Working Papers for The Telotype

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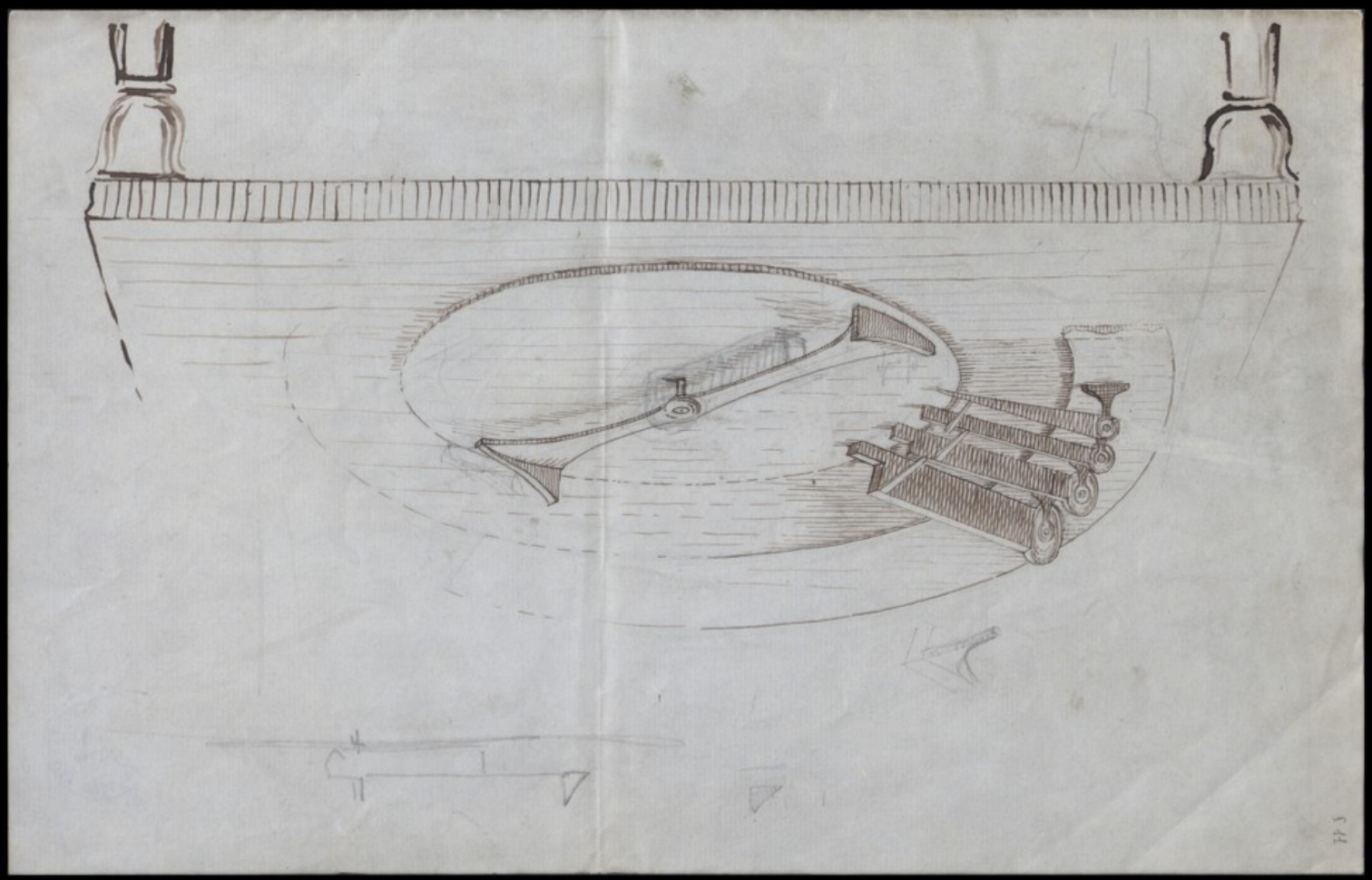

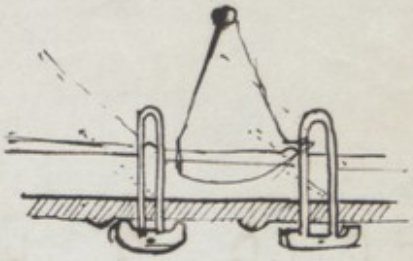

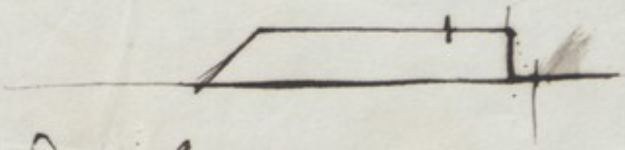

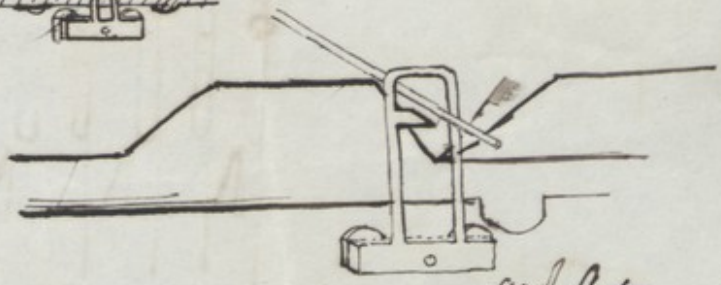

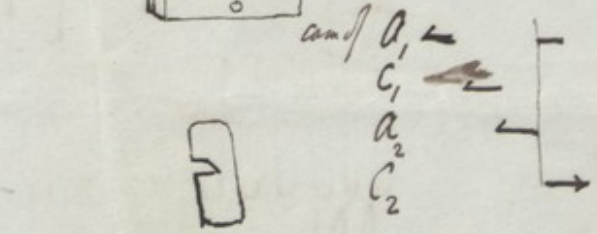

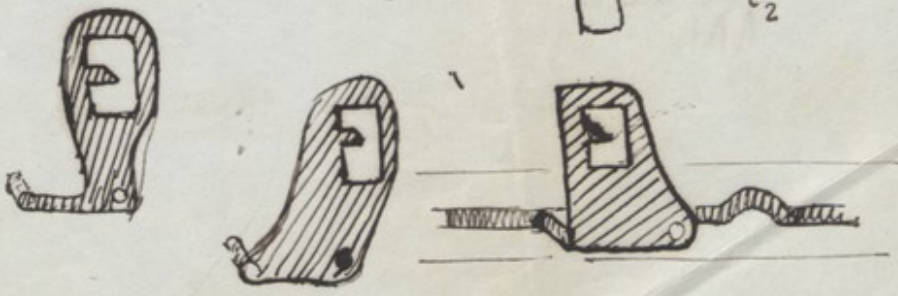

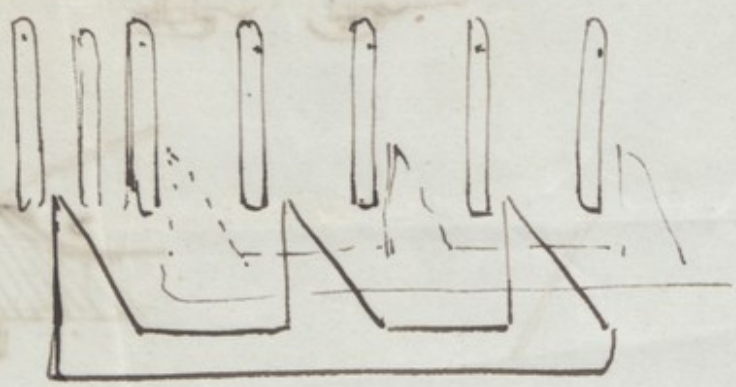

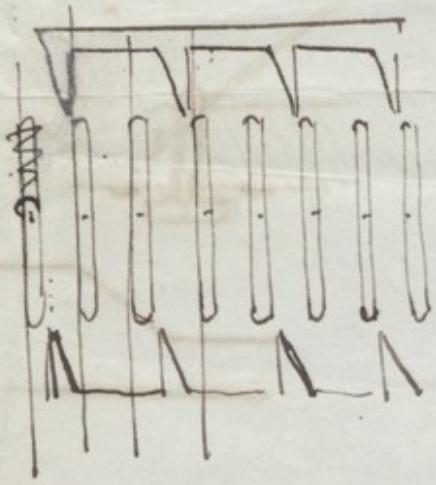

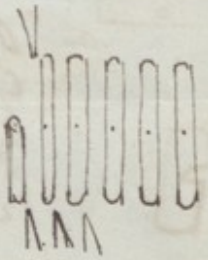

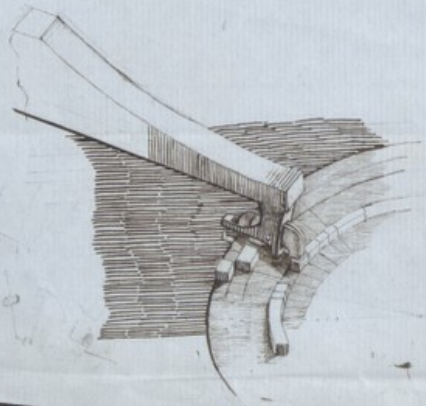

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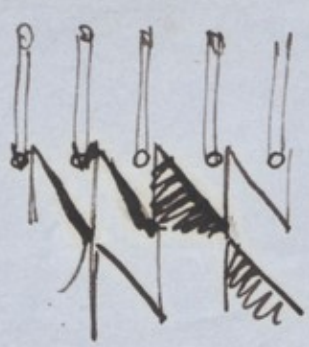

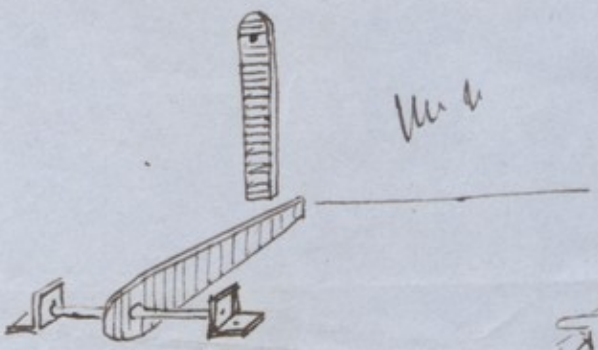

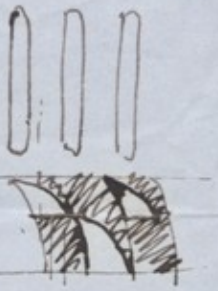

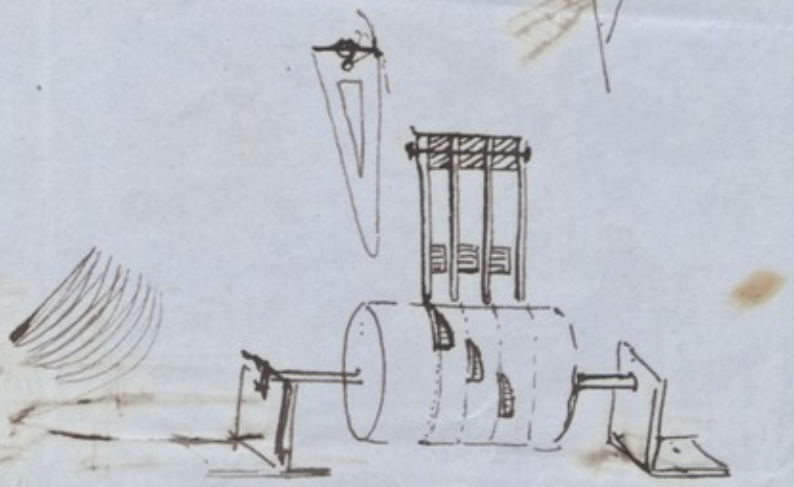

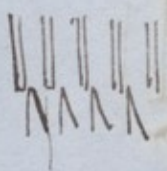

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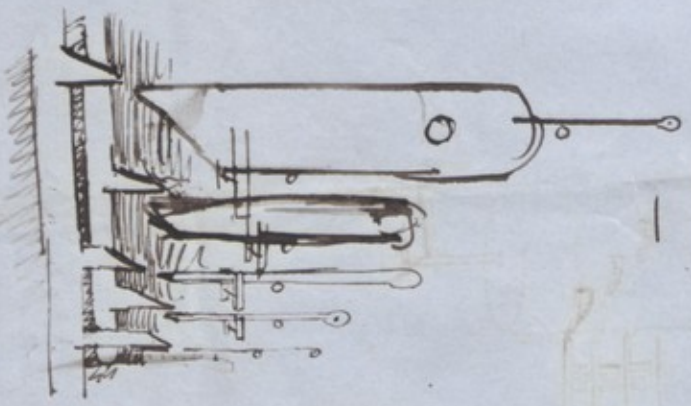

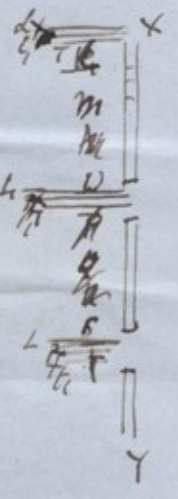

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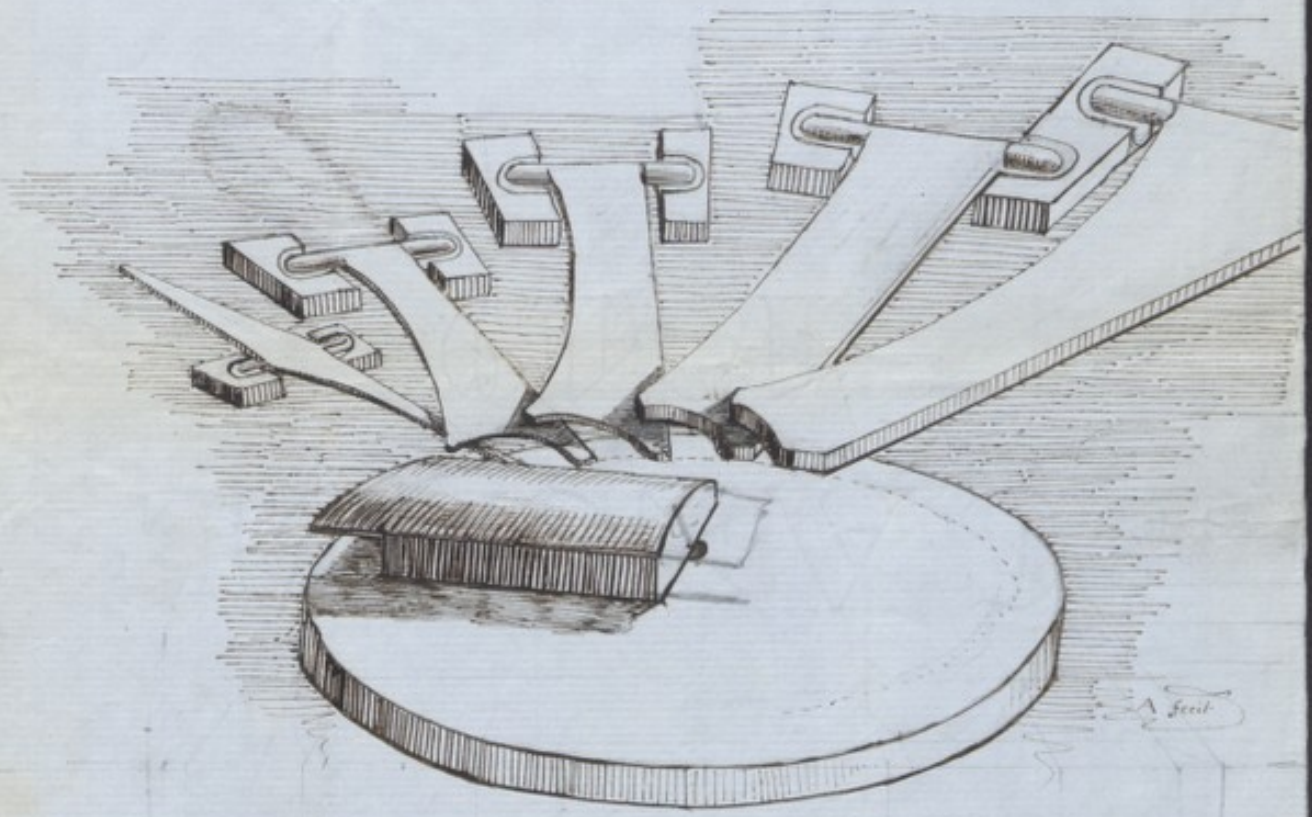

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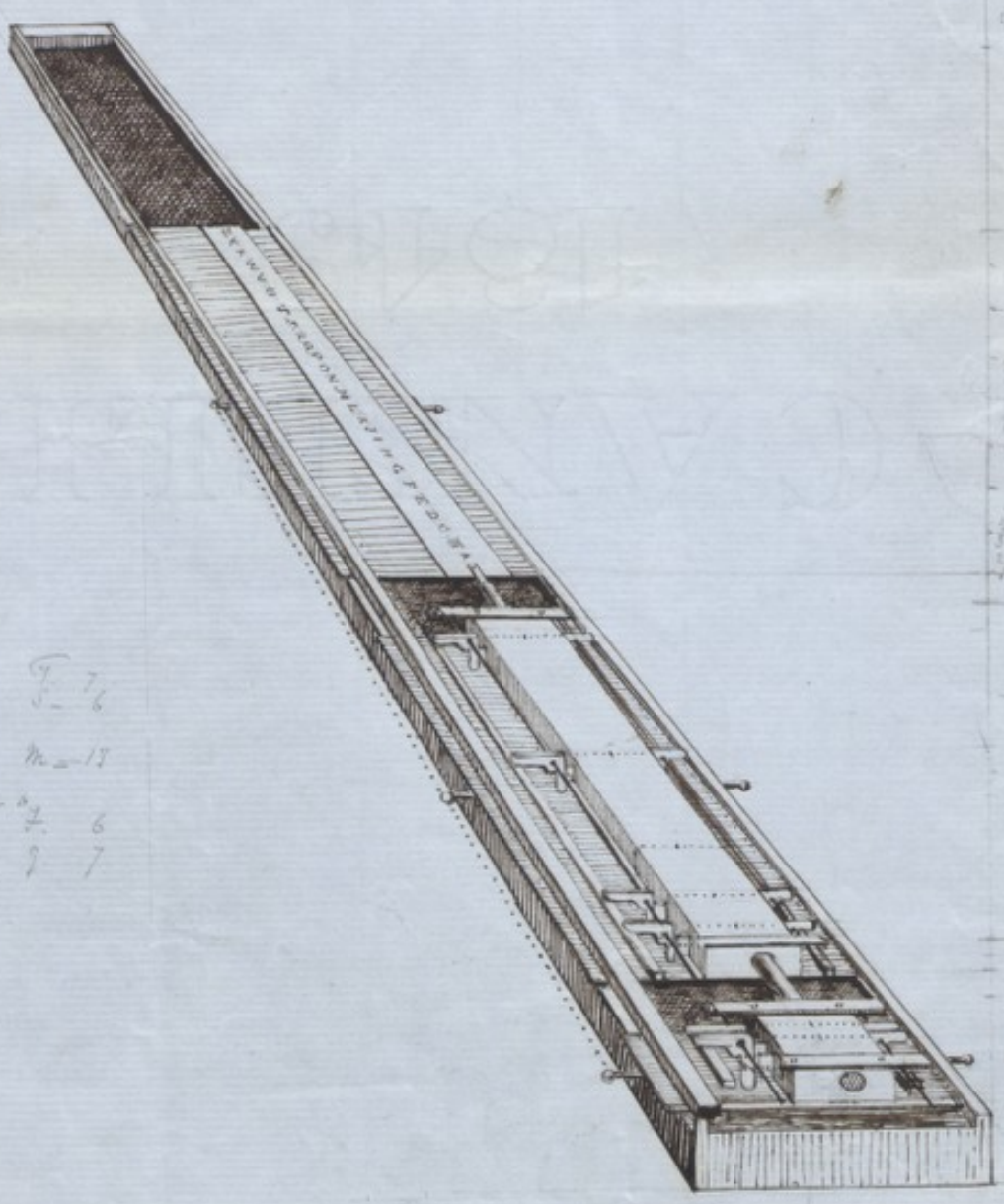

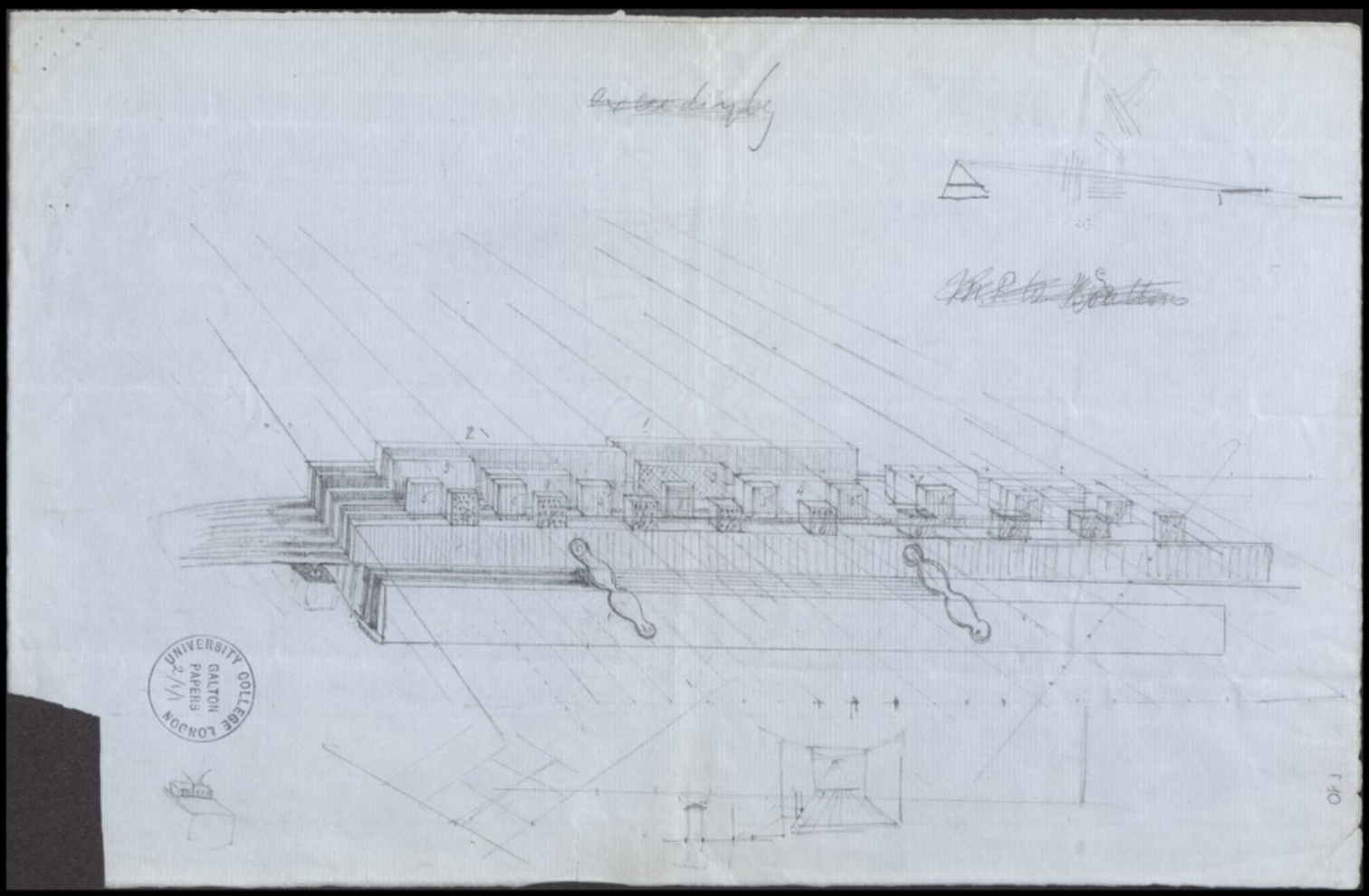

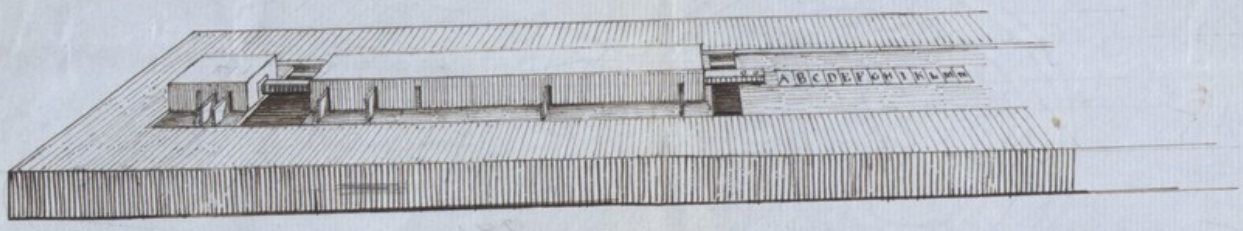

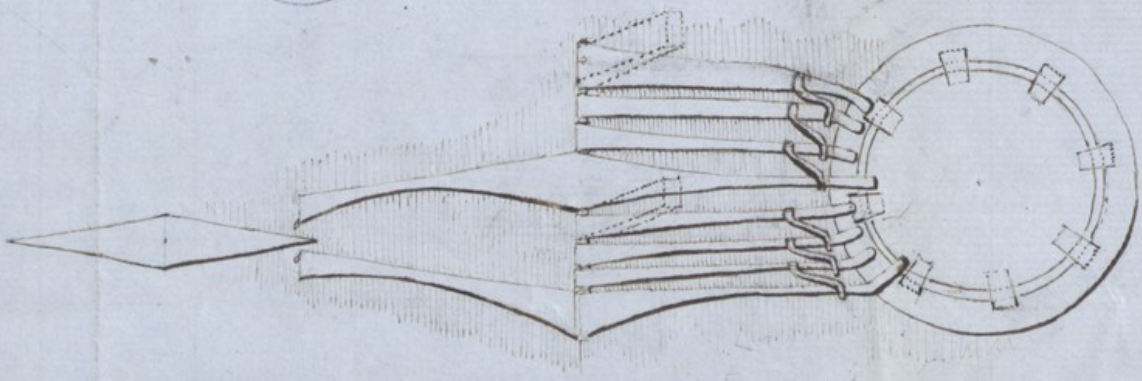

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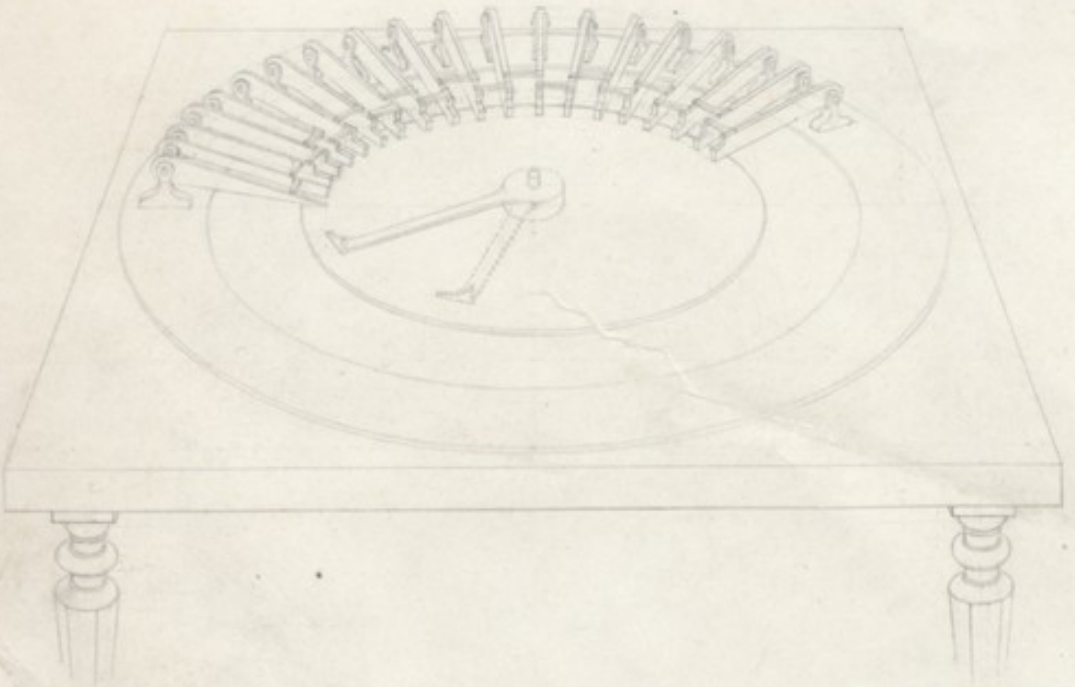
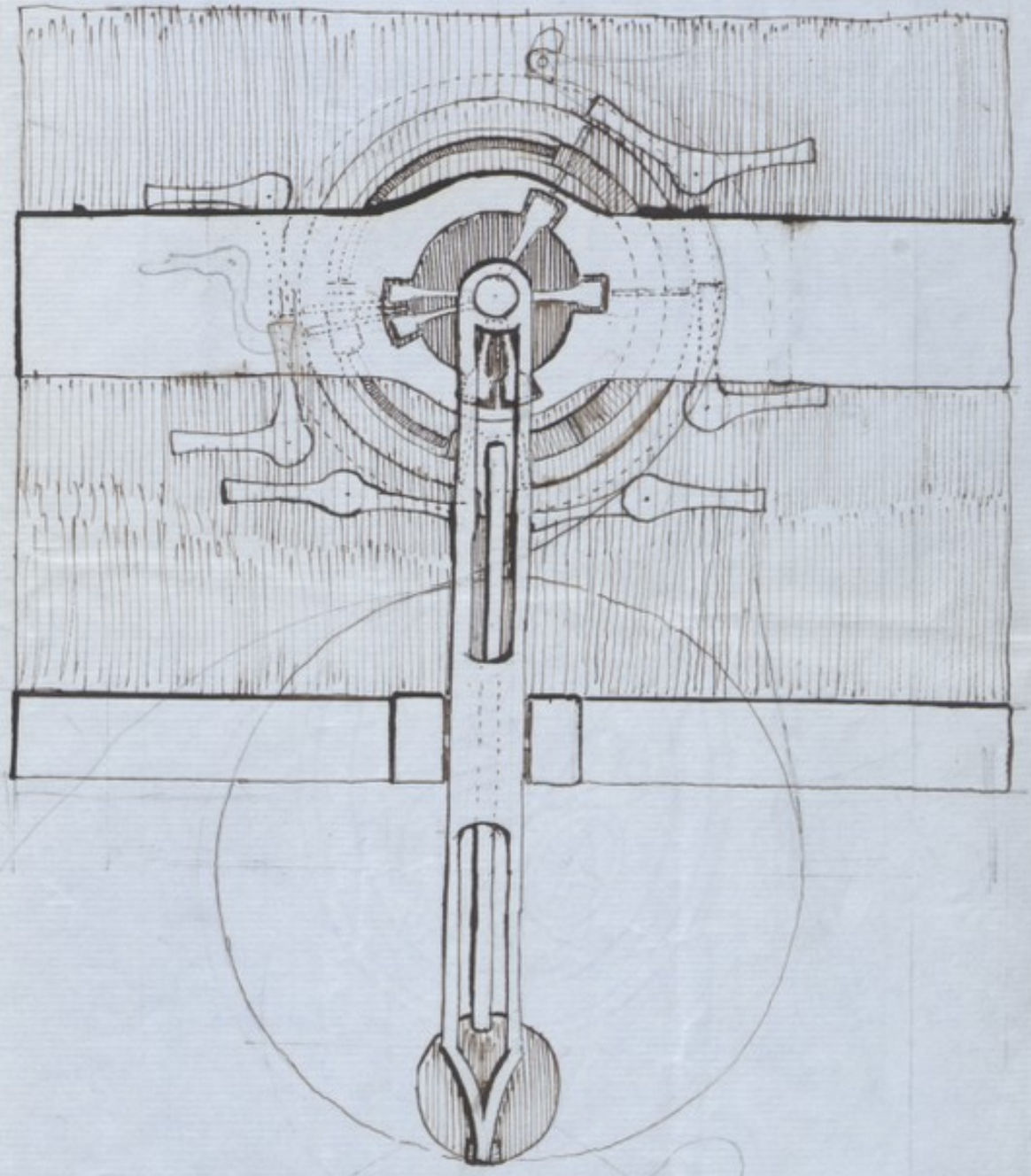




(1) p. 4 · line 4 from bottom -

-- "nor endanger its magnetism or supports."

In fig 1. N is the needle, moving between the limiting stops K & L, in the horizontal plane. A & A' are 2 light arms, as small as the second-hand of a watch, moving on the pivots p, p' through a small angle in the vertical plane. These arms are moved by the machinery & in such a manner, that, supposing each revolution of the machine to take up one second, then during six eighths of that time they are supported up, during one eighth they are let fall, & again during one eighth they are being lifted up.

Fig 2 shews one of the arms, A, & the needle N in section, p2 being the position occupied by A during the period of its elevation, pc the position it assumes when suffered to fall freely on the stop D.

It will be seen that during the period of A's elevation, the needle is perfectly free to move. Let the operator then

during this interval pass the current, & move the needle N to the position N'. under the arm A. This arm, when let fall, will now drop upon the needle & lie there, occupying a position p6, intermediate between p2 & p5. while the other arm A' will fall freely upon the stop D. The case would have been reversed had the needle moved to I, & had it not moved at all both arms would have fallen.

In the above operation it will be observed that no task whatever is imposed on the dynamic force of the electric current beyond that of moving the needle itself, while swinging with perfect freedom on its axis. The sole force by which the needle acts on the machinery is the resistance of the body of the needle itself, exerted as a check to the fall of the light bodies A & A'. The latter forces being limited only by the strength of the body of the needle, may be incomparably greater than the former.

(2)

In fig 3. A_1 A_2 A_3 A_4 are arms moving on pivots in the vertical plane. a_1, a_2. &c are teeth moved horizontally by the machinery. If the arm A_1 remains at rest, the tooth a_1 moves over it without acting on it. If on the contrary the arm A_1 is slightly raised, the tooth a_1 engages itself underneath, & raises A_1 further. A_1 is thus brought against the cross piece (c) of the arm immediately above it, A_2, & slightly raises that arm. As before then, when the tooth a_2 advances, it will come in gear with A_2, thus lifting it higher, & causing it to raise slightly the arm A_3, which in turn, by a similar operation will raise the arm A_4. & so the action will be propagated through as long a series of arms as we please.

"Now we see that the weight of any one arm C." — as before p. 8. line 8 down & "task of making it".

After this, explain, that some parts of the machine as drawn in the above figures, are not quite as they would be in reality, the alterations having merely been made for the sake of clearer drawing. Thus, the teeth really are like the nippers in fig. 4, the cross pieces as in fig. 5..

Brachistochrone

Dynamophorus.

dynamiphore.

kinesiphore

kinephore.

Vector

Synnomont

Analyste

series \ vector.

projector.

projectile.

promotor promotion.

Fig 1

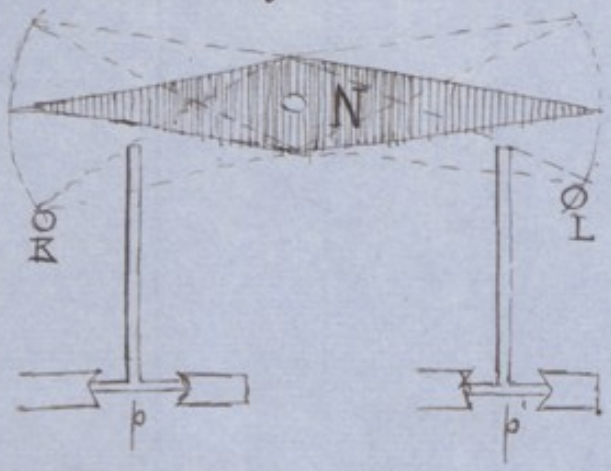


Fig. 2

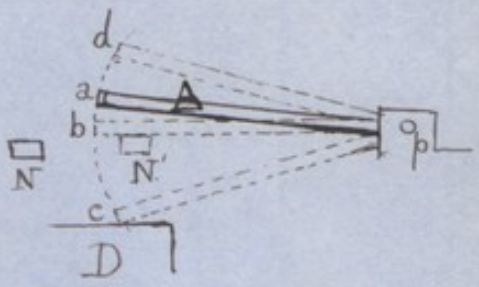
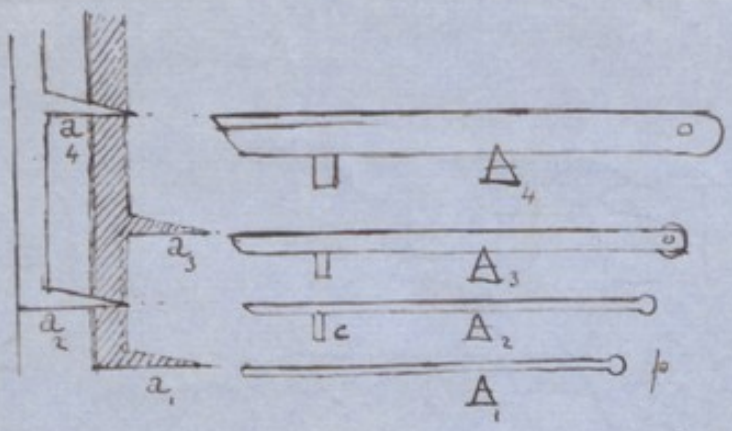


Fig. 3.



compatibly with the essential condition above pointed out. ~~of extreme~~ ex- pectant obedience of the needle & the slight force of the electric current. In the most delicate galvanometer where the needle will readily obey a force of the electric current no stronger than a breath of air, the needle itself may be of sufficient strength & support with ease a weight of several (ounces?)

It must be added that the method by which the needle is kept from tilting & its when an arm falls upon it. & its pivot guarded from injury, will be amply explained hereafter.

We have now & see how the check of this slight arm A, acting for so short a time, can be made available for governing the most powerful machinery.

The first step is & make the check given to the ~~of~~ A result in its being lifted & the position pd, higher than the position pa: & which if unchecked would in its fall, it would be restored by the revolution of the machine

The mode of effecting this is shewn in fig 6 (fig 3?) A tooth or sliding cam. B. moves backwards or forwards under A. through the horizontal distance g L. When the point k is brought under A. seen here in section, A will begin to fall. If the needle has been moved by the operator so as to check it, the projecting angle P will slide under A. & the tooth Q will lift it to the position A'. If the needle does not check it, it will fall down to h. whence it will be brought back by a similar cam working in the opposite direction to its original position at A.

Thus then, by the motion of the needle we first determine whether or not A shall be checked in its fall, & this in its turn determines whether or not it shall be lifted to the higher position A' by the machinery.

Our next object is, by the motion of this light arm A. to govern the motion of an arm of any required weight & magnitude -