

# Louis Braille



## **Touch Exhibition**

*21<sup>st</sup>, 22<sup>nd</sup>, and 23<sup>rd</sup>, August, 2008*



International Conference Centre  
17 rue de Varembé  
CH – 1211 Geneva 20

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# Louis Braille

*1809 - 1852*

## **Touch Exhibition**

Presented by the  
Valentin Haüy Association

7th General Meeting of the

### **Word Blind Union**

International Conference Centre  
17 rue de Varembé  
CH – 1211 Geneva 20

*21<sup>st</sup>, 22<sup>nd</sup>, and 23<sup>rd</sup>, August, 2008*



# Louis Braille's life

Louis Braille was born on 4<sup>th</sup> January 1809 in Coupvray, a small village in Seine-et-Marne about 30 kilometres from Paris. His family had been saddlemakers for generations. At the age of three, he wounded an eye while playing with some tools in his father's workshop. He turned out to be a lively, inquisitive child, characteristics which his family nurtured even after his blindness became permanent and total.

After attending his village school, he entered the ROYAL INSTITUTION FOR THE YOUNG BLIND in Paris at the age of ten. This was housed in the former St. Firmin seminary at N° 68 rue St. Victor. These buildings, no longer standing, were located where N°° 2, 4 & 4 b rue des Écoles are now to be found. It was a cold, damp, uncomfortable, unhealthy place, ridden with tuberculosis, which Louis Braille was to die of. The Institution became his adopted home and he only returned to Coupvray for holidays.

Braille was an excellent pupil and was among those who stood out for their ability. At the age of 14 he was appointed “foreman of the workshop making list and braid footwear”. He was put in charge of classes and in 1828, at the age of 19, he was appointed “tutor”, a title which concealed his real teaching role. He taught successively or simultaneously grammar, history, geography, arithmetic, algebra, geometry, the piano and the 'cello. The dilapidated state of the premises became a public scandal and a building was especially erected for the blind pupils in a relatively out-of-the way and airy part of Paris. It was in this

new school at 56, Boulevard des Invalides, which still houses the NATIONAL INSTITUTE FOR THE YOUNG BLIND for, that Braille died on the 6<sup>th</sup> January 1852.

Some months later, Pierre-Armand Dufau, the Headmaster of the IMPERIAL INSTITUTE FOR THE YOUNG BLIND, paid tribute to Braille in his prize-giving speech:

*It [death] has taken from us one of our teachers, the clever and admirable Louis Braille, to whom the blind owe the simple and fruitful discovery of writing by raised dots, which has now become the driving force of all their achievements.*

No pomp. The terms are measured, in the light of his experience, and reflect the image of the austere, hardworking life of this discreet young man, entirely spent within the limited confines of this Paris institution and in a quiet provincial village.

Braille's life coincided almost exactly with the first half of the 19th century. French society was torn between the legacy of the Enlightenment and a nostalgia for the Monarchy and punctuated by numerous contradictory aspirations.

Different regimes followed each other, interspersed with violent episodes of insurrection.

Little by little, industrialisation mechanised the conditions of work and production.

Romanticism brought together artists and writers who rejected the official art which served the powers that be.

Individual values are asserted through the excitement of lyrical, effusive sensitivity.

The growing strength of the republican, liberal opposition fostered the feeling of collective belonging to a single nation.

Between 1821 and 1837, on the fringe of this effervescence and without any special means, an unknown young blind boy invented such a simple, logical and powerful system that it could be adapted to the languages and customs of the whole world.

Several circumstances assisted the achievement of this invention.

Braille borrowed its principle from Nicolas Charles Barbier de La Serre, a former soldier. He was supported in his research by Alexandre-René Pignier, the Headmaster of the ROYAL INSTITUTION FOR THE YOUNG BLIND.

Above all, he owed his success to his remarkable qualities, both intellectual and manual, for braille is both knowledge and a skill which cannot be dissociated from the gestures and the technique of its production.

<b>Louis Braille's bust</b>	<i>20th c., plaster, A-05-7011</i>
<b>Book with embossed printing</b>	<i>1838, paper, B-16-1008</i>
<b>Barbier's Alphabet Method</b>	<i>2008, facsimile, PVC</i>
<b>Barbier's sonographic table</b>	<i>2008, facsimile, PVC</i>
<b>Barbier's writing slate</b>	<i>circa 1821, wood and metal, B-04-5103</i>
<b>Braille tables dating from 1829</b>	<i>2008, facsimile, stereocopy on paper</i>
<b>Braille tables dating from 1837</b>	<i>2008, facsimile, stereocopy on paper</i>
<b>Braille writing slate</b>	<i>circa 1835, wood and metal, B-04-5149</i>
<b>Index Braille table</b>	<i>1868, paper, A-05-3008</i>
<b>Braille numbered characters</b>	<i>2<sup>nd</sup> half of 19th c., paper, A-05-3011</i>
<b>Raphigraph</b>	<i>2<sup>nd</sup> half of 19th c., wood and metal, B-14-5002</i>
<b>Stereotyped negatives</b>	<i>1878, brass, A-05-8011 n°° 1 &amp; 2</i>
<b>Hall's braille writing machine</b>	<i>19th c., metal and wood, B-04-5708</i>



# The Exhibition

The choice of nine works from the Valentin Haüy Museum's collections and four facsimiles of old documents is a limited display.

It is a prelude to the exhibition for the bicentenary of Louis Braille's birth that is to be held in France in 2009 :

- . in Paris at the NATIONAL INSTITUTE FOR THE YOUNG BLIND in January
- . at Louis Braille's birthplace in Coupvray from February to June.

The descriptions that follow are intended to be accompanied by tactile contact with the objects.

The INSTITUTION (or Institute) which was dubbed "ROYAL", "IMPERIAL" or "NATIONAL", according to the times, is simply called "INSTITUTION" in the following text, so as to avoid clumsiness.



## 1 **Louis Braille's bust**

*20th century, plaster, A-05-7002*

This bust of Braille, smaller than life-size, was inspired by the one produced by François Jouffroy, after his death-mask. The original, inaugurated on 25<sup>th</sup> May 1853, adorns the opening of one of the arches in the hall of the NATIONAL INSTITUTE FOR THE YOUNG BLIND. Alexandre-René Pignier, Headmaster of the Institution from 1821 to 1840, described Braille thus:

*When he arrived at the establishment, a certain childlike gravity could be noticed, which went with his fine features and the clever and gentle expression on his face. Growing up, he kept, right up to the end of his life, the same expression of benign gentleness, but in conversation, his features grew animated more often and occasionally took on an air of clever vivaciousness that contrasted with the usual placidity of his face.*



## 2 **Book with embossed printing**

*1838, paper, B-16-1008*

The “Christian Doctrine” by Father Lhomond (1727-1794), who was responsible for numerous textbooks, is typical of the books that the pupils at the ROYAL INSTITUTION OF THE YOUNG BLIND had at their disposal when Braille became a boarder. It is printed with characters reproducing writing for the sighted. It can be read by running a finger along the embossed type, hence the term “embossed printing”.

This analogical method was advocated by Valentin Haüy – founder of the first school for the blind in 1785 – so that the blind, who are a minority, could preserve as far as possible a reciprocal link with the sighted.

The full title of the book *Christian Doctrine in the form of Pious readings, in which are exposed the Proofs of Religion, the dogmas of Faith, the rules of Morality, as regards Prayer and Sacrament* demonstrates how the pedagogy of the time placed religious instruction at the forefront of the teaching.



### 3 **Barbier's Alphabet Method**

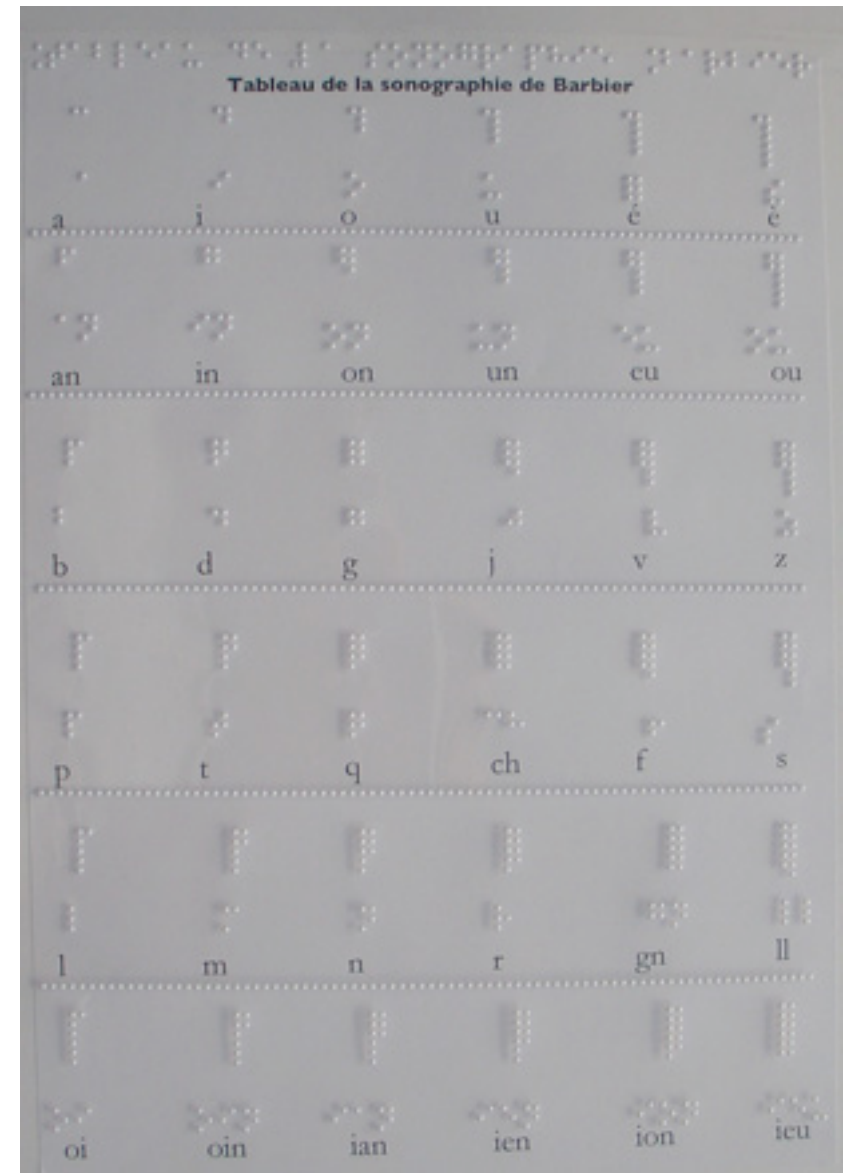
*2008, facsimile, PVC*

Charles Barbier de La Serre (1767-1841) was a captain of the artillery and left the army at the collapse of the monarchy to go to America, where he became a land surveyor, frequently staying with Indian tribes. He returned to France at the start of the 19th century and devoted his life to various communications systems.

He was an idealist pursuing his dream of a universal writing system, as well as a philanthropist essentially driven by the desire to teach those who had missed out on education to read.

So as to attain maximum efficiency and speed, his methods ignored spelling. One of them was an alphabet of 36 sounds, Barbier reckoning that they are enough to transcribe French, arranged on a panel of 6 lines by 6 columns.

Each sound in this alphabet method is defined by its reference: the line number and the column number.





## 4 **Barbier's sonographic table**

*2008, facsimile, PVC*

These sounds are written by means of raised dots arranged in 2 columns. The number of dots in the left-hand column indicates the line where the sound is located on the reference table. The number of dots in the right-hand column indicates its position on the line. Barbier intended this method, called “dotted”, since it used dots, for children. The fact that it relies on touch led him to try it out on the blind. Elsewhere it is called “night writing”.

Pignier, Headmaster of the Institution, noted in a report dated 19th May 1821:

*Mr. Barbier has informed me of an ingenious method of writing,  
for the use of the blind, thanks to which they can correspond among themselves.  
I hastened to try out this method; time will tell what advantages  
are to be gained from it.*

For the boy that Braille was – 12 years old in 1821 – and for his schoolmates, the dots came as a revelation, their definition by the fingertips being far superior to embossed printing.



## 5 **Barbier's writing slate**

*circa 1821, wood and metal, B-04-5103*

Each of the 36 sounds in the Barbier method is represented by a specific combination of raised dots divided between 2 columns. Writing this combination, or “signs”, necessitated equipment that ensured the regularity of the layout of the dots.

Two rectangular wooden frames of identical dimensions, hinged together at one side, are placed upon one another. The upper frame holds a grid pierced with windows; the lower one a plate carved out into parallel lines, in groups of 6.

The dots are made by pressing on the paper with a point called a “stylus” into the slots through the windows of the grid, moving from left to right.

Barbier's method was taught as a secondary adjunct to the education of the young blind pupils. It came on the scene at just the right time. When Pignier took over the ROYAL INSTITUTION FOR THE YOUNG BLIND in 1821, he found the teaching close to chaotic. While Valentin Haüy's linear method enabled reading, writing remained problematic. The pupils learnt to draw ordinary letters with a writing board but in the absence of embossment were incapable of reading what they wrote. It was impossible to write swiftly, to take notes, to add or to correct.

Henceforth, these things became a possibility with Barbier's writing method and, later, even more so with Braille's.

## TABLEAU

Des signes des neuf séries,  
avec les lettres, les  
chiffres, les signes de  
ponctuation et les signes  
algébriques qui leur  
correspondent.

## Première Série.

·	:	..	...	...	...	...	...	...	...
a	b	c	d	e	f	g	h	i	j

## Seconde Série

:	:	...	...	...	...	...	...	...	...
k	l	m	n	o	p	q	r	s	t

Suite du tableau précédent

## Troisième Série

:	:	...	...	...	...	...	...	...	...
---	---	-----	-----	-----	-----	-----	-----	-----	-----

## Quatrième Série

:	:	...	...	...	...	...	...	...	...
---	---	-----	-----	-----	-----	-----	-----	-----	-----

## Cinquième Série

—	—	—	—	—	—	—	—	—	—
1	2	3	4	5	6	7	8	9	0

## Sixième Série

—	—	—	—	—	—	—	—	—	—
,	;	:	.	?	!	)	»	*	

## 6 Braille tables dating from 1829

*2008, facsimile, stereocopy on paper*

Under Braille's guidance, the pupils at the INSTITUTION tried out Barbier's method. Pignier backed their trials. In 1825, at the age of 16, Braille thought up his system of reading and writing. He was 20 when his *Method for Writing the Words, Music and Plainchant with dots for the use of the Blind and arranged for them*, by L. Braille, Tutor at the Royal Institution for the Young Blind, Paris, 1829 was published. The book is printed in Line Type, except for the braille dots.

Braille paid homage to Barbier's method, yet his own modifications are no less radical and are tantamount to an invention. The "barbier" cell, that is to say the basic unit from which the signs were written, consisted of 2 columns of 1 to 6 dots each. This layout with 6 dots meant the finger had to sweep down the columns.

Braille halved the height of the signs. Braille's cell consisted of 2 columns of 1 to 3 dots. Its size is perfectly adapted to the finger tip. Since reading the signs can be global, time is gained.

A more radical modification accompanied this: the brilliant student having become a teacher, Braille was driven by a desire for excellence and was concerned to transmit culture. He also devised a form of shorthand but was determined to respect the spelling and properties of language. His method enabled all the characters to be represented: punctuation marks, letters, numbers and algebraic signs. It could be applied to all the subjects Braille was in charge of teaching, including music, which was all the more important at the time as it was essentially for religious use and formed part of the pupils' daily life. Like many of his peers, Braille was an organist. He played at St. Nicolas des Champs in rue St. Martin, and then at the headquarters of the Lazarist Missionaries in rue de Sèvres.

## TABLEAU

Des signes en points, avec les lettres, les signes de Ponctuation, les signes algébriques et les abréviations qui leur correspondent.

## Première série.

· : ·· ·· · · ·· ·· ··  
a b c d e f g h i j

## Seconde série.

· : ·· ·· ·· ·· ·· ·· ··  
k l m n o p q r s t

## Troisième série

·· ·· ·· ·· ·· ·· ·· ··  
u v x y z ç é à è ù

ieu

oin

## Quatrième série

· : ·· ·· ·· ·· ·· ·· ··  
â ê î ô û ë ï ü æ w  
an in on un eu ou oi ch gn ill  
ñ

## Signes supplémentaires

· : ·· ·· ·· ··  
; - ì ò c

ian ion ie ien

+ - =

## Ponctuations et autres signes

· : ·· ·· ·· ·· ·· ··  
, ; : . ! ( » \* ×  
✓ ✕

## 7 **Braille tables dating from 1837**

*2008, facsimile, stereocopy on paper*

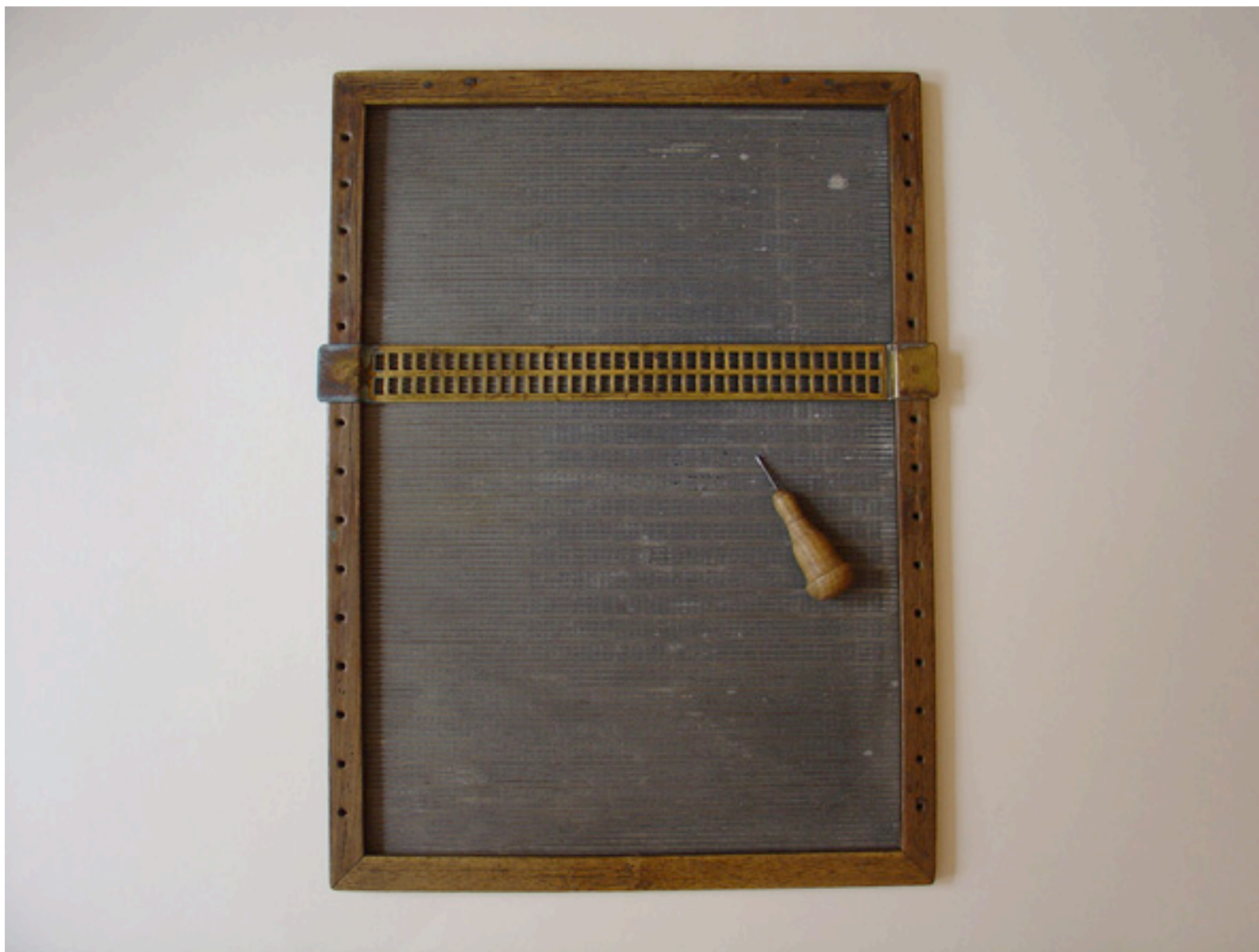
When Braille was 28, the first symptoms of the tuberculosis he was to die of having appeared two years earlier, came the publication of the revision of the *Method for Writing the Words, Music and Plainchant with dots for the use of the Blind and arranged for them*. By L. Braille, Tutor at the Royal Institution for the Young Blind. Second edition, revised, corrected and enhanced. Paris, Press of the Royal Institution for the Young Blind. 1837 AD.

The 1829 alphabet consisted of 9 series of 10 signs, plus 6 additional signs. The first 4 series were the same as today's braille alphabet, whilst the others combined dots and short horizontal dashes.

In the 1837 alphabet the dashes, left over from the embossed script method, have disappeared in favour of dots alone, which Braille's experiments demonstrated are more appropriate to the sensitivity of touch.

This young man had invented a method of reading and writing which was to become universal under his own name. Yet according to the 1829 military commission's report, he was classified as "unable to read or write"!







## 8 **Braille writing slate**

*circa 1835, wood and metal, B-04-5149*

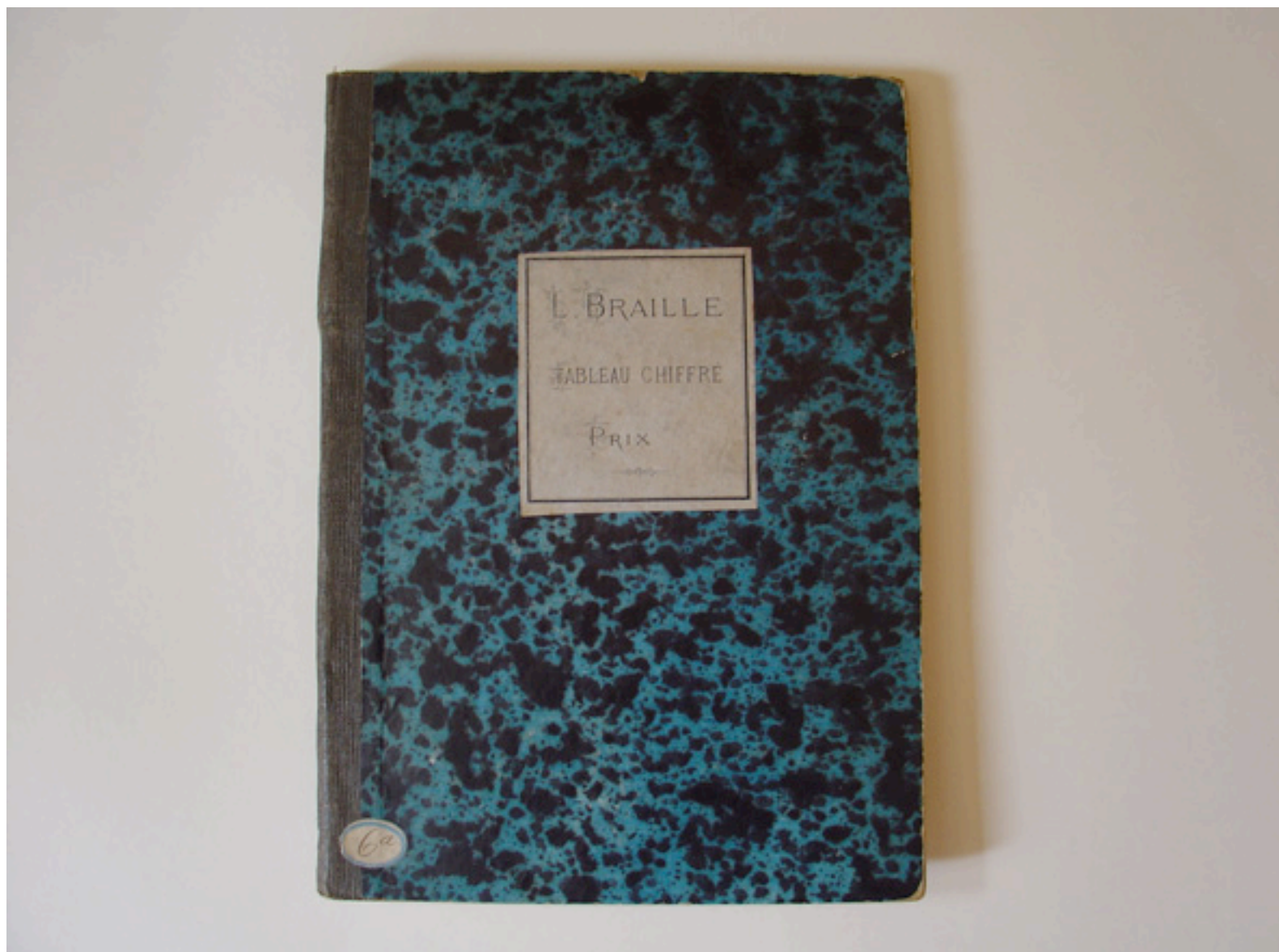
Writing slates for braille were derived from those for Barbier. A rectangular base, here made of metal, was carved out with horizontal parallel lines and had two pins on the right to hold the sheet of paper.

A wooden frame, the same size, held by two hinges at the top, folded down over it.

A moveable brass grid of 2 lines of 36 windows fitted on to the frame to guide the writing. This “ruler” could be fixed or moved to change lines, thanks to studs placed at the ends that dropped into the holes located at regular intervals along the vertical sides of the frame.

Actual writing was done by pressing down the paper through the windows of the ruler into the slots by means of a point, which is now called a stylus. The dots can only be felt after the sheet has been reversed. In order to read like the sighted, from left to right, writing has to be done the other way round, from right to left.

This inverted writing by the blind is a peculiarity that can disconcert the sighted.



## 9 **Index Braille table**

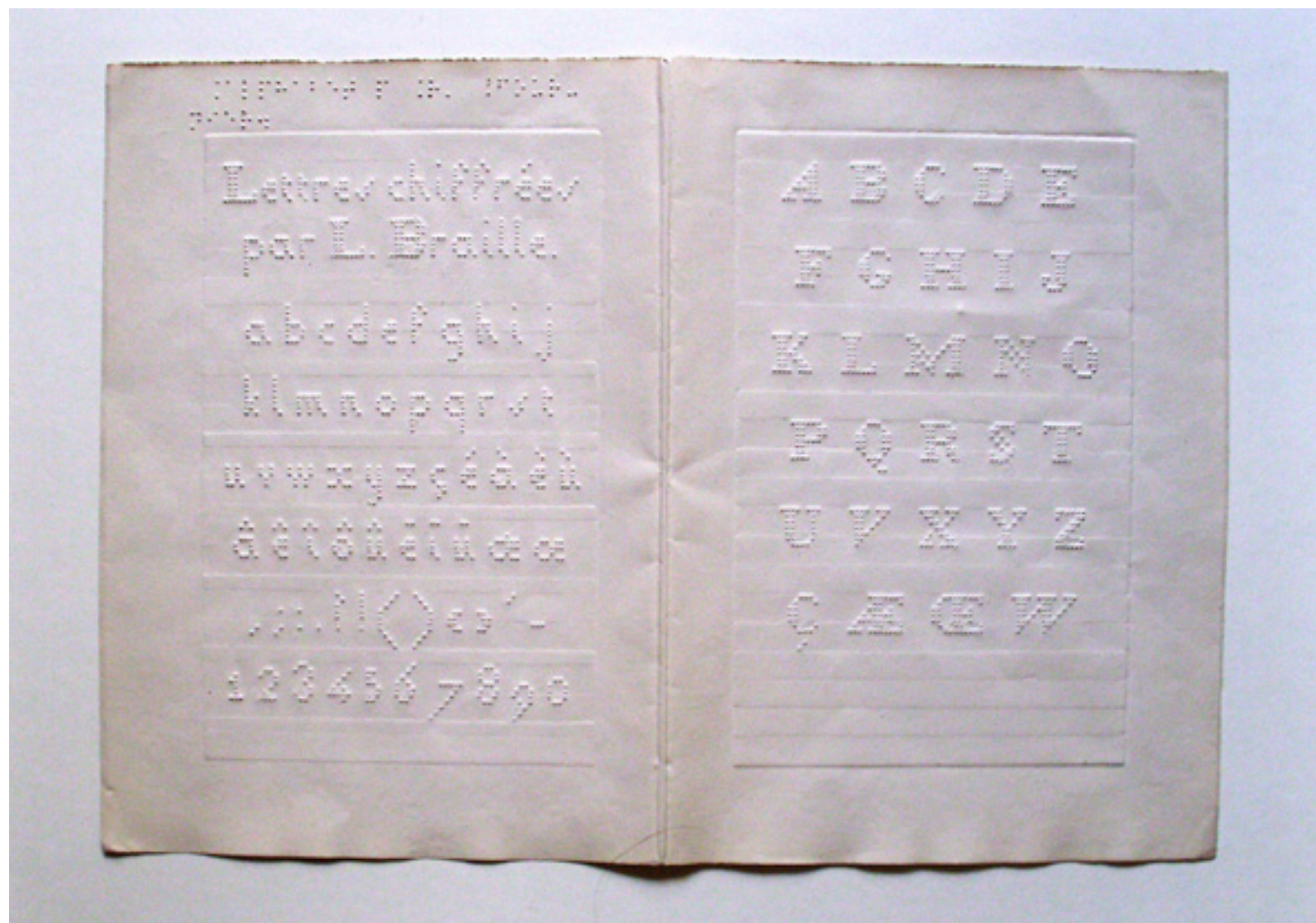
*1868, paper, A-05-3008*

In order to counter criticism of his method, to the effect that it destroyed Valentin Haüy's principle that the blind should be in constant touch with the sighted, Braille devised another method of writing in 1839. This book, printed in braille by the press of the IMPERIAL INSTITUTION FOR THE YOUNG BLIND in 1868, explains the principle.

Braille did not want to give up the dots. His “new method” enabled each written character to be represented by a fixed combination of dots arranged on the paper. The tools for marking the dots were at first similar to the slates: a board, a grid and a stylus. There was a code for finding the series of dots to be punched in each window. Each character had a succession of numbers. For example, an “a” was drawn with the dots

5, 6 ; 4, 7 ; 4, 7 ; 3, 4, 5, 6 ; 7

This new method, a compromise between the linear and dotted systems, was used by the blind to correspond with the sighted for some considerable time.

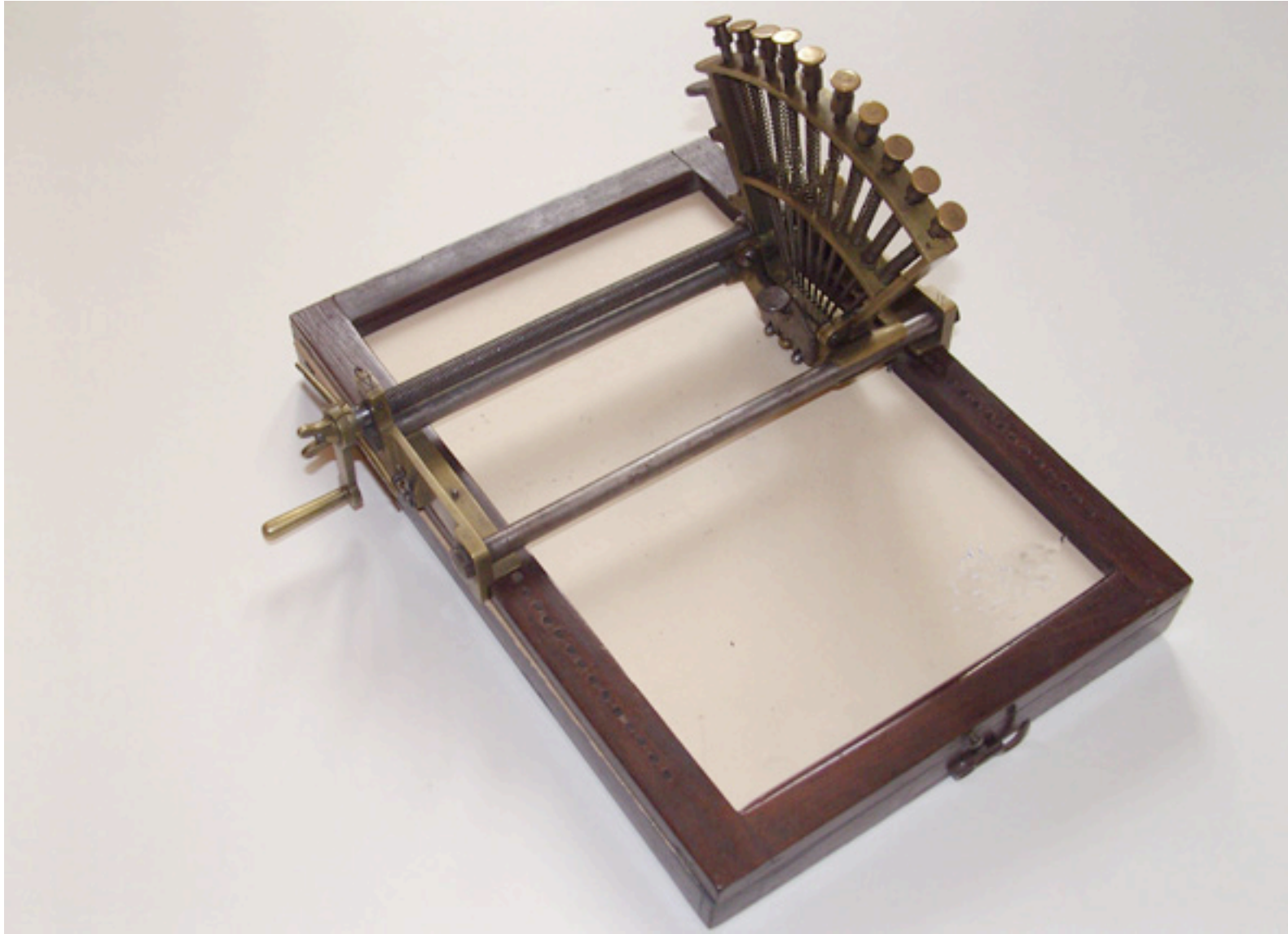


## 10 **Braille numbered characters**

*2<sup>nd</sup> half of 19th century, paper, A-05-3011*

This sheet is an alphabet that is sufficiently large to be read by touch so that the new method could be practised. The INSTITUTION had melted special long, thin typographical characters bearing embossed dots spread out so that models of this sort could be printed in large quantities.





## 11 **Raphigraph**

*2nd half of 19th century, wood and metal, B-14-5002*

In 1841, Pierre François Victor Foucault, a friend of Braille and like him blind from childhood as well as being an excellent mechanic, offered to mechanise his new method, thanks to a machine incorporating pistons. The idea was to produce embossed writing faster.

Subsequently embossment was jettisoned and the machine became the first writing machine for the use of the blind, which came to be called a “raphigraph” a term made up of two Greek words: “raphis” (needle) and “graphien” (writing).

The raphigraph looks like a writing slate. The ruler is replaced by a moving part bearing ten pistons and moving from left to right thanks to a small handle placed on the left. Ten keys in front of the writer laid out in a vertical fan shape activate ten pins when they are pressed. A blank sheet is placed first with a carbon sheet above it, the carbon side in contact with the blank sheet. Each of the ten keys is numbered.

Let us return to our example of the letter “a”, defined by 5, 6 ; 4, 7 ; 4, 7 ; 3, 4, 5, 6 ; 7. In order to draw it, the right hand must press simultaneously keys 5 and 6, which correspond to the first group of numbers; then the left hand turns the handle a quarter of a turn to move the mechanism on, then the right hand strikes keys 4 and 7, followed by a quarter of a turn of the handle, and so on until you reach key 7. The needles stamp the paper through the carbon so that the dots gradually mark out the shape of the letter “a” on the blank sheet.

The raphigraph was in use for some time. Manipulating it required a dexterity that the blind often mastered through their handicraft and piano exercises.





## 12 **Stereotypes negatives**

1878, brass, A-05-8011 n<sup>oo</sup> 1 & 2

Three months after Braille died, Dufau entrusted Rémy Fournier, also blind, with the task of organising the INSTITUTION's braille press. Printing was initially made by composing texts with moveable lead type.

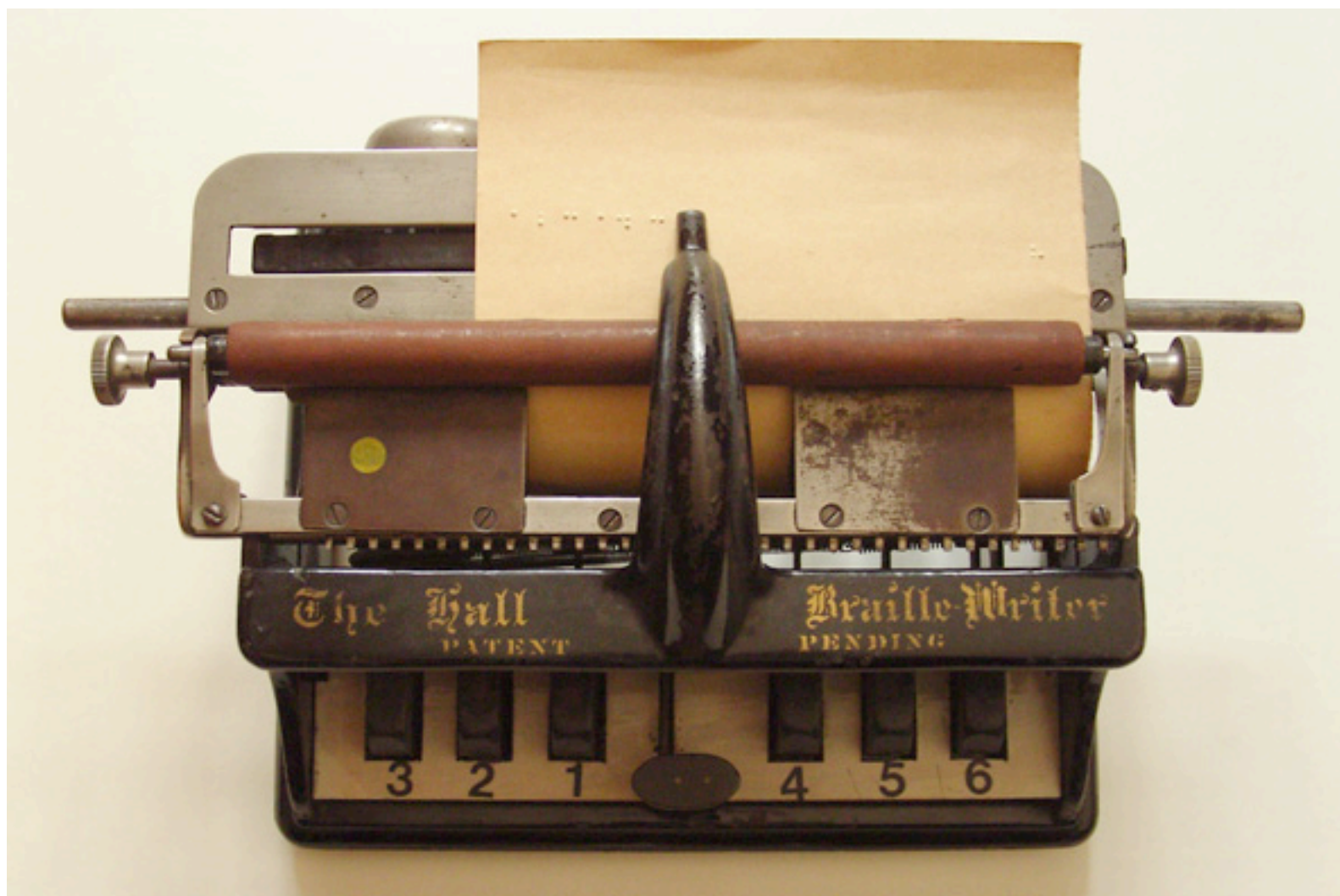
Then a faster method was devised: “stereotyping”, derived from the Greek “steros”, (solid) and “tupos” (character). This consisted of writing on fine sheets of zinc or brass by means of a hammer and chisel. These metal pages, which served as master sheets for printing on paper, were called “negatives”.

So as to counter the main drawback of braille – its cumbersomeness – maximum use had to be made of the space on the paper. The other side of the paper could be printed on, using the free space between the lines.

These negatives were made at the press of the NATIONAL INSTITUTION FOR THE YOUNG BLIND for printing in stereotyped interline braille the last pages of the tome *Braille's Anaglyptography and Raphigraphy by Levitte, Deputy Headmaster at the Institute*, in which he deals with both of Braille's embossed methods.

A few years after the discovery of interlines, followed “interpoints”, enabling a maximum use of the space available.

It has become the norm nowadays, as, for example in the braille version of this booklet.



## 13 **Hall's braille writing machine**

*19th century, metal and wood, B-04-5708*

Writing braille with a writing machine is easier and faster than with a slate. With a keyboard of 6 keys, a single stroke can form any of the braille signs.

In 1892, Frank H. Hall in the USA and Oscar Picht in Germany invented the first two braille writing machines, which were followed by numerous other models, the fruit of the inventiveness of the industrialised countries, until the norm became the “Perkins”, from the name of Thomas Perkins, benefactor, founder of the PERKINS SCHOOL FOR THE BLIND, the first school for the blind to be set up in the USA in Watertown, Massachusetts.



# Louis Braille's legacy

“Braille’s exceedingly simple and exceedingly fruitful discovery”, as Dufau called it in 1852, was known first by the expression “L. Braille’s method using raised dots”, then by the scholarly term “anaglyptography”.

The modern “braille” made its first appearance in the French dictionary in 1927.

Be that as it may, the method gradually became adopted as the only valid one for the blind, first in Europe and then throughout the world.

In 1878 in Paris the “Congress for the Improvement of the condition of the blind and the deaf-and-dumb”, at which Austro-Hungary, Belgium, Denmark, England, France, Germany, Holland, Italy, Sweden and Switzerland were represented, voted by a large majority to adopt the original braille method.

When the USA unanimously adopted the French braille system in 1917, its use spread all over the world.

100 years after Braille’s death, in 1952, his remains were transported to the Pantheon (only his hands remaining in a sealed urn placed on the family tomb in the little graveyard in Coupvray) an expression of recognition for the man whose life and work, wholly devoted to the blind, paved the way to their integration, which is access to knowledge and culture.

”

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