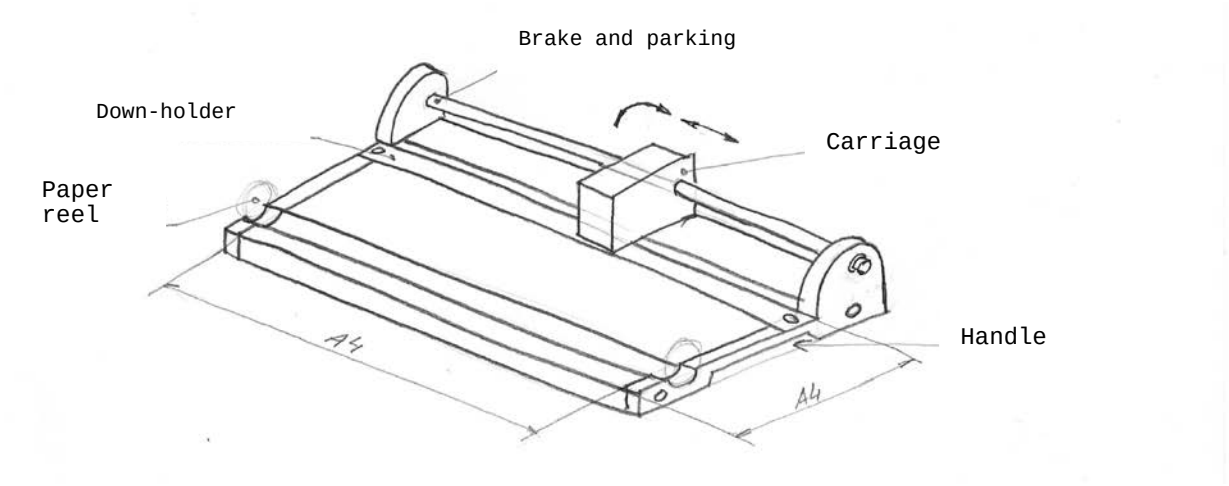
5.2. Conceptual Design Phase

In the assembly selected, Roller Shear, we start from a basic data, the specifications given by the client. In this case, they are very general and scarce:

- For cutting A4 format.
- Cutting method, using rollers.
- The carriage holding the cutter must be moved by hand.
- The carriage needs a parking place while charging the paper, preferably with ballast.
- Paper-holding to avoid that the paper moves while being cut.
- Holding for transport.
- Paper reel option.



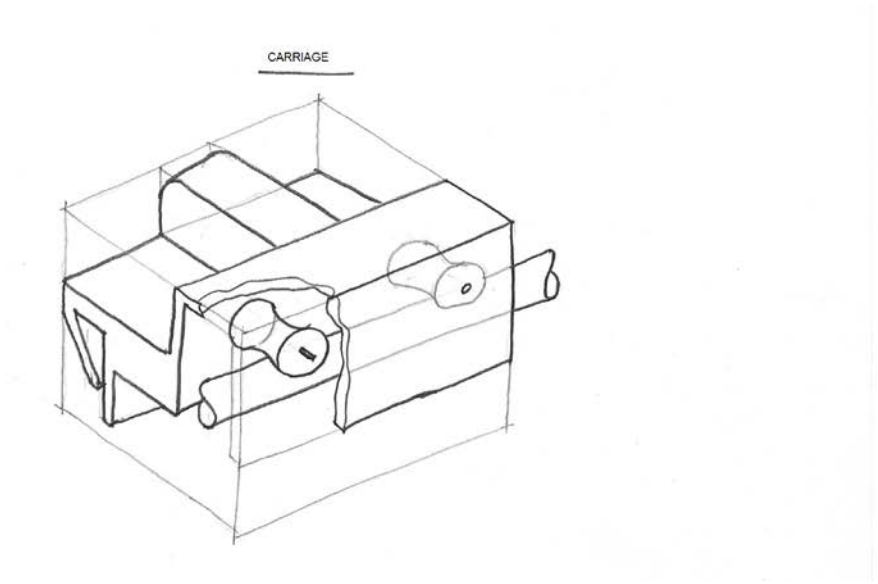
5.2.Image: Roller Shear.

First, we must think about ideas that solve the assembly functioning. The geometric forms must fit all the functions. Nevertheless, as no dimensions are established in this phase, forms can be changed conveniently later on.

Fast sketched drawings are performed in this phase, in free format, with the aim of fixing ideas.

The carriage holds the cutter and moves along a guide. This movement is handmade, making downwards pressure, so that, the paper is cut and the carriage moves to the sides. As a consequence, the carriage must suit the following characteristics:

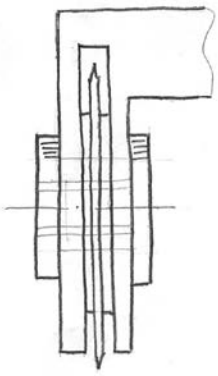
- In order to apply force, it must suit an ergonomic condition.
- It must move smoothly.



5.3. Image: Carriage.

The cutter is the main element of the assembly. Frictional wear means that it has to be replaced from time to time. As a consequence, its holder must suit the following:

- Accurate rolling.
- Easy loosening and tying, as possible, without tools.



5.4. Image: Cutter-holder.