J Lacape's Barrel and Finger Piano

by David Evans

The firm of J Lacape and Co of Paris appears to have been a minor player in the piano manufacturing field. The first name of the principal is apparently unrecorded, there being no record of the firm at all in the Pierce Piano Atlas[1]. An Internet search revealed 'an old piano by Lacape, Paris' for sale, with no further information. It was not stated whether or not it was mechanical.

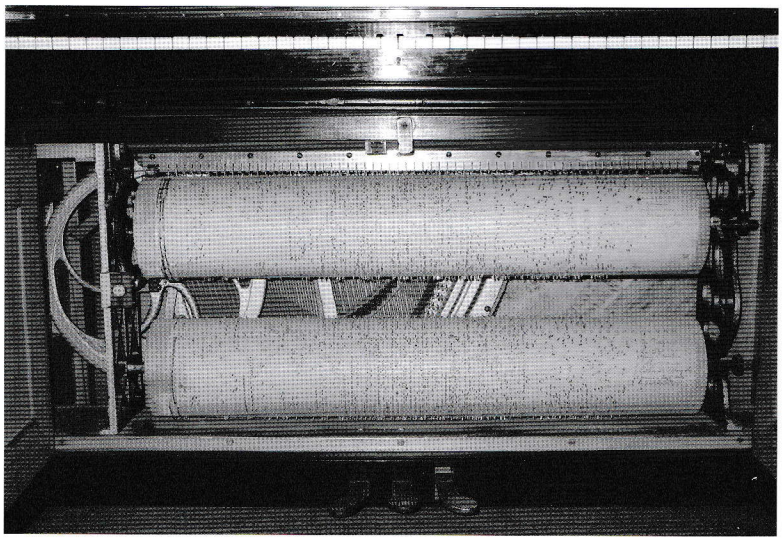

Fig 1. Inside the base.

Lacape's Barrel and Finger piano is shown on the front cover. Fig. 1 shows the two barrels, the upper one is the operating one, the lower is in storage. There are seven tunes listed in ink on each barrel, see Fig. 2. There are 62 (barrel) keys, the left hand most one being a damper lift key, which operate the piano jacks via rods which pass through the key bed behind the finger keys.

British Patent number 4346 of 12th September 1882 was awarded to 'William Robert Lake of the firm of Haseltine Lake & Co, Patent Agents, of Southampton Buildings, London, for an Invention of "Improvements in Mechanical Pianofortes and similar musical instruments", a communication to him from abroad by J Lacape and Co of Paris, France.'

There are two principal mechanisms which are novel, if not unique to Lacape. The first is the pedal-operated flywheel which rotates the pinned wooden barrel, the second is the screw threaded nut which is attached to the right hand end of the barrel, and which acts as a tune locator. The barrel mechanism and key frame are mounted below the finger key bed, the keys being connected via guide rods and springs to the wippens in the piano action. The instrument is foot cranked from a brass pedal or lever mounted to the right of the conventional hammer rest rail and damper pedals. The up-and-down movement of this pedal is transmitted to a long wooden pivoted bar or lever, which in turn is attached via a connecting rod to a cast iron flywheel mounted at the back left of the piano. The flywheel is connected through a ratchet wheel and pawl to an endless screw which drives the main barrel wheel. If the flywheel starts in the reverse direction the pawl simply clicks around the ratchet wheel without imparting drive to the barrel and hence

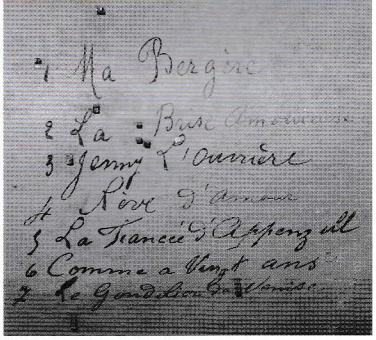

Fig 2. Barrel 1 tunes.

protecting the barrel pins and keys from damage. Experience illustrates the probable reason for the failure of this design to become popular - more often than not, it does start backwards!

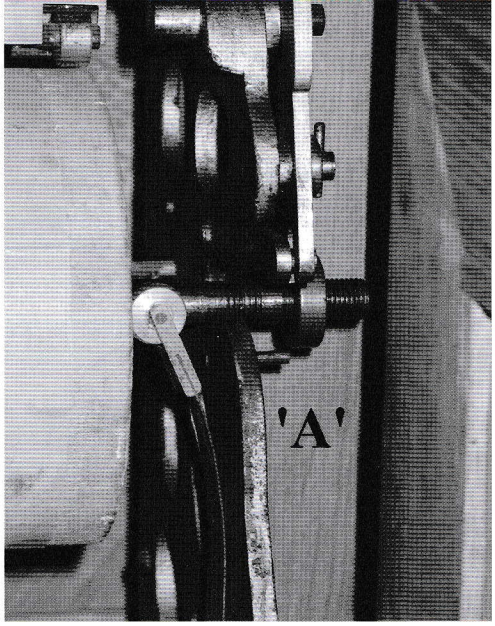

Fig 3. Patent Nut (above 'A')

The tune change arrangement is unusual. The barrel is located longitudinally by a fairly conventional bevelled brass gate lever which locates in one of a set of grooves in the barrel' s end spindle. A (left hand) threaded nut is screwed on to an extension of the end spindle; a small rod which is attached along a radius of the nut locates against a long steel pin fixed to the frame of the mechanism and which arrests the rotation of the nut until it has unscrewed itself along its thread sufficiently for the rod to no longer contact the pin. At that point the nut rotates with the barrel and spindle until further notice. If the key frame is lifted by the draw-knob provided for the purpose, the grooved barrel spindle ceases to be located by the brass gate lever, and the barrel slides to the left under the influence of a longitudinal spring. It would do this until it had reached the end of its range were it not for the aforementioned threaded nut. The barrel spindle (and nut - Fig 3) move far enough to the left for the back of the nut to contact a steel post attached to the frame. At this point further movement is prevented and the barrel remains in that position until the tune change draw knob is pushed back in. This returns the gate lever into one of the grooves in the barrel spindle and lowers the key frame. The barrel is now located again and the next tune can be played. The thread pitch and geometry are arranged so that the amount of movement permitted to the barrel by the threaded nut is exactly equal to the distance between two adjacent grooves on the barrel spindle, thus enabling the next tune to be played automatically. The advantage of this mechanism is, of course, that the tune does not change until the tune-change draw knob is operated. Until it is, the instrument continues to play the same tune, permitting, for example, several verses of a song, or several measures of a dance, followed by a rapid change to the next tune when desired. The drawback is that, at the end of the seventh tune, the operator must get down on his knees and manually rotate the threaded nut back to its starting point, or Tune 7 will be played for ever more!

The patent observes that 'It will be obvious that some of the said improvements are applicable to mechanical musical instruments operated in a different manner from that above described.' It is hard to imagine how the treadle lever could be used, but the tune-change system could, perhaps, have been usefully applied to a church barrel organ, where several verses of a hymn could be played. On the whole, the tried and tested systems still seem to be the best.

Part of Lacape's patent specification appears in 'Pianola' (1958) by A W J G Ord-Hume, and the author would like to thank Arthur for supplying the patent number.

Note 1: The edition consulted was the 7th (1977), by Bob Pierce, Author & Publisher, Long Beach, Calif.

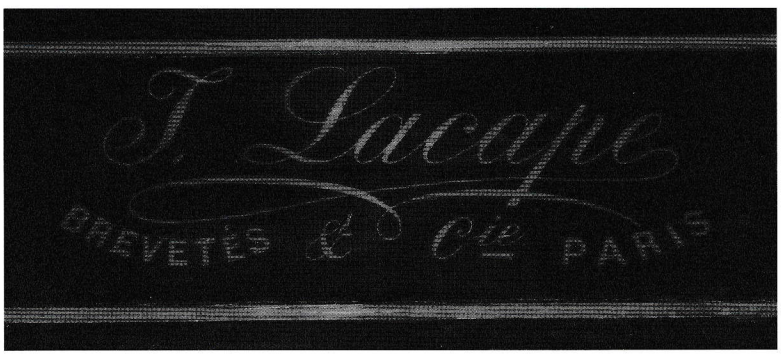

Fig 4. Lacape's brass signature inlaid into the fall board.