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Edoardo Mori
per il sito
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Giovanni Fontana

Bellicorum instrumentorum liber

Venezia 1420 - 1430

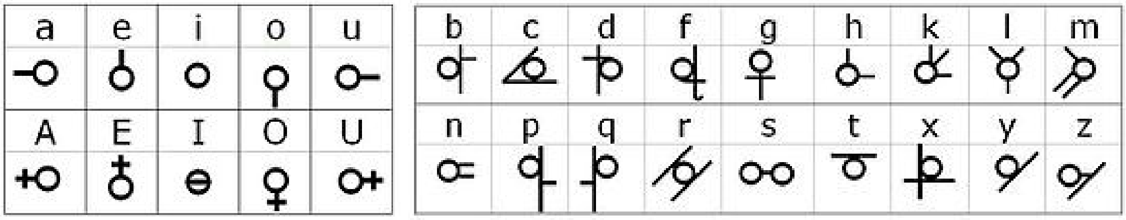
Manoscritto della Bayerische Staatsbibliothek

Giovanni Fontana (Padova 1395 - 1454 circa) è stato uno scienziato, **medico** e umanista italiano vissuto nella Repubblica di Venezia, a Udine.

Giovanni Fontana fu una personalità tipica del suo tempo, il primo Rinascimento, fatto di sperimentazione e ricerca fondate su una profonda riscoperta dei classici greci, latini e arabi – tanto sul fronte umanistico quanto su quello scientifico – e di persone dotate di una grande curiosità e capacità di analisi che spesso però sfociava nella pratica magica o rasentava la superstizione. Per lungo tempo le sue opere (spesso pubblicate sotto falso nome) furono dimenticate o attribuite ad altri. Di fatto fu riscoperto solamente alla fine del settecento.

Il titolo del trattato è un po' fuorviante o almeno non tiene conto dell'ampia gamma di tecnologie incluse nelle 70 pagine (con circa 140 illustrazioni). In questo libro sono state raffigurate, tra gli altri, macchine d'assedio, fontane e pompe, macchine di sollevamento e trasporto, torri difensive, draghe, serrature a combinazione, arieti, animali con propulsione a razzo, la prima rappresentazione in assoluto di una lanterna magica, scale a pioli, strumenti di misurazione, forni alchemici e… diversi automi robotici. Fontana aveva proposto delle macchine razzo per uccidere, all'avanguardia del primo Rinascimento. Il dispositivo a propulsione a razzo è stato testato da Richard Windley e funziona. Le applicazioni dei razzi sono notevoli: un'illustrazione mostra quelle che sembrano bombe sparate da un'enorme bombarda piazzata all'ingresso di un castello. I suoi bersagli sono navi su un fiume. Altri razzi hanno la forma di uccelli, lepri e pesci artificiali riempiti di materiali incendiari e sono mostrati mentre volano corrono o nuotano. C'è pure la chiara illustrazione di una carrozza su ruote spinta da un razzo.

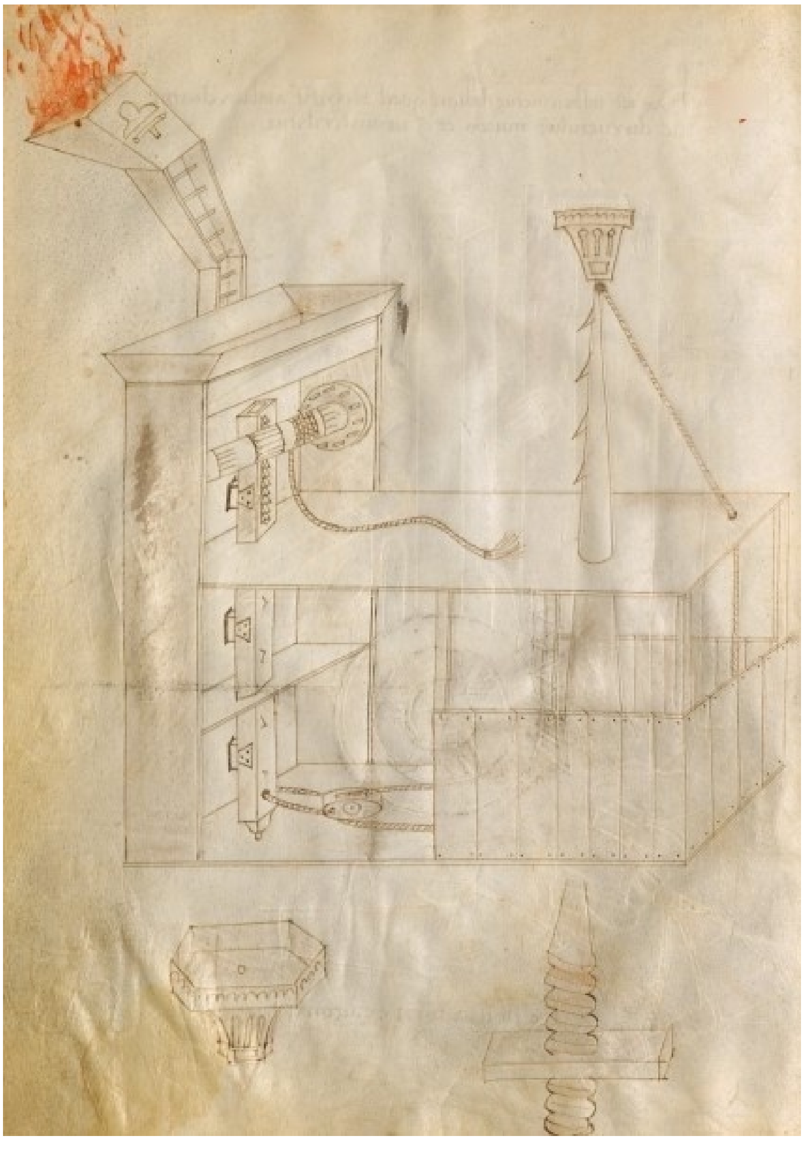
Quasi ogni figura è accompagnata da un breve testo. La prima frase è solitamente in latino, con il resto cifrato. Il sistema di cifratura è alquanto semplice, ma il copista ha necessariamente commesso una gran quantità di errori nel ricopiarlo segno per segno



Questa riproduzione è stata elaborata sulle pagine del manoscritto di Monaco, molto poco leggibile perché i disegni, con linee sottili, mal si distinguono dal colore grigiastro delle pagine, molto deteriorate dal tempo. Con un po' di elaborazione grafica ho ottenuto un sufficiente contrasto anche se la pagina è diventata gialla.

Bolzano 25 gennaio 2023 Edoardo Mori

Questo è l'aspetto originale di pagina 9



Z tt.

Mss. M. 90.

Cod. iconog. 242.

= Cim. 135

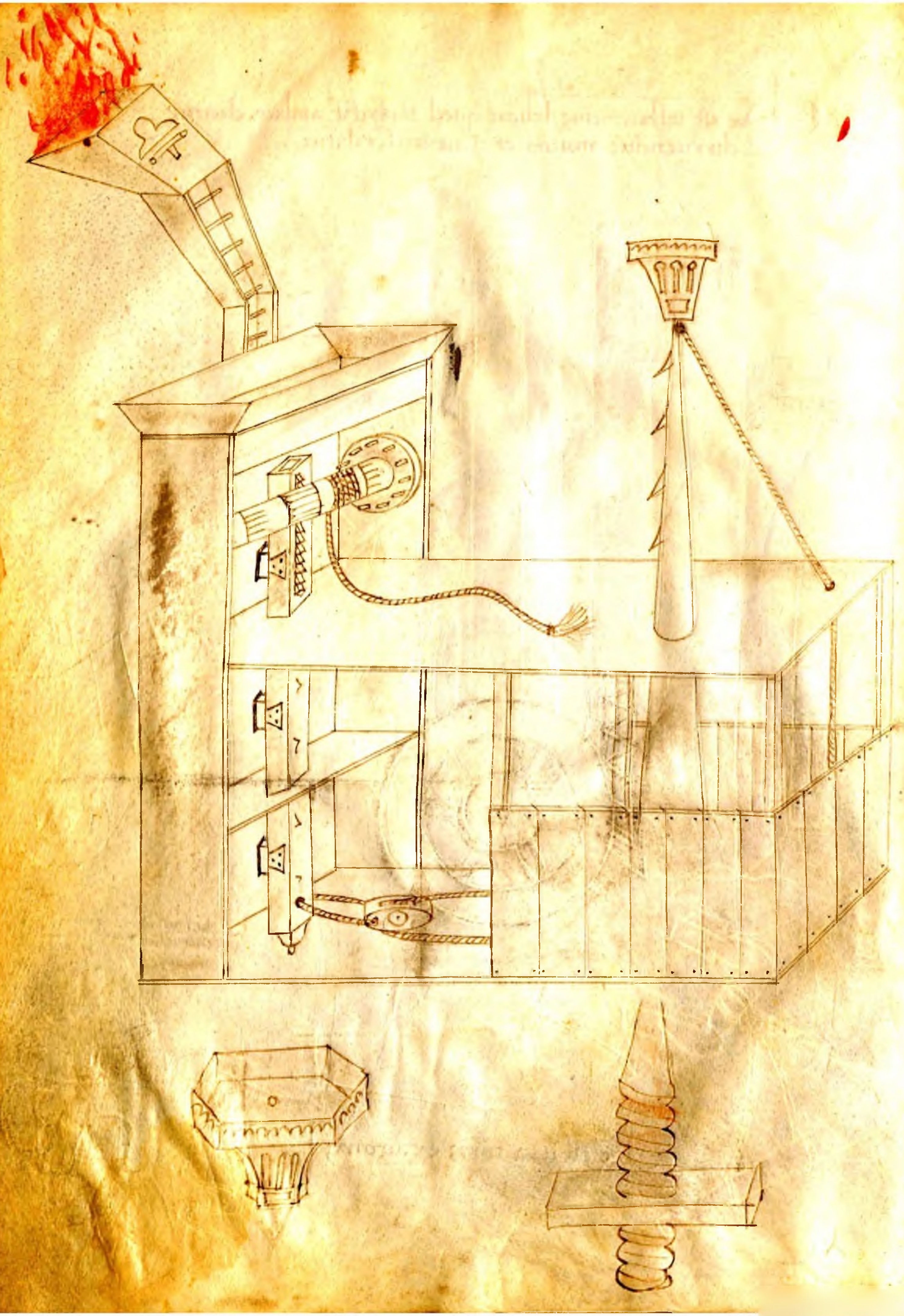
Bellicorum instrumentorum liber, cum figuris
et fictitijs literis conscriptus.

Alphalaf antiquissimum ingenium est ad bellica opera adinuentum quo usi erant gentes arabice. et plurimum opidanos deuastabant hostes absque sanguine suo. Si illud duxissent libere ad eorum fortilitia. Ignem timet et copiam exercitus et uias asperas et nimis molles. Sagitas iacula lapides et reliqua labentia e manibus opidanorum minime si bene compositum est.

[illegible]

Hoc est instrumetuz beliaz quod alphasif arabice dicatur
ad dirruenduz muros et c ut ānscribitur .

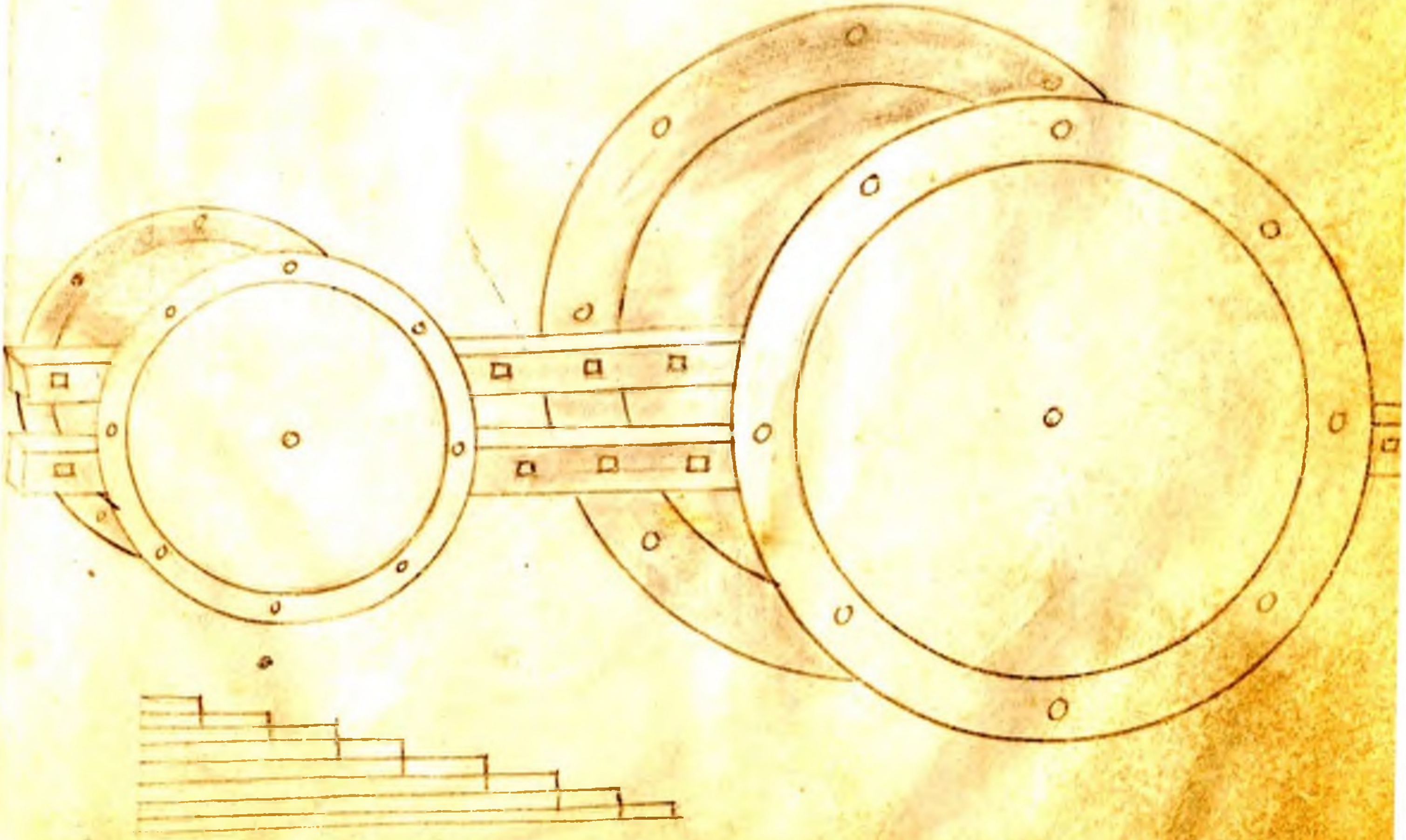
hec st itra turiz exagonaz



Ignifexuz instrumentuz est artifitiosuz hoc nomine dictuz quasi igne ferens. Quod cu semel accensuz hostibus uel hedifitijs aplicatuz fuerit sua flama omia cremabit.

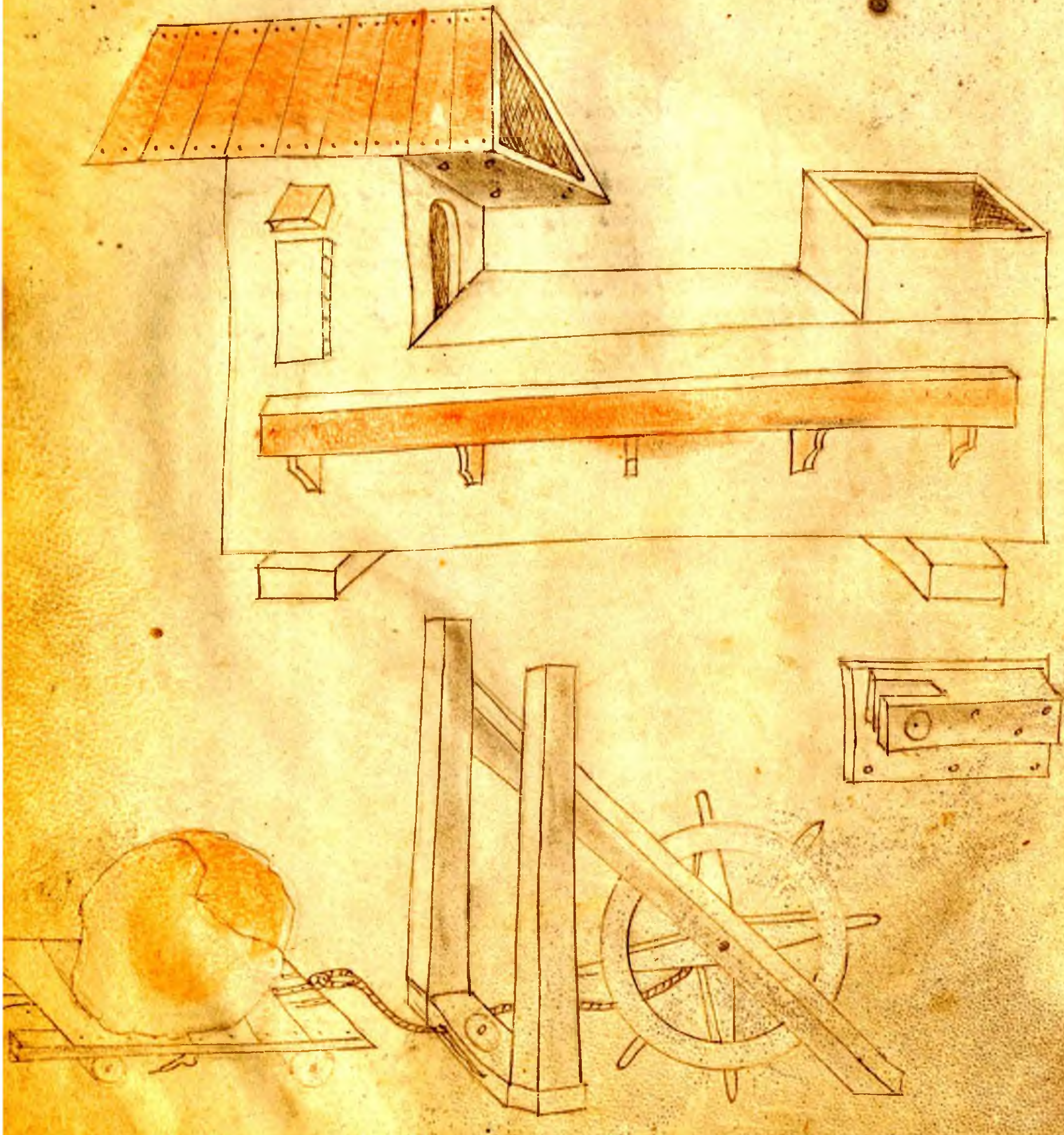
[illegible]

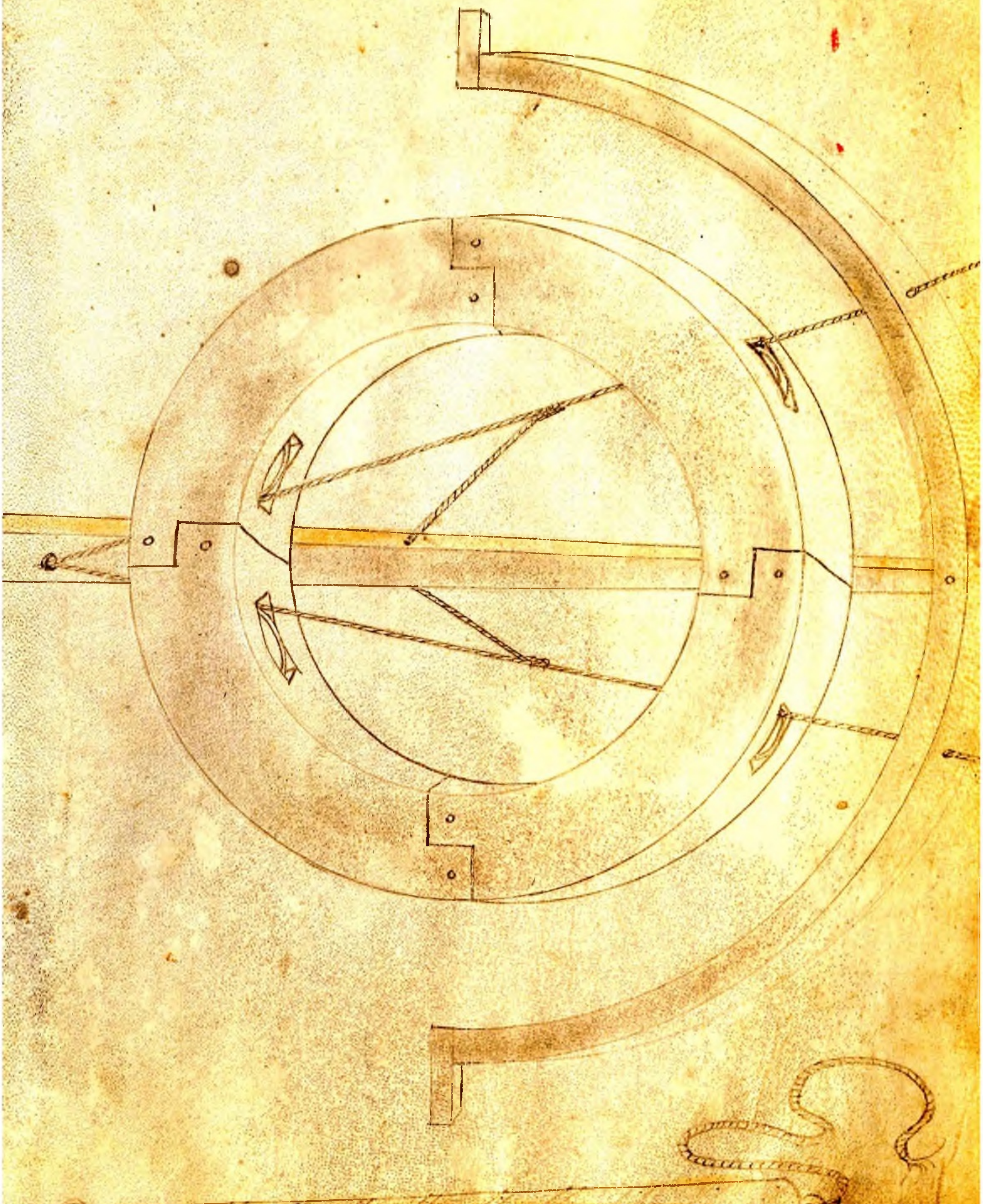
[illegible]



Et ductorium duplicatis cordis et arcubus . trahere lapides aut pondera elevare faciliter.

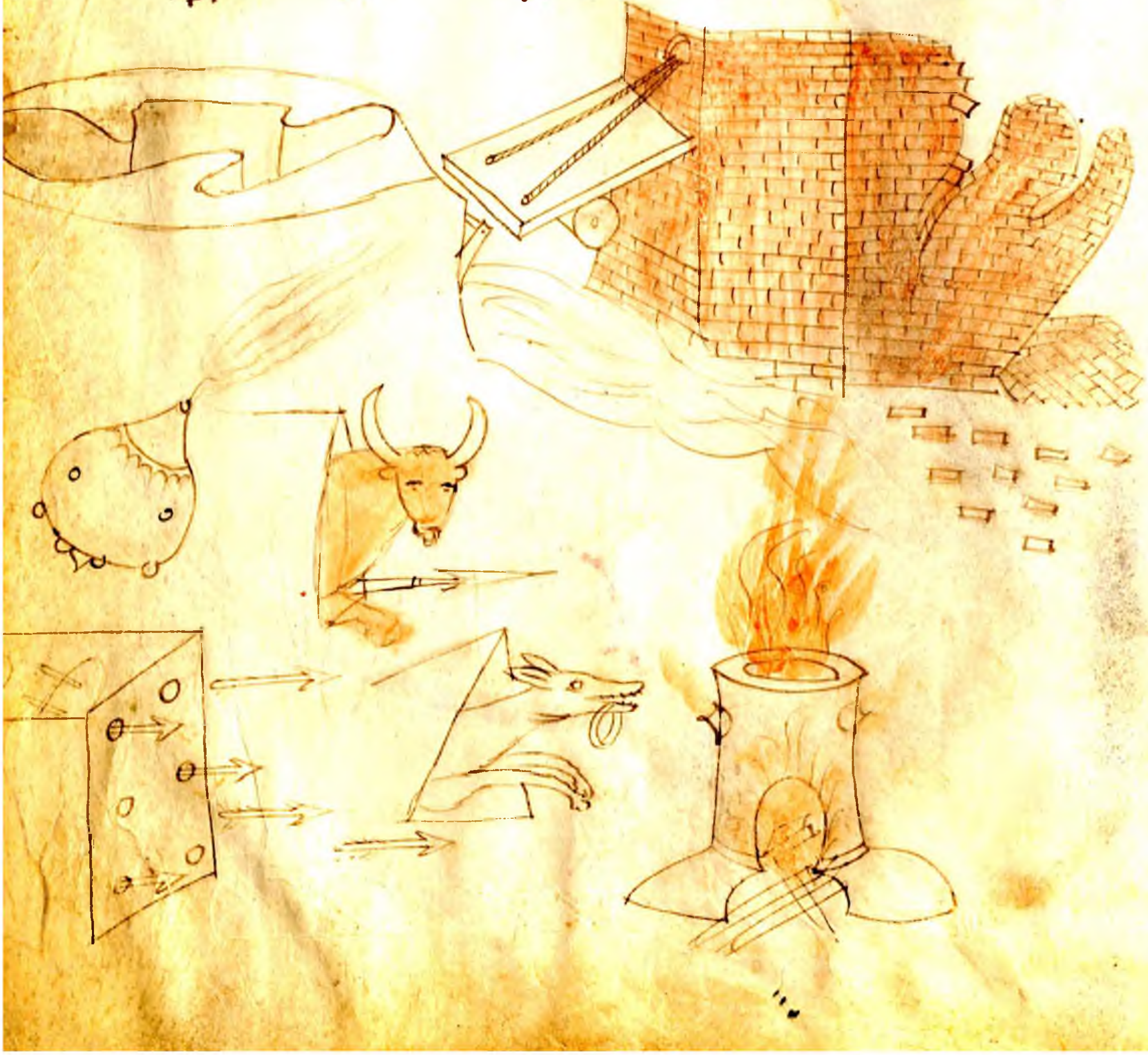
[illegible]

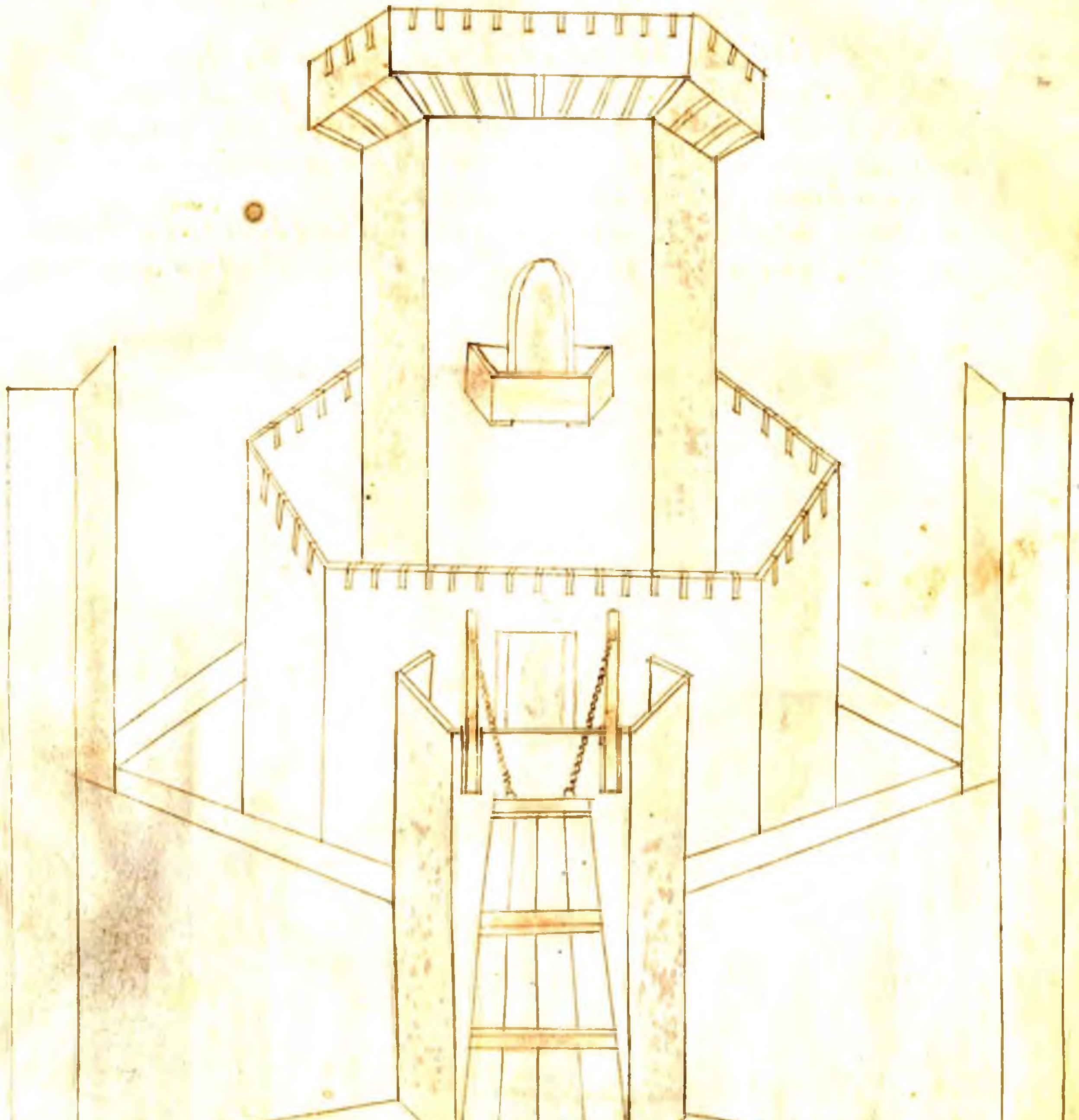


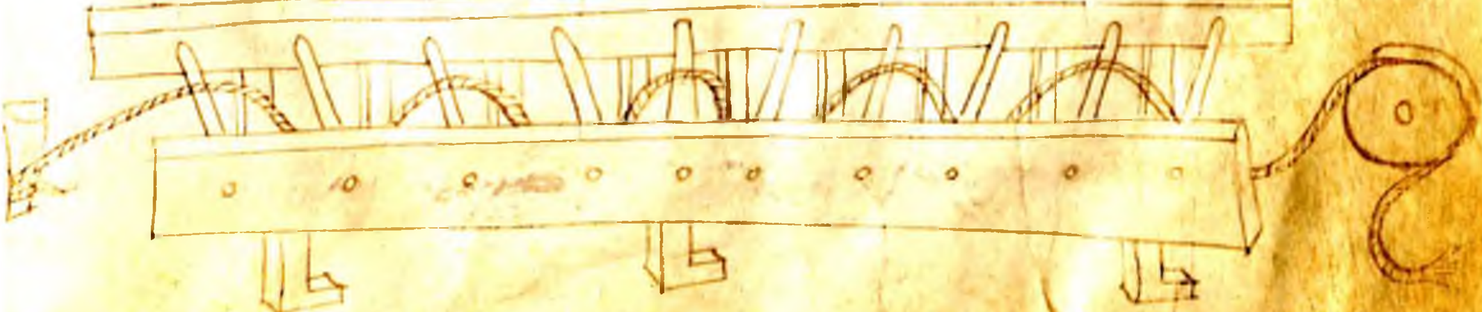


Castrum fortitudinis fortitudinem non ostendit Sed claudet. Quod cum quis incautus intrauerit morte uel carcere proculdubio mactur. hoc est quia anfractibus rotulis deceptioibusque pluribus fabricatur.

[illegible]



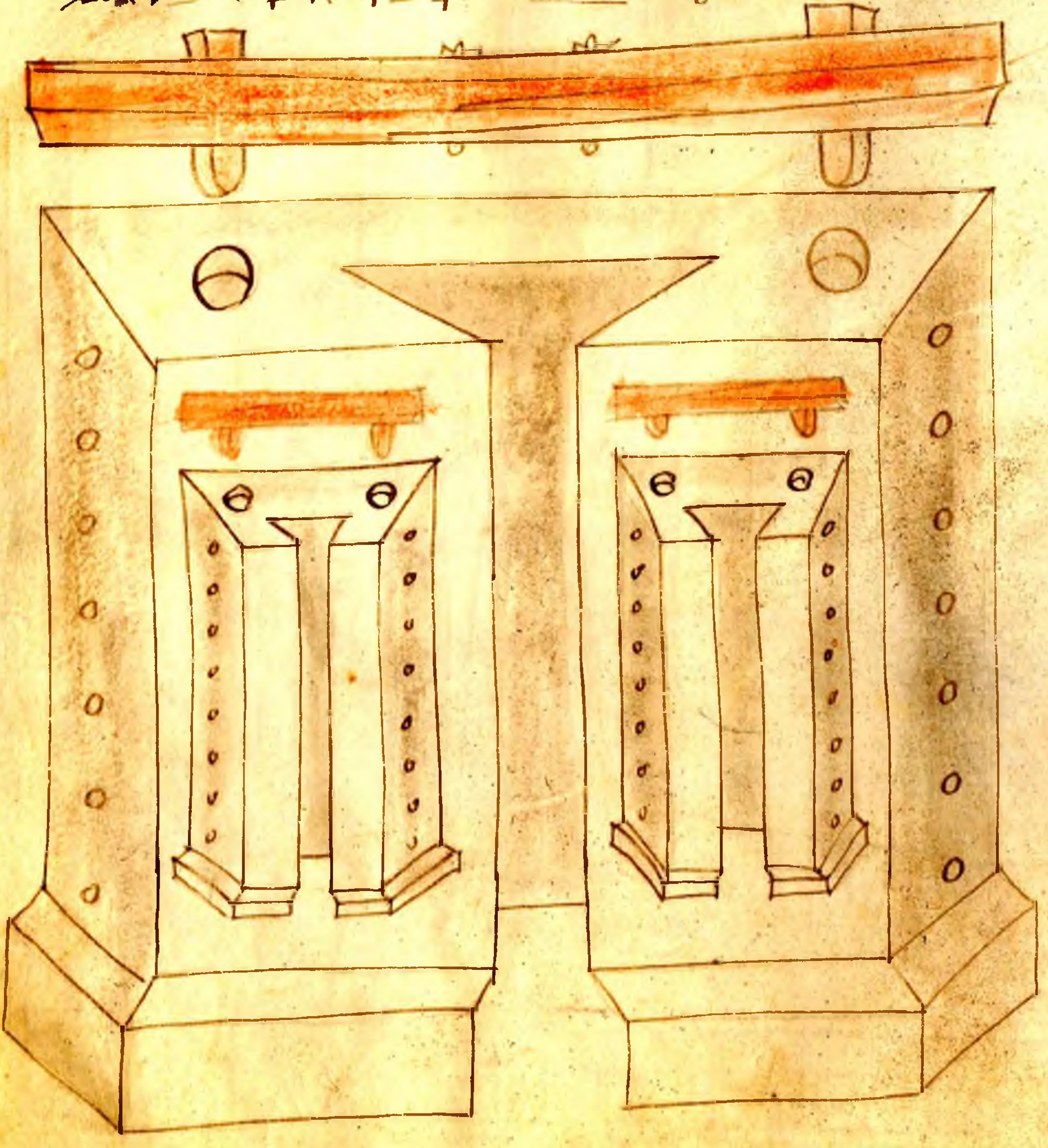




Bistonium opus est ingeniosum plurium utilitatum qua-
les hic subscribuntur.

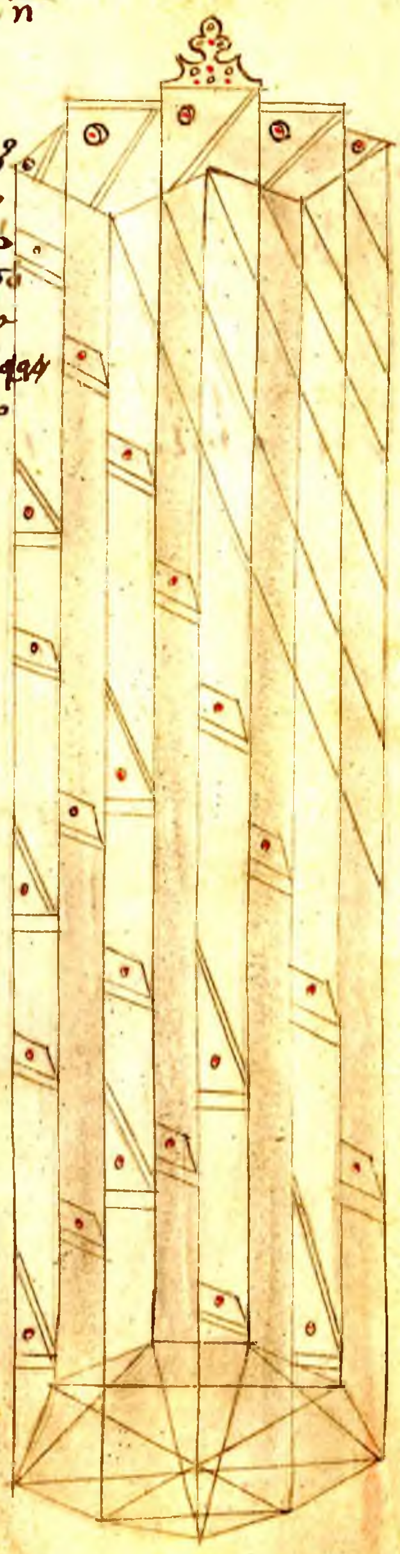
[illegible]

[illegible]



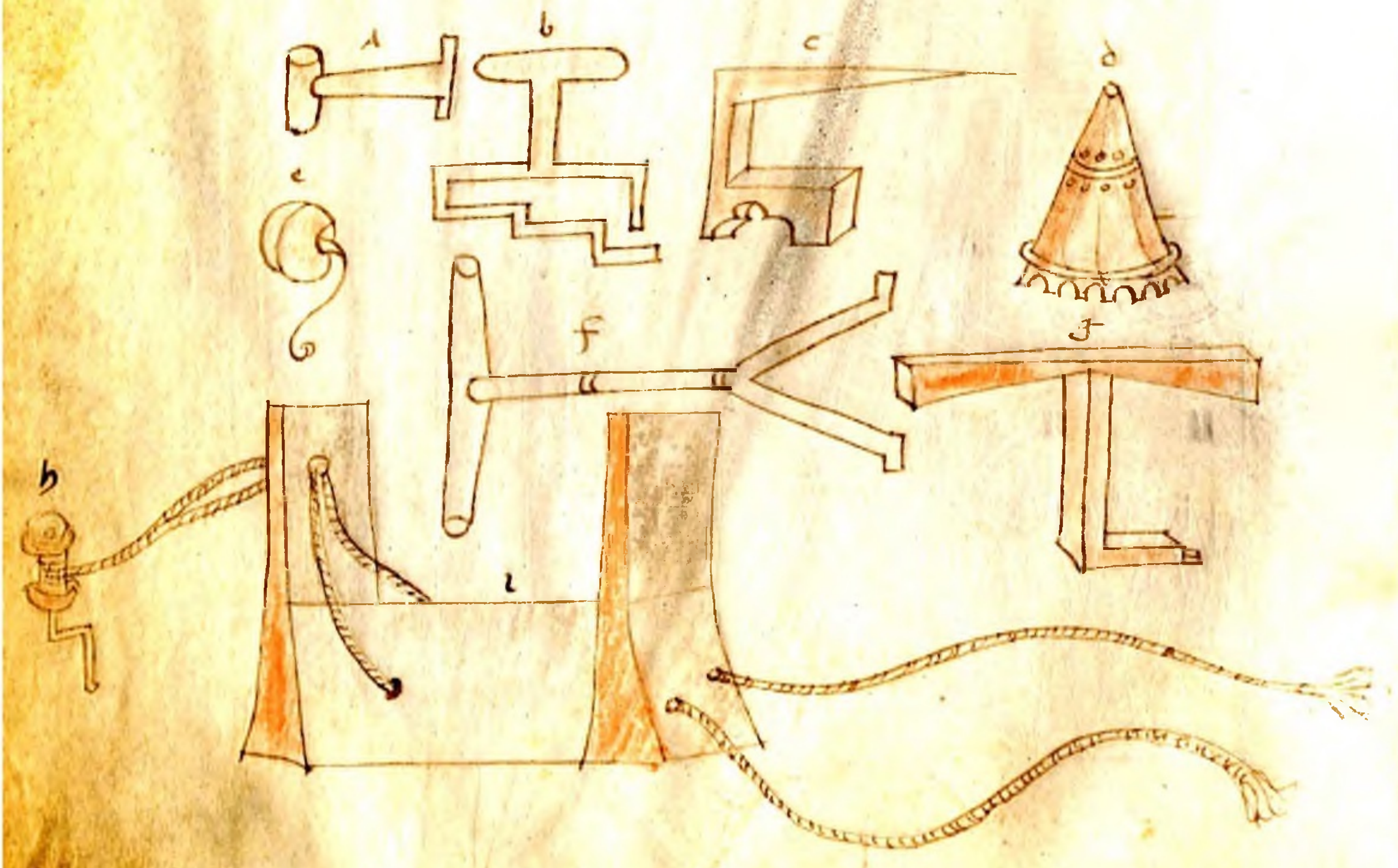
Carcer elulubricus hominem ad celerez mortez ponit quam evitare n potest.

[illegible]

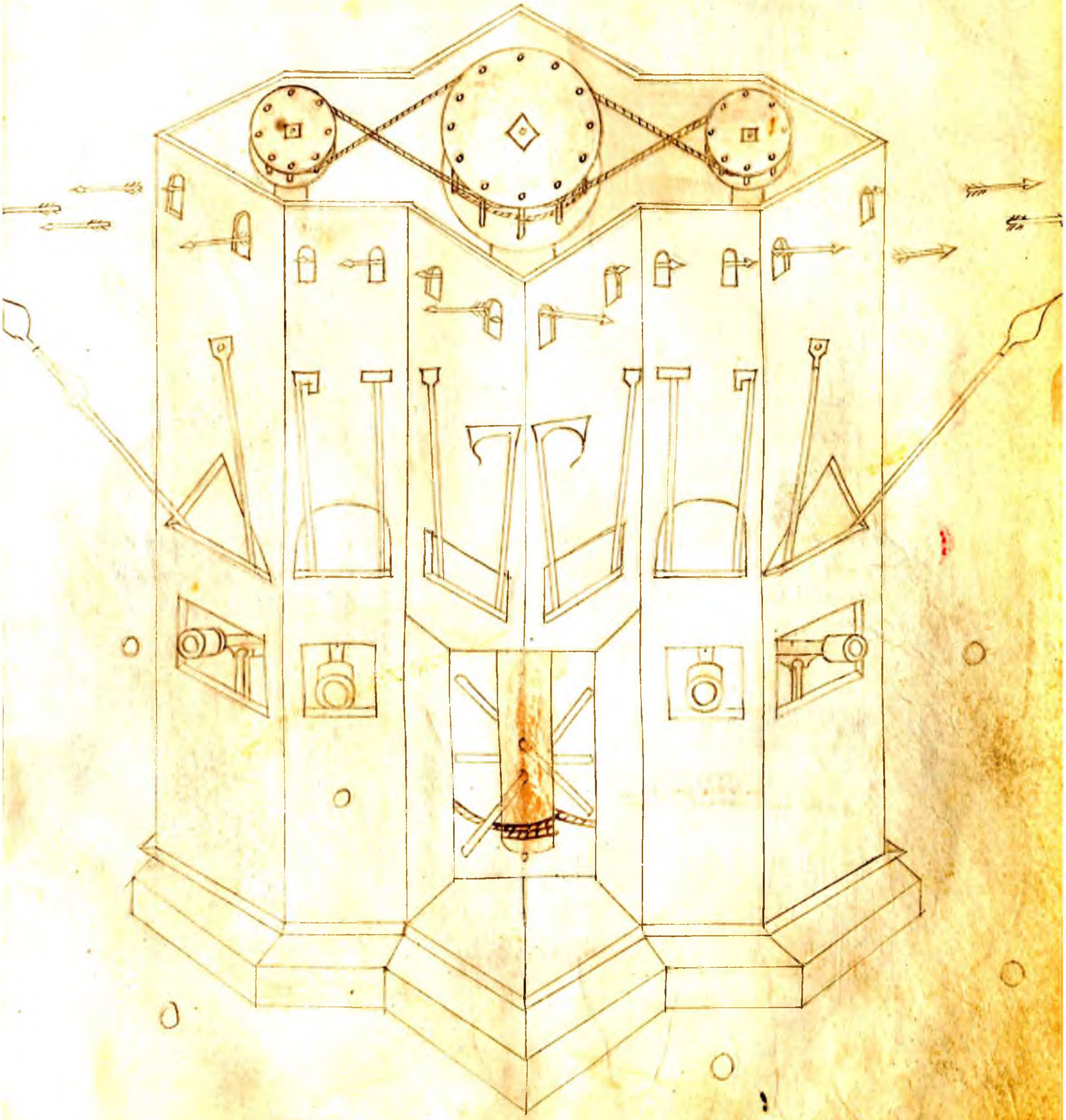


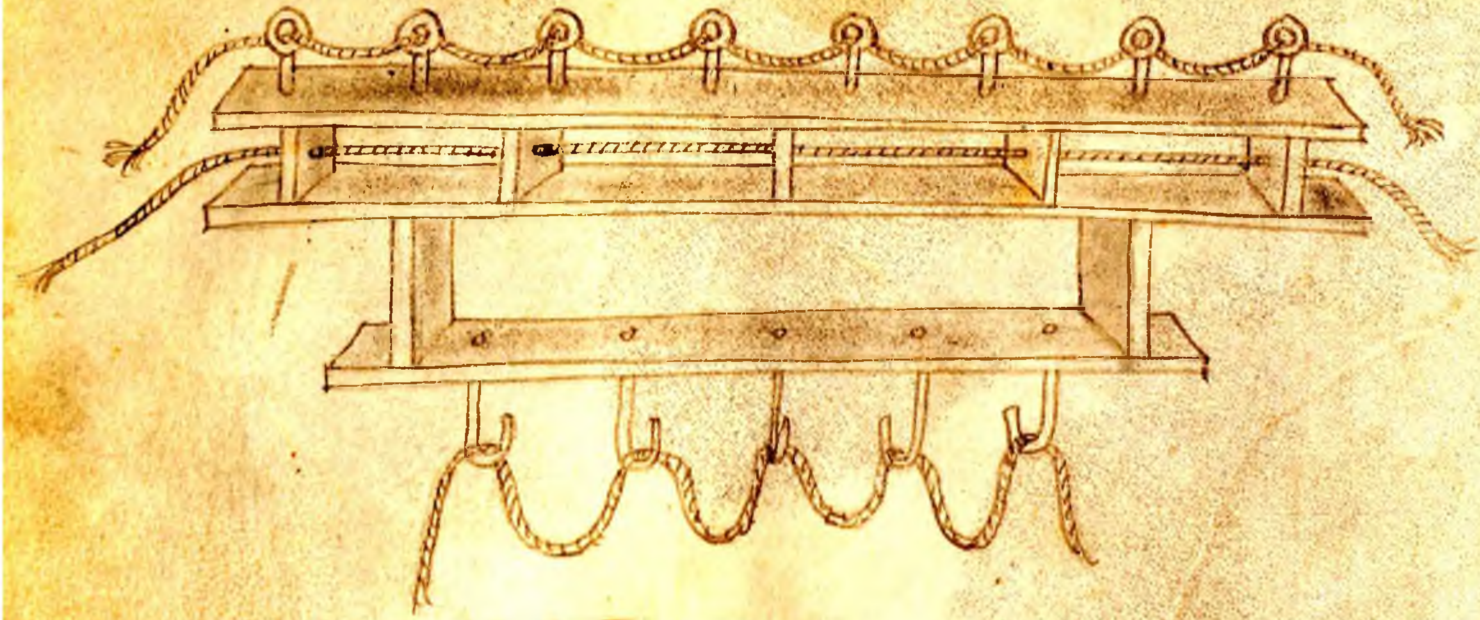
Residua pars instrumentorum artingenij bellici intrinseca que dirigit et que apparent extrinsecus hic subscribitur.

[illegible] a. b. c. [illegible] c. d. e. f. [illegible] g h i. [illegible]



Non ignoras scio huius rei utilitatez.

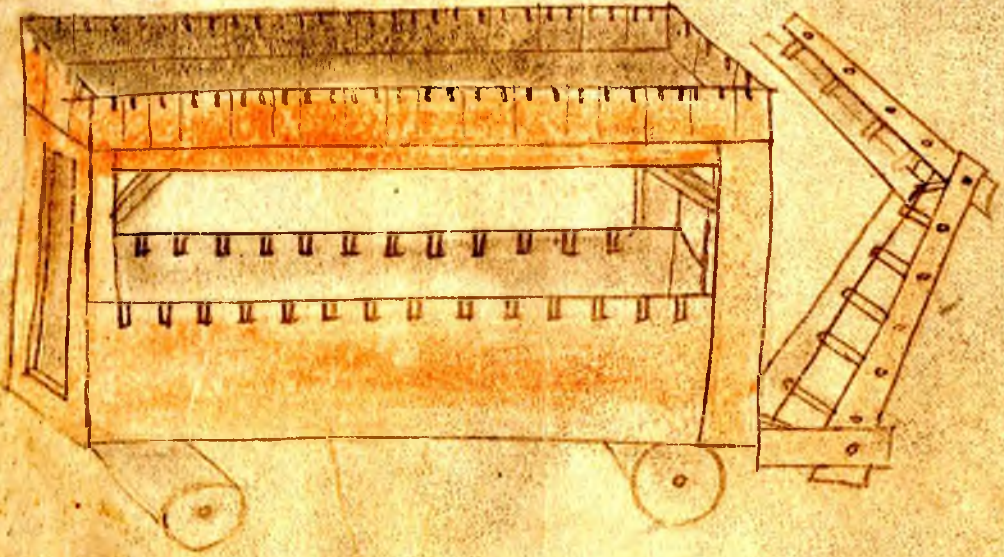


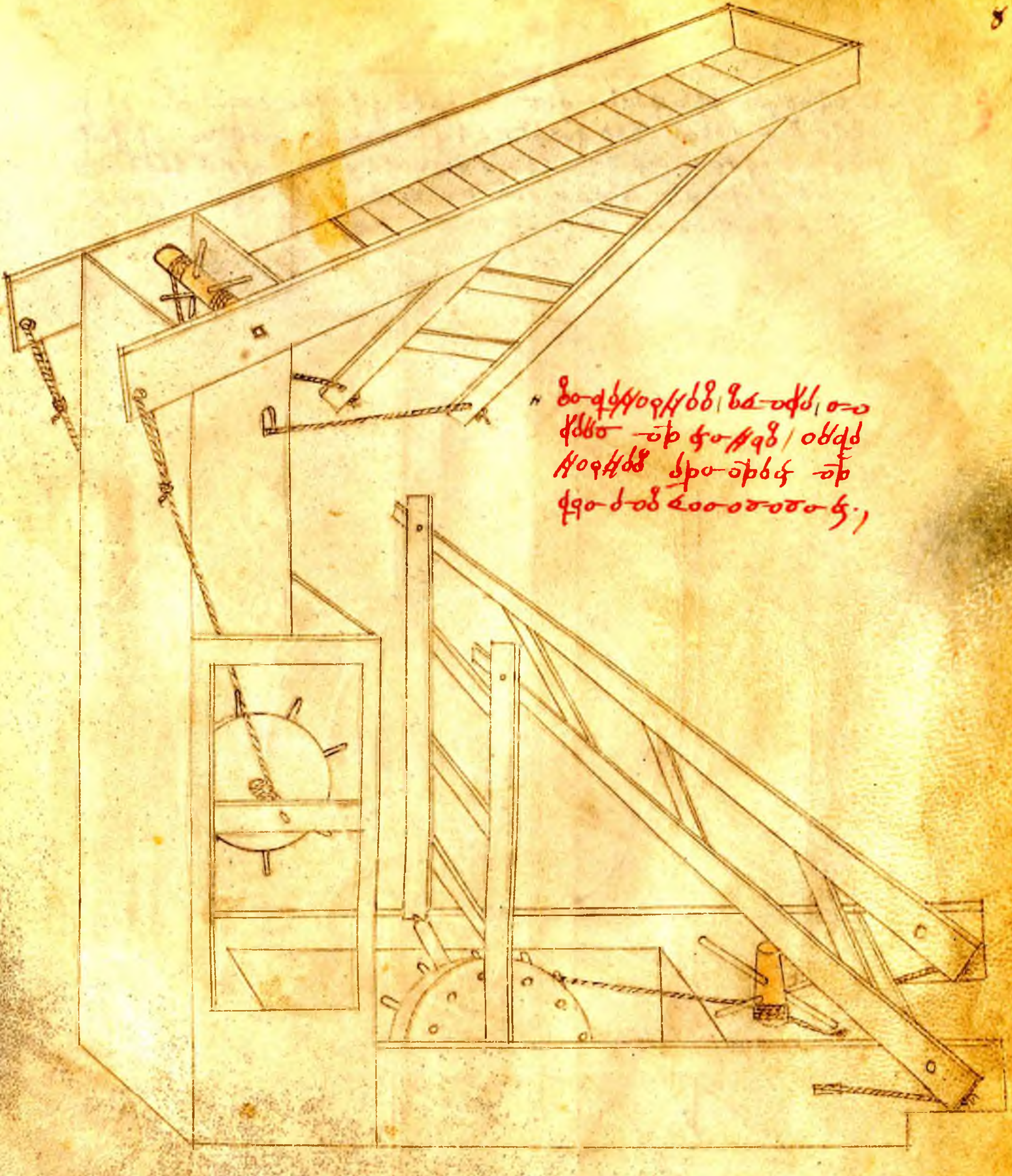


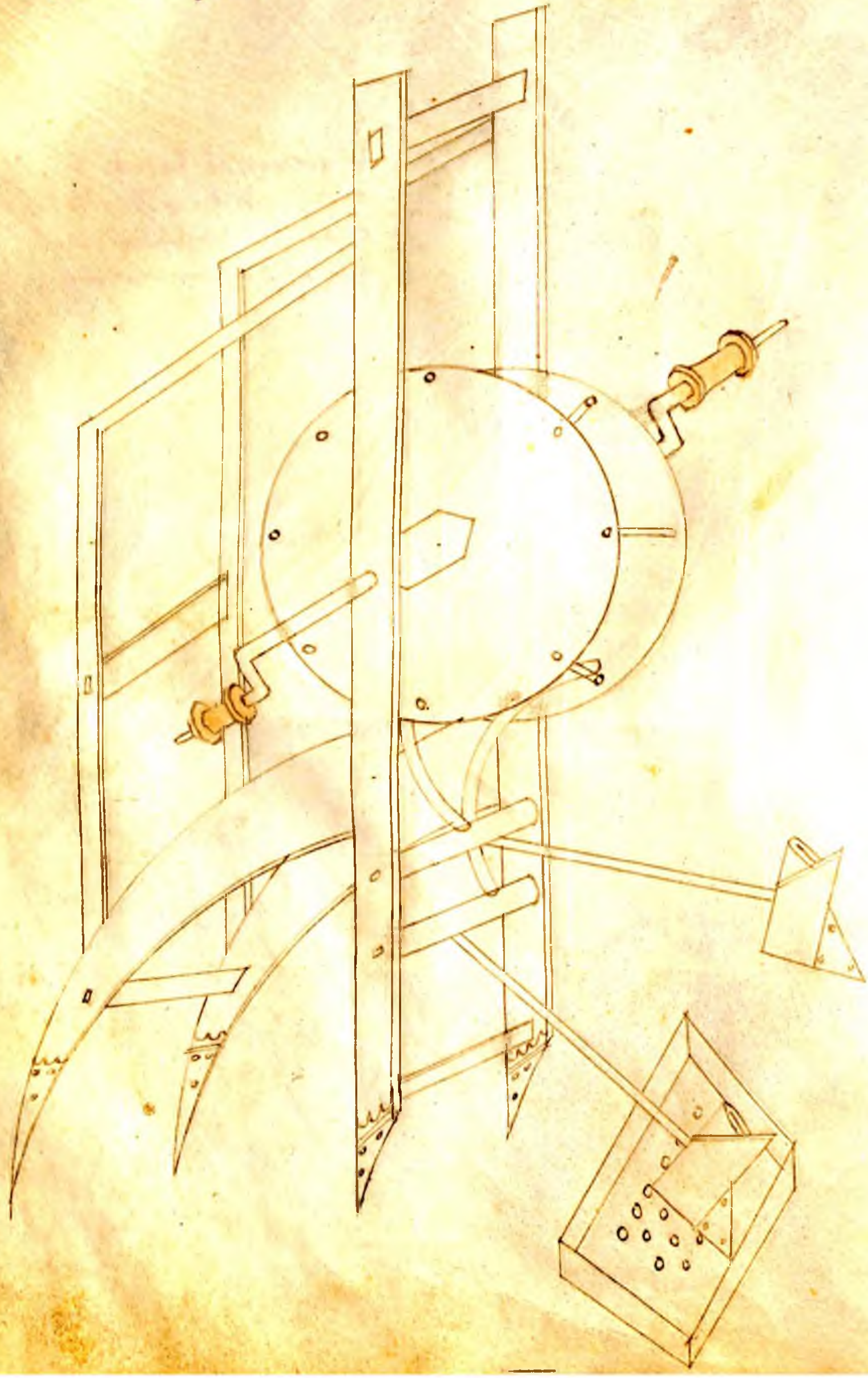
Ordinariuz cordaruz ex triplici ordine construitur. Et pertinet ad scaliferuz.

Scaliferuz ita dictuz quia scalas ferrens multiplices ad ad scendendas altitudines maiores et minores eo quod scale plus et minus erigi possunt.

[illegible]
[illegible]
[illegible]







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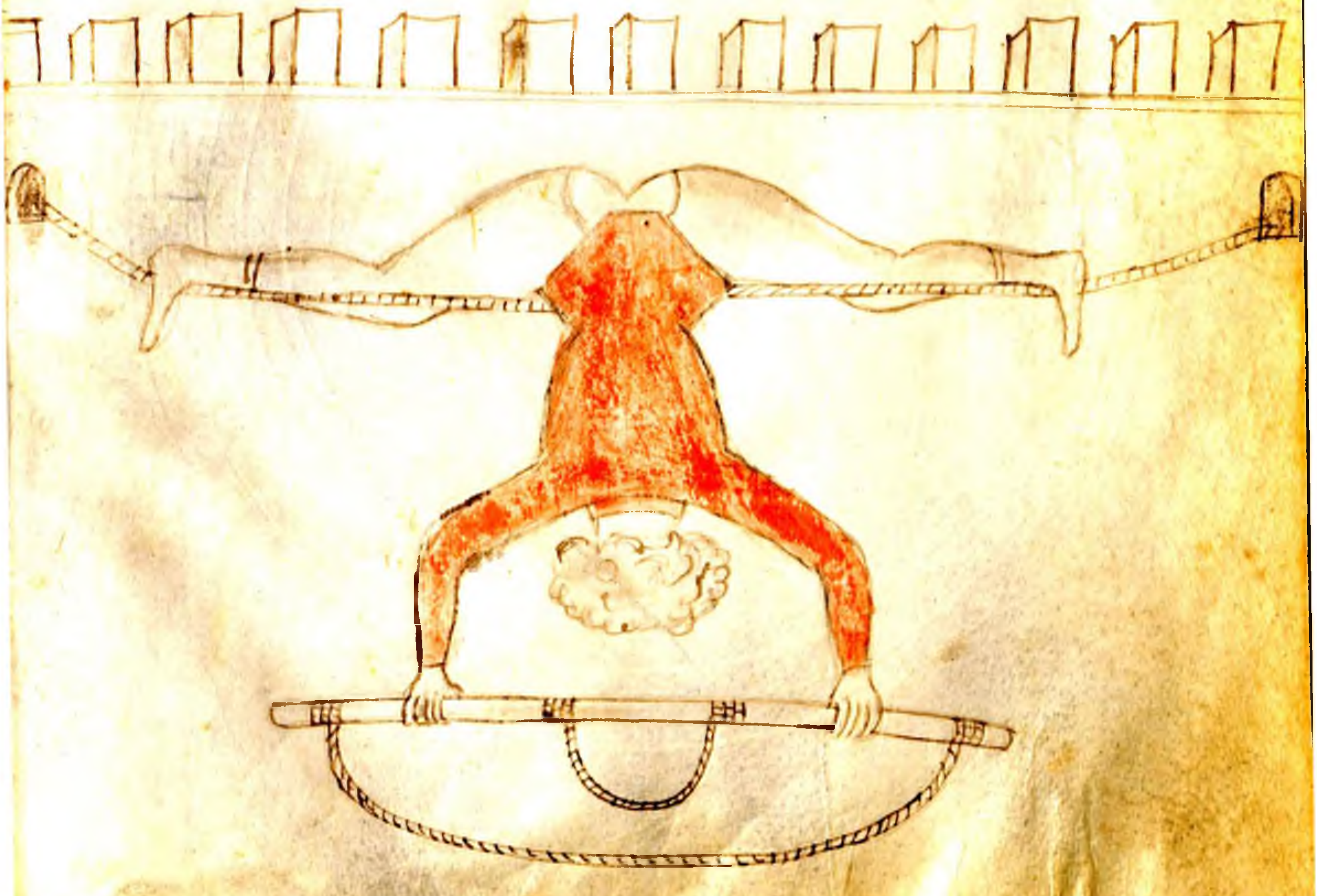

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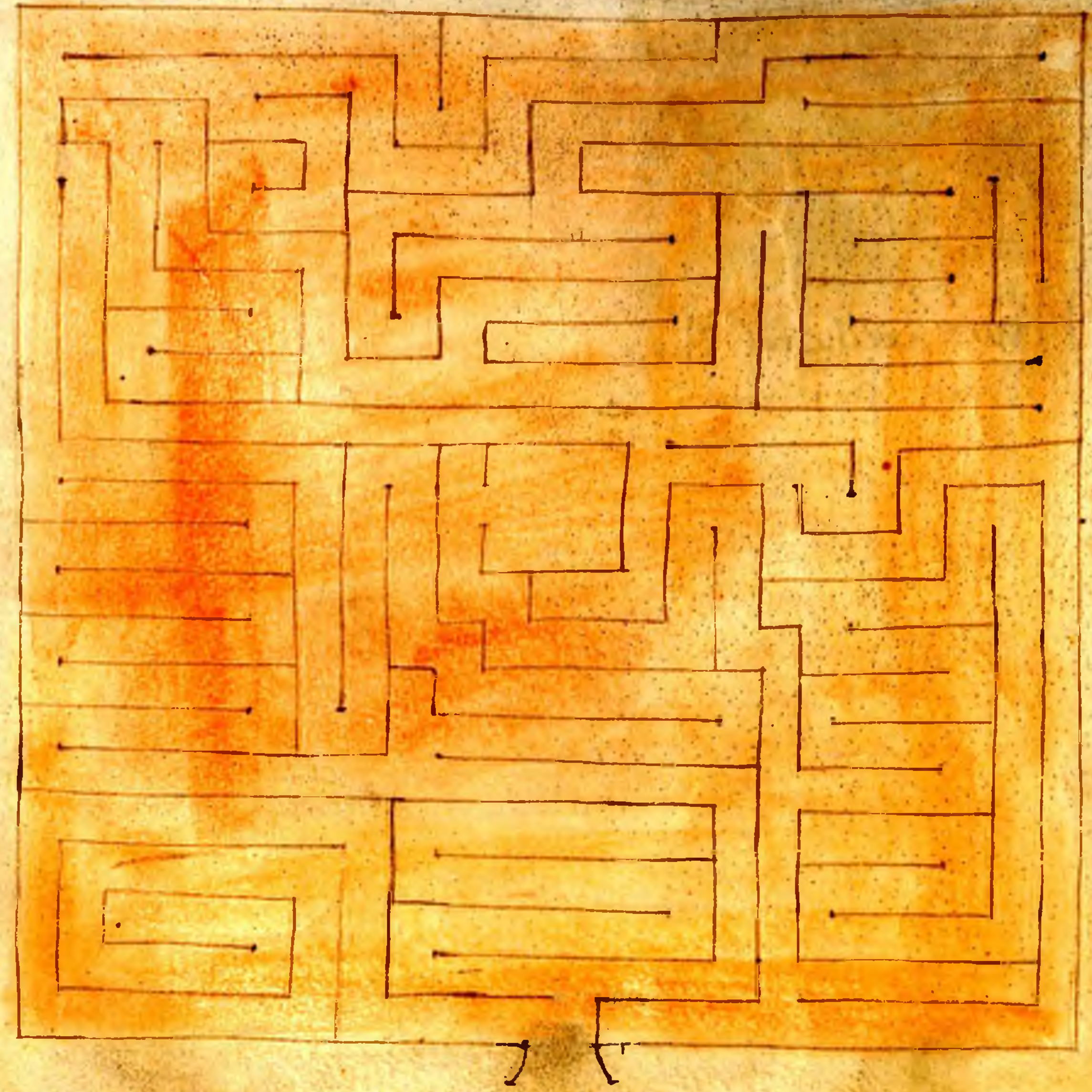
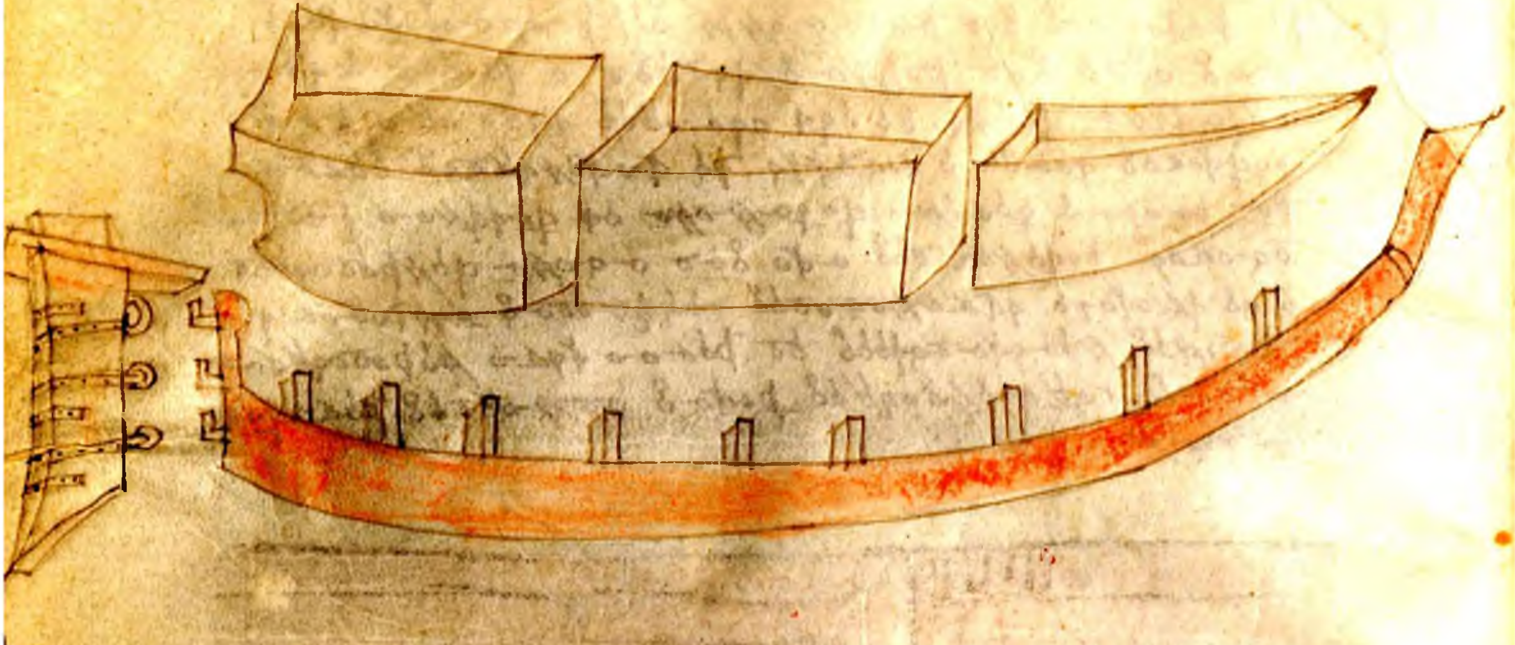




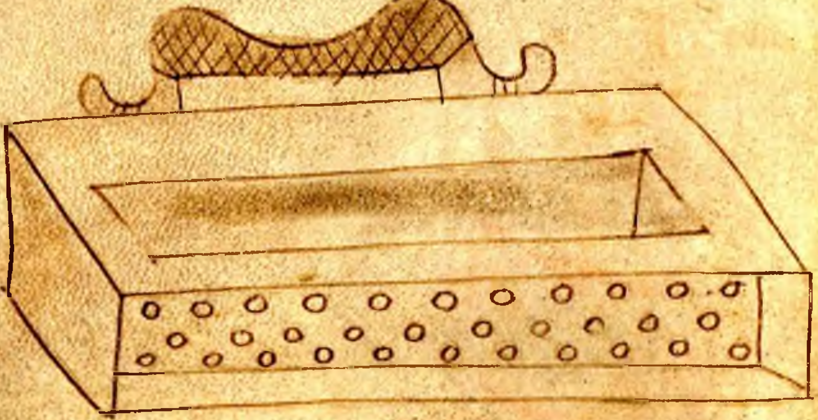
Naues actionis liux periclitantur i ea homines
icauti / prudentes uero saluantur.

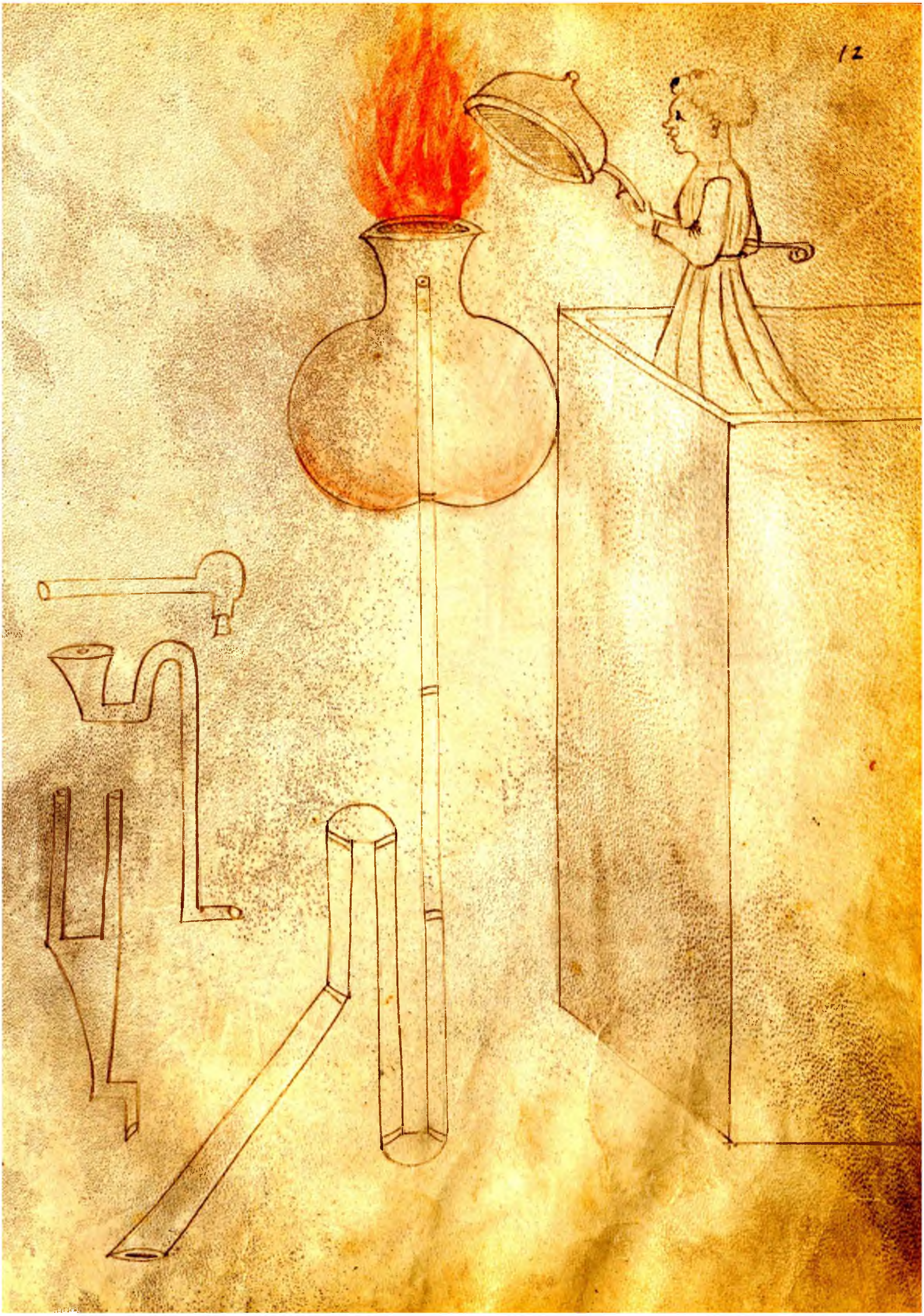
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

mody non exponit venire ad Archimedem

Eolipsedra instrumentum fuit physicorum multipliciter factum. Et proportionalis ex igne fit quemadmodum ex aqua. Sed in hoc differentiam habent quia in aquea recluso spiritu aqua intrusa retinetur aperto non egreditur. Ignea claudens quia ignem pro spiritu habet si subfocetur igni aqua extrusa adingreditur quod si attendatur egreditur. Cuius ingenium duplici verbo declaratur.

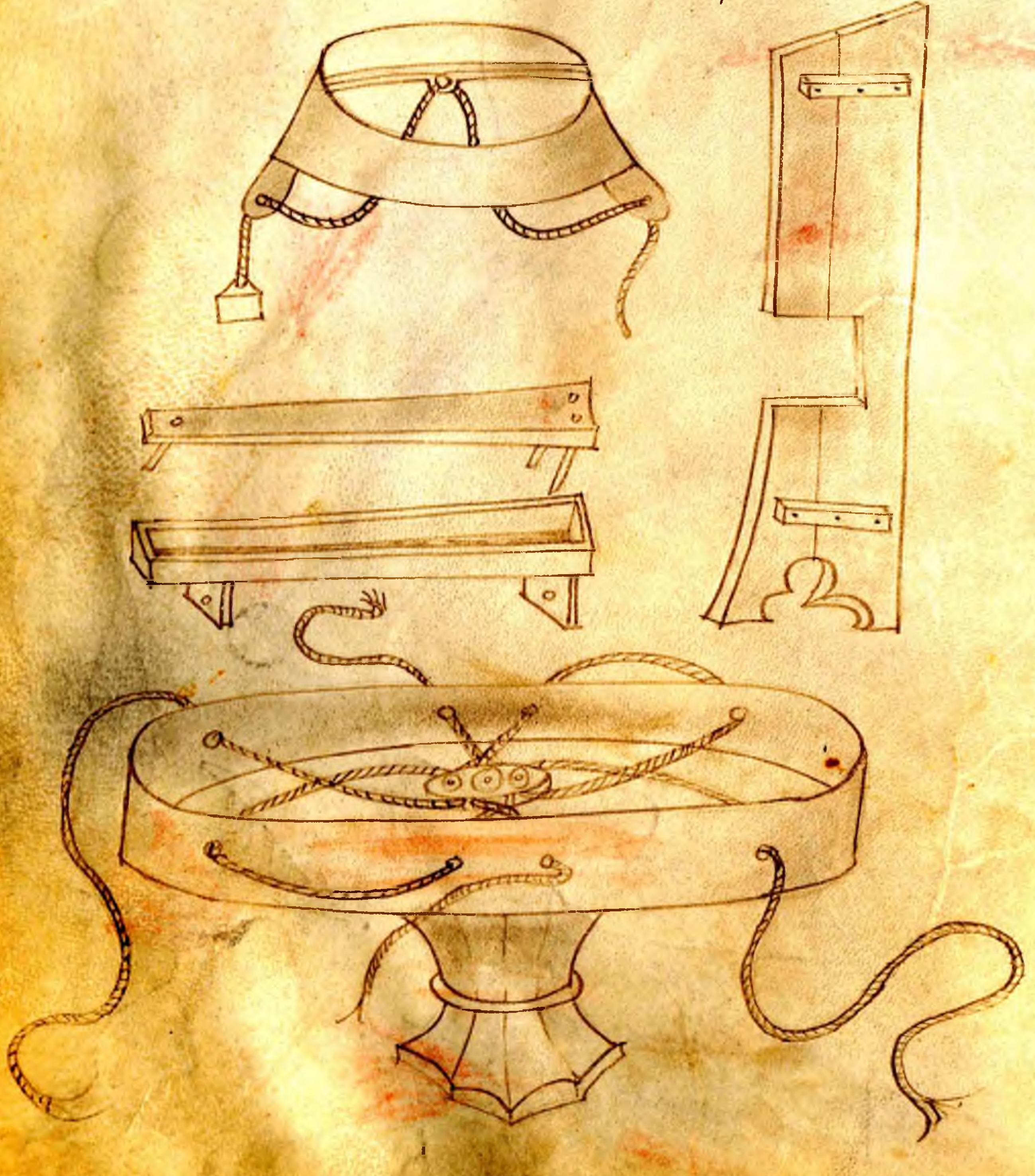
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

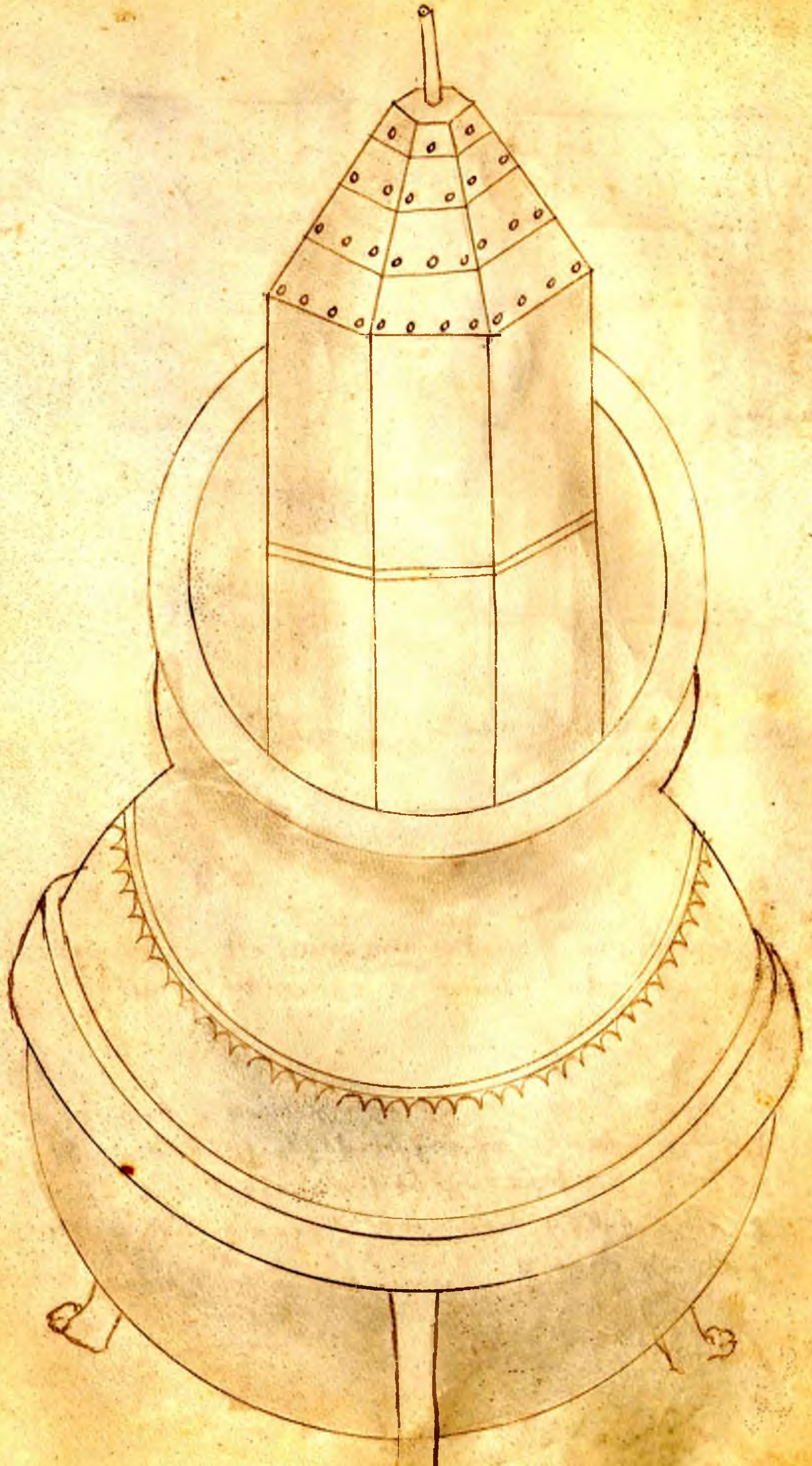


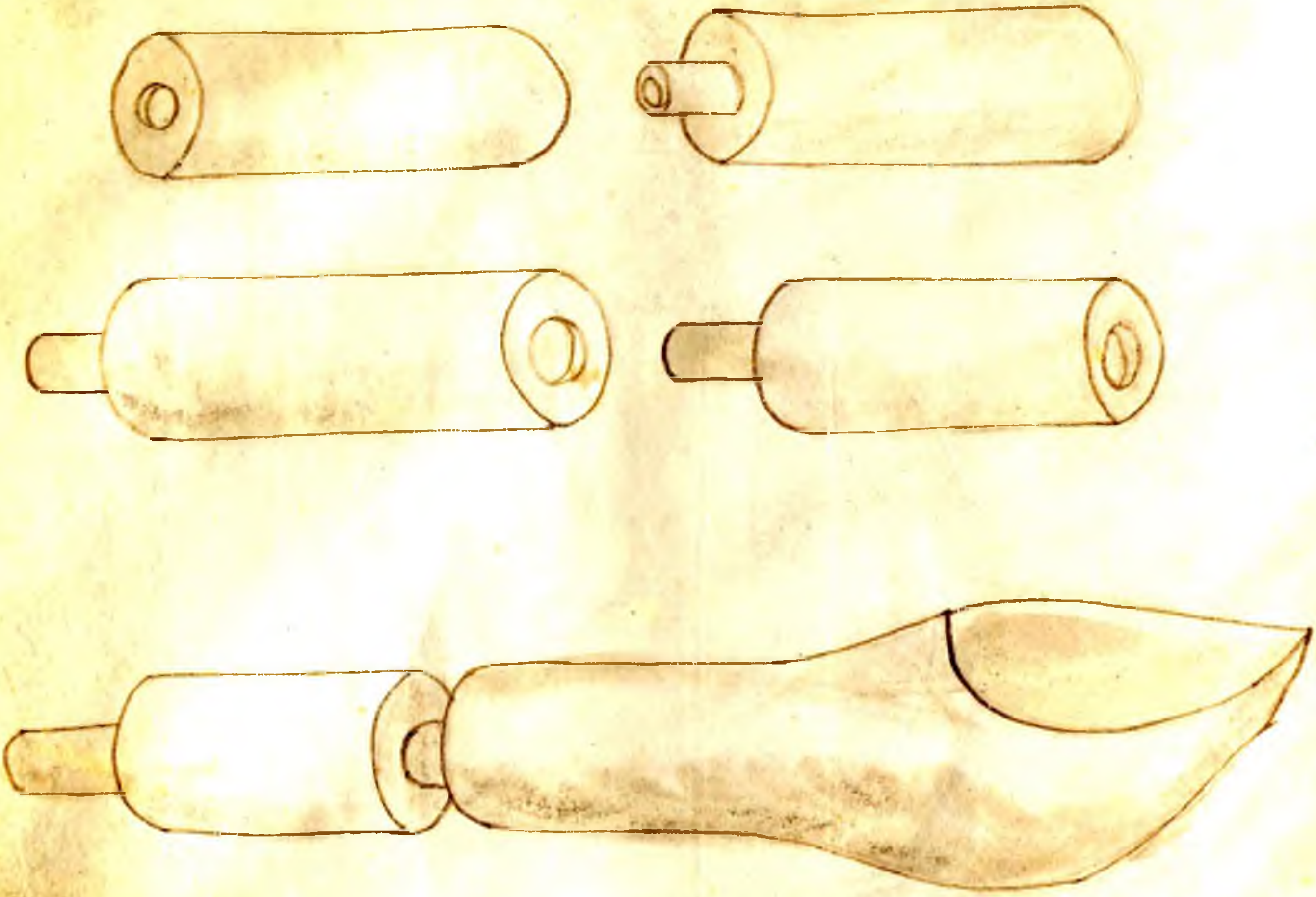


Castruz submersionis appellatur eo q naues flu
minuz profundat et euertit. [illegible]

lucerna ex sua lux cernitur ita fabrili opere potest
fieri ut paruo cu lumine amplissimaz ualeat ae
ris partez lustrare. Et hoc nuduz inuentu est in
strumentuz figura pulcrius mensura minus splendo
re clarius et omni re comodius. Cuius partes intuis
ce quas uoluisti hic notate sunt et eodez modo appli
cantur inuicez sicud que i lucerna ptolomei.

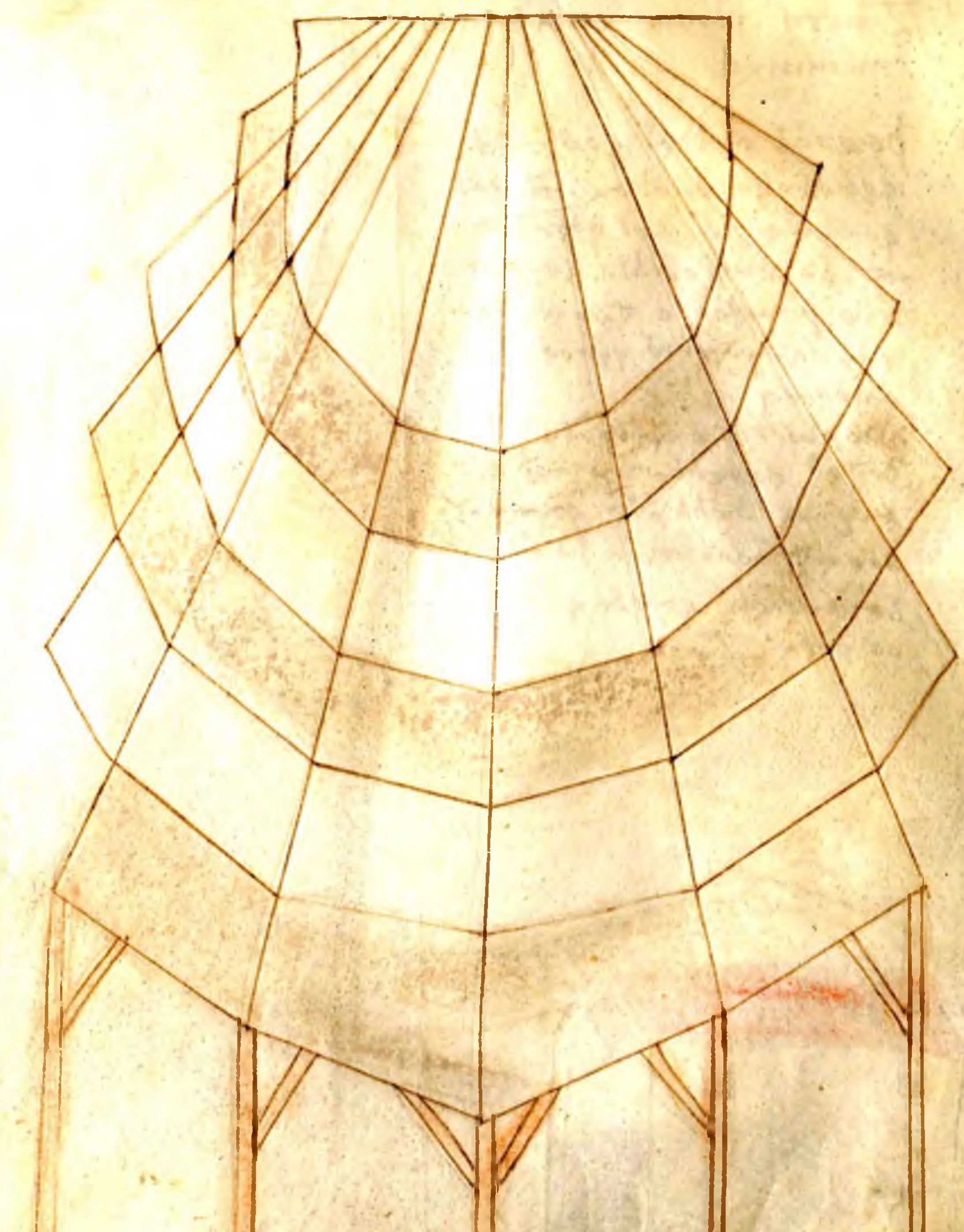






De aquarum ductibus hoc ingenium est et proprie de-
servit fontibus fluviis et cadentibus aquis

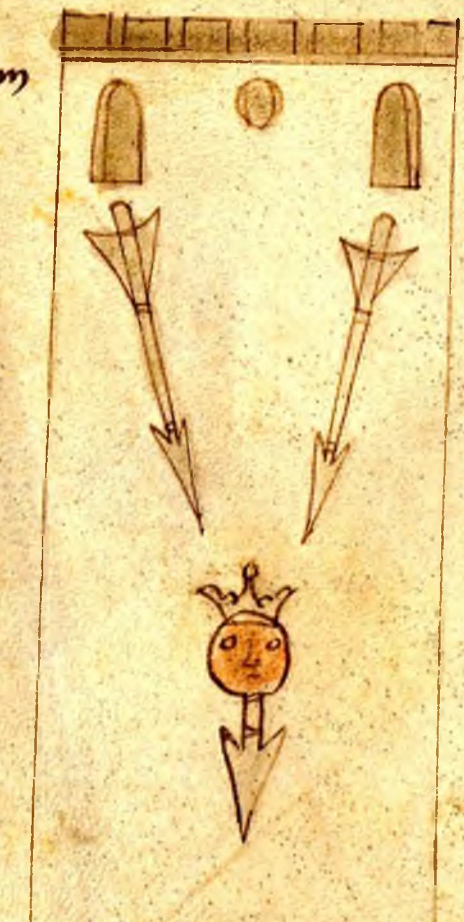
[illegible]

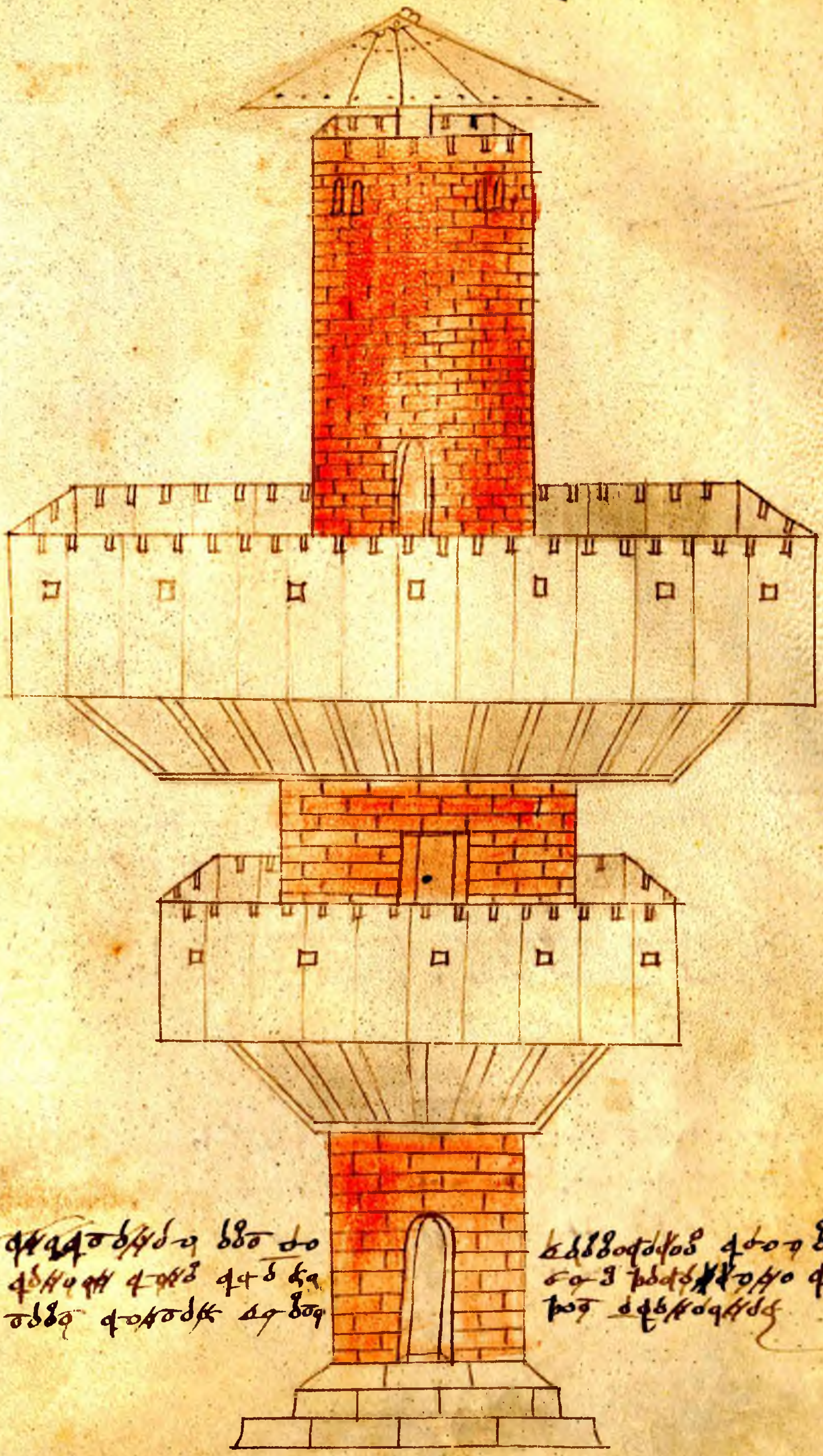


Turris planus casa turrim mensurat.

[illegible]

[illegible]





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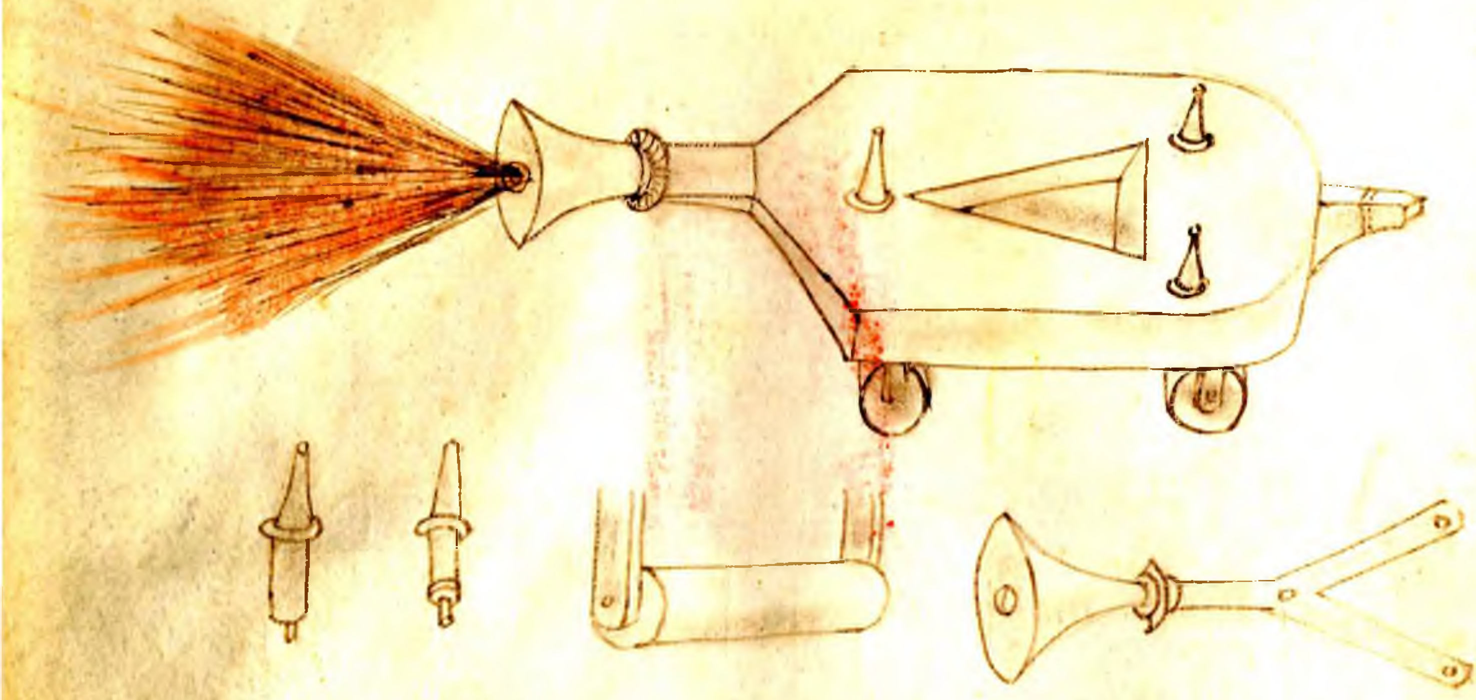
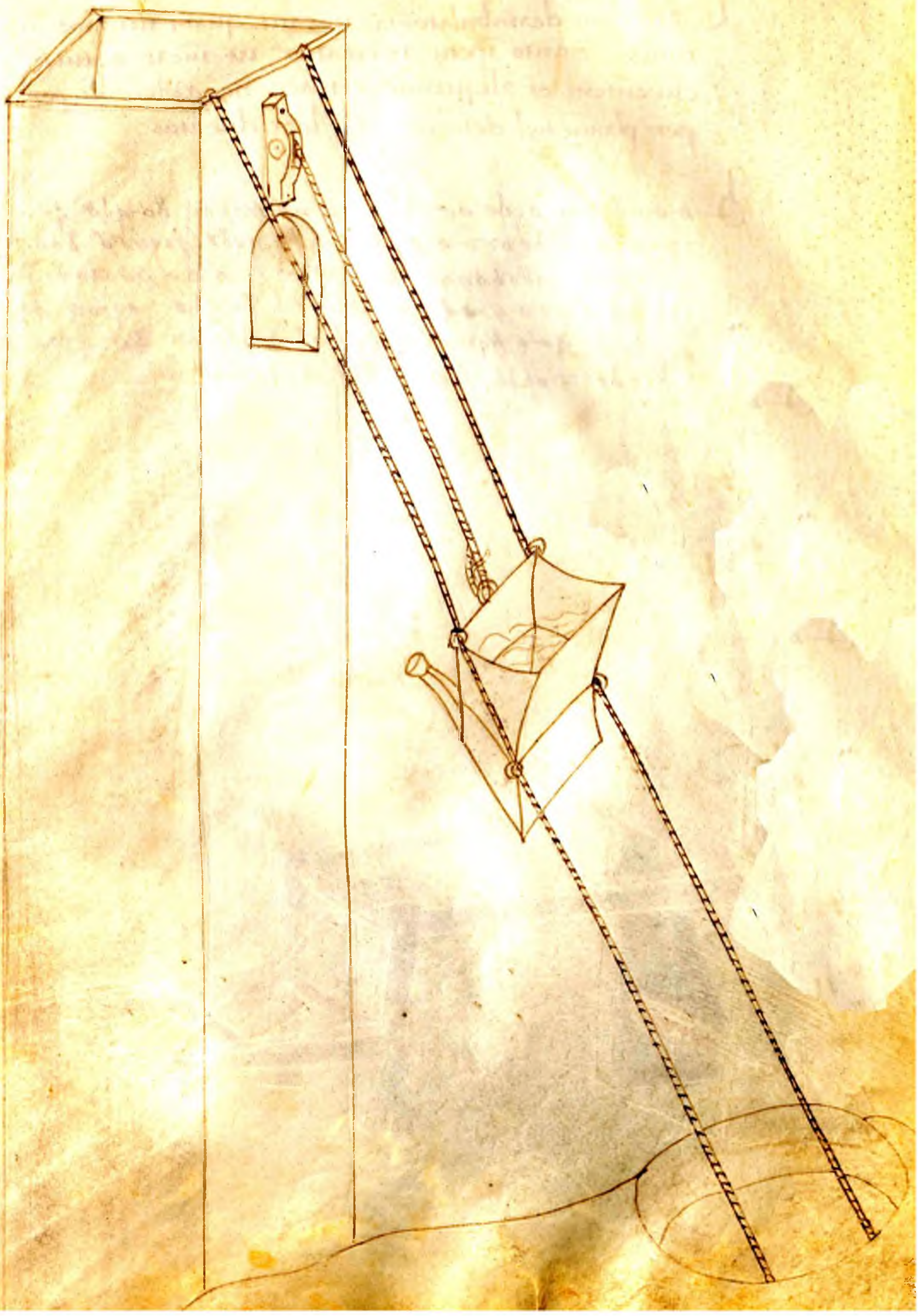


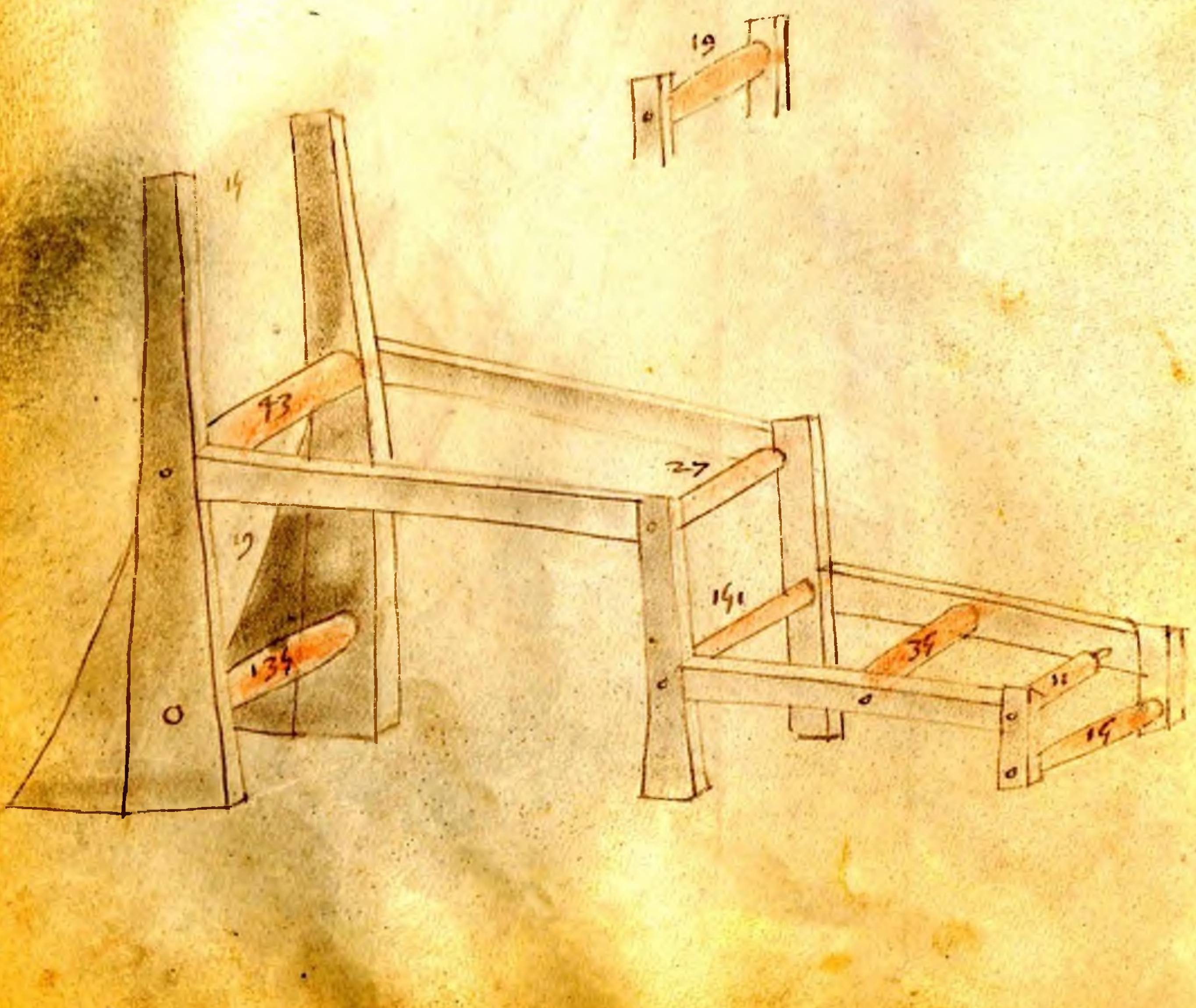
T estudo fugitiua [illegible]
[illegible]
[illegible]
[illegible]
[illegible]

Atractoria turris cum aquam lapides harena mictua
ha et quecumque similia trahere possit nuncupatur.
6 [illegible]
[illegible]



Catecdam deambulatoriaz uocaui quam tui amore
inueni. e tanto ipetu incitatur ut uicat equuz
currentem et aliquando retineri no potest si per
per planum uel descendentia loca ducatur.

[illegible]

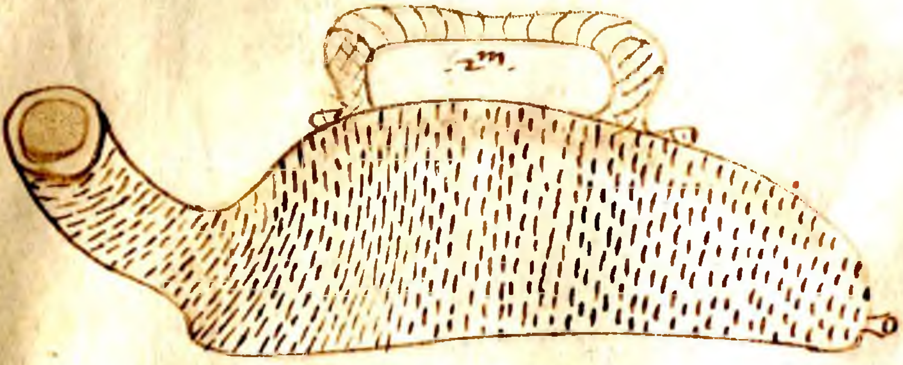


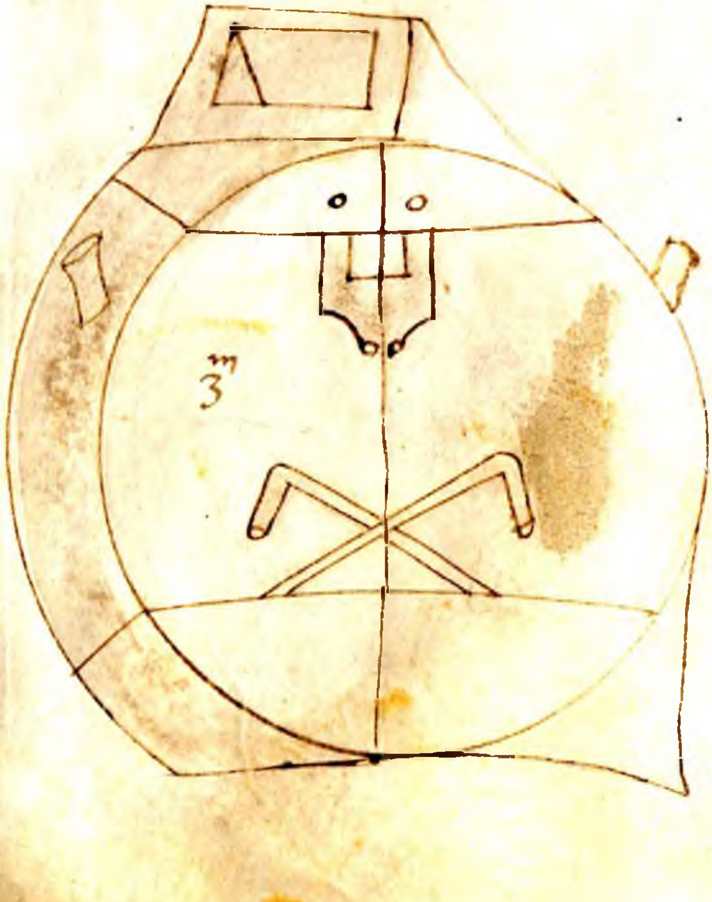
Vasa mensalia ludicra que ad comesationes regum et principus grata videntur.

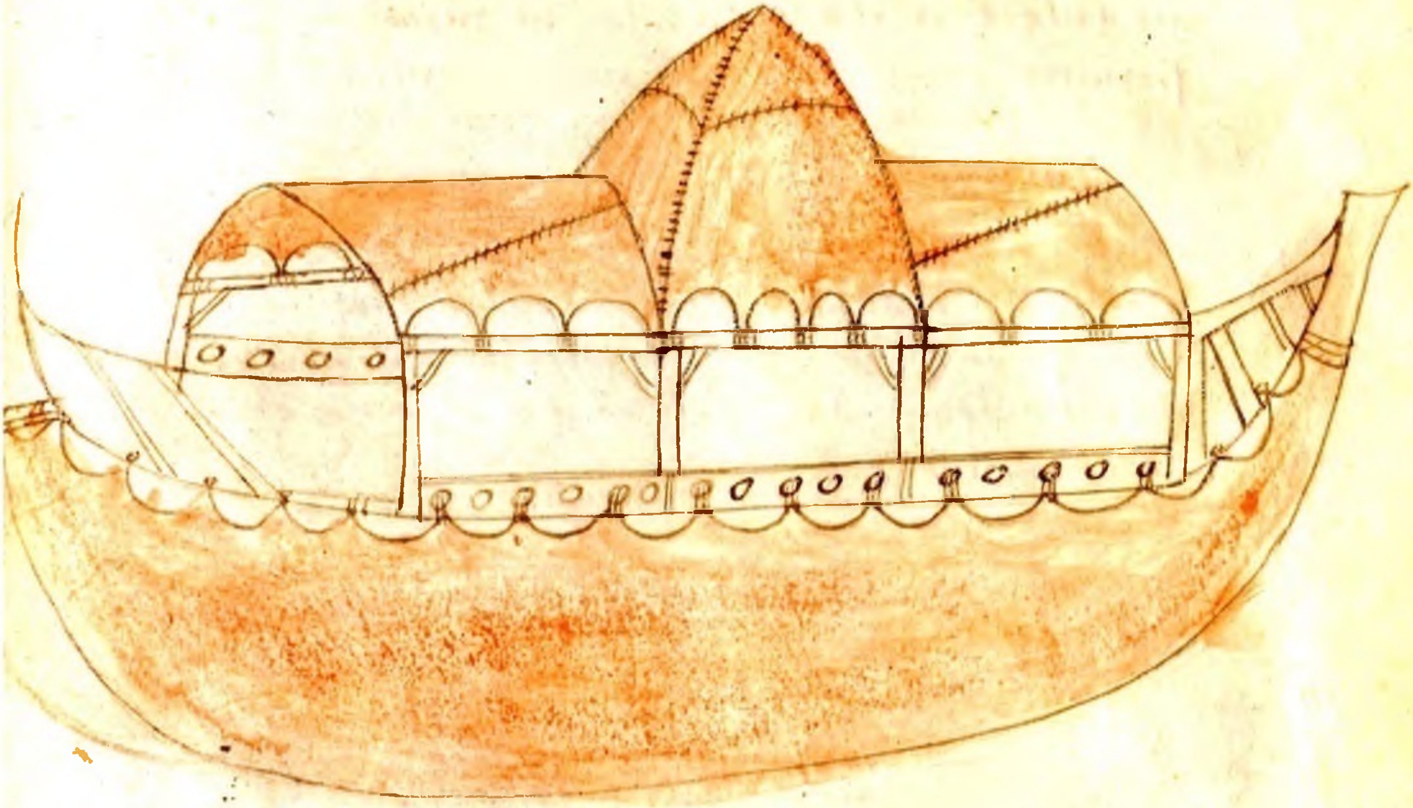
[illegible]

[illegible]

[illegible]



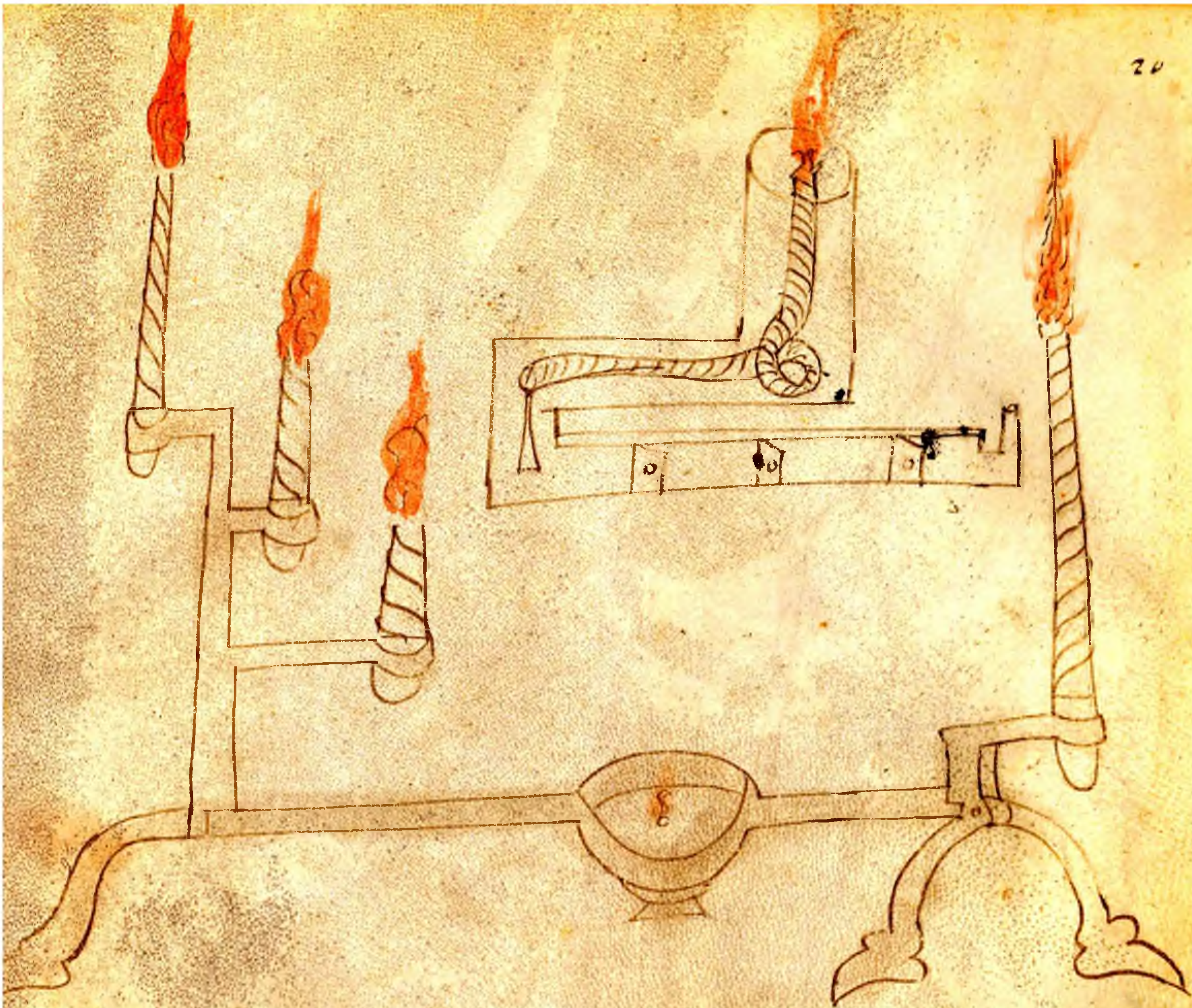




Nauis hoc habet ingenium [illegible]

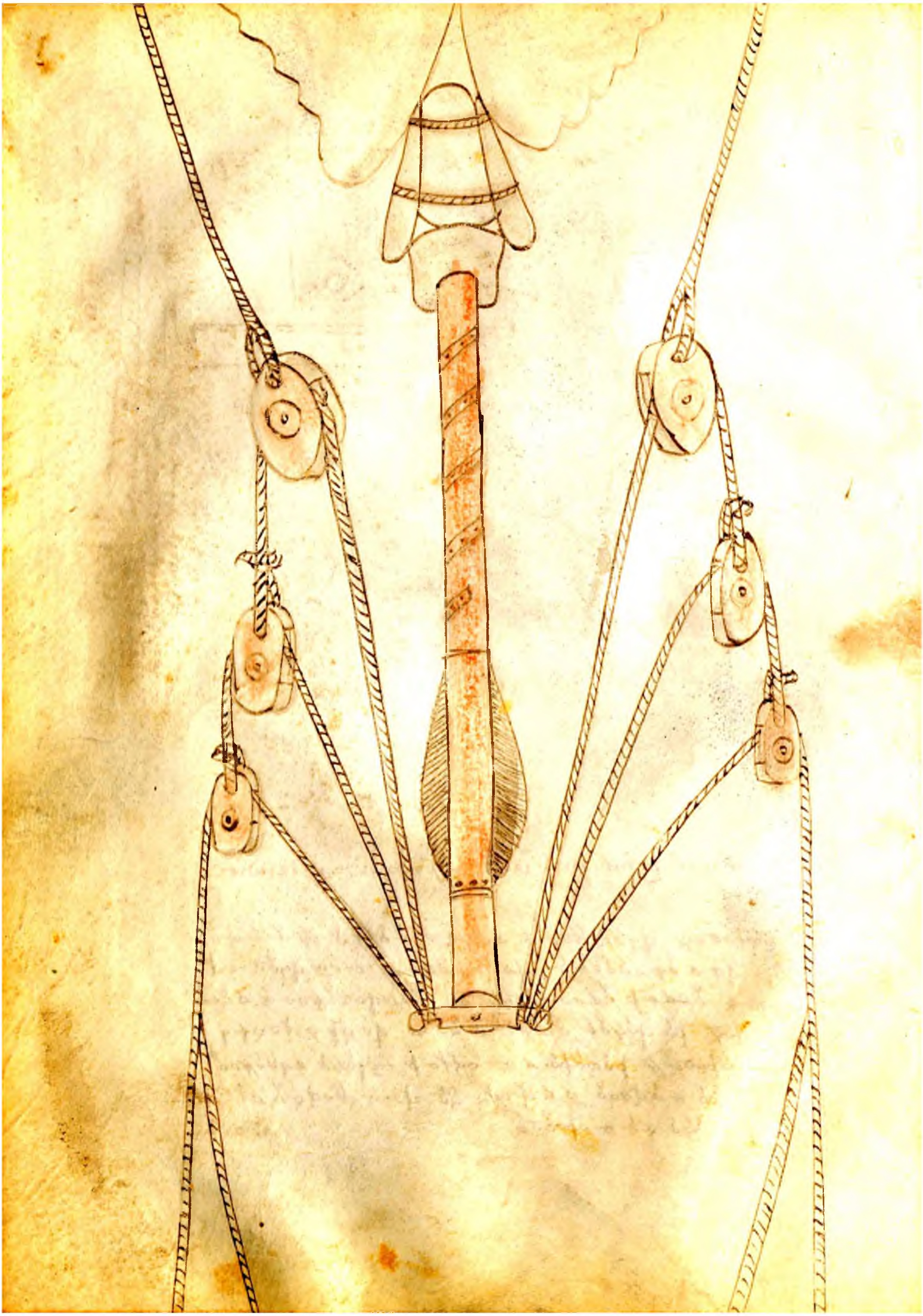
Mitria uel episcopalis corona que parum
ualet et nimium apretiatur eo quod suo artifi
tio fulget et ita resplendet ut nemo in eam
firmiter intueri possit quin radijs confundatur

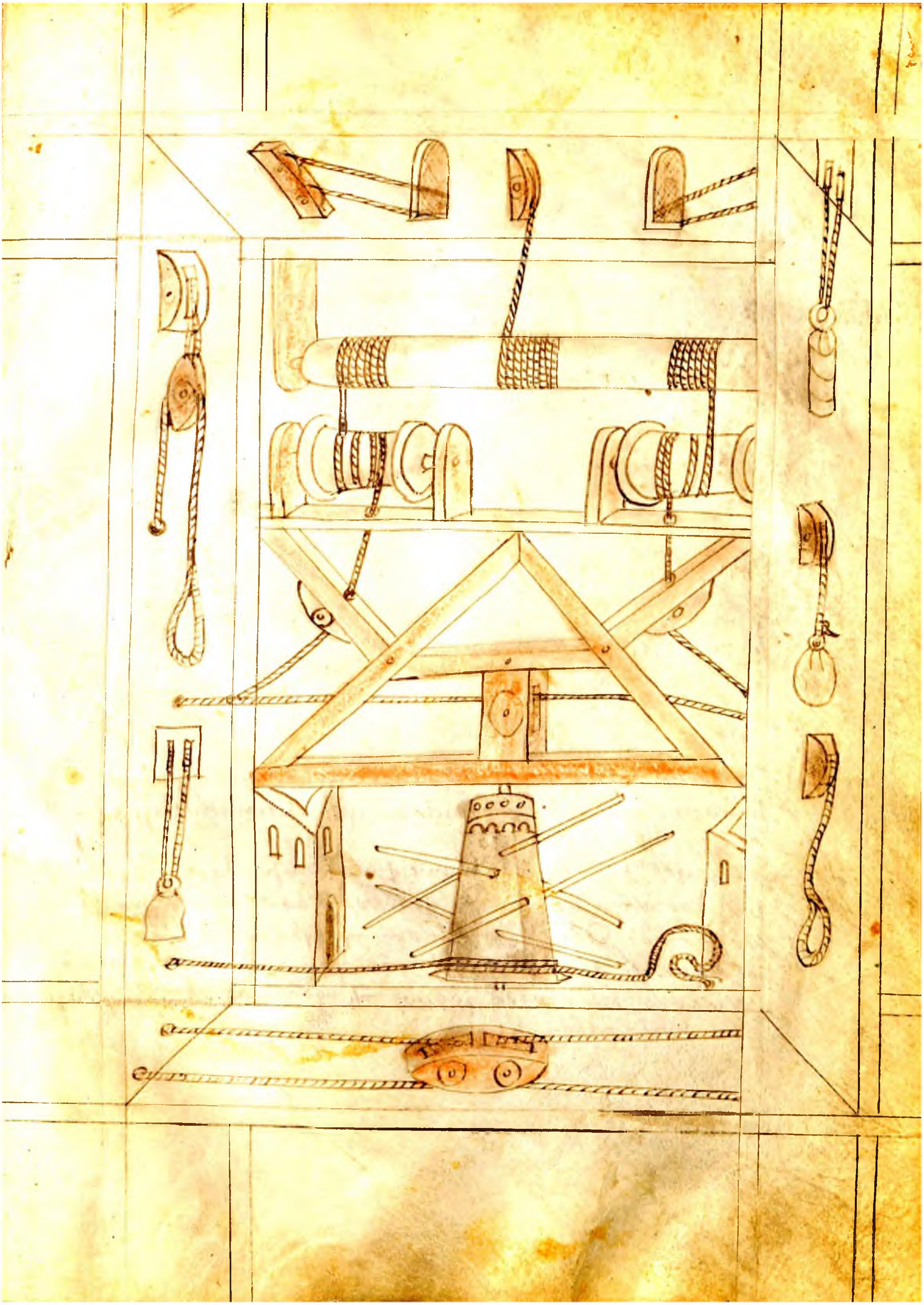
[illegible]

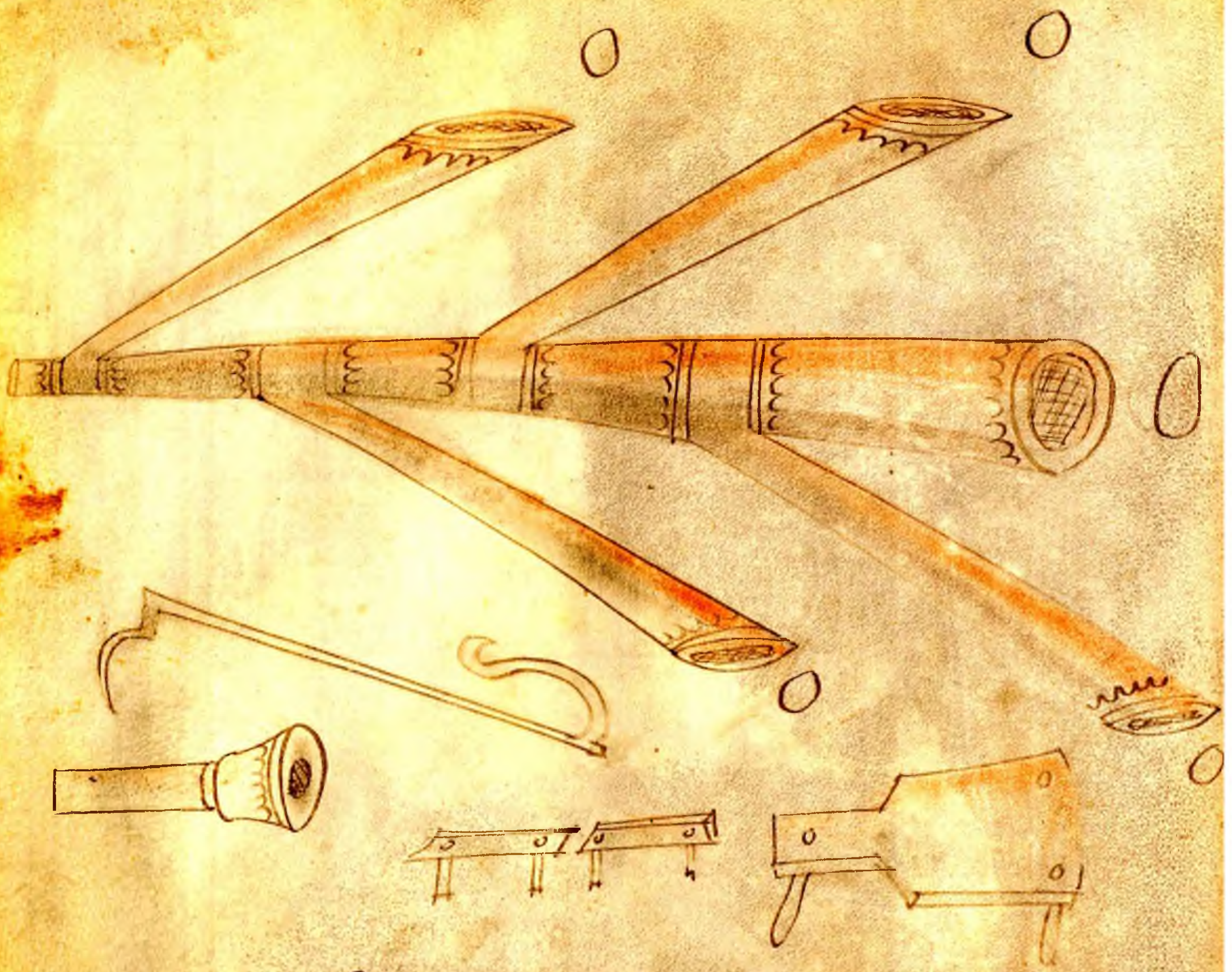


Nocturnus ignis qui videntib*us* mira ostendit

a [illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

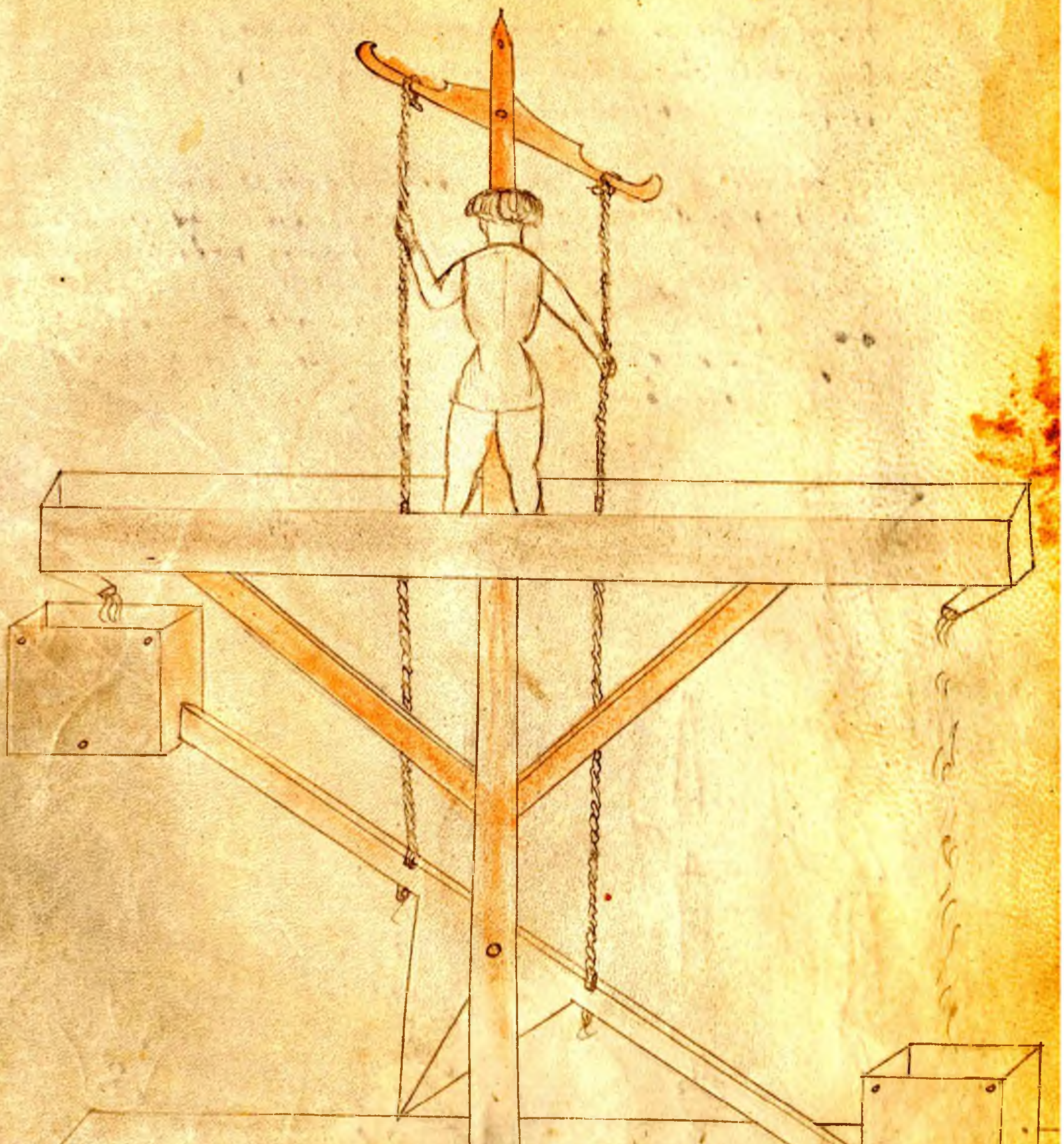






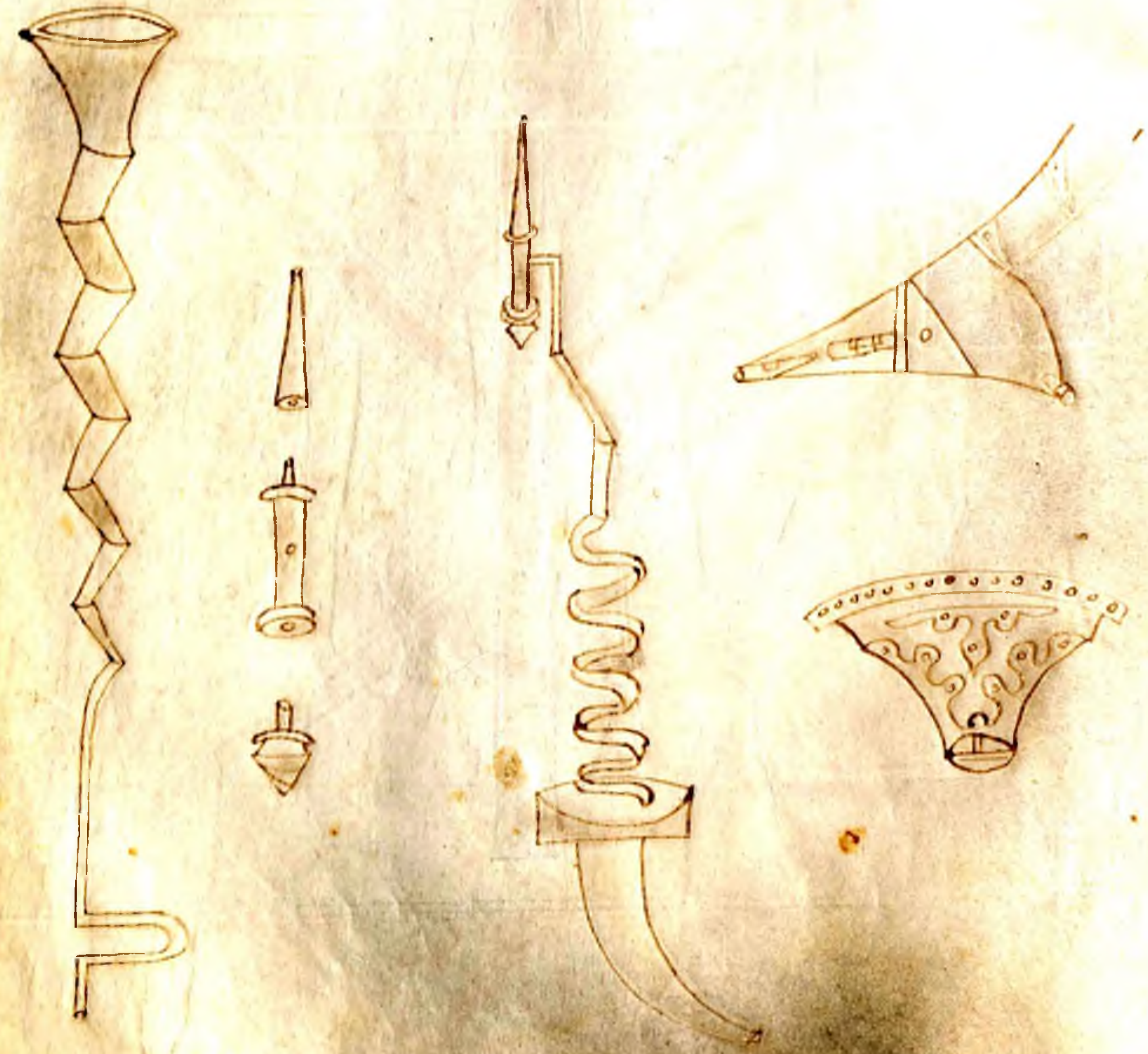
Portiones instrumentorum que occultantur in equili
brio ingenio ad pertinenda ea que extrinsecus apparent.

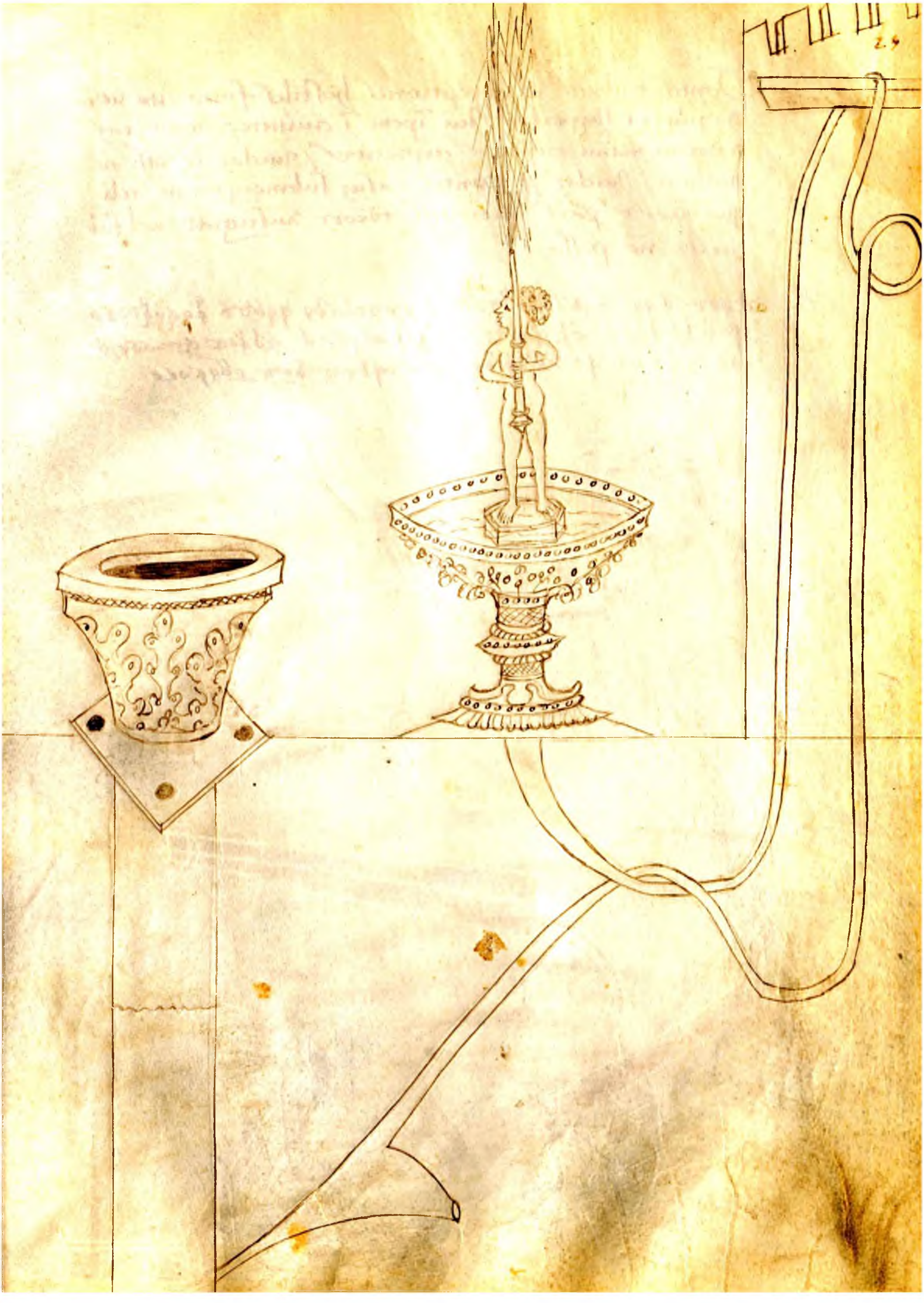
[illegible]



Fons uenetus dici potest quia ibi magis q̃ alibi
fieri potest cũ ea ciuitas cisternis puteisq; sit plena
et fontibus et flumibus egeat ·

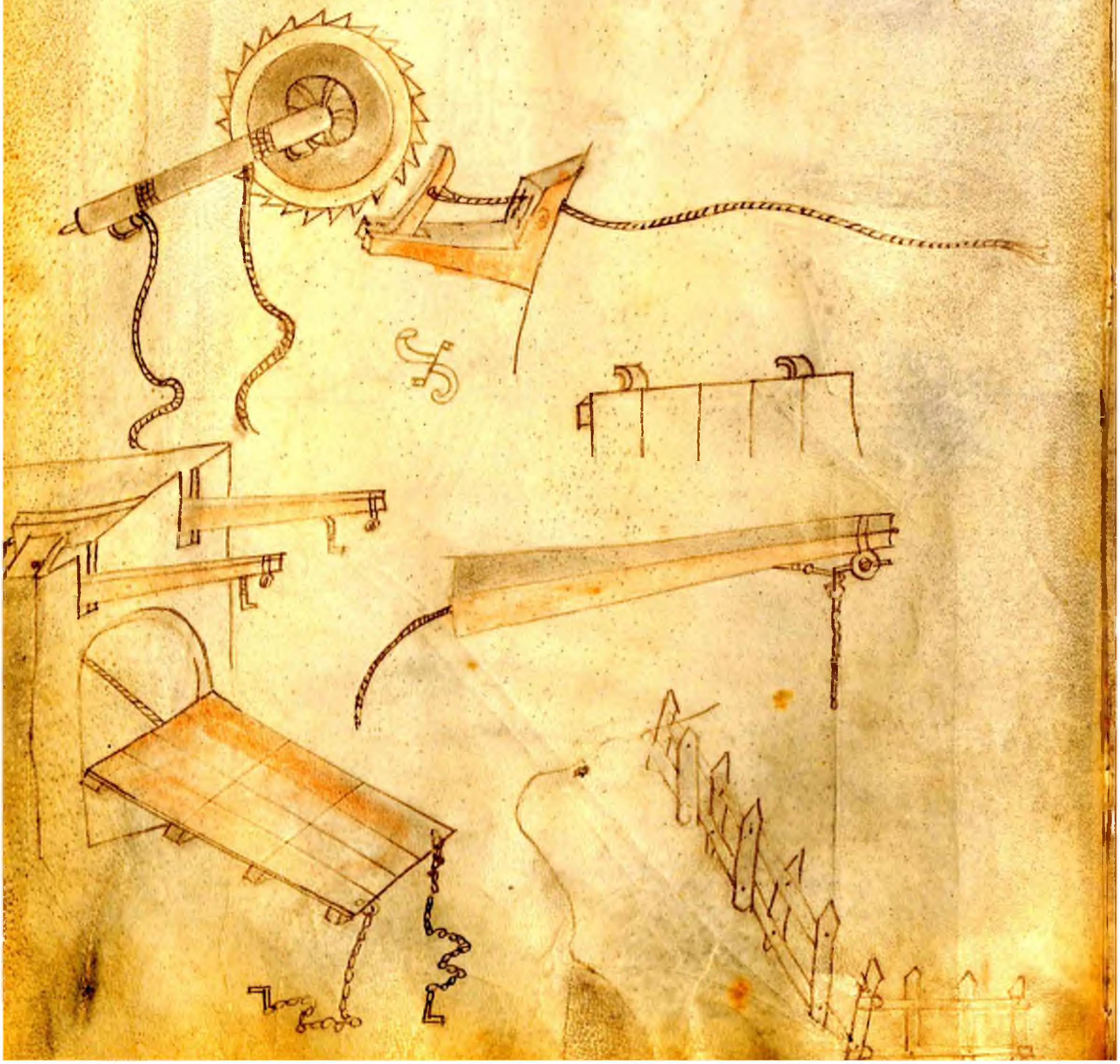
[illegible]

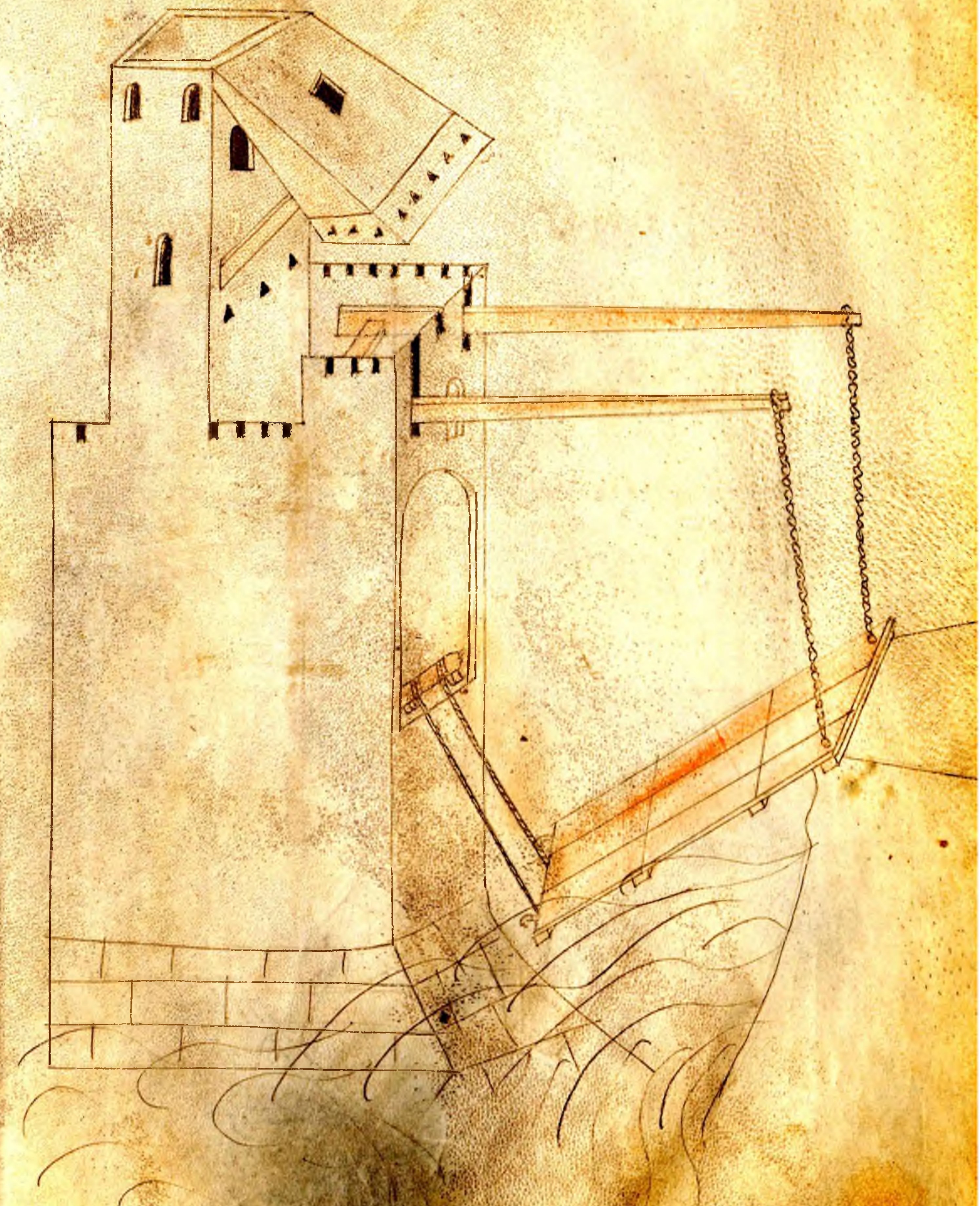


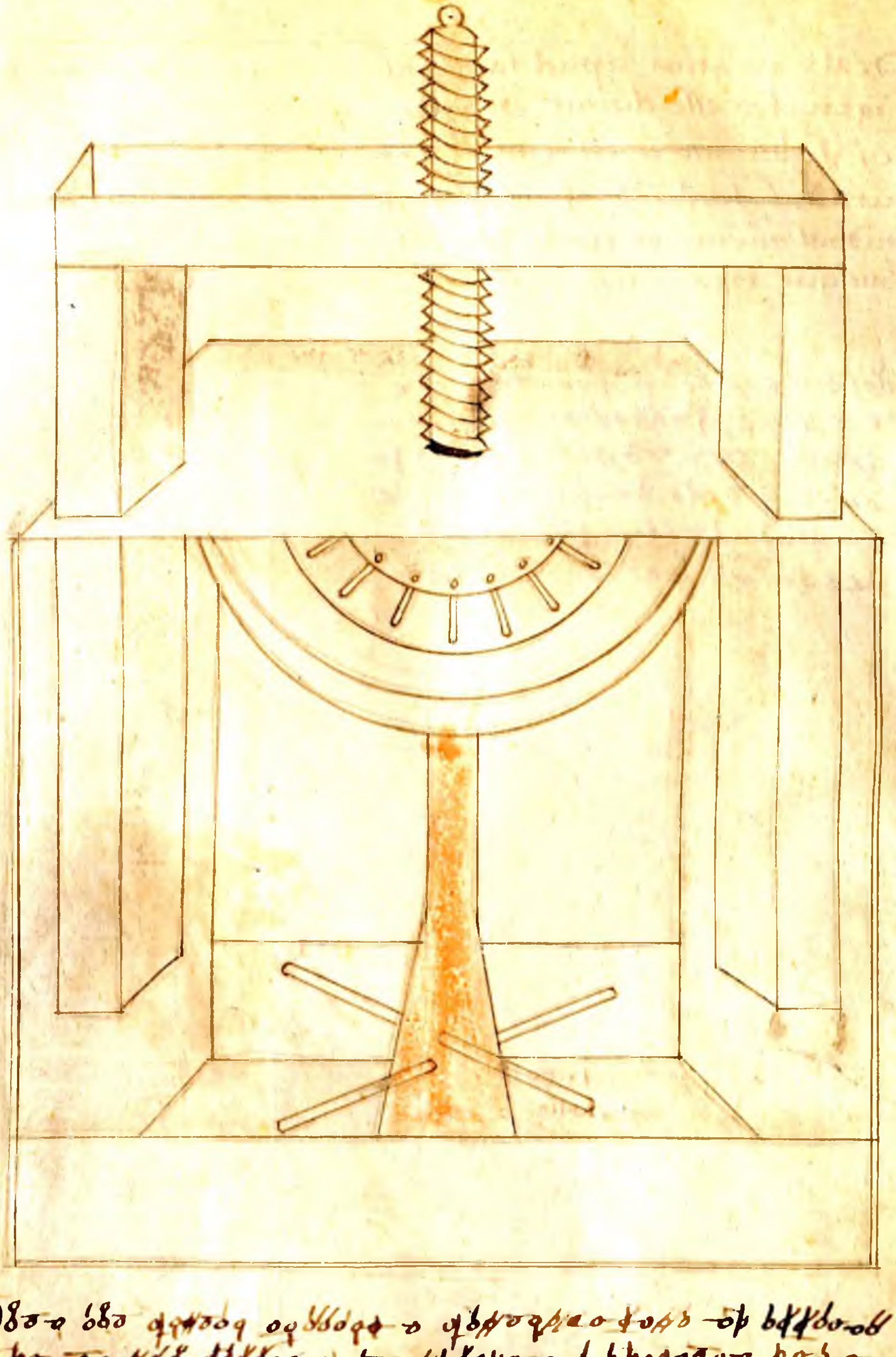


Pontes trabucci ad deceptiones hostiles fiunt / ita ut cu armigeri suppersint / qui ipetu i civitatem ruant / cam armata manu capere cupientes / quidam igressi capiantur / quidam per pontis casum submergantur / reliqua vero pars exercitus terrore aufugiat / vel subcinere no possit.

1 [illegible]



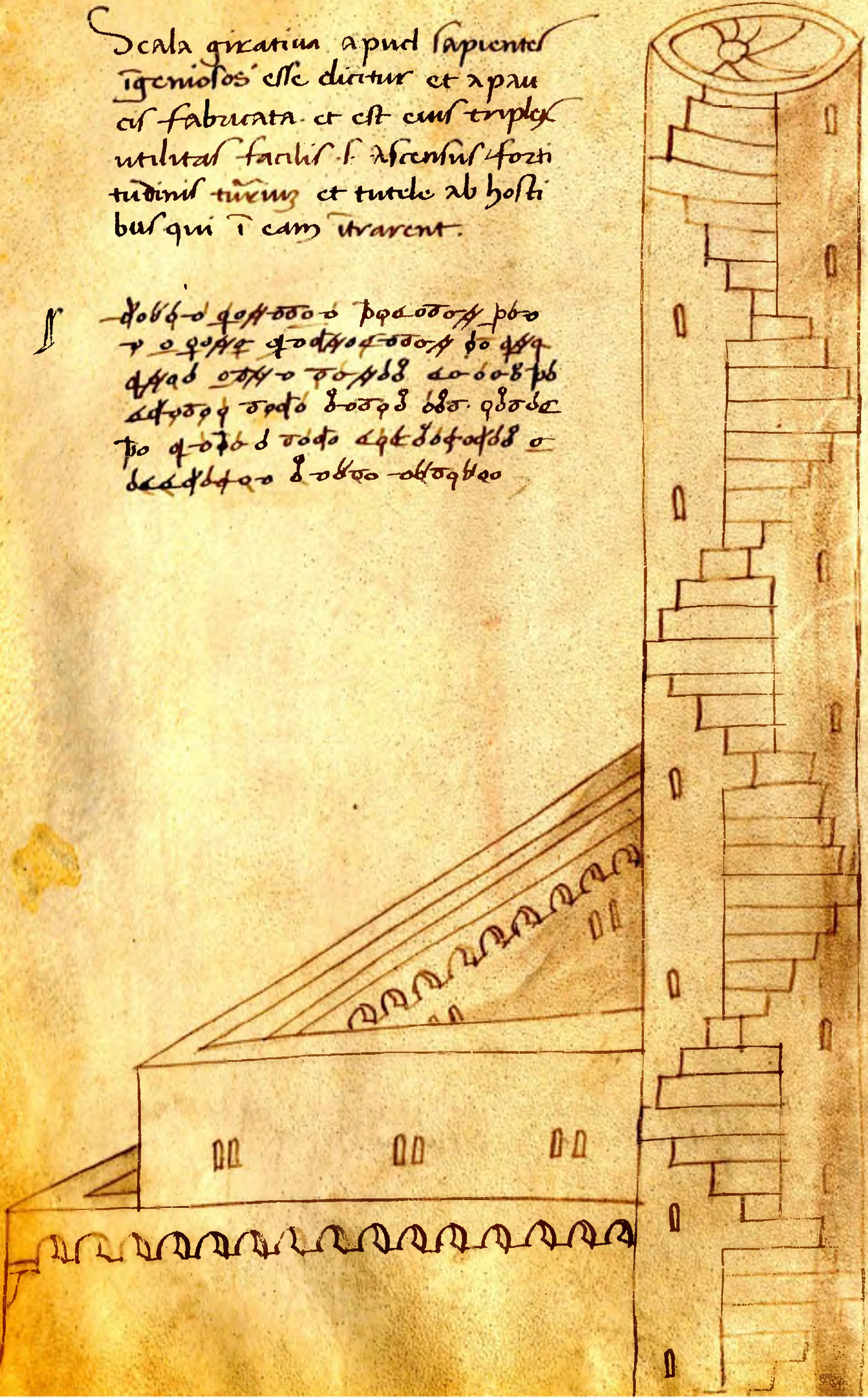


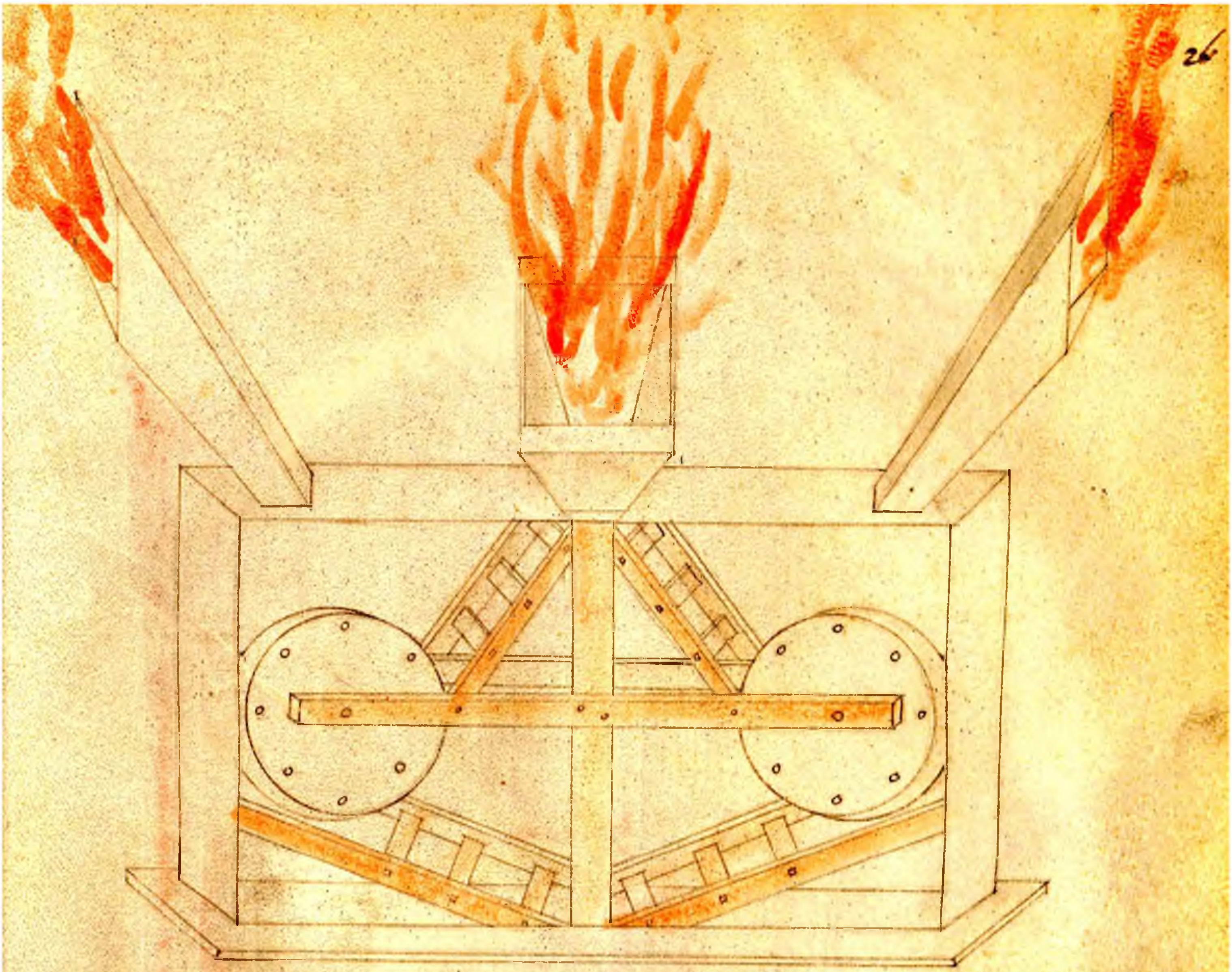


[illegible]
[illegible]
[illegible]

Scala giratiua apud sapientes
igeniosos esse dicitur et a pau
cis fabricata et est eius triplex
utilitas facilis s. ascensus forti
tudinis turrium et tutele ab hosti
bus qui i eam intrarent.

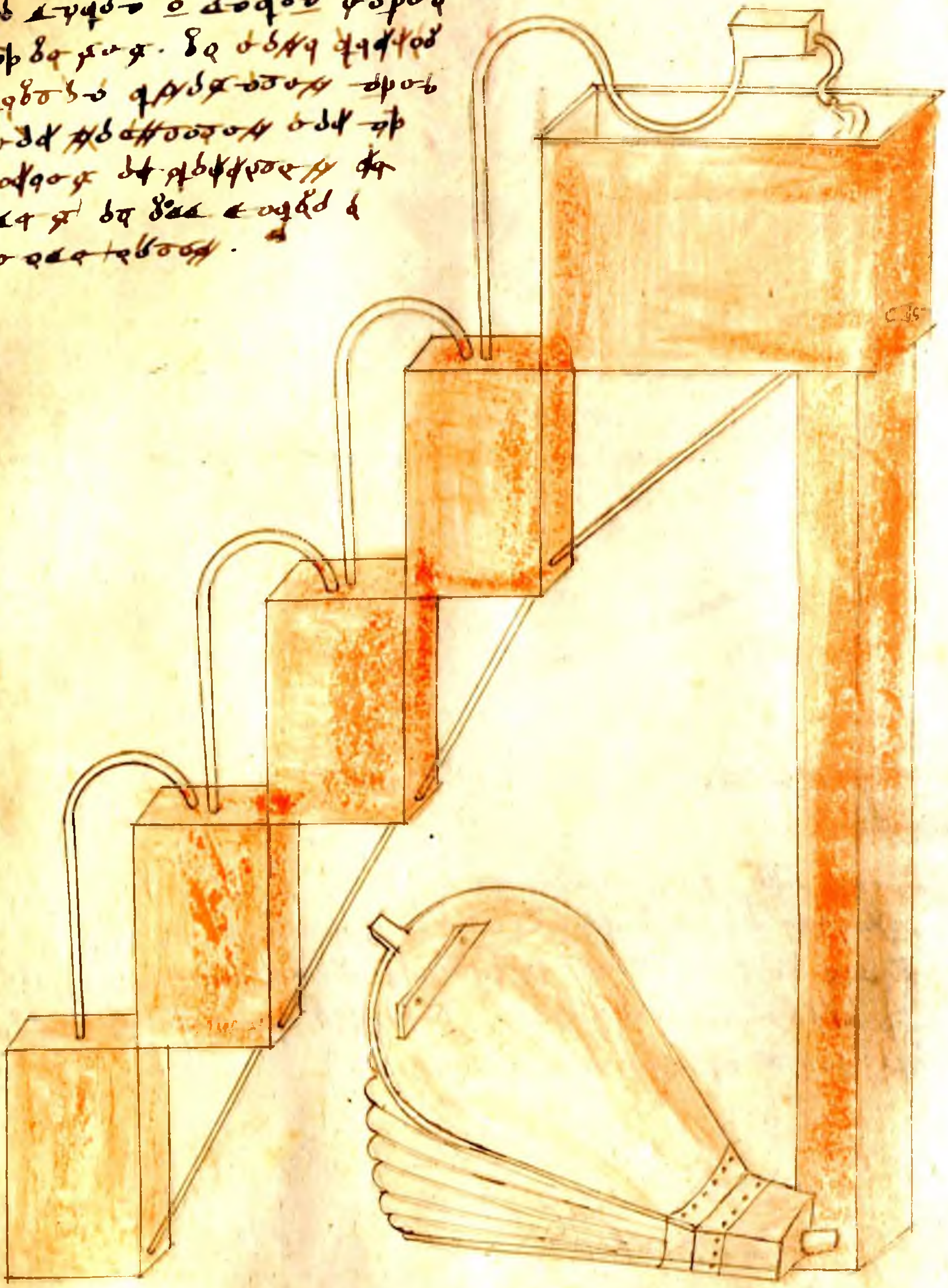
[illegible]





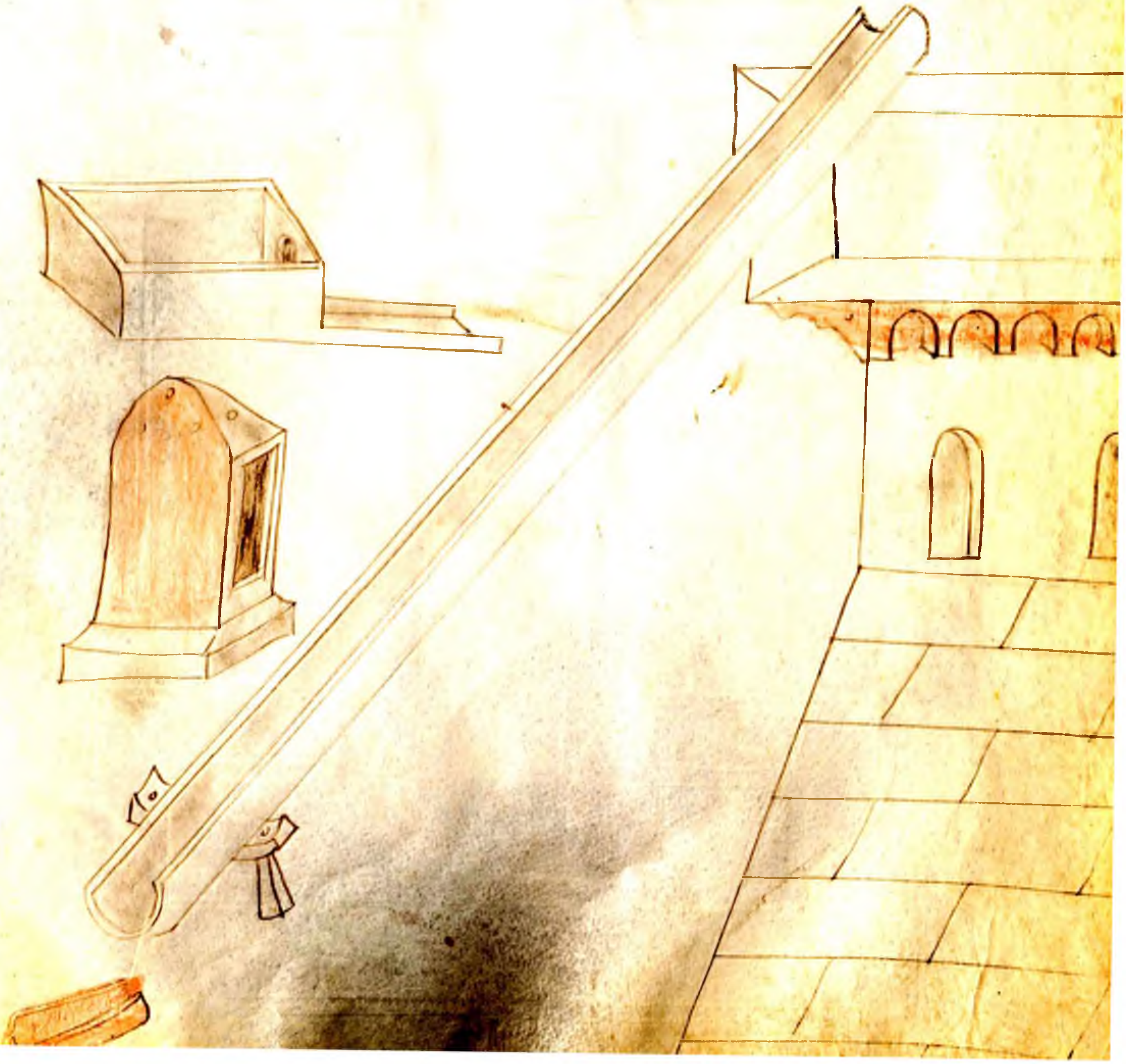
[illegible]

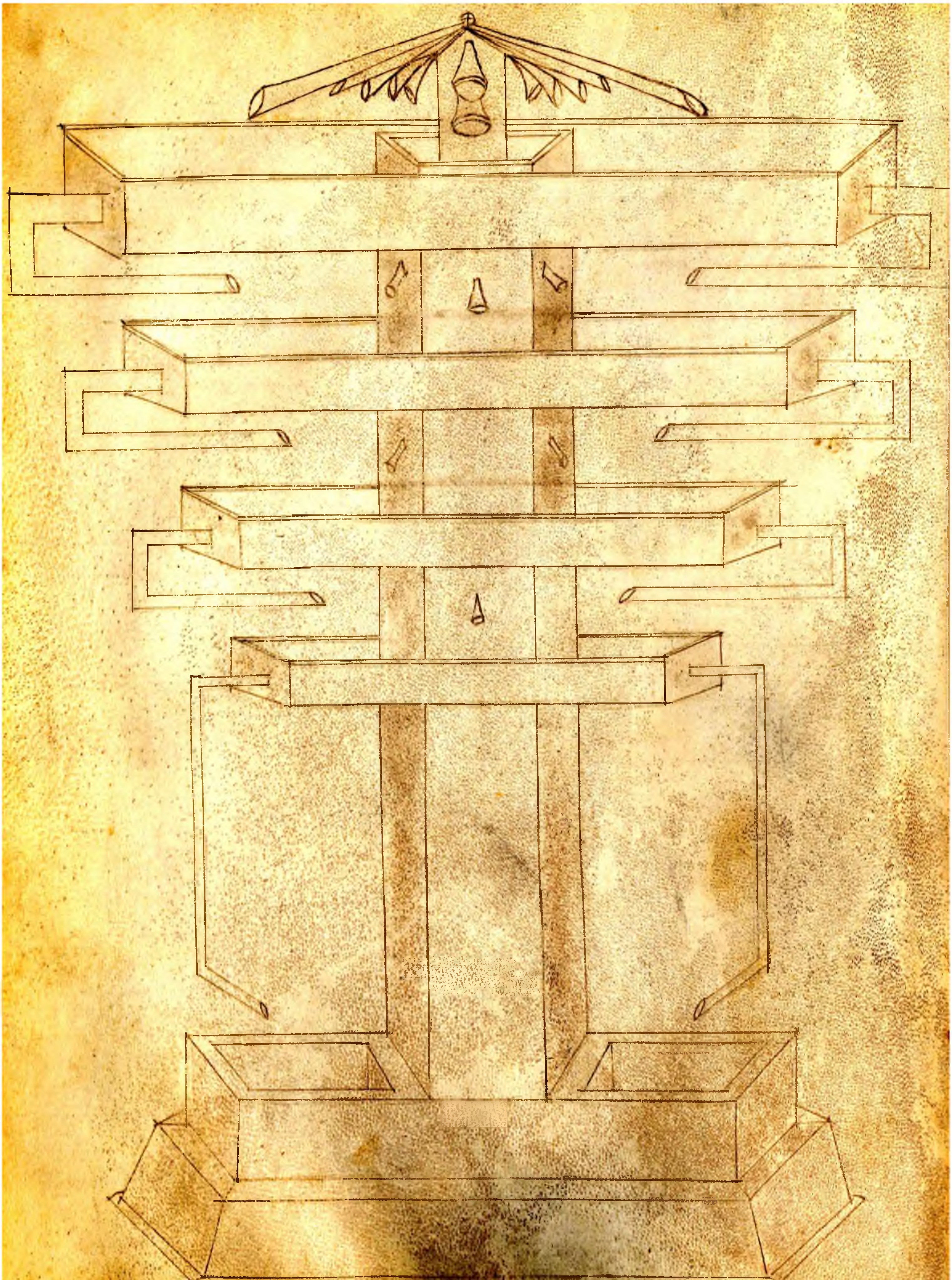
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]



Descensorium opus istud est cuius expositio est

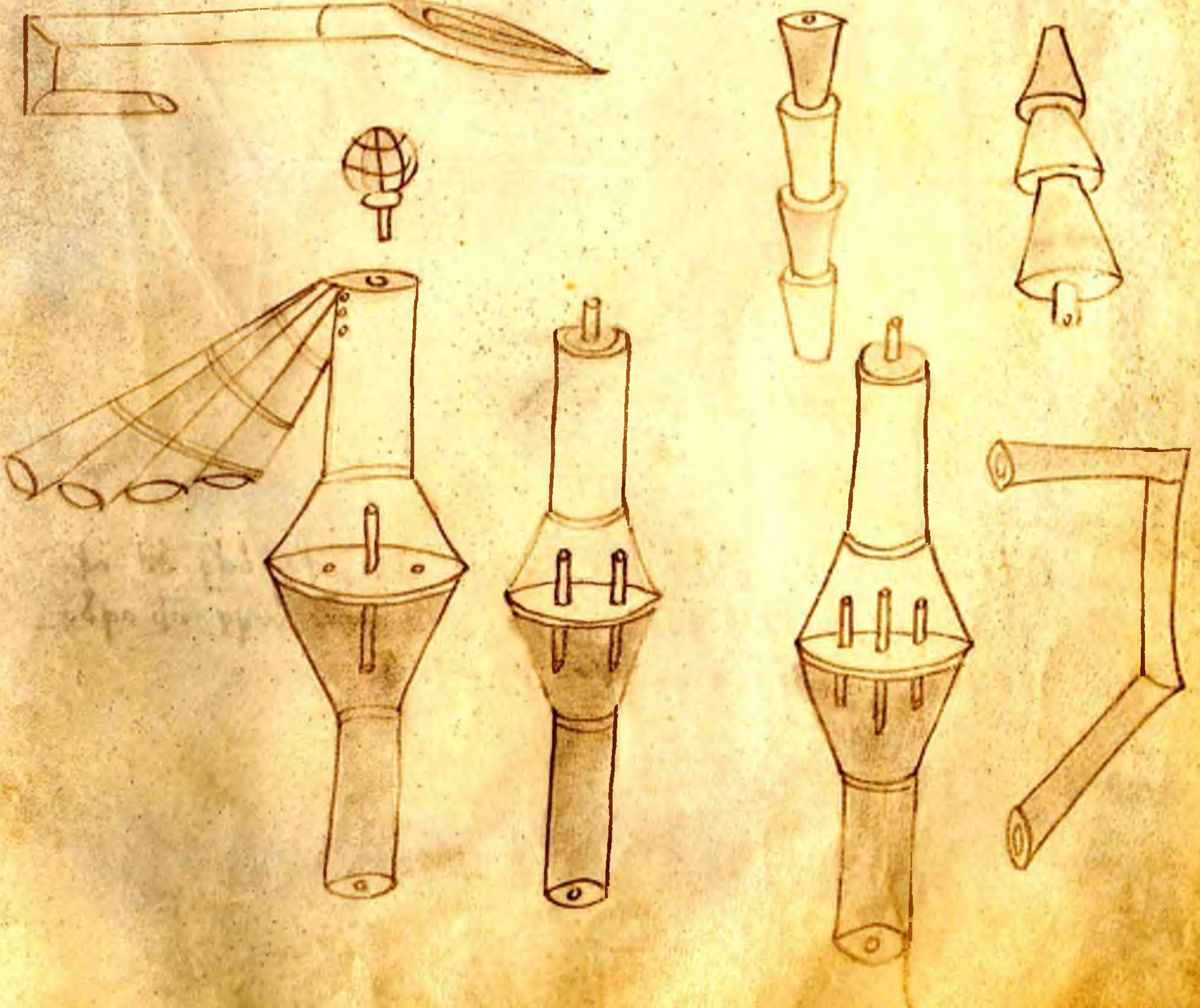
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

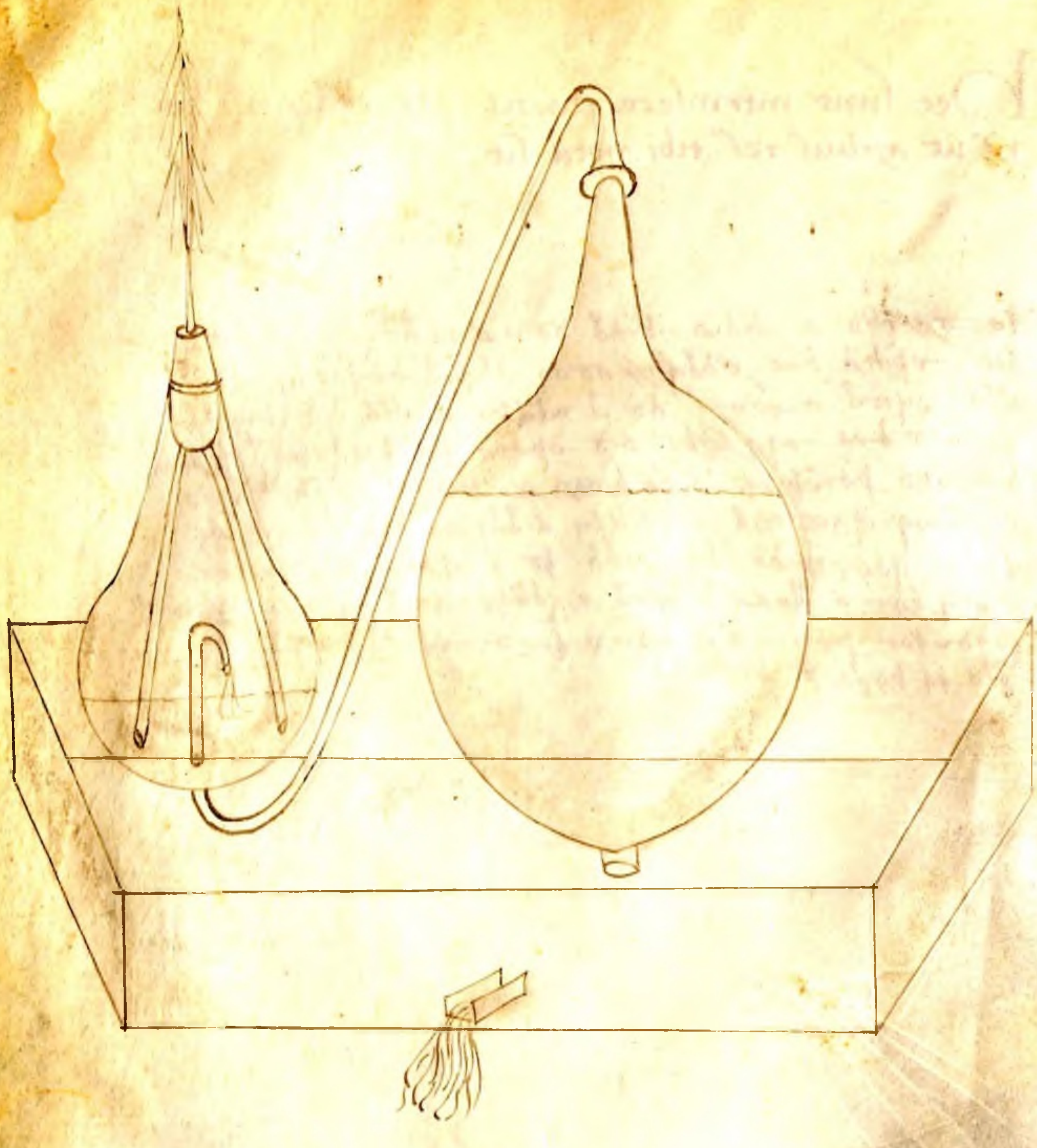




Hec sunt intrinsece partes precedentis fon
tis ut melius res tibi nota sit.

[illegible]

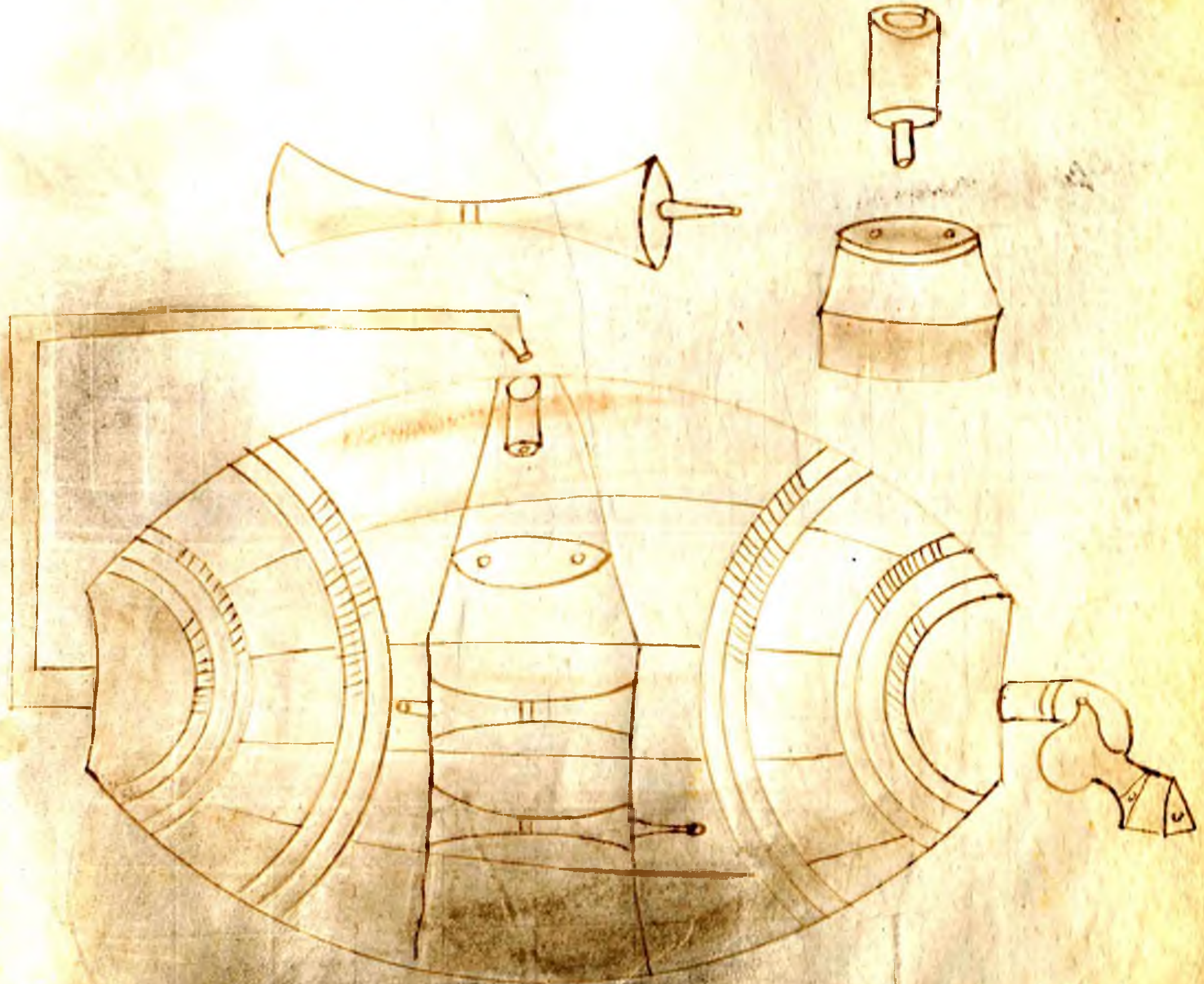




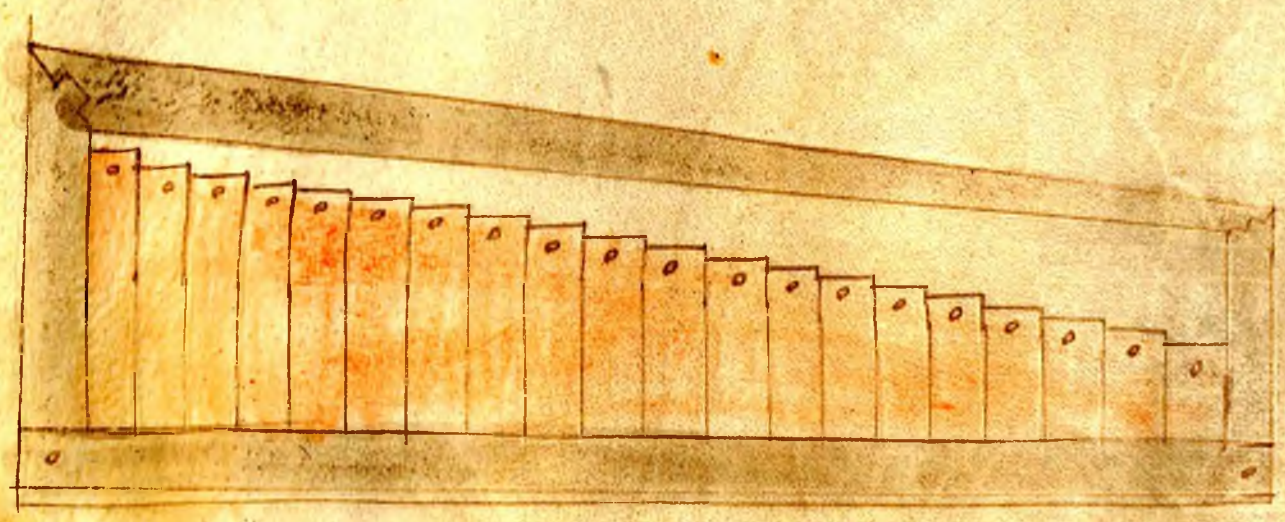
[illegible]
[illegible]
[illegible]

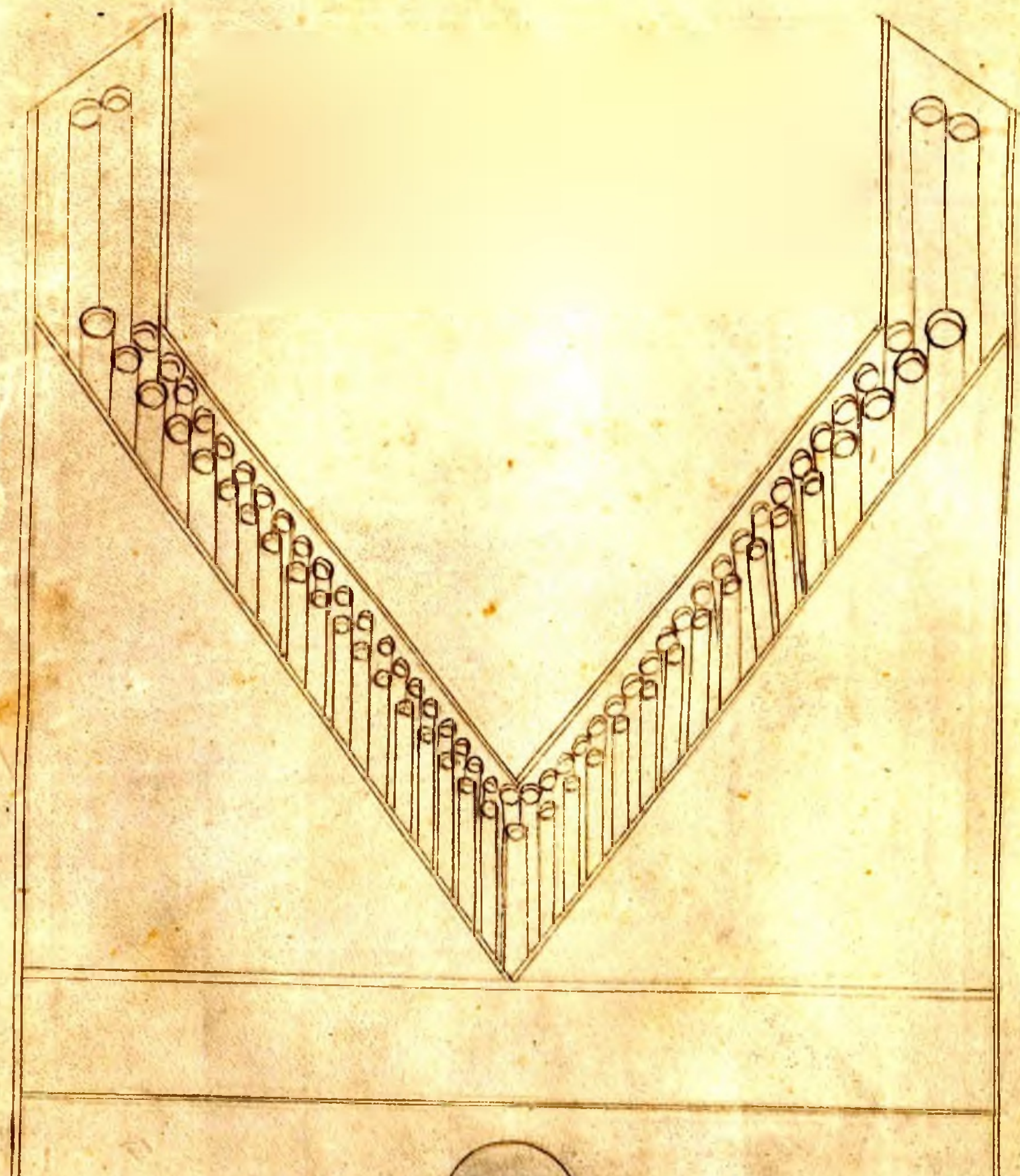
Veges ista est que se implet et evacuat. hoc est quod infra de ea exit per superiora ingreditur. et sic est circulatio.

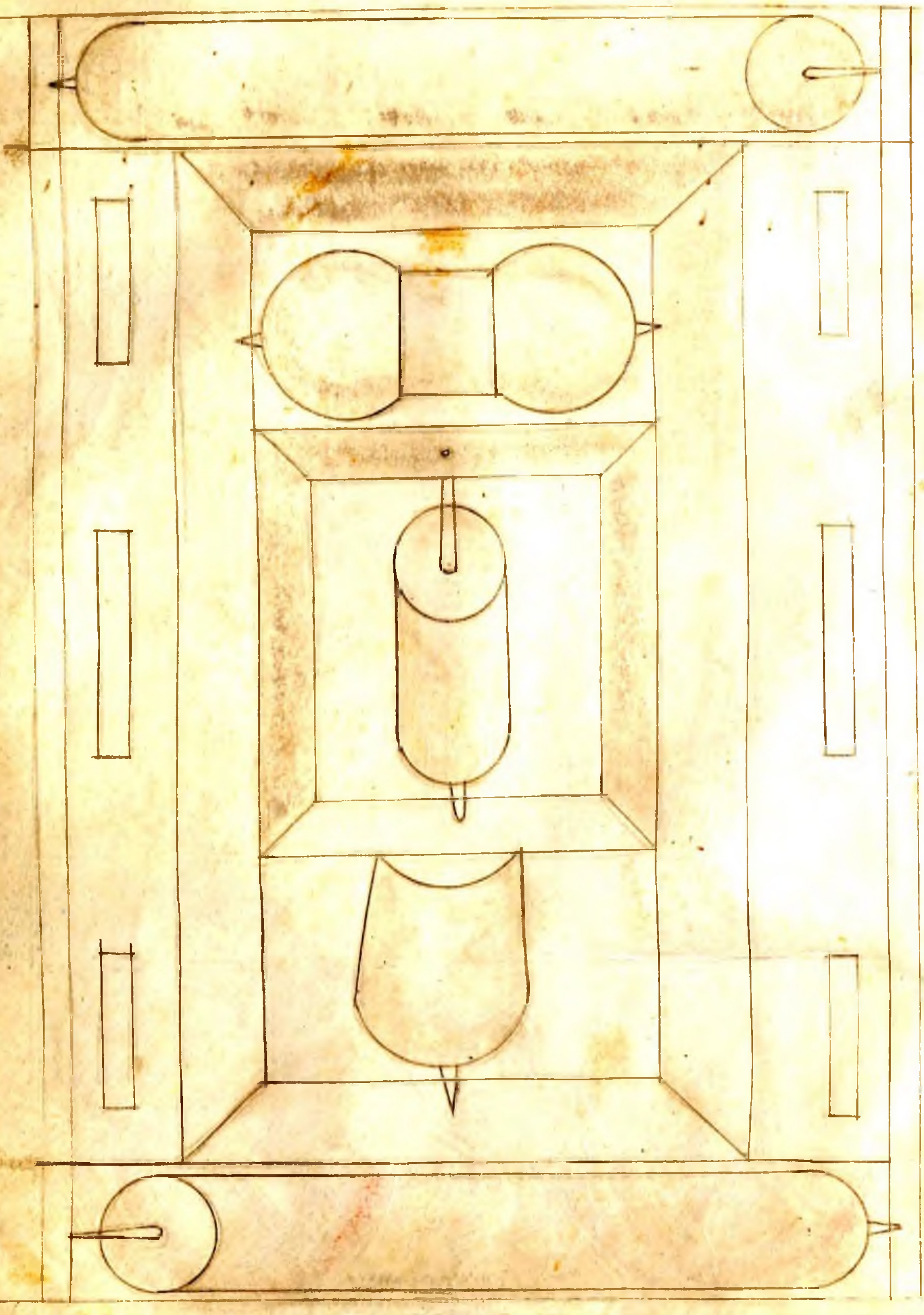
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]



Organicum [illegible]



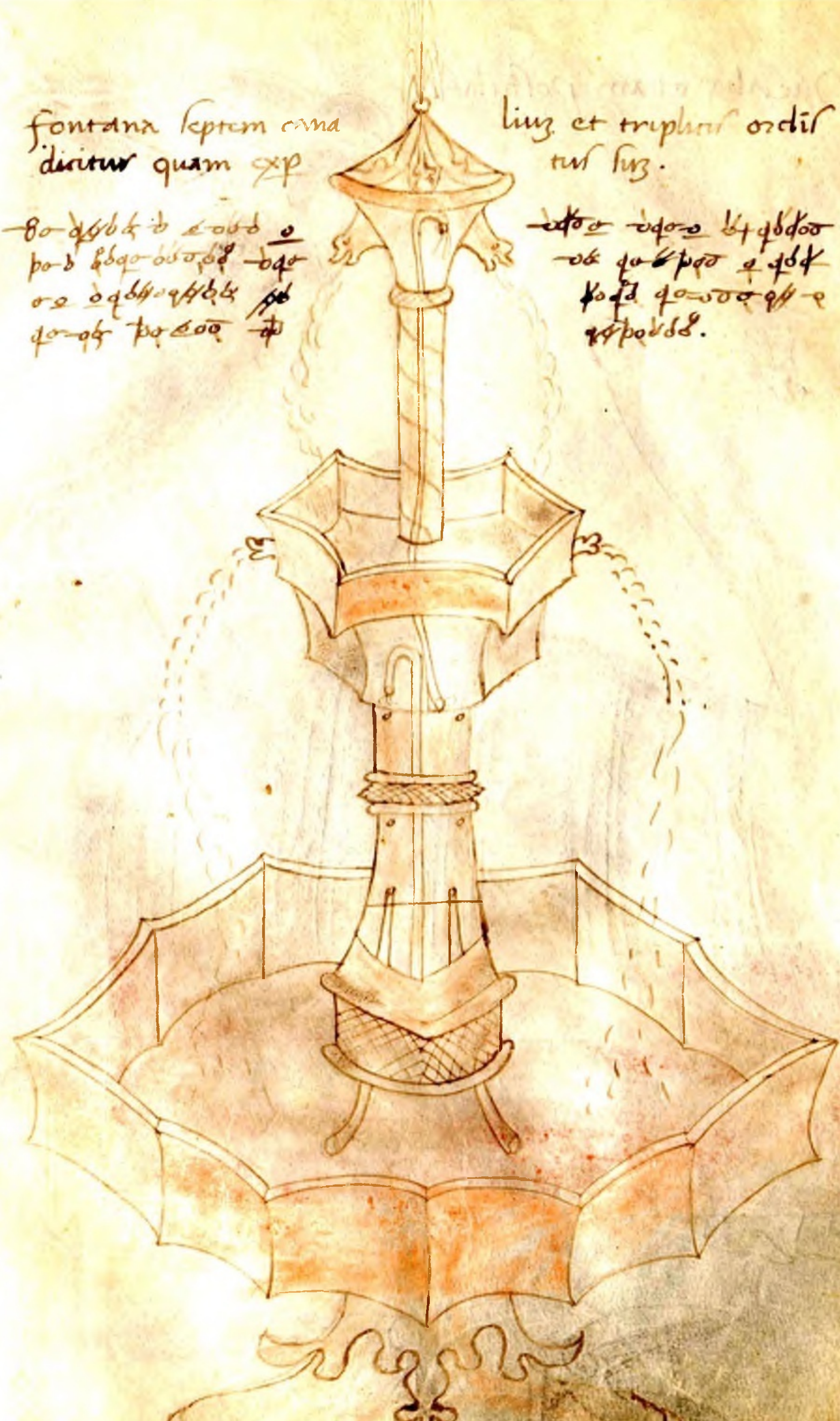




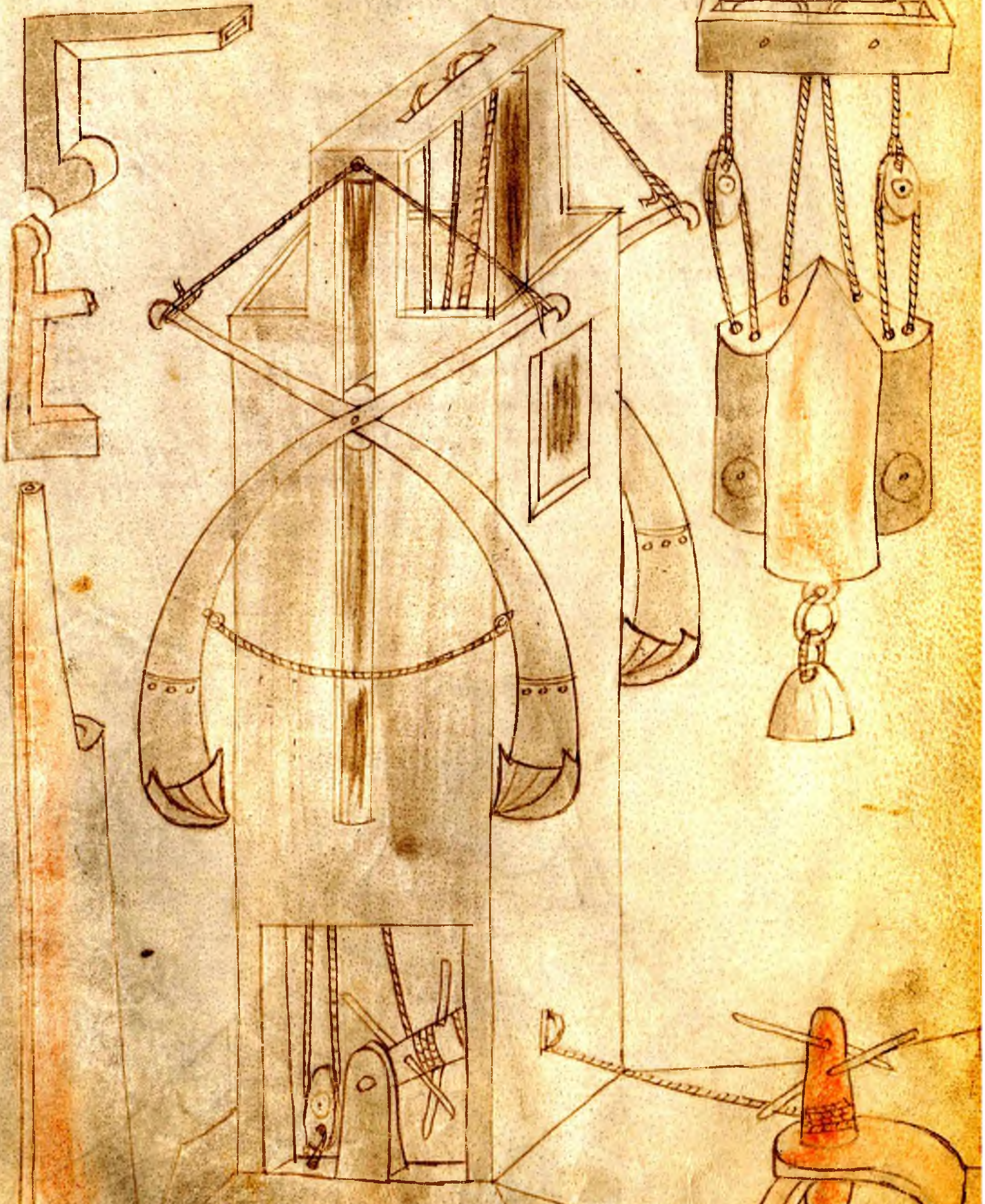
fontana septem canalium et triplicis ordinis dicitur quam experti sumus.

.1. [illegible]
[illegible]
[illegible]
[illegible]

[illegible]
[illegible]
[illegible]
[illegible]



Pueritia etiam postulasti

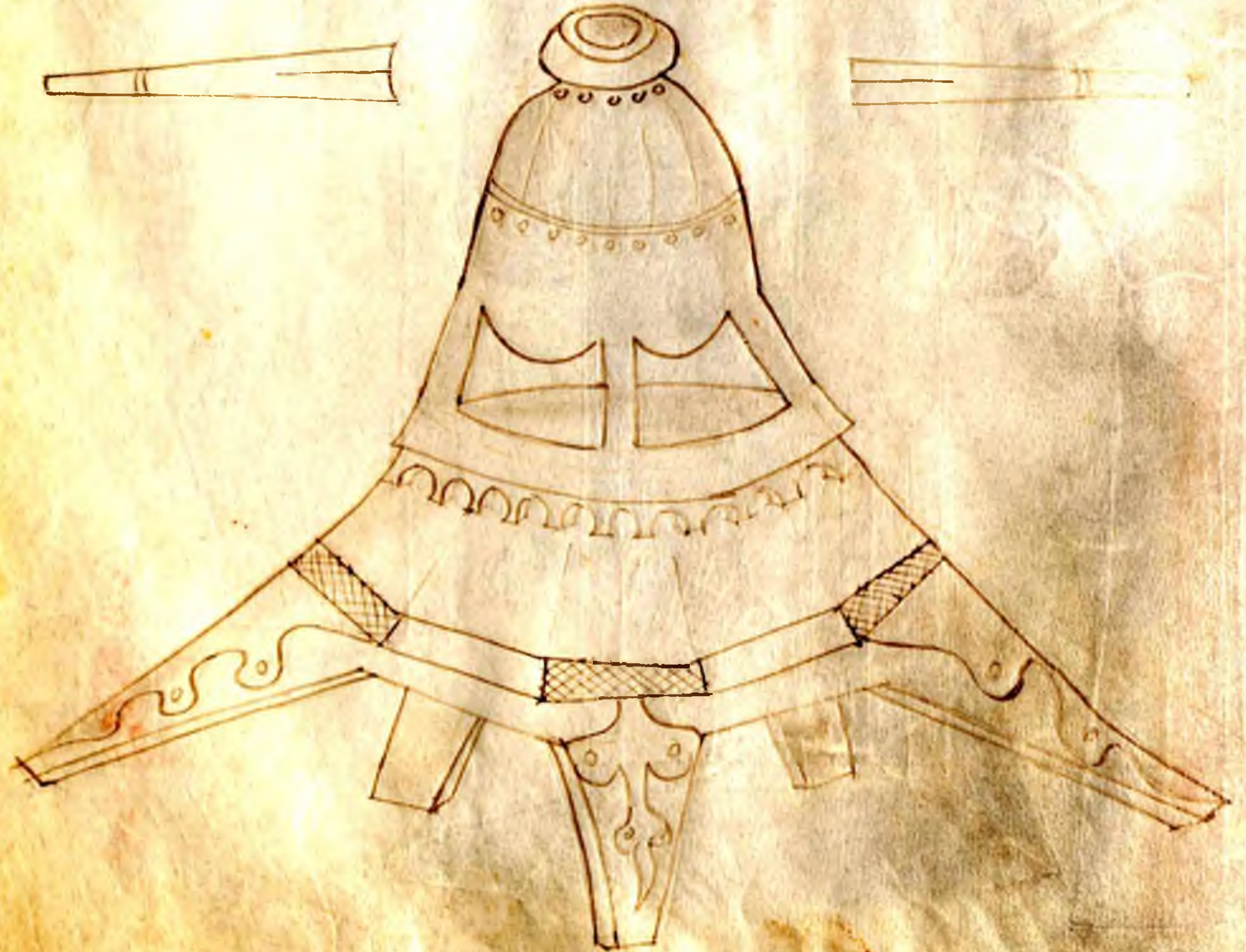


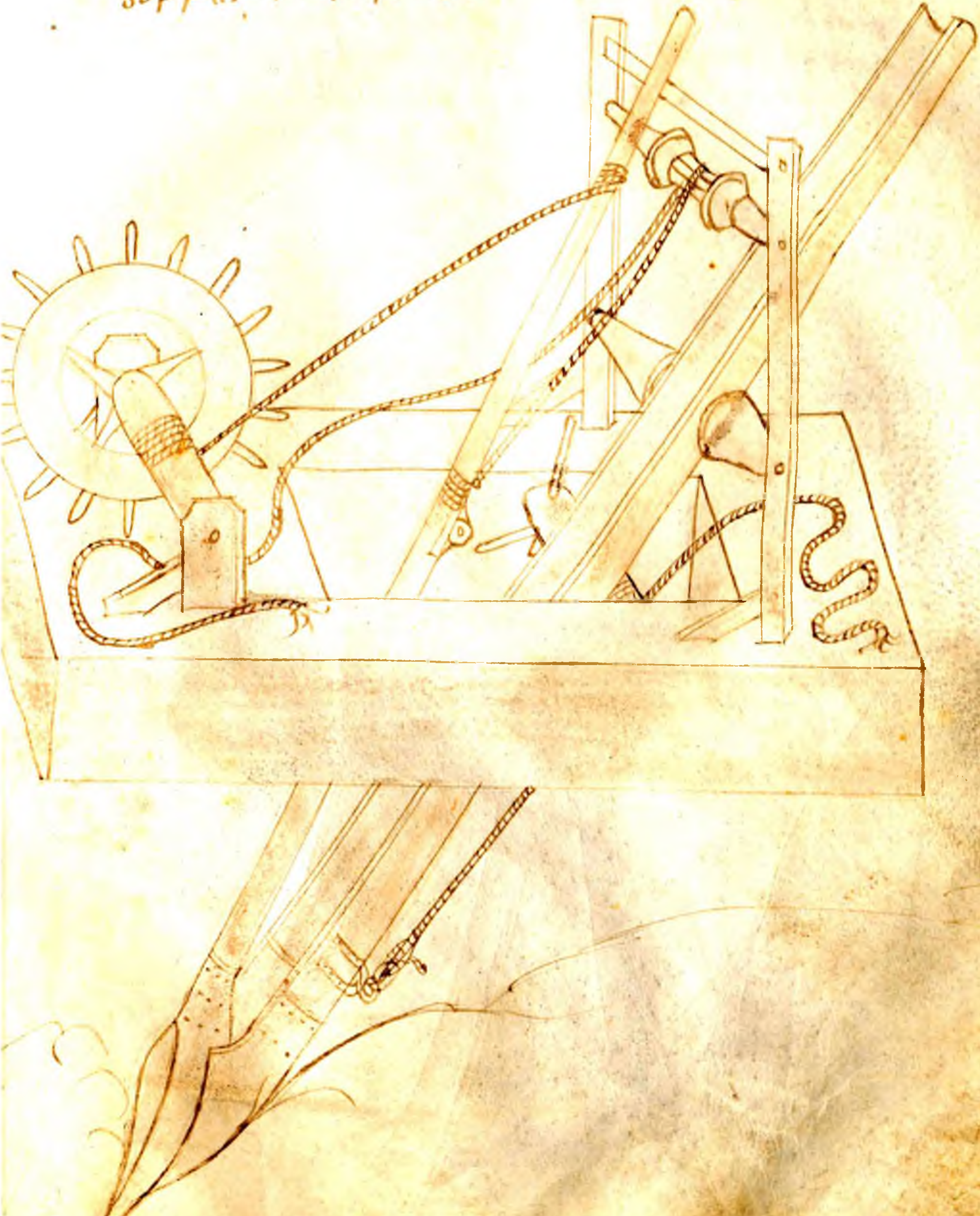
Trinse alunbuldaz hic dicuntur.

[illegible]

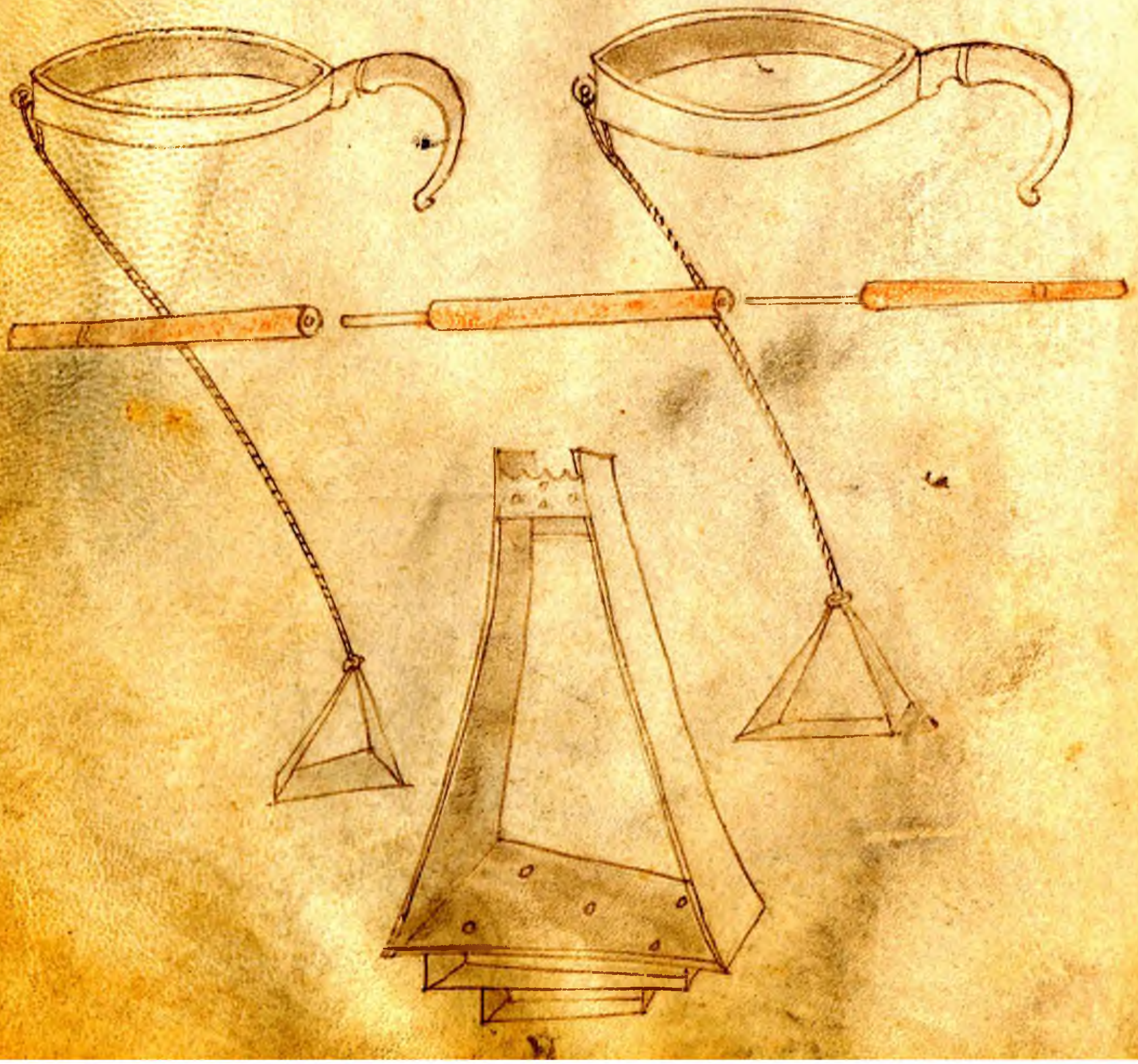
Campana Egiptiaca.

[illegible]





Omnes hee instrumentales portiones descendunt ad hominem qui [illegible]



Sophistice facies francisci [illegible]

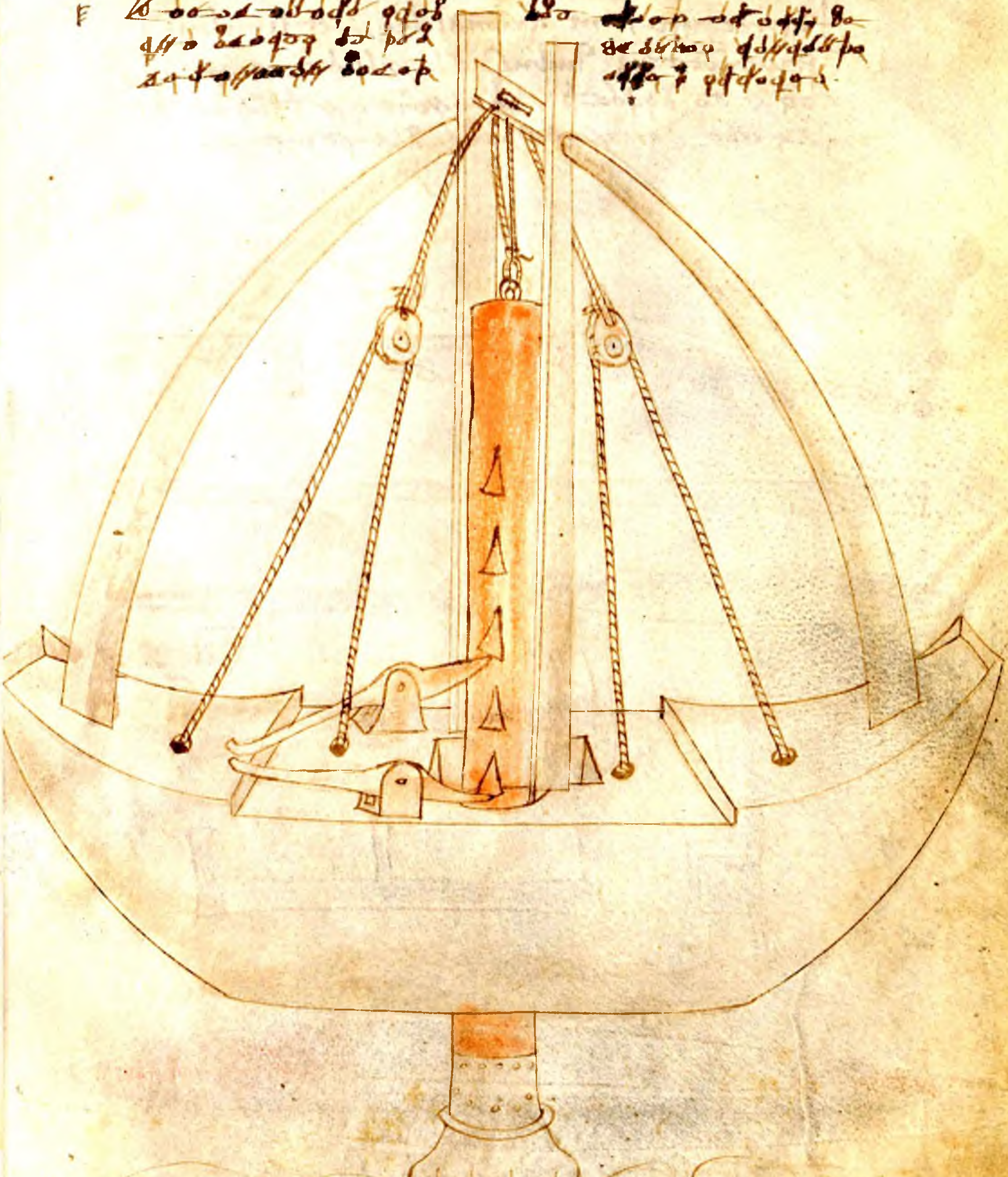
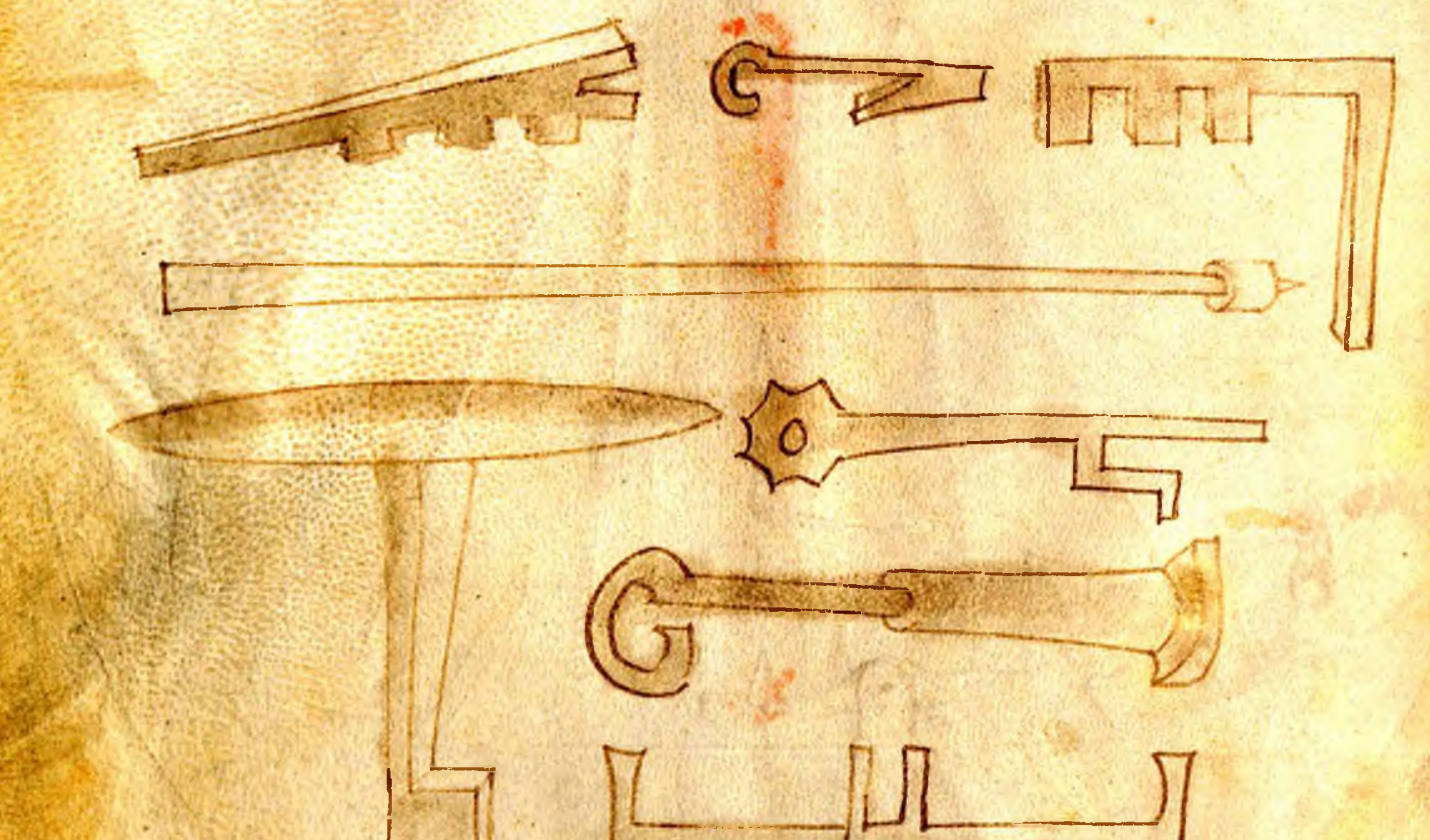
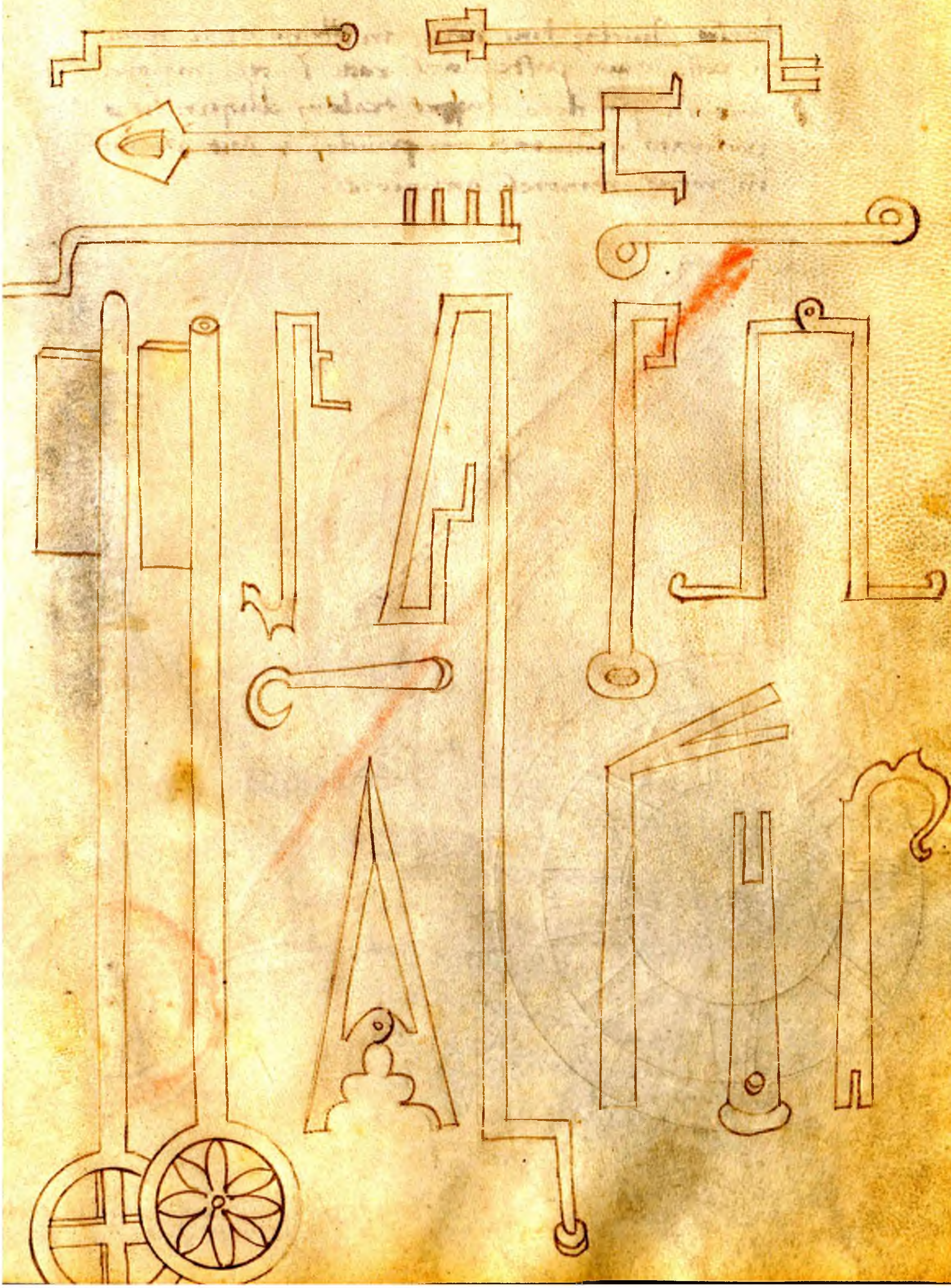
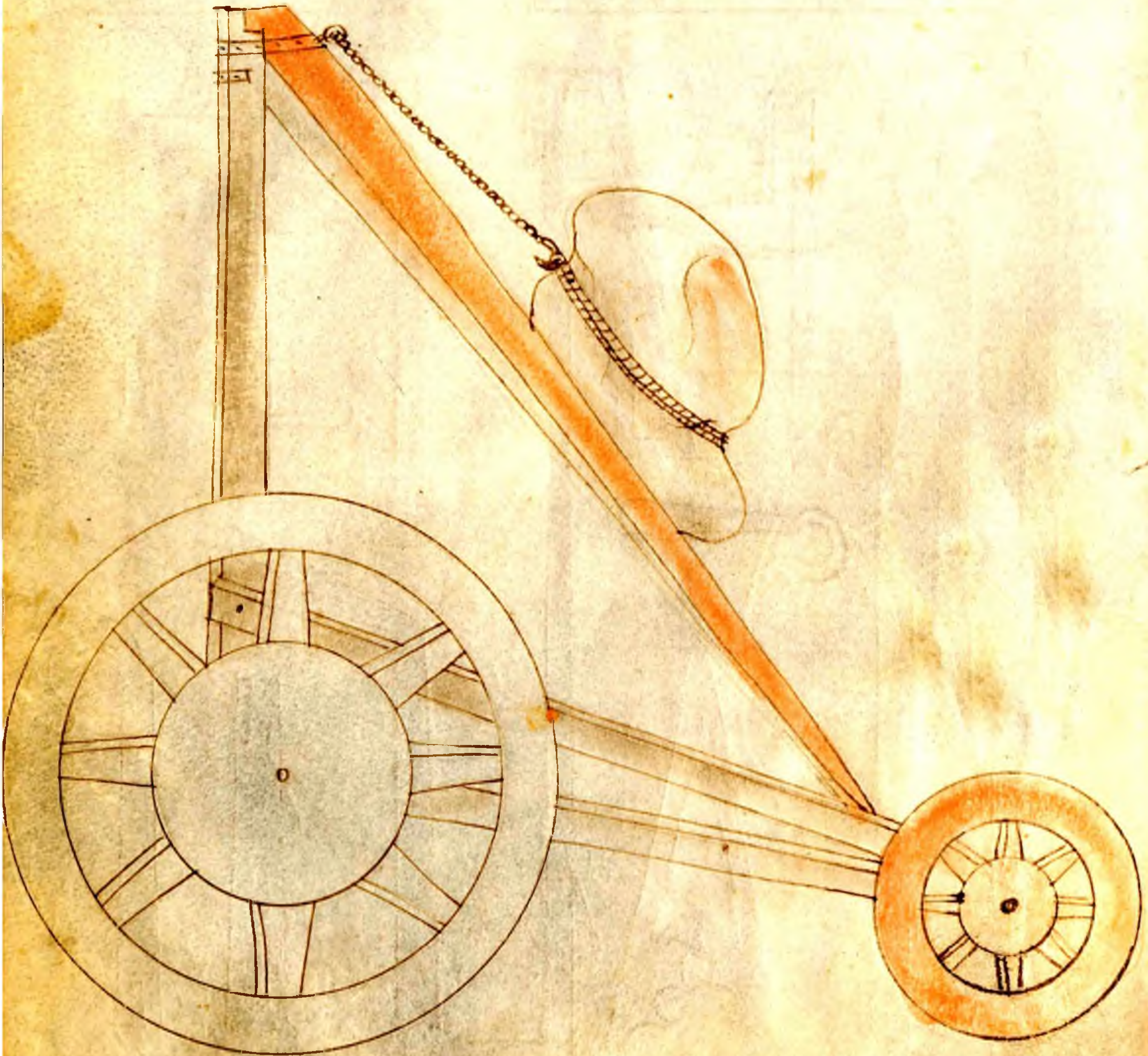


Figure iste sunt grimaldeorum et similium in-
A strumentorum quibus [illegible]





Ferũt quidaz hũc currũz in plano ex se moue
ri posse quia posteriores rotte facte maiores
una cũ pondere super trabem obliquaz sic a
poderato grauitat et ponderat aut premit
in rotas minores anteriores.



de pisse ane et le
pore habes. tractatū
meuz sufitientez.

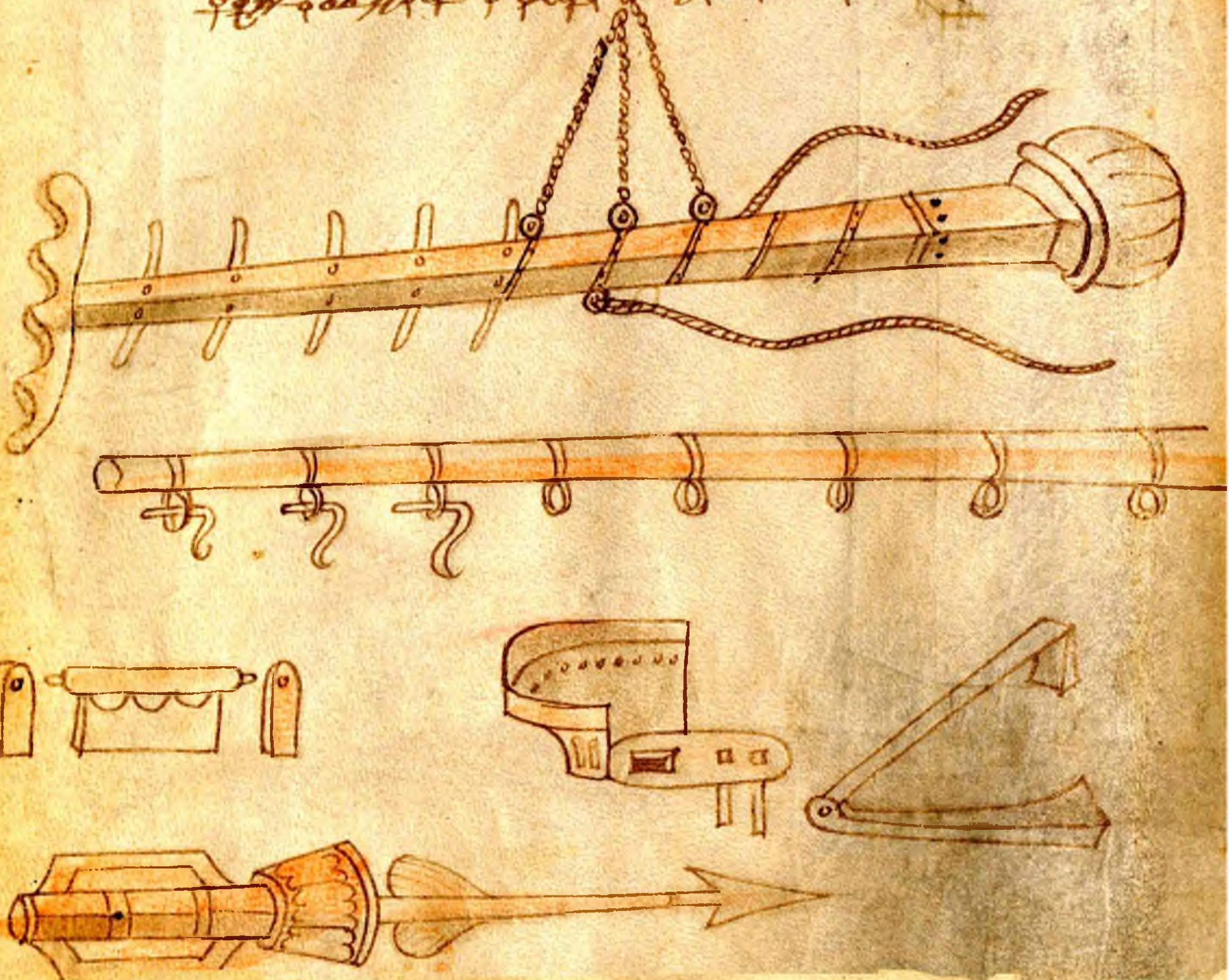
Navis bellica [illegible]

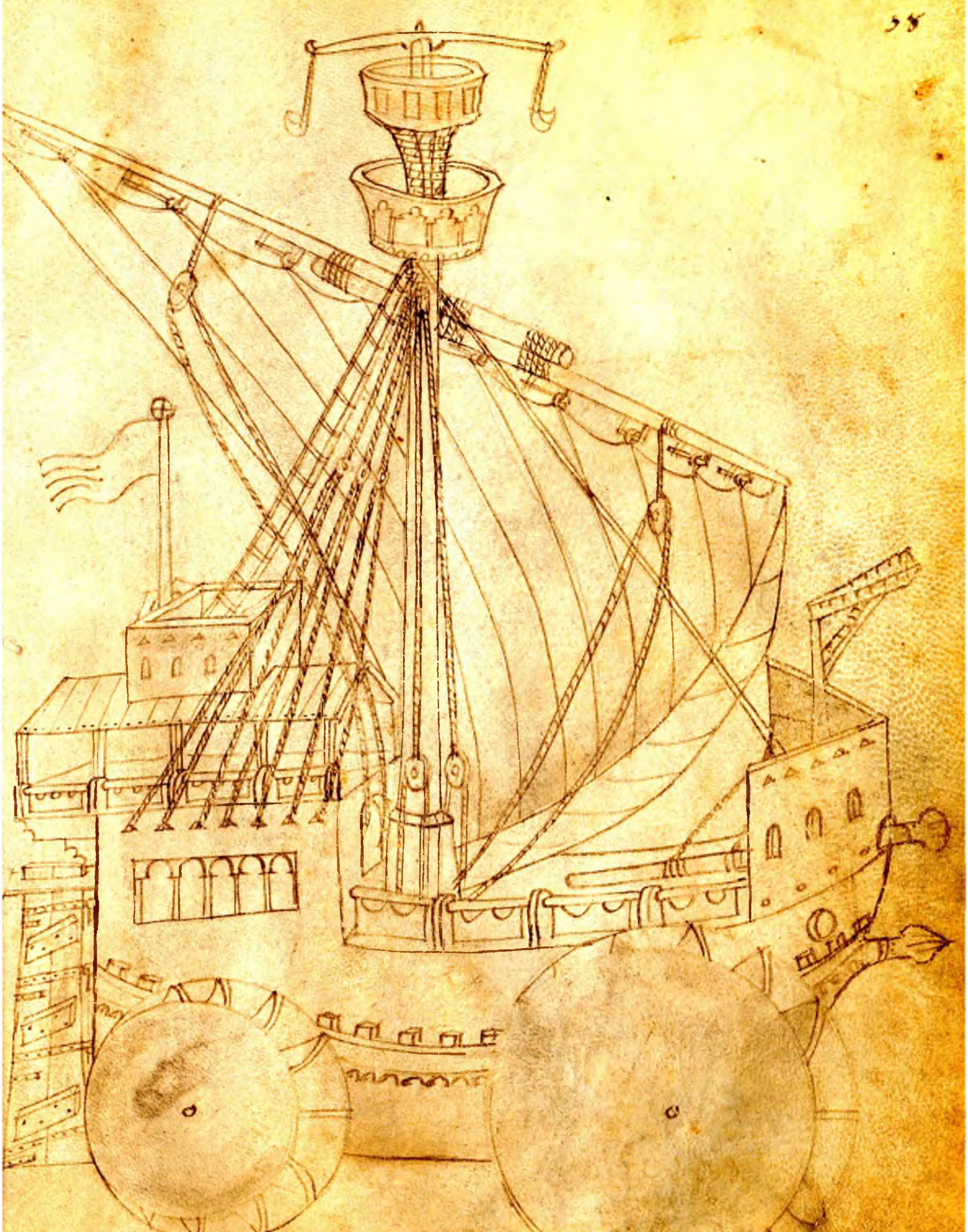
[illegible]

[illegible]

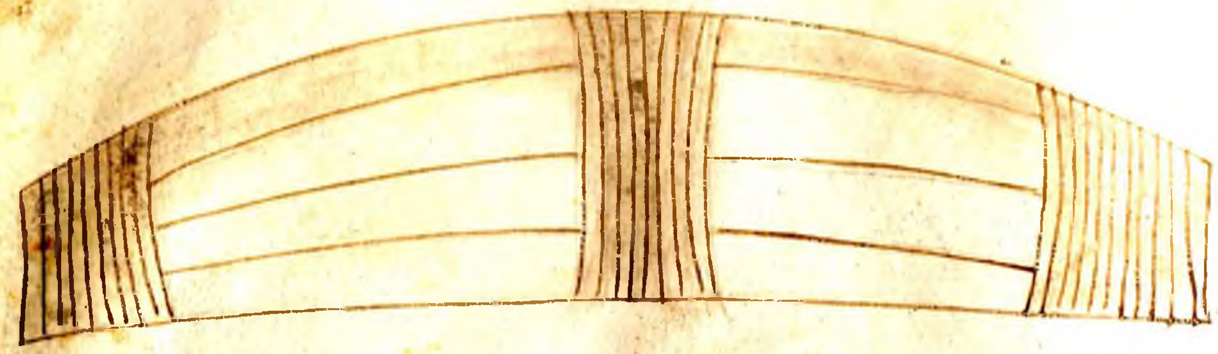
[illegible]

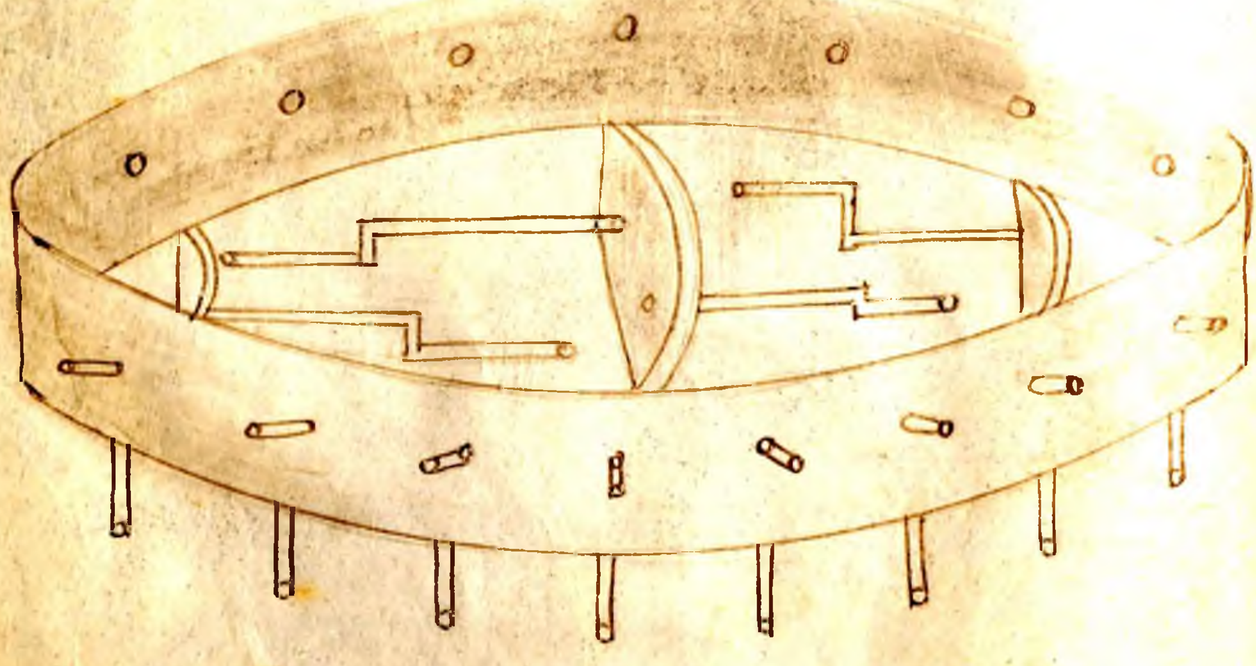
[illegible]

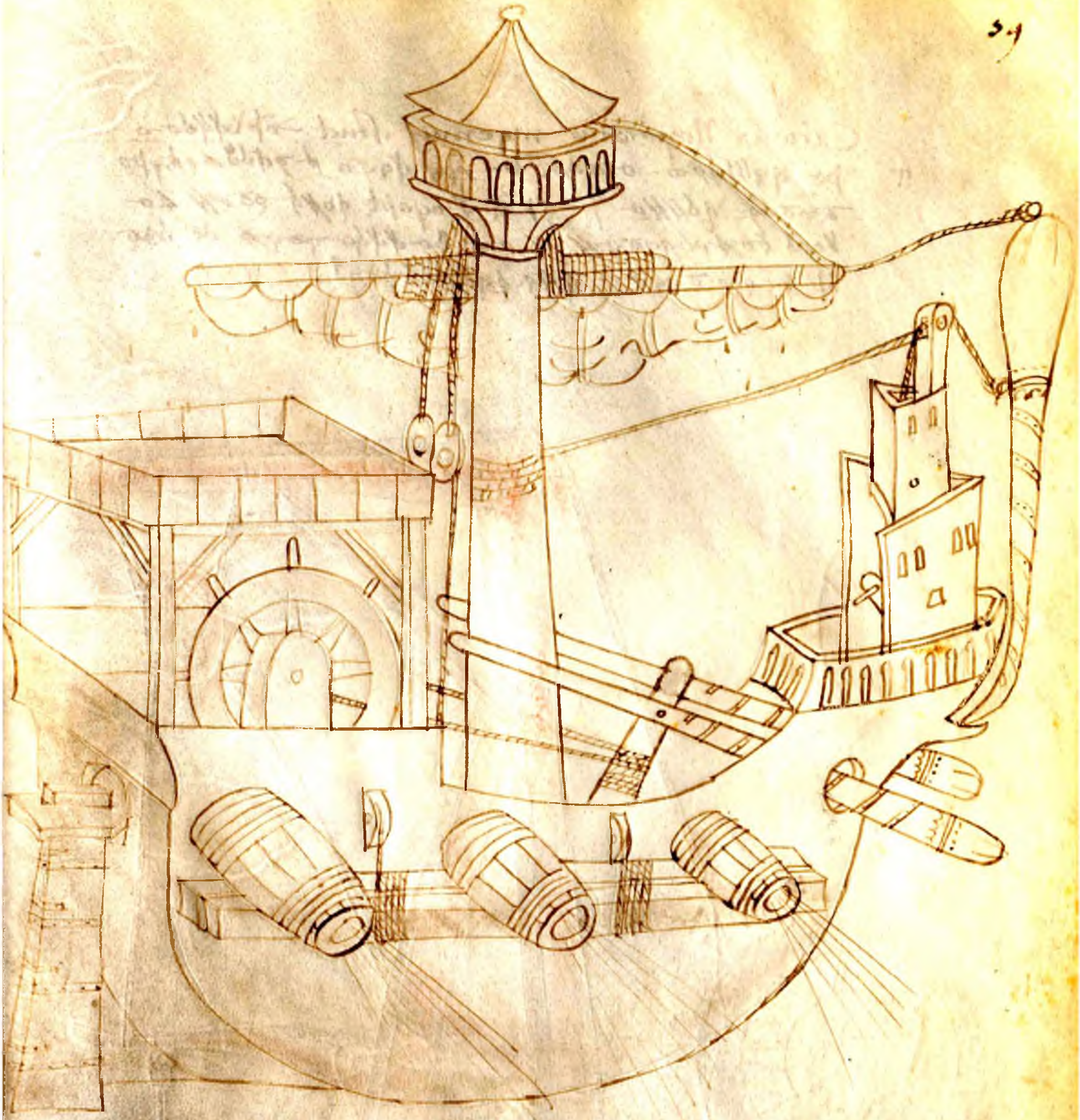




Nauigiuz belliuz et est diferens a priori veru ta
mez si exhis duobus unuz fiat exit ingeniuz mir
abile ualde ifactis prelij marium.







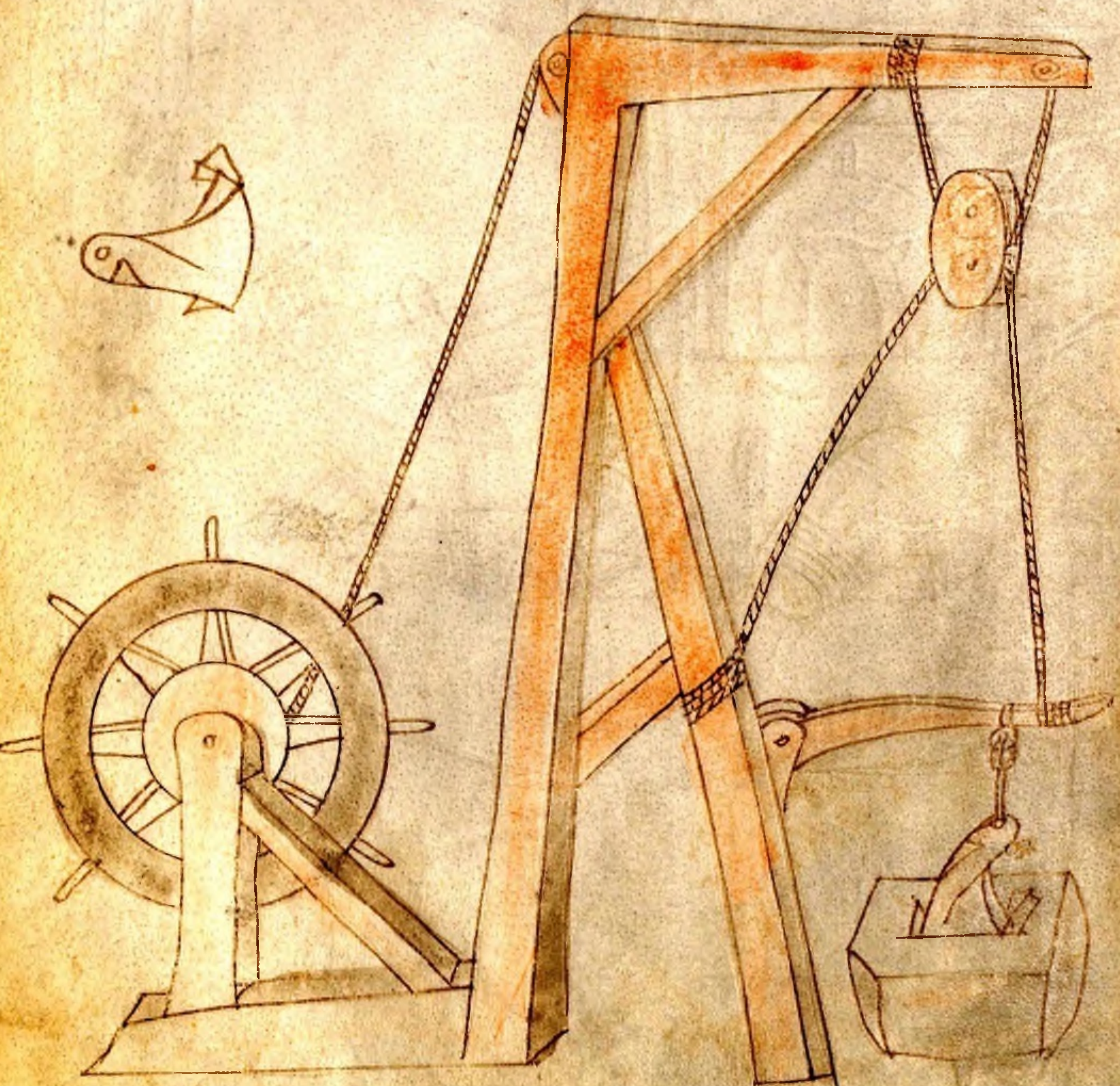
Ciconia Nominatur ingenium istud [illegible]

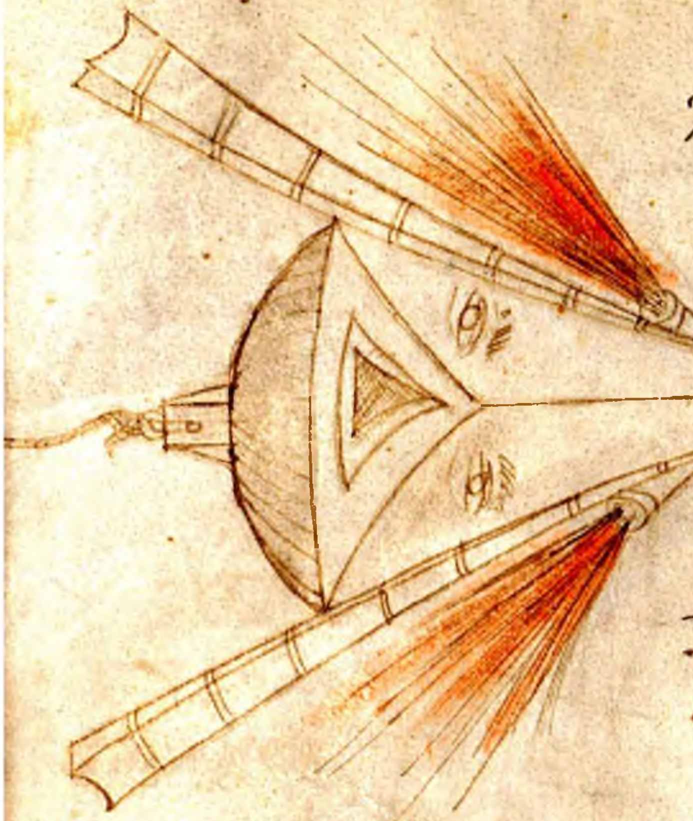
π [illegible]

[illegible]

[illegible]

[illegible]





Aquaticum igniferum quia ignis 3
per aquam defert. [illegible]
[illegible]

[illegible]

Templum sacre fabricabile cuius virtutis est ... [illegible cipher text]

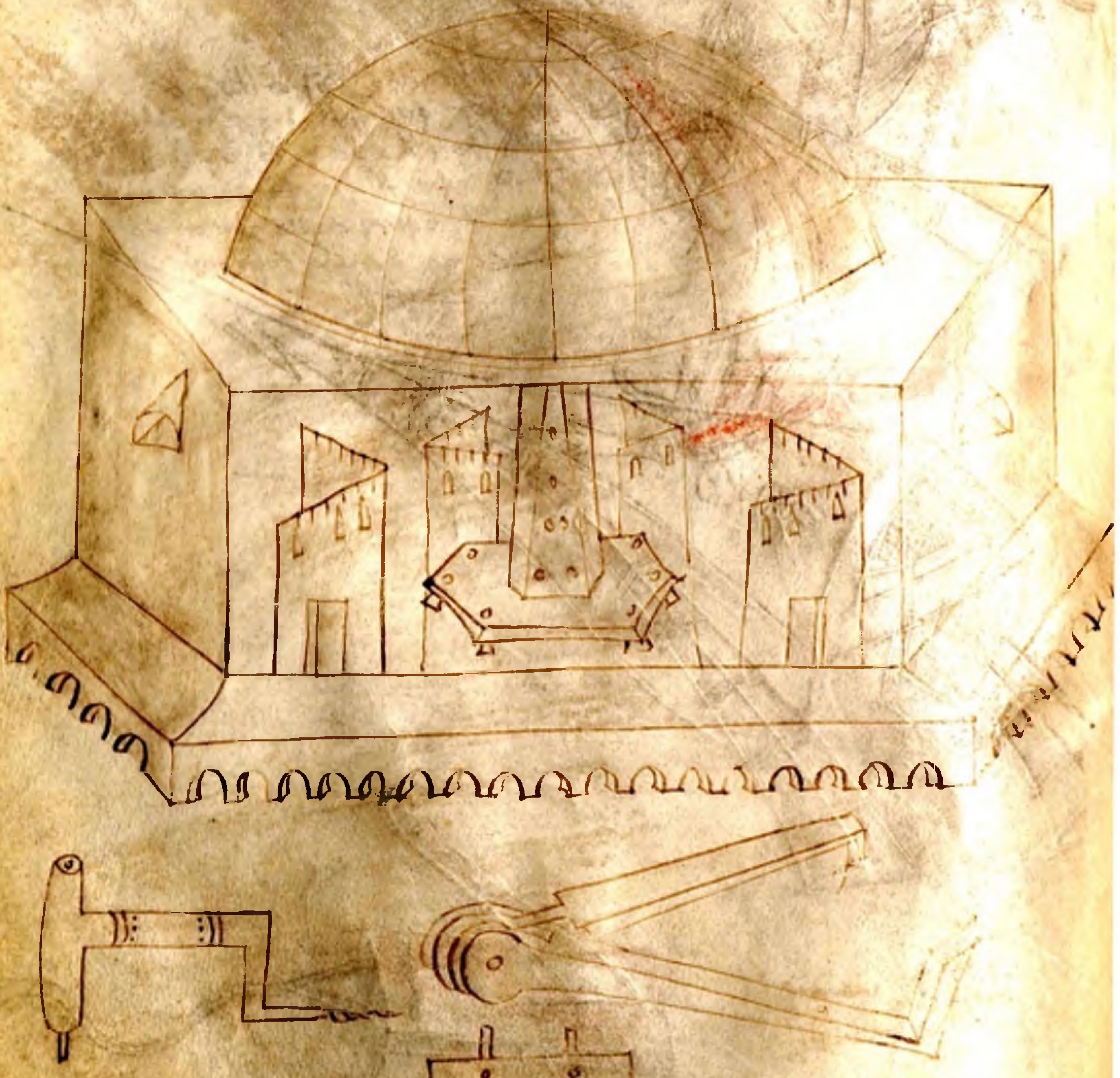
[illegible cipher text]

[illegible cipher text]

[illegible cipher text]

[illegible cipher text]

[illegible cipher text]



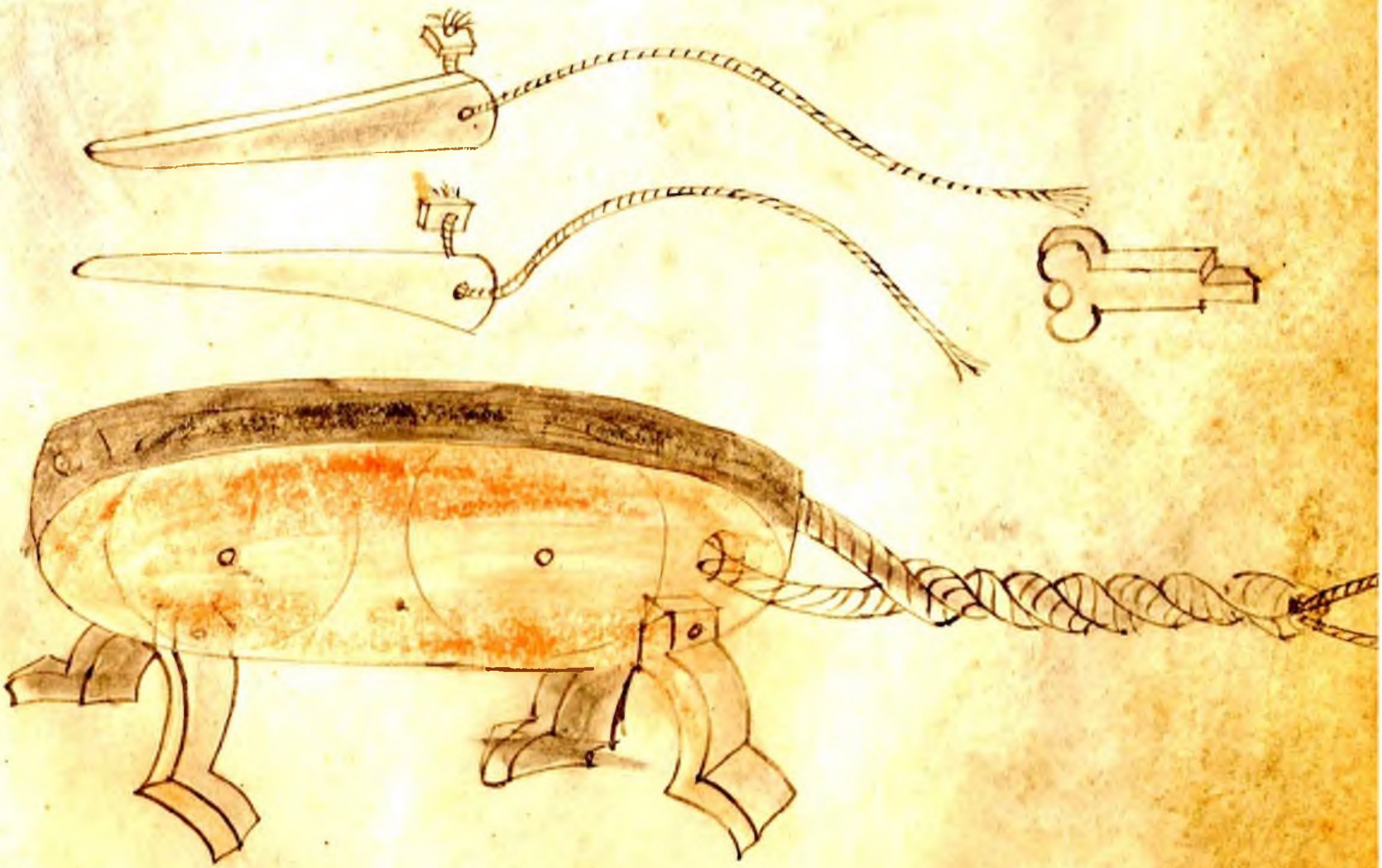
Puella aliax magistra ĩ toto opere lmcentias fabricata duplici rotella trahit in ea proportione qua se habet ad alias precisa sibi ĩmediatas manẽte eadez potentia per sonaruz :-

[illegible]

[illegible]

[illegible]

[illegible]

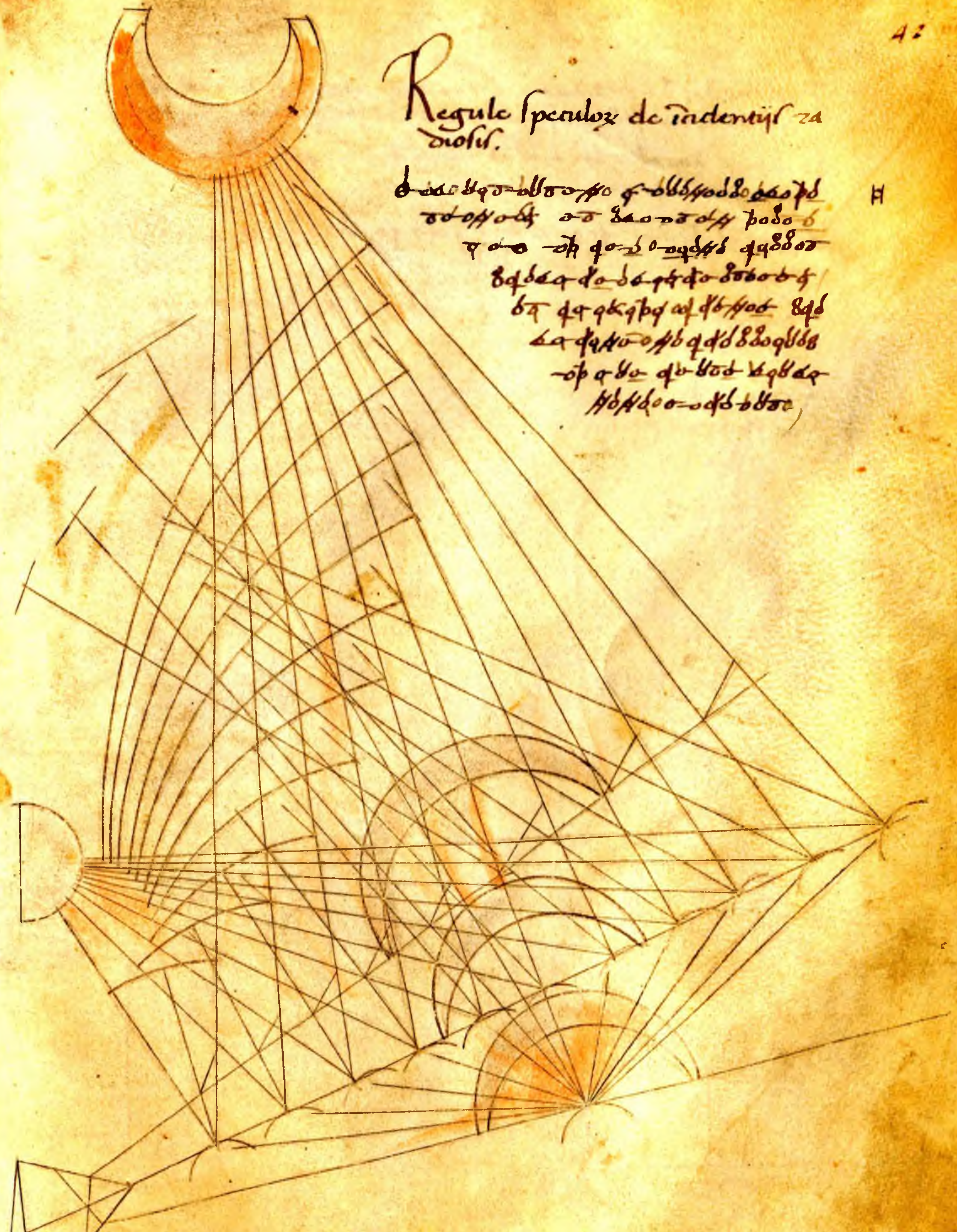


Speculuz ingeniosuz et admirabile. [illegible]

[illegible]

Regule speculorum de incidentiis radiosis.

[illegible]



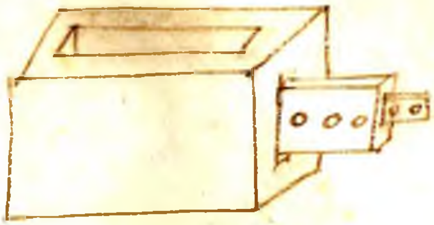
[illegible]

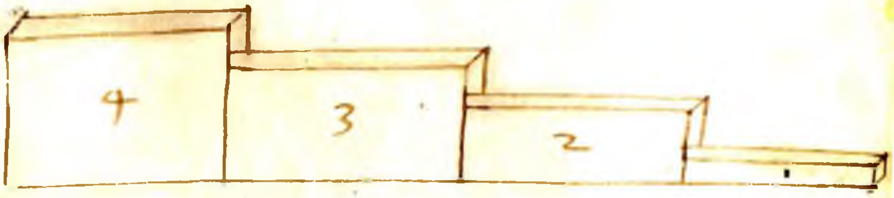
[illegible]

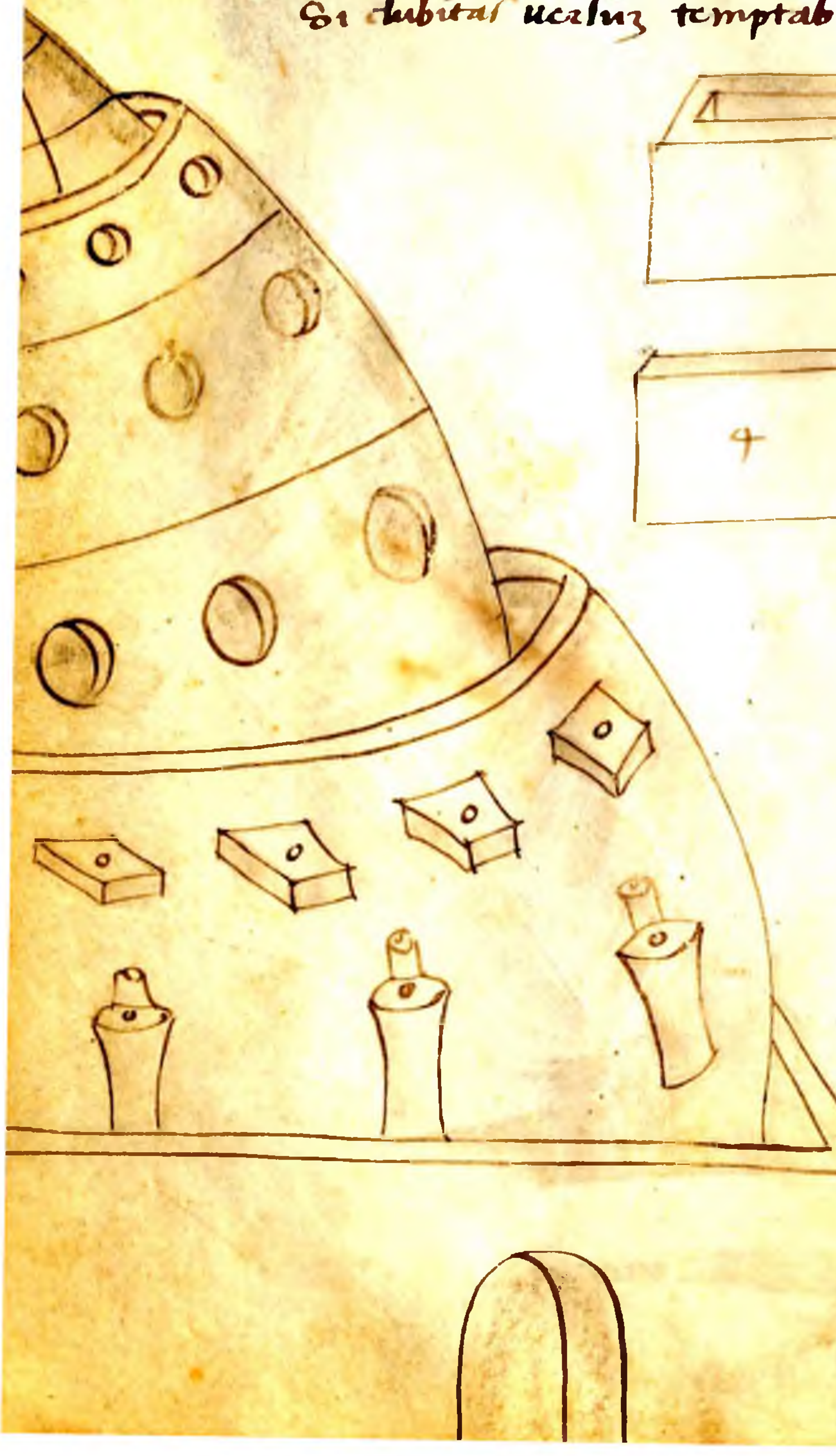
[illegible]

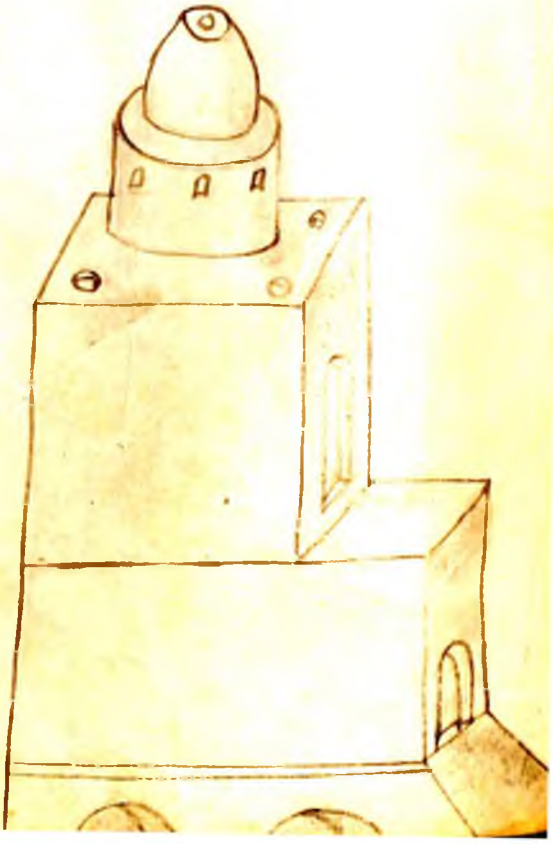
[illegible]

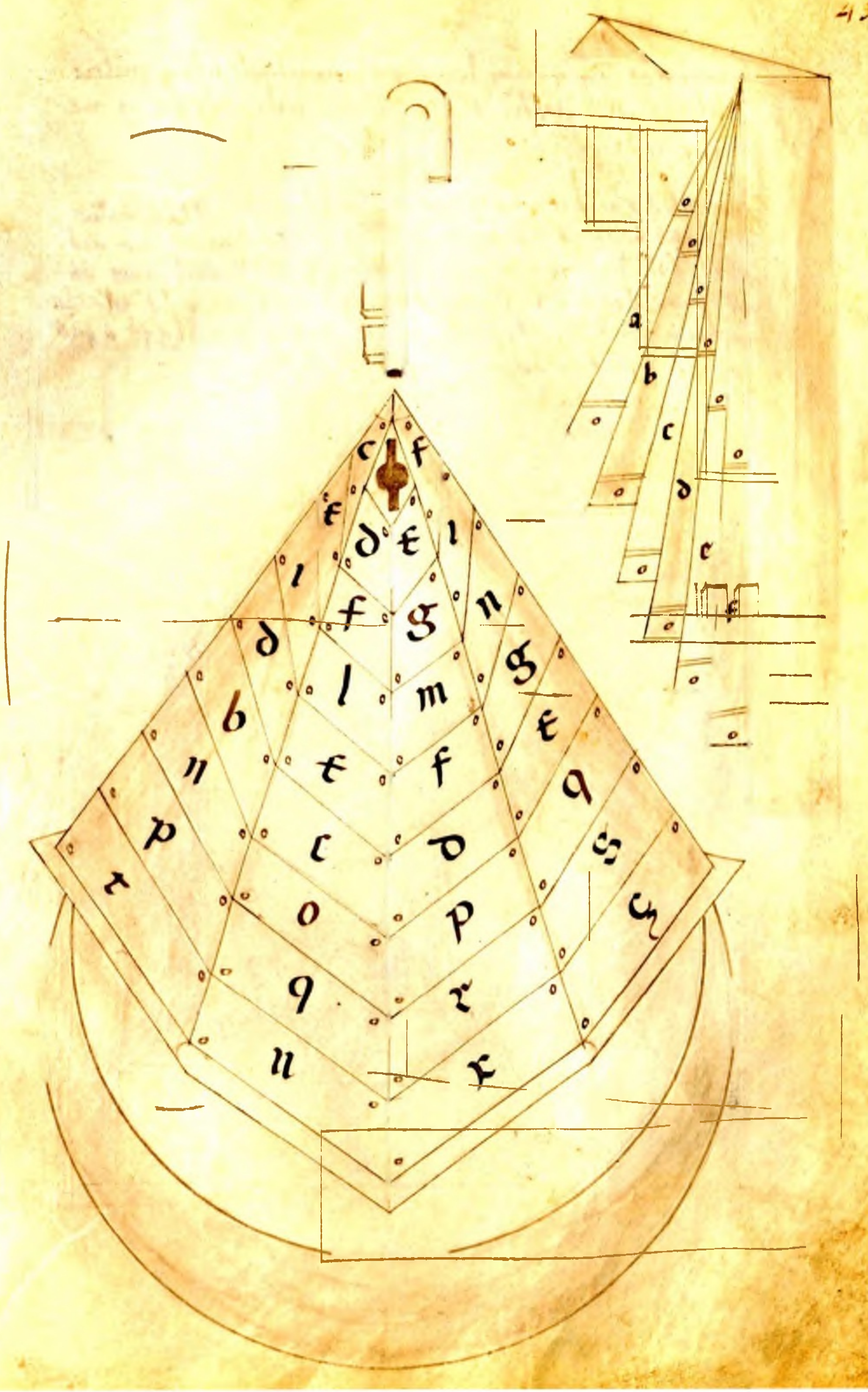
Fratar. bonome. bona. cus. amitidib[t]. seb.
Si dubitas uersuz temptabis per vniuersuz





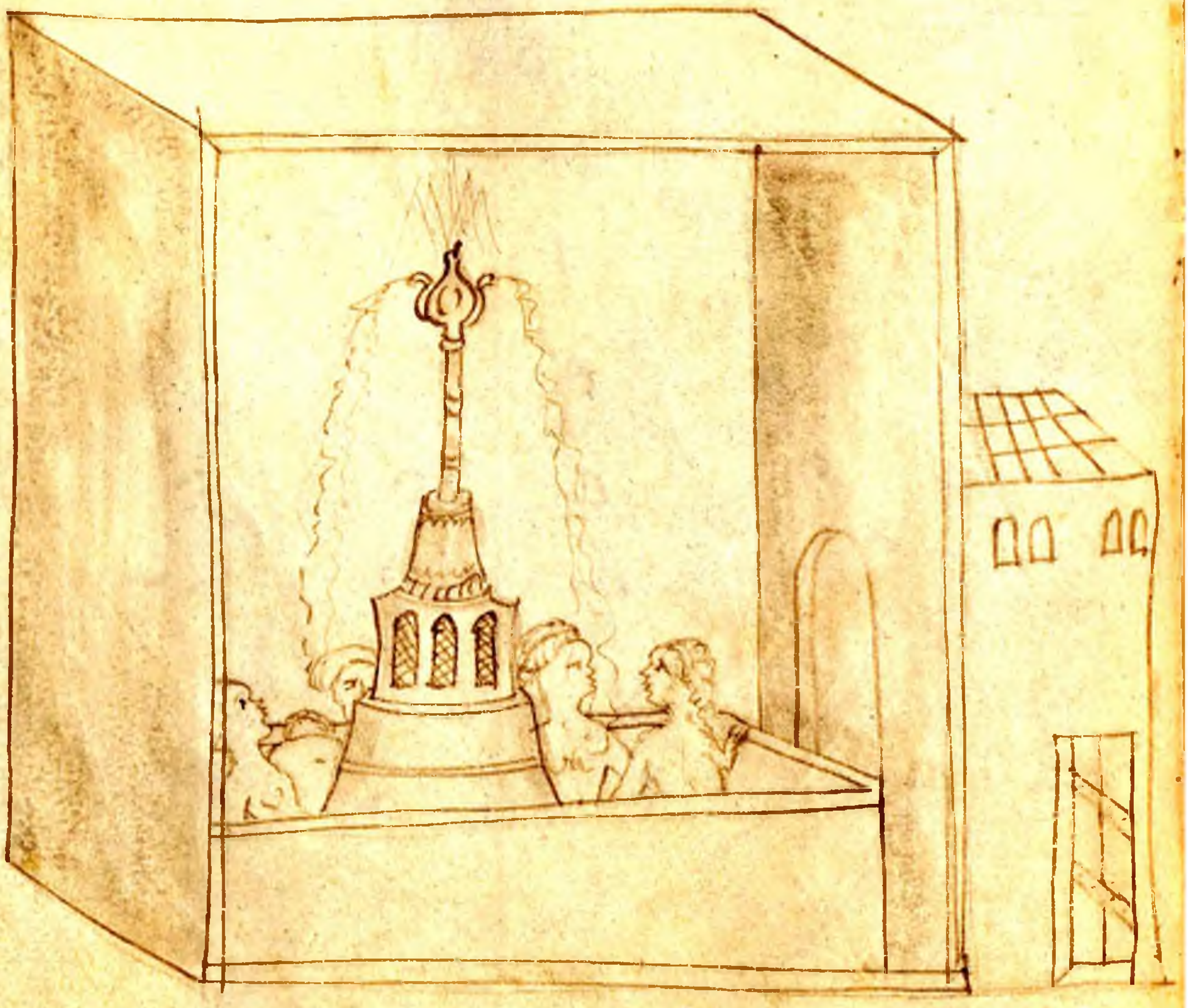


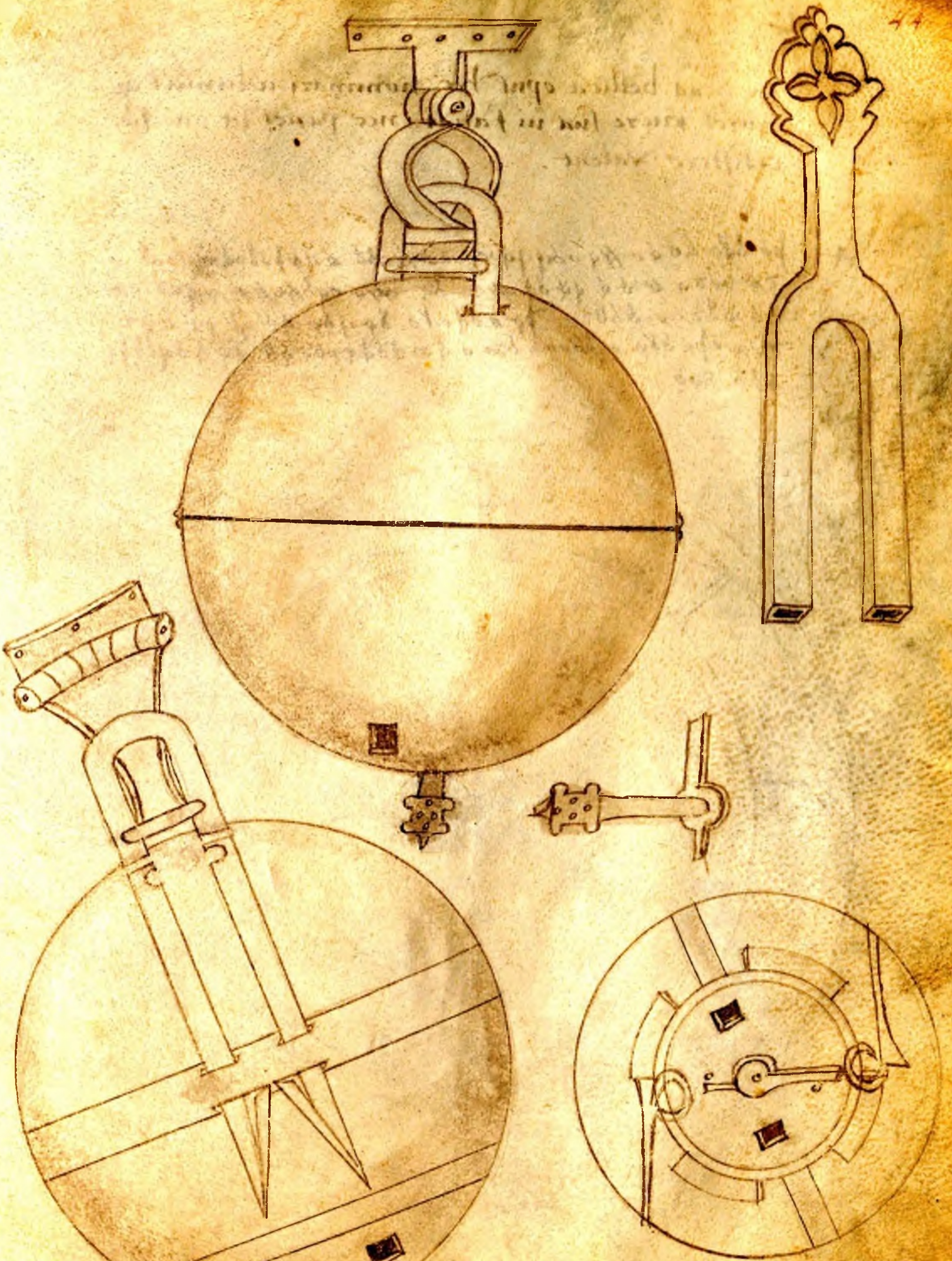




Fons virginum levis fabrice sed mire pulcritudinis est. possunt i[n] eo puelle balneari et a nemine videri.

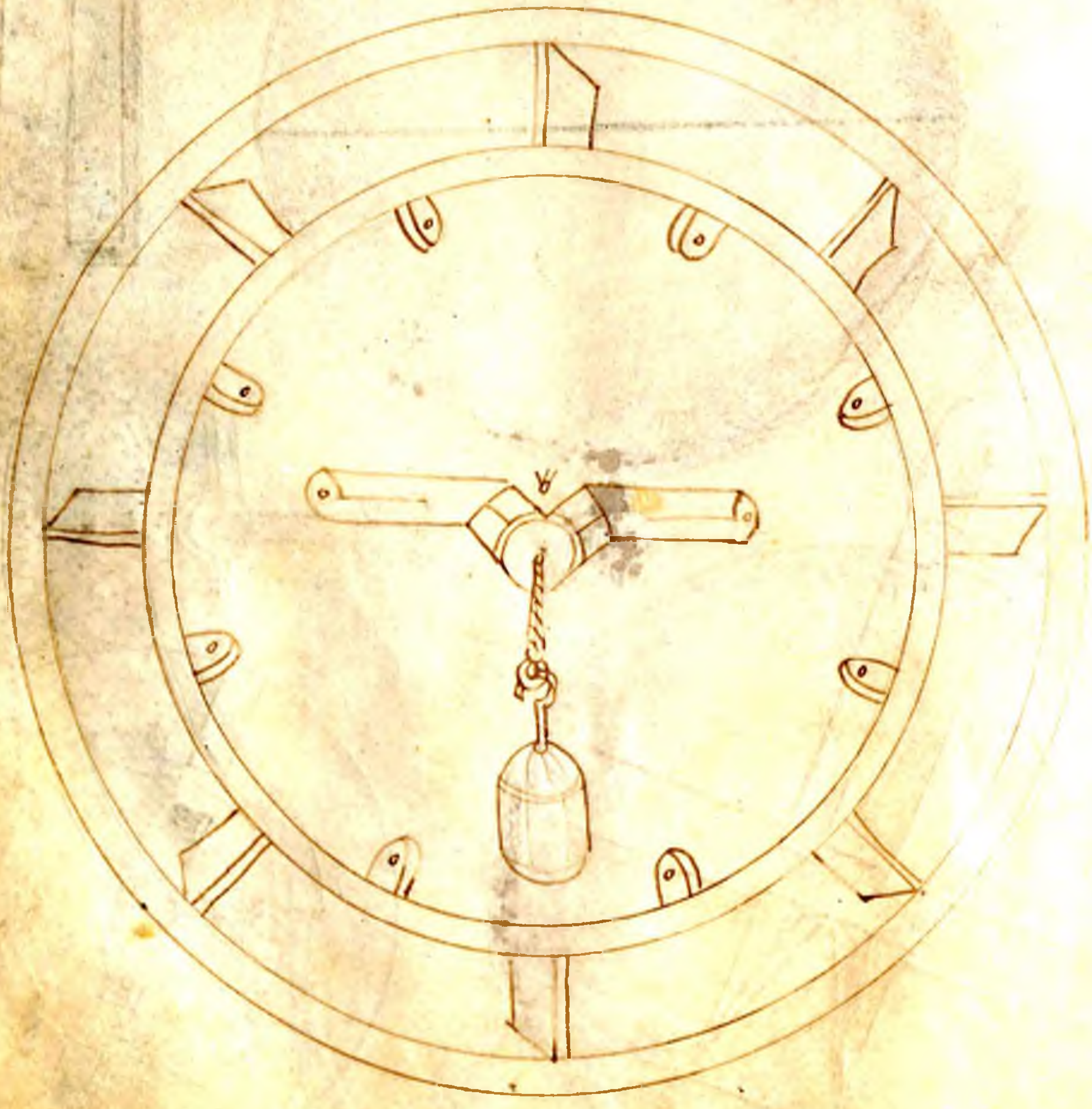
A [illegible]

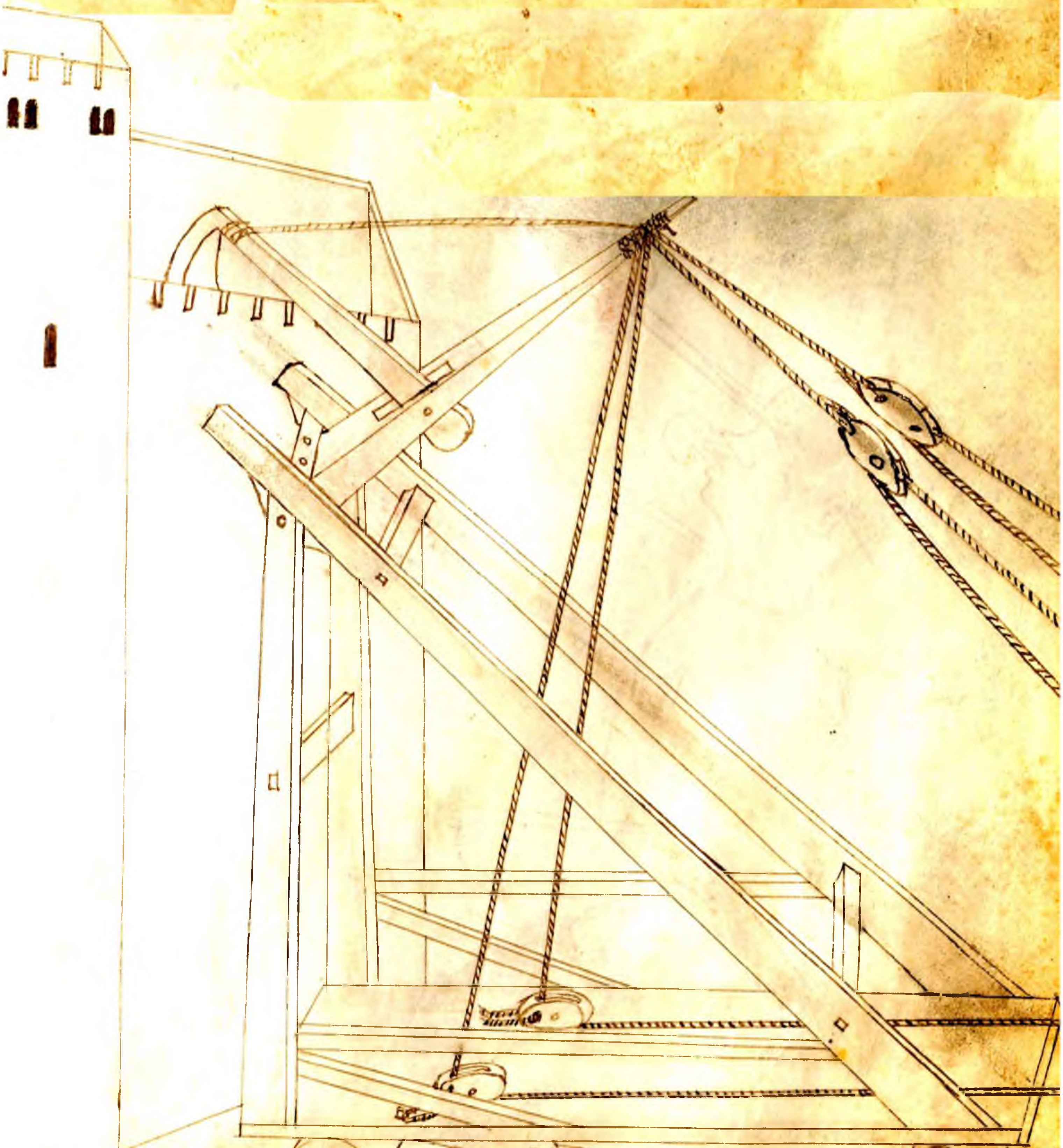




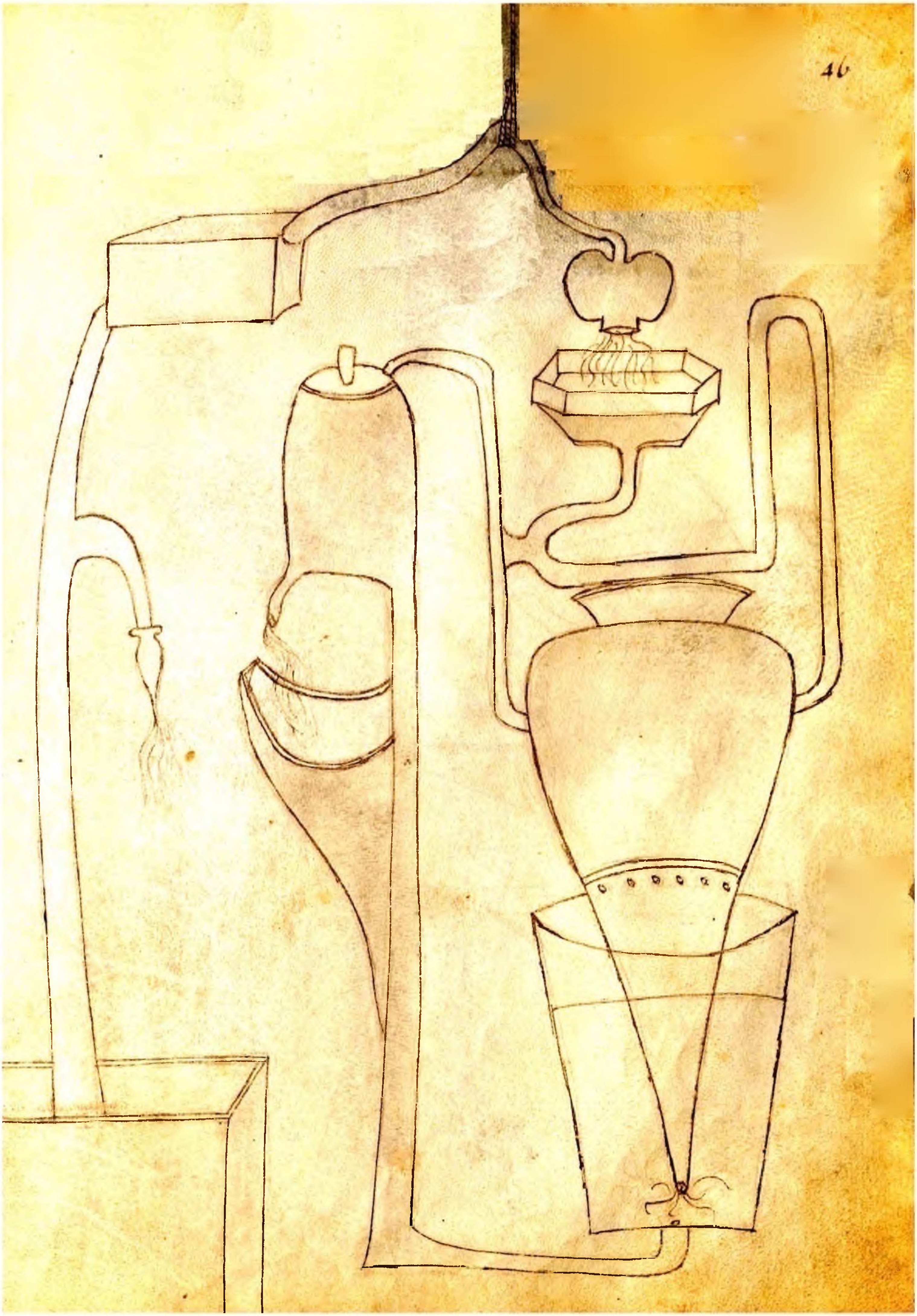
Ruina bellica opus hoc nominari uolumus qz
m muros ruere sua ui faciat nec paries sit que sibi
resistere valeat.

4 [illegible]

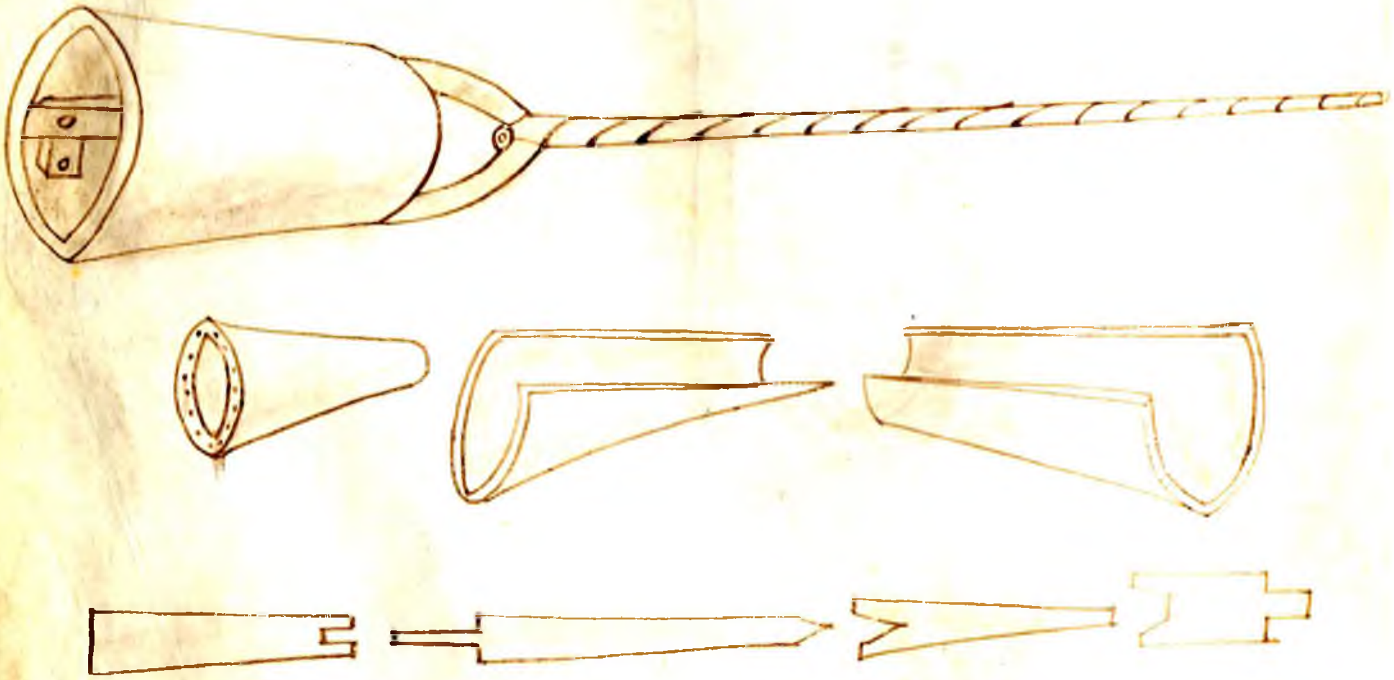


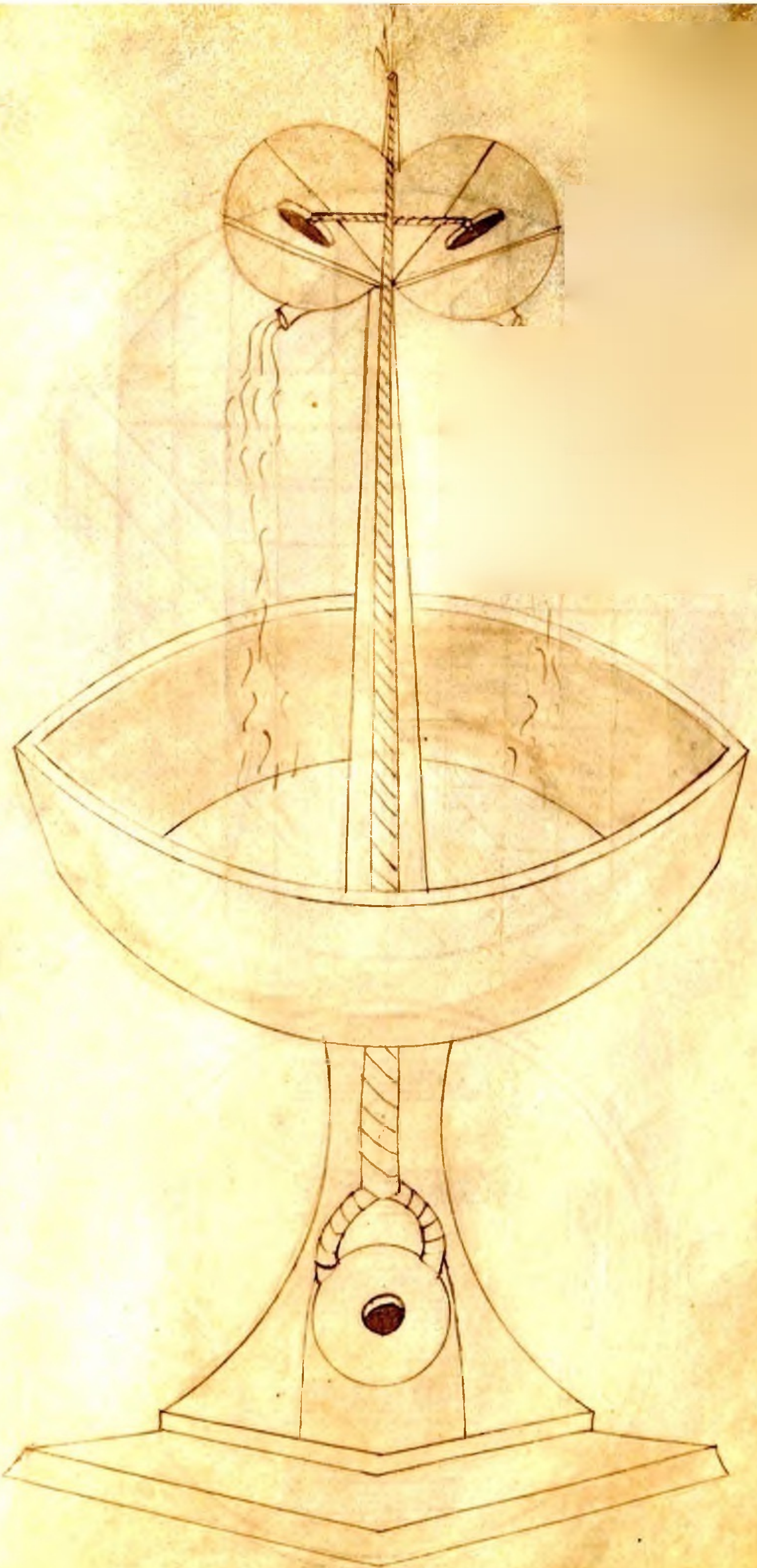


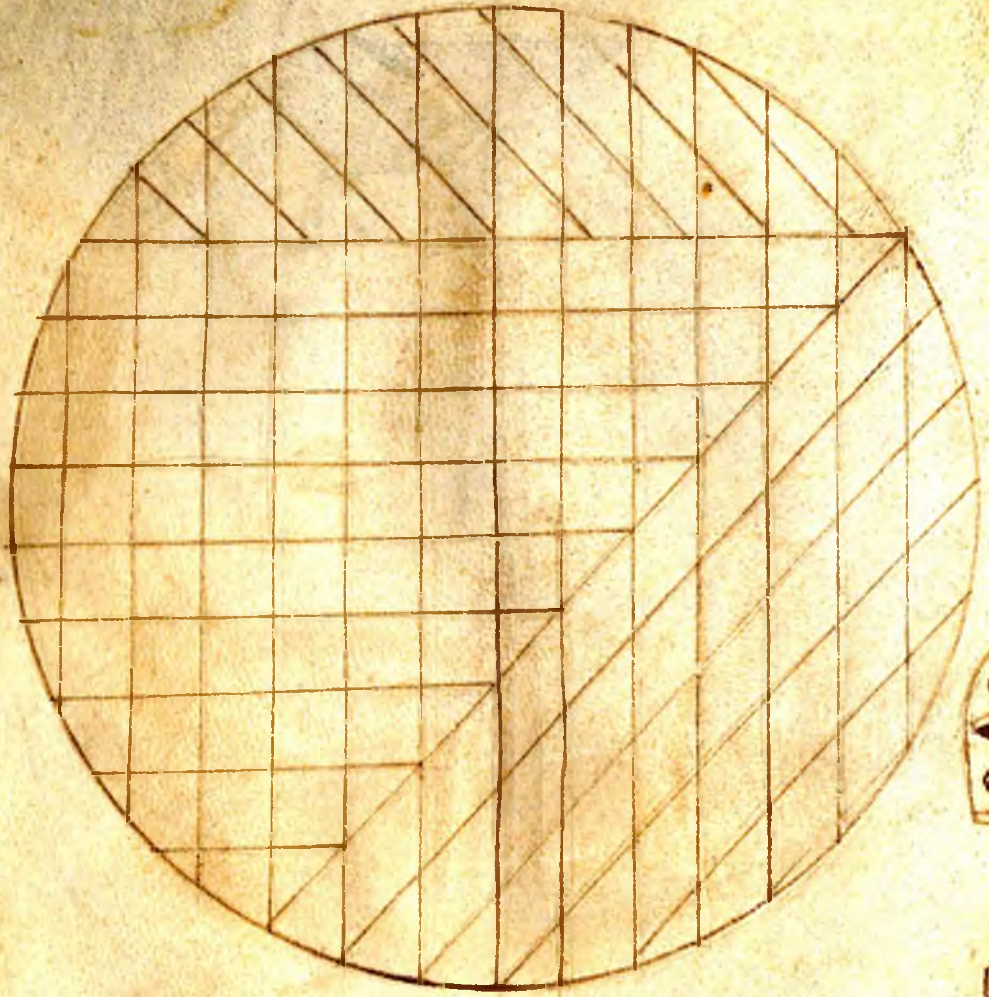
[illegible]

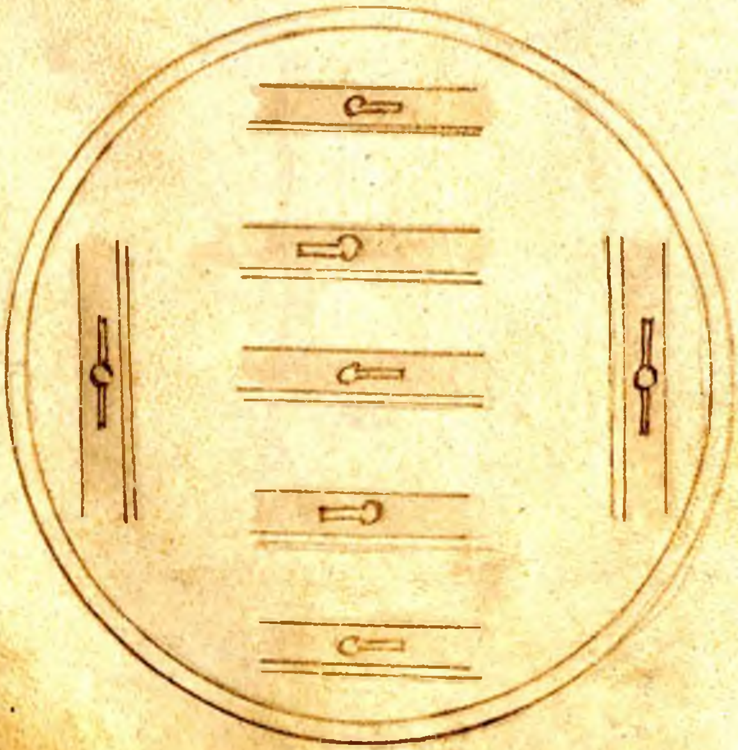


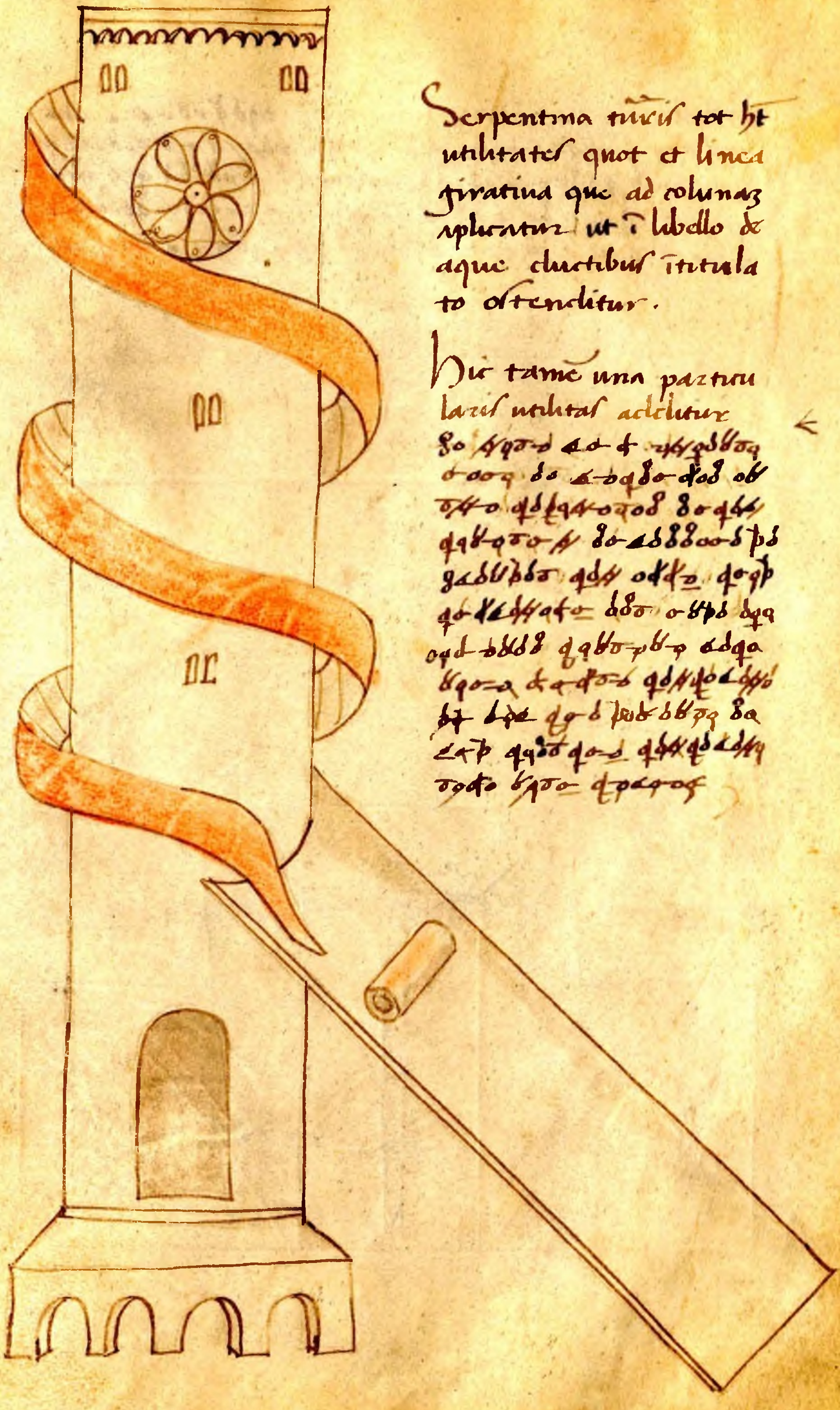
Fontes allemanichi dicuntur qui hic figurantur.
ille qui antescriptus est trahit aquam / qui vero
sequitur expellit. ingenium vero totum ab ipso de
scribitur. quare cum hoc quasi per se etiam pateat me
brevius fatio.









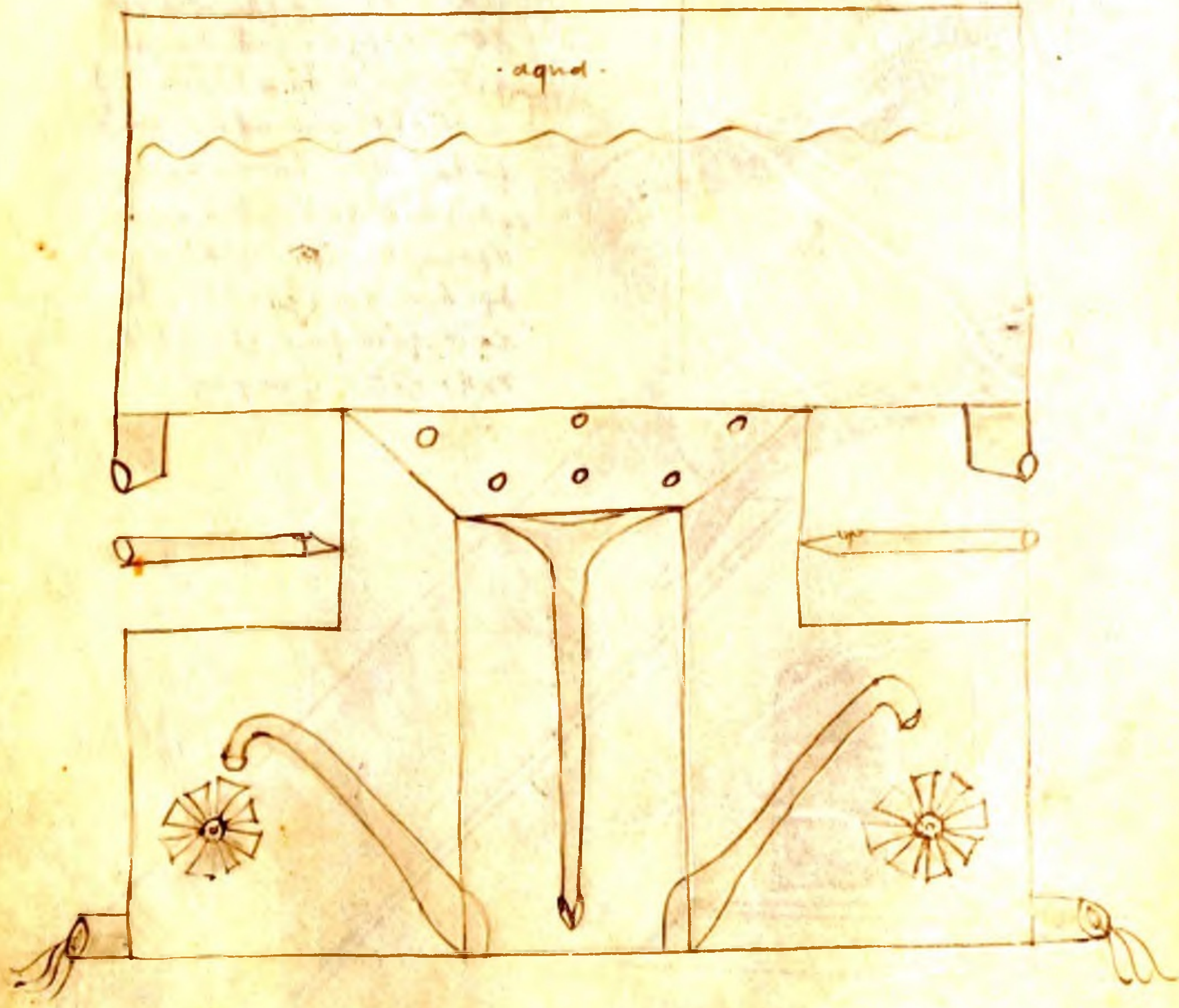


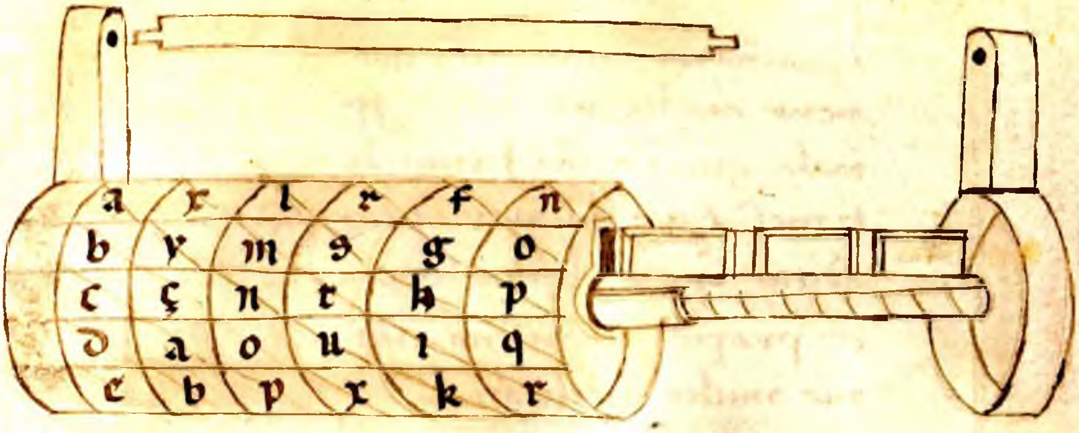
Serpentina turris tot ht
utilitates quot et linea
giratiua que ad colunaz
aplicatur ut ĩ libello de
aque ductibus ĩtitula
to ostenditur.

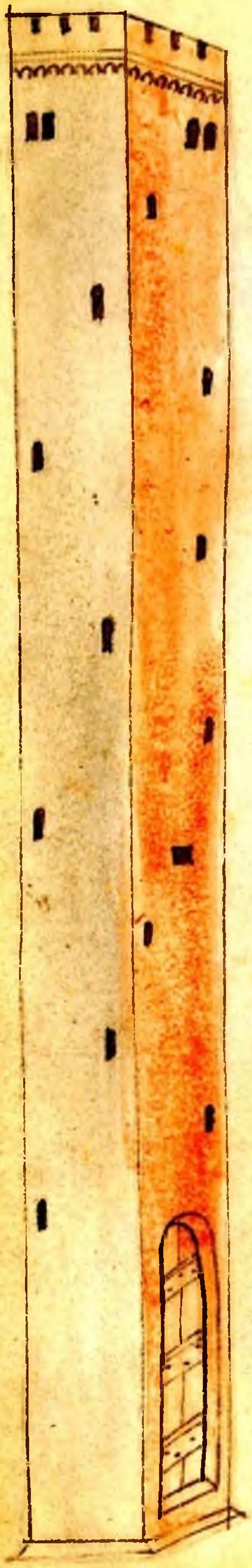
Hic tamē una particu
lares utilitas adcditur

[illegible]

t. fistularum aquaticarum sonorosum [illegible]
[illegible]
[illegible]
[illegible]
[illegible]

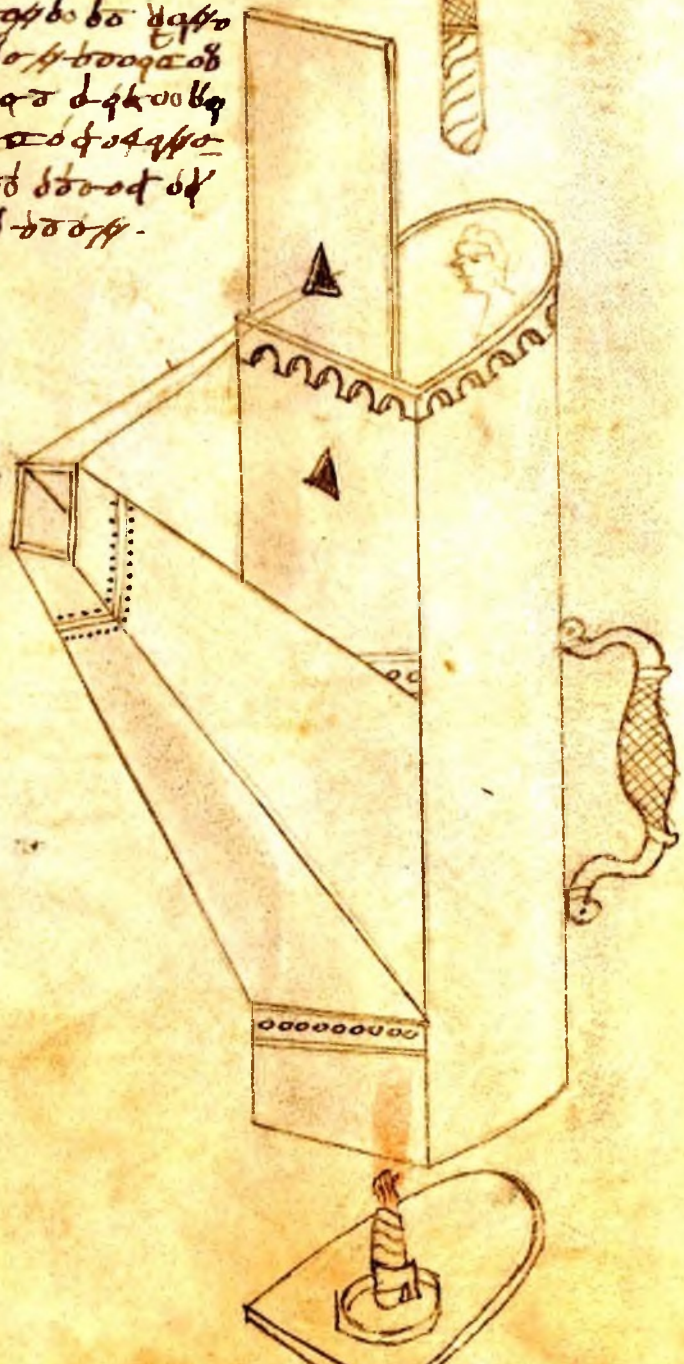



a x l r f n
b y m s g o
c ç n t h p
d a o u i q
e b p x k r

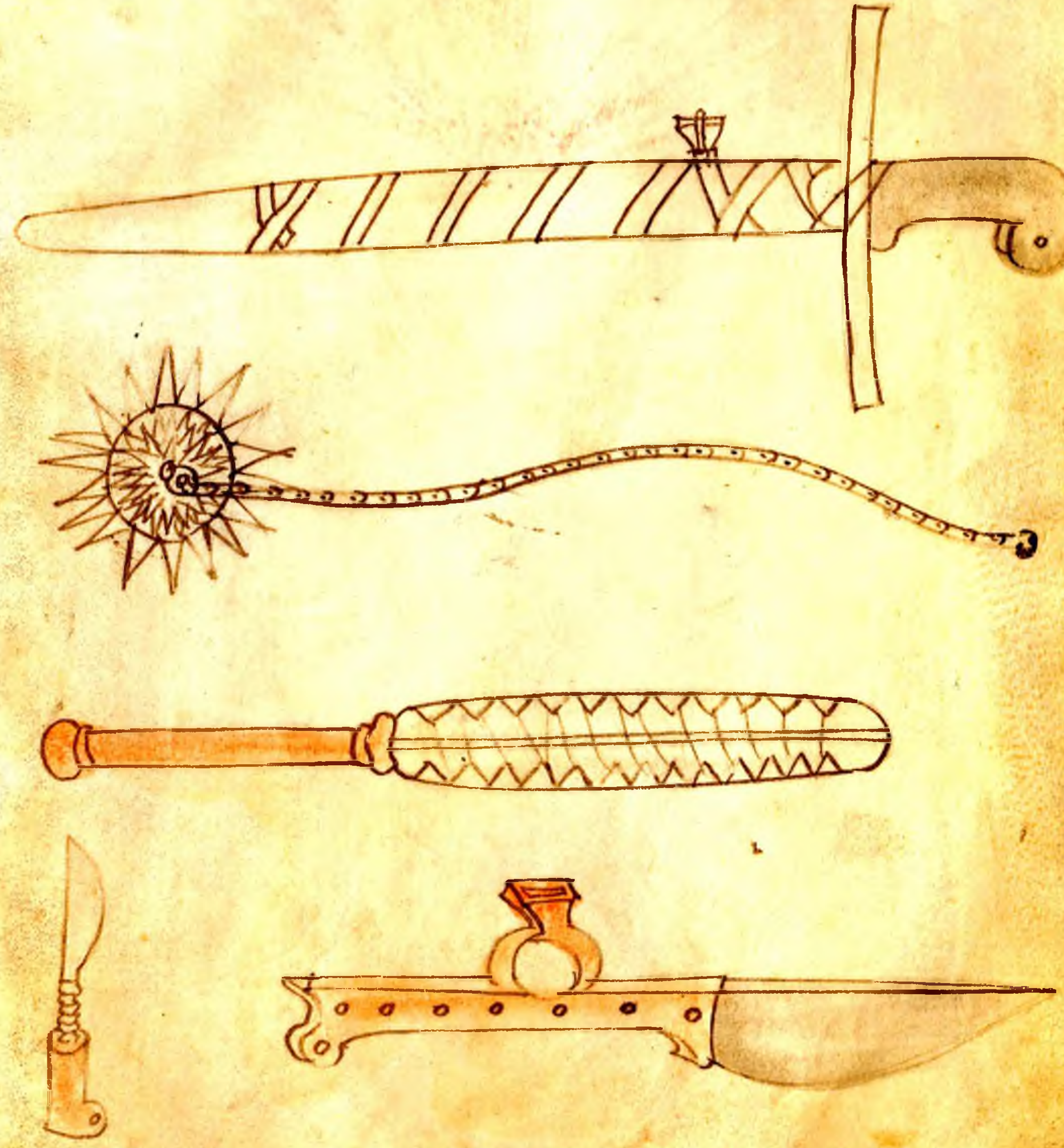


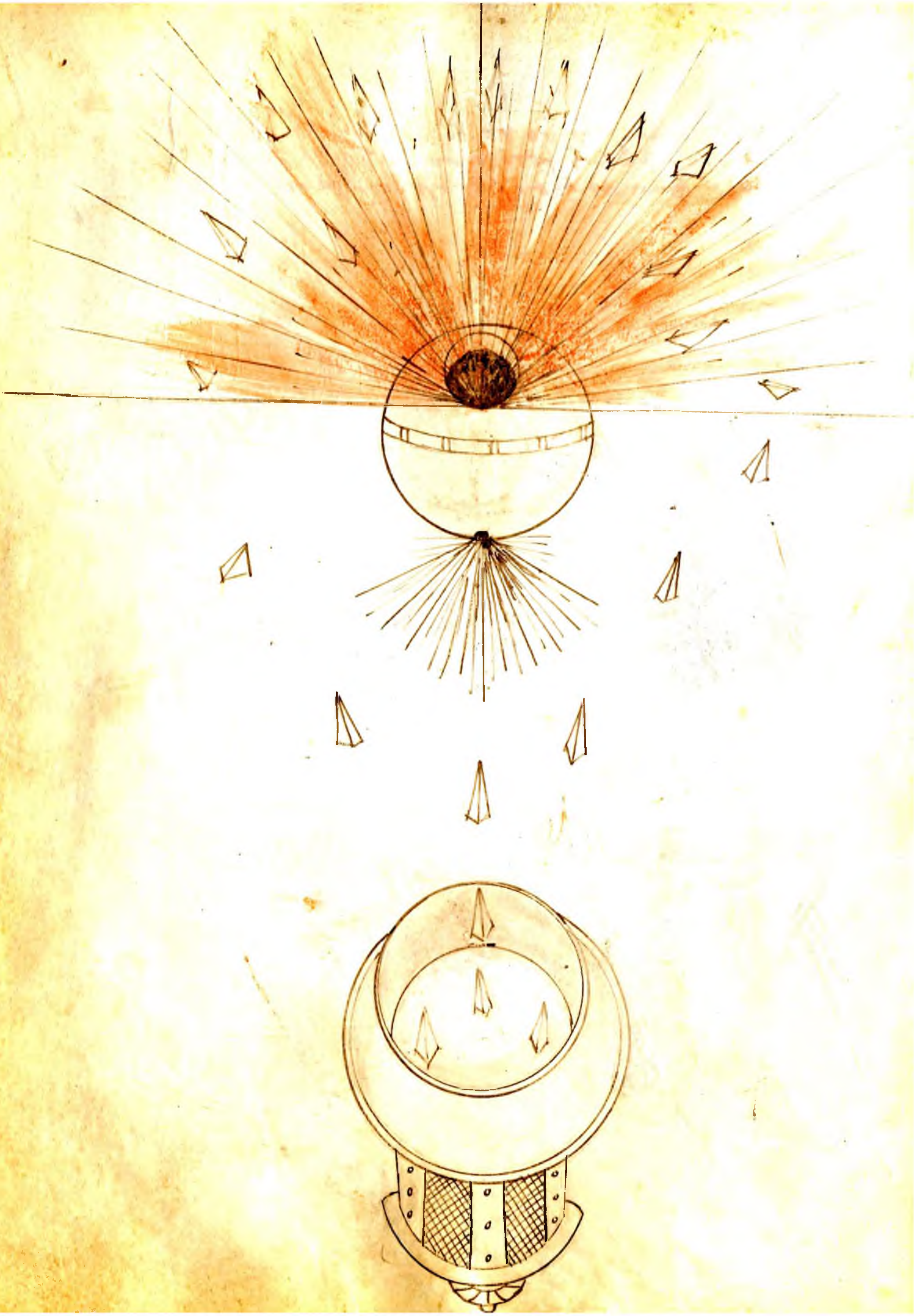
Luminariu[m] nocturnu[m] quo nemo anglic uti potest pp mala que cu[m] illo faciunt latrones. Ego u[er]o parua cu[m] aditio ipz ad bellica opera et propie nocturna inuenio multe utilitatis.

A [illegible]

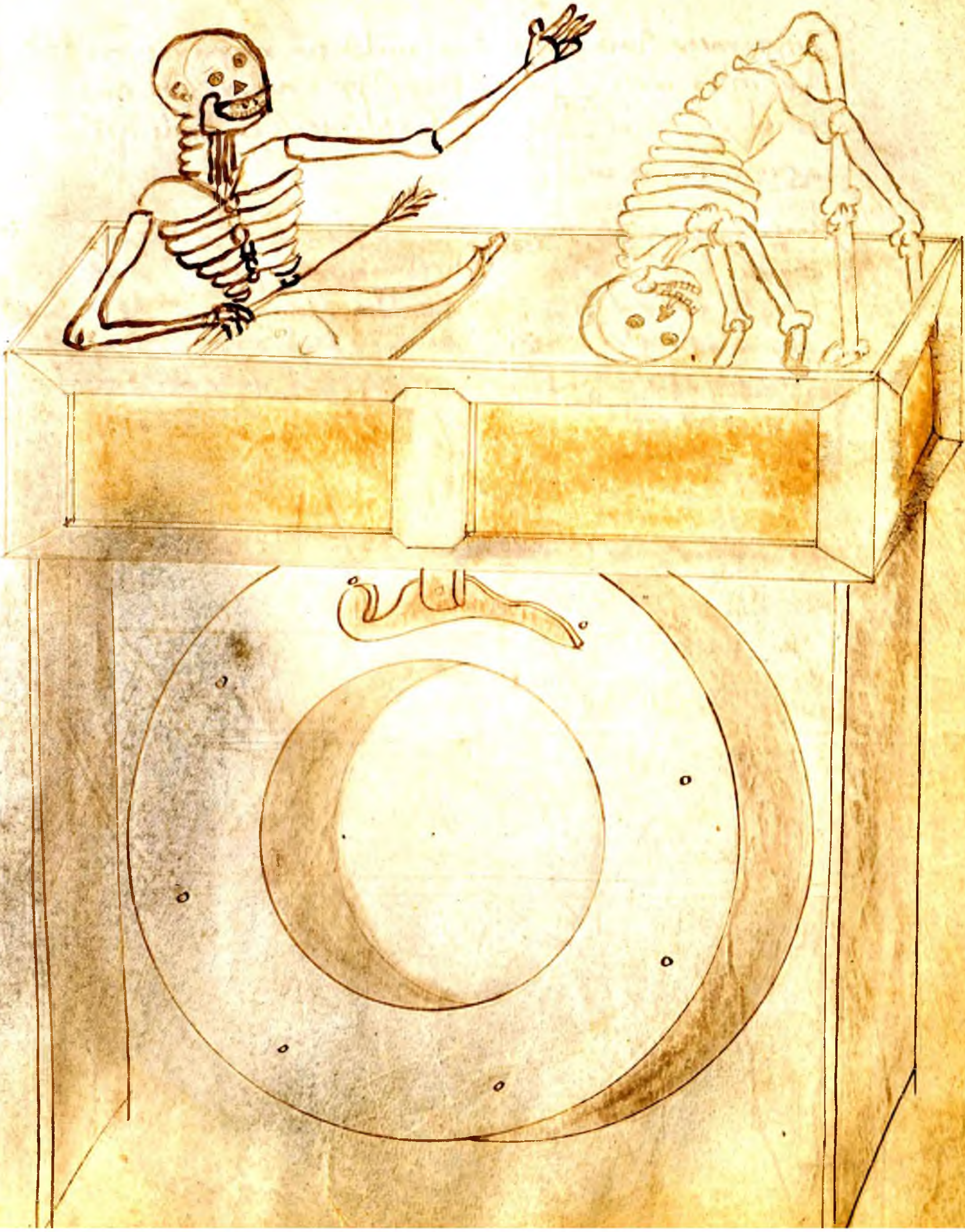


[illegible]
[illegible]
[illegible]





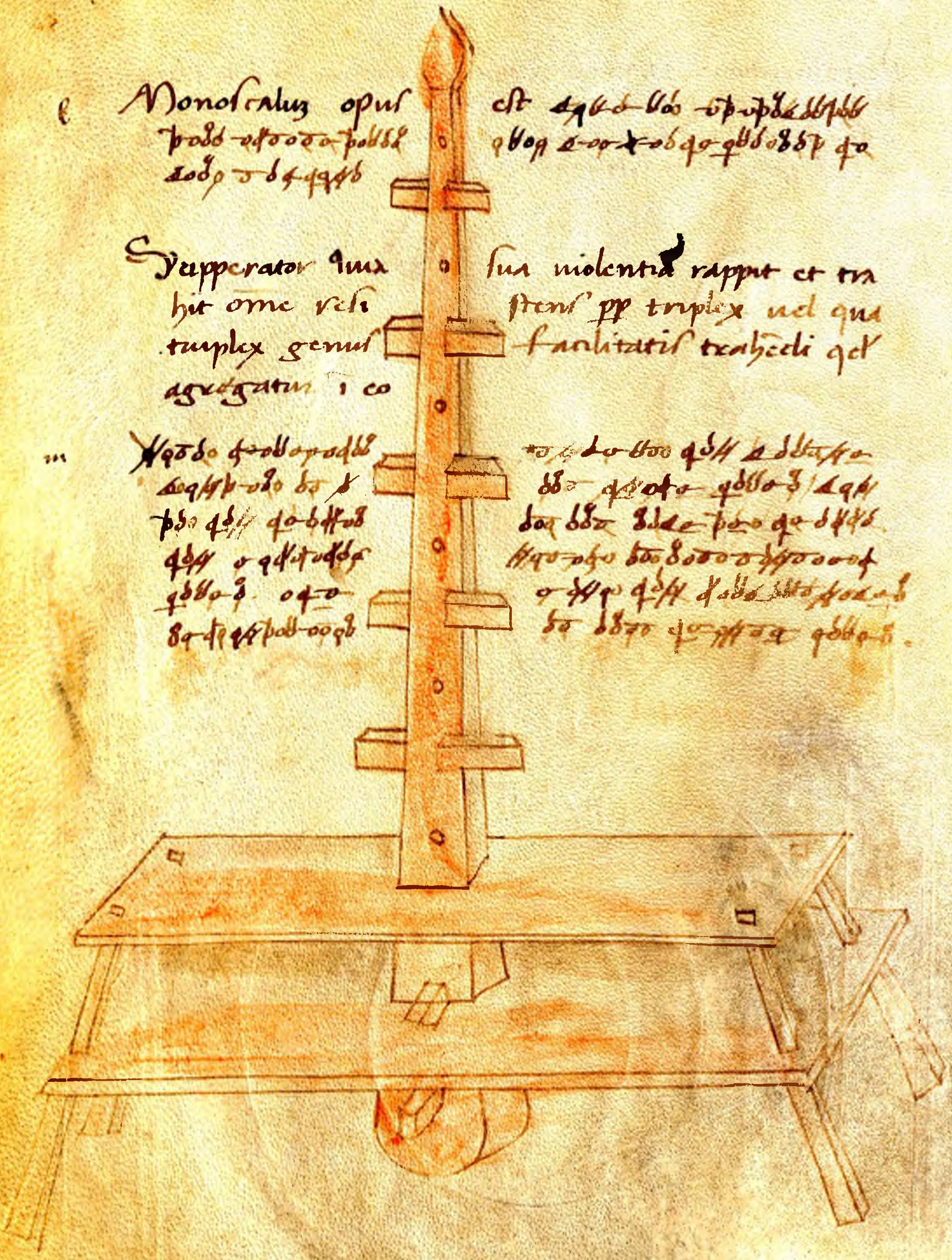
De resurrectione Mortuorum artifitiosa [illegible]

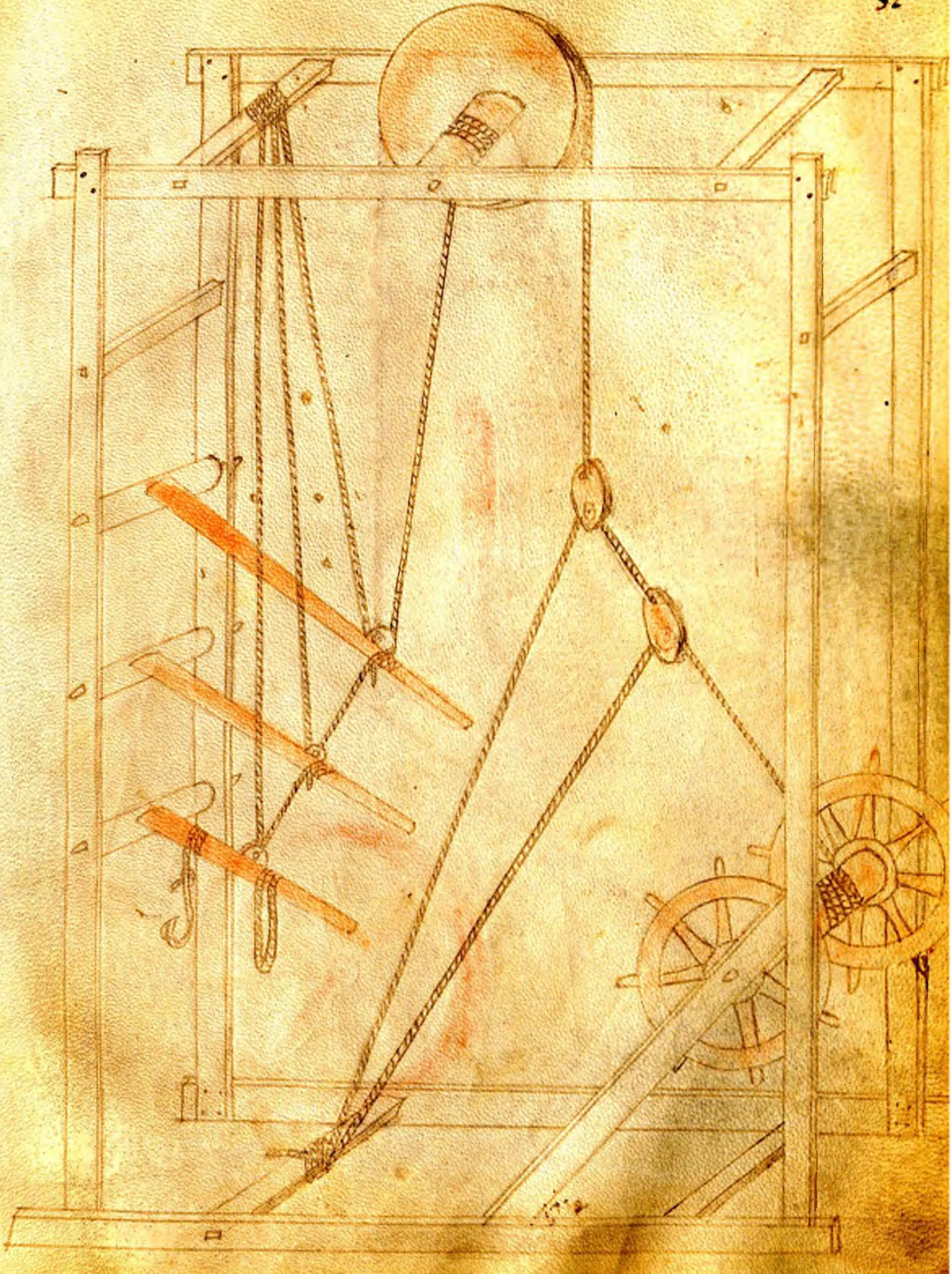


Monoscaluz opus est [illegible]
[illegible]
[illegible]

Superator quia sua violentia rappit et tra
hit omne veli stens pp triplex vel qua
triplex genus facilitatis trahendi quod
agregatur i co

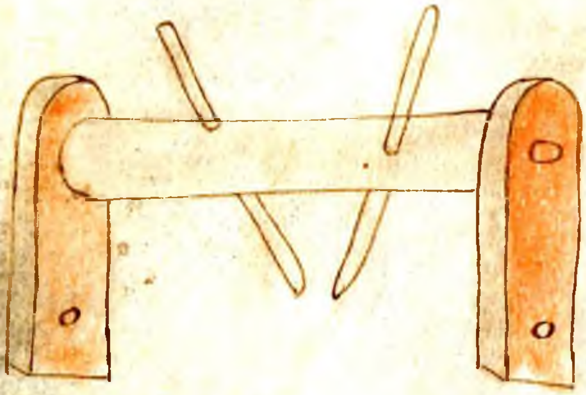
[illegible]

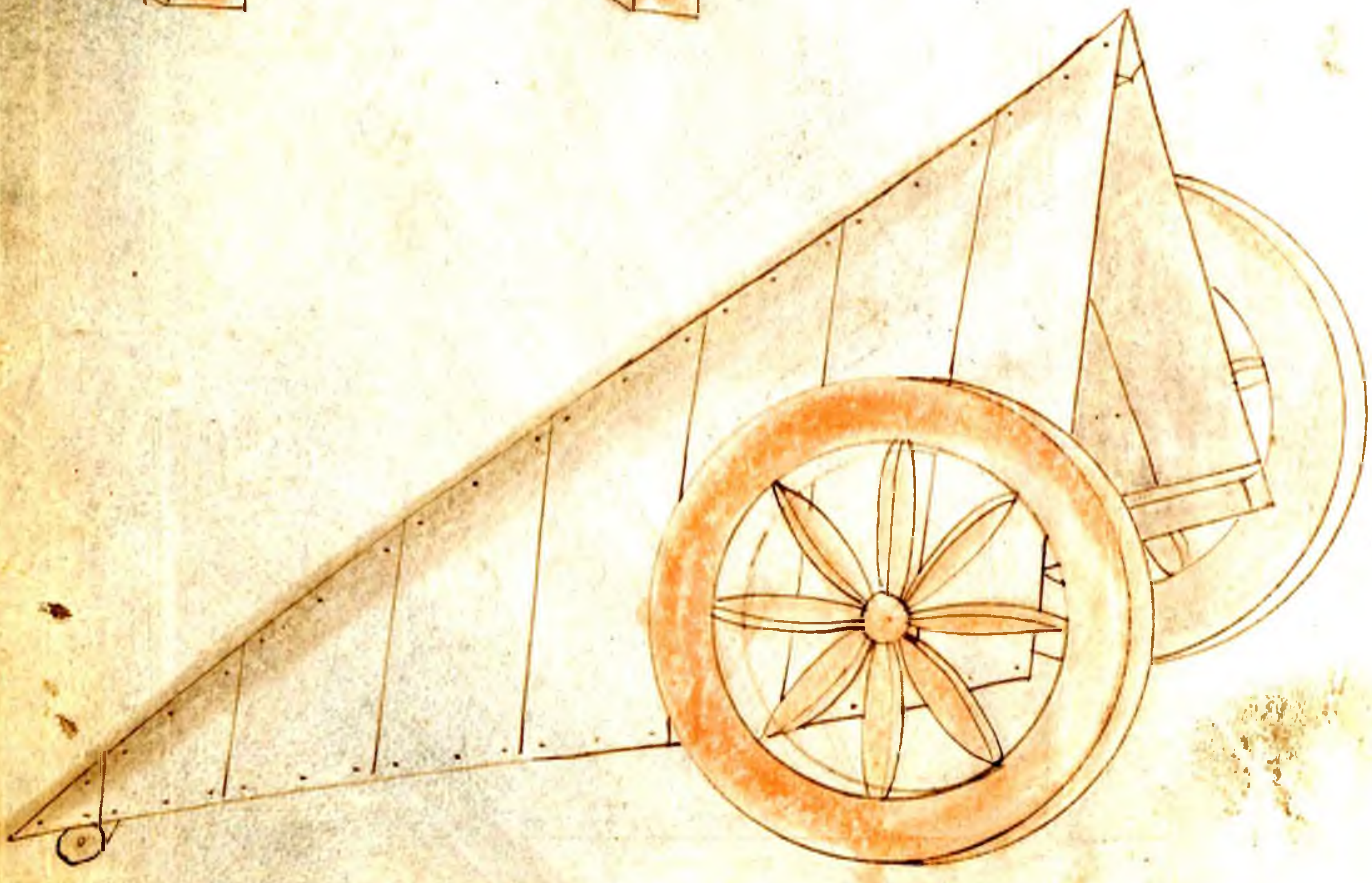


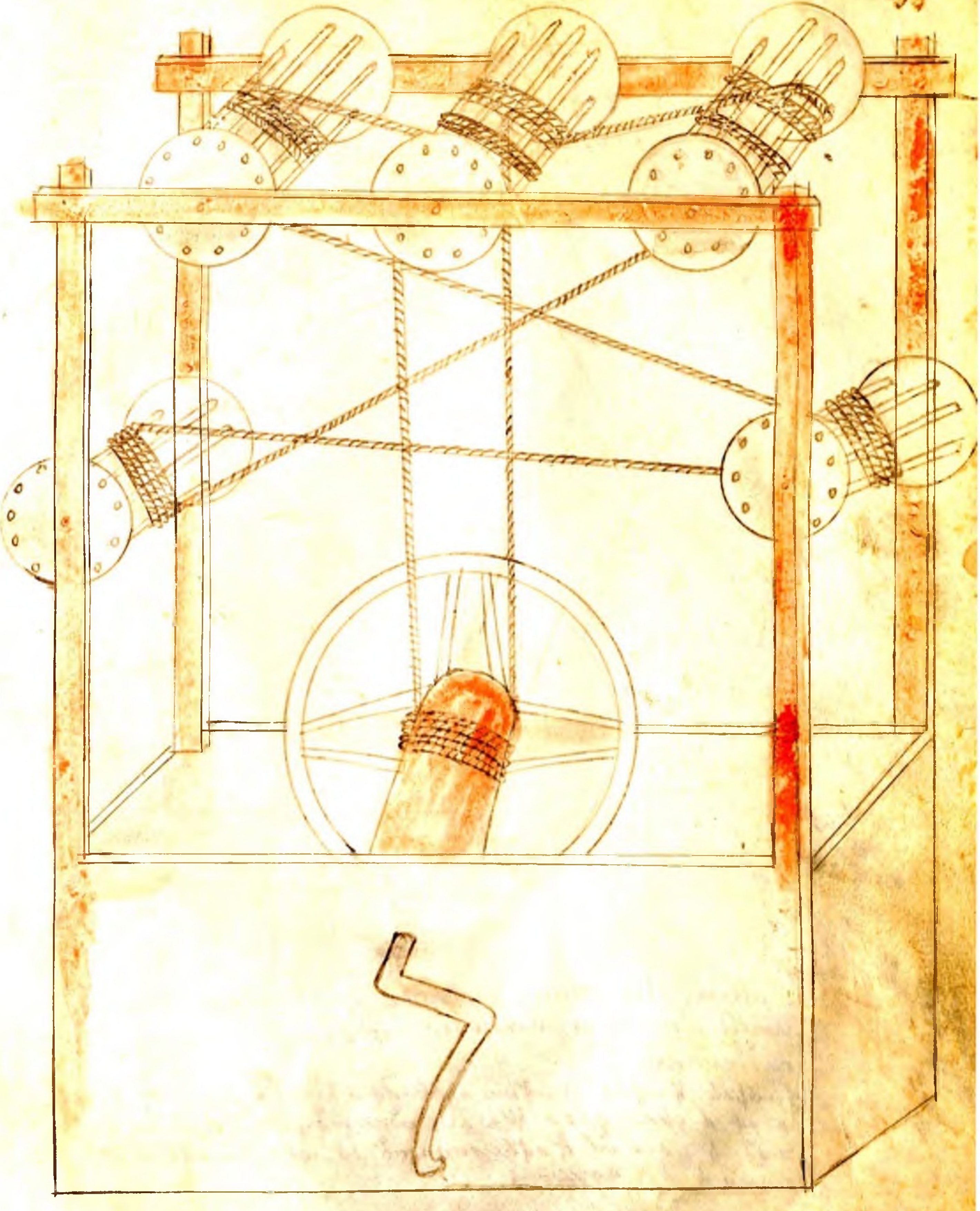


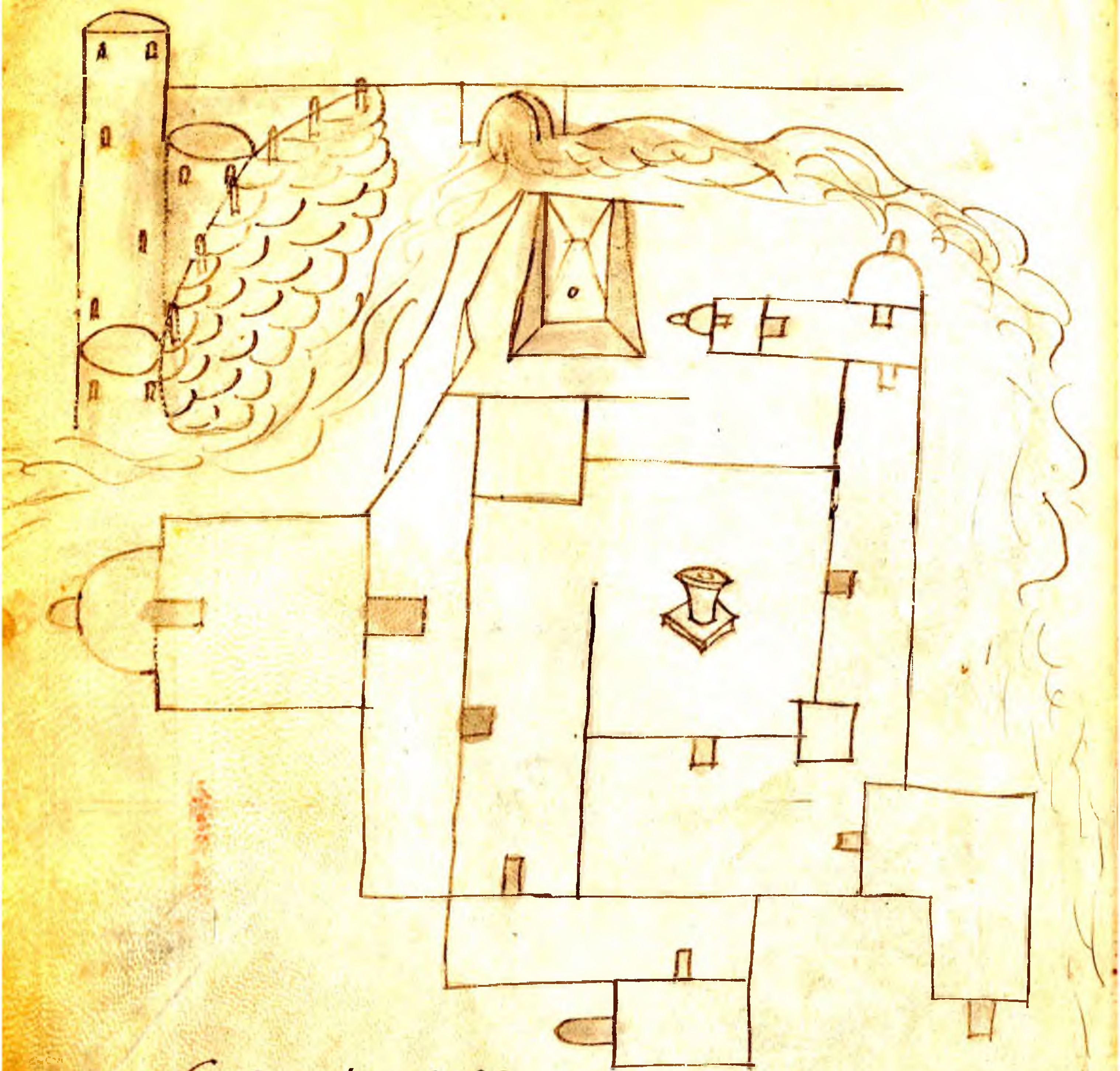
Gatus ī bellicis ordinibus seppe requiritur et prope surdus et tacitus.

[illegible]







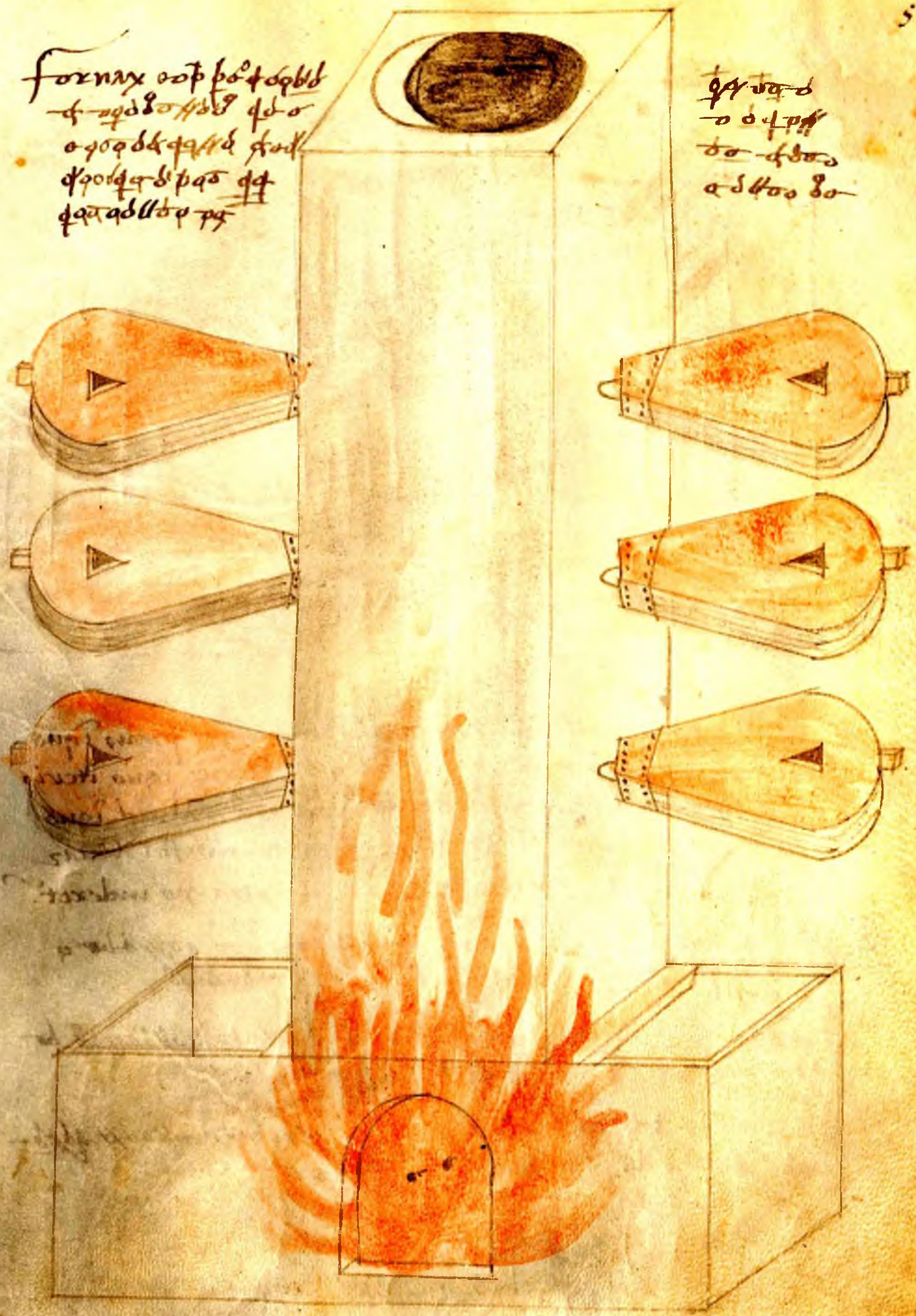


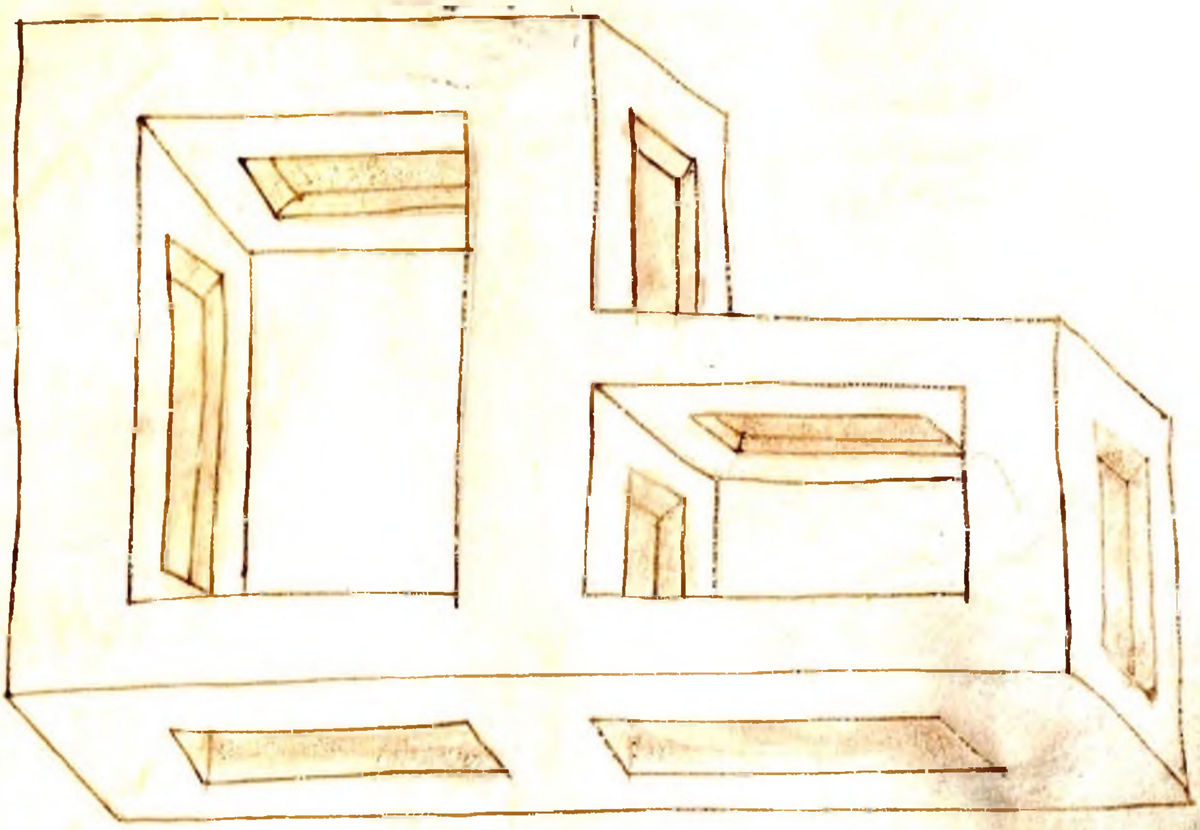
Castrum deceptionis vocatur quod cu̅ qui ingressi
vicisse cupiant vincuntur et q a fugere credant i
carcerantur

[illegible]
4 [illegible]
[illegible]
[illegible]

A Fornax [illegible]
[illegible]
[illegible]
[illegible]
[illegible]

[illegible]
[illegible]
[illegible]
[illegible]



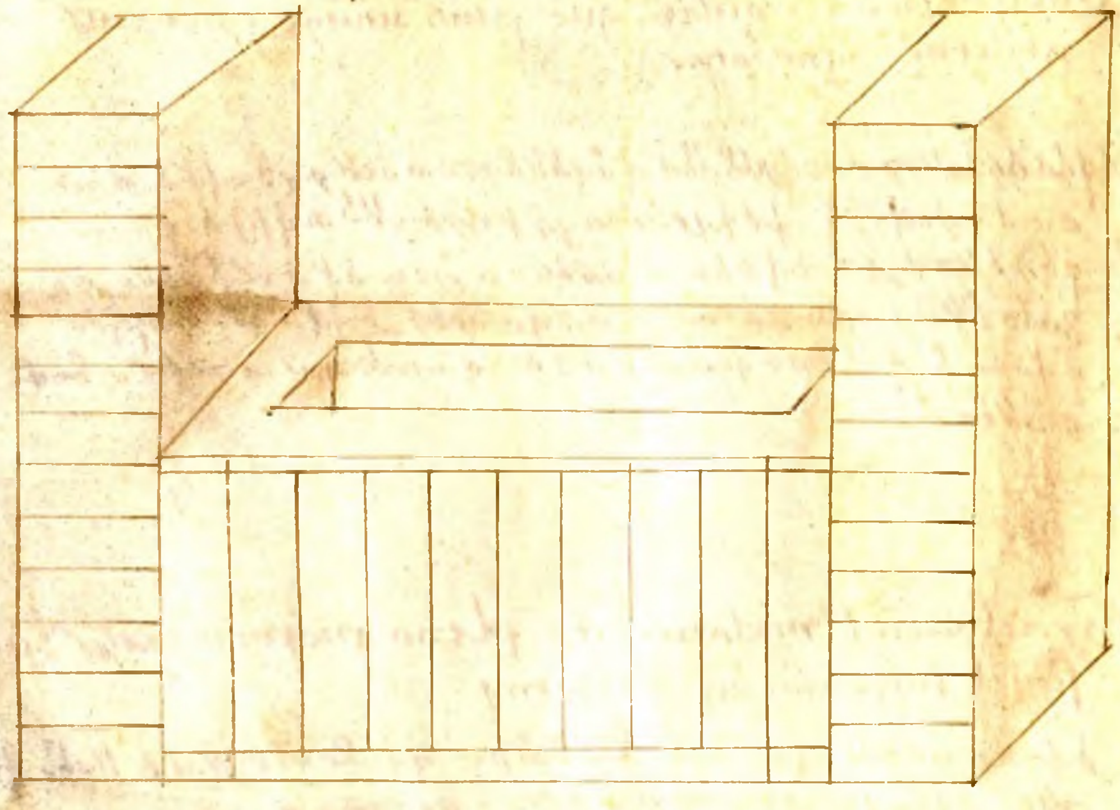


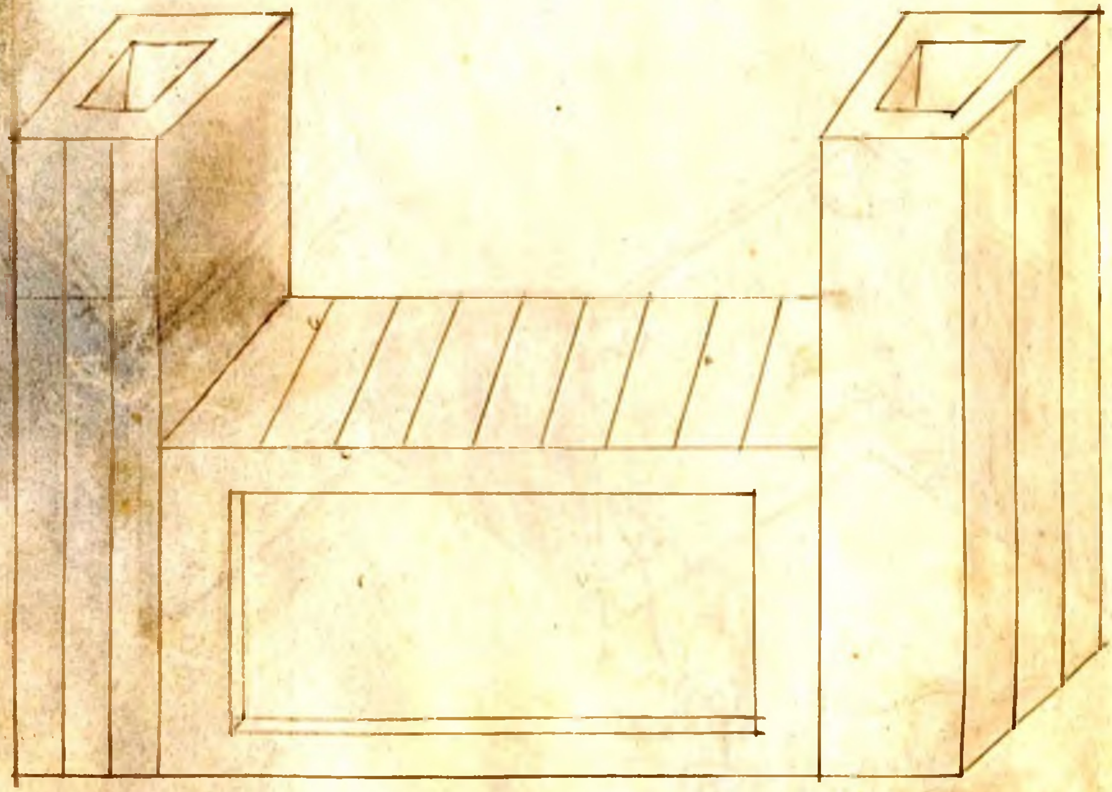
Triplex est genus carceris nostri ingeniosi primum in quo omnia videntur et extra similiter. Alterum in quo interiora occultantur et extrinseca apparent. Aliud in quo exteriora oculta sunt et intrinseca manifesta. Quartum vero esset inutile si intra et extra non videret.

[illegible]

[illegible]

[illegible]



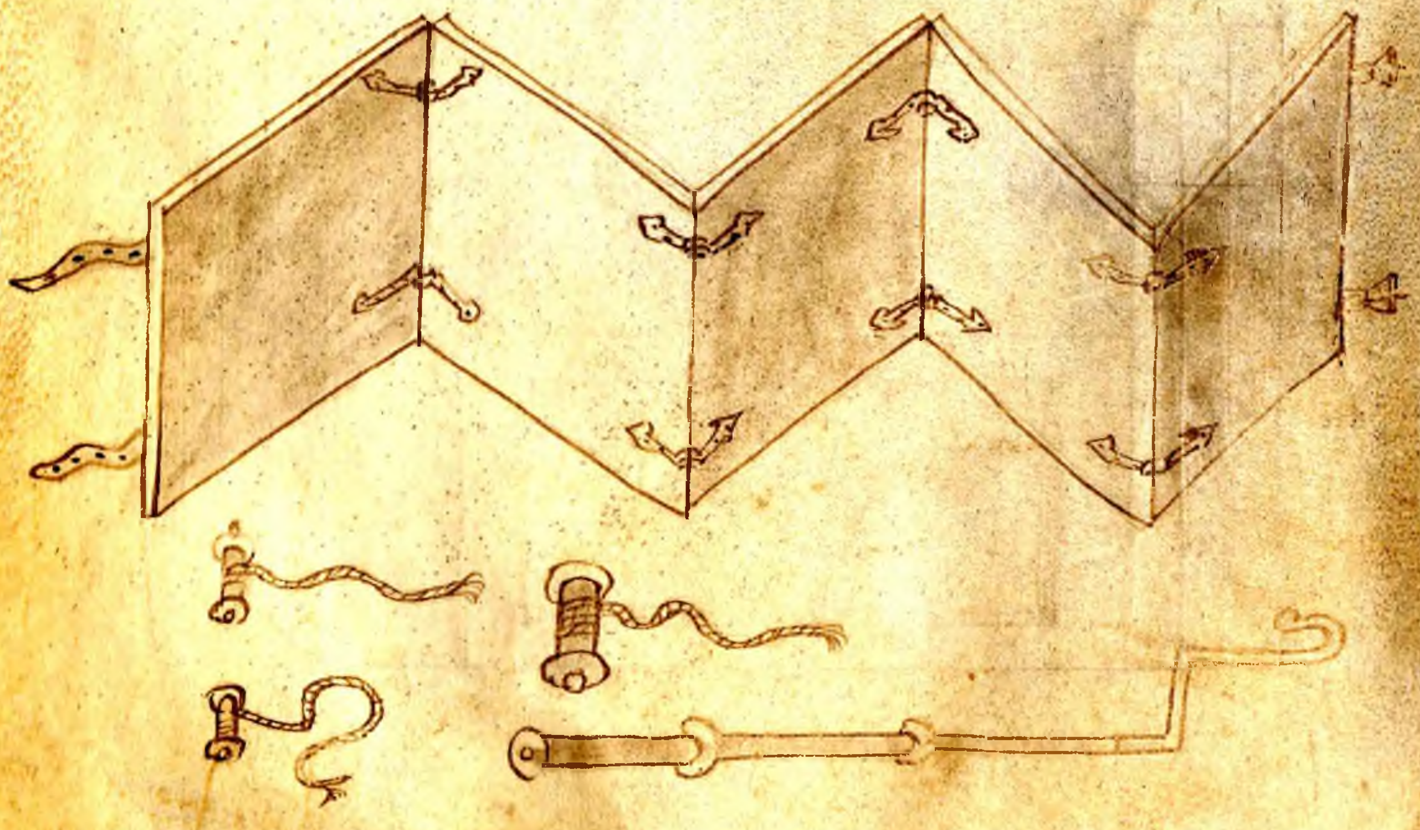


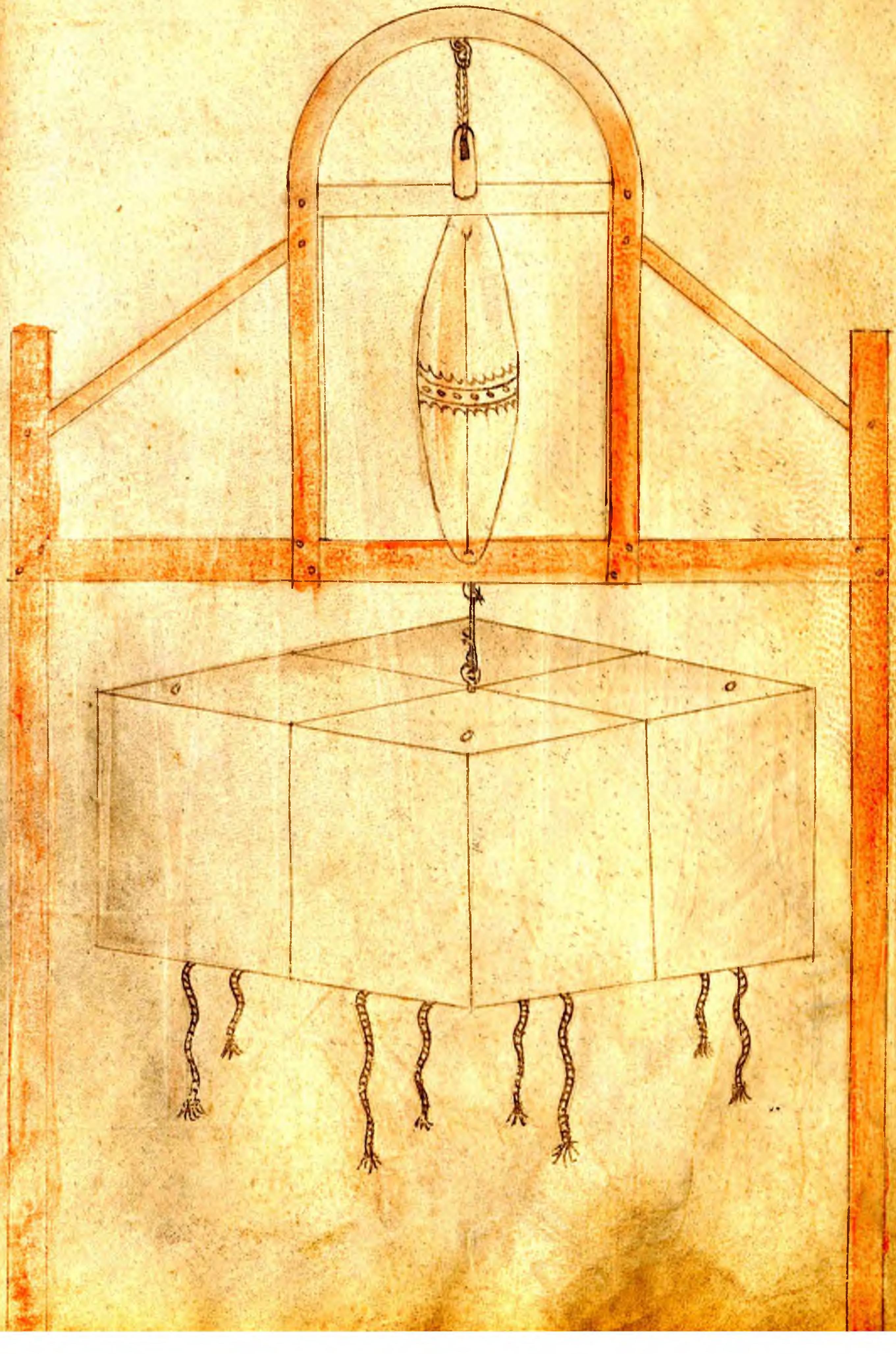
Subspensorium regulare quo pauci utuntur quia eius utilitas ignoratur

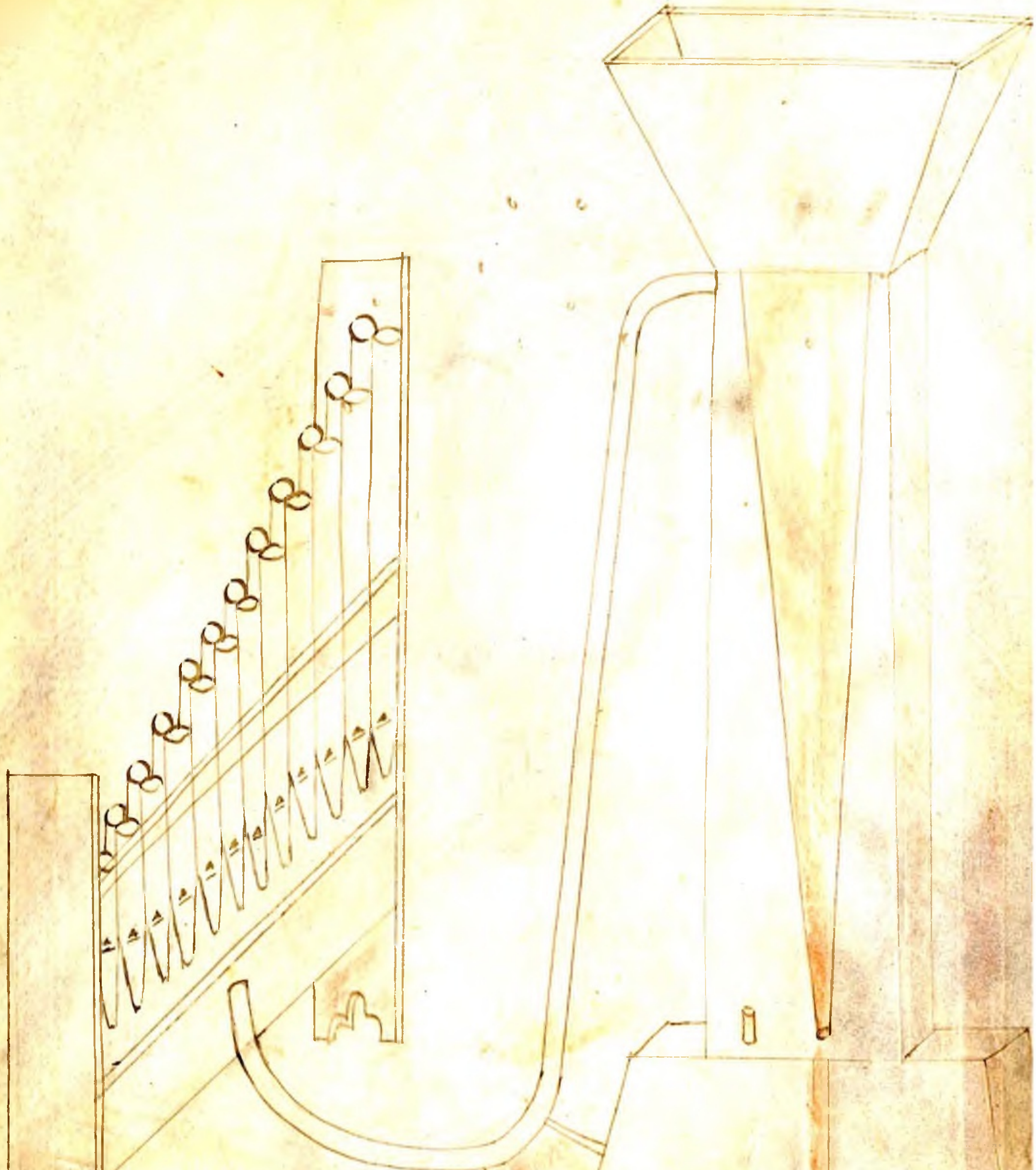
[illegible]

Graduarius nodatus ita plano proportionalis est sicud suspensorium altitudini.

[illegible]

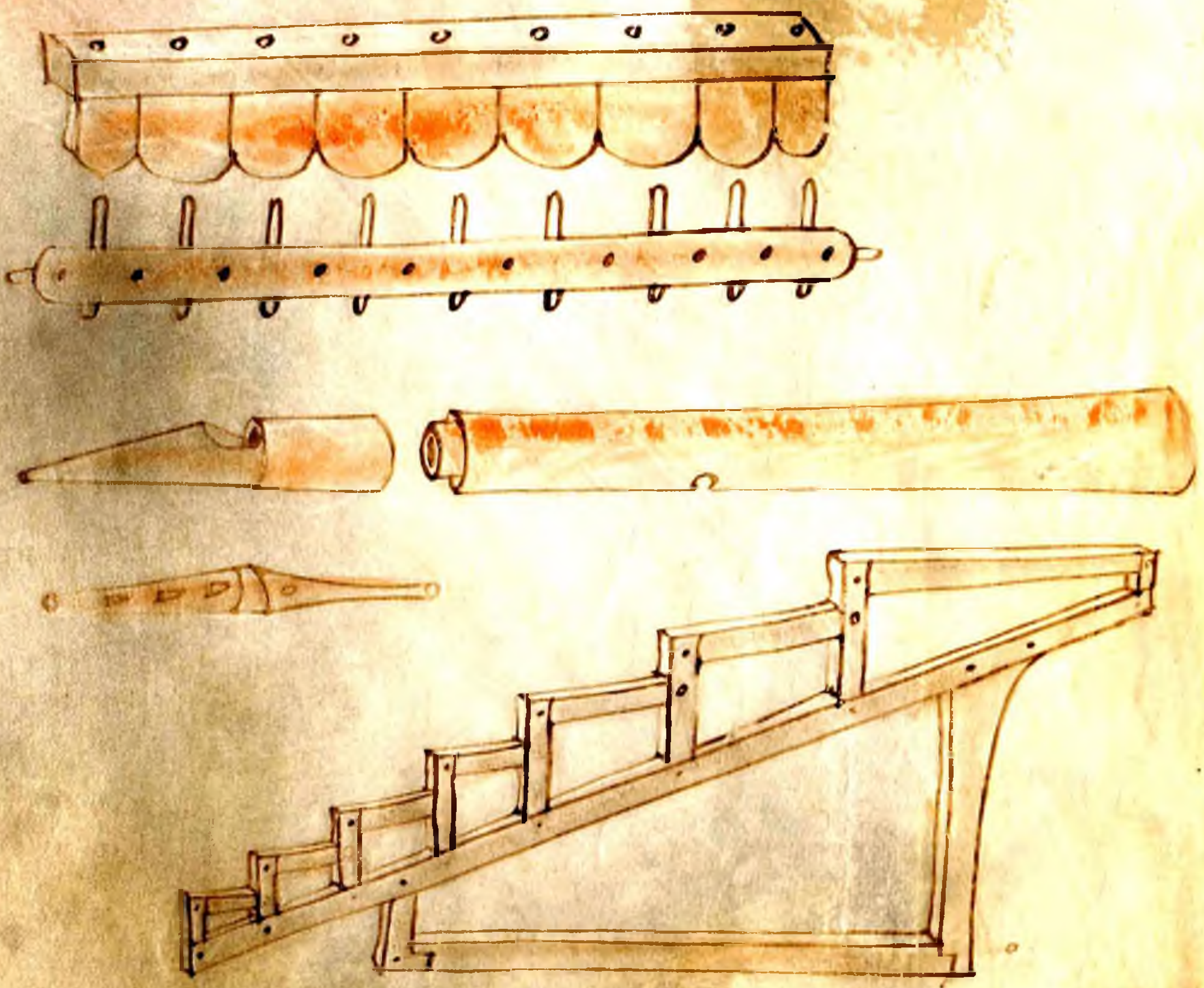






Folles ad organa stupende utilitatis qui nūduz di
vulgati sunt sed nuper per me inventi spiritus ha
bundantiam habent et uniformez.

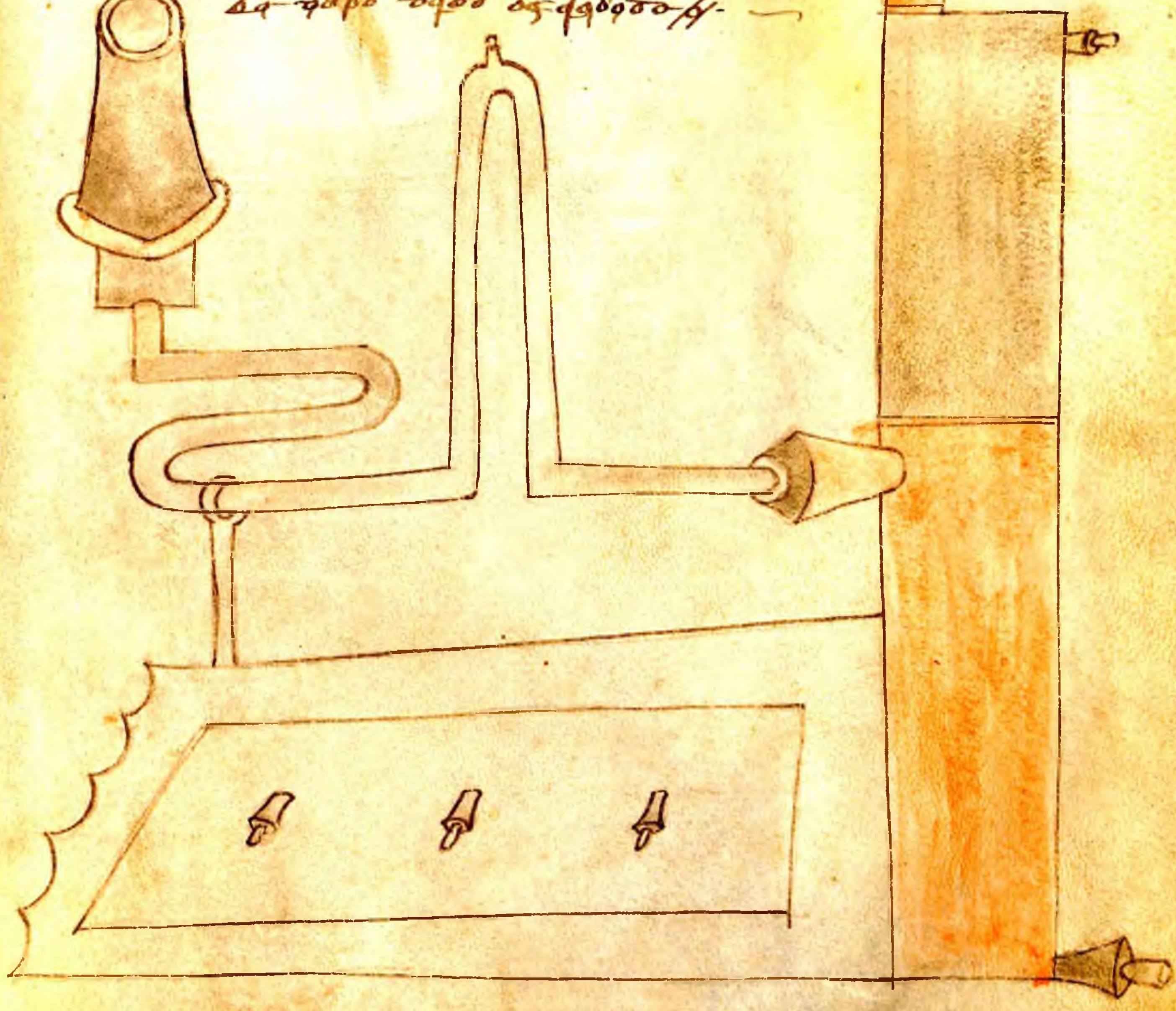
[illegible]

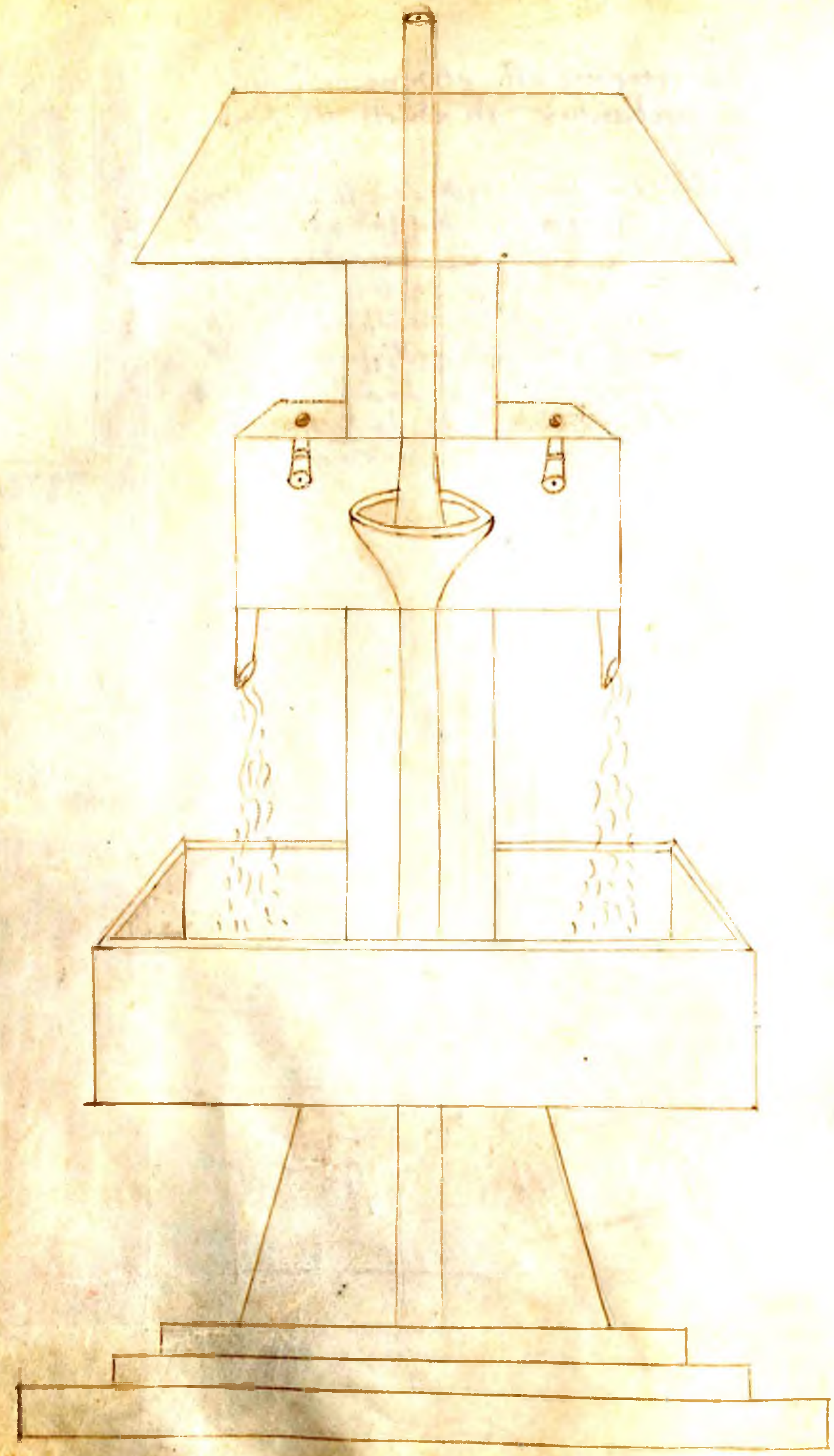


Volubilis rota. [illegible]

Evacuatorium est atheniense quo greci utebantur in eductione aque.

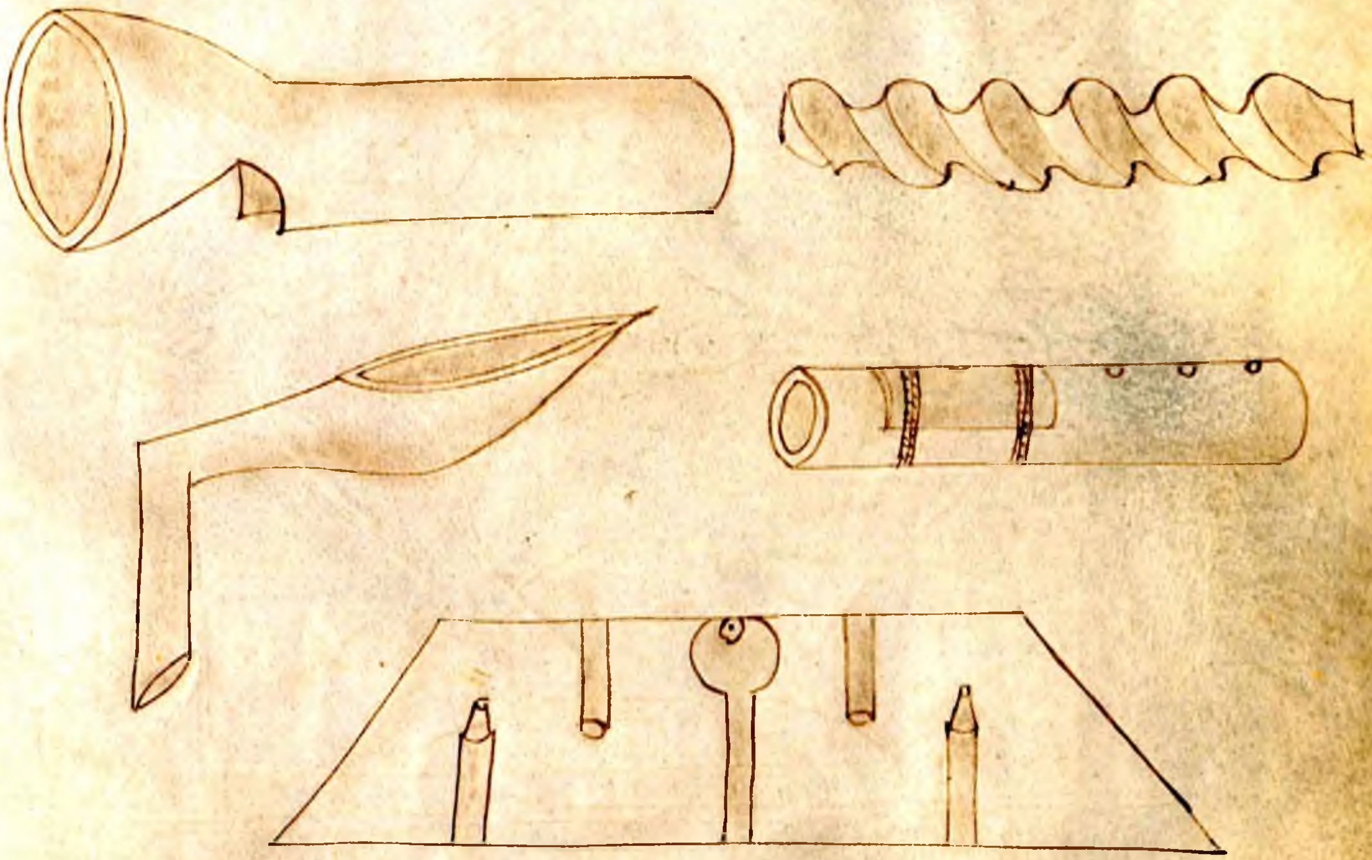
[illegible]

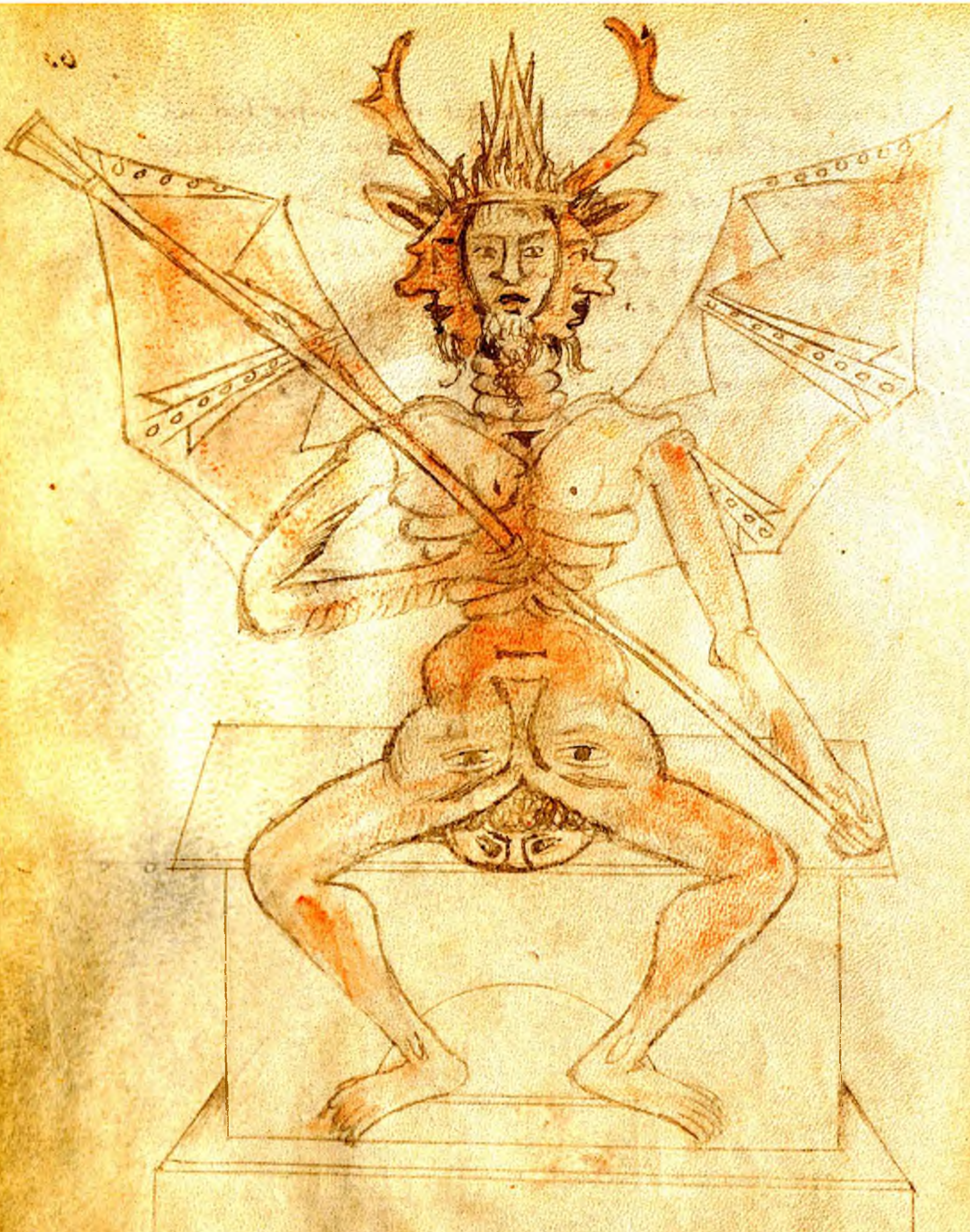




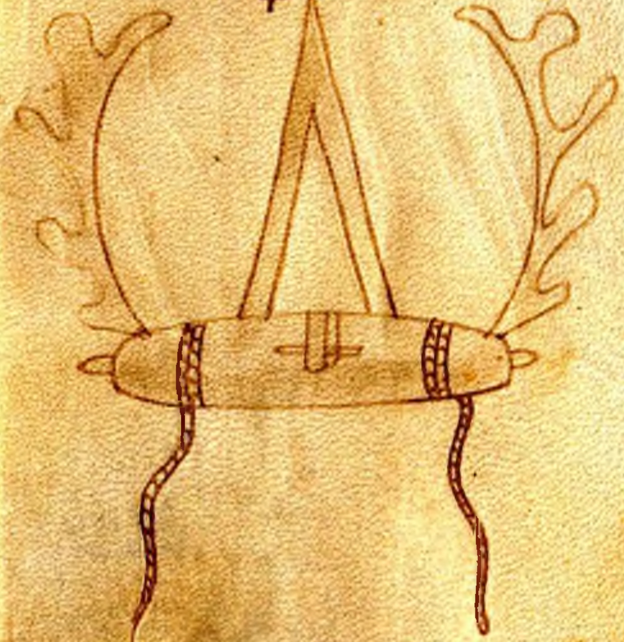
Fons saracenicus aquam spargit unde rapit sed no est perpetuus coq proportio continuo minuitur.

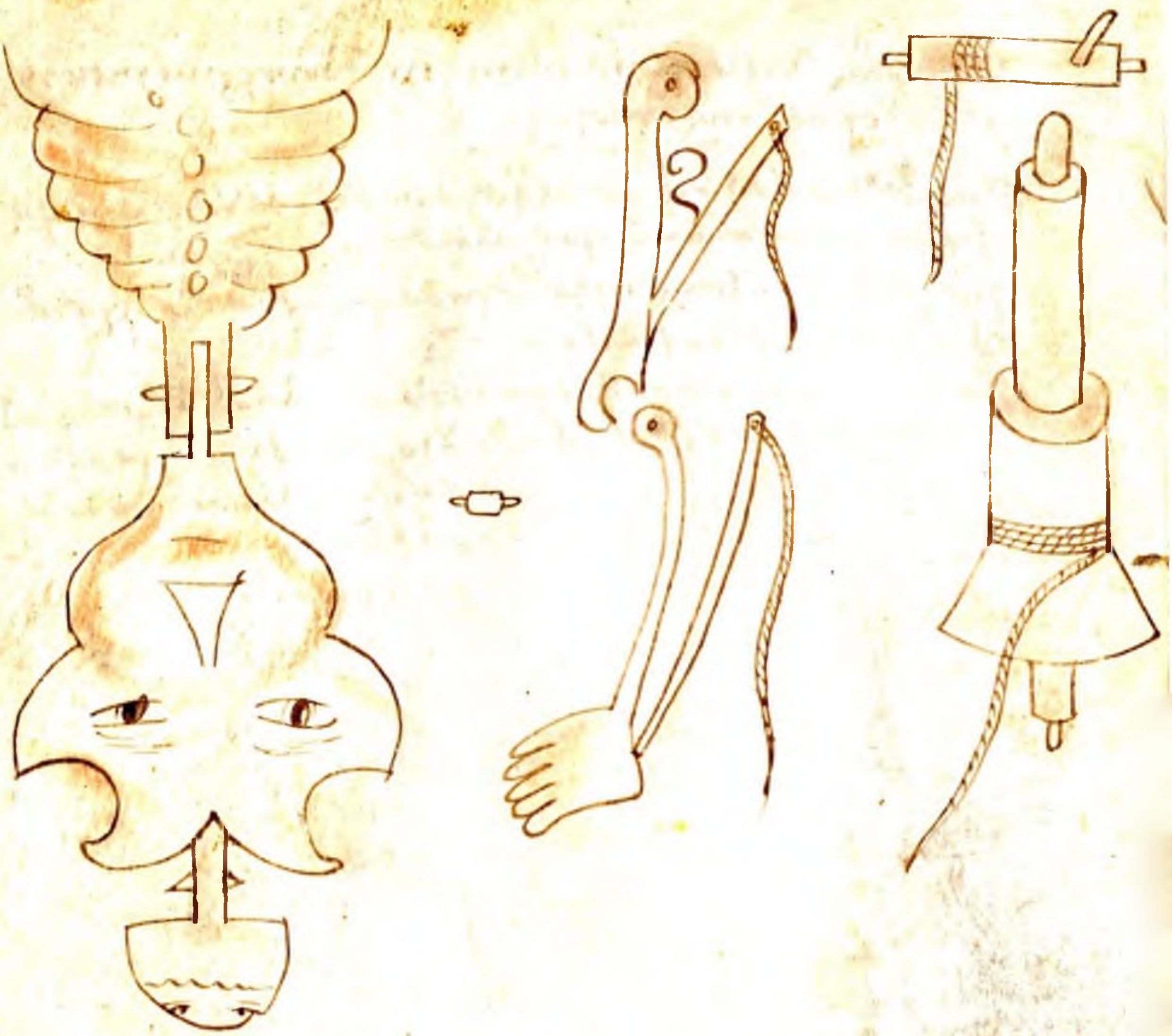
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]





Dyaboli artifitiosi olim in terrorez aspitientiuz opus ingeniosuz.



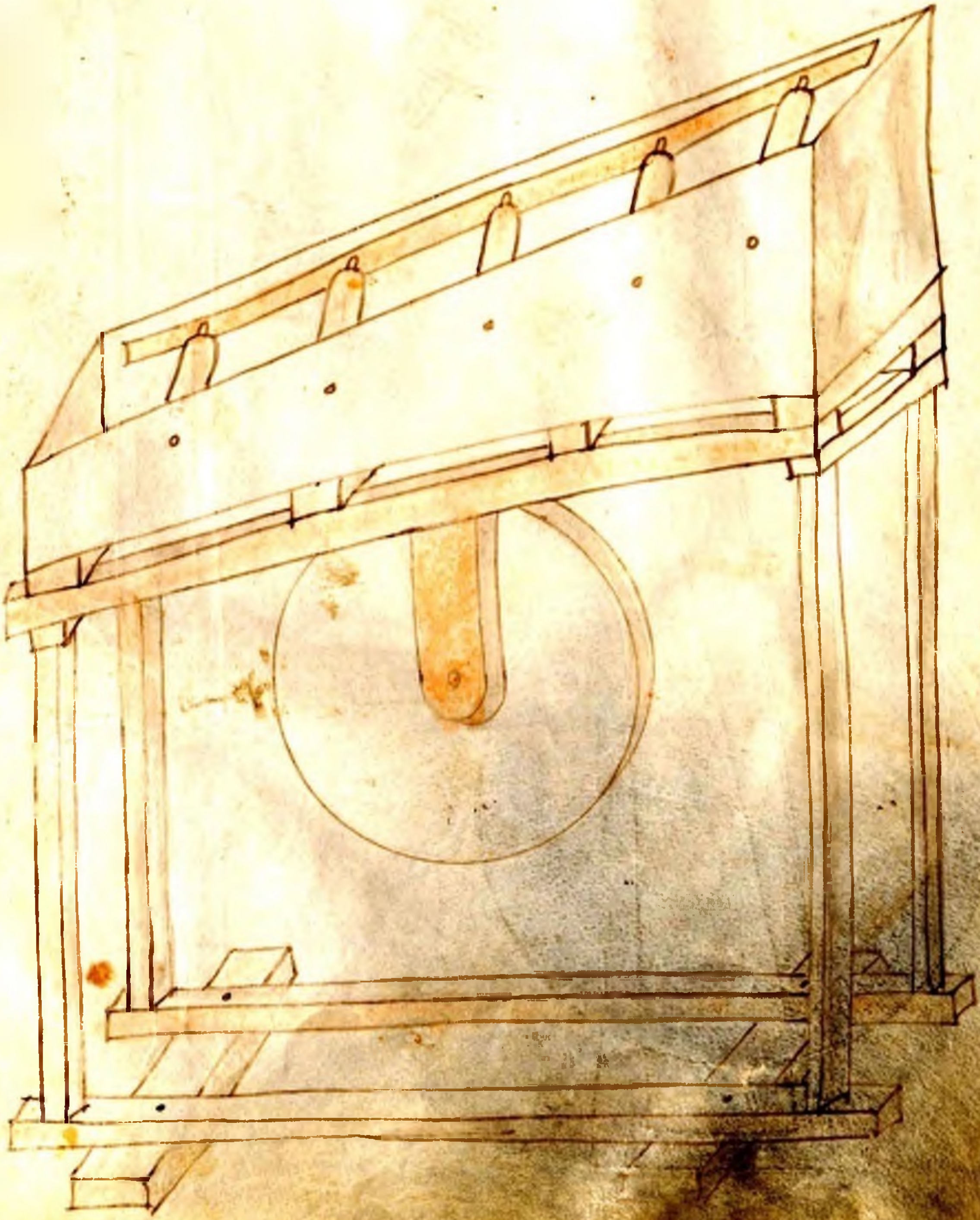


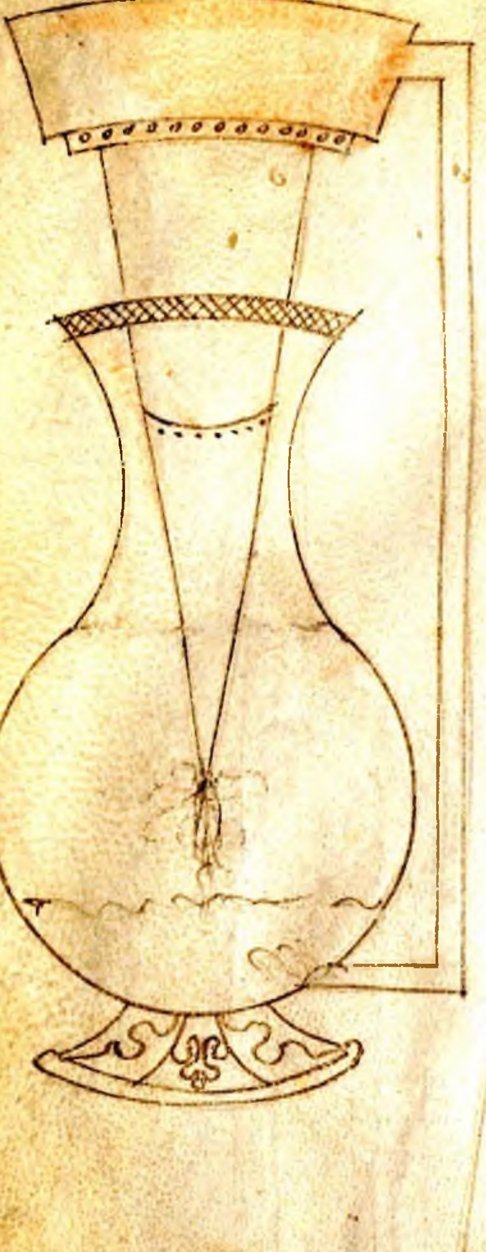
[illegible]

[illegible]

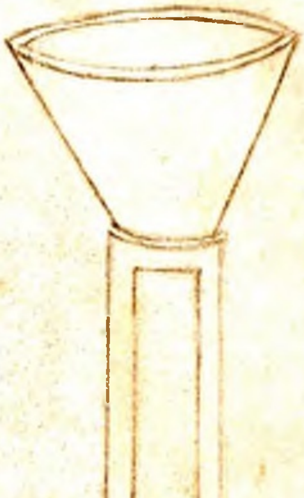
[illegible]

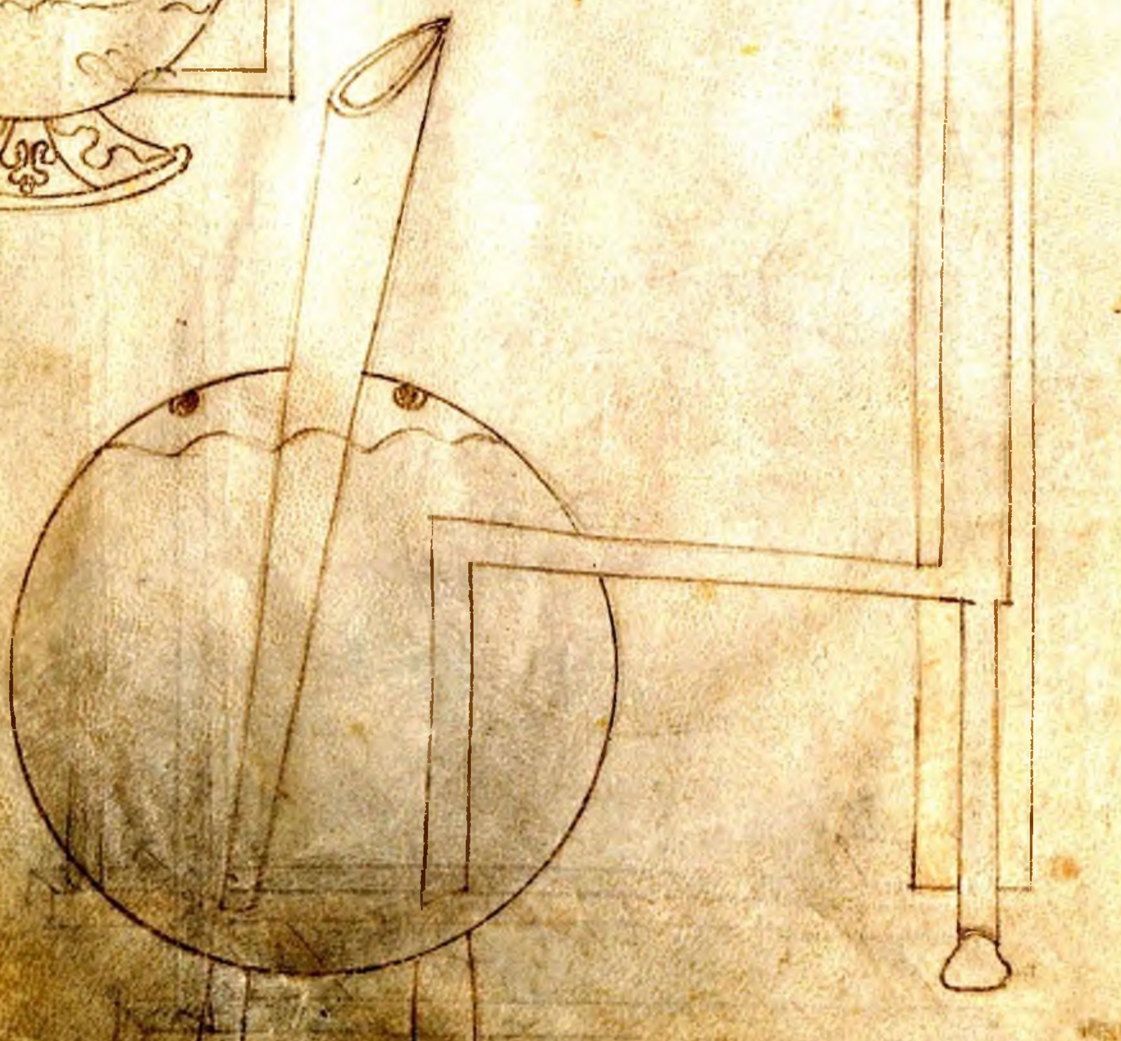
[illegible]



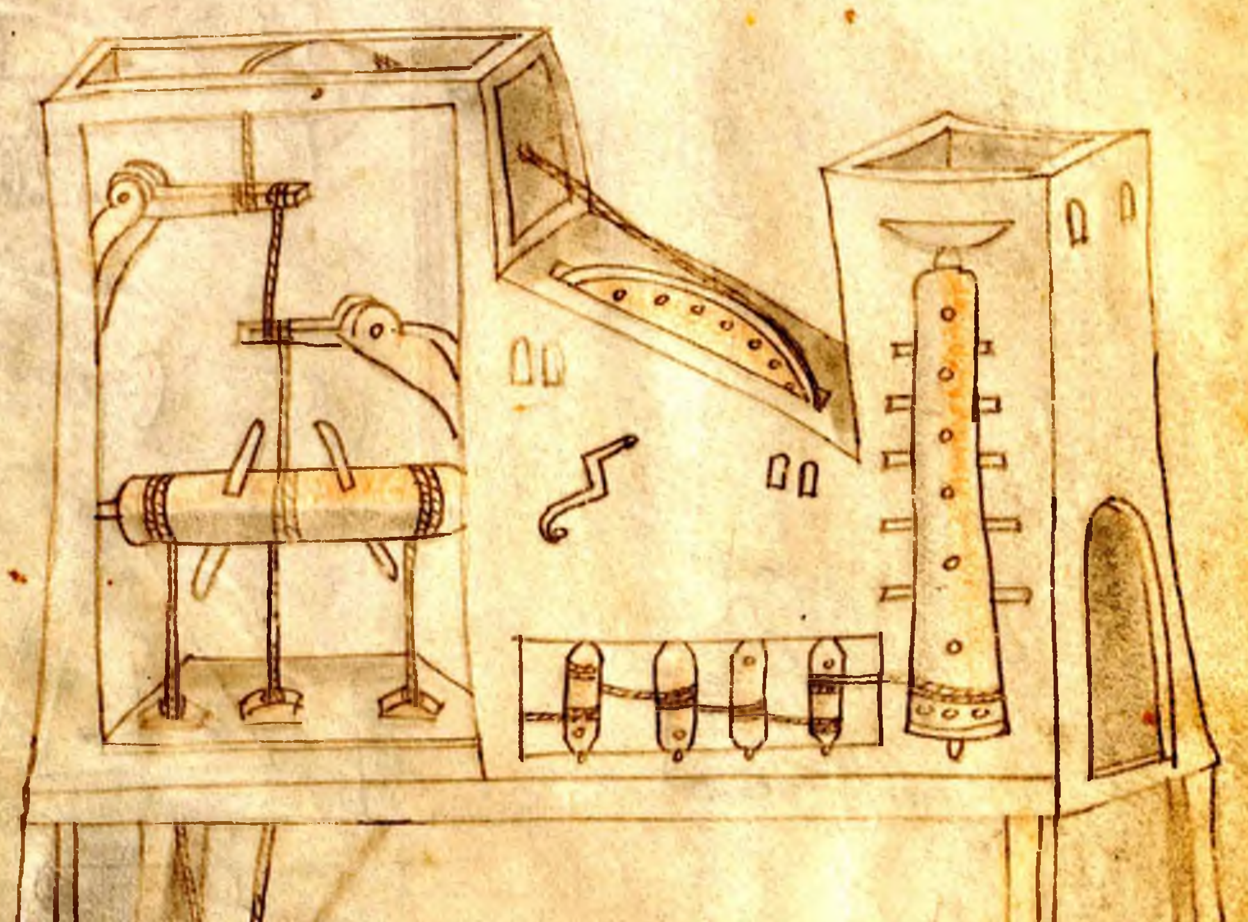


fontes alkindi commu
nes ipsi sunt





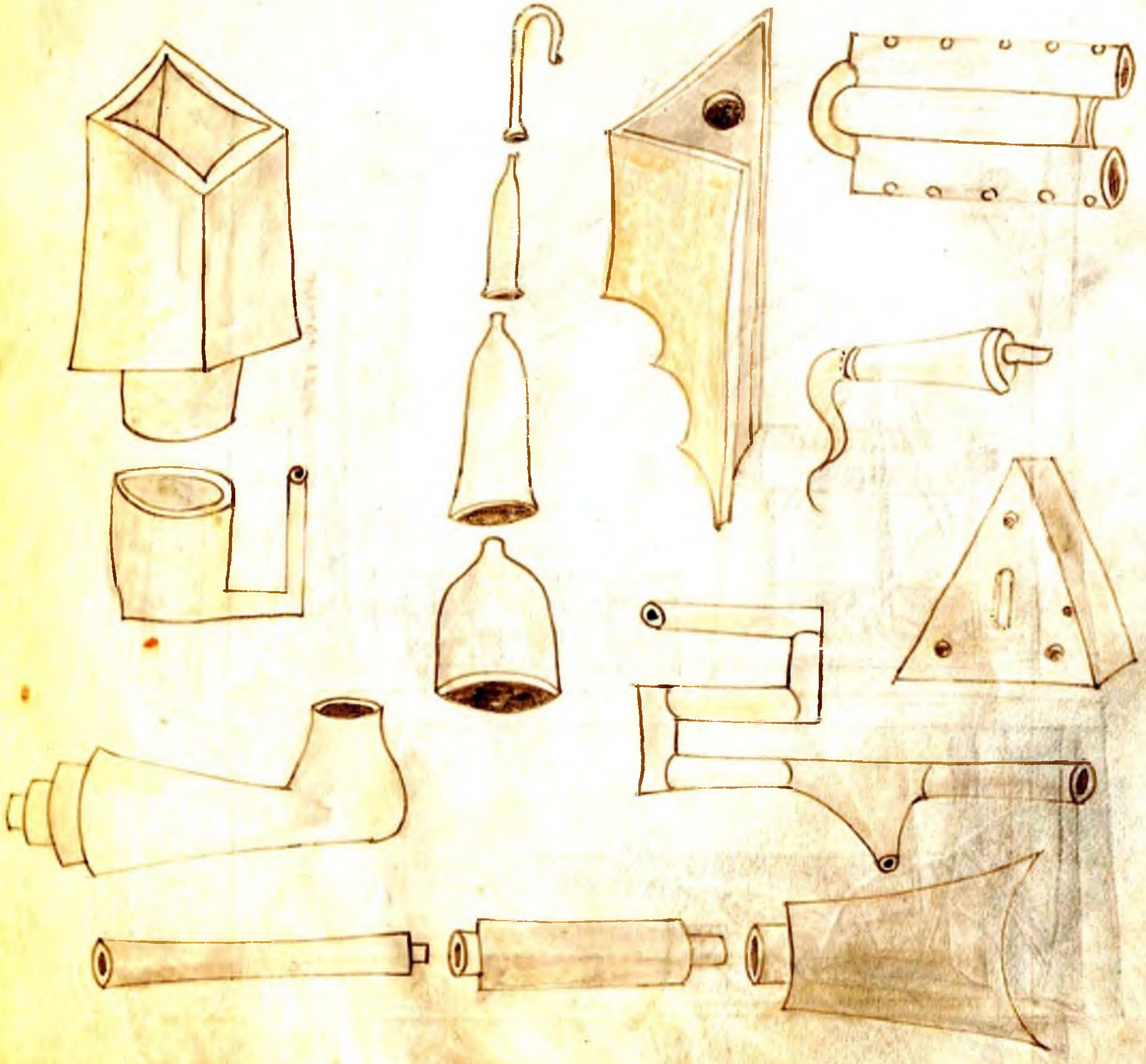
orgitorium est [illegible]

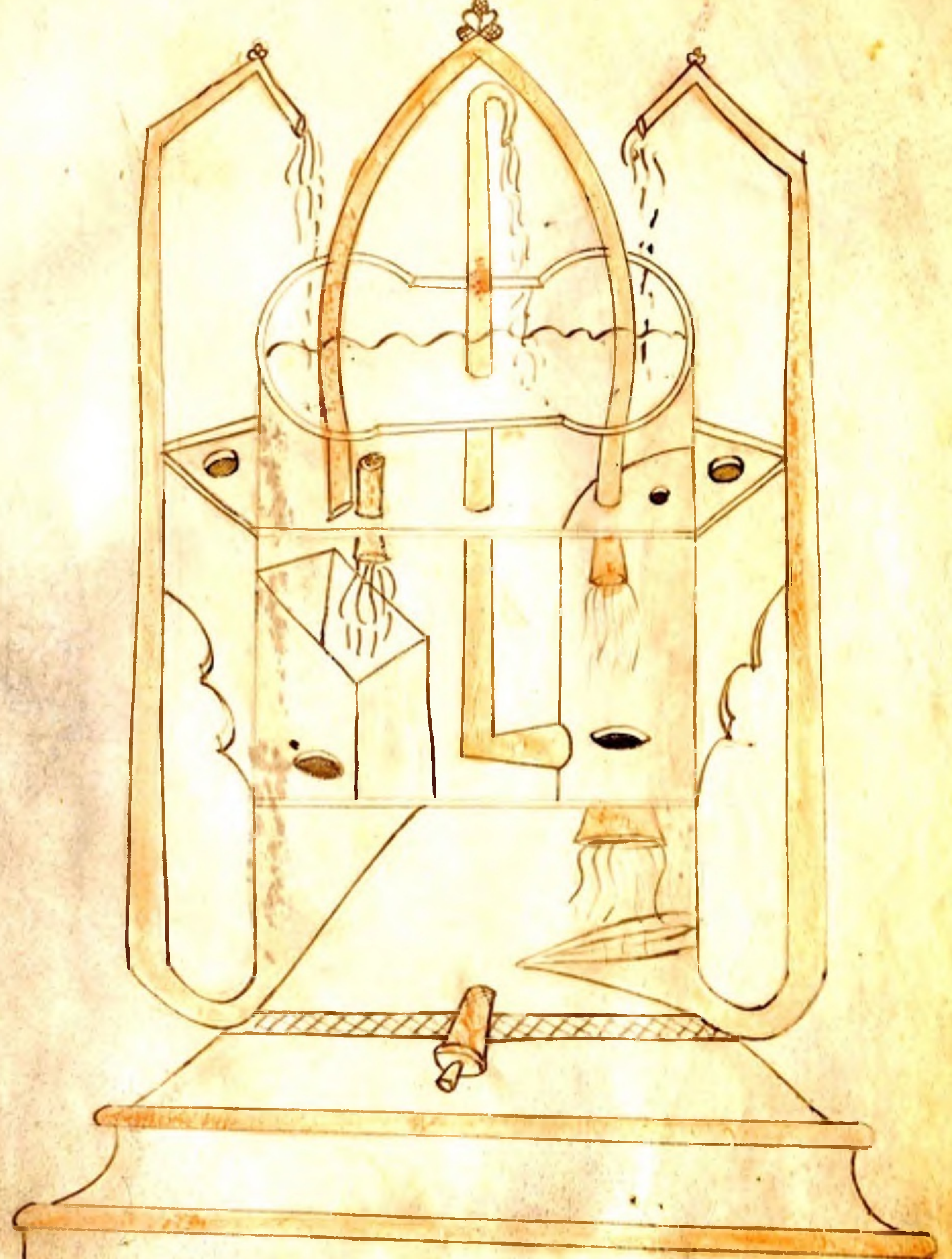


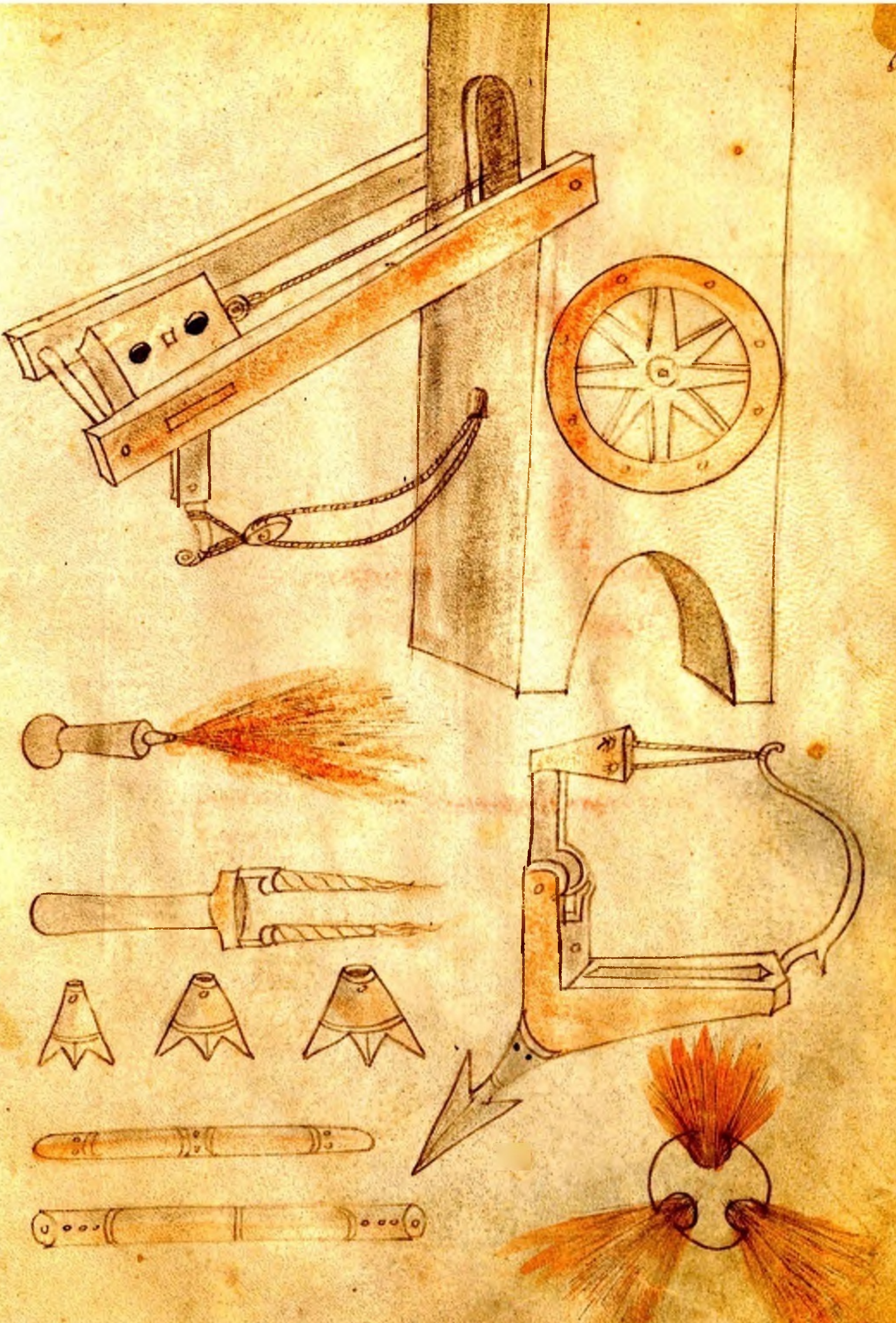
De fontibus forsitan non est inventus artificiali
or durabiliorque. Est quoque proprie [illegible]

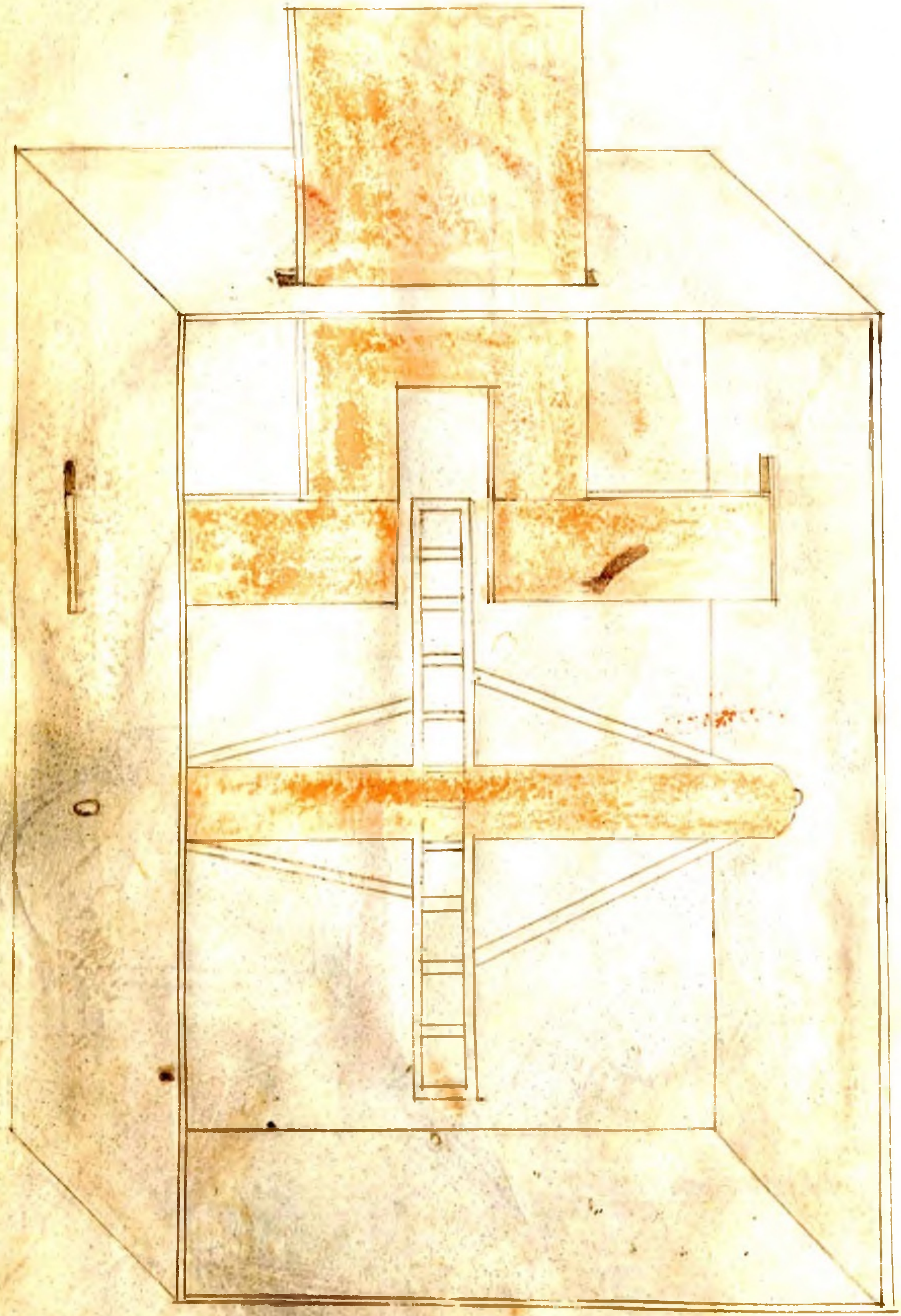
[illegible]

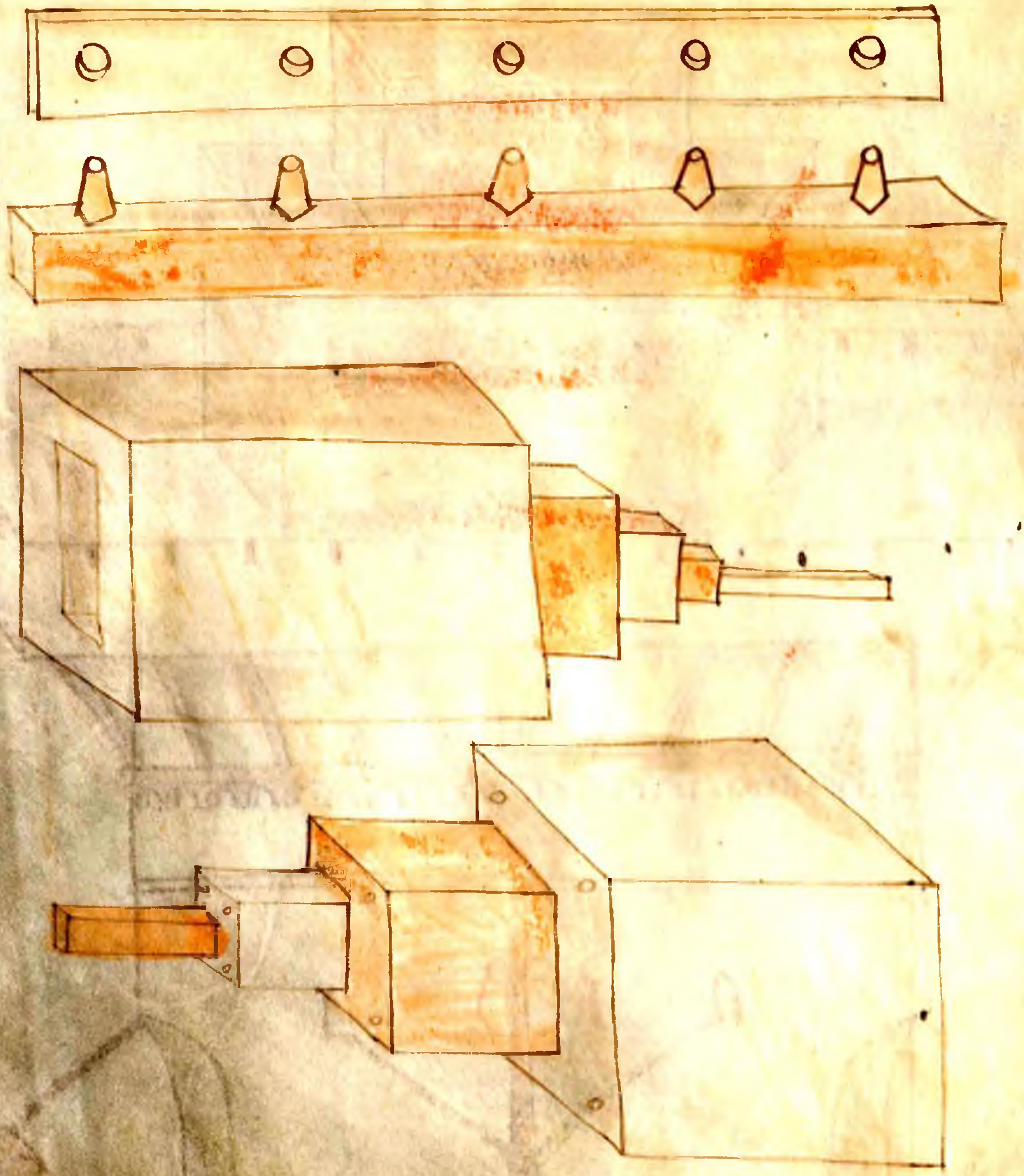
[illegible]

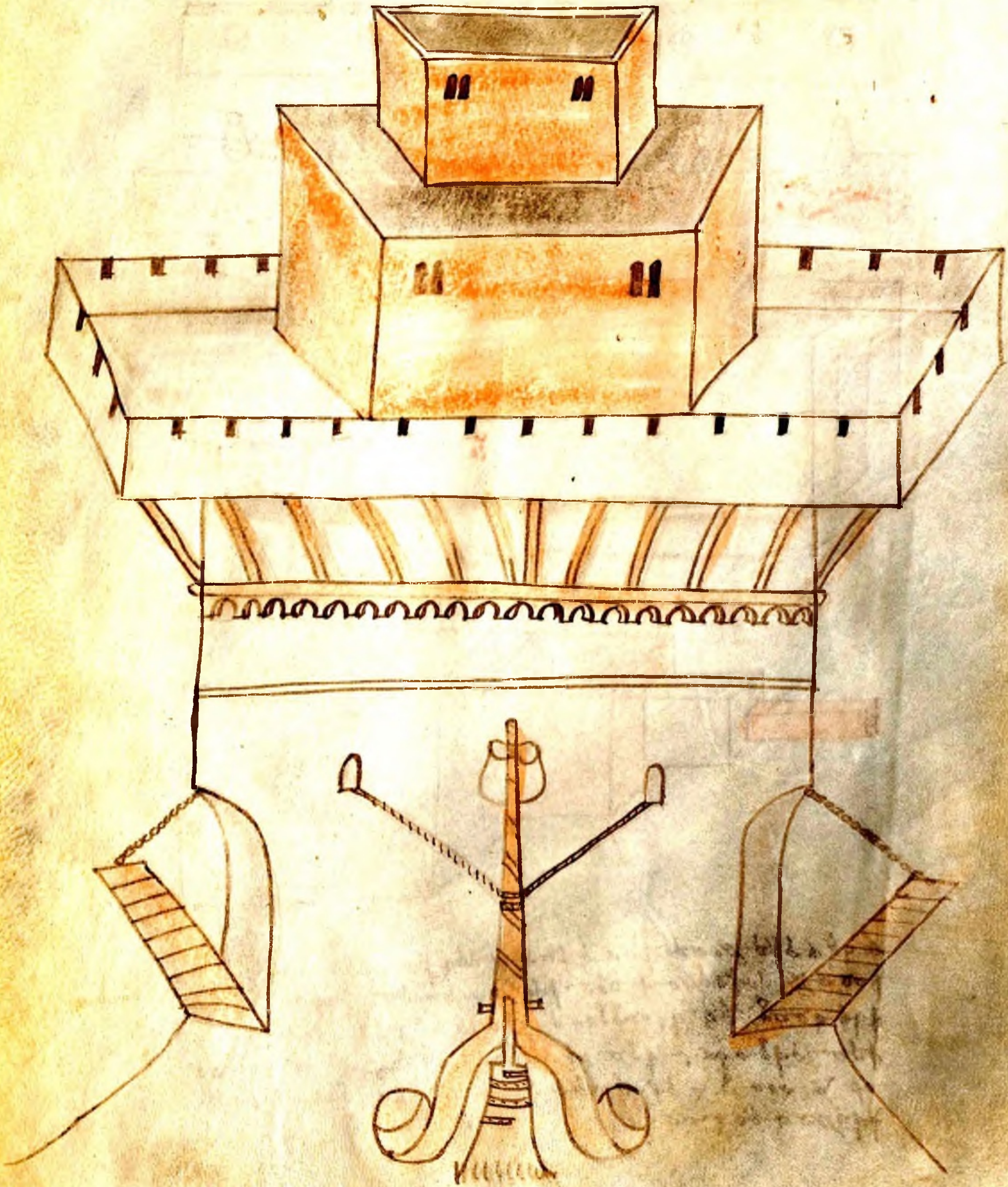




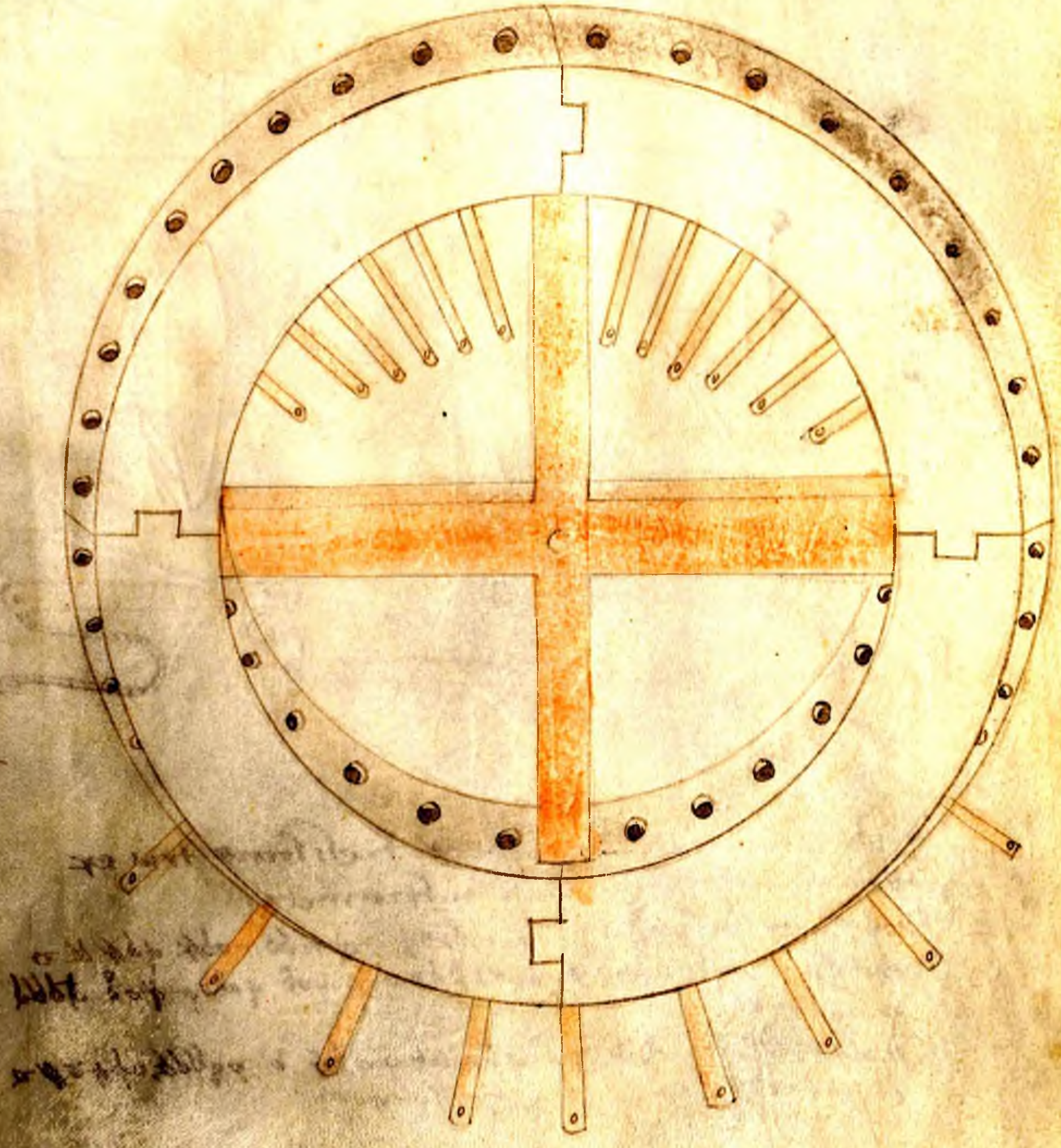


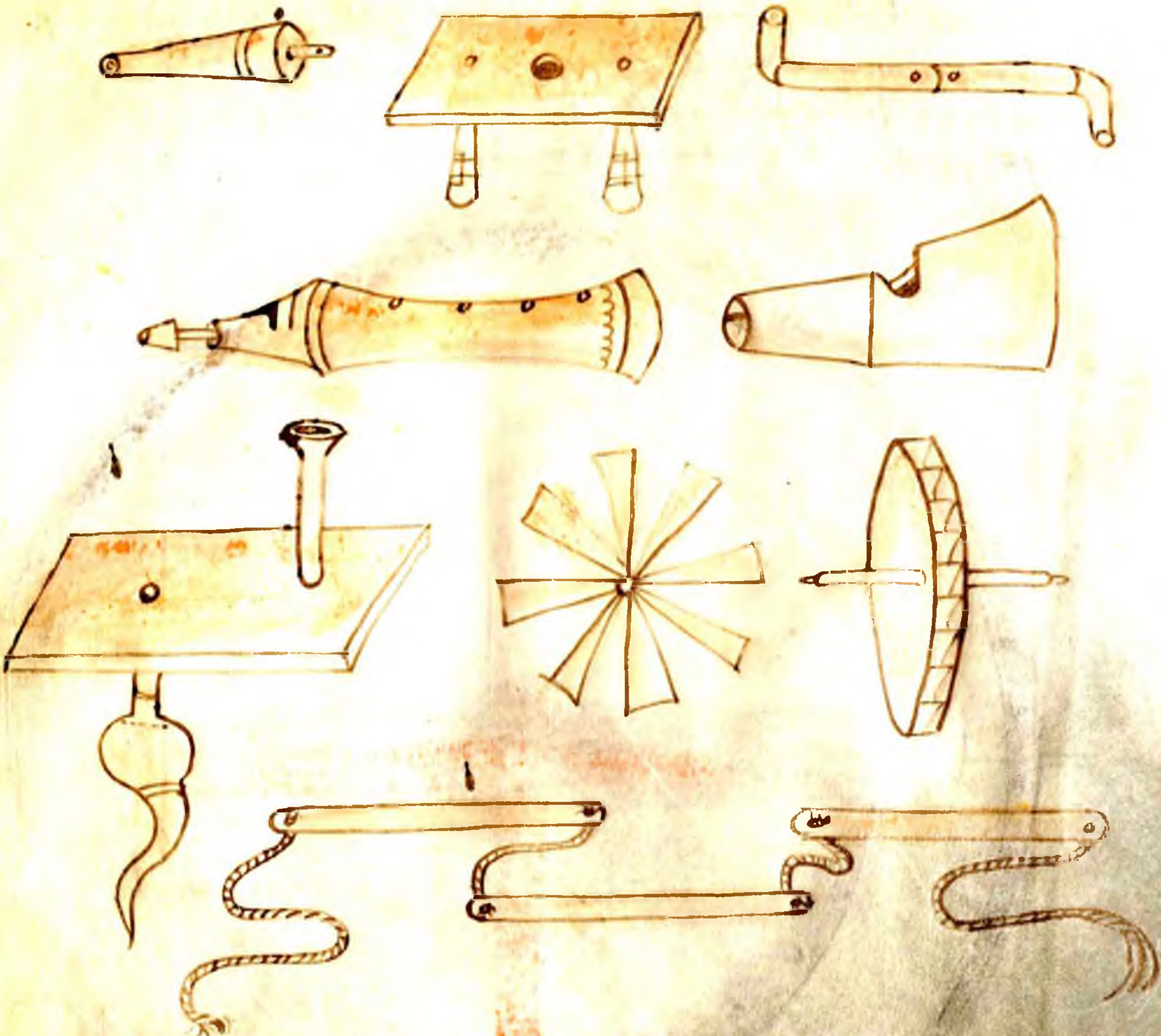






Turris bellica multorum inuamentorum



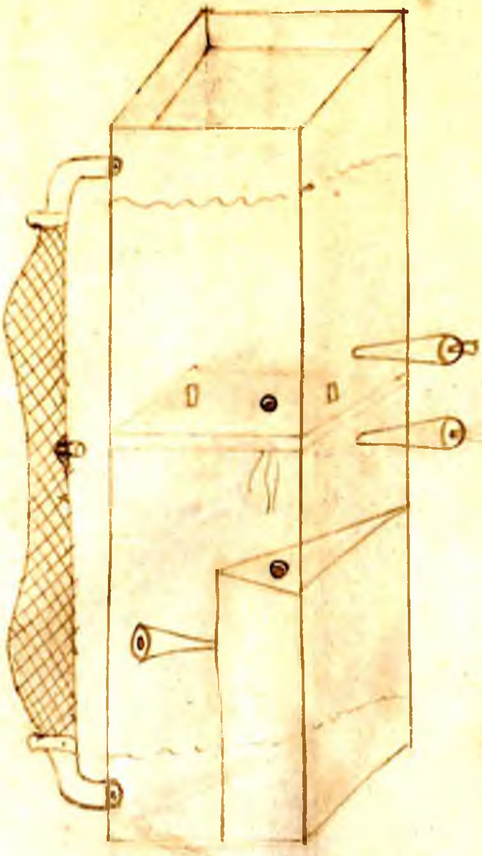


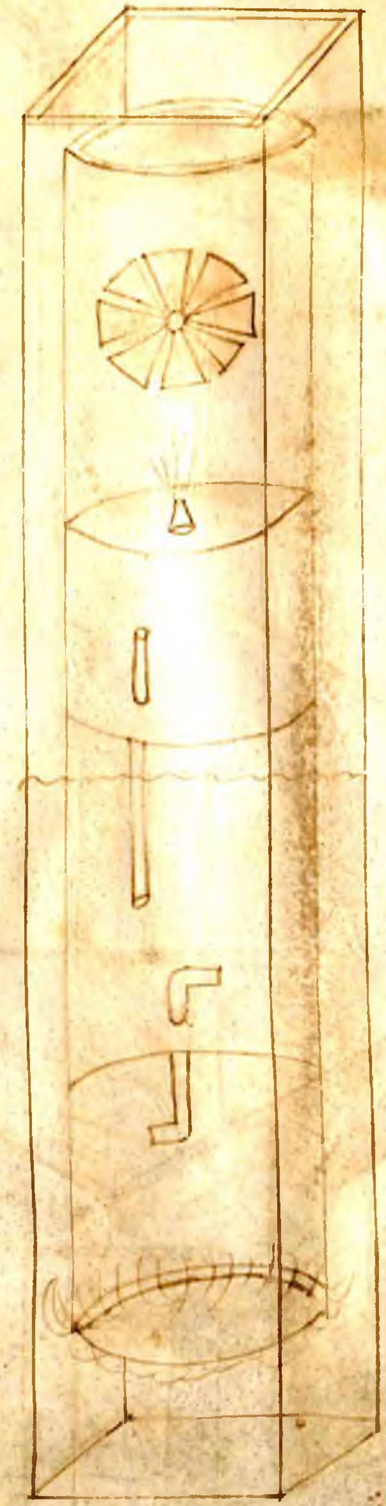
Subflatorium. Ventifex. et Resistens tria ex
uno fundamento sunt instrumenta.

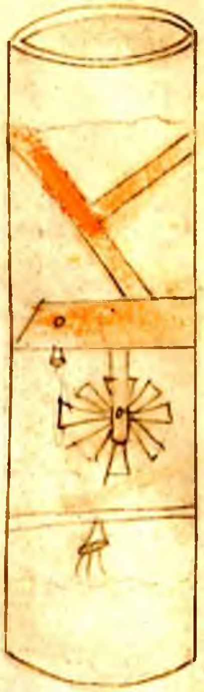
Subflatorium [illegible]
[illegible]
[illegible].

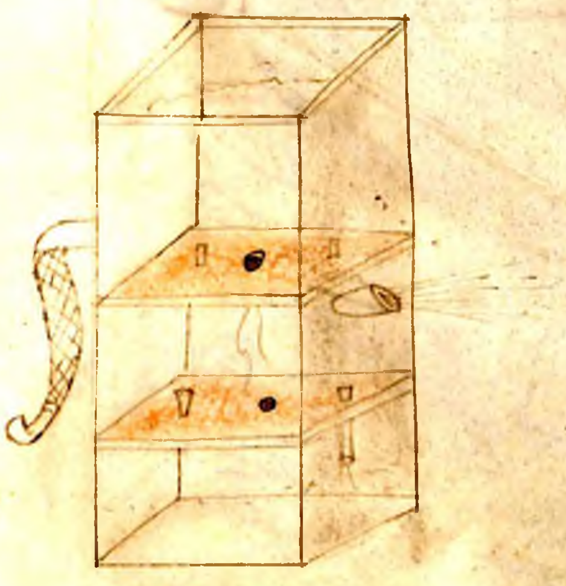
Ventifex est ideo [illegible]
[illegible].

Resistens dicitur [illegible]
[illegible]
[illegible].

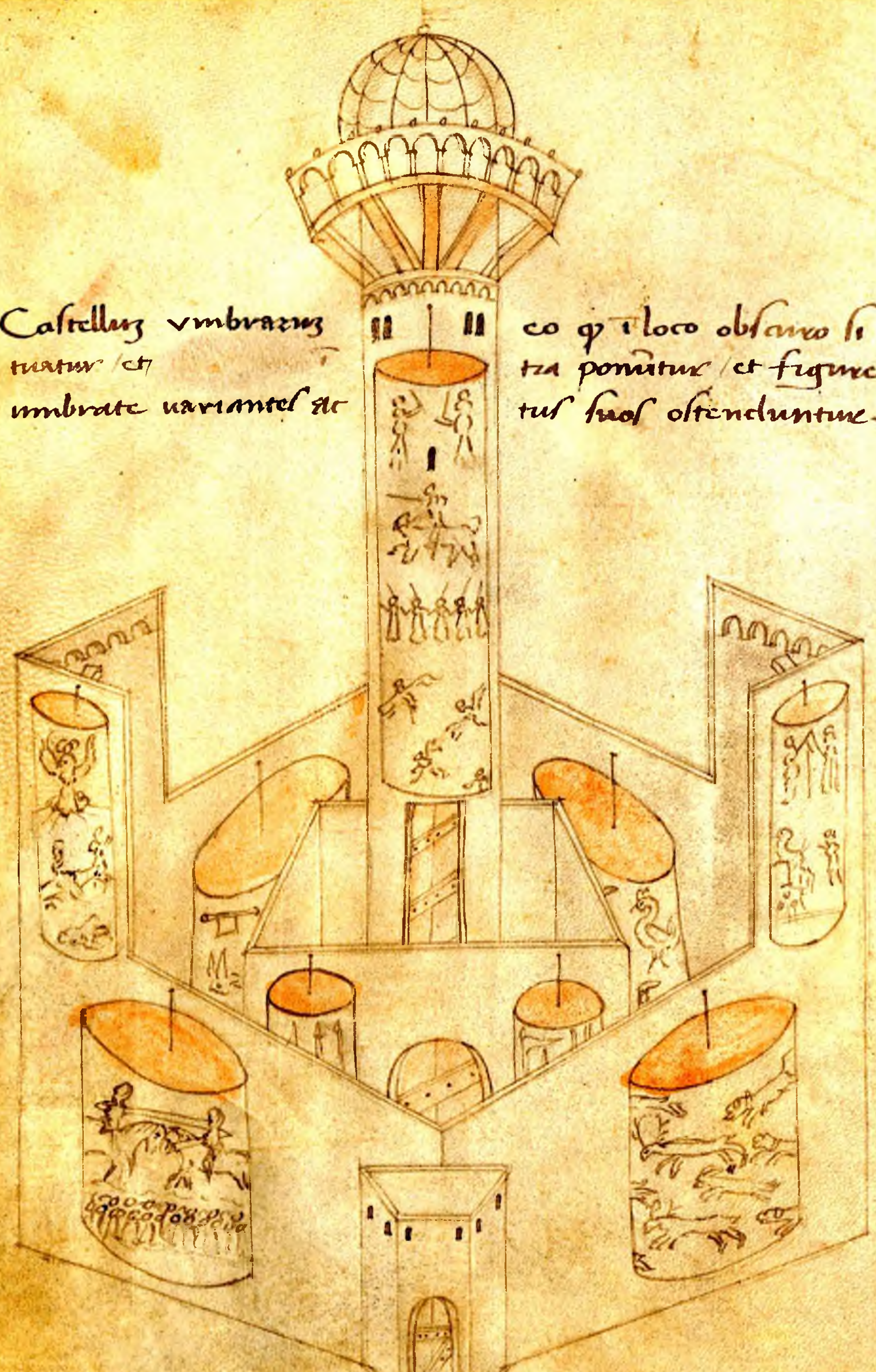


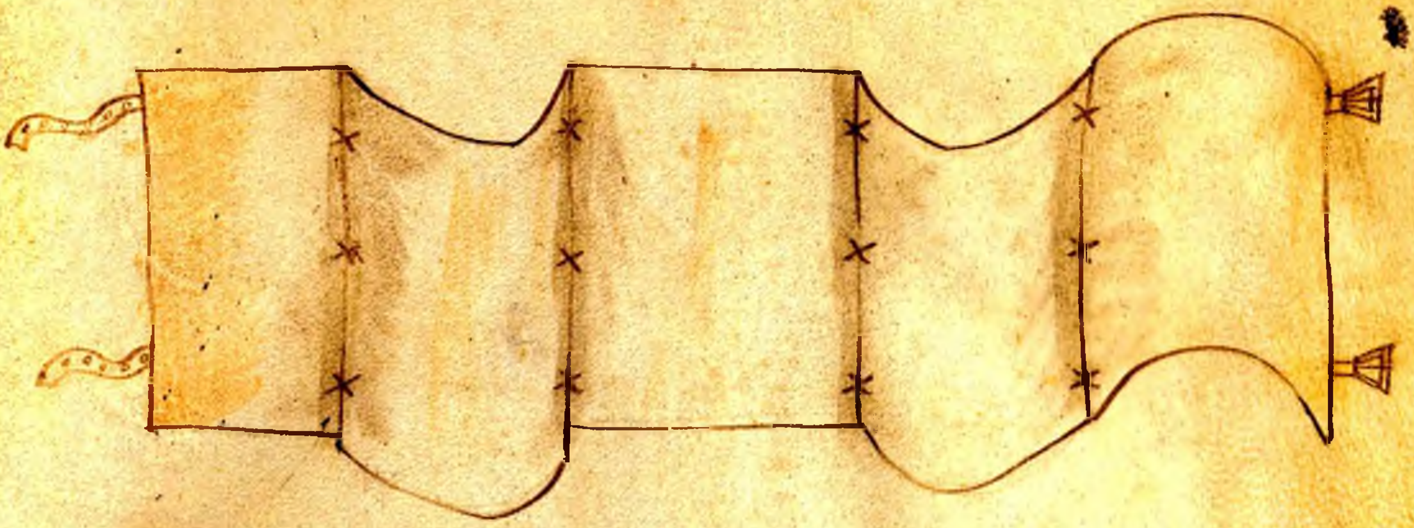


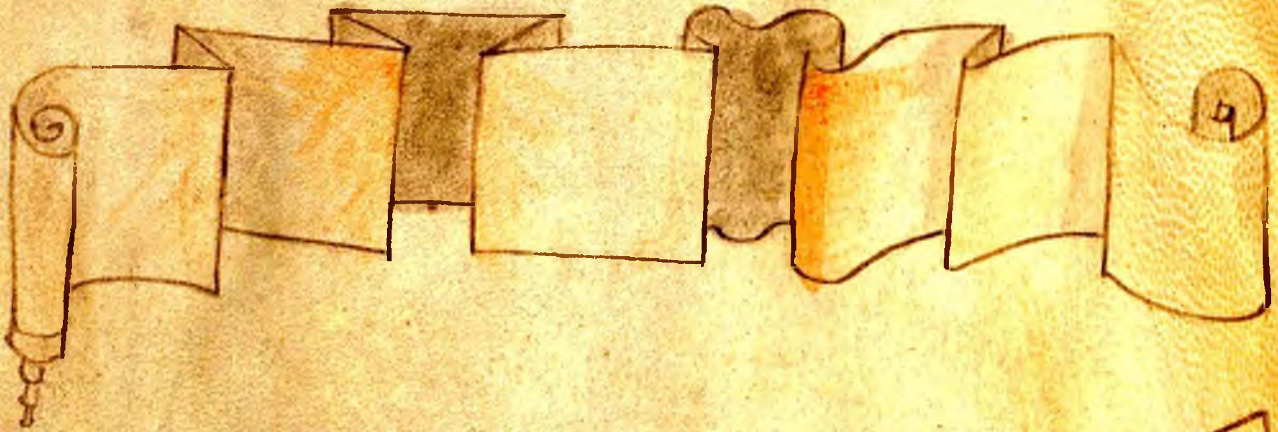




Castellũ vmbrarũ co q̄ ĩ loco obscuro si
tuatur / et tra ponitur / et figure
umbrate uariantes ac tus suos ostenduntur.

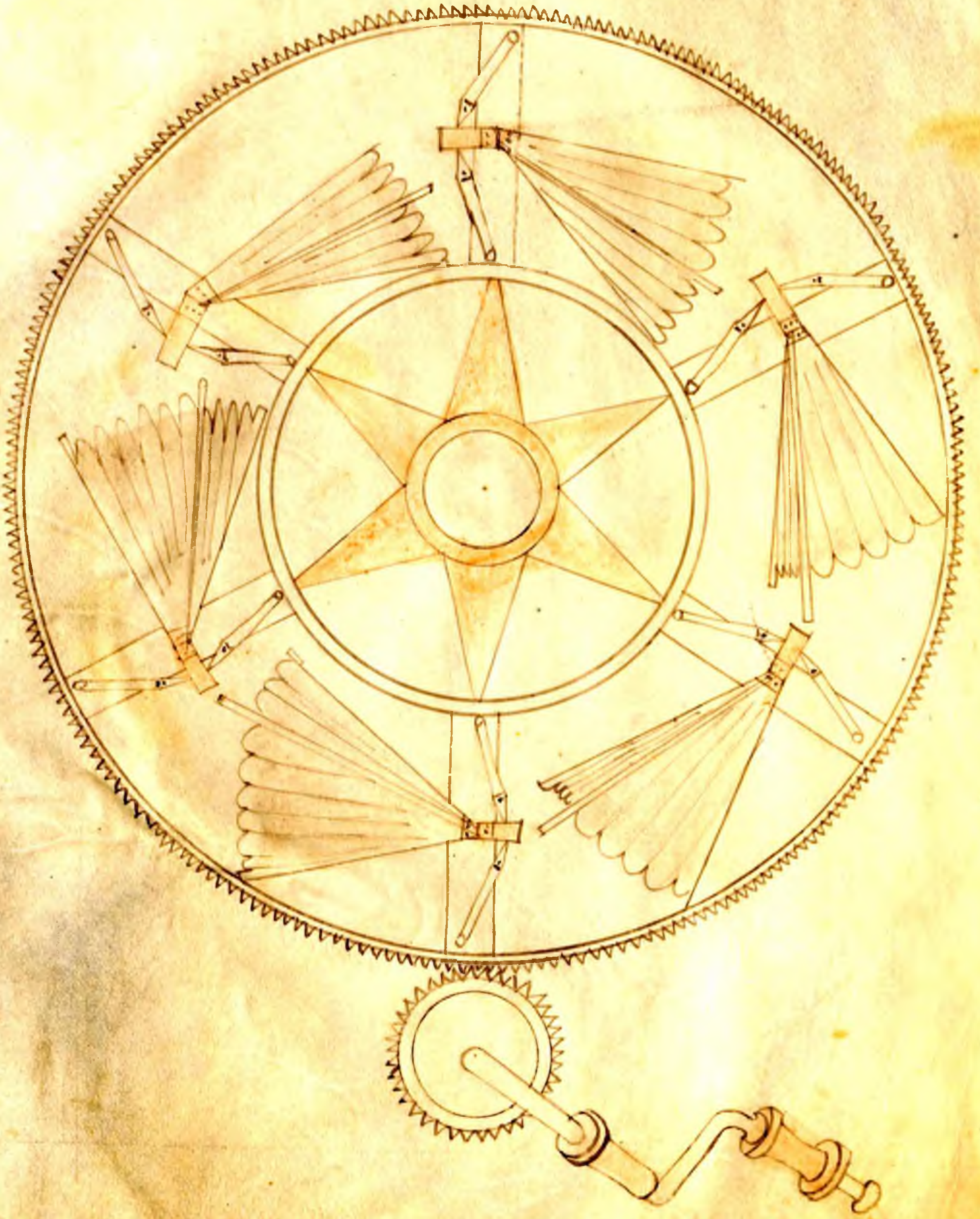






[illegible]

Rota follica fistularis. [illegible]



Apparentia nocturna ad terrorem
videntium

[illegible]
[illegible]
[illegible]