



UMEÅ UNIVERSITET

# 3D-Metamodeling Polhem's *Laboratorium mechanicum*

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TAL  
OM  
NYTTAN  
AF ET  
*Laboratorium Mechanicum,*  
HÅLLIT FÖR  
KONGL. VETENSKAPS ACADEMIEN  
AF  
CARL KNUTBERG,  
CAPITAINE MECHANICUS,  
DÅ HAN DER BLEF SÅSOM LEDA-  
MOT INTAGEN  
DEN 16 NOVEMBER 1754.



På Kongl. Vetenskaps Academiens befallning.  
STOCKHOLM,  
Tryckt hos LARS SALVIUS, 1754.

INVENTARIUM  
ÖFVER DE  
M A C H I N E R  
OCH  
M O D E L L E R,  
SOM FINNAS  
VID  
KONGL. MODELL-KAMMAREN  
I STOCKHOLM,  
BELÅGEN UTI GAMLA KONGSHUSET  
PÅ  
K. RIDDAREHOLMEN.



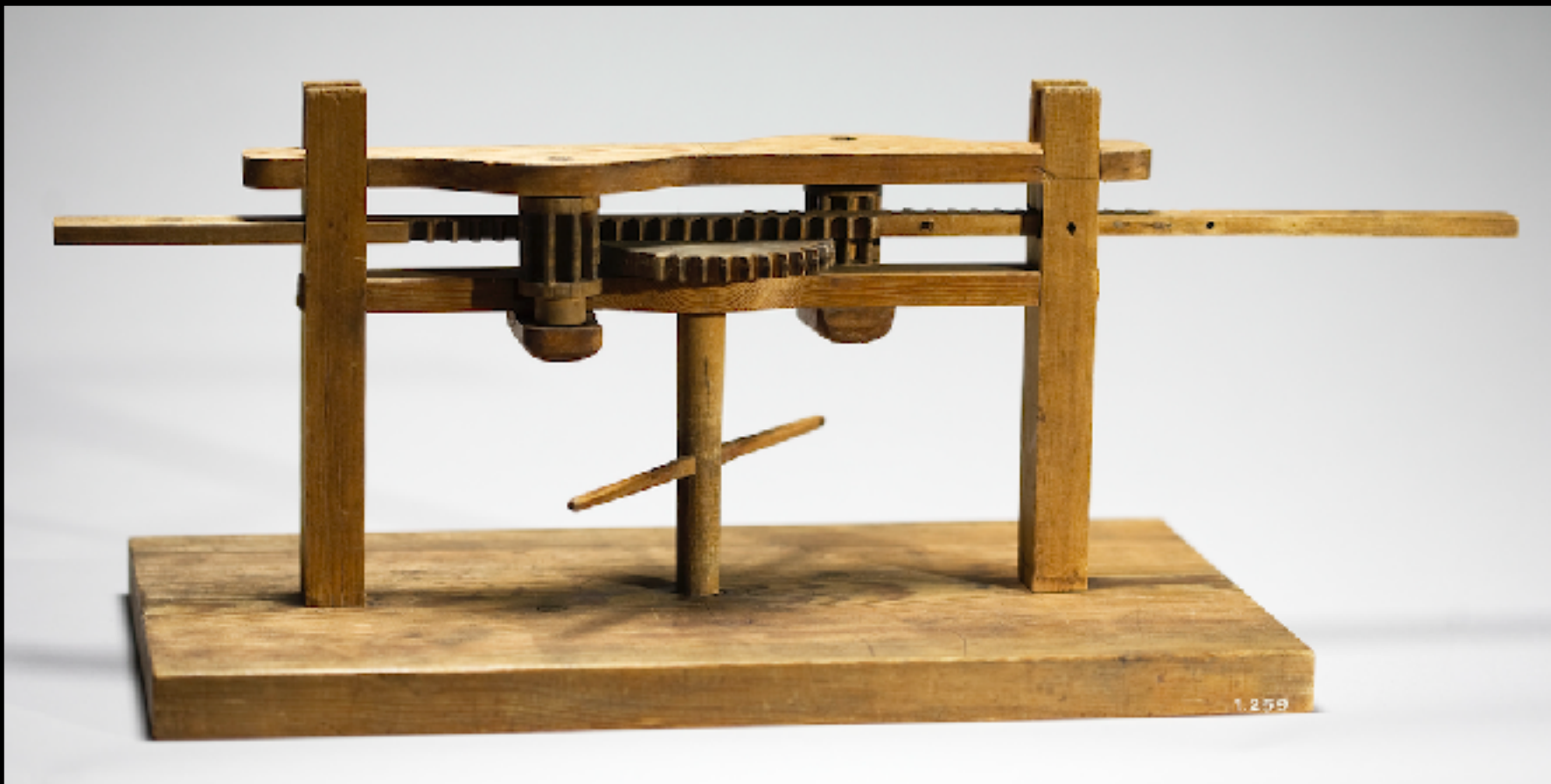
STOCKHOLM,  
TRYCKT HOS ANDERS J. NORDSTRÖM. 1779.

Book frontispieces of Carl Knutberg's, *Tal om nyttan af et laboratorium mechanicum, hållit för kongl. vetenskaps akademien* (Stockholm, 1754), as well as the inventory (of models and machines) at the Royal Swedish Model Chamber in 1779 (compiled by Jonas Nordberg), *Inventarium öfver de machiner och modeller, som finnas vid kongl. modell-kammaren i Stockholm, belägen uti gamla kongshuset på k. Riddareholmen* (Stockholm, 1779).







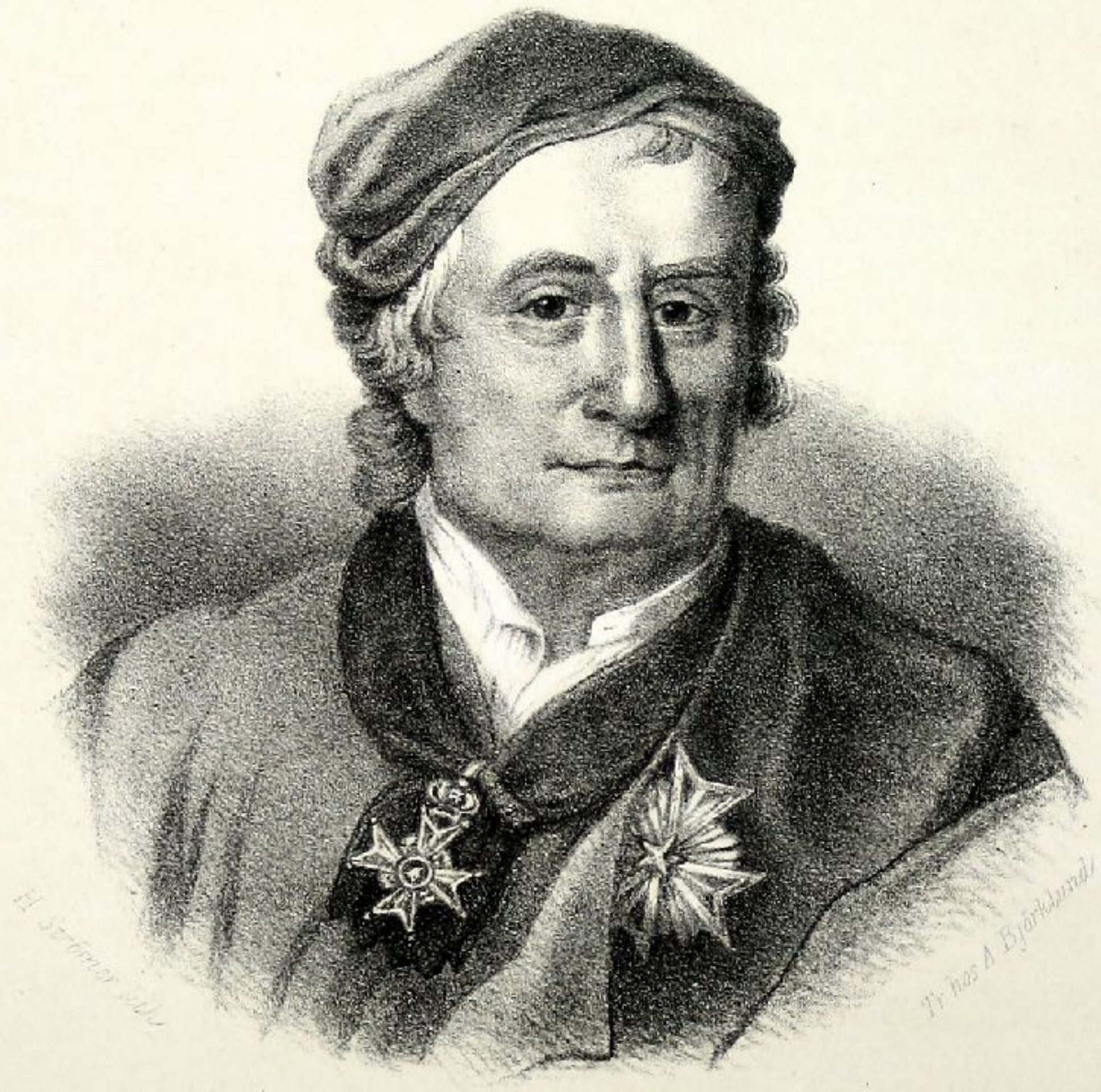


Models from Christopher Polhem's "mechanical alphabet" from the early 1700s. Actual models—whether in the form of originals or copies—can today be found at the Mining Museum in Falun as well as at the Swedish National Museum of Science and Technology in Stockholm.

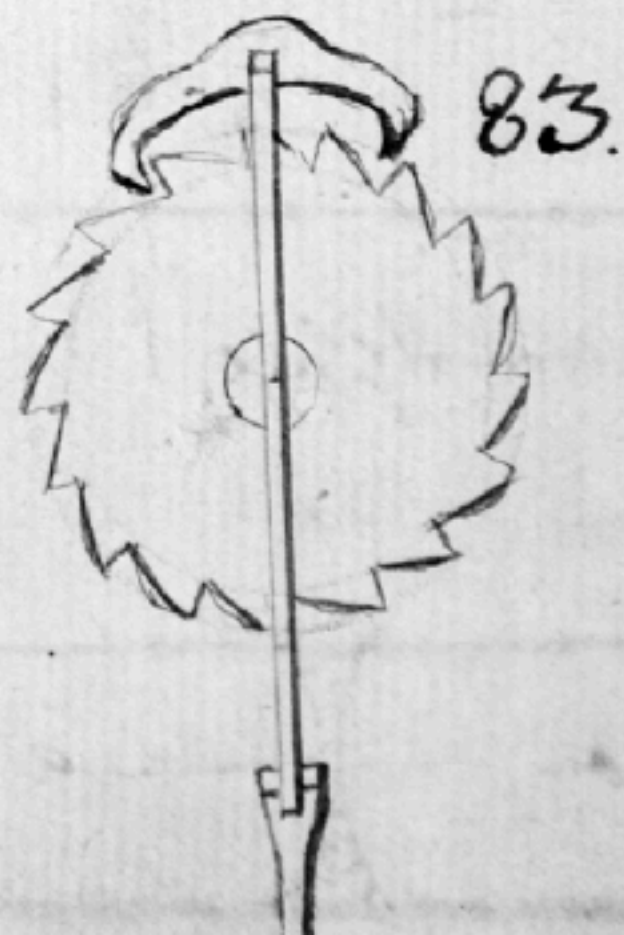
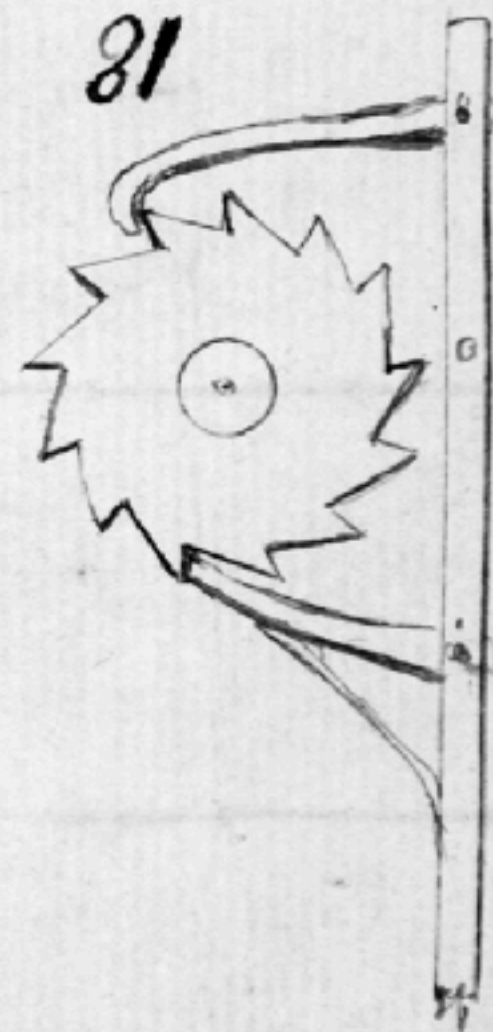
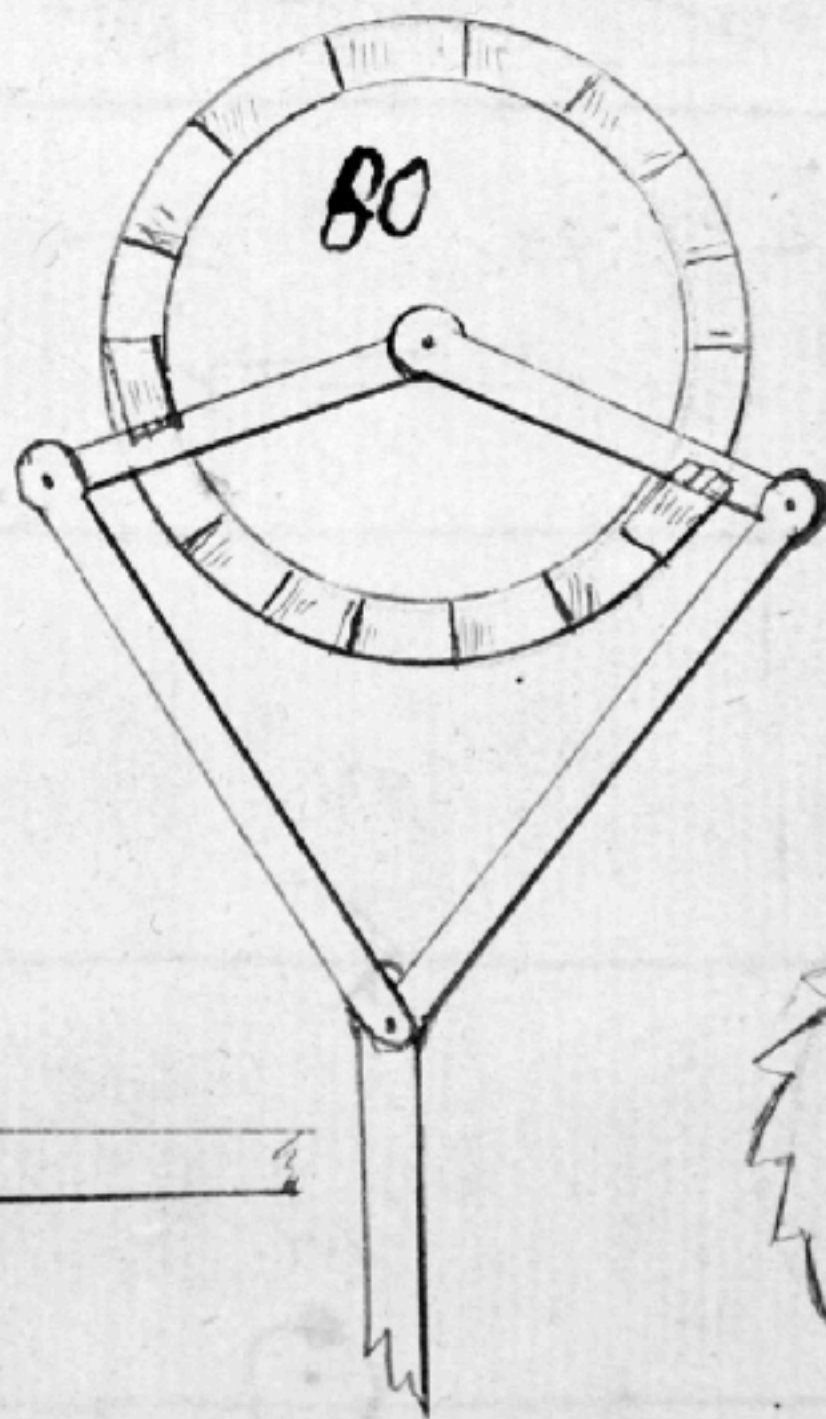
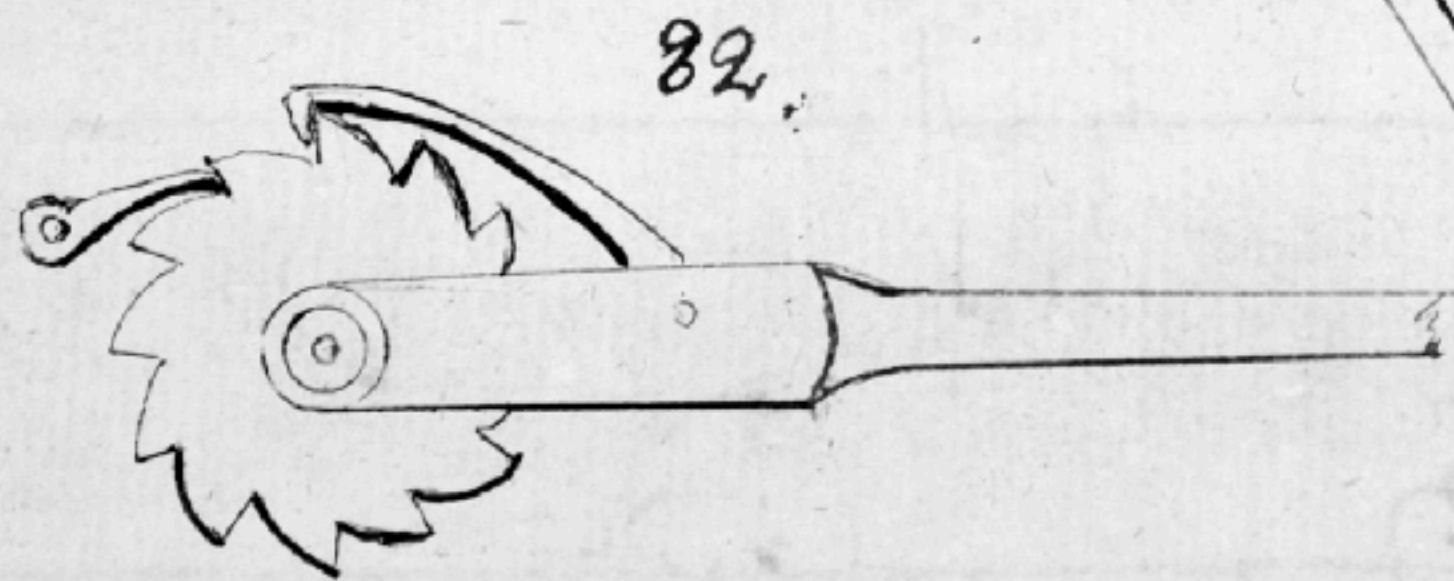
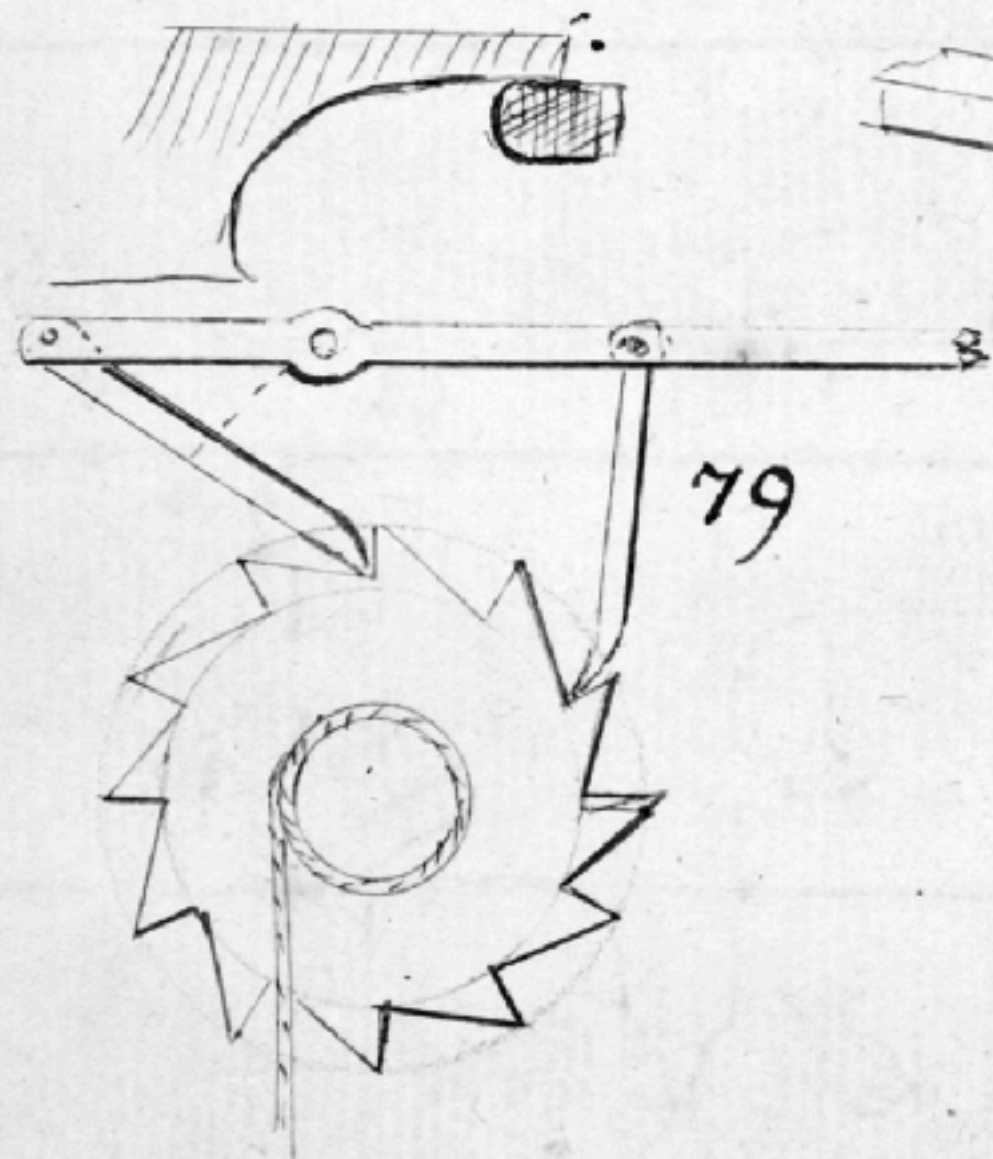








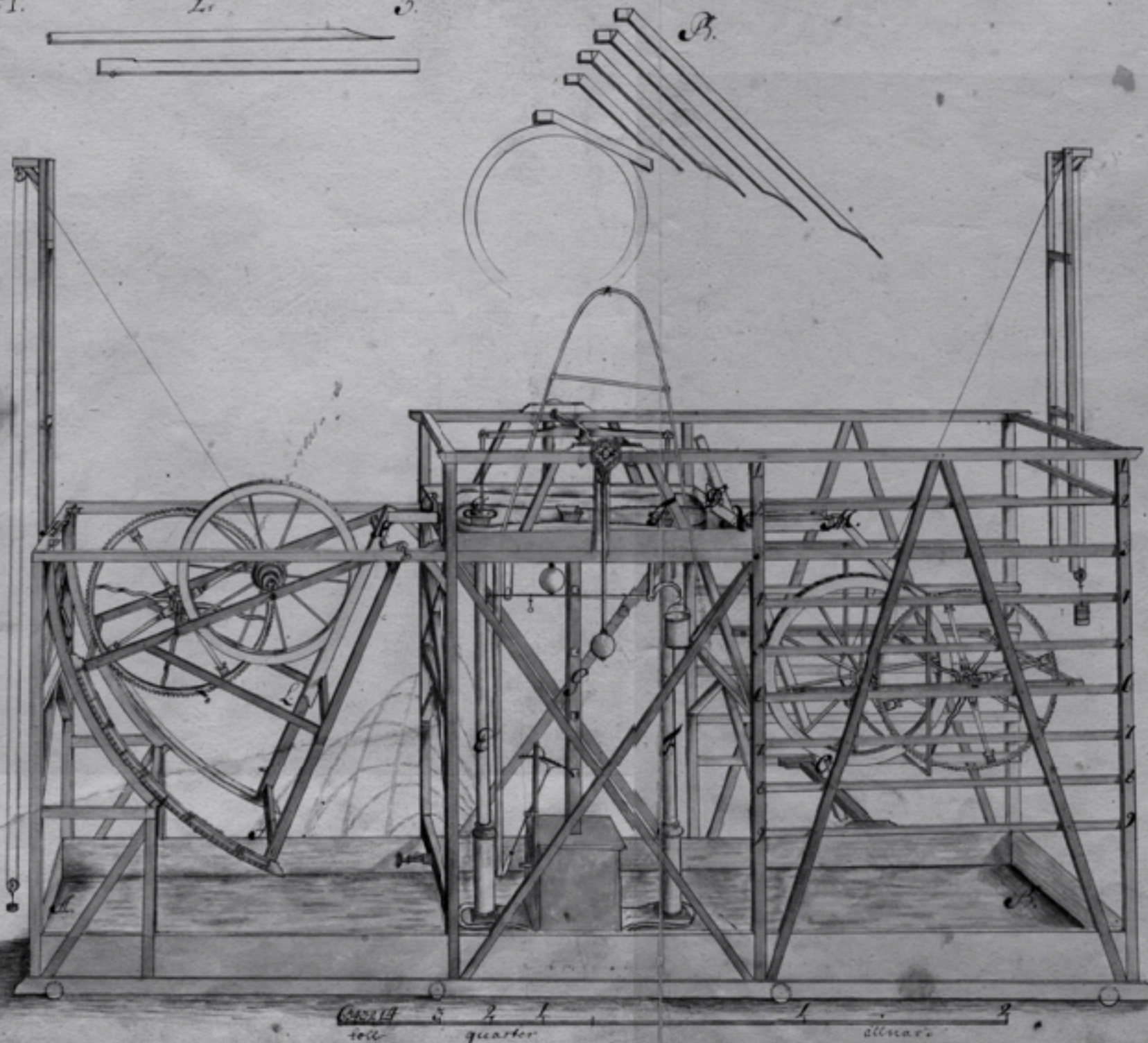
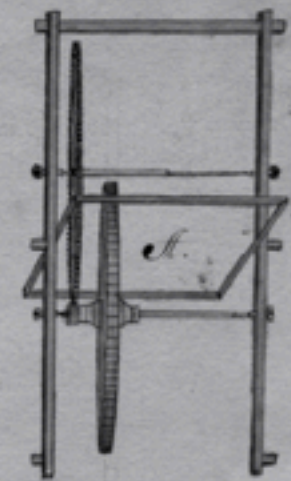
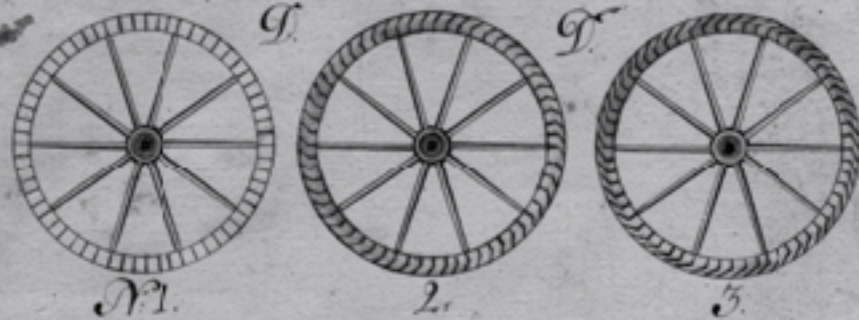






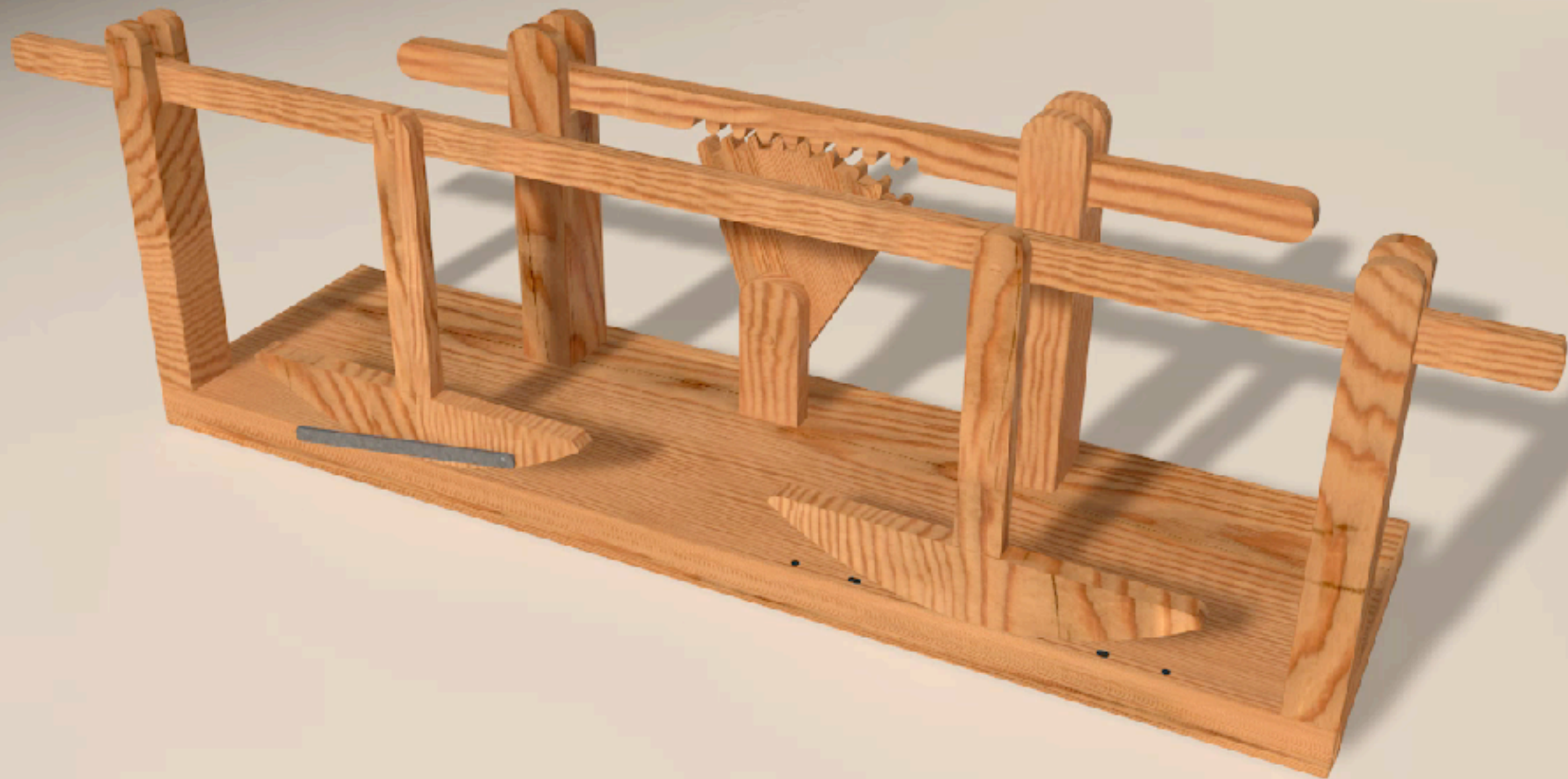
Den första Maskinen om Wallinheals Kraft 3 ätthellige fall.

N: 1.

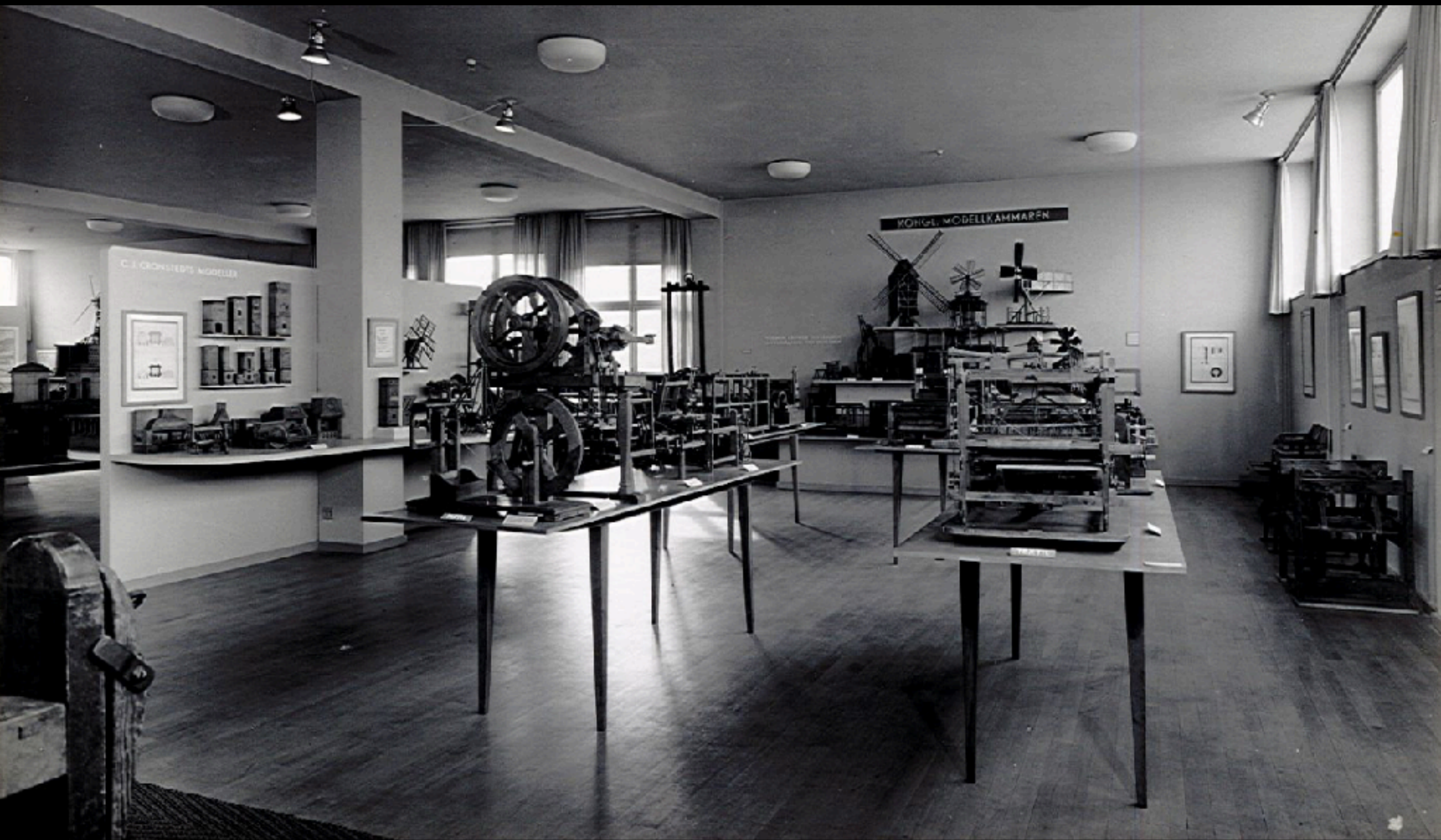


Polhem's hydro-dynamic "experimental machine" for water pressure measurements (1705).









A representation of the Royal Swedish Model Chamber (with some original models) displayed at the Swedish National Museum of Science and Technology in 1947.





Med utgångspunkt i Tekniska museets samlingar utforskar vi den digitala teknikens möjligheter att omgestalta industrialiseringens berättelser om samhälle, människor och miljöer.



### Modell 1: Sahlins arkiv

Vår bild av industrialismen är fast cementerad i berättelser om framsteg, materiell utveckling och manliga bedrifter. Hur kan digital teknik hjälpa till att finna nya ingångar till befintliga samlingar, samt att nyansera och problematisera bilden av industrialismen?



### Modell 2: Dædalus

Dædalus är en årsbok som alltsedan 1931 har publicerats av Tekniska museet. Projektmodell 2 handlar om att massdigitalisera denna tidskrift och studera dess totala textmängder i jakt efter lingvistiska och teknik-, miljö-, medie- och genushistoriskt signifikanta mönster.



### Modell 3: Polhems alfabet

Kan man utvinna ny historisk kunskap ur Christopher Polhems mekaniska alfabet som digital modell – och samtidigt använda artefakterna för pedagogiska ändamål som svarar mot samtidens behov?



# Theorizing Digital Cultural Heritage

A Critical Discourse

edited by Fiona Cameron and Sarah Kenderdine

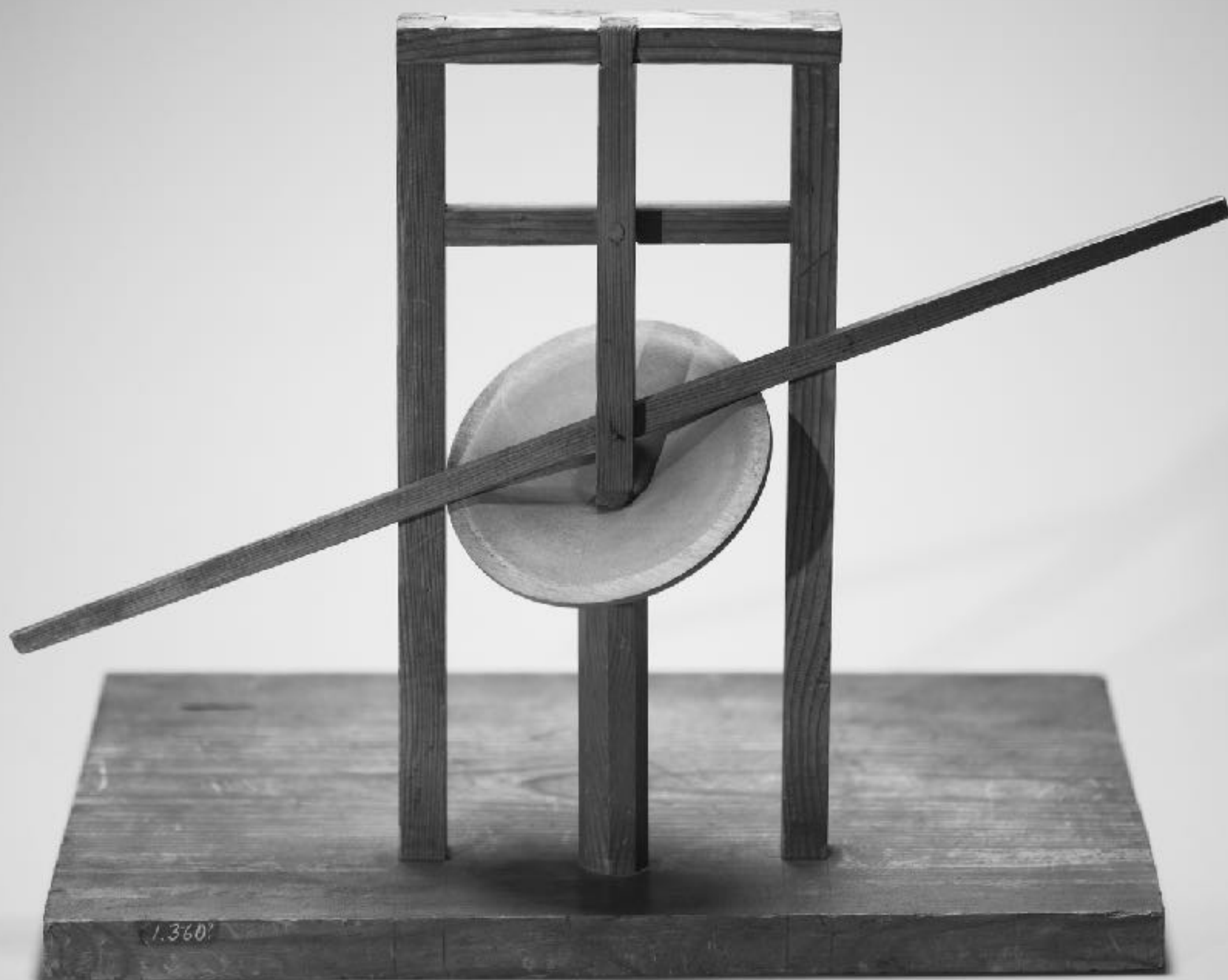


The digital object as a "terrorist".













1. iPhone photographs of models + the Agisoft Photoscan software.
2. Computer-animation of models (with professional animator).
3. CT-scanning of models (at a university hospital).



**123D Catch is a free app that lets you  
create 3D scans of virtually any object.**

Available on:



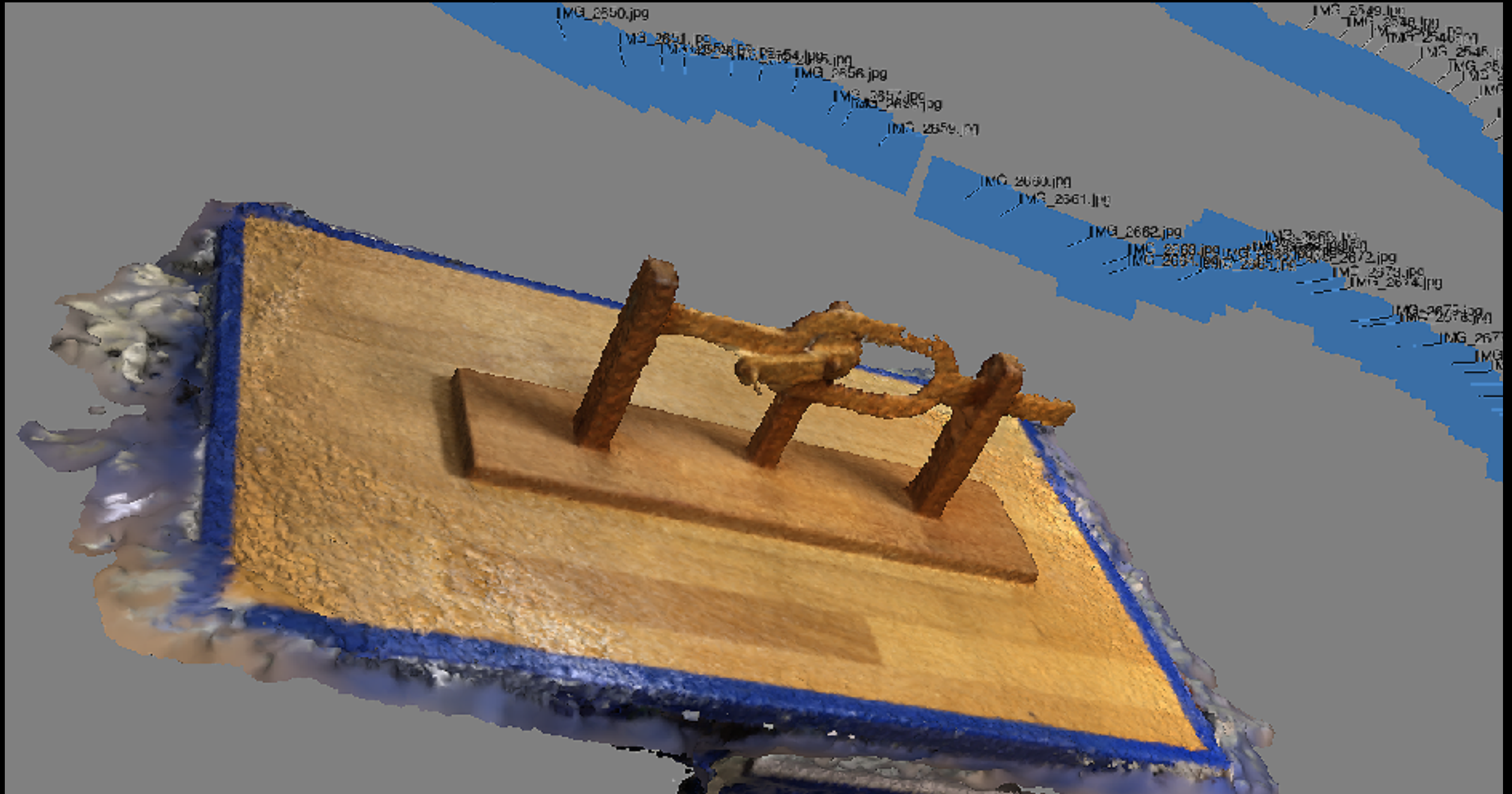


Senaste import

150 bilder

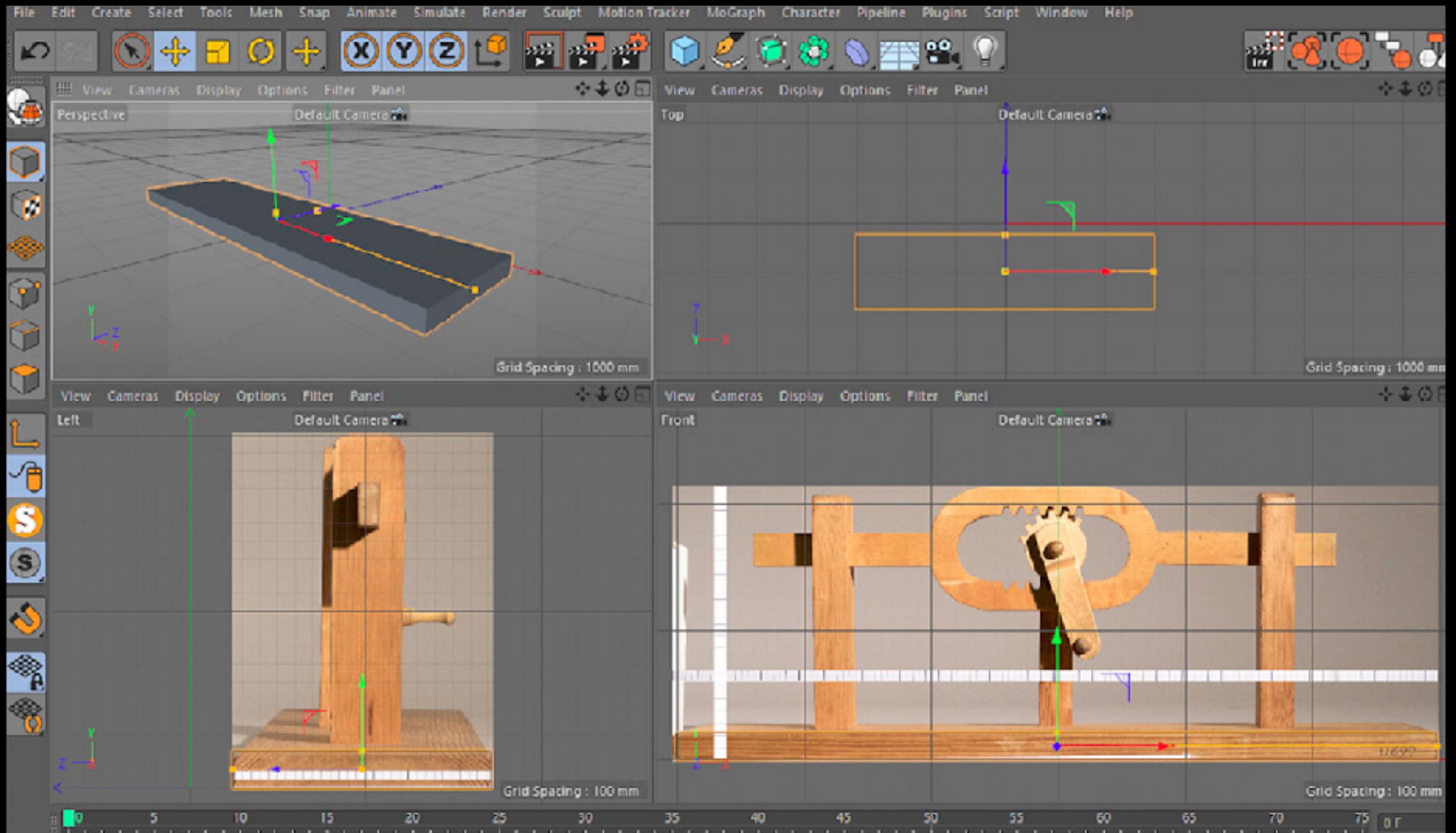






Simple scanning of one wooden model from Polhem's mechanical alphabet—using an iPhone and the software Agisoft Photoscan. The IMG.jpg-markers indicate where photographs were taken.

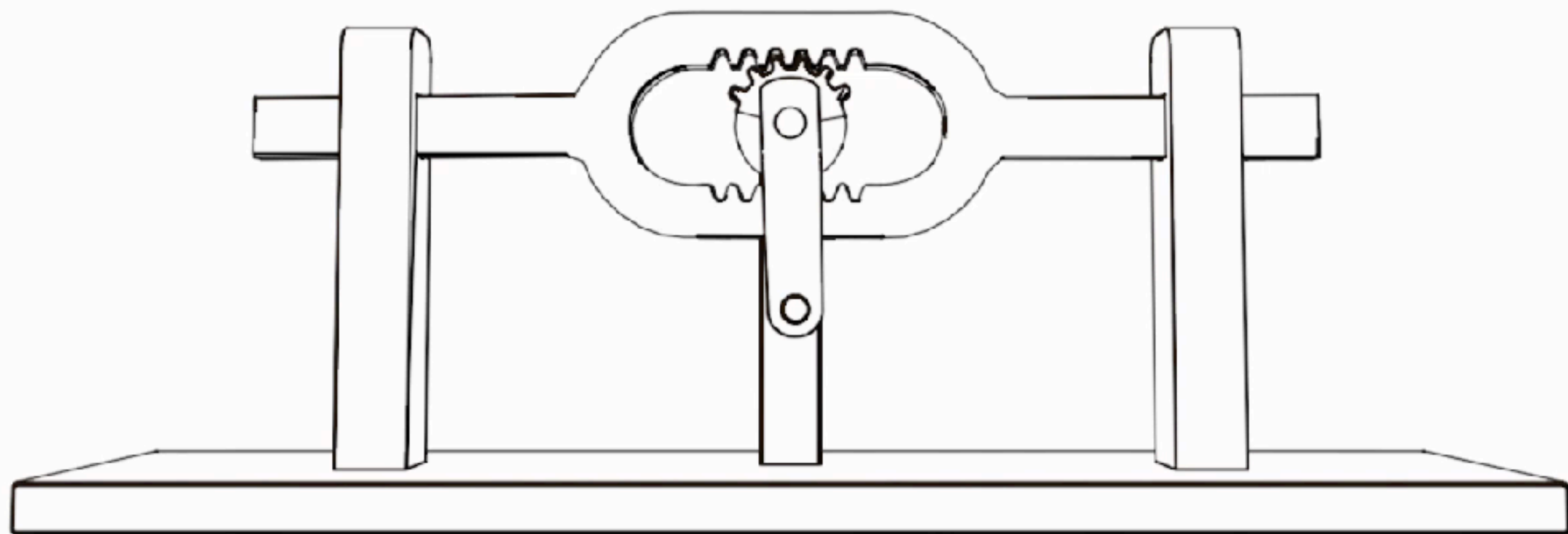
[polhem\\_modell.psz](#)



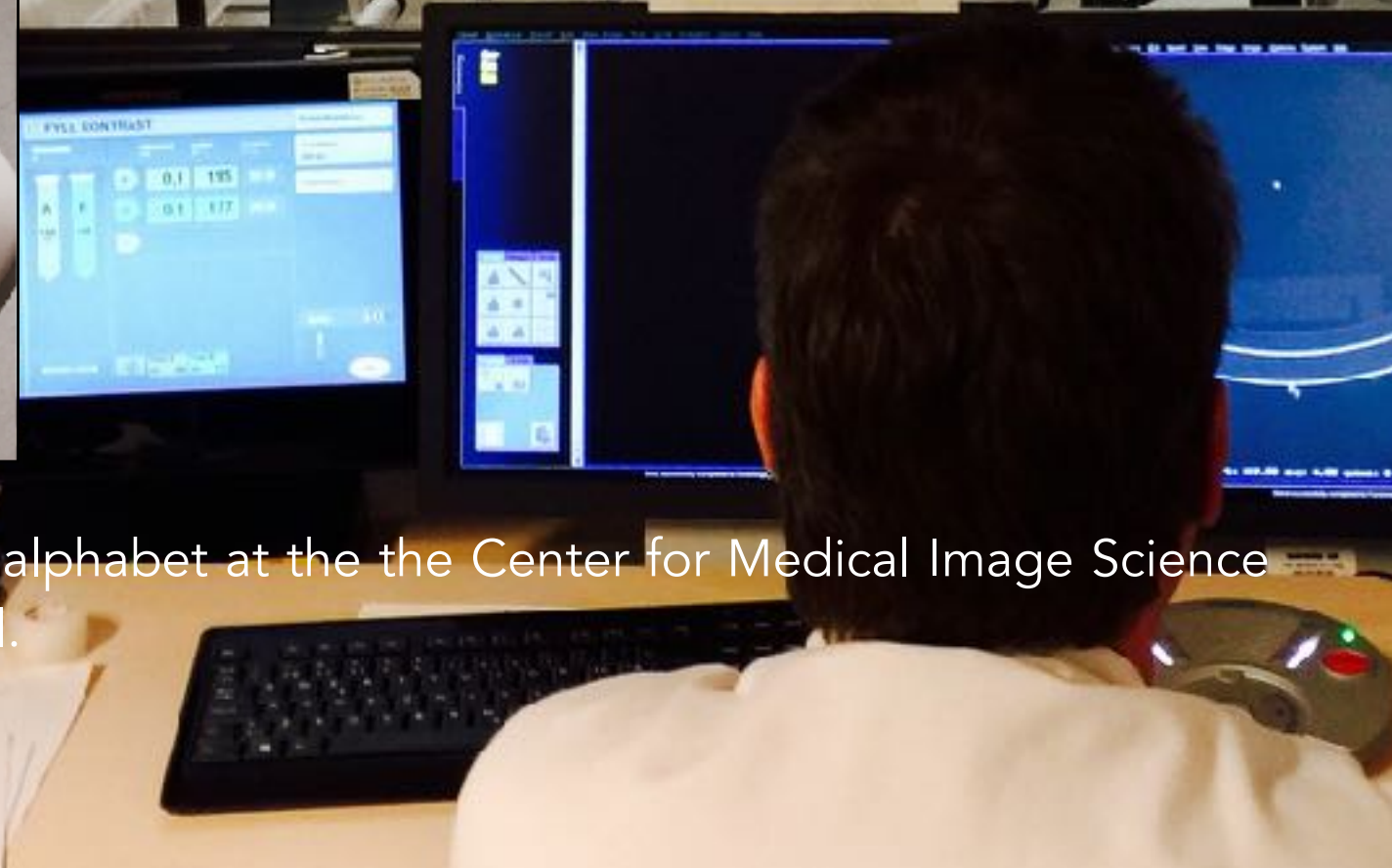
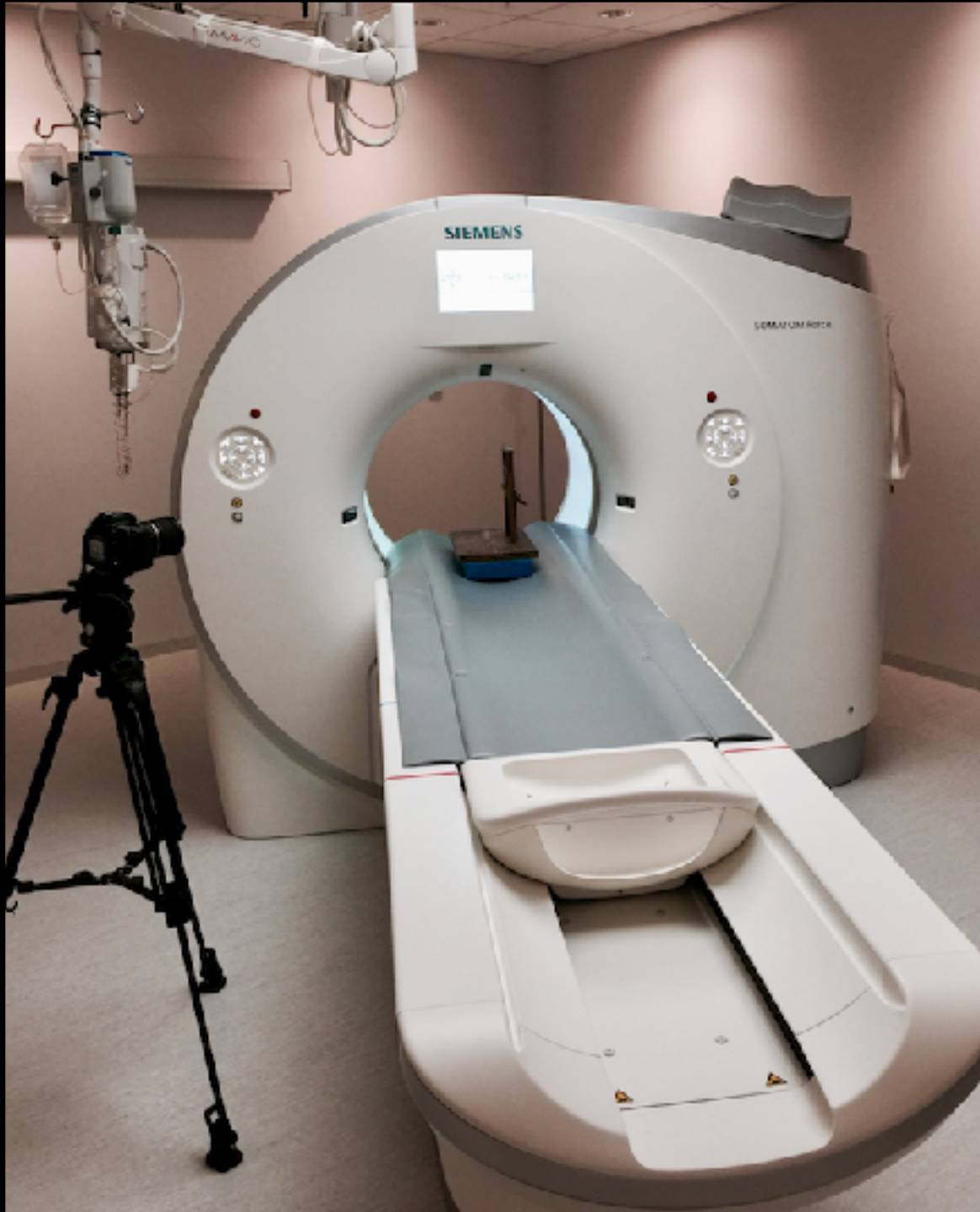
In a project collaboration with animator Rolf Lindberg, he simulated a model from Polhem's mechanical alphabet—by way of a few photographs—and constructed a brand new virtual object in the software Cinema 4D.









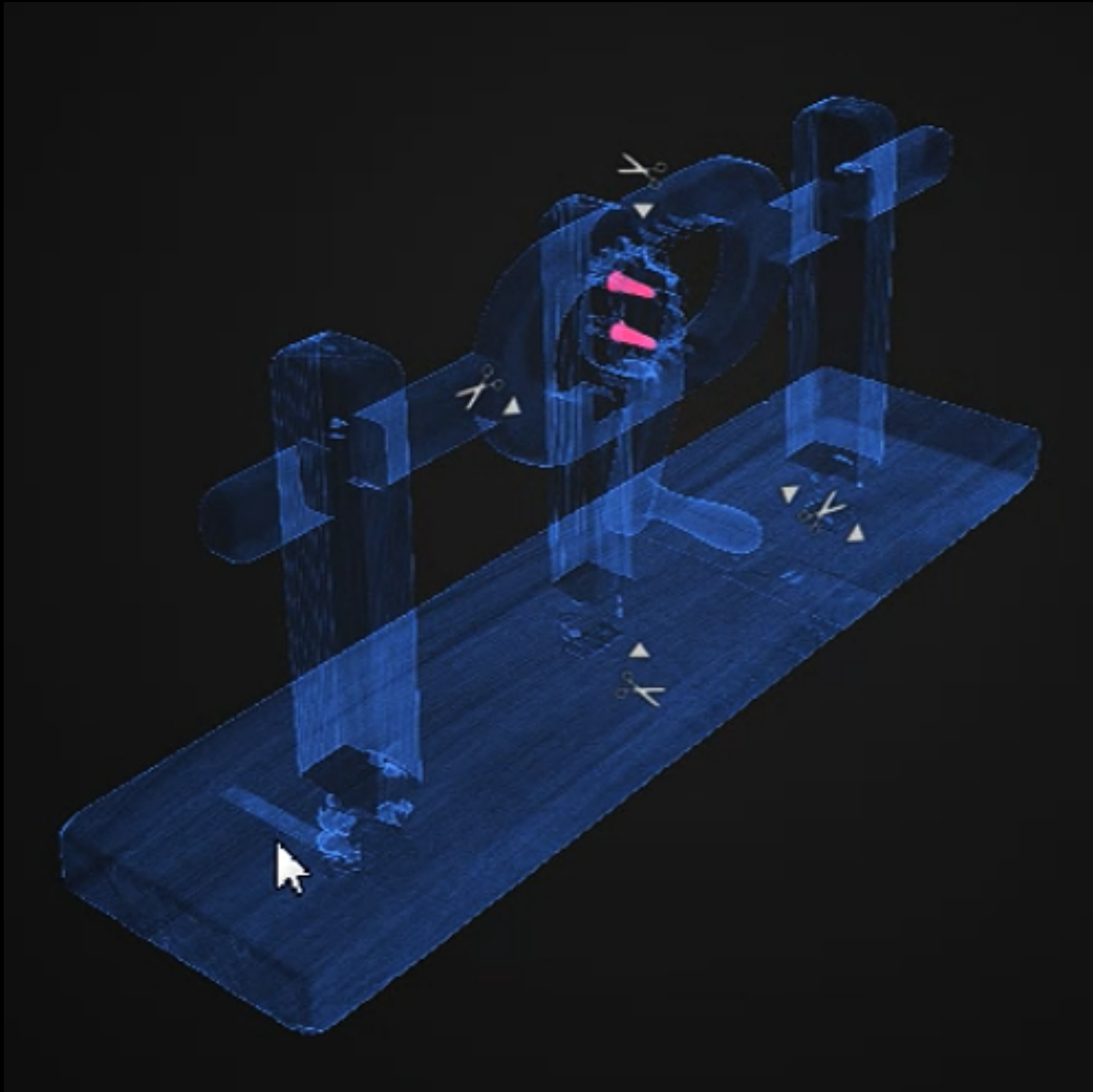


CT-scanning a model from Polhem's mechanical alphabet at the the Center for Medical Image Science and Visualization at Linköping University Hospital.



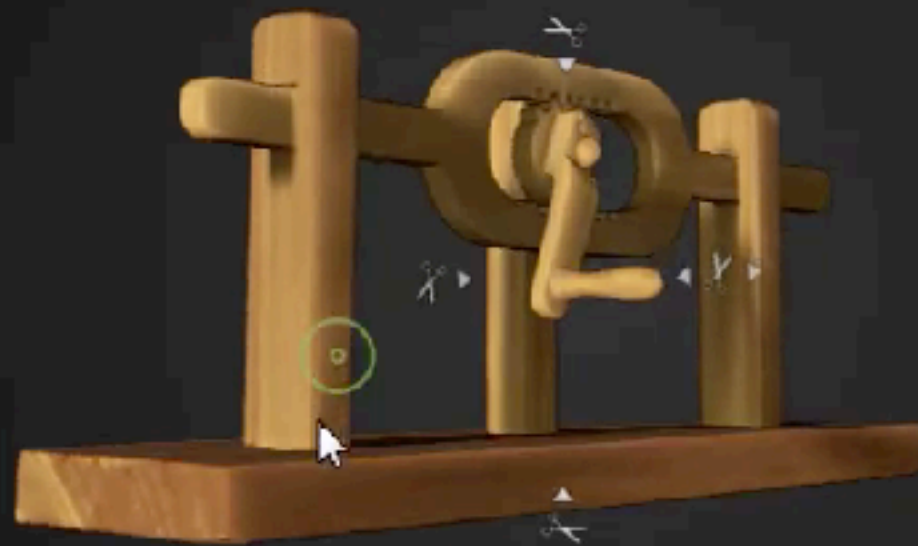






Inside Polhem—CT-scanning a model in collaboration with the company Interspectral made it possible to see inside models without breaking them.

1359

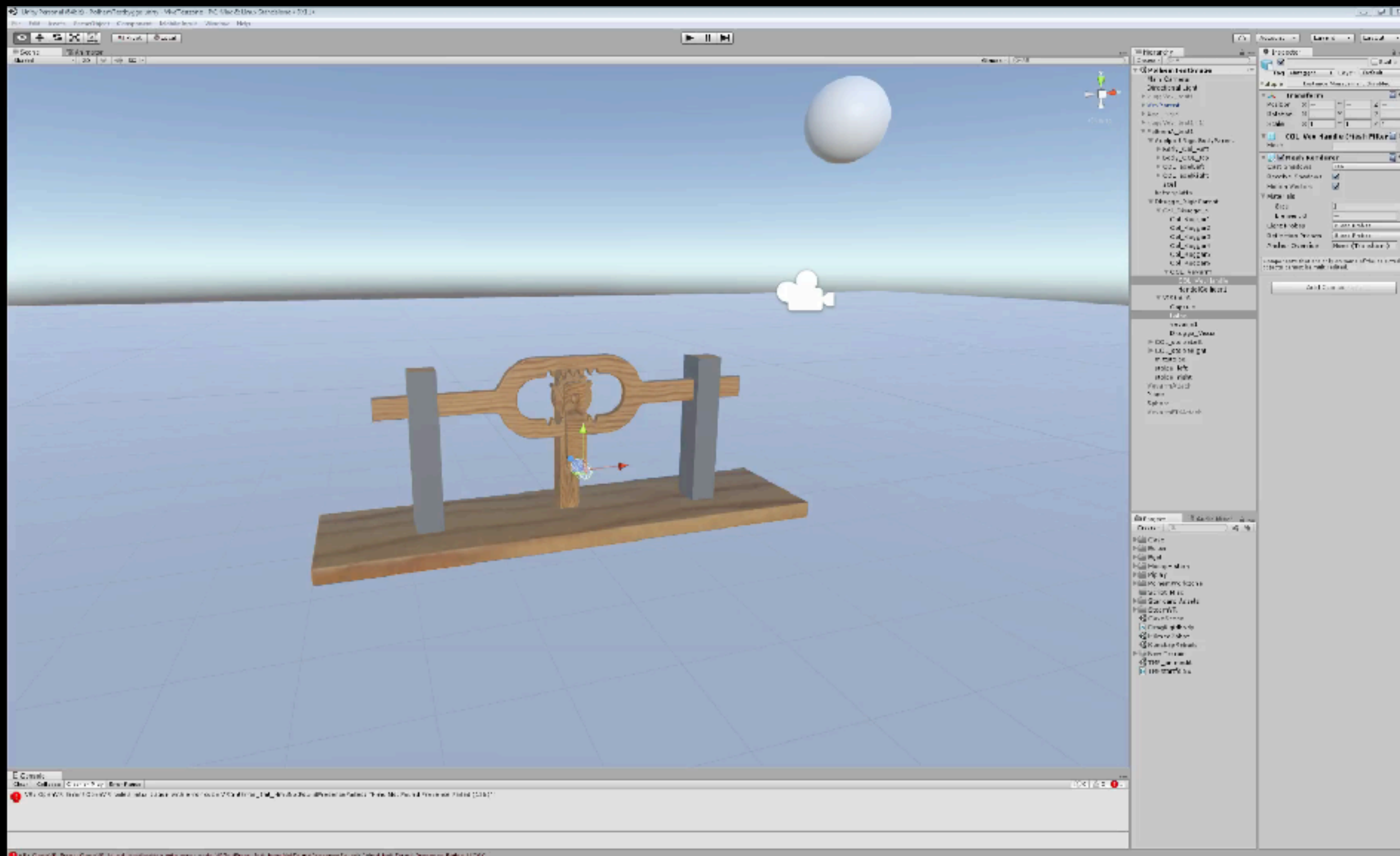


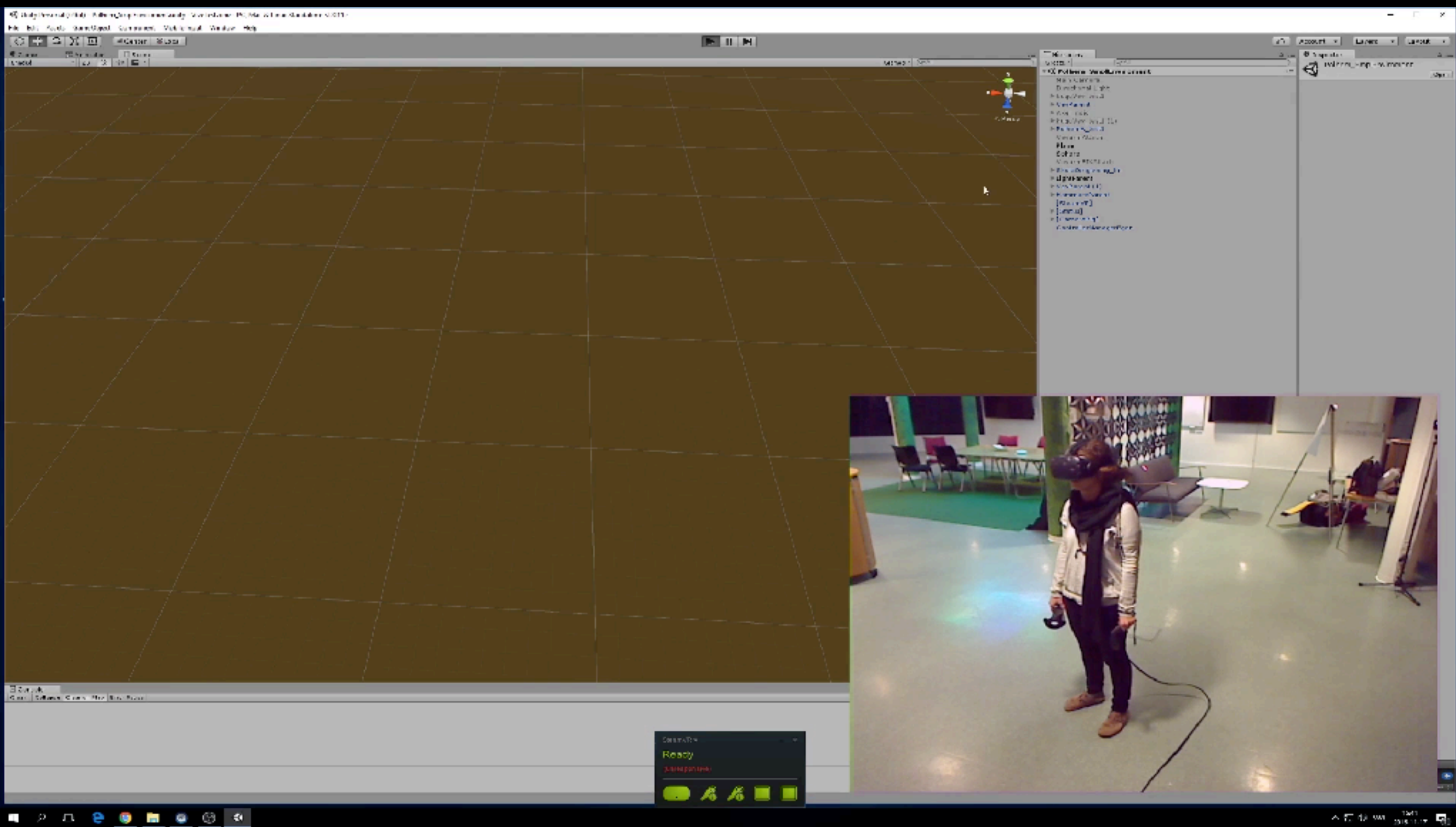
Solid Wood

Shell & Metal

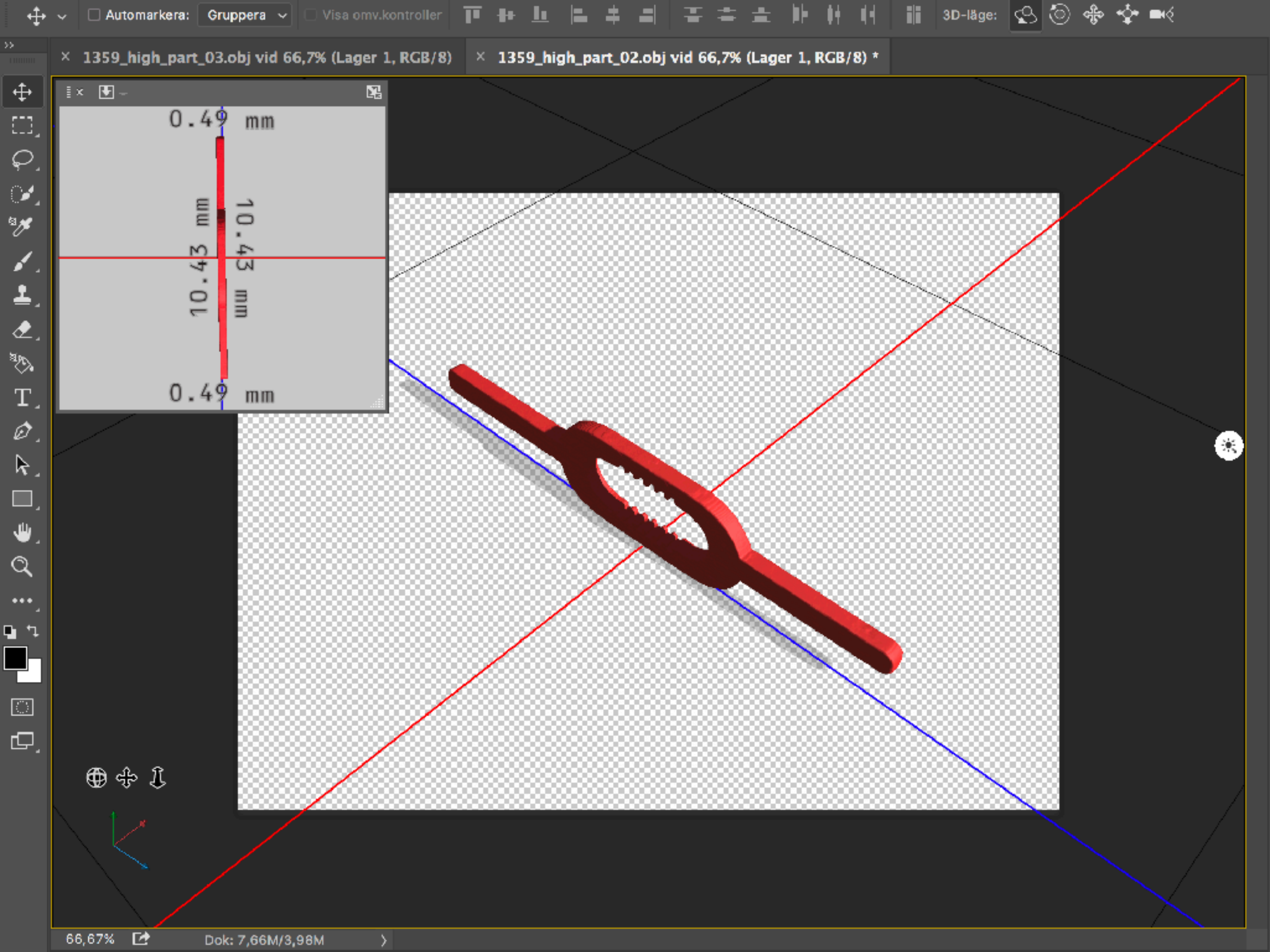






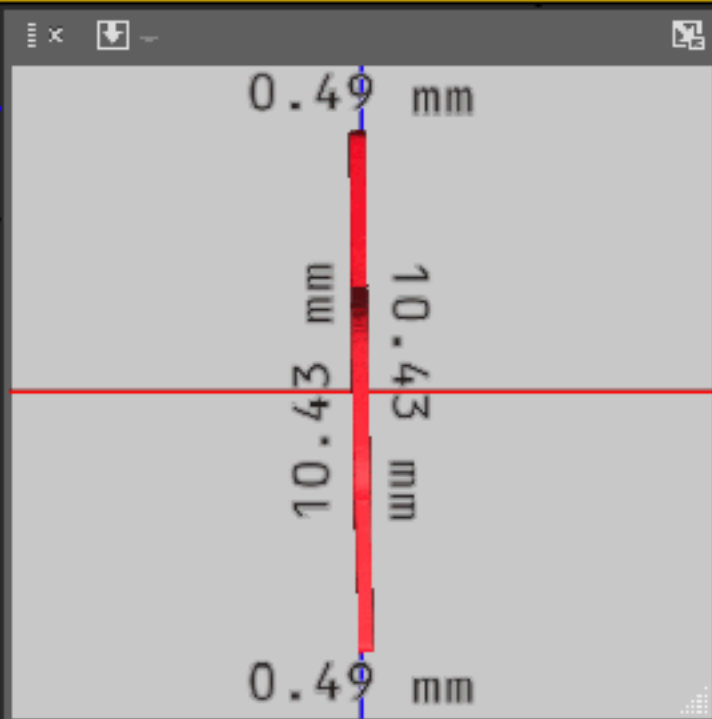






1359\_high\_part\_03.obj vid 66,7% (Lager 1, RGB/8)

1359\_high\_part\_02.obj vid 66,7% (Lager 1, RGB/8) \*



66,67%

Dok: 7,66M/3,98M



**– danke.**

