

18th Century Material Culture Octants & Sextants



Octants

“An octant is a portable instrument that uses a small mirror to bring two images together--those of the sun and the horizon, for instance--to determine latitude at sea by observing the altitude of celestial bodies. It has an arc of 45° or more that measures angles of 90° or more. John Hadley described an instrument of this sort to the Royal Society of London in 1731 and obtained a British patent in 1734, and so octants are sometimes known as Hadley quadrants. They were still in use in the early twentieth century.

Early octants have mahogany frames and boxwood scales read by diagonals. Those made after around 1800 have ebony frames, brass index arms, and ivory scales read by verniers. Although early examples were large, heavy, and costly, Ramsden's invention of the dividing engine in 1777 led to the production of smaller and less expensive instruments.

Ref: "Octant" in Robert Bud and Deborah Warner, eds., *Instruments of Science. An Historical Encyclopaedia* (New York & London, 1998), pp. 419-421.

John Hadley and His Reflecting Quadrant, National Maritime Museum, Occasional Technical Paper No. 2 (Greenwich, 1975).”

From the Website of the Smithsonian Museum of Natural History

A N
E X P L A N A T I O N
O F A N E W
C O N S T R U C T I O N A N D I M P R O V E M E N T
O F T H E
Sea Octant and Sextant,

C O N T A I N I N G,

A most easy, expeditious and accurate Method of
ADJUSTING and RECTIFYING those Instruments for
Use both at SEA and LAND. Also the best Disposition
of the GLASSES; with Directions for making the
Fore and Back Observations; and the several Steps
in the Process of finding the LONGITUDE at SEA.

ILLUSTRATED BY FOUR COPPER-PLATES.

By B. M A R T I N.

L O N D O N:
Printed for the Author, at No. 171, Fleet-Street.
(Price 1s. 6d.)

“AN EXPLANATION OF A NEW CONSTRUCTION AND IMPROVEMENT OF THE SEA OCTANT AND SEXTANT...”

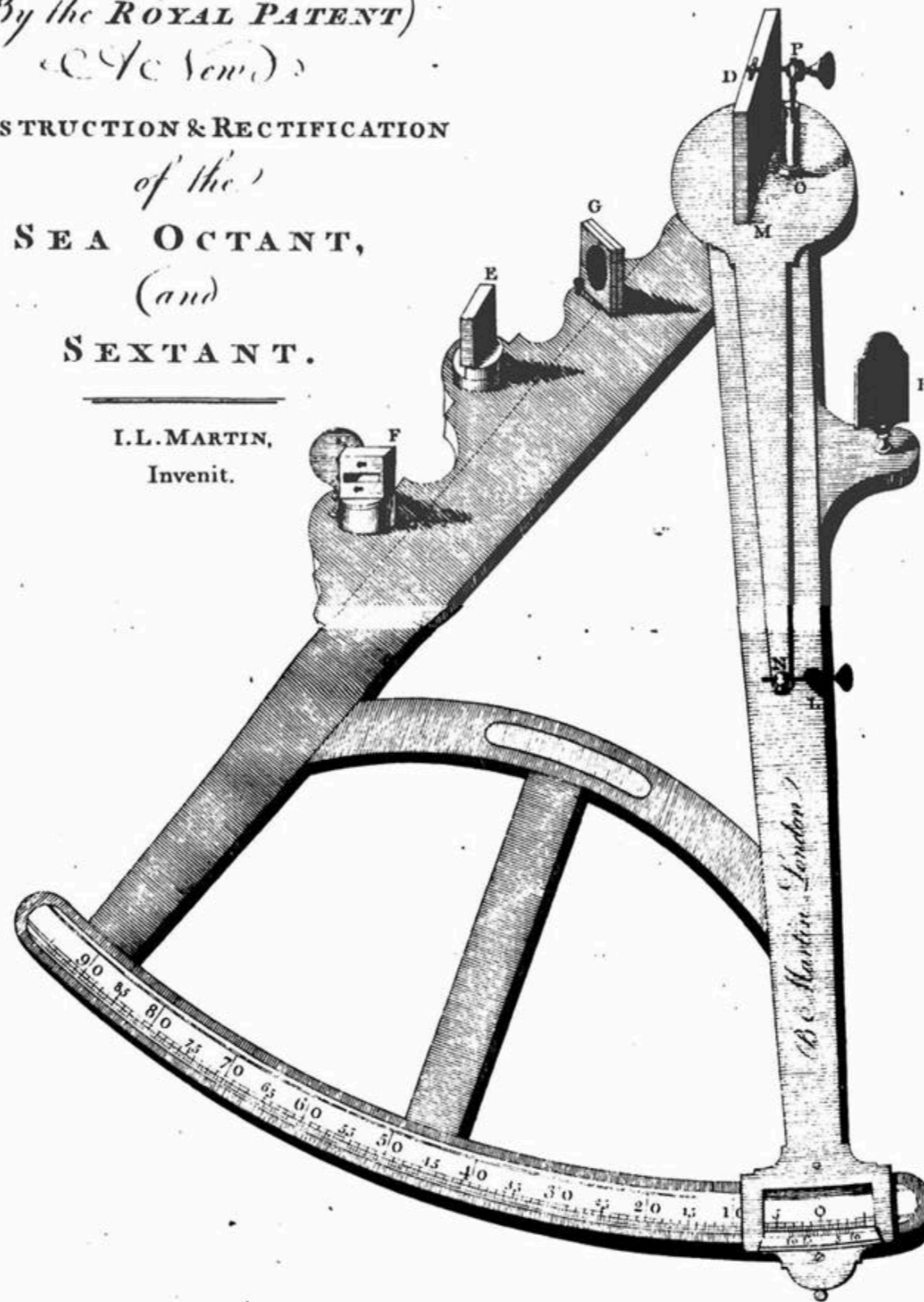
by B. Marin 1775
(Google Books)

(By the ROYAL PATENT)
(See View)

CONSTRUCTION & RECTIFICATION

of the
SEA OCTANT,
(and
SEXTANT.

I. L. MARTIN,
Invent.



“AN EXPLANATION OF A NEW CONSTRUCTION AND IMPROVEMENT OF THE SEA OCTANT AND SEXTANT...”

by B. Marin 1775

(Google Books - Image Courtesy Tom Apple)



“John Hadley” Holding an Octant that He Invented in 1730
by Barholomew Dandridge c. Early 1730s
(National Maritime Museum, Greenwich)

INVENTED & MADE *by* R, RUST,

Removed from ^{the}MINORIES to the
S^T. CATHERINES
the TOWER

Corner of
STAIRS. NEAR
of LONDON
HORRIZON

AN ARTIFICIAL

*To be Used When the
Is Thick & Obscure Or
The Back*

*Real Horrizon
Instead of
Observation*



Advertisement for R. Rust
18th Century
(Private Collection)

English Octants



English Mahogany & Boxwood Octant
by Benjamin Cole of London c. 1750
(National Maritime Museum, Greenwich)



English Mahogany & Boxwood Octant
by Benjamin Cole of London c. 1750
(National Maritime Museum, Greenwich)



English Mahogany & Boxwood Octant
by Benjamin Cole of London c. 1750
(National Maritime Museum, Greenwich)



English Mahogany & Boxwood Octant
by George Adams of London c. 1750
(National Maritime Museum, Greenwich)



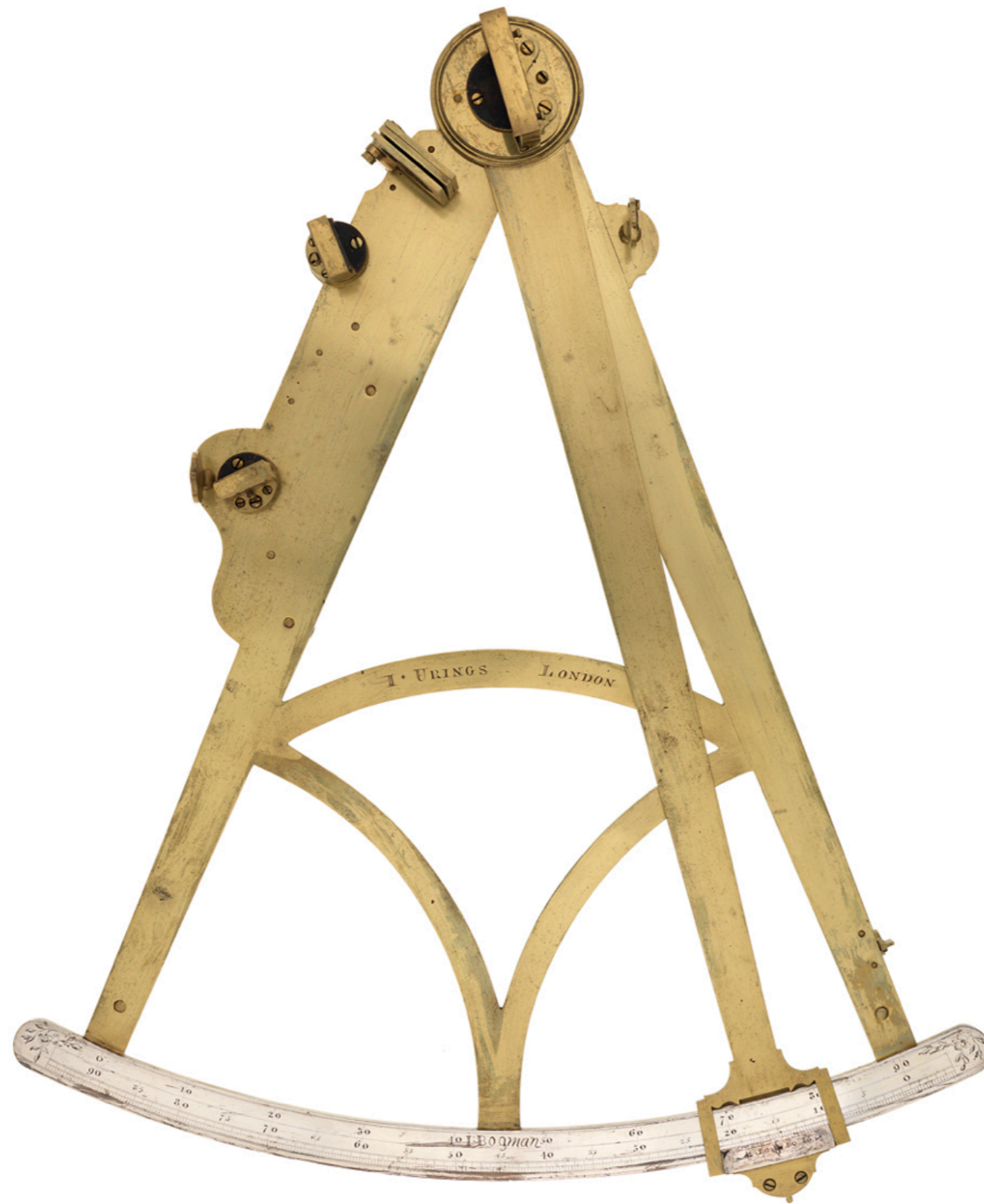
English Mahogany & Boxwood Octant
by George Adams of London c. 1750
(National Maritime Museum, Greenwich)



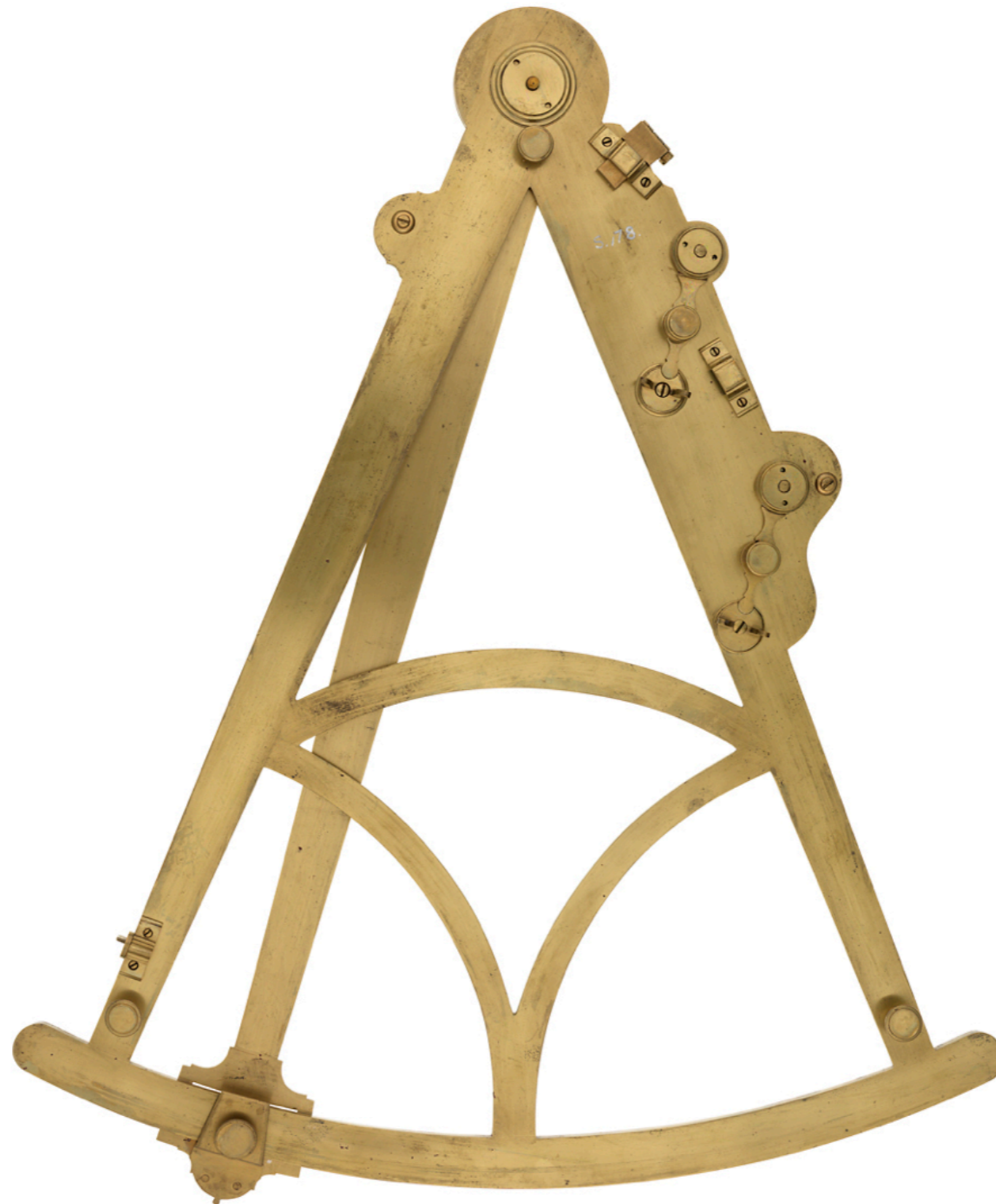
English Mahogany & Boxwood Octant
by George Adams of London c. 1750
(National Maritime Museum, Greenwich)



14½ Inch Ebony Vernier Octant
18th Century
(Charles Miller Ltd.)



English Brass Octant
by John Urlings of London c. 1750
(National Maritime Museum, Greenwich)



English Brass Octant
by John Urlings of London c. 1750
(National Maritime Museum, Greenwich)



English Mahogany & Boxwood Octant
c. 1755
(National Maritime Museum, Greenwich)



English Mahogany & Boxwood Octant
c. 1755
(National Maritime Museum, Greenwich)



English Mahogany & Boxwood Octant with Box
by Benjamin Cole of London c. 1760
(National Maritime Museum, Greenwich)



English Mahogany & Boxwood Octant with Box
by Benjamin Cole of London c. 1760
(National Maritime Museum, Greenwich)



English 23 $\frac{1}{2}$ Inch Radius Ebony & Boxwood Octant
by Edward Nairne of London c. 1760
(Charles Miller Ltd.)



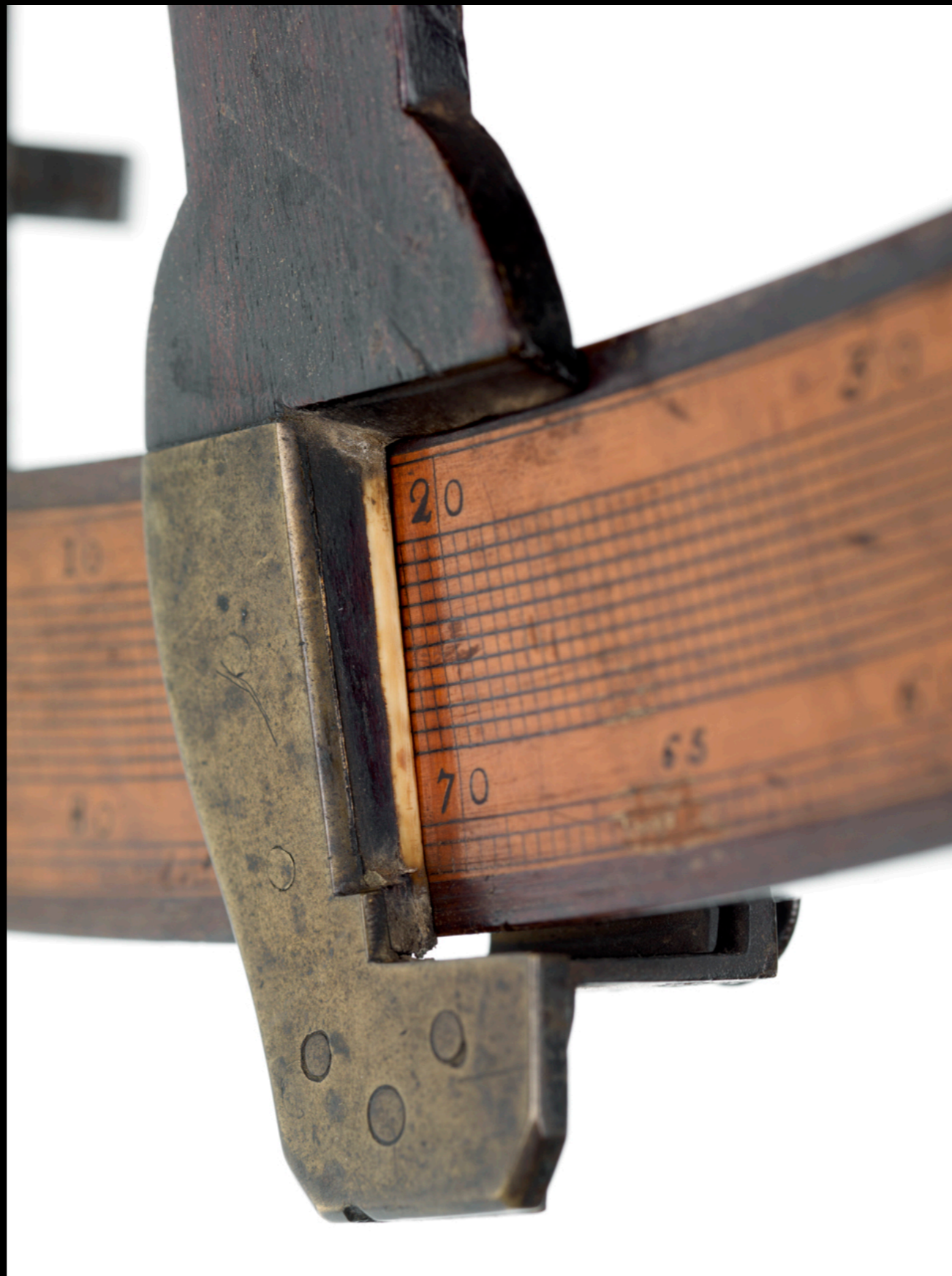
English $23\frac{1}{2}$ Inch Radius Ebony & Boxwood Octant
by Edward Nairne of London c. 1760
(Charles Miller Ltd.)



English Mahogany & Boxwood Octant
by Benjamin Cole of London c. 1760
(National Maritime Museum, Greenwich)



English Mahogany & Boxwood Octant
by Benjamin Cole of London c. 1760
(National Maritime Museum, Greenwich)



English Mahogany & Boxwood Octant
by Benjamin Cole of London c. 1760
(National Maritime Museum, Greenwich)



English 18 Inch Mahogany & Boxwood Fiducial Octant
by Benjamin Martin of London c. 1760
(Charles Miller Ltd.)



English 18 Inch Mahogany & Boxwood Fiducial Octant
by Benjamin Martin of London c. 1760
(Charles Miller Ltd.)



English Mahogany Octant
by Benjamin Martin of London c. 1760
(National Maritime Museum, Greenwich)



English Mahogany Octant
by Benjamin Martin of London c. 1760
(National Maritime Museum, Greenwich)



English Mahogany & Rosewood Octant Marked for Lieut. Philip Carteret
by Benjamin Cole of London c. 1761
(National Maritime Museum, Greenwich)



English Mahogany & Rosewood Octant Marked for Lieut. Philip Carteret
by Benjamin Cole of London c. 1761
(National Maritime Museum, Greenwich)



English Mahogany & Rosewood Octant Marked for Lieut.^t Philip Carteret
by Benjamin Cole of London c. 1761
(National Maritime Museum, Greenwich)



English Mahogany Octant
c. 1761
(National Maritime Museum, Greenwich)



English Mahogany Octant
c. 1761
(National Maritime Museum, Greenwich)



English $15\frac{1}{2}$ Inch Radius Mahogany & Boxwood Fiducial Octant
by Gregory of London c. 1765
(Charles Miller Ltd.)



English Ebony Octant Marked "JOHN MASON 1769" with Box
by Goater of London c. 1769
(National Maritime Museum, Greenwich)



English Ebony Octant Marked "JOHN MASON 1769" with Box
by Goater of London c. 1769
(National Maritime Museum, Greenwich)



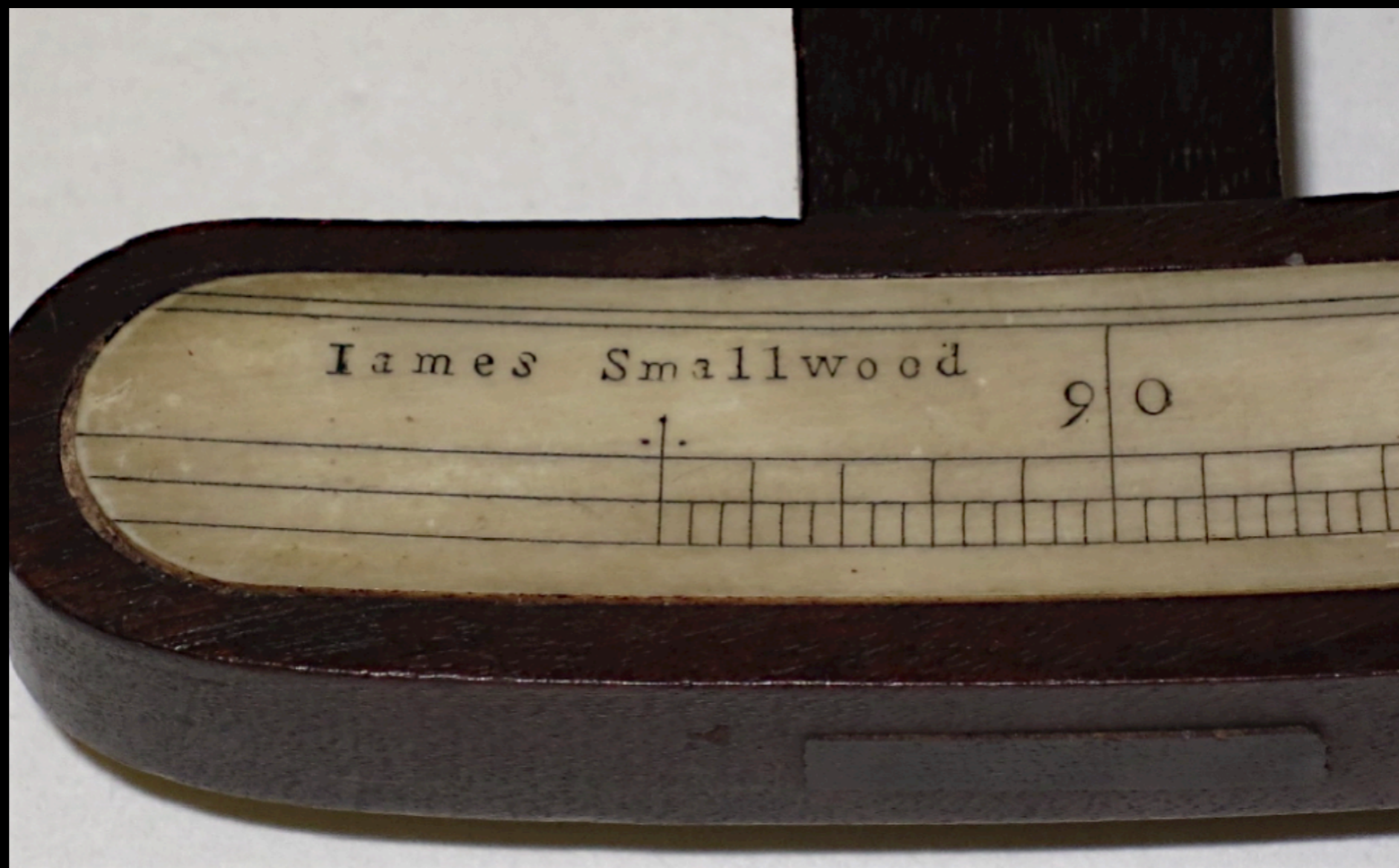
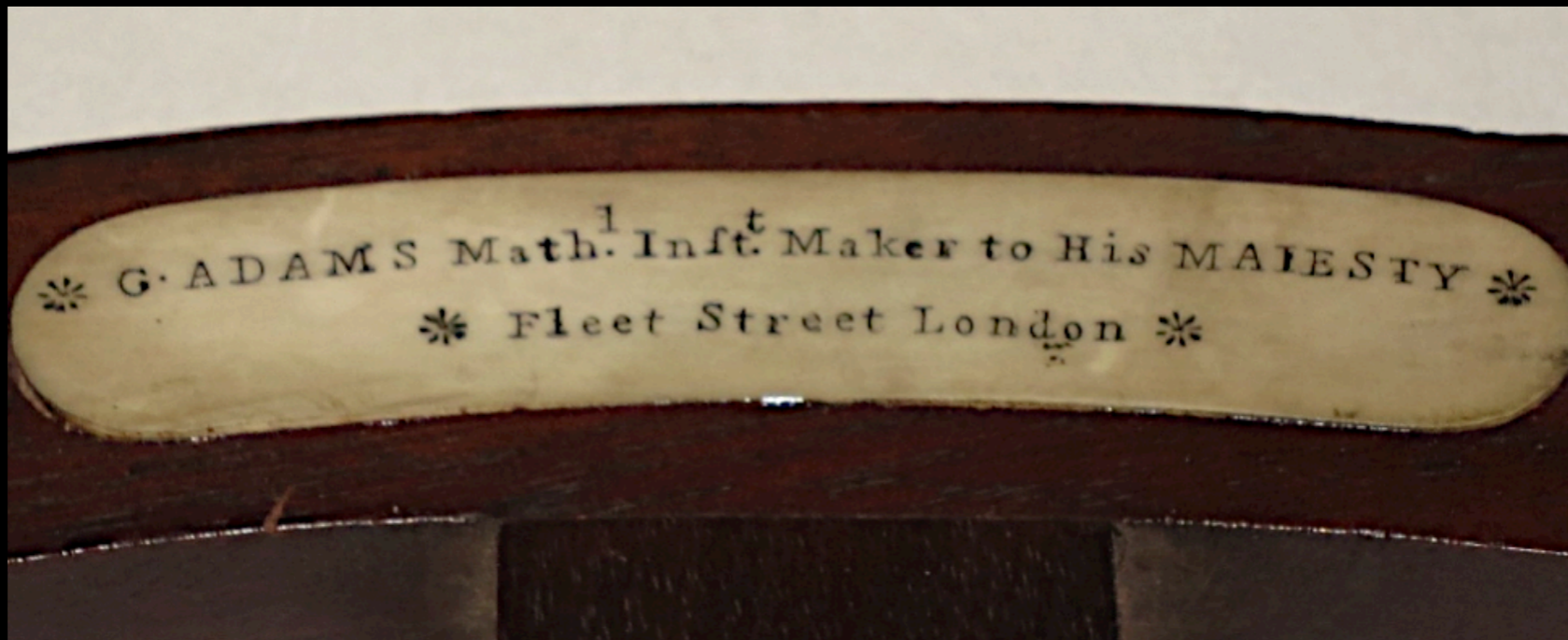
English Ebony Octant Marked "JOHN MASON 1769" with Box
by Goater of London c. 1769
(National Maritime Museum, Greenwich)



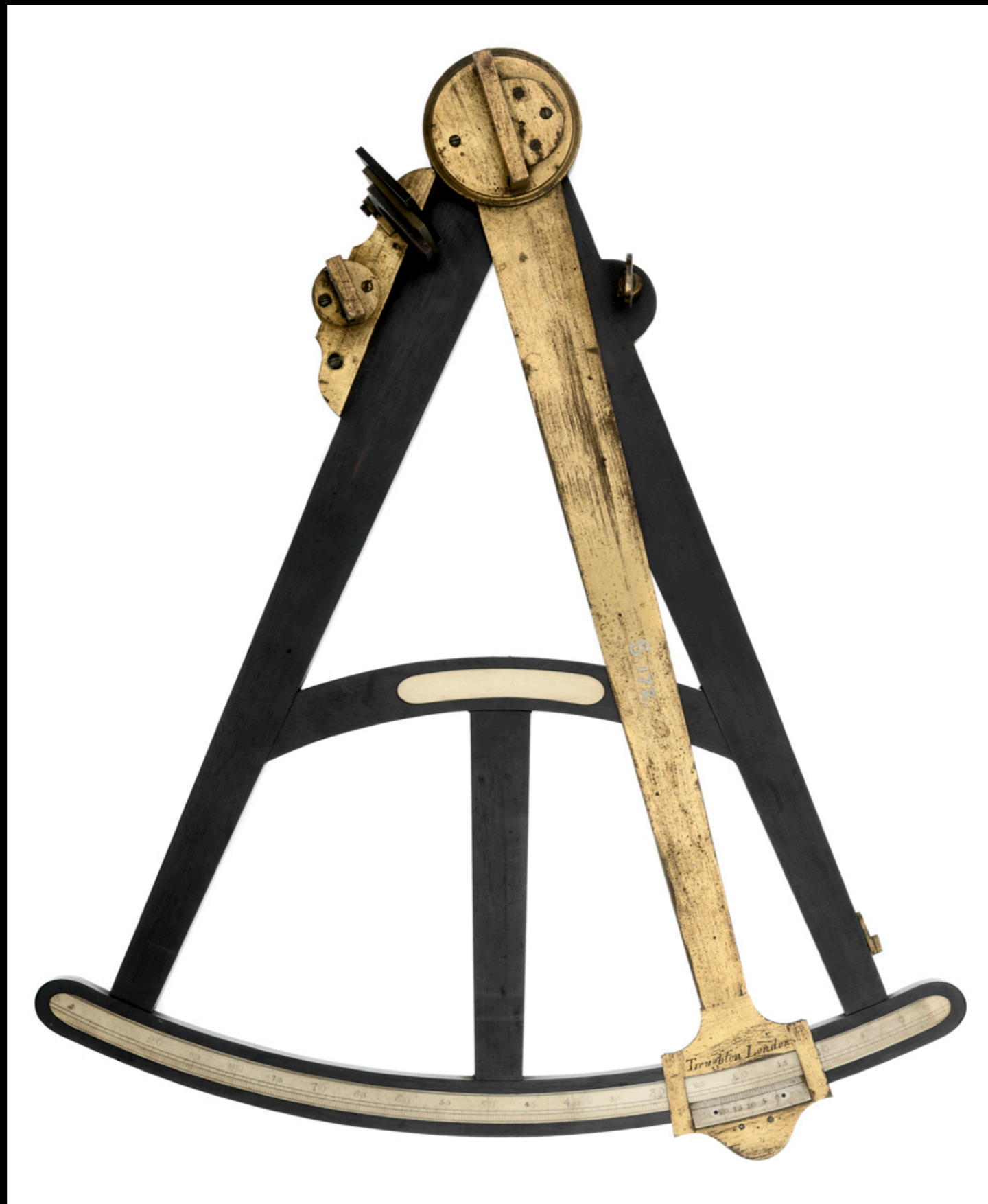
English Ebony Octant
by Goater of London c. 1769
(National Maritime Museum, Greenwich)



English 17 Inch Mahogany & Ivory Vernier Octant Inscribed to James Smallwood
“G. ADAMS Mathl. Inst. Maker to His MAJESTY / Fleet Street London” c. 1770
(Charles Miller Ltd.)



English 17 Inch Mahogany & Ivory Vernier Octant Inscribed to James Smallwood
"G. ADAMS Mathl. Inst. Maker to His MAJESTY / Fleet Street London" c. 1770
(Charles Miller Ltd.)



English Ebony Octant
by Troughton of London c. 1770
(National Maritime Museum, Greenwich)



English 15 $\frac{1}{2}$ Inch Vernier Octant

c. 1770

(Charles Miller Ltd.)



English Mahogany & Boxwood Octant
by Thomas Lake of London c. 1770
(National Maritime Museum, Greenwich)



English Mahogany & Boxwood Octant
by Thomas Lake of London c. 1770
(National Maritime Museum, Greenwich)



English Mahogany & Boxwood Octant
by Thomas Lake of London c. 1770
(National Maritime Museum, Greenwich)



English Ebony Octant
c. 1770
(National Maritime Museum, Greenwich)



English Ebony Octant
c. 1770
(National Maritime Museum, Greenwich)



English Ebony Octant
by Troughton of London c. 1770
(National Maritime Museum, Greenwich)



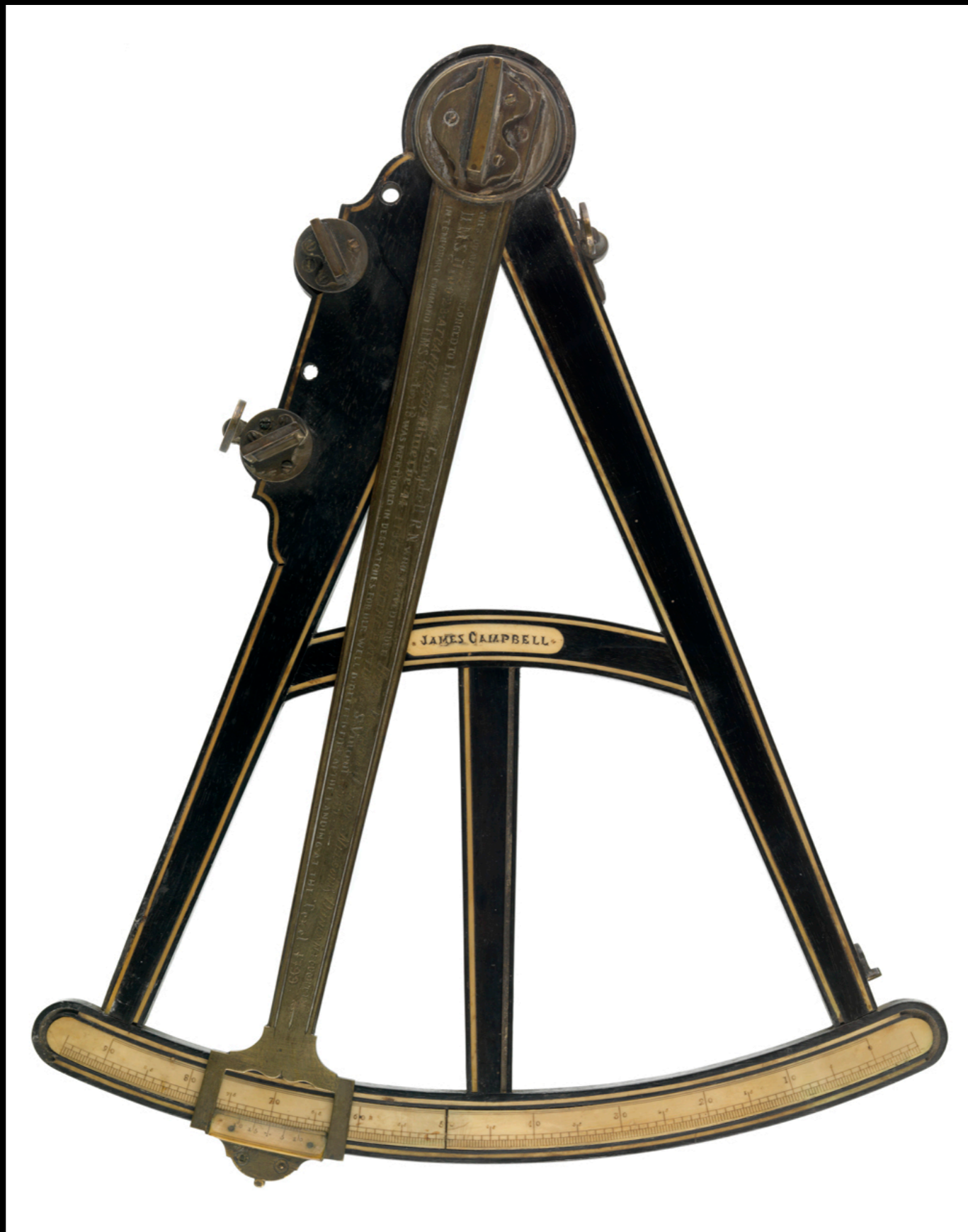
English Ebony Octant
by Troughton of London c. 1770
(National Maritime Museum, Greenwich)



English Ebony Octant
c. 1770
(National Maritime Museum, Greenwich)



English Ebony Octant
c. 1770
(National Maritime Museum, Greenwich)



English Ebony Octant
c. 1770
(National Maritime Museum, Greenwich)



English Ebony Octant
c. 1770
(National Maritime Museum, Greenwich)



English Mahogany Octant with Box
by Benjamin Cole of London c. 1770
(National Maritime Museum, Greenwich)



English Mahogany Octant with Box
by Benjamin Cole of London c. 1770
(National Maritime Museum, Greenwich)



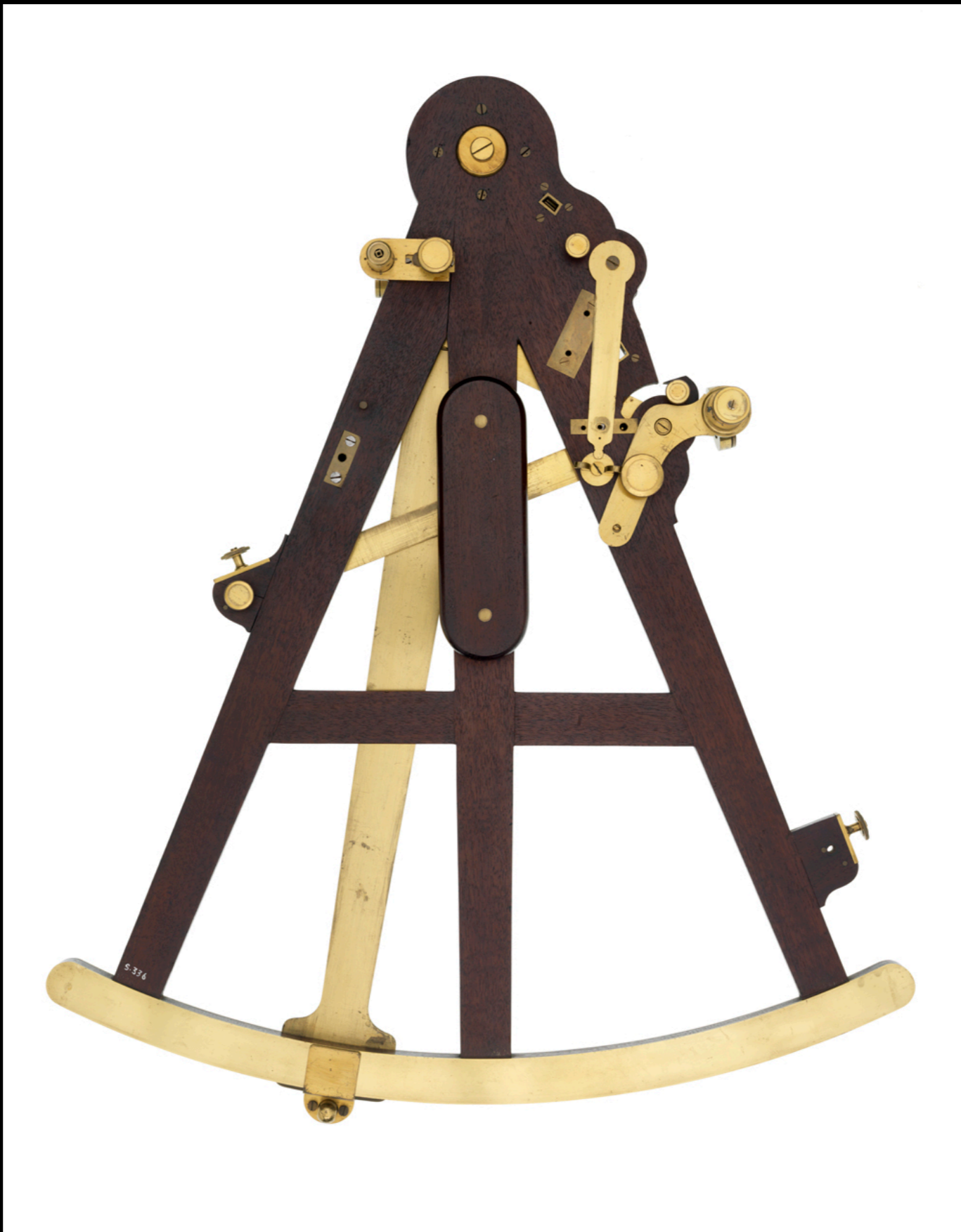
English Mahogany Octant with Box
by Benjamin Cole of London c. 1770
(National Maritime Museum, Greenwich)



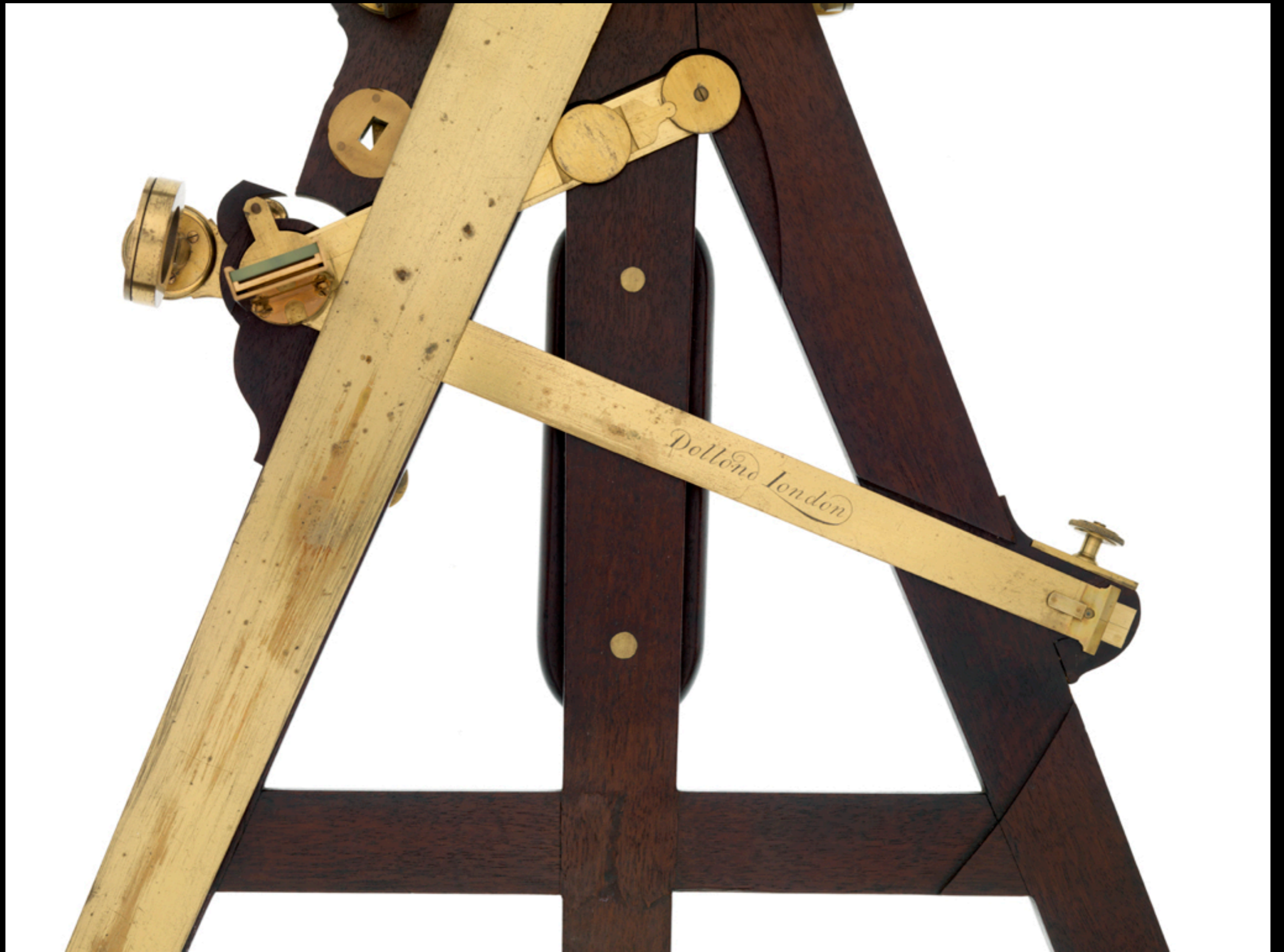
English Mahogany Octant with Box
by Benjamin Cole of London c. 1770
(National Maritime Museum, Greenwich)



English Mahogany Octant
by John Dollond of London c. 1772
(National Maritime Museum, Greenwich)



English Mahogany Octant
by John Dollond of London c. 1772
(National Maritime Museum, Greenwich)



English Mahogany Octant
by John Dollond of London c. 1772
(National Maritime Museum, Greenwich)



Made by Tho^s Ripley at y^e Hermitage Bridge
LONDON
For David Bartholomo Aug^t 23 1774

Made by Tho^s Ripley at y^e Hermitage Bridge
LONDON
For David Bartholomo Aug^t 23 1774

English 15½ Inch Radius Mahogany & Boxwood Fiducial Octant
“Made By Thos Ripley at ye Hermitage Bridge / LONDON / For David Bartholomo, Augt 23, 1774”
(Charles Miller Ltd.)



English Ebony Octant
by Elias De La Rue of Guernsey, Channel Islands, U.K. c. 1773
(National Maritime Museum, Greenwich)



English Ebony Octant
by Elias De La Rue of Guernsey, Channel Islands, U.K. c. 1773
(National Maritime Museum, Greenwich)

*
* ELIAS: DE. LARUE: OF. GUERNSEY. *
N^o 392 1763

English Ebony Octant
by Elias De La Rue of Guernsey, Channel Islands, U.K. c. 1773
(National Maritime Museum, Greenwich)



English Ebony Octant
by Joshua Lover Martin & Jesse Ramsden c. 1774
(National Maritime Museum, Greenwich)



English Ebony Octant
by Joshua Lover Martin & Jesse Ramsden c. 1774
(National Maritime Museum, Greenwich)



English Ebony Octant
by Joshua Lover Martin & Jesse Ramsden c. 1774
(National Maritime Museum, Greenwich)



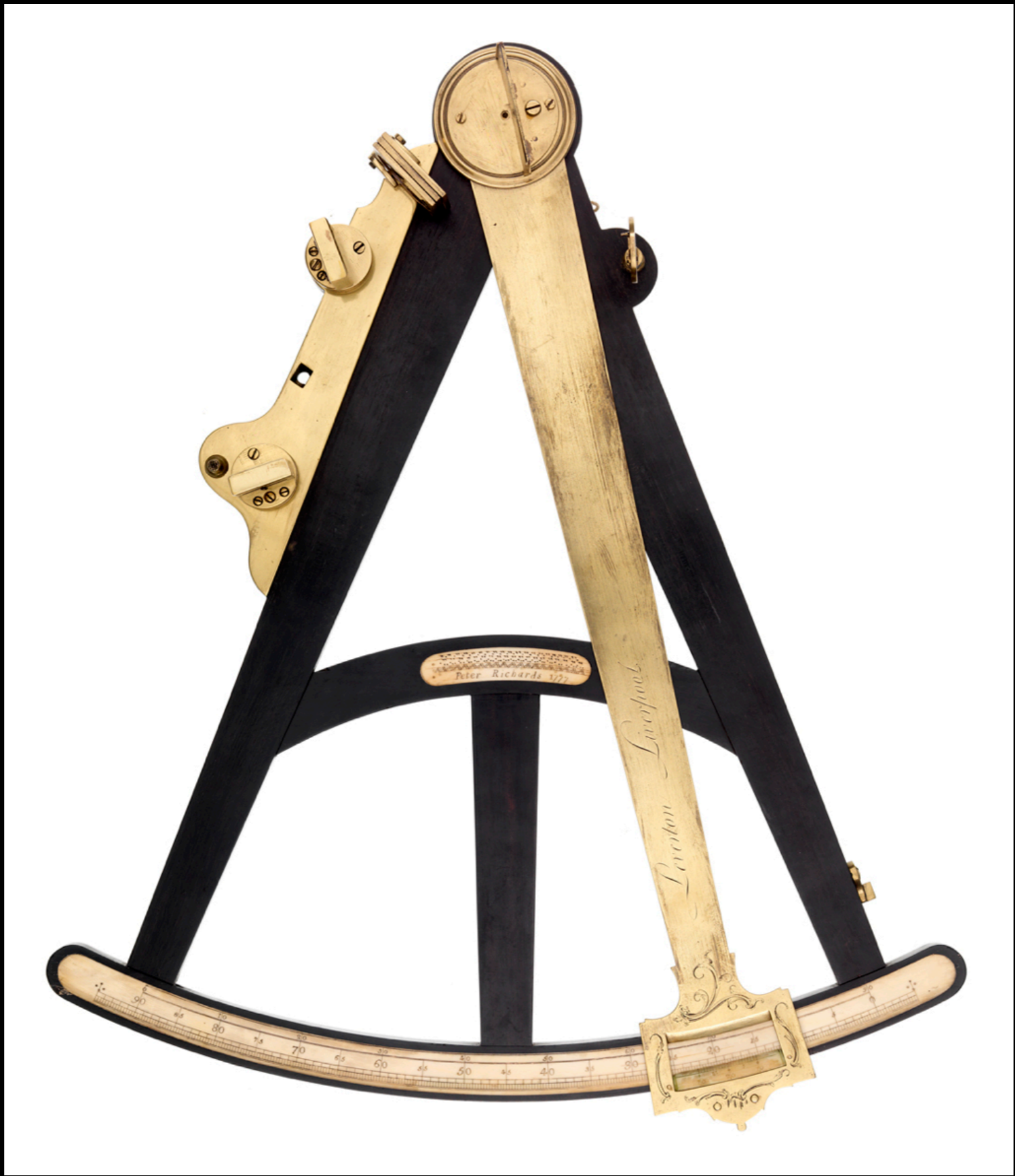
English Octant
by Martin, Joshua Lover & Jesse Ramsden c. 1774
(National Maritime Museum, Greenwich)



English Mahogany Octant with Case
by Gilbert & Son of London 1777
(National Maritime Museum, Greenwich)



English Mahogany Octant with Case
by Gilbert & Son of London 1777
(National Maritime Museum, Greenwich)



English Ebony Octant
by John Leverton of Liverpool 1777
(National Maritime Museum, Greenwich)



English Ebony Octant
by John Leverton of Liverpool 1777
(National Maritime Museum, Greenwich)



English Ebony Octant
by John Leverton of Liverpool 1777
(National Maritime Museum, Greenwich)



English Ebony Octant with Case
by Henry Edgeworth of Bristol, North Somerset 1779
(National Maritime Museum, Greenwich)



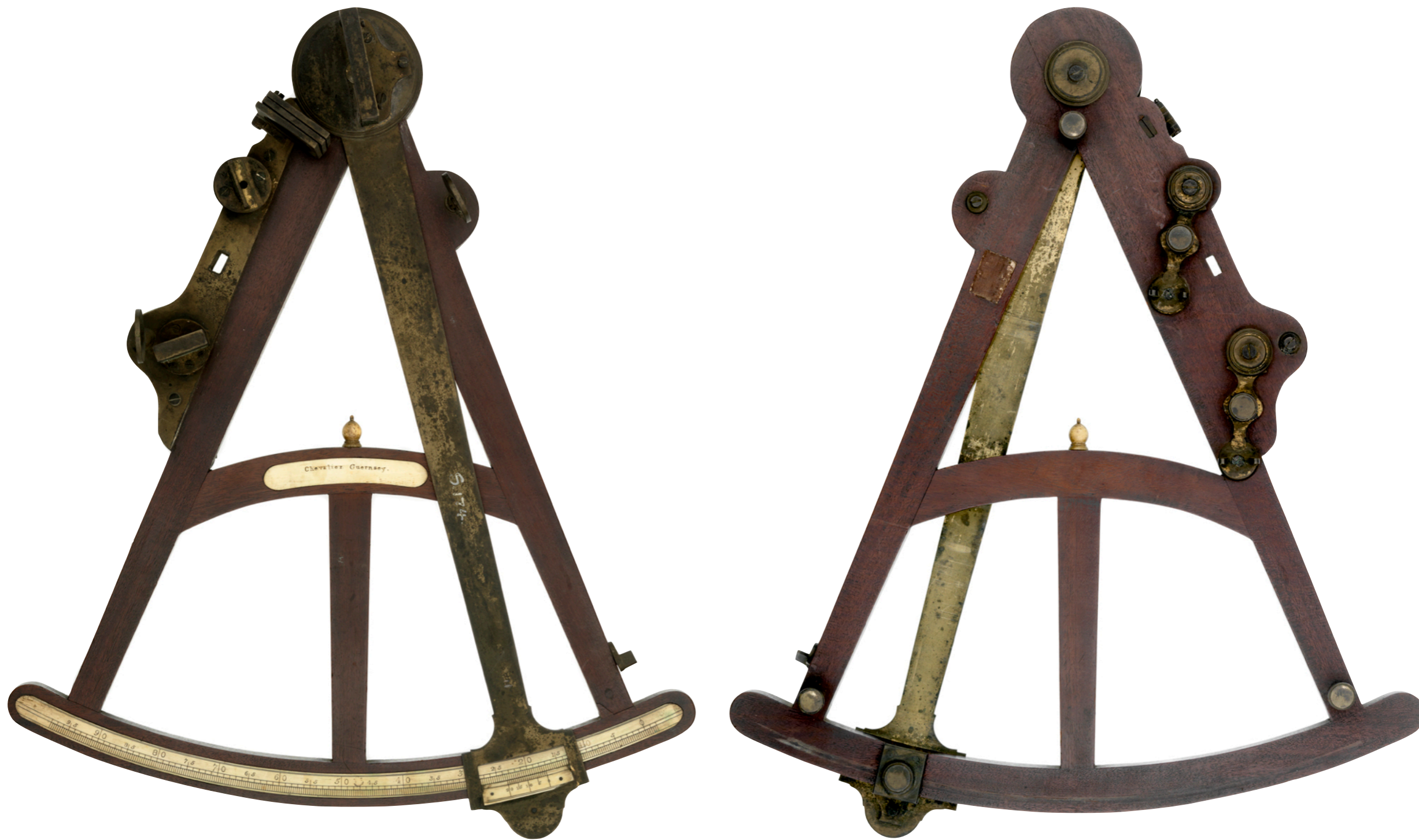
English Ebony Octant with Case
by Henry Edgeworth of Bristol, North Somerset 1779
(National Maritime Museum, Greenwich)



English Ebony Octant with Case
by Henry Edgeworth of Bristol, North Somerset 1779
(National Maritime Museum, Greenwich)



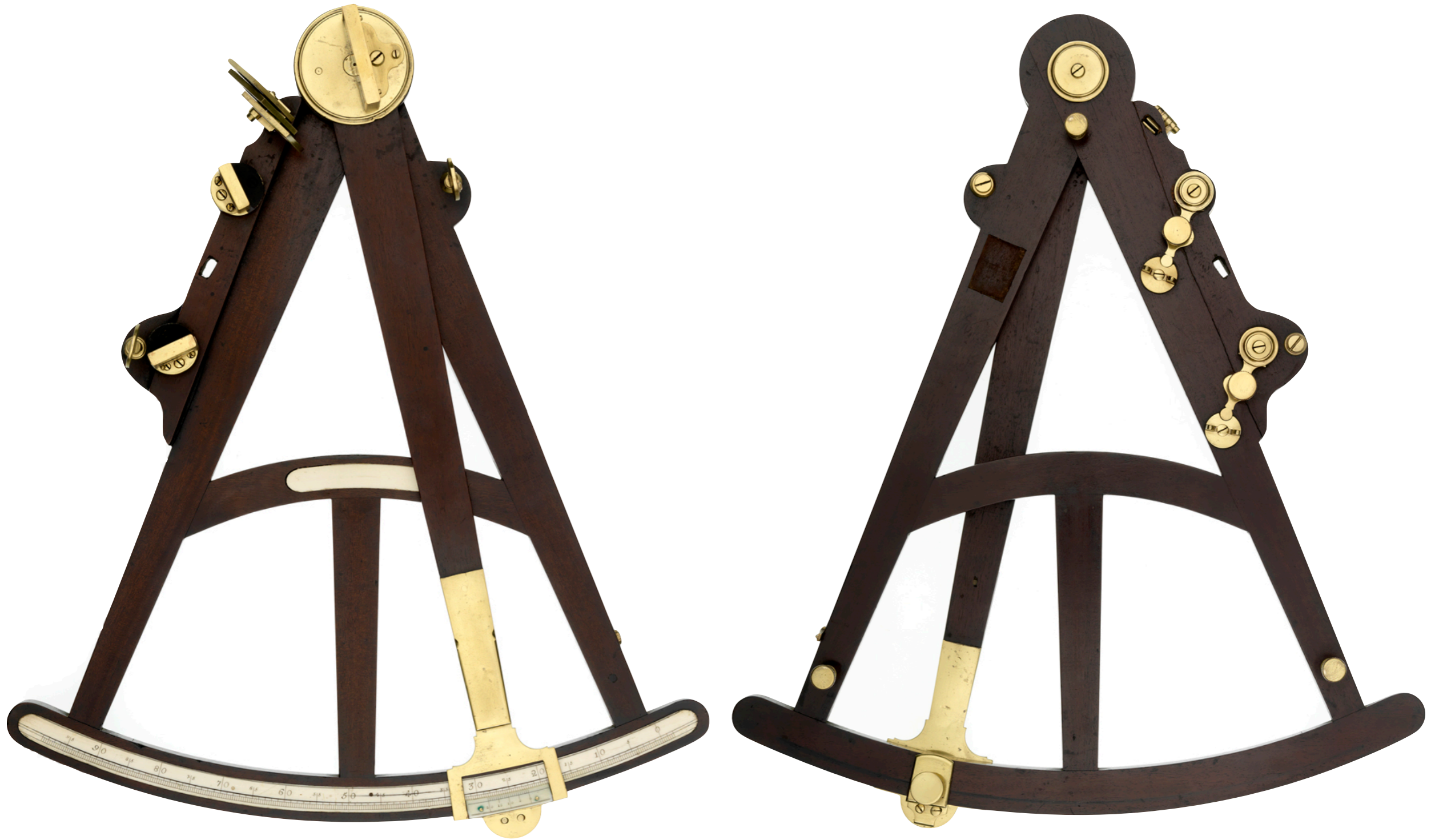
English Ebony Octant with Case
by Henry Edgeworth of Bristol, North Somerset 1779
(National Maritime Museum, Greenwich)



English Ebony Octant
by Edward Pritchard, Apprentice to Ramsden, of Guernsey, Channel Islands c. 1780
(National Maritime Museum, Greenwich)



English Ebony Octant
by Edward Pritchard, Apprentice to Ramsden, of Guernsey, Channel Islands c. 1780
(National Maritime Museum, Greenwich)



English Mahogany Octant
c. 1780
(National Maritime Museum, Greenwich)



English Ebony Octant and Box
Scale Mark for Edward Pritchard of London c. 1780
(National Maritime Museum, Greenwich)



English Ebony Octant and Box
Scale Mark for Edward Pritchard of London c. 1780
(National Maritime Museum, Greenwich)



English Ebony Octant and Box
Scale Mark for Edward Pritchard of London c. 1780
(National Maritime Museum, Greenwich)



English Ebony Octant and Box
by Egerton Smith of Liverpool c. 1780
(National Maritime Museum, Greenwich)



English Ebony Octant and Box
by Egerton Smith of Liverpool c. 1780
(National Maritime Museum, Greenwich)



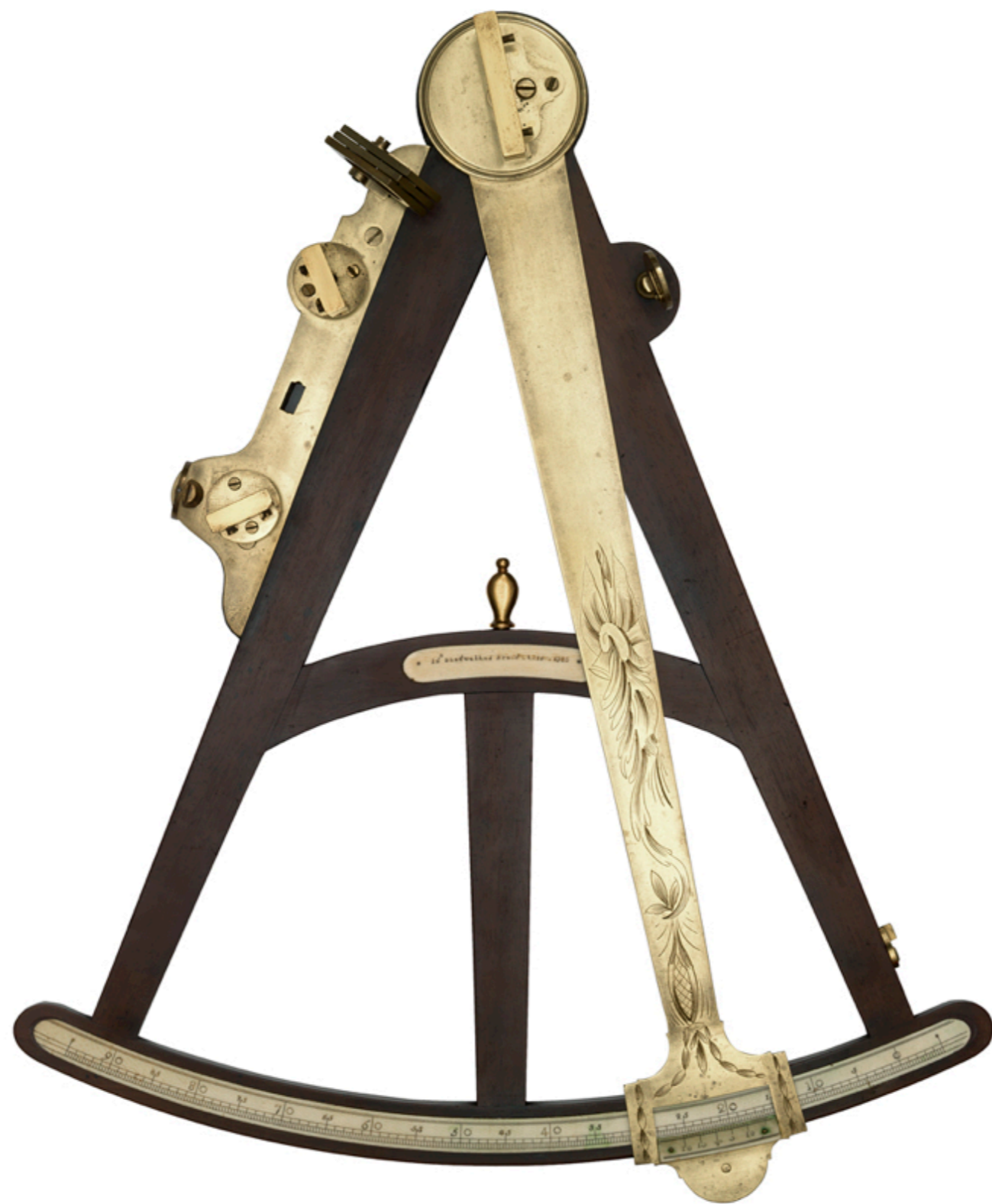
English Ebony Octant and Box
by Egerton Smith of Liverpool c. 1780
(National Maritime Museum, Greenwich)



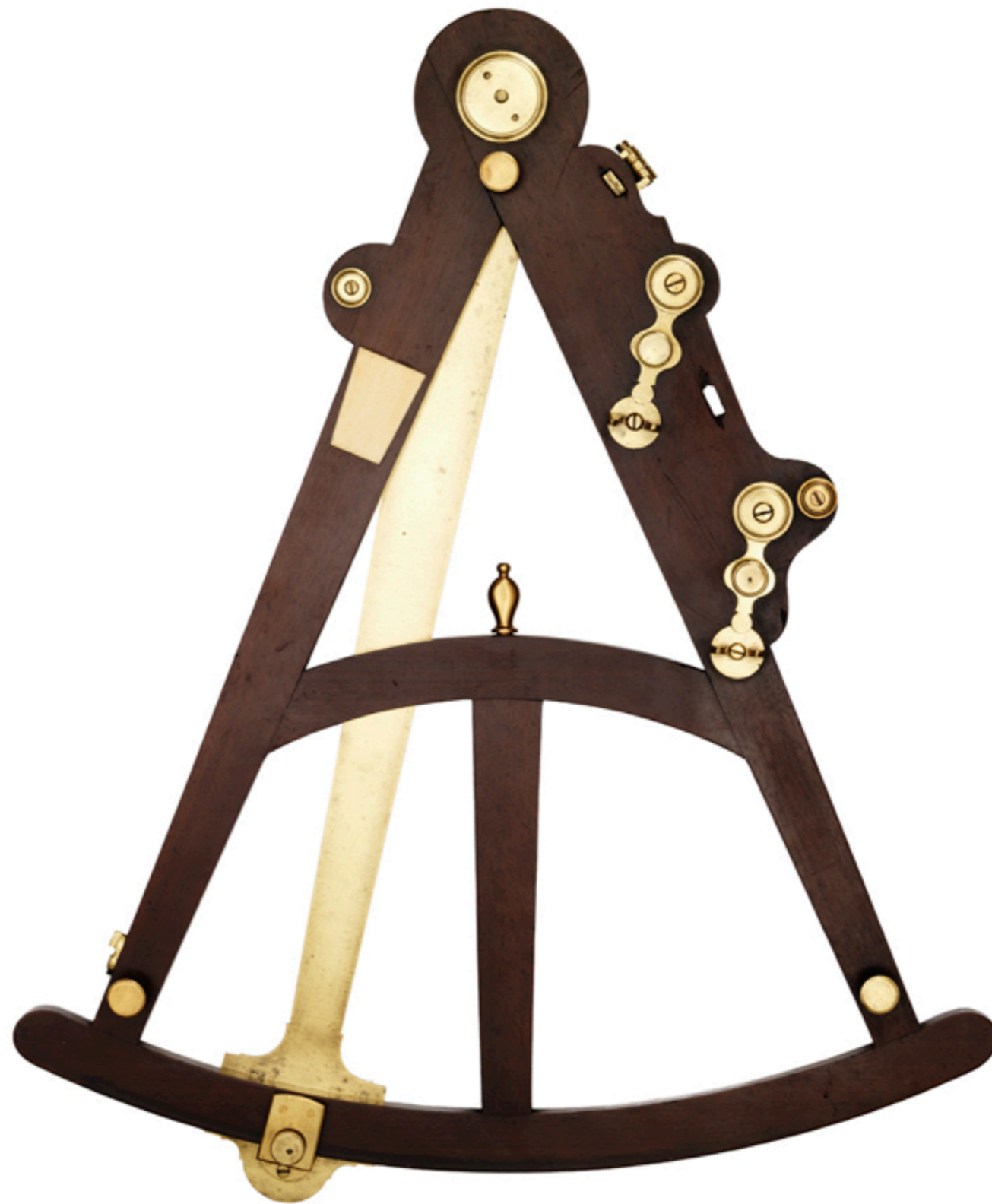
English Ebony Octant and Box
by Egerton Smith of Liverpool c. 1780
(National Maritime Museum, Greenwich)



English 17 $\frac{1}{2}$ Inch Radius Boxwood Fiducial Octant from London
c. 1780
(Charles Miller Ltd.)



English Mahogany Octant
by John Sandwell of Broadstairs, Kent c. 1783
(National Maritime Museum, Greenwich)



English Mahogany Octant
by John Sandwell of Broadstairs, Kent c. 1783
(National Maritime Museum, Greenwich)



English Mahogany Octant
by John Sandwell of Broadstairs, Kent c. 1783
(National Maritime Museum, Greenwich)



English Ebony Octant
c. 1784
(National Maritime Museum, Greenwich)



English Ebony Octant
c. 1784
(National Maritime Museum, Greenwich)



English Mahogany Octant with Case
by Gregory & Wright of London c. 1785
(National Maritime Museum, Greenwich)



English Mahogany Octant with Case
by Gregory & Wright of London c. 1785
(National Maritime Museum, Greenwich)



English Mahogany Octant with Case
by Gregory & Wright of London c. 1785
(National Maritime Museum, Greenwich)



English Mahogany Octant with Case
by Gregory & Wright of London c. 1785
(National Maritime Museum, Greenwich)



English 12 Inch Brass Vernier Octant
by Jesse Ramsden c. 1785
(Charles Miller Ltd.)



English Ebony Octant
by Egerton Smith of Liverpool c. 1785
(National Maritime Museum, Greenwich)



English Ebony Octant
by Egerton Smith of Liverpool c. 1785
(National Maritime Museum, Greenwich)



English Oak Octant Box
Late 18th Century
(National Maritime Museum, Greenwich)



English Oak Octant Box
Late 18th Century
(National Maritime Museum, Greenwich)



Invented by R. Attwold.

The Naval Nurse, or Modern Commander.

<p><i>From Mid. to Lieutenant, Bluff, quickly doth rise; Then next gets Command By the Aid of a Prize.</i></p>	}	<p><i>By Brave Warren & such Our Foes were Opprest; And not by Boy Captains Just rescued from the Breast.</i></p>
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Published according to Act of Parliament, March 26th, 1750. Price 6^d

“The NAVAL NURSE, or Modern Commander.”
by R.T. Attwold 1750
(Lewis Walpole Library)



“RIDICULOUS TASTE, OR THE LADIES ABSURDITY.”
by Matthew Darly, Published by Robert Sayer 1771
(The British Museum)

Scottish Octants



Scottish Mahogany Octant
by John Gardner c. 1770
(National Maritime Museum, Greenwich)



Scottish Mahogany Octant
by John Gardner c. 1770
(National Maritime Museum, Greenwich)



Scottish Mahogany Octant
by John Gardner c. 1770
(National Maritime Museum, Greenwich)

Irish Octants



Irish Mahogany Octant Owned by Capt. John Leworthy
by Sweeney of Cork c. 1780
(National Maritime Museum, Greenwich)



Irish Mahogany Octant Owned by Capt. John Leworthy
by Sweeny of Cork c. 1780
(National Maritime Museum, Greenwich)

Sweeny Cork Fecit
For Cap^t John Leworthy

Irish Mahogany Octant Owned by Capt. John Leworthy
by Sweeny of Cork c. 1780
(National Maritime Museum, Greenwich)

American Octants



American Mahogany with Ivory Octant from Philadelphia, Pennsylvania
by Benjamin Condry 1778
(Smithsonian National Museum of American History)

French Octants



French Brass & Wood Octant
by Sarrazin of Marseilles c. 1750
(National Maritime Museum, Greenwich)



French Brass & Wood Octant
by Sarrazin of Marseilles c. 1750
(National Maritime Museum, Greenwich)

German Octants



German Octant
by Jan Corneliszoon of Fohr, Schleswig - Holstein 1775
(National Maritime Museum, Greenwich)



German Octant
by Jan Corneliszoon of Fohr, Schleswig - Holstein 1775
(National Maritime Museum, Greenwich)



German Octant
by Jan Corneliszoon of Fohr, Schleswig - Holstein 1775
(National Maritime Museum, Greenwich)

Dutch Octants



Dutch Ebony Octant Owned by Pieter Holme
by Jacobus Kley 1753
(National Maritime Museum, Greenwich)



Dutch Ebony Octant Owned by Pieter Holme
by Jacobus Kley 1753
(National Maritime Museum, Greenwich)

Sextants

Sextants

“The sextant was designed to find longitude by measuring the angular distance between the moon and a nearby star. It was also used on land and to find latitude at sea. A sextant is similar to an octant, but more powerful and precise. The arc extends 60° or more and measures angles of 120° or more. Sextants were traditionally made of brass, with scales graduated on silver. Modern sextants are often made of plastic. Most have telescopic sights.

In 1675 King Charles founded the Royal Observatory so astronomers could take precise measurements of the orbit of the moon in relation to fixed stars. The hope was that once the movements of the celestial bodies were properly catalogued, longitude could be found by taking three simultaneous observations of the distance between the moon and the sun or a fixed star, the altitude of the moon, and the altitude of the sun or star. The lunar distance method was extremely difficult to develop, however, because the moon's orbit is irregular, the stars' positions, which would be used to mark time, were difficult to precisely identify, and an instrument that could accurately take the necessary measurements was yet to be made. (Continued)”

Sextants

“The first suitable star catalogue was published in 1725, but it wasn’t until the mid-eighteenth century that the lunar tables were sufficiently tested and put to use with octants and sextants. Early examples of sextants from the 1750s were large, heavy, and costly, but the invention of the dividing engine in 1777 led to the production of smaller and less expensive instruments. Sextants designed for aircraft navigation are equipped with a pendulum or a gyroscope that serves as an artificial horizon, as well as a mechanism that allows the navigator to average several observations taken in rapid succession.

Ref: "Sextant" and "Aircraft Sextant" in Robert Bud and Deborah Warner, eds., *Instruments of Science. An Historical Encyclopedia* (New York & London, 1998), pp. 530-534.

C. H. Cotter, *A History of the Navigator’s Sextant* (Glasgow, 1983).

Howes, Derek, "The Lunar Distance Method of Measuring Longitude" in William J.H. Andrewes, ed., *The Quest for Longitude*, (Cambridge: 1996), p. 150-161.”

From the Website of the Smithsonian Museum of Natural History



English 5 1/2 Inch Radius Brass Vernier Sextant
by Joseph Jackson of London c. 1757 - 1762
(Museum of Science and Industry, Manchester)



English Brass Sextant
by John Bird of London c. 1758
(National Maritime Museum, Greenwich)



English Brass Sextant
by John Bird of London c. 1758
(National Maritime Museum, Greenwich)

J. Bird London.

70

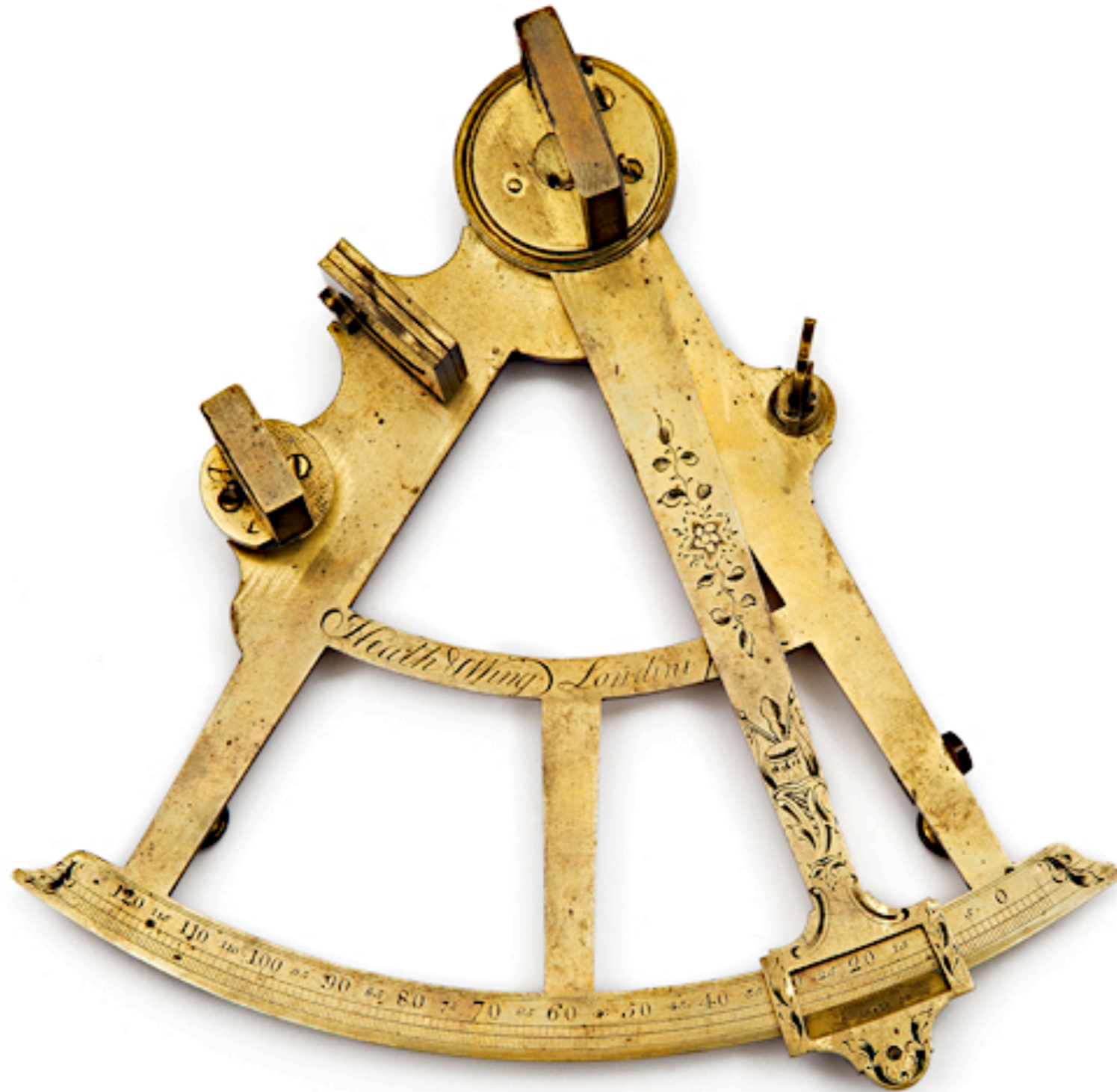
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60

55

50

English Brass Sextant
by John Bird of London c. 1758
(National Maritime Museum, Greenwich)



English $5\frac{3}{4}$ Inch Radius Brass Vernier Sextant
by Heath & Wing of London c. 1765
(Charles Miller Ltd.)



English Brass Sextant
by Jesse Ramsden of London 1772
(National Maritime Museum, Greenwich)



English Brass Sextant
by Jesse Ramsden of London 1772
(National Maritime Museum, Greenwich)



English 5 Inch Radius Brass Vernier Sextant with Box
by Jesse Ramsden of London c. 1783 - 1784
(Charles Miller Ltd.)

Acknowledgements

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