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Lithographic Press Repair – Technological archeology around printing devices

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Research projects: In situ Lithography, Pure Print /i2ADS, GroundLab/i2ADS

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Consulting: Árvore José Emídio, Director of Cooperativa Árvore; Tomas Dias, Master printer at Escola Árvore.

Repair of the FBAUP lithographic press, Model. Acquisition date in 2006.

Lithographic press installed outside FBAUP after returning from Vila Nova de Cerveira. Image credits: Graciela Machado.

Manually operated lithographic presses have undergone few changes throughout history[1], harking back to Senefelder's proposals.[2] FBAUP's model, based on a model similar to the French lithographic press, possesses unique properties and characteristics due to its construction design and metal components (iron and bronze), with leather belts and essential components rooted in wood, such as the missing roller and wooden wheel. The model is particularly well-suited for printing large-format stones. We traced the seal of the company embedded in the lithographic press, kept in reserve at the entrance of FBAUP's Technology Pavilion. From this seal, it was possible to obtain images of locations that are currently abandoned grounds.

1 Cumming, D. (1948). Handbook of Lithography (3rd Edition ed.). London: A. & C. Black, Ltd.

2 Gallow-press, Senefelder, A. (1819). A Complete Course of Lithography. London: R. Ackermann.

As a mark and identification record, this press bears a seal with the inscription "Cerralharia Mecânica:

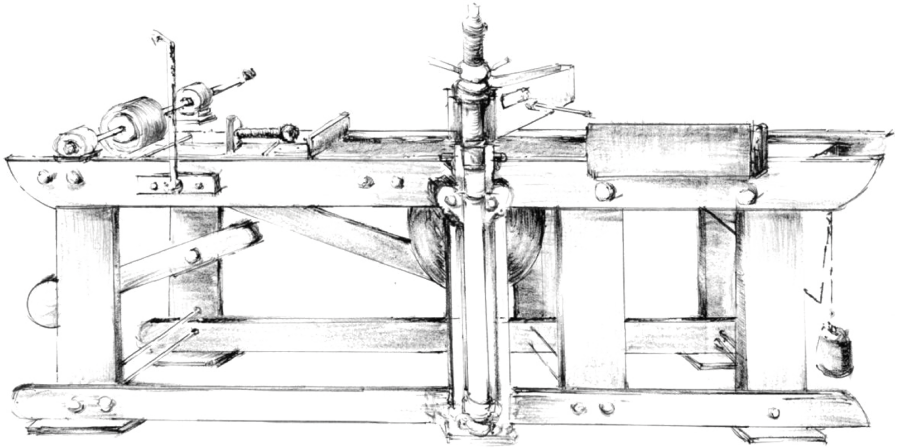
Cerralharia Mecânica: Fernando José Ferreira Rua Formiga 175, Porto, Portugal.

Since returning to FBAUP, presumably through a donation from Amândio Silva[3], the lithographic press hasn't been used. To make it operational again, replacement parts were created, such as the star wheel, and some adaptations were made with reference to the French lithographic press known as Voirin[4] from Cooperativa Árvore.[5]

3 Professor at ESBAP between 1958 and 1993, Source: https://sigarra.up.pt/up/pt/web_base.gera_pagina?p_pagina=antigos%20estudantes%20ilustres%20-%20am%c3%a2ndio%20silva

4 The manual lithographic press from the 19th century. made by the French manufacturer Voirin, the press is similar to one shown in an 1893 poster by Henri Toulouse-Lautrec. Source: https://www.nmhistorymuseum.org/blog/2010/01/the-printing-press-lives-in-the-museum's-"jewel-box"-at-least/

5 https://arvorecoop.pt



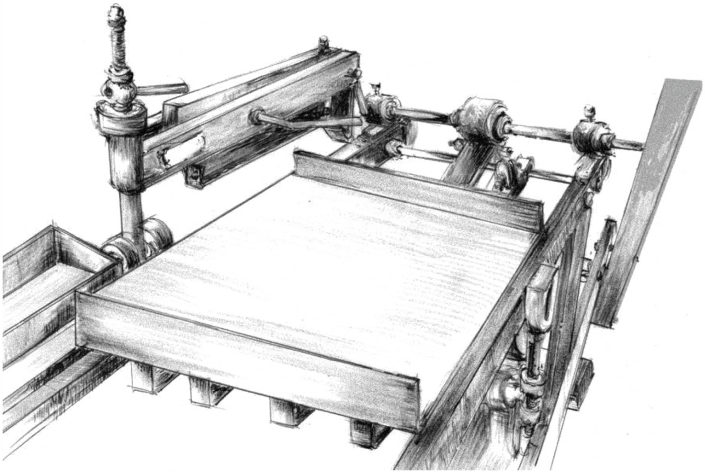
Elevation drawing of the lithographic press, engraving workshop entrance, FBAUP.

In this press model, the iron sides are positioned in parallel, containing an overlapping frame with the carriage and a central cylinder. Above the cylinder is the carriage or bed for loading the stone. The carriage's movement is ensured through a navigation wheel[6] that runs over a centrally fixed cylinder to ensure the stability of its entire structure. This press features a pressure system in the upper body, specifically in the box where the roller is positioned[7]. It moves laterally, from right to left, unlike the Voirin press, in which the roller operates vertically. As a practical characteristic, it is possible to replace the roller whenever necessary to adjust its dimensions to those of the selected stone.

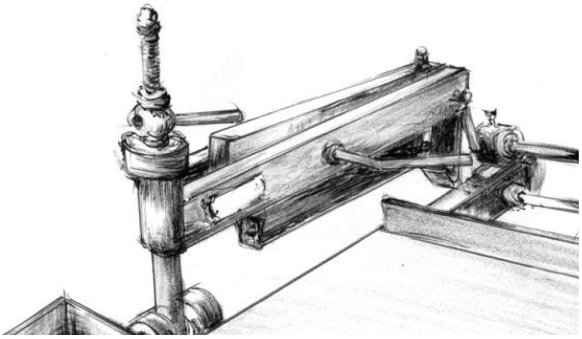
The carriage moves, pulled by a leather belt when activating the navigation wheel. The navigation wheel was developed and produced in the wood and metal workshops at FBAUP.

6 Identified as the large wooden star-shaped wheel.

7 For the scraper bar to be produced, the wood and metal workshops at FBAUP selected Robínea wood from the trees in the university garden.

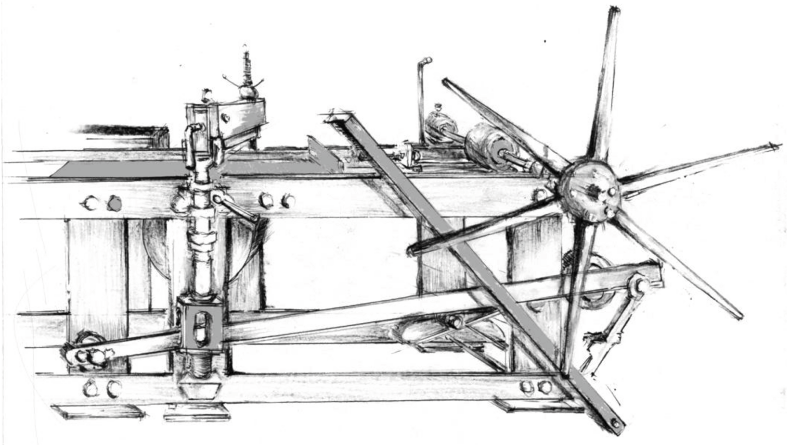


Pressure system at the top with lateral movement from left to right or vice versa.



Detailed image of the compartment with the capability to change the scraper bar based on the stone's dimensions.

To obtain the missing elements and accessories such as the arms of the star wheel, wood obtained from the felled trees in FBAUP's garden was used. The original belt had to be restored. To repair it, the belt was placed in a container and immersed in milk for 48 hours. Once dried, it was covered with petroleum jelly paste and repaired by a leather specialist, reinforcing the manually stitched broken parts.



Elevation drawing of the press with the navigation wheel apllied.

The central disk of the wheel was produced by a turner equipped with the necessary equipment for some of the components of this piece, such as the disks. In this case, the same dimensions as the reference press were followed, although adaptations were made based on the suggestions of the technicians from the wood and metal workshops at FBAUP.

Process of restoration leather belt with milk, development of the navigation wheel for the lithography press

Since the press was heavily rusted, we applied a coating of used motor oil, giving it its current black and oily finish. This process also served to lubricate its key parts. This step took about a week, with multiple applications and careful attention to ensure that smaller parts and joints were adequately soaked, ensuring the absorption of the oil.