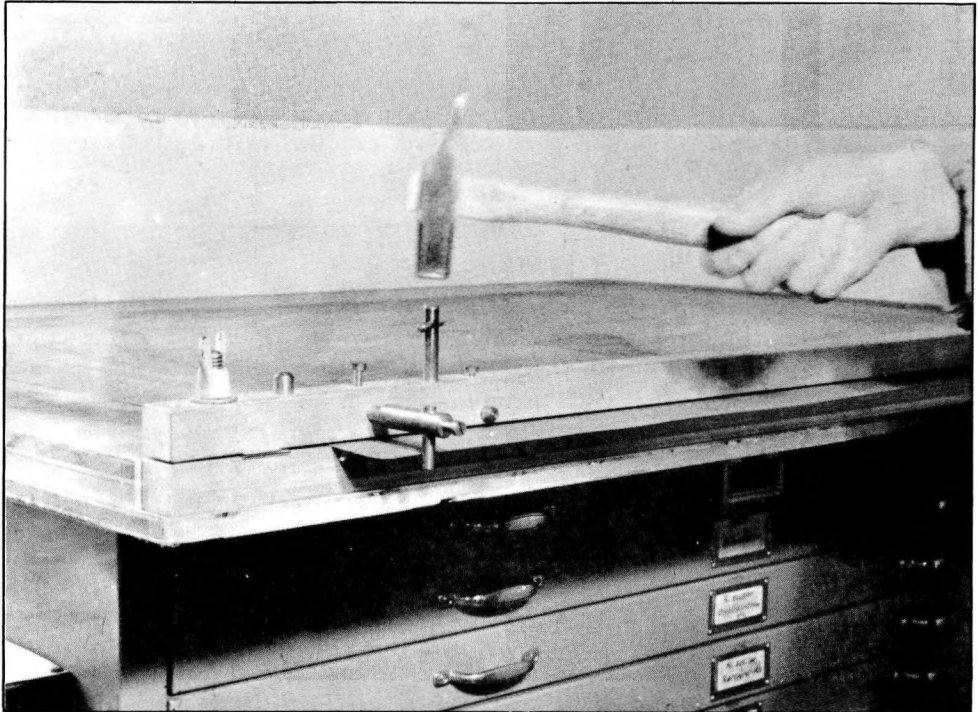


Fig. 2. — The moment before the hole is punched.

the different color plates of a nautical chart between two light metal rulers. One ruler is provided with a pair of permanent threaded bolts, the other with holes corresponding with these. When the plastic sheets which are to be punched have been put into place between the two rulers, a pair of wing nuts which fit on the bolts are tightened so that the plastic sheets are fastened securely together between the rulers. In the latter are two holes about 90 cm apart, into which fits a hole punch with the same external diameter as the holes; with the help of this the requisite two register holes are punched through all the plastic sheets simultaneously. Into the holes thus obtained there fits the inner raised circular part of a thin brass button, which is then always used when register between the plastic sheets is desired. This button must then accompany the plastic sheets, for instance into the copying frame, and hold them in the same accurate reciprocal position during the operation or operations which the process requires. The method of using holes and buttons instead of register

marks drawn in the form of a cross has come into wide use internationally. It seems to be a good modern solution to the problem of obtaining a rapid and unambiguous register, in which personal shortcomings in registration are eliminated in a *mechanical* way, and in which, for example, parallaxes and displacements during performance of the work jeopardize the achievement of first results.

At the Swedish Hydrographic Department the same method is now

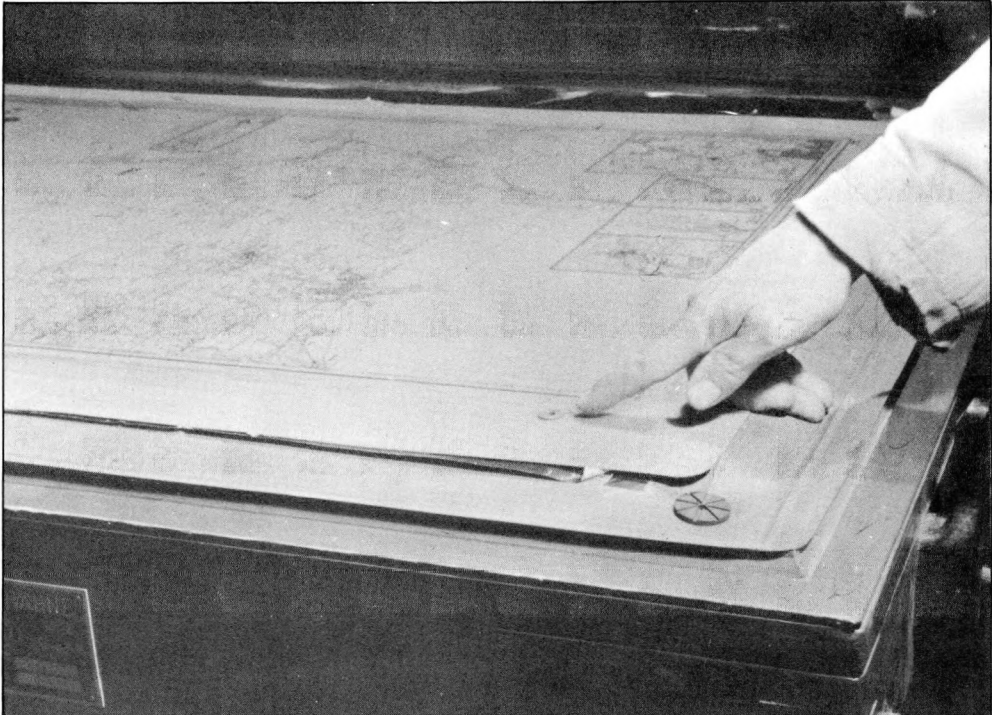


Fig. 3. — The buttons are put through the holes from underneath in two corners. Now the glass plate of the frame goes down and the air is sucked out.

used to obtain good register in the printing process. This is achieved in the following way. The plastic originals and the printing plates (before the image has been copied on the plates) are provided with holes in the above-mentioned way. When copying the plastics on the plates we consequently get the images in a standardized position. On the plate-fastening part of bed of the flatbed offset presses are two bolts fastened in the same standard position and the inner thin, raised, circular disc of these always give one and the same position for the various plates when placed in the press. Consequently a good register is obtained immediately and the makeready time is considerably shortened. This is of special importance in the procedure of *partial printing* used by us, i.e. printing water blue and light patches in advance (when the printing demand is rather low), and printing the corrected black image in smaller positions when needed.

As soon as *all* existing printing plates have been replaced by new ones,

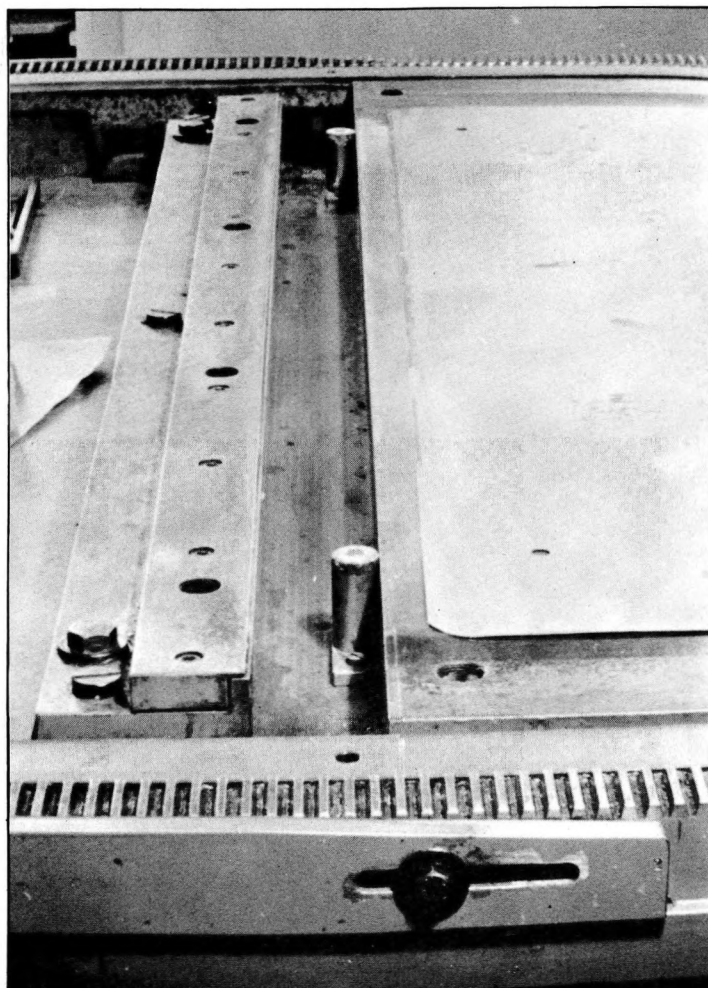


Fig. 4. — The two bolts close to the plate-fastening part in the flat bed offset press.

the new method will be able to supersede completely the former slow procedures and there will be a guarantee of invariably first-class register in the finished multi-color print. The pre-condition for this as regards dimensional stability in the paper for nautical charts is also present, inasmuch as the press room and paper store have been provided with a complete air-conditioning installation. The conditions stated above relate to the situation at the beginning of 1960.

Through the development of a register arrangement on the printing presses considerable time is already being saved, a saving which increases at the same rate as modification of the printing plates takes place. A rough calculation indicates that the saving of register time per run (printing of one colour) amounts to 10-15 minutes, say 10 minutes on an average. According to a rough calculation, a new printing of each chart takes place five times during the year and the average number of plates per chart is now 2.2. The total number of runs for the printing of general nautical

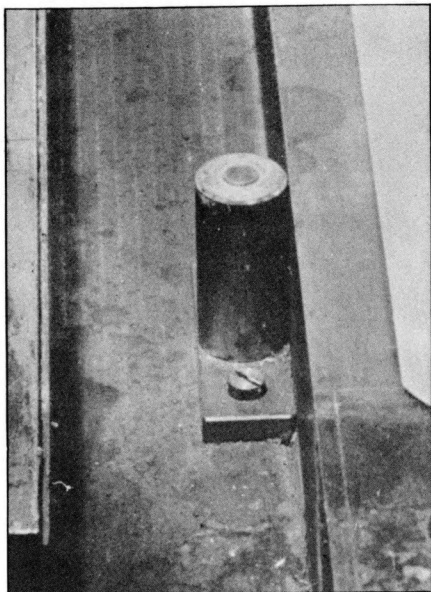


Fig. 5. — A close-up of one of the bolts. Observe the thin raised circular disc in centre which fits with the hole in the plate.

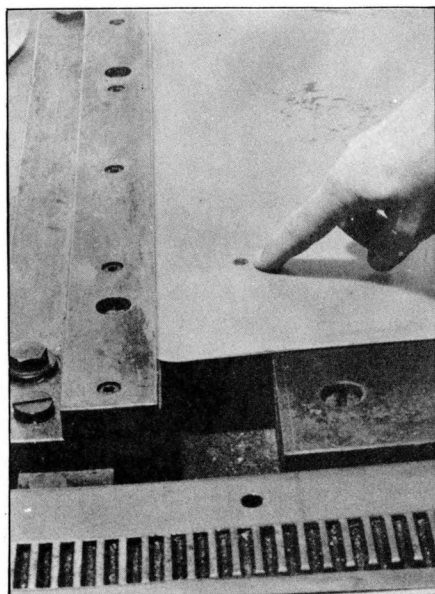


Fig. 6. — The hand shows that the top disc of the bolt has entered the hole of the plate. Then the plate-fastening part (the bar with the hexagonal holes) is screwed tight.

charts is thus about 1 150, to which can be added about 50 for military nautical charts (which nowadays are reprinted at a greatly increased rate), making 1 200 runs altogether. This represents a saving of 200 press hours a year.