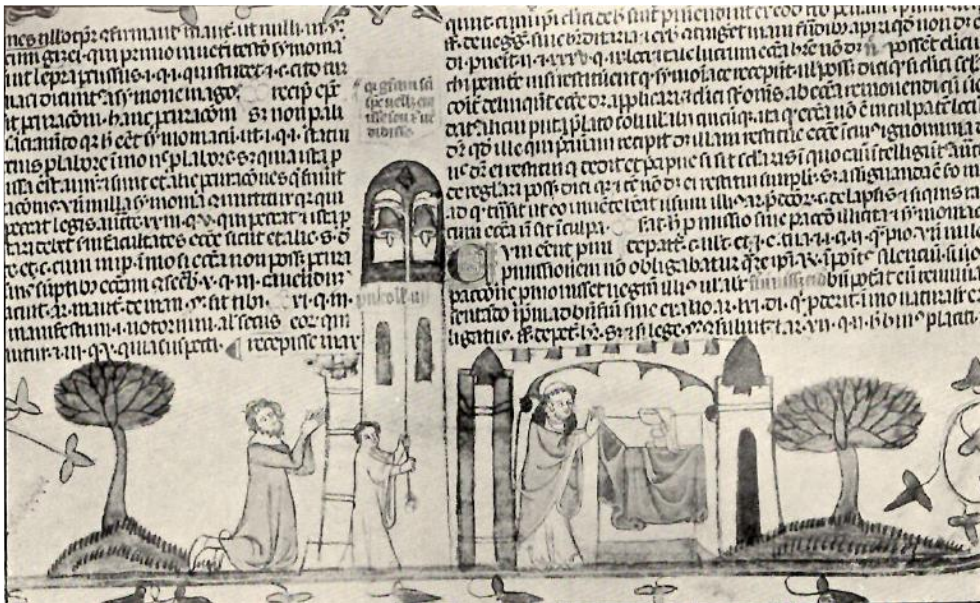


Chapter 4

Art of Change Ringing

Visitors to the UK often comment on the unique sound of church bell ringing compared to the sound of the bells rung elsewhere. What is different, and why is it known as the art of change ringing?

Historically bells have been used as a communication tool with references dating back to the Old Testament. The early missionaries used small handbells to call people to worship, with bells being introduced into Christian churches around 400 AD by Paulinus, Bishop of Nola in Campania. Their adoption on a wide scale did not become apparent until about 550, when they were introduced into France and Italy before spreading to Great Britain by monks and friars coming to join religious orders. By 750 they were sufficiently common for the Archbishop of York to order all priests to toll their bell at certain times. St Dunstan, the then Bishop of London and Archbishop of Canterbury, hung bells in all churches under his care during the late 10th Century and gave rules for their use.



Ringling the santus bell at Mass: manuscript in British Library, but reproduced in *Church Bells of England* by H B Walters (page 127 1912 edition).

Monastic and other church towers provided a good location in which to hang bells, and it was natural for significant institutions to want the largest bells to make their presence heard in the community and as a sign of prestige. Such large bells could simply be struck to sound, but with particularly large bells it was more practical to swing them to make the clapper strike against the bell. This often involved the use of a half wheel and rope, or sometimes a seesaw plank mechanism with the ringers working as a team to step on and off the ends of

the plank to generate the swinging motion (see illustrated prints below). To this day such mechanisms remain across most countries but this does not allow the strike of the bell to be finely controlled. The result is the 'jumbled' sound of bells often heard outside the UK. The half-wheel emerged during late mediaeval times allowing a bell to be swung halfway up with ease, but it sounded on one stroke only. It was therefore hard work to ring bells for any period of time, let alone in a sequence. Church accounts in the UK from the mid-1600s refer to three-quarter wheels to help prevent the bell being overthrown when swung too high. This inevitable led to the addition of a full wheel. As mentioned in the previous chapter, this final development allowed the bell to be swung through a full circle with two strokes, handstroke and backstroke, but had the additional advantage of allowing the bell to be rung from the upright position to balance at the same point thereby allowing a skilled ringer to ring each bell in sequence with the minimum of effort. A further refinement was to attach the rope to a spoke on the wheel after passing through a hole (or garter) in the wheel frame. These developments gave the ability to control the striking of the bell, which ultimately led to the development of change ringing.

In 1549 in the reign of Edward VI a Commission was established to draw up an inventory of all manner of *'goodes, plate, juells, vestyments, bells and other ornyments within every paryshe belonging or in any wyse apperteying to any churche, hapel, brotherhed, gylde or fraternytye within this our realme of Englund'* to prevent misappropriation. But it was not until a second Commission in 1552 that anything substantive was produced. This shows that most churches in England had between 3 and 5 bells at the time. The completed inventory caused Bishop Latimer to remark that *'if all the bells in England were to be rung at one time there would scarcely be a single spot where a bell would not be heard'*.

The creation of the Church of England by Henry VIII in 1534 and the resultant Reformation, relaxed the quasi-liturgical ringing of bells. While bells continued to be rung for church services on Sunday they started to be also used for secular activities. This led to existing rings of bells being restored and augmented at churches across the country, aided no doubt by the readily available bell metal which resulted from the destruction of many monasteries and other religious buildings. Other events, such as the fire of London in 1666, further saw the destruction of many church towers which offered the opportunity to replace former rings of bells with new rings incorporating the latest developments in bell frame design. The spread of bell ringing as a secular activity may also have been influenced in Elizabethan times by the pursuit of all kinds of sport on a Sunday.

Emergence of Change ringing

Together these developments set the stage to allow the development of change ringing which because of the historical context has traditionally been restricted to the UK thereby resulting in the unique sound heard. In recent years however, change ringing has spread

beyond the UK, but is generally limited to a few locations primarily based in countries with former close ties to the UK.

The earliest form of change ringing almost certainly simply involved moving a single bell in the sequence one at a time. Today this continues to be practiced in many church towers with the bells commencing the sequence in *rounds* (when the bells strike in order in the familiar descending scale) followed by *call changes* (where the order of adjacent pairs of bells is repeatedly reversed to give more variety to the sound), before bringing the sequence back into *rounds* to conclude the performance. Certain permutations of the bells are musical and have been given names, for example on eight bells:

Queens	1 3 5 7 2 4 6 8	Supposedly heard by Queen Elizabeth I on passing St Michael, Cornhill in London which she endorsed.
Whittingtons	1 2 7 5 3 4 6 8	By custom as musical change heard by Dick Whittington from St Mary le Bow, London, in 1392. It was seemingly saying "Turn again Dick Whittington". He returned to make his fortune and become four times Lord Mayor of London.
Tittums	1 5 2 6 3 7 4 8	A musical change with unknown origins.

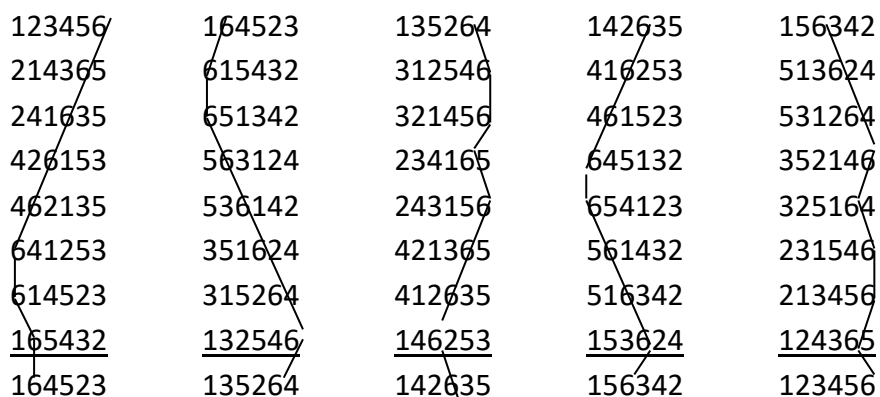
Call changes are also rung as a form of continuous changes in their own right, principally in parts of Devon and Cornwall. The Devon Association of Ringers represents call change church bell ringers in Devon and arranges training events, social events and ringing festivals. The call change tradition places an emphasis on rhythmic ringing in simple musical sequences, and there are many noted compositions such as '*Sixty on Thirds*'.

Such practice was further developed during the 1600s into full *change ringing*, where the bells move position in the sequence at each stroke so they in a different order. A *method* is a particular way of generating unique changes, based on mathematical permutations. The number of different changes possible on four bells is 24 – or factorial 4 (i.e. 4x3x2x1). The number of unique changes possible on other rings of bells, and the length of time it would take to ring them all at an average speed of 28 changes per minute, is shown in the following table:

No. of bells	Name	No. of changes	Average time to ring
5	Doubles	120	4 minutes
6	Minor	720	26 minutes
7	Triples	5,040	3 hours
8	Major	40,320	1day
9	Caters	362,880	9 days
10	Royal	3,628,800	12 weeks 6 days
11	Cinques	39,916,800	2 years 260 days
12	Maximus	479,001,600	32 years 200 days

In the early days there were no rules covering the permutations allowed. As a result specific change ringing sequences or *methods* were developed along local traditions. Since then the *Central Council of Church Bell Ringers*, established in 1891 as the equivalent of a bellringers' parliament with representatives drawn from different territorial areas, has drawn up a set of rules governing the parameters which should be applied. These cover the changes permitted as well as the naming of any new methods devised. For example, it is not possible for bells to move their position more than one place in any subsequent change, every change or row rung must contain a unique sequence of bells, the ringing performance should be continuous and performed without a break by the same band of ringers (i.e. no rest periods and no relay of ringers). Each distinct method has its own name, for example Plain Bob Major (on 8 bells), Grandsire Triples (rung on 7 working bells with the tenor ringing last in every row, or change).

How changes are produced can be illustrated by looking at a simple method such as Little Bob Minor. As the final part of its name suggests this would be rung on six bells.



This method has 40 changes beginning with and ending in rounds. For each block of work the treble bell 'hunts' up to fourths place and then back down to lead. It would however, be difficult to remember all the different changes for each method. Ringers have solved this by tracing the path their bell takes through a method and then learning the shape of the line produced. The above example (which traces the path of bell number 6) shows that a symmetrical line exists, with each bell, other than the treble, starting and finishing at a different but equidistant point along it.

Change ringing involves the physical effort of ringing a bell and the skill of ringing it just to the balance at each stroke, as well as the ability to keep mentally alert to ring your bell in the correct place in the sequence. The standard length of most methods is only around one hundred changes. This is well short of the possible total number of changes available or what is better known as the *extent*. Two calls have therefore been invented, known as a *Bob* and *Single*, which alter the place of either three or two bells respectively. With

appropriate calls being made by the *Conductor* (who is also ringing one of the bells) it is possible to continue to ring unique changes before arriving back at rounds.

The term '*peal or peel*' is long established to mean the loud sound of repeated or reverberating rings of bells. As such it has historically been used to describe any ringing of bells, although in more recent times the ringing Exercise has defined it more tightly to mean the ringing of 5000 or more continuous changes. Early reports often use the term '*complete peal*' to cover ringing up to an above the extent of changes on seven bells. Shorter lengths involving a method which completes the blue line path of all the bells is known as a '*Plain Course*'. Where this is extended to ring a greater number of changes using Bobs and *Singles* it is known as a '*touch*'. The first use of the latter term appears in the *Morning Chronicle* 11 April 1787 and then in the book *Clavis Campanalogia* published in 1788 (see Chapter 16) which led to its adoption as a standard term.

Early rings of bells typically comprised of five or six bells. As change ringing developed towards the end of the 17th century composers were obviously keen to devise ringing methods together with compositions to ring all the possible changes available. It is therefore possible to find records of 120 changes on five bells and 720 changes on six bells recorded as performances by a band. Some local bands being proud of their achievement arranged for the details to be painted on a board and displayed in the belfry, with many of these still found in situ today. But as rings of bells increased to eight or more bells the ability to ring a significantly greater number of changes (i.e. 40,320 for a ring of eight bells) was seen as near impossible given the duration of non-stop ringing time required, on bells that were hung on plain bearings in those days and required considerable effort to ring compared with modern fittings. The first longer length on seven bells (i.e. 5,040 changes) was achieved towards the end of the 17th century and became the standard length of what is now known as a *peal*. If rung on lower numbers of bells then this would require repeating a number of *extents* (i.e. 7 on six bells) continuously to achieve the required number of changes.

Short *compositions* are rung every Sunday with *peal* length compositions usually being reserved for special occasions. The development of change ringing can be summarised in the following time line:

(i) Reformation, 1536

The desecration of monastic abbeys and buildings at the time of the Reformation (i.e. circ. 1536) often included the removal of many church bells.

(ii) 17th Century

Following the Reformation, many churches began to rehang bells, with most using the new technology of bells mounted on a whole wheel. The combination of the easier control using the whole wheel and the development of change ringing led to increased interest from the lay people, who took over the belfry from the clergy.

During the reign of James II (1633-1688) bell ringing became extremely fashionable amongst the aristocracy as it provided physical exercise and intellectual stimulation. In the rural churches, however, bands of ordinary ringers strived to outdo one another. On days of competition the ringing was often preceded by a large meal at the local pub and followed by the presentation of a 'good hat' or a pair of gloves to each ringer in the band that had performed the best (see Chapter 17).

These developments throughout the century culminated in the first true peal being reported to have been rung in 1690 at the church St Sepulchre without Newgate, in the City of London, although no further details are given¹ – a peal originally being defined as the full extent of changes rung continuously without stopping, but more recently refined to be at least 5,000 different or unique changes rung simultaneously (see Chapter 17).

Grandsire was one of the earliest methods developed which continues to be rung today. It is thought to have been designed around 1650 by Robert Roan, who was Master of the College Youths in 1652. Details of the method appeared in print in *Tintinnalogia* the first book on change ringing published in 1668 (see Chapter 16). Roan went on to extend his ideas inventing a six-bell extension he named Grandsire Bob, which is now known as Bob Minor.

Early books described the art of change ringing and drew up rules for long series of changes, without the need for call changes, whereby bells must change place at each pull of the rope. Further rules soon evolved and changes could be worked out, written down and learned by heart to create patterns where the bells are never sounded in the same order twice. These compositions were named methods and soon hundreds were created, often named after the cities they were associated with such as Norwich, London or Cambridge.

This period further saw the creation of a number of ringing groups. One of the earliest surviving companies was established under The Ordinances of the *Companie of Ringers of the Blessed Virgin Mary of Lincoln* sealed on 18 October 1612. The Ancient Society of College Youths is a further society founded on 5 November 1637 in London which continues to this day (see Chapter 13).

¹ The Society of College Youths 1637-2005 by William T Cook (Chapter 3): 2nd Edition (ISBN 978-0-9513159-1-0)

(iii) 18th Century

A historic peal board in the belfry of St Peter Mancroft, Norwich records full details of the first fully documented peal performance rung on May 2nd 1715.



By the middle of the century many newspapers indicate that the ability to stand for three hours and ring a peal of 5040 changes was common. These attempts were often publicised in advance drawing crowd of listeners. At Leicester in March 1731 one of the ringers commented; *'we upon bells completed the whole peal of Grandsire Triples in three hours and two minutes to the great satisfaction of thousands both in town and country'*.

In the rural areas, standards of behaviour deteriorated with bell ringers described as layouts and drunks. Often locals saw an opportunity to earn a few shillings which invariably was spent in the village inn adjacent to the tower. Any and every opportunity taken to ring, for which the tavern keepers were very grateful. Attendance at church services was considered no part of bell ringing. Smoking, swearing and a barrel of beer in the tower was not uncommon. Many belfries became notorious as the meeting place of the village riff-raff, who indulged in heavy drinking and riotous behaviour.

A deep rift developed between ringers and clergy, with some towers closed by their incumbents. The ringers often broke into the belfries to ring or drink and were usually very independent, reserving the right to choose when to ring (see Chapter 13). In 1832 the ringers at High Wycombe rang the bells to celebrate the passing of the Reform Bill but a few days later on the occasion of the annual visit of the Bishop the ringers refused to turn out as a mark of their disapproval at his having voted against the Bill in the House of Lords. With the bells being the property of the church the local incumbent minister had the law on his side, but was limited in what they could do as local communities were close knit and they were dependent on the collection money from the congregation during services.

(iv) 19th Century

The Victorian reform of the Church of England included a re-examination of practices used since the Reformation. In 1839, the Cambridge Camden Society began a national spring clean of churches, including the tower, and the clergy were re-established as being in control of bell towers. Many groups of ringers fought to preserve their 'privileges'. Church leaders wanted to improve the standard of ringing and, above all, to ensure proper and reverent behaviour in the ringing chamber. This became known as the Belfry Reform Movement and led to the setting up of many of today's County and Diocesan guilds of bell ringers towards the end of this period.

Women also began to take up bell ringing. Miss Alice White of Basingstoke was the first woman to complete a full peal in 1896, and the growth in their numbers led to the creation of their own society - Ladies Guild of Change Ringers – shortly afterwards in 1912 (see Chapter 14).

As previously mentioned the Central Council of Church Bell Ringers (CCCBR) was established in 1891 as the representative body for all ringers, with representatives drawn from all affiliated societies. It was the inspiration of Sir Arthur P Heyworth with the first meeting on 31 March 1891 attracting 63 representatives from 33 societies.

(v) 20th Century

Many bell installations improved as technology advanced. These included the more accurate 'simpson' tuning of bells and the hanging of bells on ball bearings rather than plain bearings. These developments made bells easier to ring and triggering more complicated methods.

Many ringers were killed during the First World War (1914-1918) and it took a number of years for the ringing Exercise to recover. The Second World War (1939-1945) had a similar impact with the additional problem that all church bells were silenced, to ring only to inform of an invasion by enemy troops. But from the 1950s there was a rapid increase in the

numbers of bell ringers, especially young bell ringers, with an accompanying increase in the standard of ringing. The advent of computer technology towards the end of the century also supported greater diversity in the number and complexity of both methods and compositions being rung. Notable performances include the ringing of the extent on eight tower bells (i.e. 40,320 changes) at John Taylor's Bell Foundry campanile at Loughborough in 1963, and more recently 72,000 changes performed on hand bells in 2007.

(vi) 21st Century

The new Millennium was marked by the giving of a £3million Lottery Grant to 150 separate bell restoration and augmentation projects. This, together with the *Ring In 2000* project was the largest national ringing event ever staged and is thought to have attracted around 5,000 new ringers who learnt to ring in time for the Millennium. Approximately 95% of all the church bells in the UK were rung on 1 January 2000.

London was chosen to host the XXX Olympic Games in 2012. Along the 8,000 miles of the Torch Relay bells rang to celebrate the passing of the Olympic Torch. At the culmination of the Torch Relay, and as part of the London 2012 Festival, at 8.12am on the day of the Opening Ceremony three minutes of ringing all kinds of bells captured the public's attention with an estimated audience of over 12 million people. The great Olympic Bell then featured prominently in the Olympic Opening Ceremony. Commissioned from Whitechapel Bell Foundry in London it was tolled by Tour de France winner Bradley Wiggins to open the Ceremony. At 23 tonnes it is the largest harmonically tuned bell in the world.



The same year also witnessed the Diamond Jubilee of Queen Elizabeth II. This was widely marked by the ringing of bells. A special ring of eight bells were cast at Whitechapel Bell Foundry and led the Thames Pageant of 1,000 boats with a floating belfry from which the bells were rung. These were later installed as a permanent ring of bells at St James Garlickhythe in the City of London.

Ringers everywhere were saddened by the closure of the Whitechapel Bell Foundry on 12 June 2017 (see Chapter 3). At the time it was the oldest manufacturing company in Great Britain having completed nearly 450 years of bell casting, with 250 years having been on the same site in Whitechapel, London. The foundry primarily made church bells their fittings and accessories, although it also provided single tolling bells, carillon bells and hand bells. It had cast many famous bells including the Liberty Bell, a famous symbol of American Independence, and recasting of Big Ben for the Houses of Parliament.



The centenary of the ending of the First World War gave rise to a further initiative to attract at least 1400 new ringers by November 2018 to mark the number of ringers who are recorded as having died in that conflict. The target was exceeded with most ringing at special events on 11 November 2018.

Further information on the development of change ringing can be found in *Change Ringing - Volumes 1 to 3* (See Appendix B).

Some examples of relevant historic prints

(i) Tapping of bells

Here a set of small bells are hung from a frame and tapped to create tunes or sequences.



King David playing on bells from 14th century manuscript: extract from *Bells in our Lives* by Mary Crockett: 1973 ISBN 0 7153 6229 1 (6.3cm by 7.0cm)



King David playing on bells from an early manuscript: *Royal Collection Manuscript*, the exact source unknown

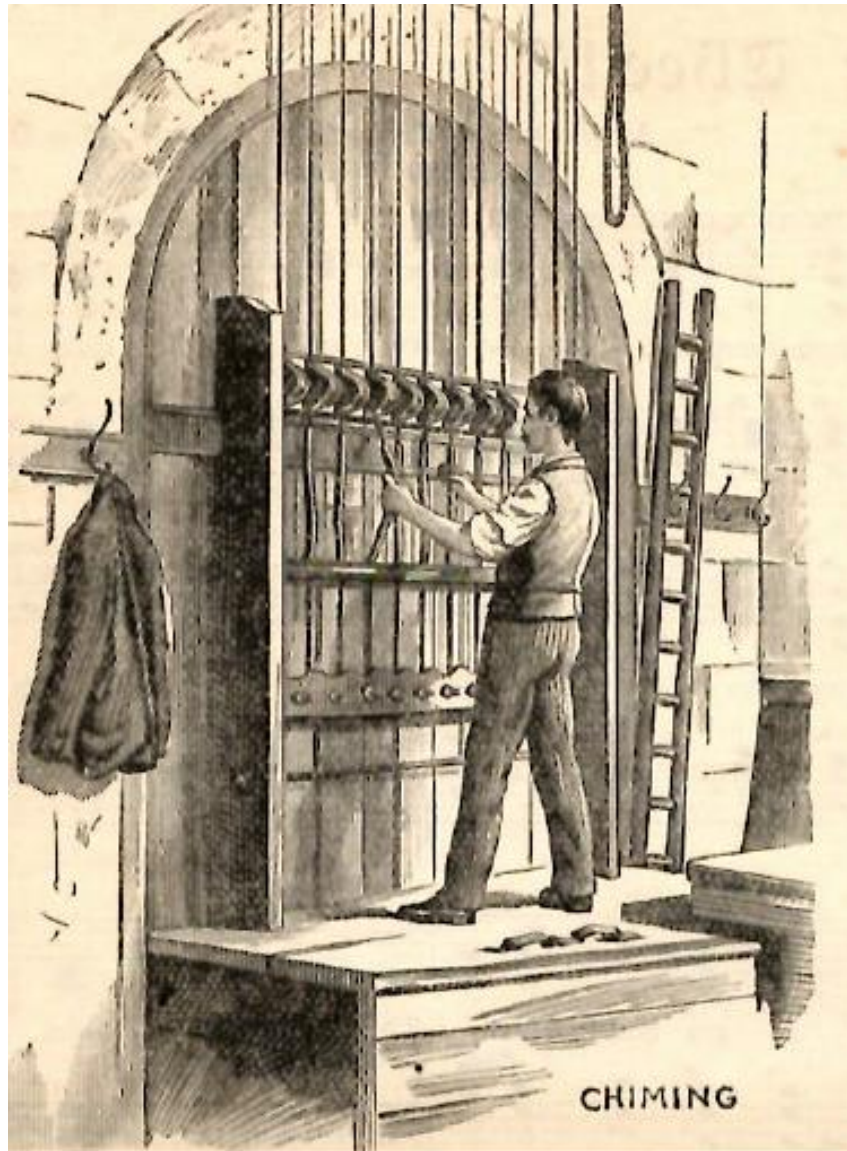


Bell-Ringer print by Thomas Lord Busby, possibly taken from *Costume of the Lower Orders of the Metropolis*, published in 1820 (19.0cm by 22.0cm).

There are many illustrations of hand bells being rung by tapping out tunes on them. One good example is entitled *Bell-Ringer* published in 1820 by T L Busby. The posters on the stand depict a figure on the cross, and the heading of the larger poster shows Jesus C (the corner is missing), suggesting the performances had a religious theme to them. The book on top of the open box may have therefore been a Bible. A strap to presumably carry the apparatus on the back after a performance can be seen lying at the right hand side of the stand.

(ii) Chiming of Bells

A rope is attached either to the clapper of the bell or to a part or full wheel to swing the bell and make it sound. A variation being the Ellacombe Chime, named after its proponent, where each clapper in a ring of bells is struck by pulling the rope in a frame normally located in the belfry.



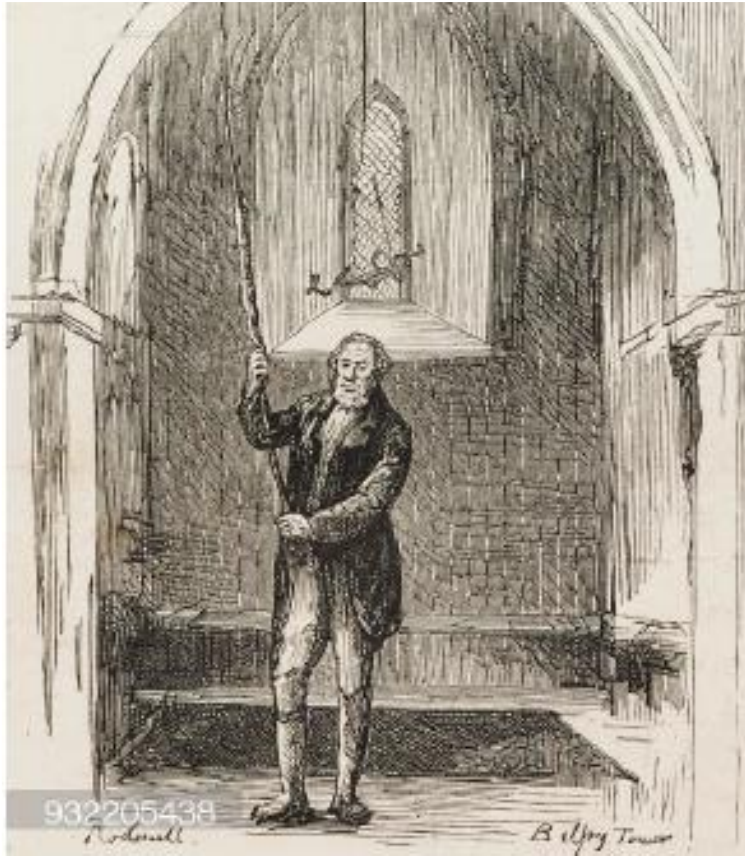
Ellacombe Chime in St Paul's Cathedral belfry. Source unknown (7.1cm by 9.2cm)



The Blue Bells of Ireland goes well Boys well / And the Clappers Strike on e'ry side ding Dong bell.
Source: *Broadside Ballads* see Bodleian Library on-line circ. 1780 (13.5cm by 10.5cm)



Source unknown



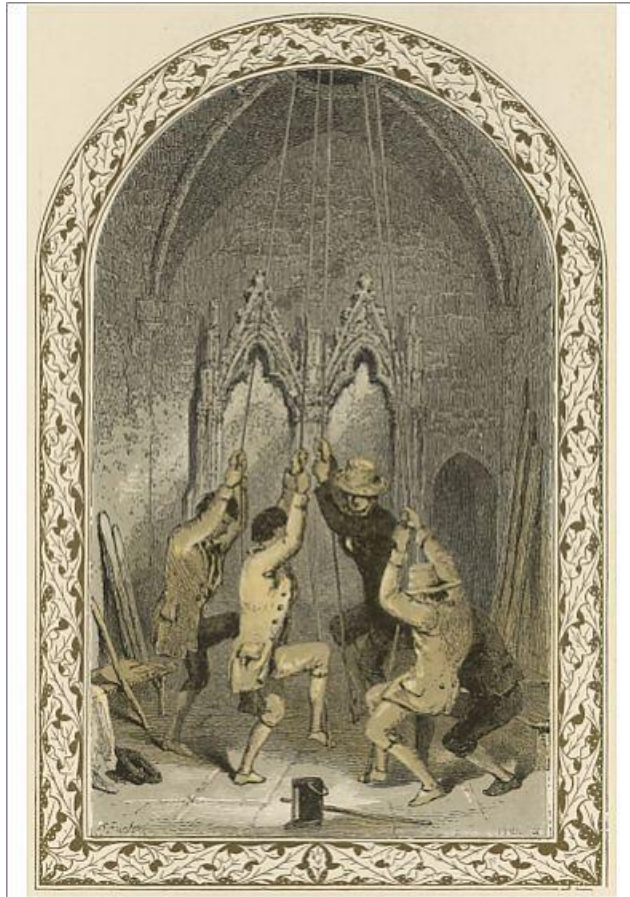
An Ancient Bell Tower (part of montage of prints in combined illustrations) Source: *The Graphic*, 8 November 1884.



Source unknown



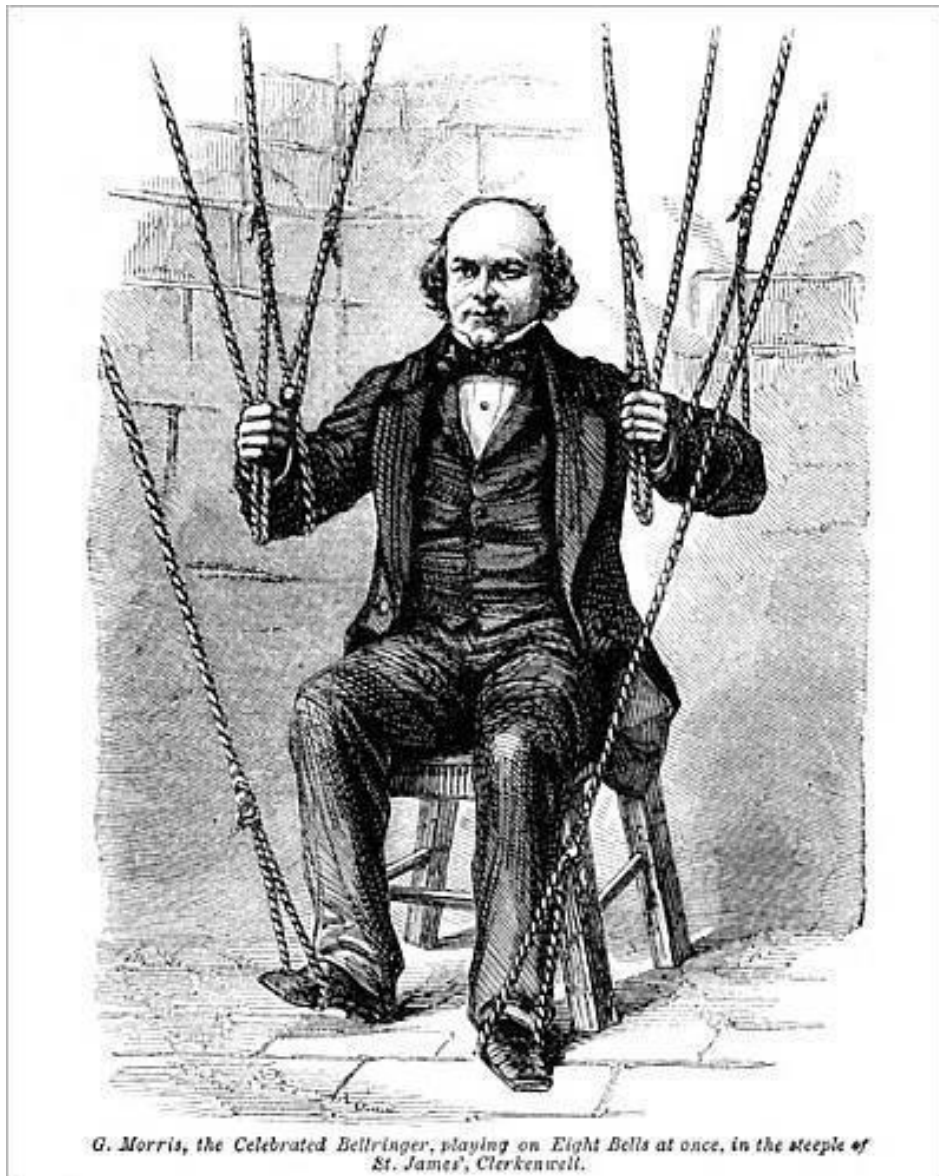
How a Big Bell is Rung and Chimed. Source unknown but likely to be 1930s period encyclopedia, along with other pages depicting various types of bell (17.0cm by 21.0cm).



Bell ringing at Christmas taken from *Christmas with the Poets* (Ward Lock 1869)



Source unknown.

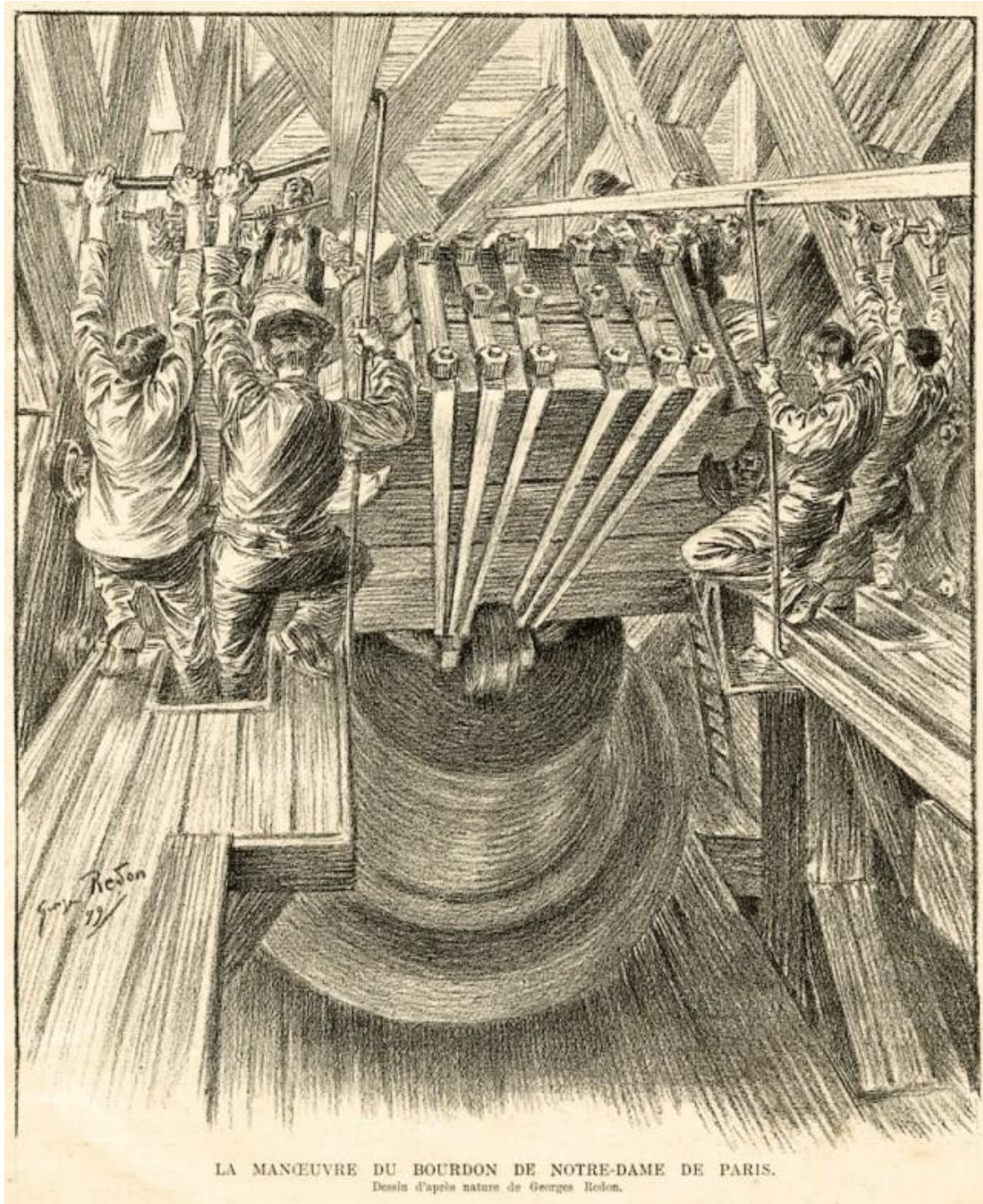


George Morris at the steeple of St James, Clerkenwell. Source unknown, but date 1863 (25cm by 20cm)

George Morris, the celebrated bell ringer, playing on eight bells at once, in the steeple of St James Clerkenwell, London. The arrangement of the bell ropes are as follows the first on his right thumb, the second on his left thumb, 3rd left elbow, 4th left hand, 5th left foot, 6th right hand, 7th right elbow, 8th right foot. He later went on to become steeple keeper of St Martin-in-the-Fields.

(iii) Plank mechanism

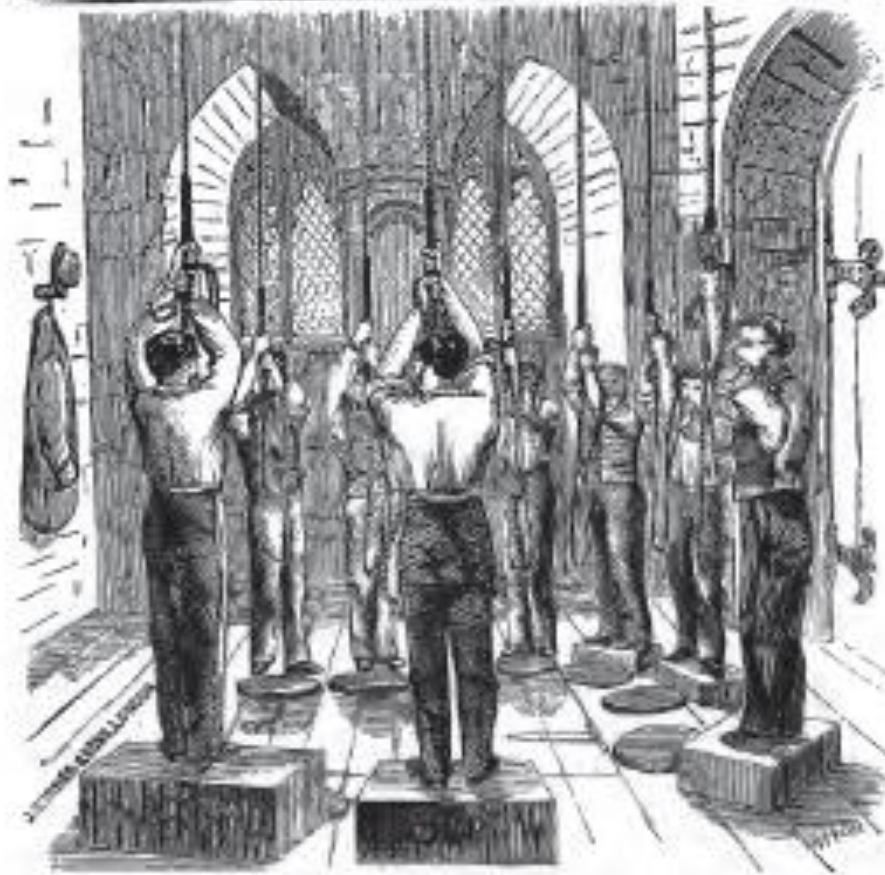
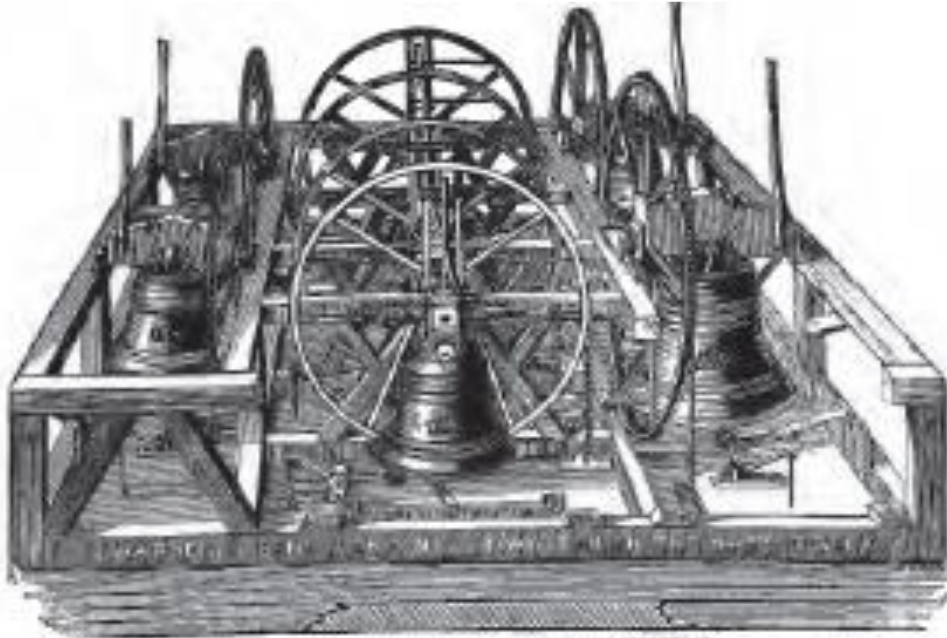
This is used instead of a rope is used in a number of European Cathedrals to swing large bourdon bells. Here the ringers use stepping planks that they stand off and on between operators to increase the swing of the bell and then continue the momentum.



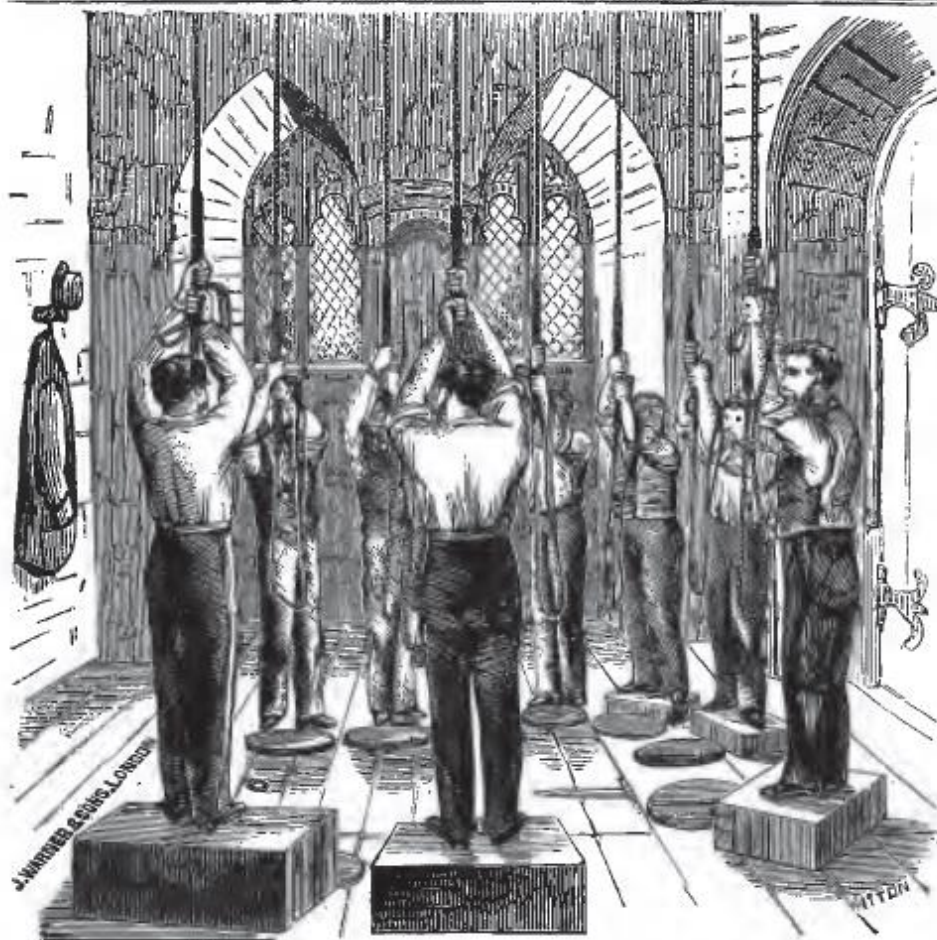
La Manoeuvre du Bourdon de Nore-Dame de Paris. From *La Vie Illustree* 30 Mars 1899 (size not known)

(iv) Full circle

This involves the use of a full wheel and rope with each bell striking every revolution. The bell does not quite revolve through a full 360 degrees creating a two strokes effect (i.e. handstroke and backstroke).



Bell in the down position before being raised to the ringing position from *First Steps to Bell Ringing* by S B Gosling, page 8 (size not known)



Bells in the up position ready to ring full circle from *First Steps to Bell Ringing* by S B Gosling, page 15 (size not known)

