In 1808 Sebastien Erard (1752 – 1831) registered his first patent for the double-action harp with fourchettes. The subsequent patents of 1810, and 1821 document further the development in the Erard mechanisms.

It is generally accepted that Sebastien Erard was the inventor of the double-action instrument, although a much discussed and recently rediscovered Cousineau harp pushes back this invention to the early 1780s. Evidence came to light during my research into the mechanisation of the harp illustrating that Erard was not the first to register a patent for a double-action harp with fourchettes.

Before discussing this new information, which has been available in the form of a patent since 1807, it is necessary to look at the late years of the single-action.

The initial mechanisation of the harp is generally attributed to Hockbruker during the first two decades of the eighteenth century. Many makers were involved in the development of the single-action harp. These makers may be divided into three distinct schools, according to the method by which the pitch of the open string is raised by one semitone. Nadermann, Cousineau, Renault & Chatelain, Wolter, Louvet and Holtzmann among others made crochet harps. The production of these harp continued in France into the nineteenth century, falling from fashion in England due to developments attributed to Erard.

During the last thirty years of the eighteenth century Georges Cousineau (1733 – c.1799) and his son Jacques Georges Cousineau introduced their bequille mechanism. This mechanism, consisting of two small crutch-ended levers placed both to the right and left of the string, stopped the string without moving it out of alignment.

During the late years of the eighteenth century Sebastien Erard, an inventor who registered many improvements for the harp and pianoforte, was known to be working on a more perfect method of stopping harp strings to produce a semitone. In 1794 he patented his single-action.

This was achieved by using what Erard described as a fourchette. The fourchette could be turned to stop the string by the depression of the pedals enabling two prongs to move the string equally from opposing directions.

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1 Certain improvements upon Pianofortes, large and small and upon harps. No 3170
2 Certain further improvements on pianofortes and harps. No. 3332
3 Certain improvements on harps. No. 4670
5 Certain improvements in the harp and pianoforte, both large and small. No. 2016
This advancement was considered to be the pinnacle of single-action technology. Indeed in his book, The Harp in its Present Improved State, Pierre Erard (1796 – 1855), nephew of Sebastien writes;

… the French harp and Sebastien Erard’s compared might be said to have that striking difference between each other, in point of tone, which exists between a grand pianoforte and a harpsichord.

In 1801 Erard registered his second patent, the first in the U.K. for a fully chromatic harp. Erard devised a clever though complicated mechanism which:

… was capable of rendering the harp capable of modulating into every usual or practicable scale of music, by immediately rendering the tone or pitch of all the chords or strings of the same name or denomination either flat, sharp or natural at pleasure, by the instantaneous operation of a lever, treadle, or other suitable instrument of communication from the hand or foot, so as to alter the tension of the said string, and also of turning each several chord or string with greater certainty and precision than has hitherto been done.

This mechanism employed a wheel attached to the tuning pin which by the depression of one pedal turned each pin of a particular note of the scale, increasing the tension on the string to achieve a semitone. By this method each string could be rendered flat, natural or sharp. None of these Erard harps are known to survive. Cousineau, working with Ruelle, patented a harp in 1799, known as the ‘harpe à chevilles mécaniques’ in which the pedals acted on the tuning pins. It is unclear who arrived at this solution first. Its likely Erard would have been aware of this invention and continued to develop this principle, registering further patents in London and Paris in 1802. Cousineau also invented a double action harp with fourteen pedals, arranged in two rows of seven, one above the other, as early as 1782. This harp is believed to have been later owned by Erard.

In 1807 a patent was registered by Charles Groll of Leicester Fields, in the Parish of Saint Martin, and City of Westminster. I propose that this patent is the first registration of a double-action pedal harp with fourchettes. The patent drawings show an ingenious yet simple mechanism. They also illustrate two fourchettes acting upon one string. (Figure 1).

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6 Certain improvements in the construction of harps and pianofortes, both large and small. No. 2502
7 Erard updated patent 2502 a year later in 1802. Certain new improvements in the construction of the musical instrument known as the harp. No. 2595
8 Brevet d’invention de cinq ans pour une mécanisme particulier, destine à tendre les cordes de harpe, aux sieurs Ruelle et Cousineau, père et fils, à Paris.
9 Certain improvements on the harp. No. 3059
First, instead of raising each of the strings of the harp, through the interval of a semitone (whenever required), by means of one single order, rank or arrangement of divisions, by means of forks, hooks, rings, or similar well-known contrivances, (namely one of the said forks, hooks, rings or other well-known contrivances being applied and adapted to each string), I do apply, adapt, and use two such orders, ranks, or arrangements of divisions, (as herein-after is more particularly set forth), for the purpose of raising each of the said strings (whenever required) through the intervals of two semitones. And I do also cause the intended effect of said division to be produced at pleasure by fit and appropriate machinery adapted to the pieces which constitute the said orders, ranks, or arrangements of divisions, and communicating with certain pedals (which is likewise herein-after more particularly set forth).

The 1808 Erard patent describes an early version of the double-action mechanism on which modern harps are based. This harp was achieved by doubling Erard’s single-action mechanism.
Figure 2. Detail from Erard's 1808 patent (No. 3170) showing linkages and two fourchettes acting upon each string.

1. Apparatus for stopping the string, either to give the natural note of the series to which the string is tunes, or the next semitone above on the sharp note designated by the same musical letter or character which shall or may have been appropriated on the said string.

2. Apparatus fixed within the next of the harp, for the purpose of giving requisite motion at one and the same time to the axis of the stopping apparatus applied to all the strings of any one and the same note or denomination, in order that the whole of any such notes may be rendered flat, sharp, or natural at once, as may be required.

The associated patent drawings demonstrate the method by which the fourchettes were activated. (Figure 2).

These patent extracts describe similar inventions which, although mechanically different, both achieve a doubling of action using two fourchettes on each string. Both have seven pedals which act upon the forchettes and both harps would have been fully chromatic.

In an earlier version of this article\(^\text{10}\) I suggested that Erard, working in close proximity to Groll, would have been aware of Groll’s developments. I also suggested that Erard was unhappy with his own attempts to double the harp’s action. In light of new information\(^\text{11}\), Erard’s connection to Groll is now established. We know that Erard was aware of Groll’s efforts to double the action on the harp and Erard is recorded paying Groll a sum of between 10,000 and 30,000 Polish red zlotys (depending on source) for the rights to Groll’s 1807 patent.

I do not wish to suggest that Charles Groll was the inventor of the double-action pedal harp. That claim, generally awarded to Erard, must be attributed to Cousineau. Groll, not Erard, was the first inventor to register a patent for the double-action harp with fourchettes.

Erard’s place in the continued mechanisation of the harp does need to be reassessed. The innovations registered in Ruelle and Cousineau’s patent and in Groll’s patent predate those of Erard. Sebastien Erard clearly established a successful business and this in turn was developed by his nephew Pierre. Over 6000 Erard harps were produced between 1794 and the end of the nineteenth century making Erard the largest producer of harps. Erard’s harp developments however were not as original as commonly thought, being clearly influenced by other maker’s instruments.

His ownership of a Cousineau fourteen-pedal double-action and payments to Charles Groll for the rights to Groll’s patent highlight Erard’s ability to recognise and develop the ideas of

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\(^{10}\) The Inventor of the Double-Action Pedal Harp with Forchettes: Groll versus Erard, FoMRHI, (comm. 1345) April 1995, pp. 29 – 34

others. The Erard’s awareness of improvements and changes to the harp by other makers is clearly highlighted in letters from Pierre to Sebastien published by Barthel and Roudier in 2005. This should perhaps be noted by harpists and musicologists as a matter of interest.