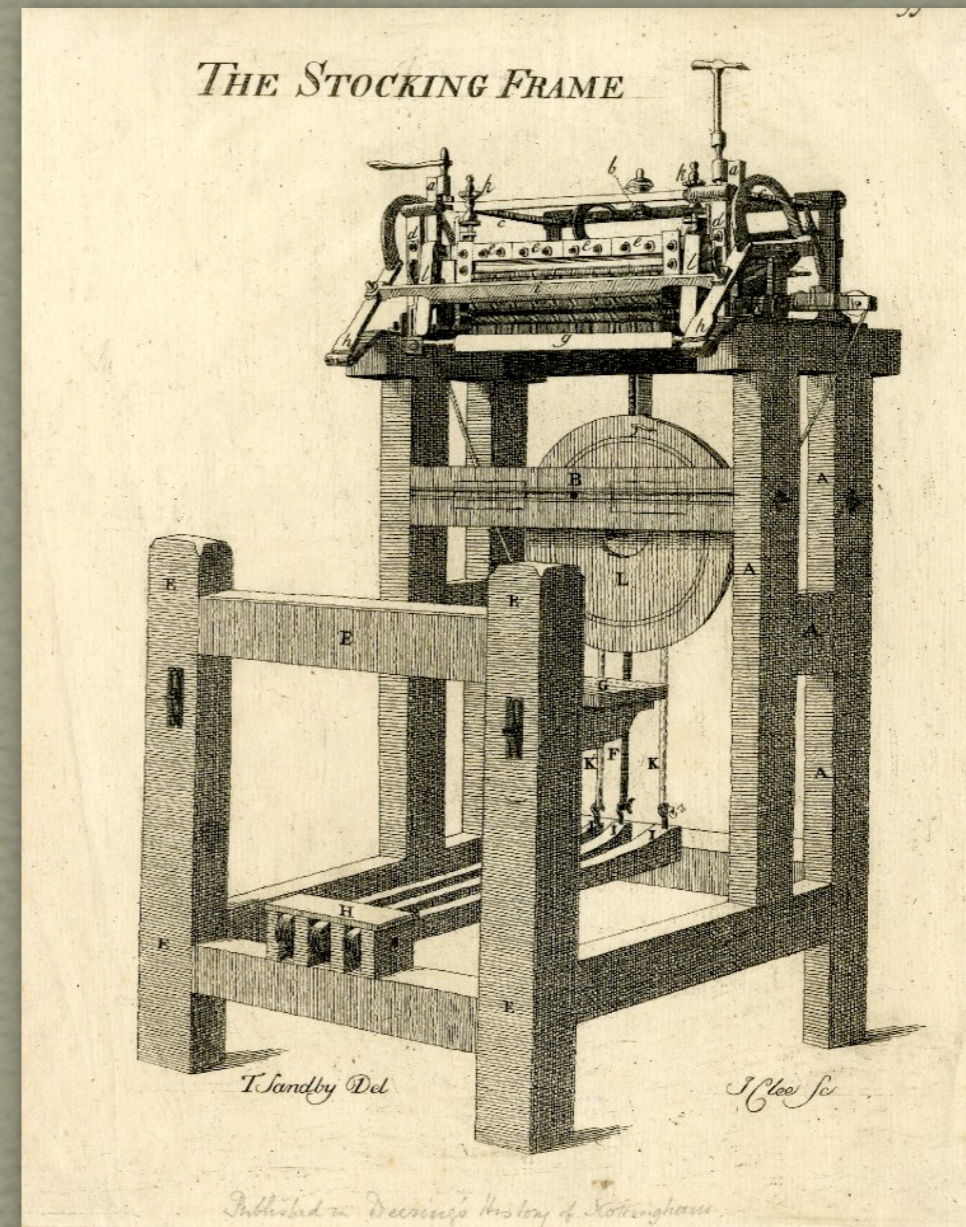


18th Century Material Culture: Stocking Frames & Stockings



Stocking Production

History of the Hand Knitting Frame (German Hosiery Museum)

Mechanical hosiery knitting began in the 16th century and the method carried on into the 19th century almost unchanged.

William Lee, a theology student from Woodborough near Nottingham, built a mechanical hand knitting frame in 1598, which was the first attempt at mechanizing hosiery knitting. From this time on, it was possible to hand-knit stockings with mechanical help.

Lee's knitting frame, fully constructed using iron, was an upright chair fitted with a bench for the knitter. Lee's first knitting frame could form 600 stitches per minute, as opposed to a practiced hand-knitter, who could only form about 100 stitches.

History of the Hand Knitting Frame (German Hosiery Museum)

Queen Elizabeth I. prohibited the patent which would have been necessary to produce mechanically-knit stockings and allow Lee to distribute his knitting frame throughout England. Her explanation was that the knitting frame could only produce coarse woolen goods which could not compete with fine hand-knit silk stockings. The real reason, though, was probably the fear that hundreds of hand-knitters would be unemployed if Lee's knitting frame were launched.

Lee attempted to establish his now improved "machine" in London in 1609. His knitting frame could meanwhile produce silk stockings with 1500 stitches per minute. Again, his patent application was rejected.

History of the Hand Knitting Frame (German Hosiery Museum)

With the help of the Duke of Sully, minister of King Henry IV. of France, Lee established his knitting frame in Rouen in 1612. Lee agreed to deliver 8 machines to Rouen, and send 6 English knitters to teach the French how to produce hosiery mechanically. Lee was apparently working in Rouen with another two Englishmen in 1615, but this was the last mention of him - he probably died in France. After William Lee's death, his brother James brought seven of the knitting frames and most of the English knitters back to England, where the knitting frame was improved in the 1620's. Instead of the original fineness of 12 gauge (12gg - this means 12 needles per 1.5 inches, or 3,81 cm), stockings with 24 gauge fineness could be produced. Other improvements most likely led to the fact that now only one knitter could operate the knitting frame, as opposed to two knitters for the original knitting frame.

History of the Hand Knitting Frame (German Hosiery Museum)

In 1641, there were two stocking knitting master craftsmen in Nottingham, who produced stockings on an unknown number of knitting frames. Most of England's knitting frames, though, could be found in London near the King's Court - the largest consumer of hosiery. In 1660, there were 650 knitting frames in England, 400 of them in London. By 1695, the number of knitting frames in London increased to 1500, and between 1670 and 1695, an additional 400 knitting frames were exported to France, Italy and Spain. This happened although King Charles II. ordered an export embargo for all knitting frames with which silk stockings could be produced in 1663.

History of the Hand Knitting Frame (German Hosiery Museum)

The knitting frame continued to be improved. At the end of the 17th century, the knitting method and thus the mesh structure became smoother. This made England the leading producer of knit stockings, which were in demand all over Europe. Knit stockings were one of England's most important exports during this time.

History of the Hand Knitting Frame (German Hosiery Museum)

James Lee brought 7 of the 8 knitting frames in Rouen back to England - the 8th knitting frame ended up in Venice with its English knitter. There it was copied and distributed to various European cities. Around 1700, one of the knitting frames could be found in Dresden, where it was used by a Frenchman.

Johann Esche, who's father operated a dyeing mill in Limbach near Chemnitz, had the opportunity to see a knitting frame while purchasing stockings. After several visits and in-depth studies of its construction, Esche was able to reproduce the knitting frame in wood. Esche opened a hosiery mill, and with his reproduction of knitting frame, a flourishing hosiery industry was founded in the Erz Mountains.

History of the Hand Knitting Frame

1589

William Lee from Woodborough, Nottingham, invents the first Hand Knitting Machine or “Frame”. With his invention, smooth, unpatterned, stockings could be produced with 600 stitches per minute and a fineness of 12 gauge (12 needles per 1.5 inches/3.81 cm).

1609

Lee's knitting frame is improved to 1500 stitches per minute and a fineness of 24 gauge.

History of the Hand Knitting Frame

1658

Industrial spy, Jean Hindret, smuggles design drawings of William Lee's knitting frame to France. These drawings would eventually be published a century later in Denis Diderot's "Encyclopedia".

In 1667, Hindret opens the first Royal silk hosiery mill in France. Originally located in the Château de Madrid in Bois de Boulogne near Paris, it would later spawn other mills throughout the French countryside. To control this, the French Government issues a royal decree in 1700 which limits the production of silk hosiery to Paris, Dourdan, Rouen, Cannes, Nantes, Oléron, Aix-en-Provence, Toulouse, Uzes, Romans, Lyon, Metz, Bourges, Poitiers, Orleans, Amiens, Reims and Nîmes.

History of the Hand Knitting Frame (German Hosiery Museum)

During the beginning of the 18th century - when the hand knitting frame became known throughout France and Germany - the knitting frames, which were originally made from steel, were reproduced in wood in Württemberg and the Erz Mountains and renamed roller chairs. Many of the parts of Lee's knitting frame, which were originally made from steel, were fabricated from wood in Germany due to the shortage of steel workers and of steel itself. The steel hand knitting frame was not introduced in Germany until 1770.

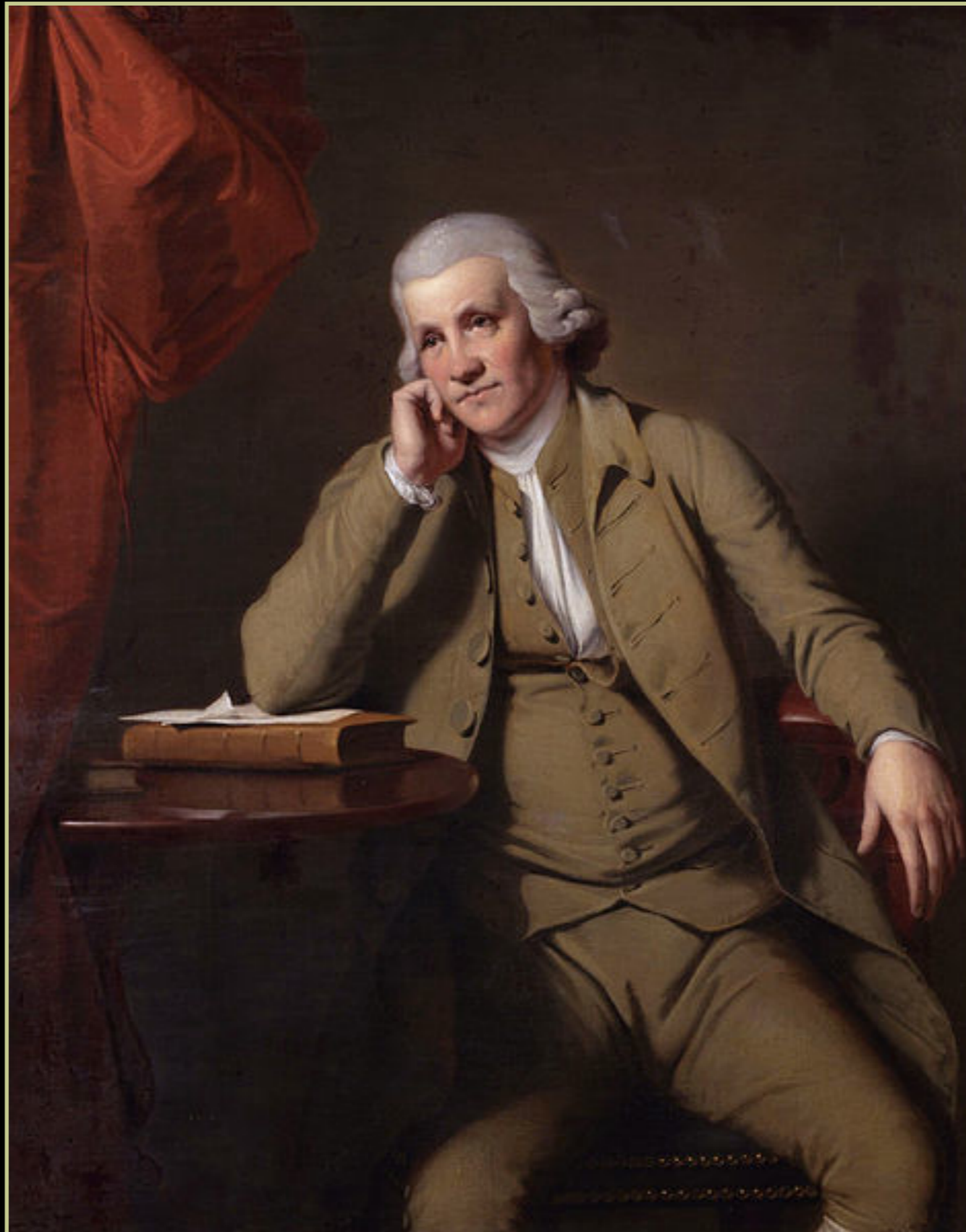
In 1740, due to the introduction of the pressing machine, the production of stockings with colored pressed patterns became possible.

History of the Hand Knitting Frame

1758

English Hosier Jedediah Strutt from Derby, and his brother-in-law, William Woollatt, receives a patent by adapting Lee's Stocking Frame with an attachment to produce commercially available, mass-produced, Ribbed Stockings.

Called "Ribbed Goods" or "Derby-Ribs" in England, this double-faced fabric (which were arguably more form fitting or "elastic" than plain knit stockings) becomes a major competitor to those goods made possible only by hand-knitting.

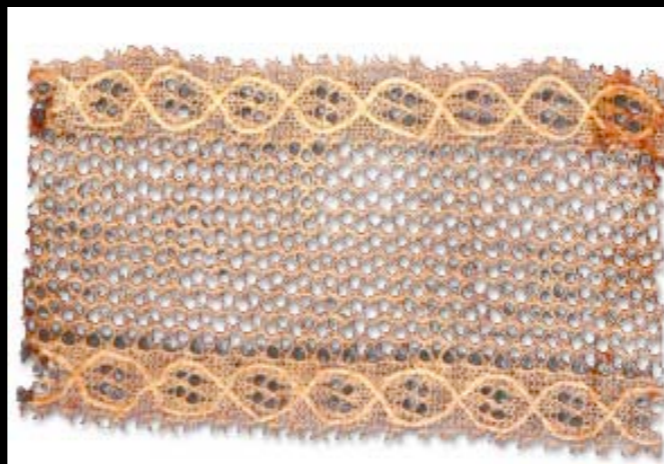


Hosier Jedediah Strutt
by Joseph Wright of Derby c. 1787
(Derby Museums & Art Gallery)

History of the Hand Knitting Frame

1763

English Hosier, John Morris, patents a frame that allows the production of eyelet hole mesh. Used extensively for border lace, mitts and gloves, handkerchiefs, and hoods and caps, it also enabled ornamental pierced patterns to be placed in the clocks of stockings. This “Point net Machine” gave birth to the Nottingham Lace Industry.



Lace Made on a Stocking Frame
(Nottingham City Museums)

History of the Hand Knitting Frame

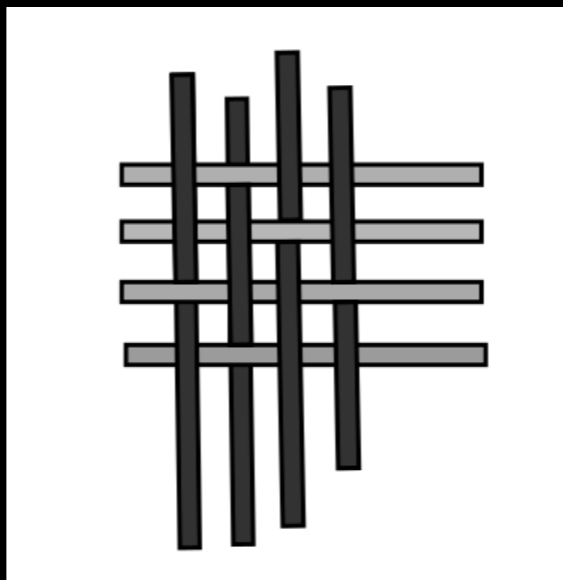
1776

English workman, William Brockey of Nottingham, creates a frame to produce “Twilled” or “Plated” goods (diagonal parallel raised ribs). Now, the outside of a knitted article could be composed of a different yarn than that on the inside. This gave birth to the production of silk stockings with an inner lining of cotton.

History of the Hand Knitting Frame

“TWILL”

“Twill is a type of textile weave with a pattern of diagonal parallel ribs (in contrast with a satin and plain weave). This is done by passing the weft thread over one or more warp threads and then under two or more warp threads and so on, with a "step" or offset between rows to create the characteristic diagonal pattern. Because of this structure, twills generally drape well.” (Wikipedia)



History of the Mechanical Flat Knitting Frame (German Hosiery Museum)

As opposed to hand-knitting, where stitches are formed one-by-one with moving latch needles, machine-knitting produces a row of stitches with the help of bearded needles and hooks. (Machine-knitting procedure).

The construction of mechanical knitting frames can be retraced into the 18th century - the hand knitting frame was the basis. At first, the hand knitting frame was furnished with a revolving shaft and fitted with levers and cams - the whole contraption was then built into the base of the knitting frame. The machine was powered using a crankshaft, which was operated either by hand or through transmittal of elemental power. With the availability of water and steam power, the factory production of warp-knit and later knit stockings began.

History of the Mechanical Flat Knitting Frame (German Hosiery Museum)

At first, only products with uniform widths could be produced using mechanical knitting frames. Single pieces of the basic commodity had to be cut out from the produced piece goods and then sewn together. Stockings produced by this method were cheaper, but the fit was not optimal. Therefore, stockings produced with the hand knitting frame - where stockings were narrowed according to the leg shape - were considered the better product in comparison to machine-knit stockings for a long time.

History of the Mechanical Flat Knitting Frame (German Hosiery Museum)

1769

Englishman Samuel Wise patents rotary-driven frame to allow for the production of stockings with narrower stitching. His flat bed invention utilized a revolving shaft built into the base frame which was set into motion by an elemental power source. It would become the predecessor of the mechanical rotary frame machine put into use until the end of the 19th century.

Der Strümpffstricker.
Die Einigkeit erhält was sonst weich und fällt.



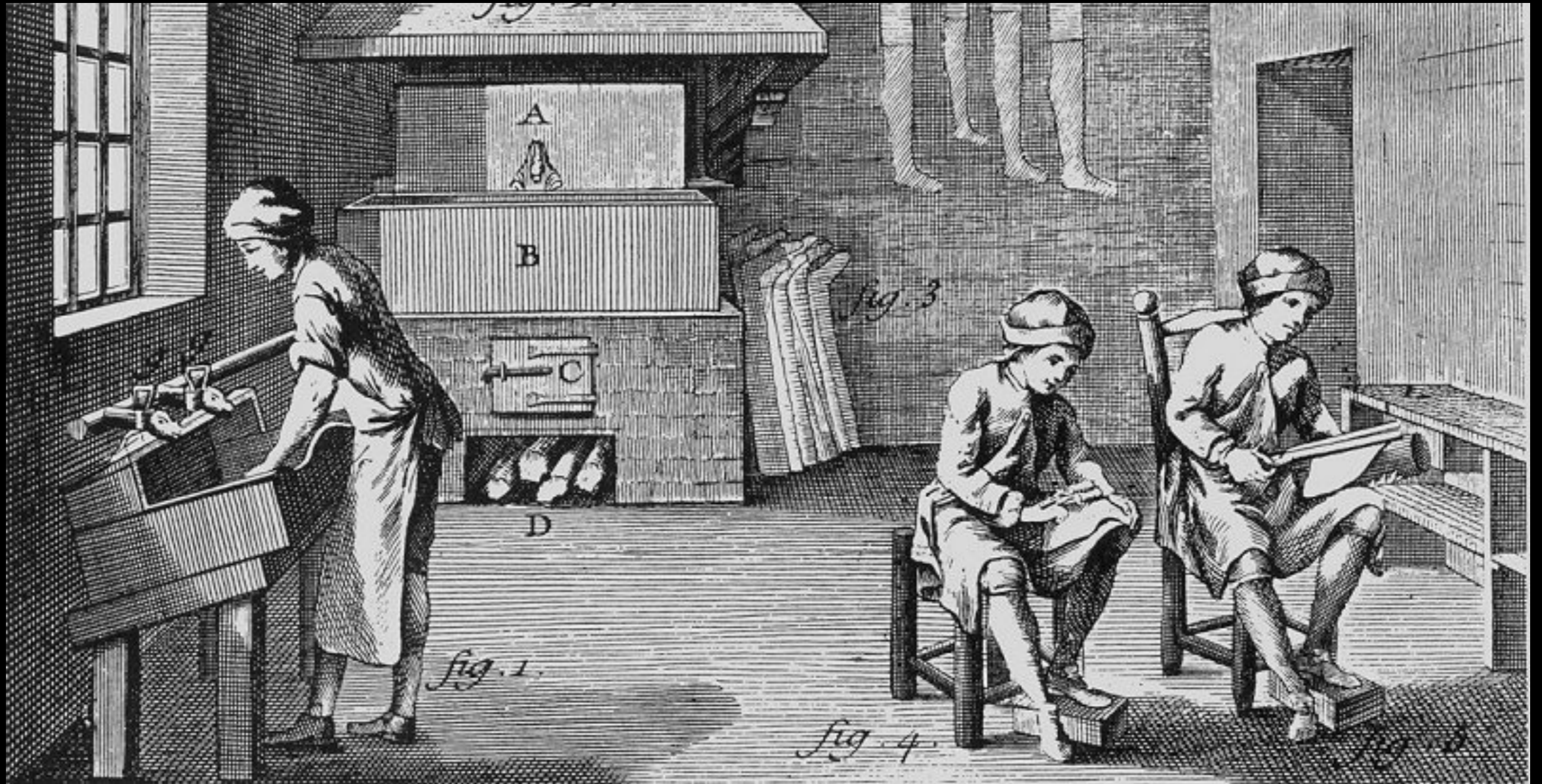
Gedanken sind der Seelen Füße,
womit sie hin und wieder geht:
Wer Vorsich bloß auff diesen steht,
erregt schnelle Sündenflut.
Daher muß man dem Zügel wehren,
durch das Gestrick der Lebens-Lehren.

The ART of STOCKING-FRAME-WORK-KNITTING.

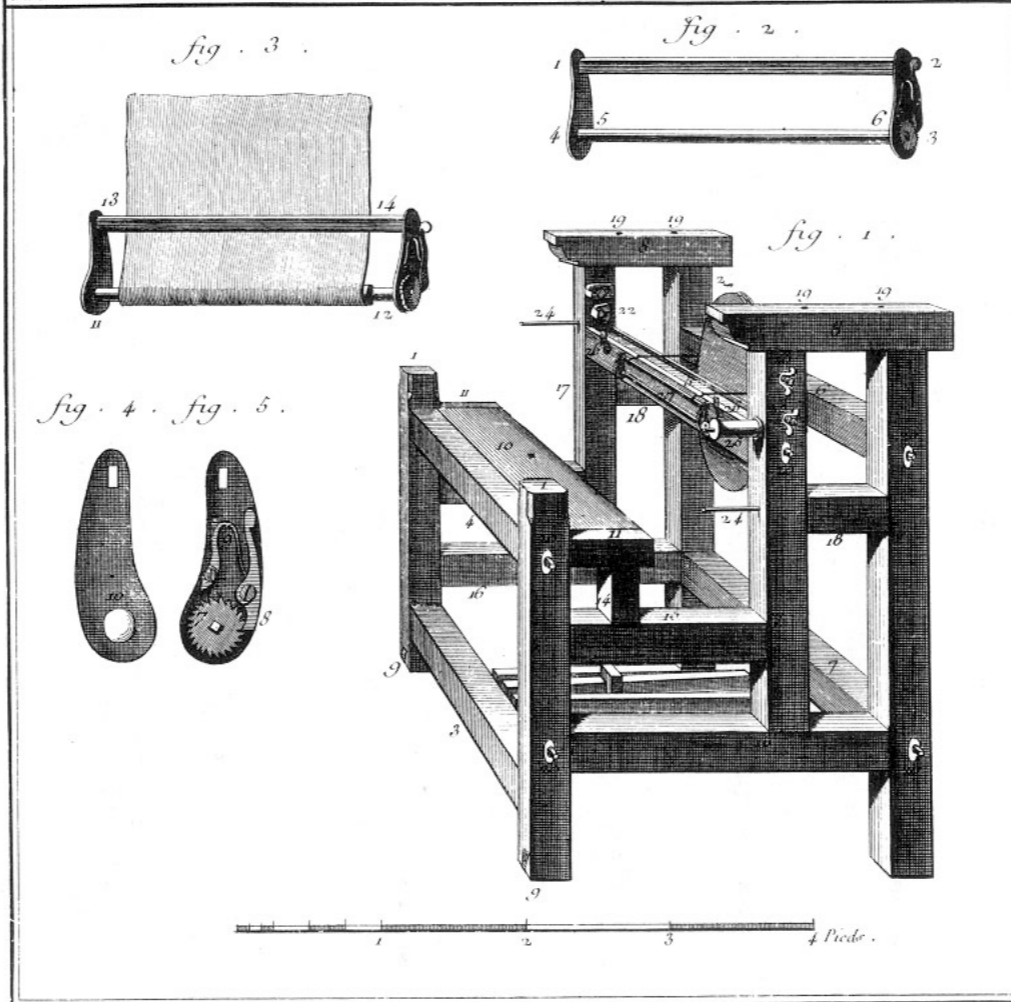
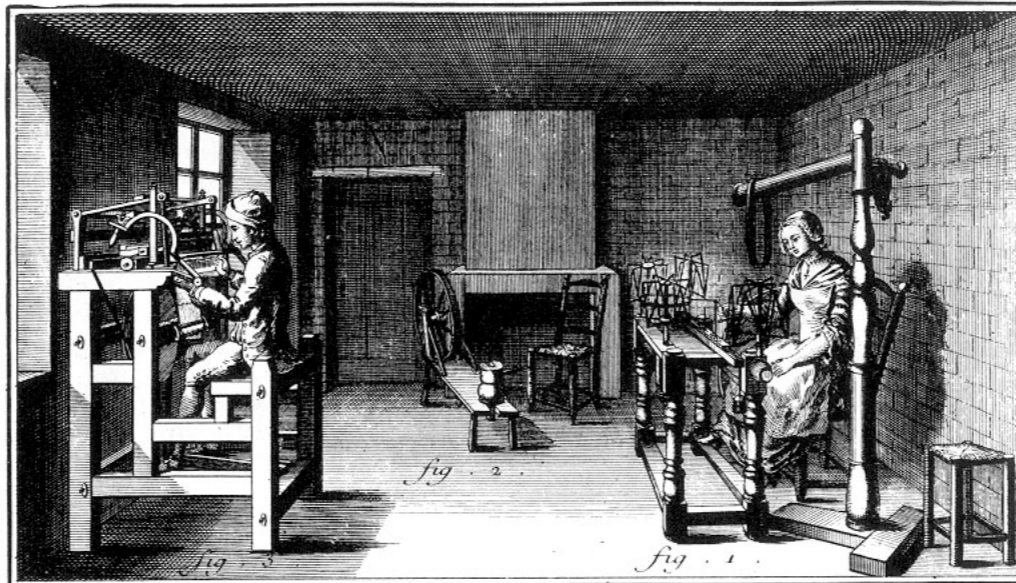


Engraved for the Universal Magazine 1750, for J. Hinton at the Kings Arms in S. Pauls Church Yard LONDON.

The Art of Stocking-Frame-Work-Knitting, engraved for the 'Universal Magazine'
by English School 1750
(The British Museum)



French Stocking Knitters
Diderot's Encyclopédie 1751



Goussier del.

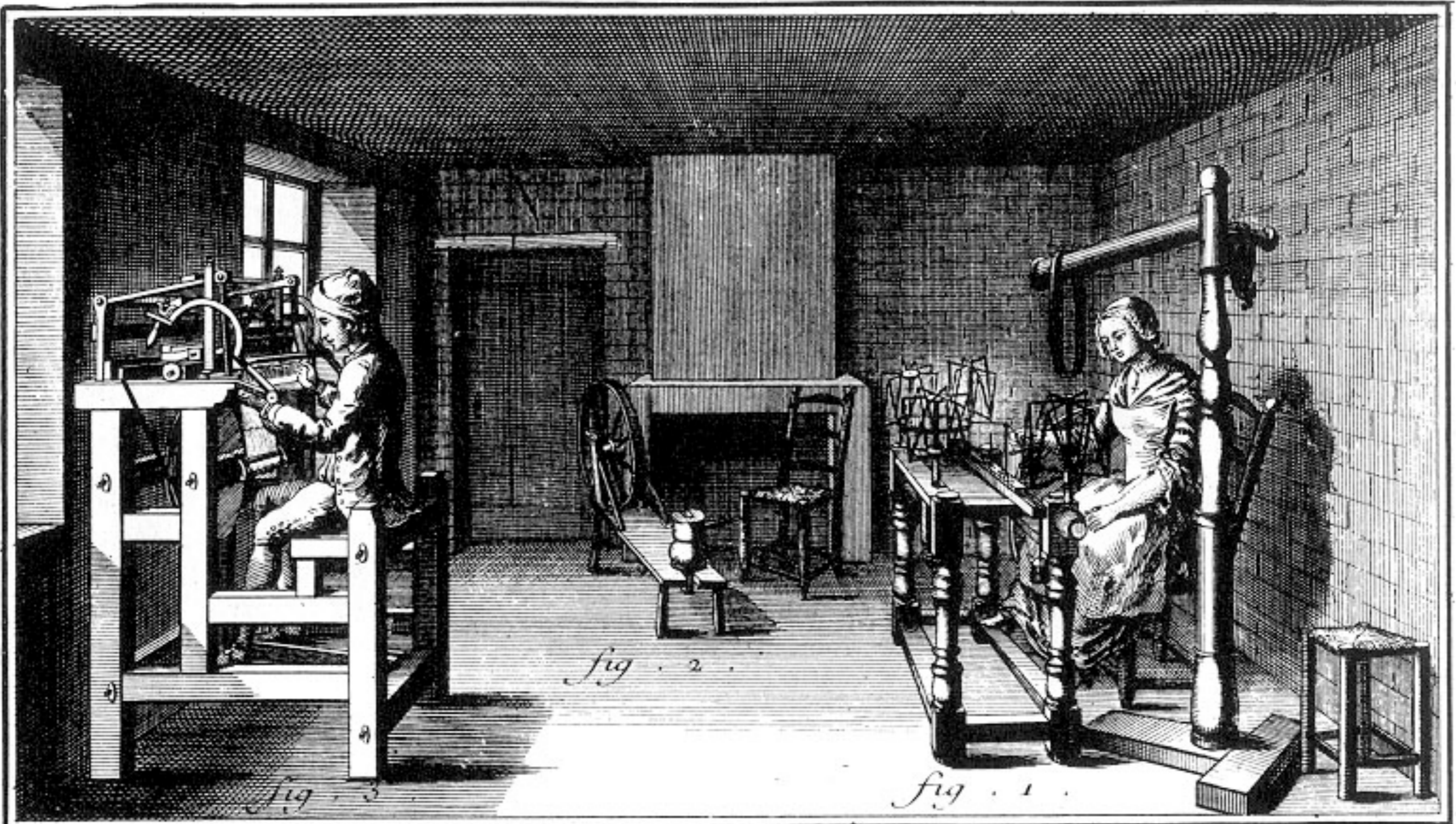
Degbret sculp.

Metier a faire des Bas

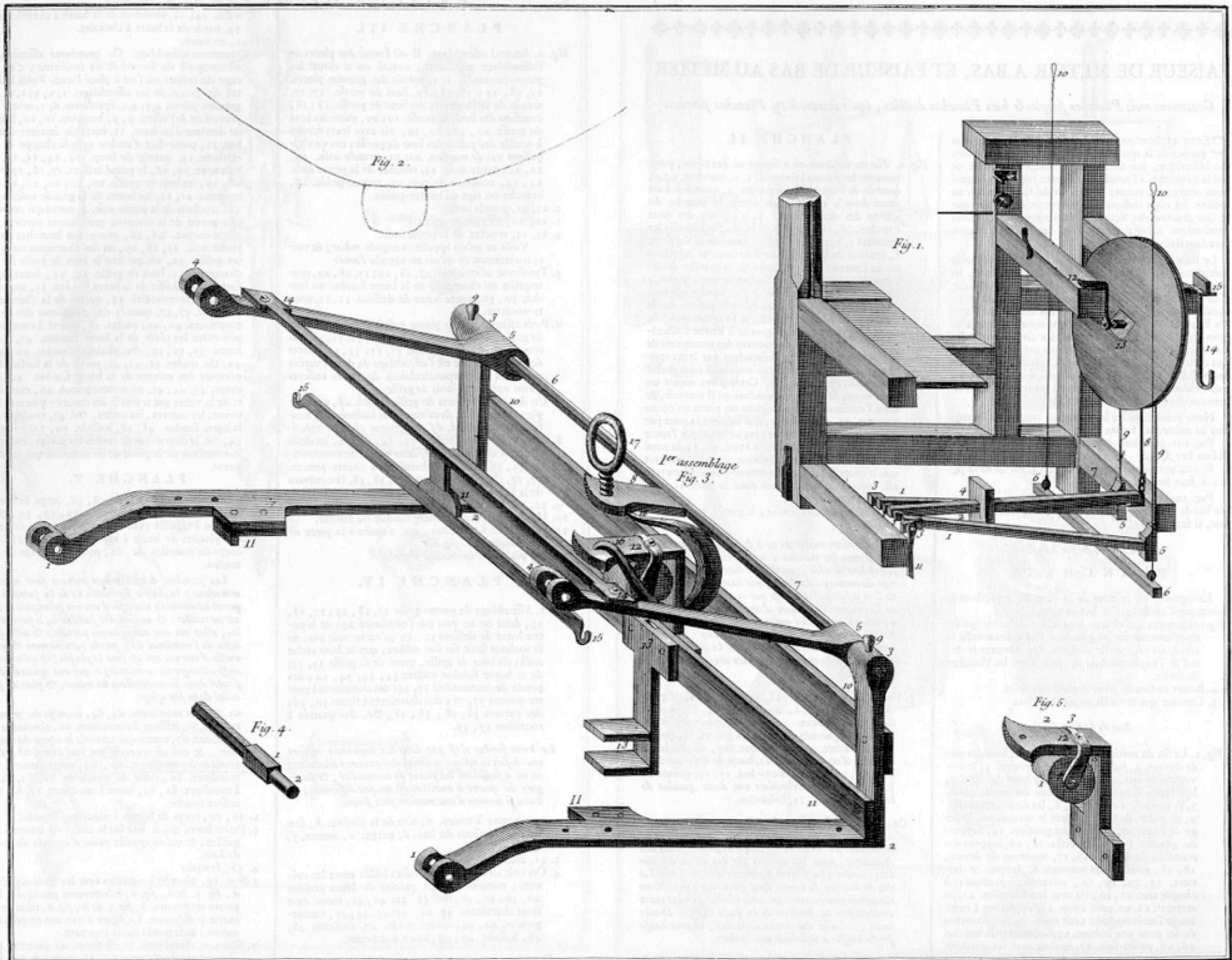
Stocking Loom

The Encyclopedia of Diderot & d'Alembert 1763

(University of Michigan)



Stocking Loom
The Encyclopedia of Diderot & d'Alembert 1763
(University of Michigan)

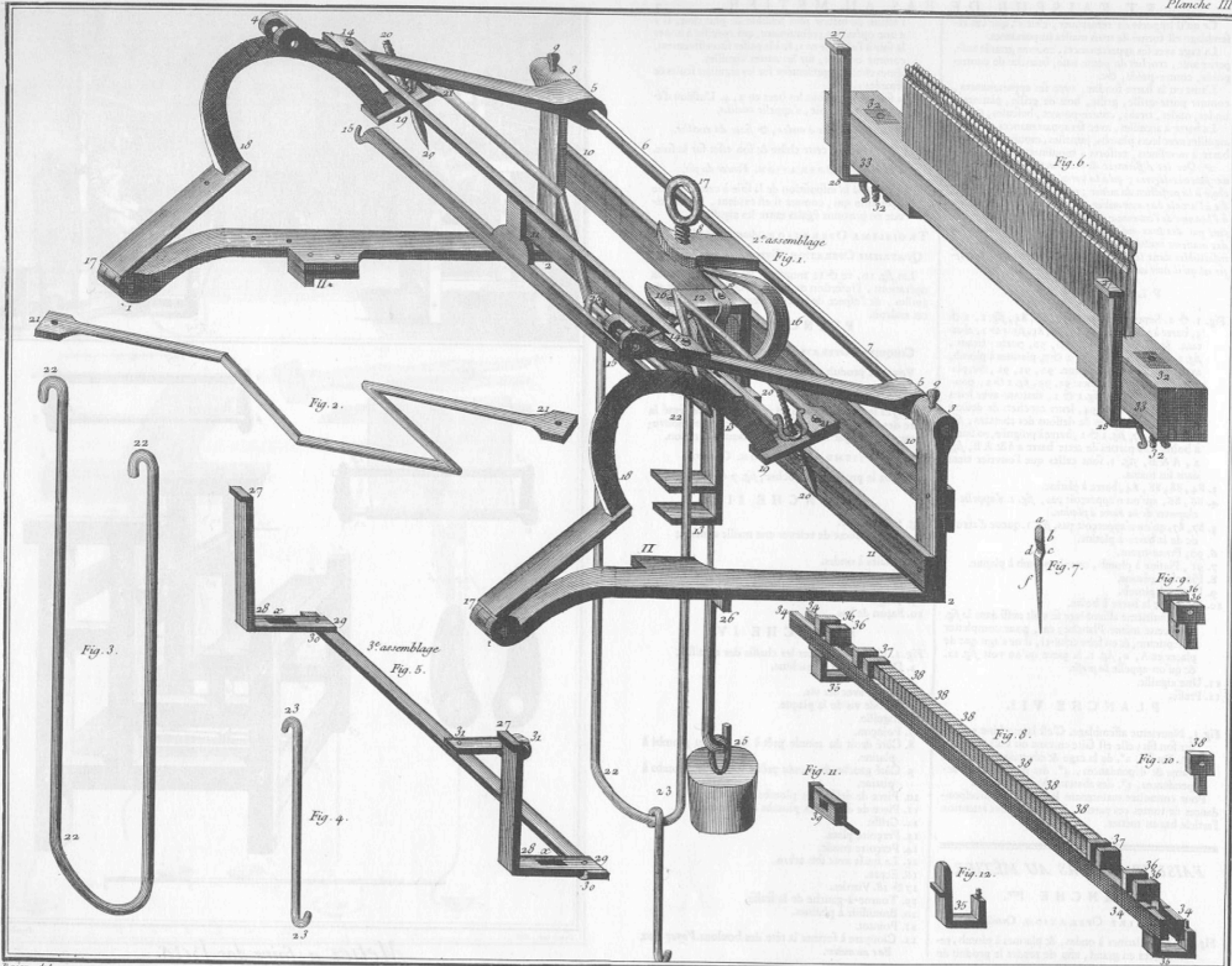


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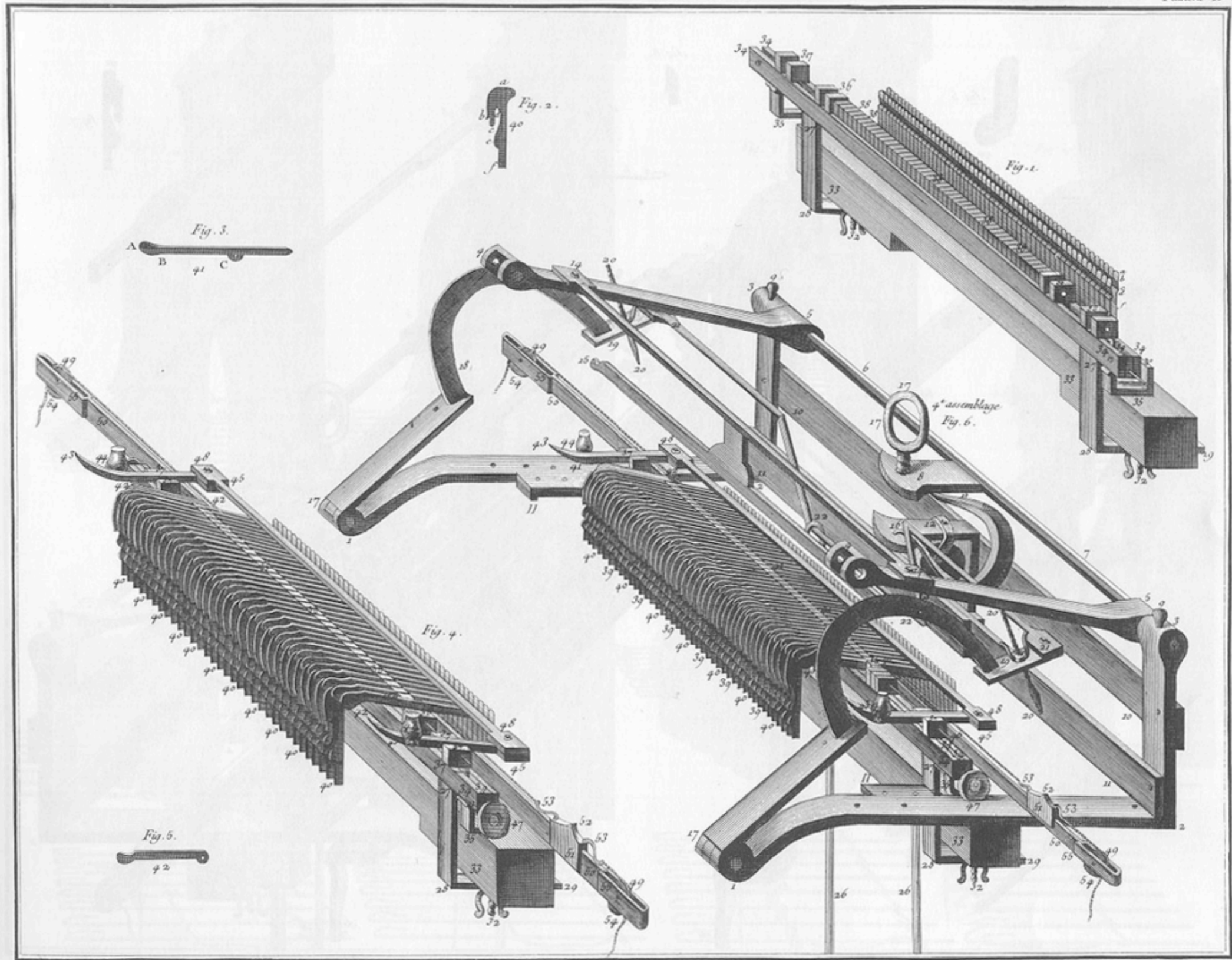
Métier à faire des bas

Stocking Loom
 The Encyclopedia of Diderot & d'Alembert 1763
 (University of Michigan)



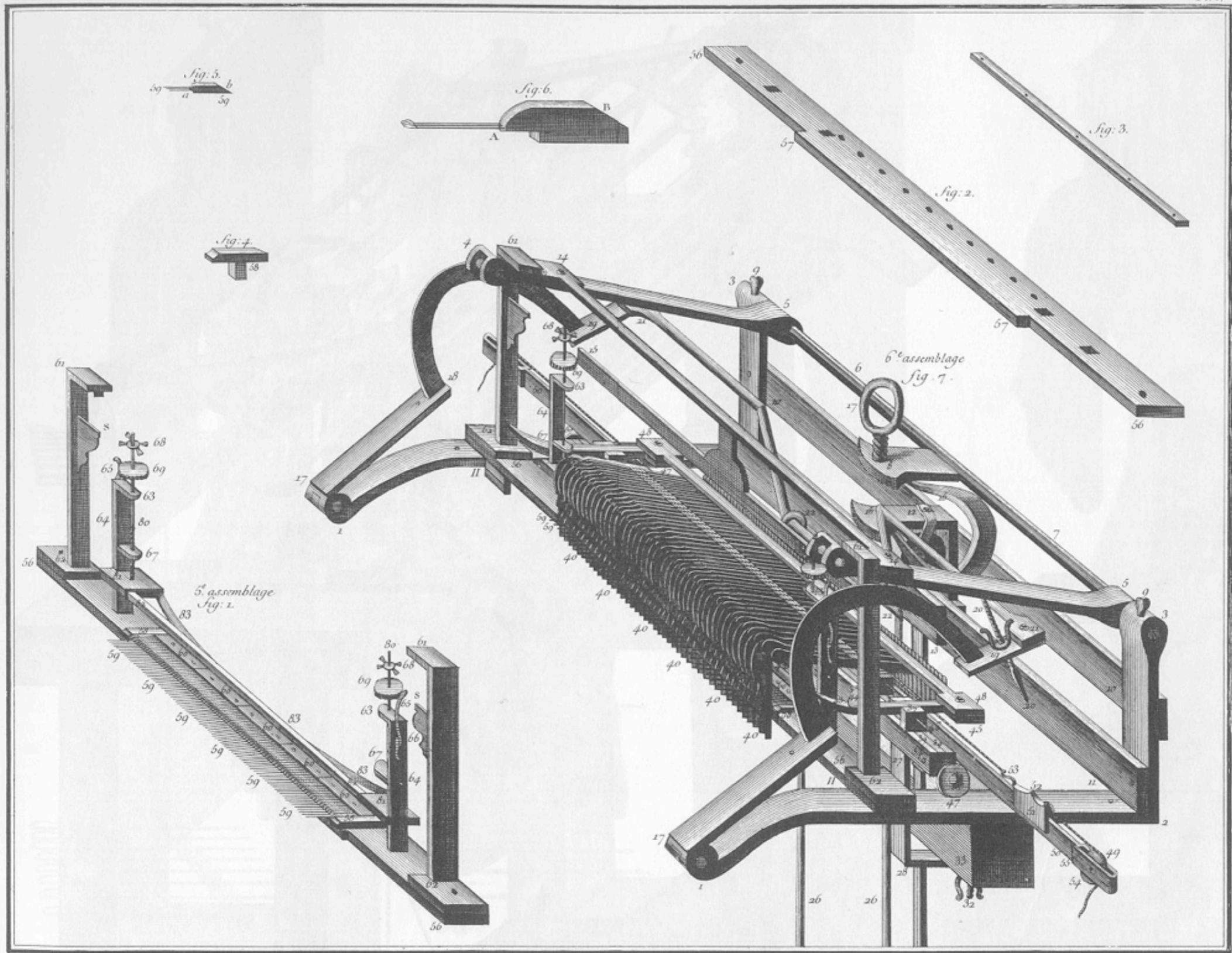
Métier à faire des Bas

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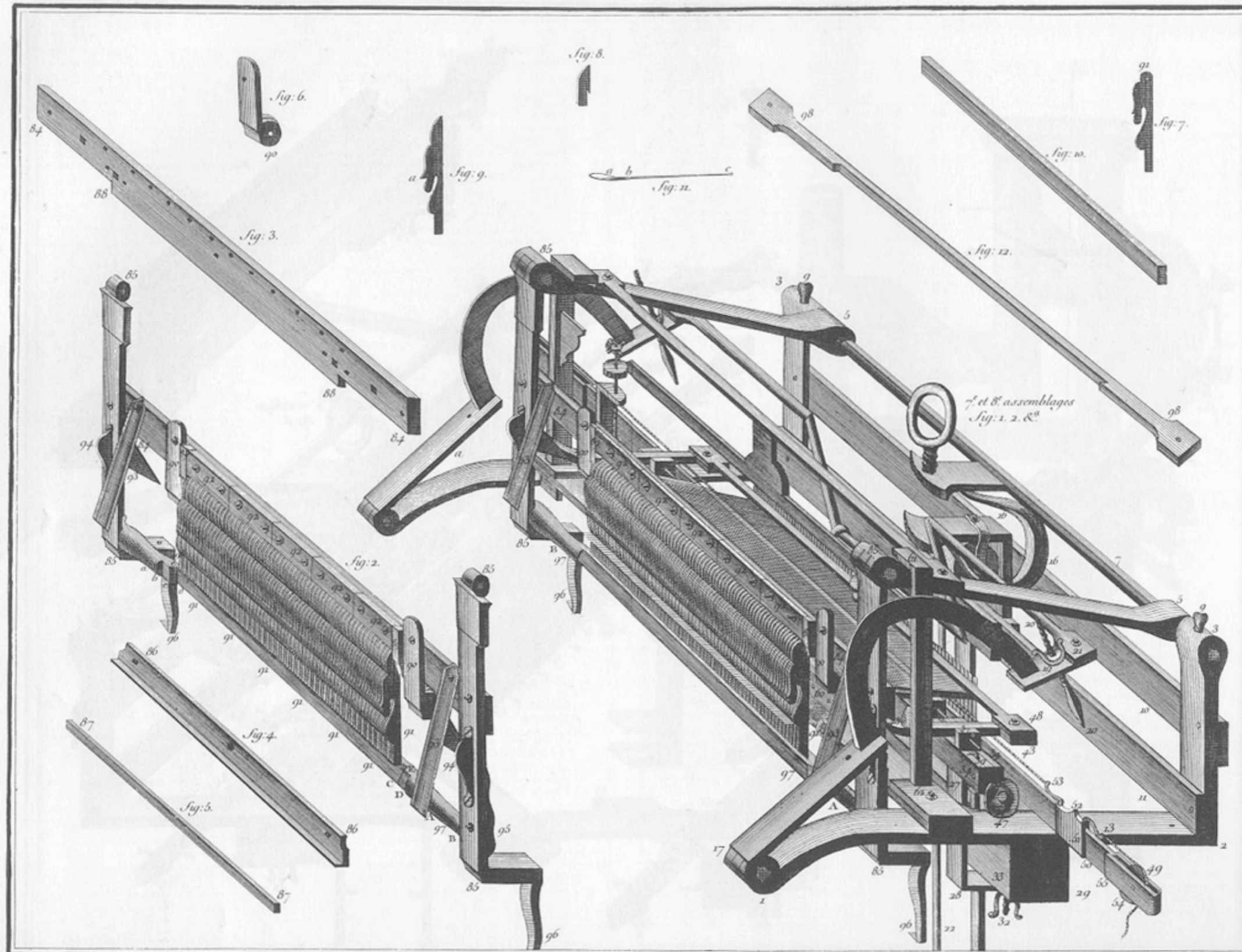
Métier à faire des Bas

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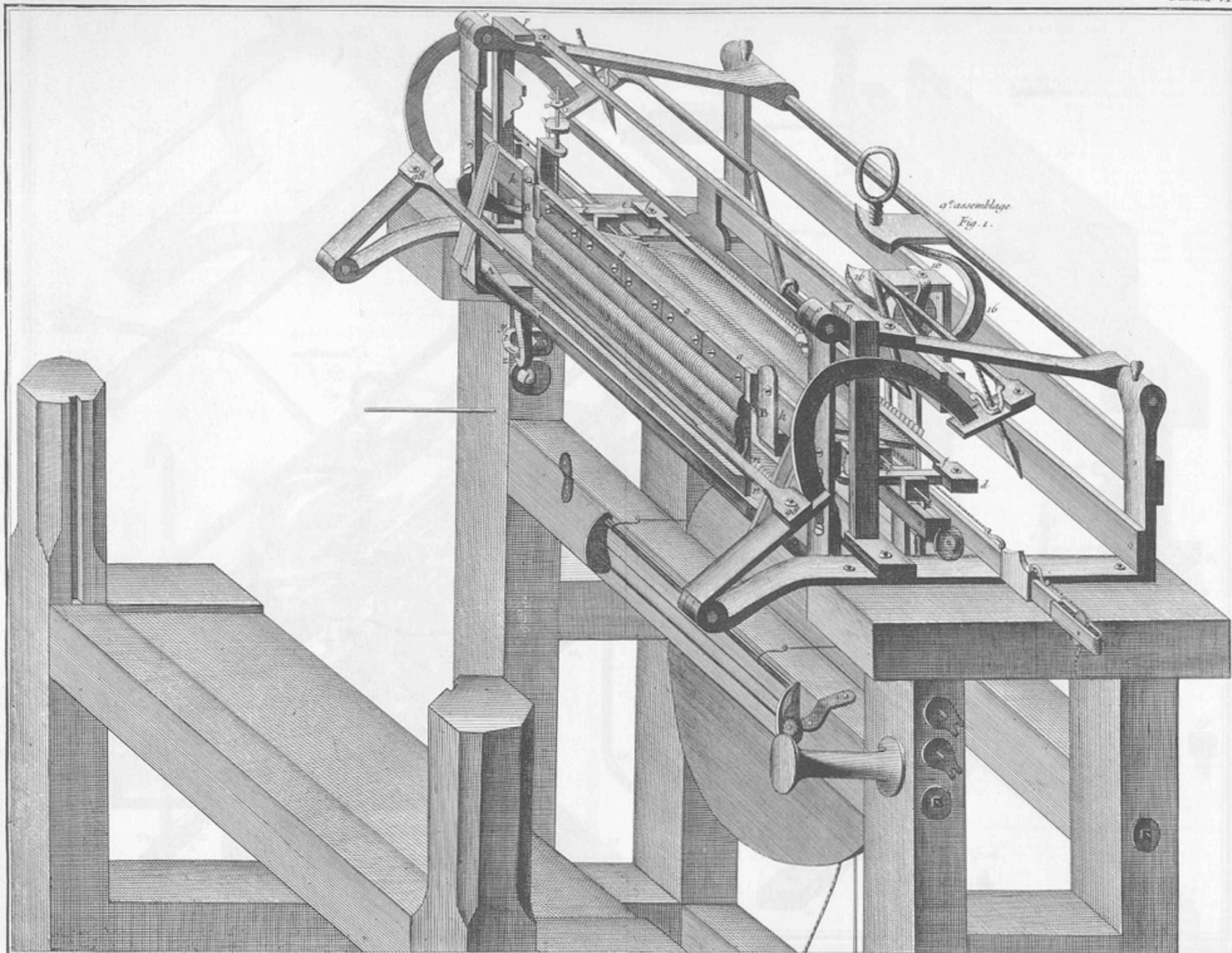
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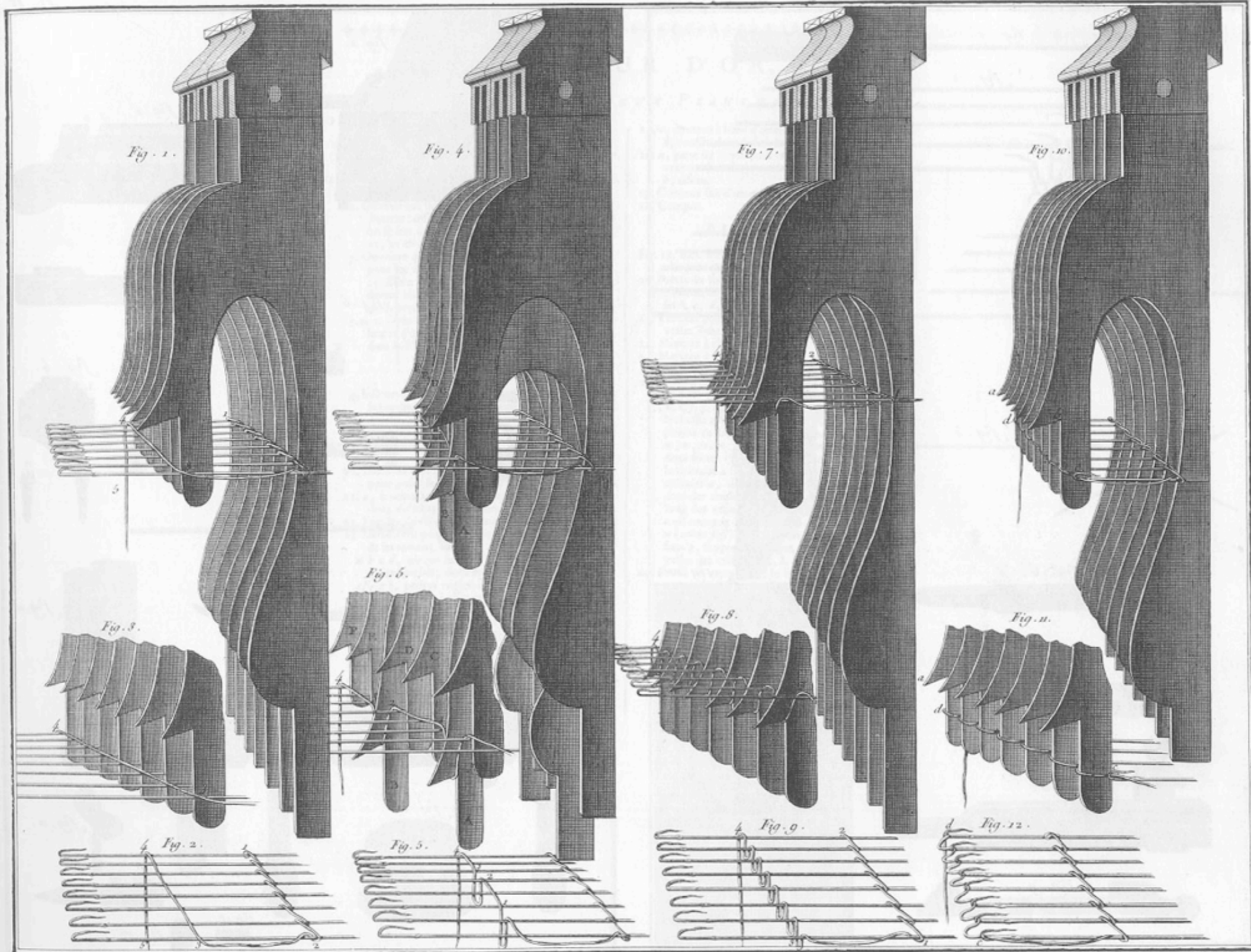


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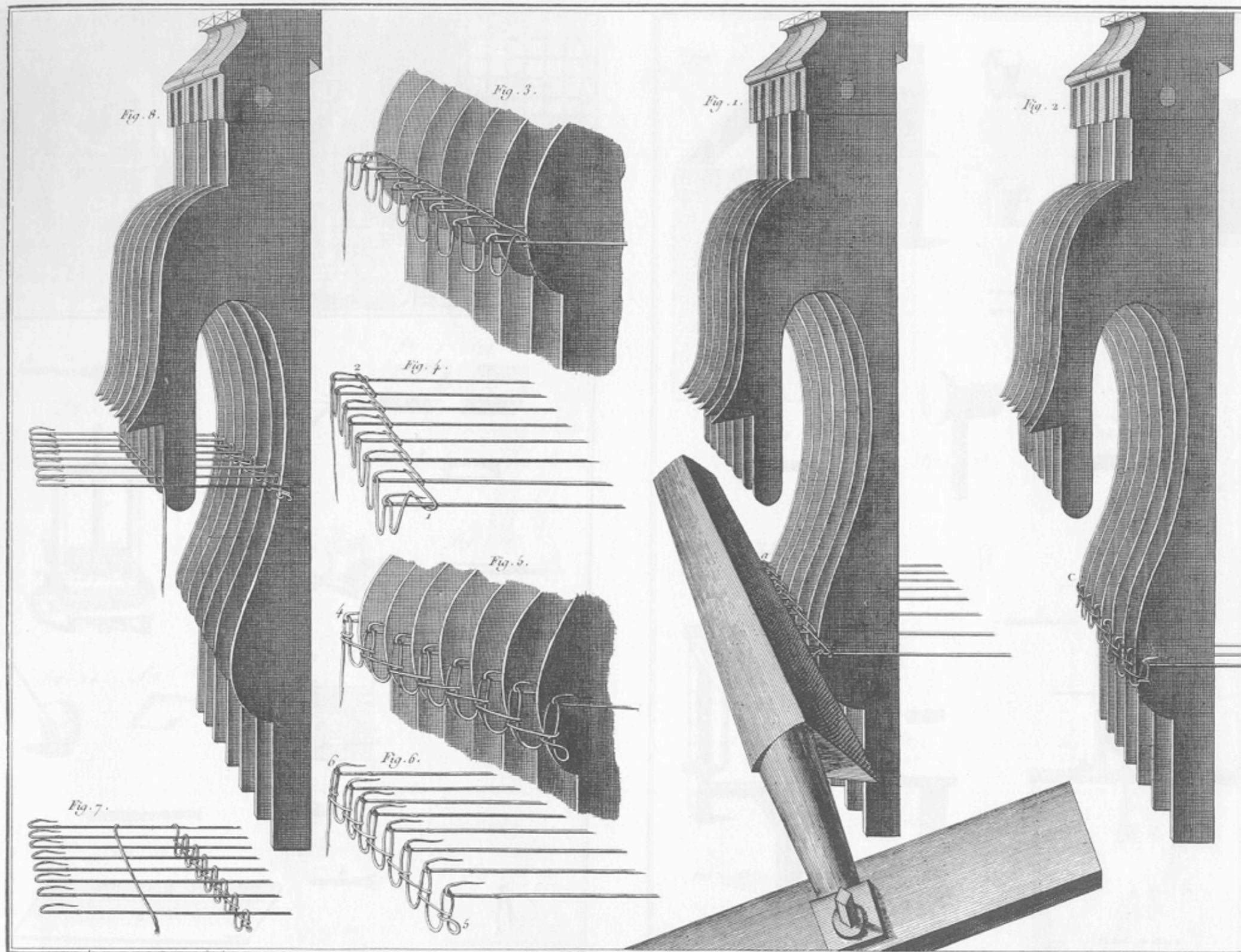
Metier a faire des Bas

Stocking Loom
The Encyclopedia of Diderot & d'Alembert 1763
(University of Michigan)



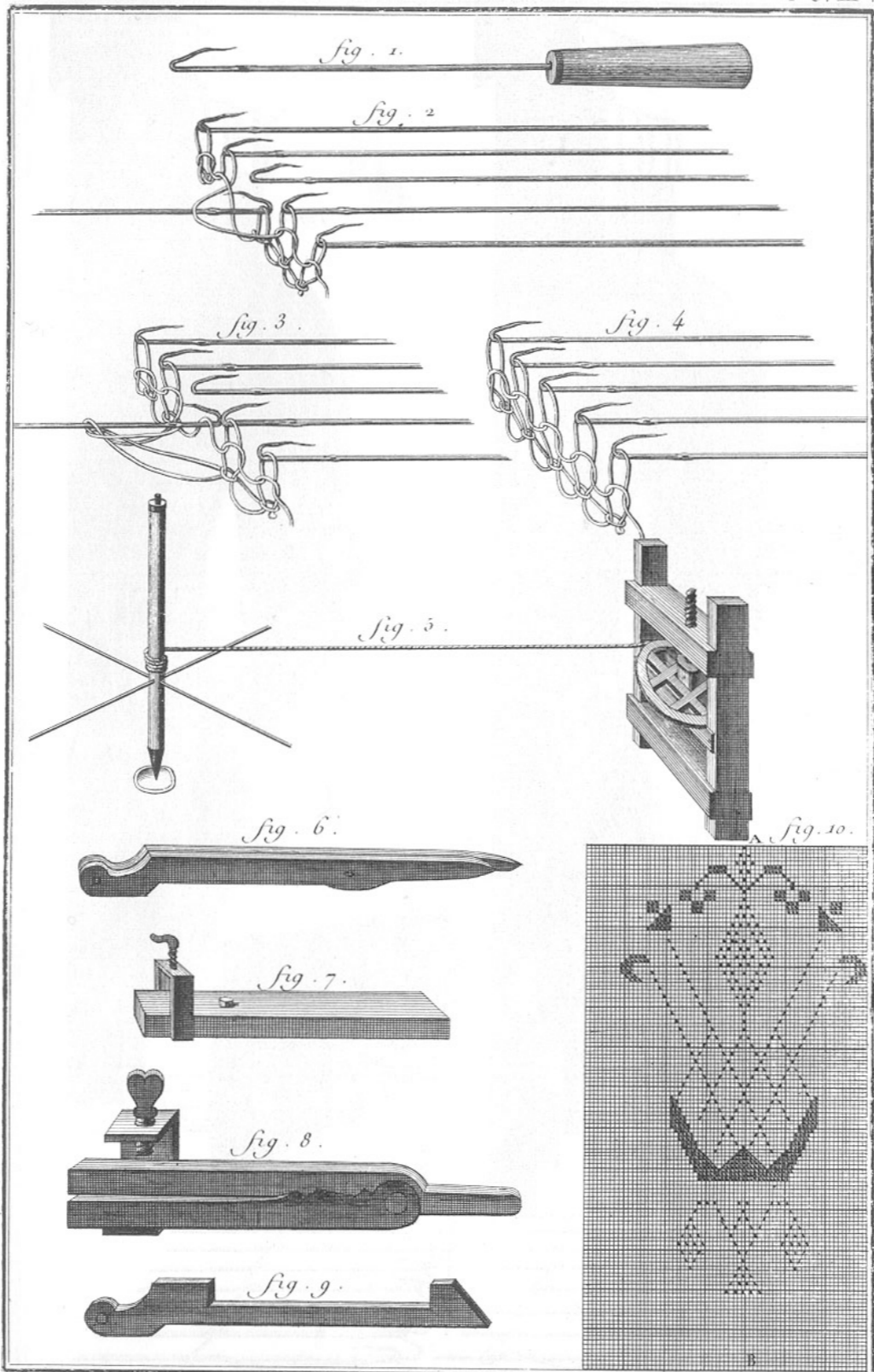
Travail du Bas au Metier

Production of Loom - Made Stockings
 The Encyclopedia of Diderot & d'Alembert 1763
 (University of Michigan)



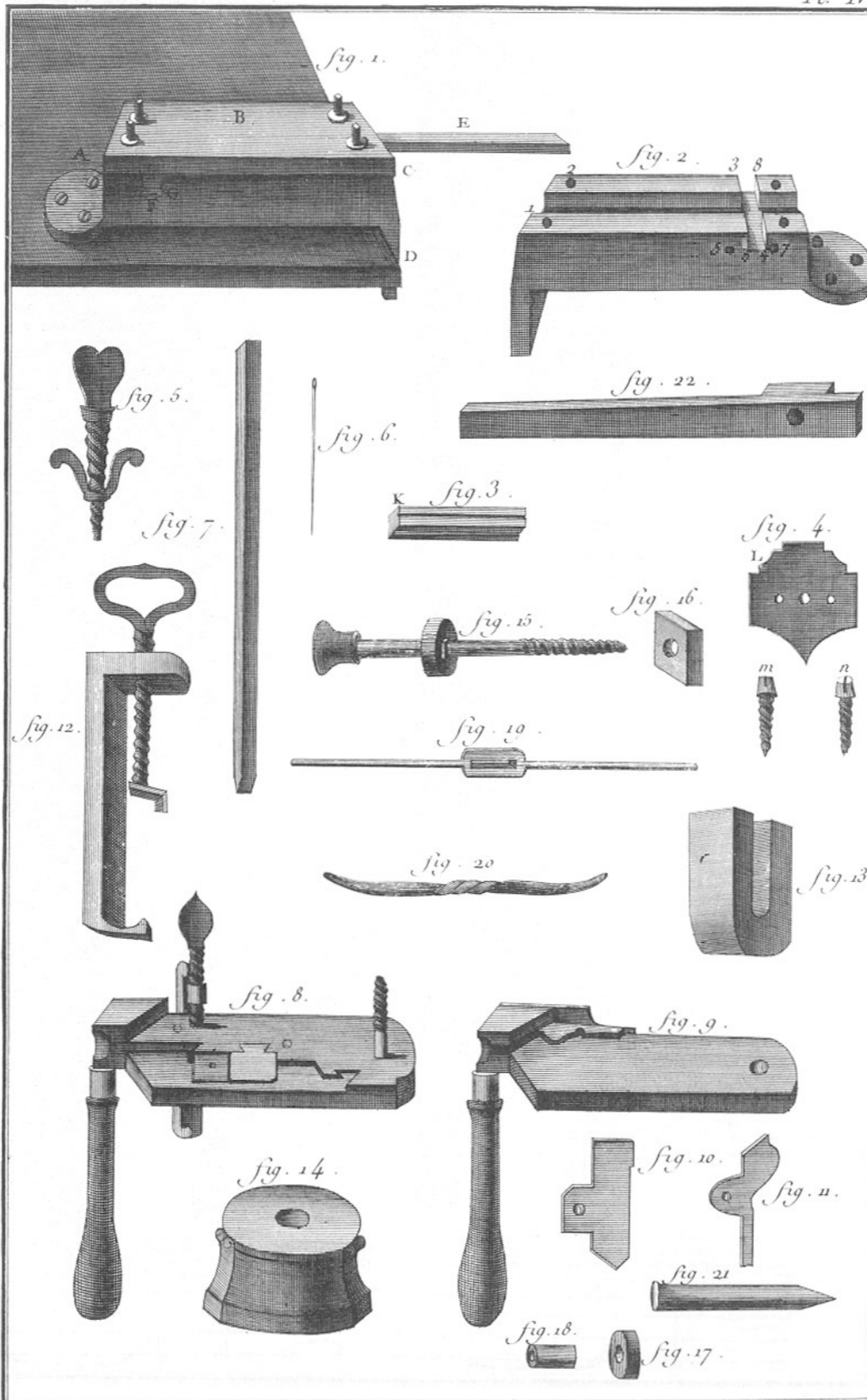
Travail du Bas au Metier

Production of Loom - Made Stockings
 The Encyclopedia of Diderot & d'Alembert 1763
 (University of Michigan)



*Travail du Bas au Metier avec differents outils
à l'usage du faiseur de Metier a Bas et du faiseur de Bas au Metier*

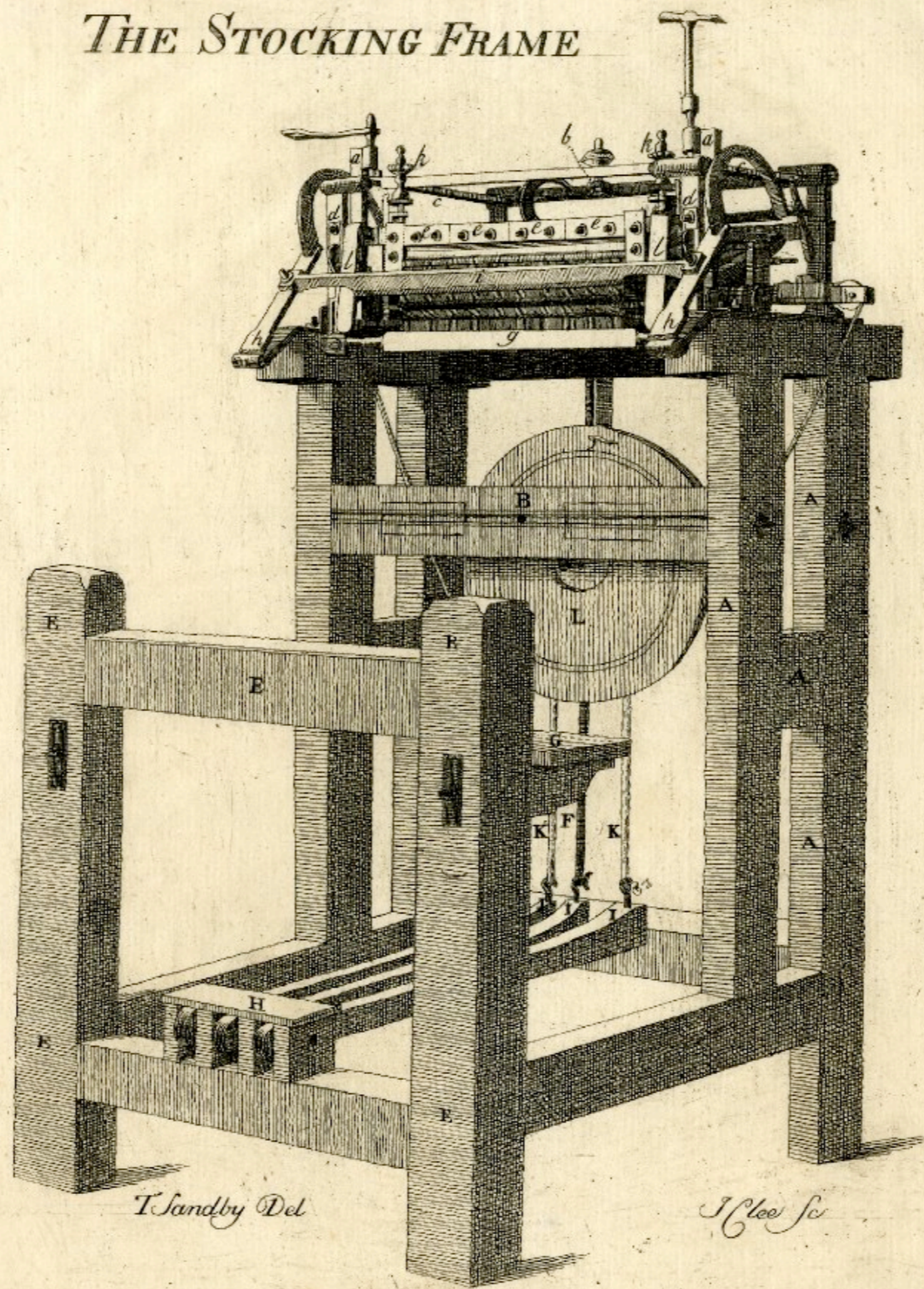
Production of Loom - Made Stockings
 The Encyclopedia of Diderot & d'Alembert 1763
 (University of Michigan)



Rojau del *Suite des outils a l'usage du faiseur de Meter a Bas et du faiseur de Bas au Meter* Prevost fecit

Production of Loom - Made Stockings
 The Encyclopedia of Diderot & d'Alembert 1763
 (University of Michigan)

THE STOCKING FRAME

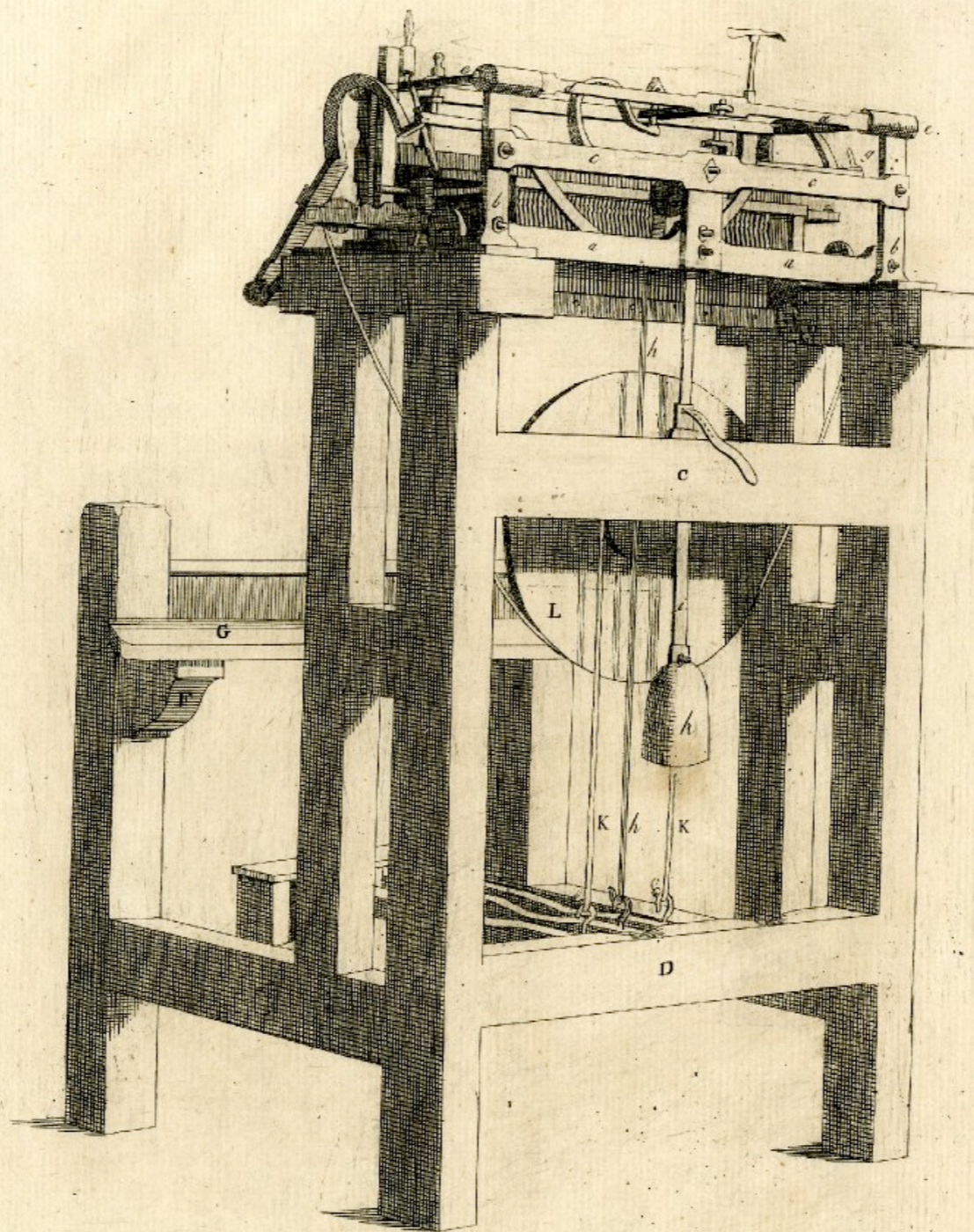


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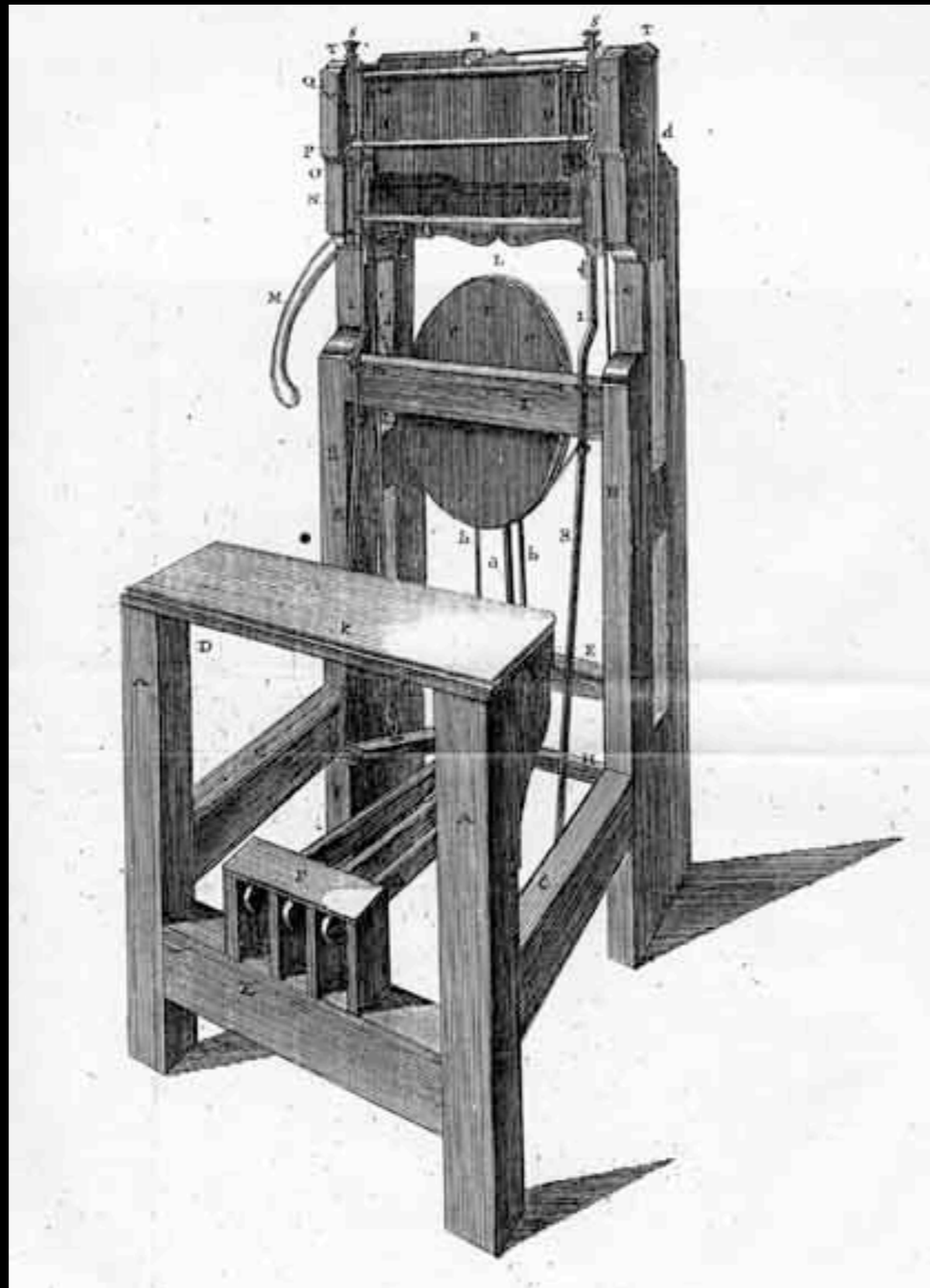
Published in Deccan's History of Nottingham

English Stocking Frame
by J. Clee after Thomas Sandby 1751
(The British Museum)



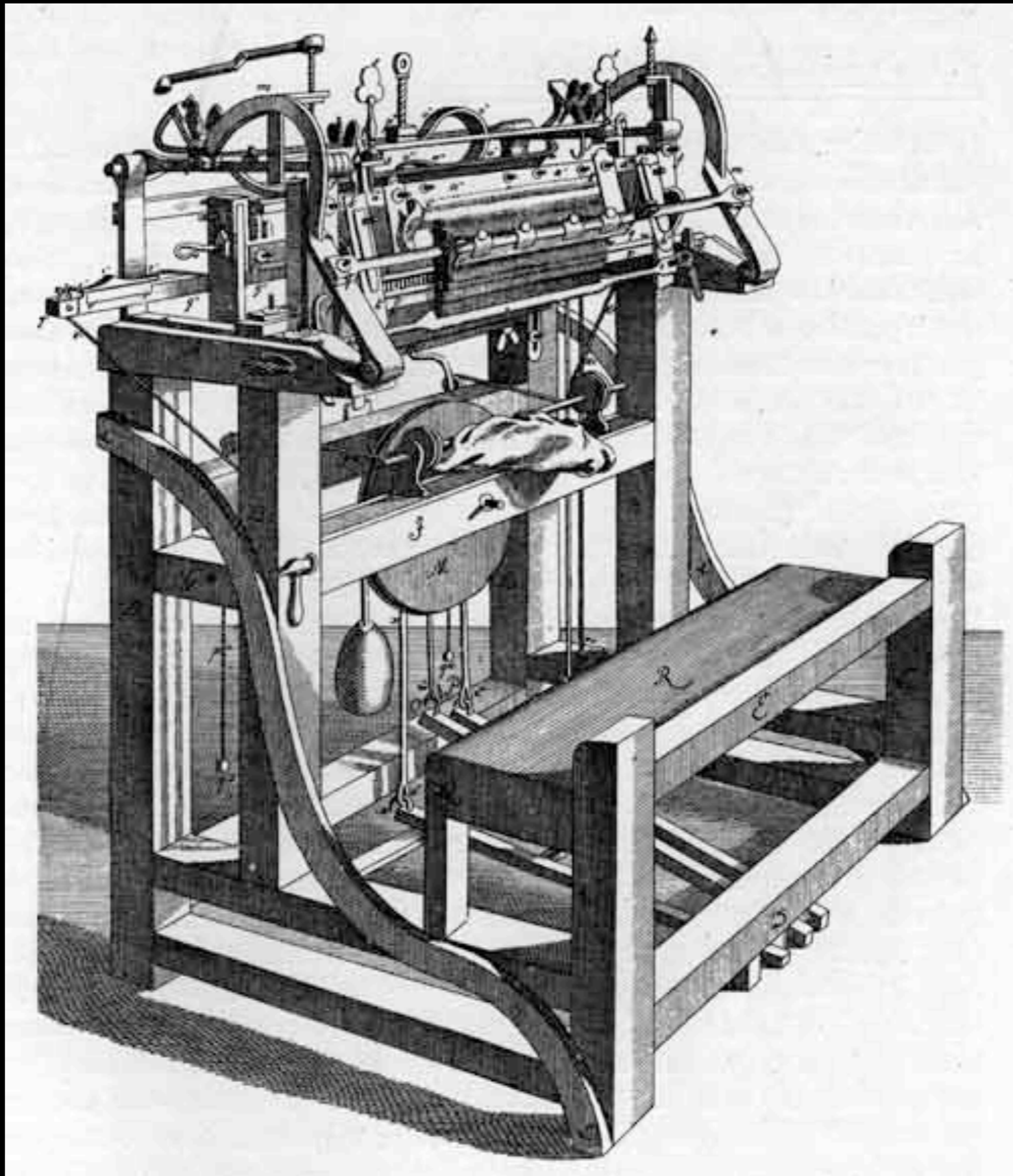
Published in Deering's History of Nottingham

English Stocking Frame
by J. Clee after Thomas Sandby 1751
(The British Museum)



Wooden Hand-Knitting frame, Based on Lee's System, 17th Century

In Germany, the Machine was widely distributed under the name "Rösschen-Stuhl". ("Little Horse Knitting Frame")



Hand Knitting Frame Copper Etching
18th century



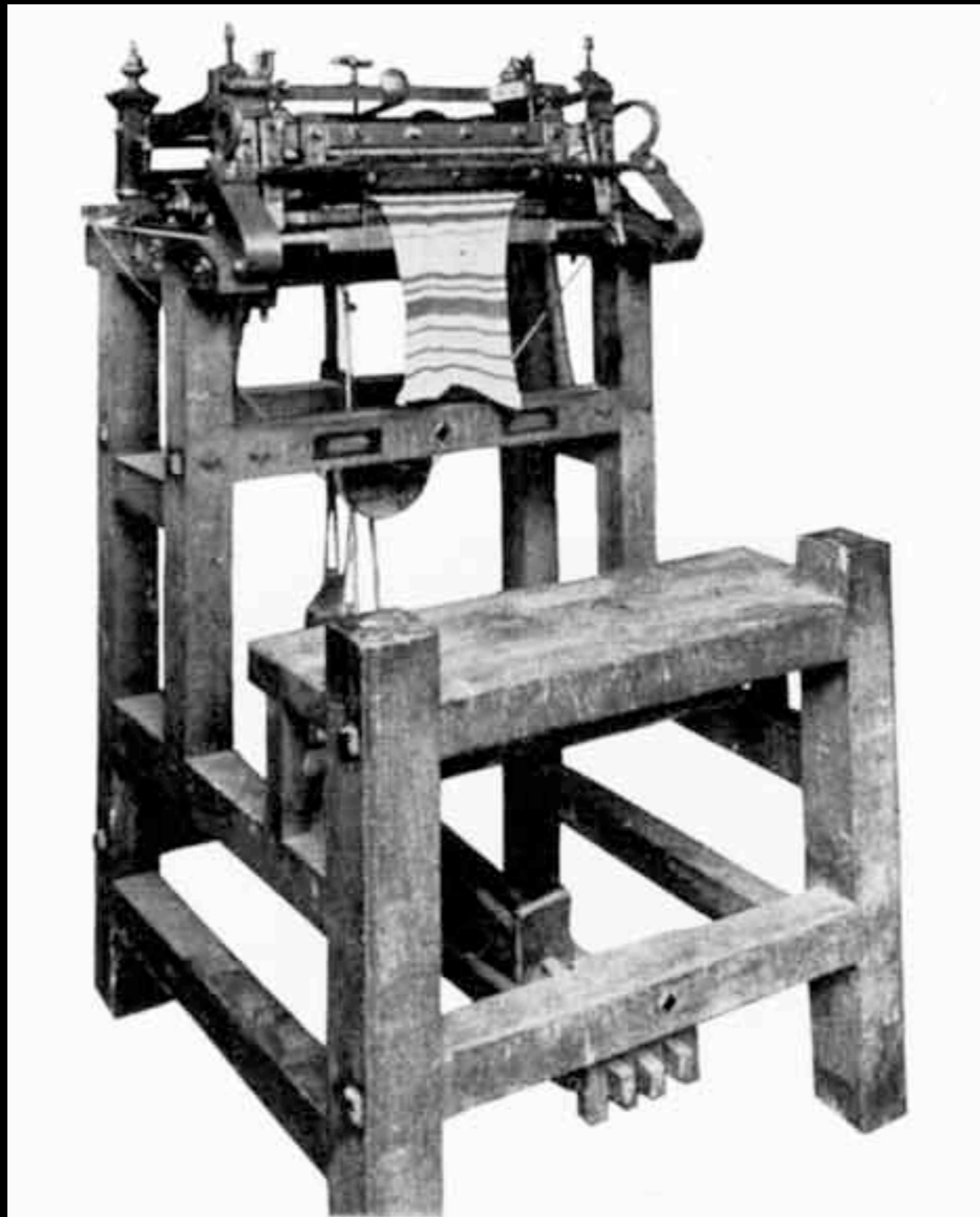
English Stocking Frame or Knitting Machine
c. 1740
(Leicestershire County Council)



English Stocking Frame or Knitting Machine
c. 1740
(Leicestershire County Council)



English Stocking Frame or Knitting Machine
c. 1775 - 1820
(Colonial Williamsburg)



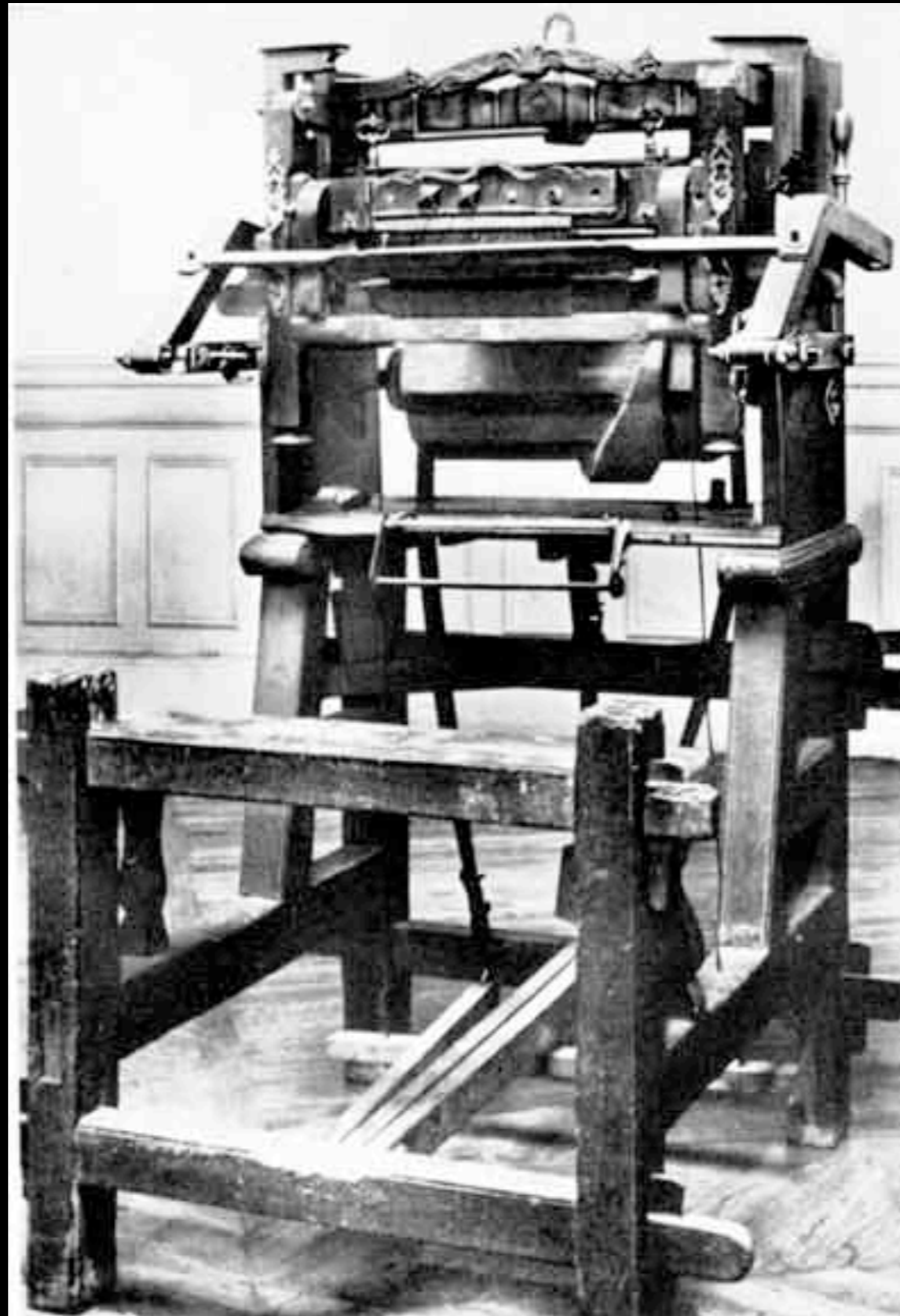
Wooden "Rösschen-Stuhl" ("Little Horse Knitting Frame")
18th century



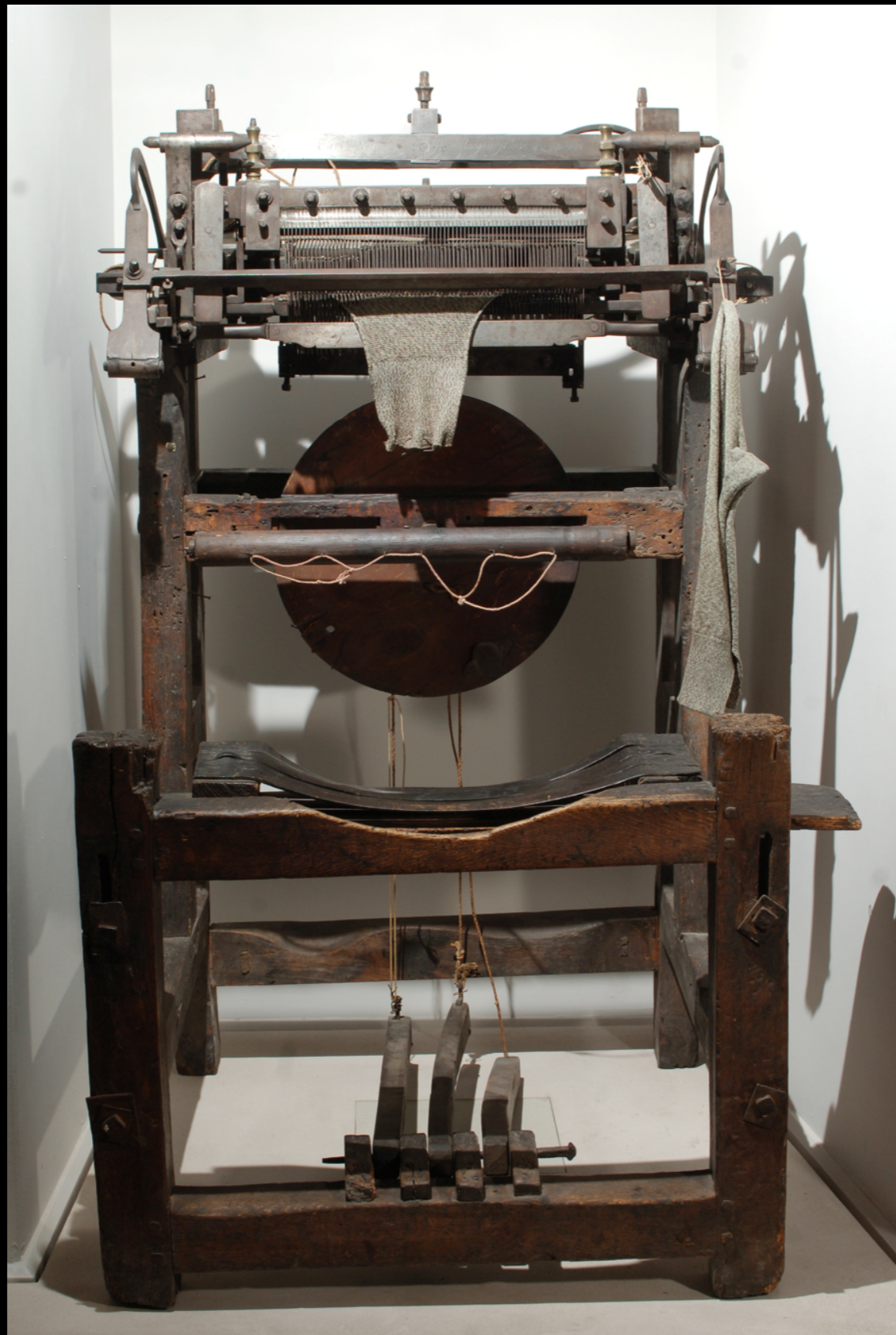
Stocking Frame

c. 1770

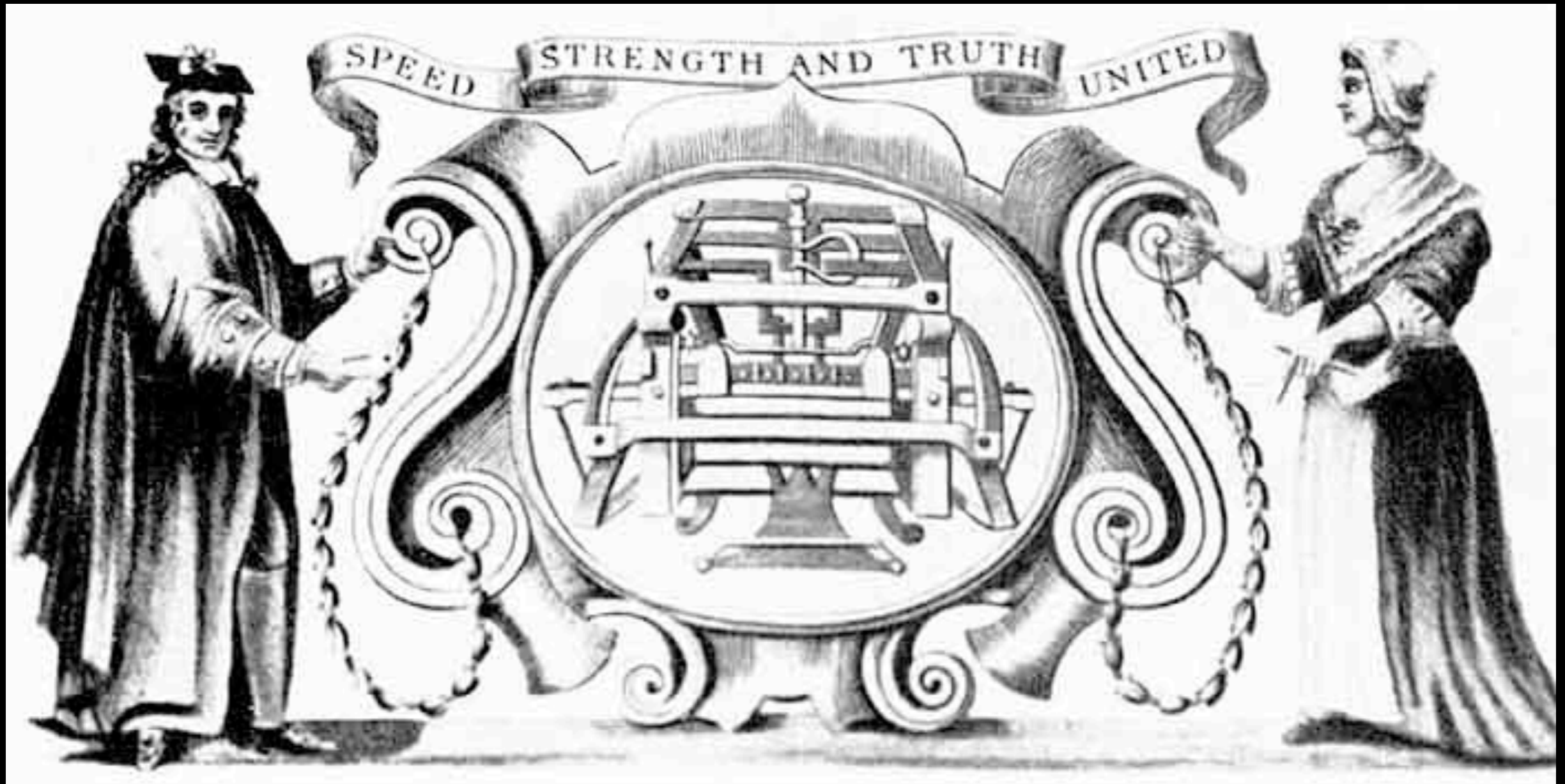
(Science Museum / Science & Society)



Improved Hand Knitting Frame
18th century



Hand Knitting Frame
Brought Hawick by John Hardie in 1771 - 1798
(Tower Mill, Hawick)



Coat of Arms of the first English Hosiery Knitter Cooperative
William Lee, His Wife, & His Hand Knitting Machine



Murillo pinx.
S. Okey Jun. sculp.
From a **PICTURE** in the Possession of Edw.^d Athames Esq.
Published according to Act of Parliament, by S. Okey, N^o. 12. Great Castle Street Doctors Commons.

A Stocking Maker
by Samuel Okey after Bartolome Estevan Murillo c. 1760
(The British Museum)

Wool Stockings



Detail - Back of Knitted Stocking
Late 16th - Early 17th Century
(Nationalmuseet. Copenhagen)



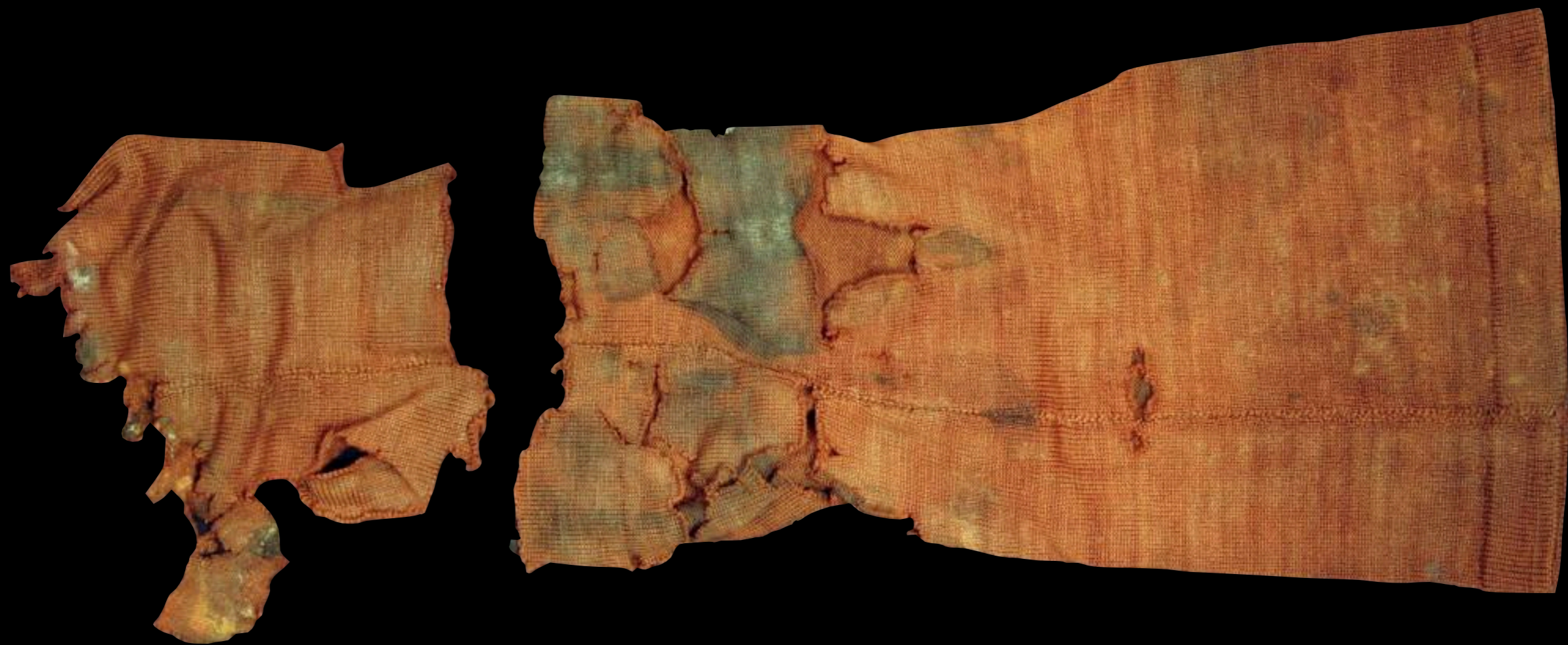
English Knitted Wool Boot Hose Stockings for Jack Boots
c. 1640
(Victoria & Albert Museum)



Woolen Stocking and Garter c. 1740



Ribbed Stocking from the H.M.S. Invincible
1758
(Chatham Dockyard)



Stocking from the H.M.S. Invincible
1758
(Chatham Dockyard)



Wool Stockings from the Wreck of the General Carleton of Whitby
Sunk in 1785
(Polish Maritime Museum)



Wool Stocking from the Wreck of the General Carleton of Whitby
Sunk in 1785
(Polish Maritime Museum)



Wool Stocking from the Wreck of the General Carleton of Whitby
Sunk in 1785
(Polish Maritime Museum)



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Wool Stockings from the Wreck of the General Carleton of Whitby
Sunk in 1785
(Polish Maritime Museum)



Wool Stocking from the Wreck of the General Carleton of Whitby
Sunk in 1785
(Polish Maritime Museum)



Finely Ribbed Frame - Knit Wool Stockings Recovered from the Wreck of the General Carleton
Sunk in 1785
(Polish Maritime Museum)



Fragment of a Brown Wool Stocking

Recovered from the Mass Grave of Troops Killed on April 19, 1775 at the Jason Russell House in Menotomy, Massachusetts

Exhumed in 1847 at which time Knapsacks were found on the Deceased

(The Unitarian Universalist Church, Arlington, Massachusetts, Joel Bohy Photograph)



Wool Stocking Recovered from the 1798 Wreck of the H.M.S. DeBraak Sunk off the Delaware Coast
(Delaware Archeological Collections, Dover, Delaware)

Silk Stockings



*Silk Stocking from the Estate of the Elector August of Saxony
c. 1526 - 1586*



Hand Knit Boy's Stockings Embroidered with Gold & Silver Threads
c. 1600 - 1620
(Nottingham City Museums & Galleries)



Hand Knit Boy's Silk Stocking with Gold & Silver Threads
Late 16th - Early 17th Century



Hand Knit Green Silk Stocking Embroidered with Silver Threads
Mid 17th Century



Embroidered Silk Stockings
Mid 17th Century



Embroidered Silk Stockings
Mid 17th Century



A Pair of Clocked Silk Stockings
Late 17th Century
(Bata Shoe Museum Toronto)



English Hand Knit Silk Doll's Stockings
c, 1690 - 1700
(Victoria & Albert Museum)



European Knitted Silk Clocked Stocking

c. 1650 - 1750

(Museum of Fine Arts, Boston)



English Clocked Silk Stockings with Metallic Thread Embroidery

c. 1700 - 1725

(Los Angeles County Museum of Art)



A Pair of English Silk Clocked Stockings

c. 1700

(Leicester City Museums Service)



Clocked Silk Stockings

c. 1720



Machine Knit Hand Embroidered Silk Stockings

c. 1720



Machine Knit Hand Embroidered Silk Stockings

c. 1725 - 1750



Spanish Clocked Silk Stocking

c. 1700 - 1750

(Snowhill Wade Costume Collection, Gloucestershire)



English Machine Knit Clocked Silk Stocking

c. 1720

(Fashion Museum, Bath and North East Somerset Council / The Bridgeman Art Library)



A Pair of Clocked Silk Stockings & Woman's Shoes
18th Century
(Bata Shoe Museum Toronto)



Clocked Silk Stocking
c. Mid 18th Century
(Shoe Icons)



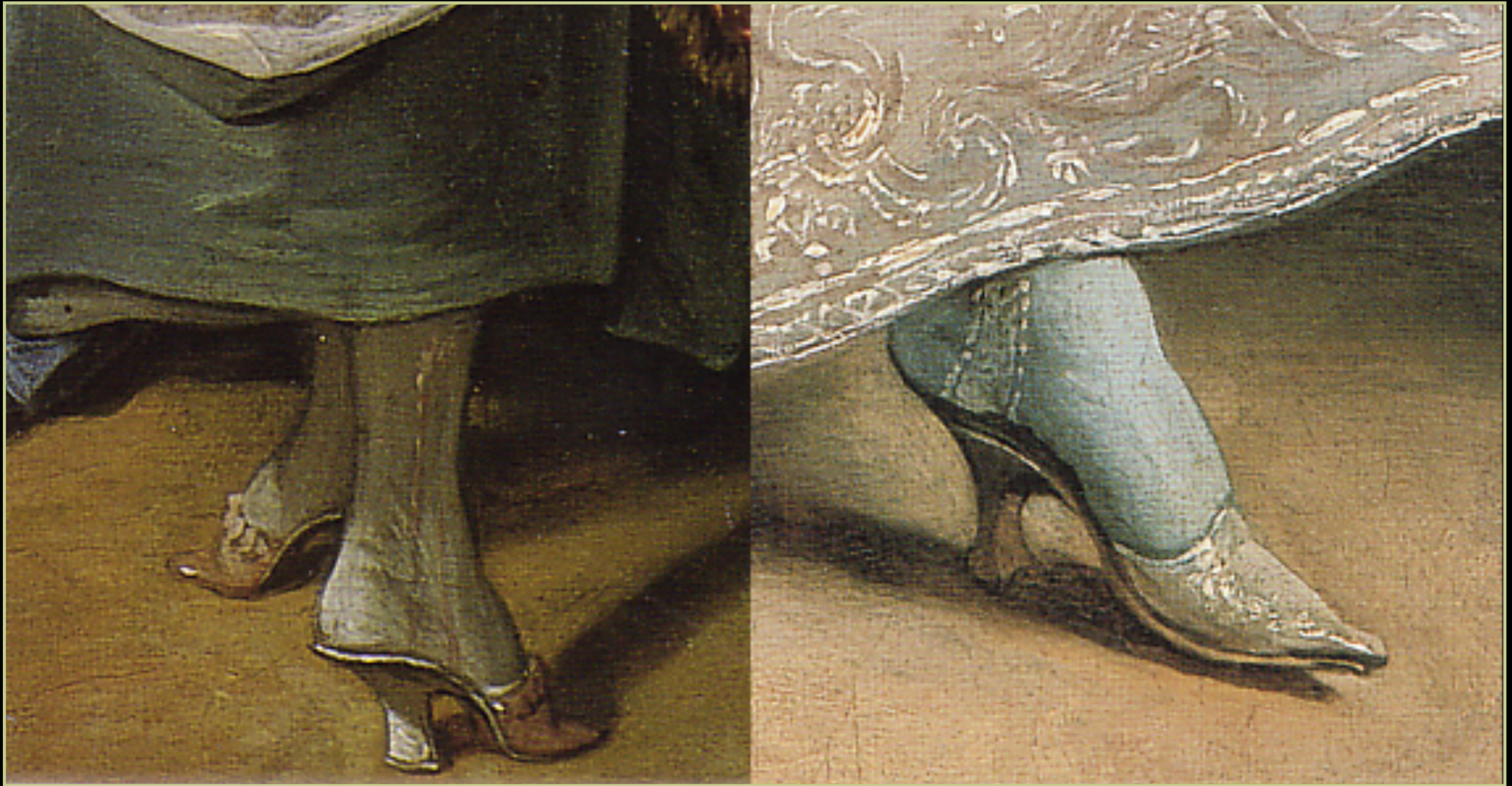
Clocked Silk Stocking
c. Mid 18th Century
(Shoe Icons)



Clocked Silk Stocking
c. Mid 18th Century
(Shoe Icons)



Clocked Silk Stocking
c. Mid 18th Century
(Shoe Icons)



Detail of Clocked Stockings
Lady Fastening Her Garter (La Toilette)
by François Boucher (Madrid, Spain) 1742



The Stockings of Mrs. George Gray
Machine Knit Coral Silk made in Philadelphia, Pennsylvania c. 1750
(Philadelphia Museum of Art)



European Clocked Silk Stockings

c. 1750

(Private Collection - Photograph Courtesy Karen Augusta Auctions)



English Frame Knitted Clocked Silk Stockings

c. 1750

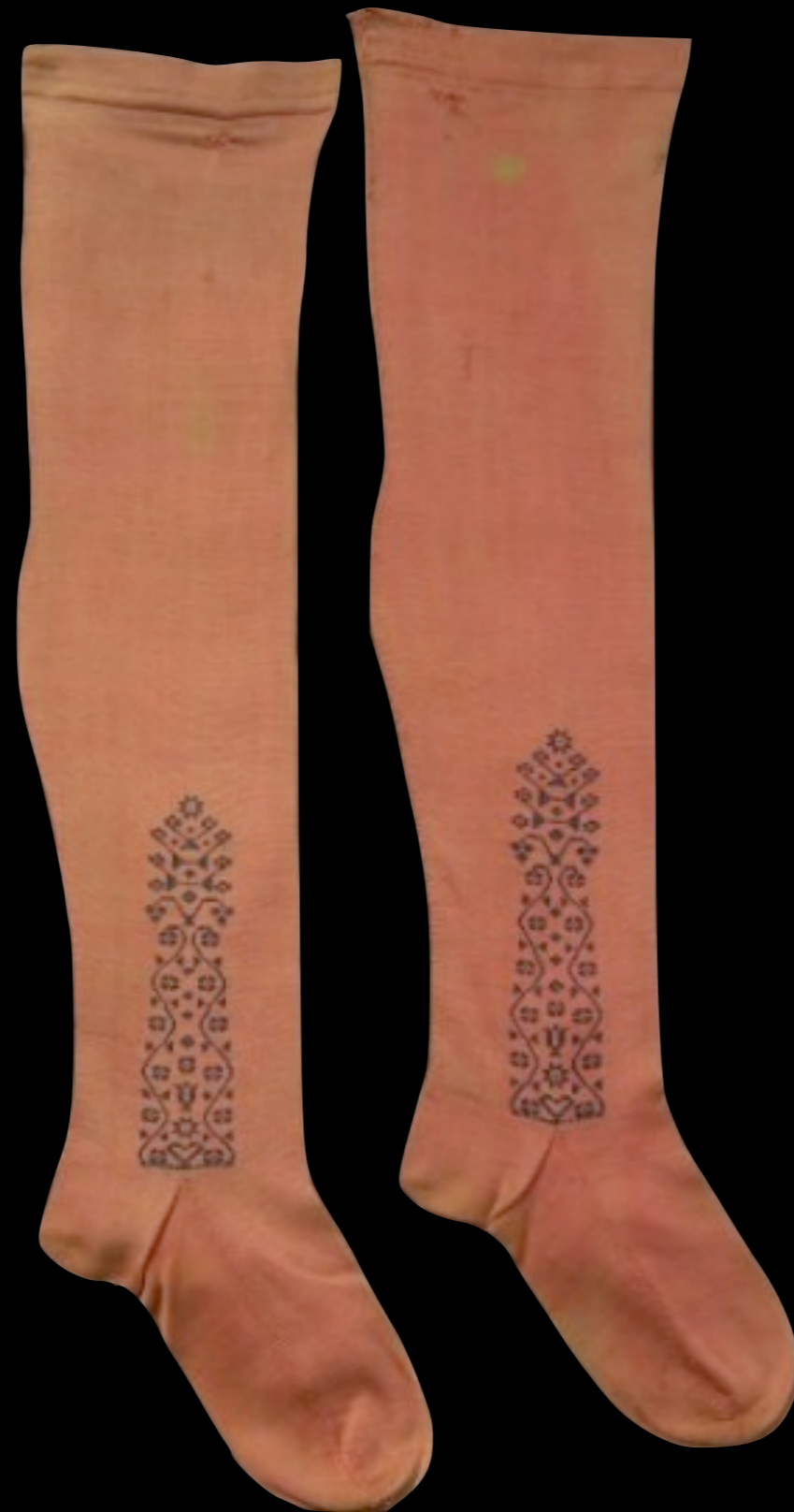
(Colonial Williamsburg)



English Frame Knitted Clocked Silk Stockings

c. 1750

(Colonial Williamsburg)



English Frame Knitted Clocked Silk Stockings
18th Century
(Colonial Williamsburg)



Knitted Silk Clocked Stockings
c. 1730 - 1789
(Victoria & Albert)



Spanish Knitted Silk Embroidered Woman's Stockings

c. 1750

(Victoria & Albert)



Silk Laced Stockings that Belonged to Madame Pompadour
Mid 18th Century
(German Hosiery Museum)



English or French Knitted Silk Clocked Stocking

c. 1750 - 1770

(Victoria & Albert)



Knitted Silk Clocked Stockings
c. 1775 - 1829
(Victoria & Albert)



European White Knitted Clocked Silk Stocking
c. 1750 - 1800
(Museum of Fine Arts, Boston)



Machine Knit Hand Embroidered Silk Stockings
18th Century



Machine Knit Embroidered Silk Stockings
18th Century
(The National Trust -Killerton Costume Collection)



Machine Knit Embroidered Silk Stockings
18th Century
(The National Trust -Killerton Costume Collection)



Coral Silk Stockings
c. 1725 - 1750
(Meg Andrews)



A Pair of French Silk Clocked Stockings
Late 18th Century
(Metropolitan Museum of Art)



A Pair of English Silk Clocked Stockings
18th Century
(Leicester City Museums Service)

Linen Stockings



Linen Stocking Embroidered with Silk
c. 1660 - 1670
(Victoria & Albert)



Linen Stocking Embroidered with Silk
c. 1660 - 1670
(Victoria & Albert)



English Cut and Sewn Linen Stockings
Late 18th Century
(Colonial Williamsburg)



English Linen & Silk Clocked Stockings
c. 1750
(Colonial Williamsburg)



English Knitted Linen with Silk Clocked Stocking

c. 1750

(Colonial Williamsburg)



Linen & Silk Stockings from Pennsylvania Hand Knitted by Catherine Jansen Wistar (1703 - 1786)

c. 1782

(Colonial Williamsburg)

Cotton Stockings



Collection of Cotton Stockings

Owned by Desideria, Queen of Sweden and Norway, Maria Josephina Soret, Johanna Cornelia Soret and Estrid Hylin f. Rundquist

c. 1725 - 1750

(Royal Armoury, Skoklosters Castle and Hallwyl Museum)



French Cotton Knit Stockings
18th Century
(Museum of Fine Arts, Boston)



English Frame Knitted Cotton and Silk Stockings
Used in Lexington, Massachusetts in the Late 18th Century
(Museum of Fine Arts, Boston)



American or European Embroidered Cotton Stockings
Late 18th Century
(Metropolitan Museum of Art)

Footless Stockings



Italian Linen Stockings Embroidered with Silk & Metal
16th Century
(Metropolitan Museum of Art)



*Is this the Modern Beau old Crispin cries:
Is this the Macarone in disguise? —
Whose outside Feathers are so very glaring,
That those who meet him cannot keep from staring.*

**The MODERN BEAU
in DISTRESS.**

*It is the same! but when upon the Mind
Reflection steals, our wonder keeps behind:
For then we find this paltry siphish Race,
Are Waiters, Pimps, and Barbers dress'd in Lace.*

Published by CARINGTON BOWLES, N° 69 in S. Pauls Church Yard, London.

“The MODERN BEAU in DISTRESS”
(Yale Center for British Art)



“The MODERN BEAU in DISTRESS”
(Yale Center for British Art)



French Knit Silk Stockings Made into Sleeves
Late 18th Century
(Museum of Fine Arts, Boston)

Children's Stockings



Italian Infant's Silk Embroidered Stockings
c. 1650 - 1750
(Museum of Fine Arts, Boston)



Italian Infant's Silk Embroidered Stockings
c. 1650 - 1750
(Museum of Fine Arts, Boston)

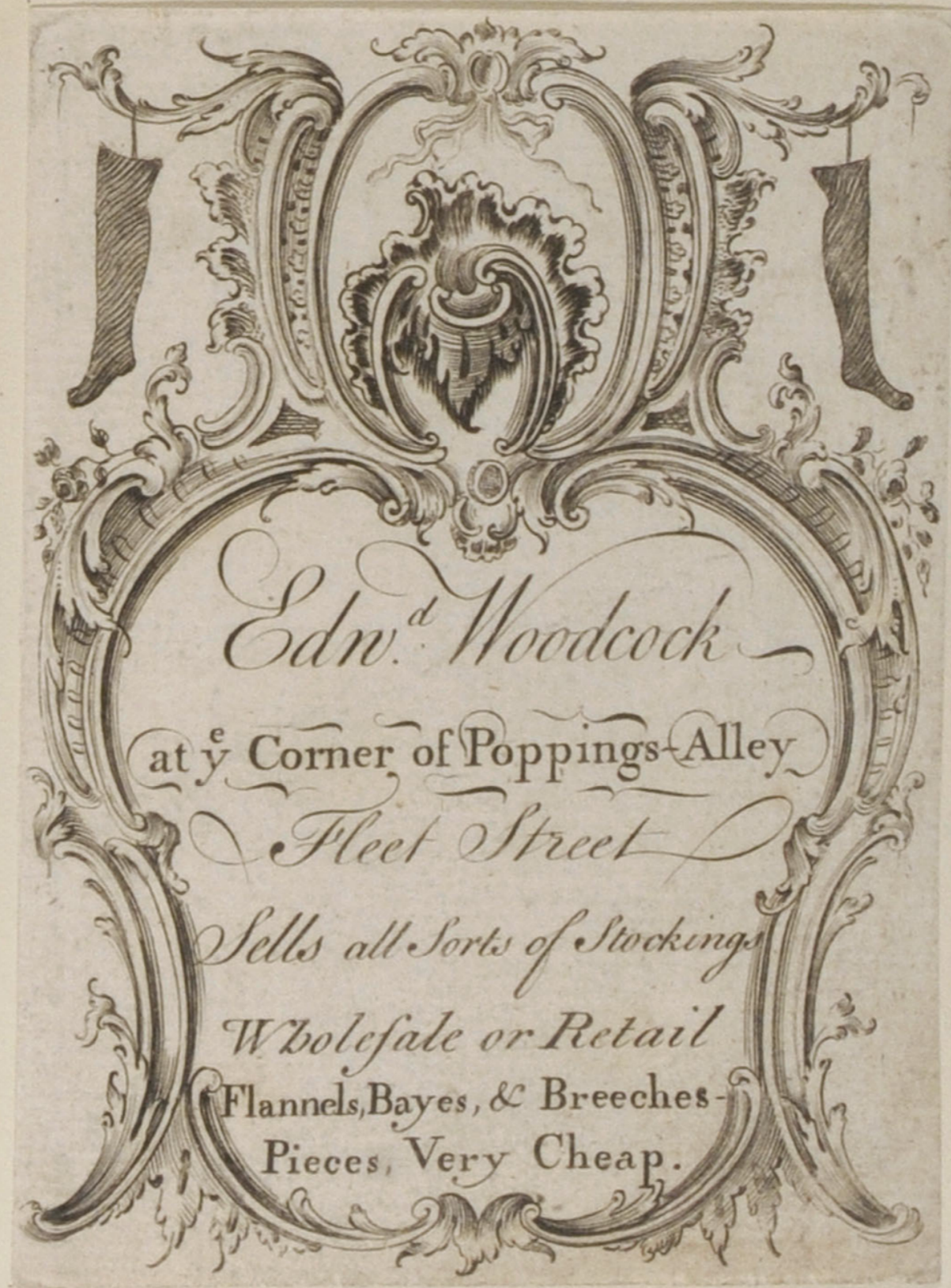


Italian Child's Cotton & Silk Embroidered Stockings
c. 1650 - 1750
(Museum of Fine Arts, Boston)



Size Comparison of the Italian Stockings Located in the Museum of Fine Arts, Boston
c. 1650 - 1750
(Museum of Fine Arts, Boston)

Trade Cards



Trade Card
18th Century
(Lewis Walpole Library)

Historically Significant Stockings

Historically Significant Stockings

While this pair of Stockings dates slightly later than the time period normally depicted by the 18th Century Material Culture Resource Center, their historical significance is such that we felt they should be included in this presentation.



The Cotton and Silk Stockings Worn by Admiral Horatio Nelson when He Was Killed at the Battle of Trafalgar, 21 October, 1805
Likely Soaked with the Blood of Nelson's Secretary, John Scott, Who was Killed by a Cannonball Earlier that Day
(National Maritime Museum, Greenwich, London, Greenwich Hospital Collection)



The Cotton and Silk Stockings Worn by Admiral Horatio Nelson when He Was Killed at the Battle of Trafalgar, 21 October, 1805
Likely Soaked with the Blood of Nelson's Secretary, John Scott, Who was Killed by a Cannonball Earlier that Day
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Likely Soaked with the Blood of Nelson's Secretary, John Scott, Who was Killed by a Cannonball Earlier that Day
(National Maritime Museum, Greenwich, London, Greenwich Hospital Collection)

Take Notice!

For additional information on 18th Century Stockings, please reference the Slideshow on Women's Stockings & Garters put out by the 18th Century Material Culture Resource Center.

18th Century Material Culture: Female Dress Stockings & Garters



Acknowledgements

The Narration on Stocking Frames was taken word for word from the website put out by the “German Hosiery Museum” (<http://www.german-hosiery-museum.de/hosiery-museum.htm>)

The Stockings illustrated from the wreck of the General Carleton were taken from the work “The General Carleton Shipwreck 1785”, Archeological Research of the Polish Maritime Museum. This incredible work was written and compiled by our good friend, Mathew Brenckle, and his colleagues.

Acknowledgements

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Thank you!

- The 18th Century Material Culture Resource Center