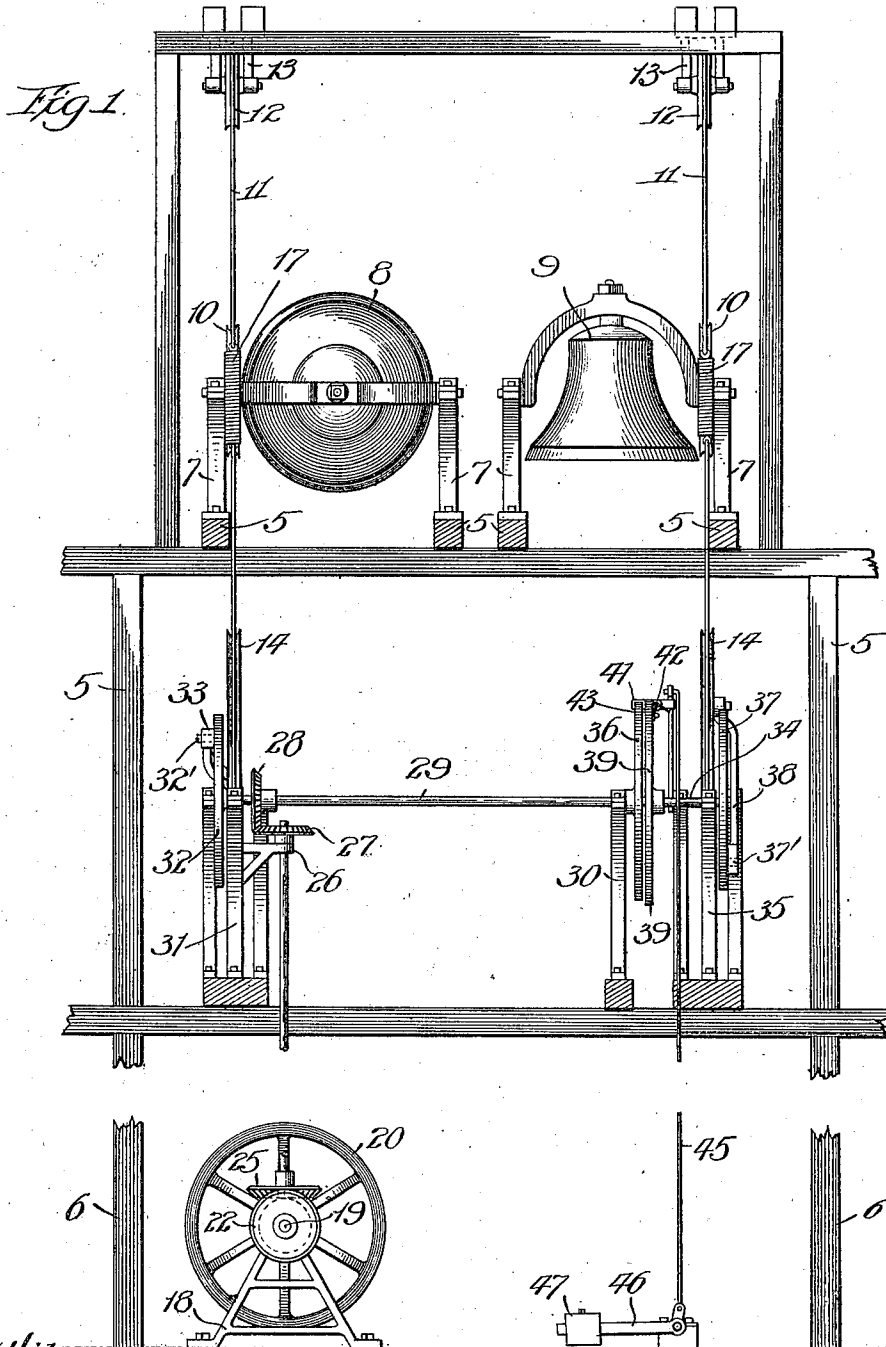


C. STAMBERGER.
BELL RINGING APPARATUS.
APPLICATION FILED JULY 25, 1910.

996,157.

Patented June 27, 1911.

2 SHEETS-SHEET 1.



Witnesses:
Geo. Ravin
A. Wilson

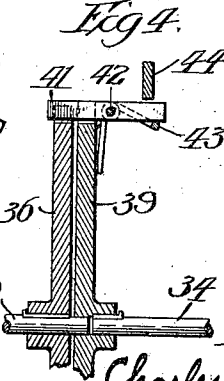
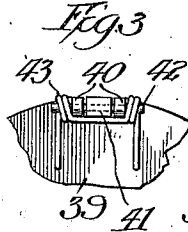
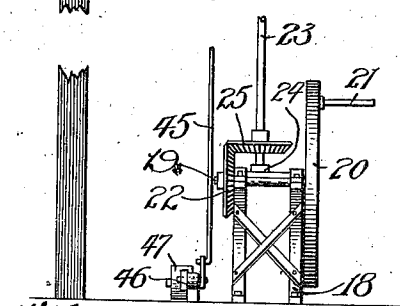
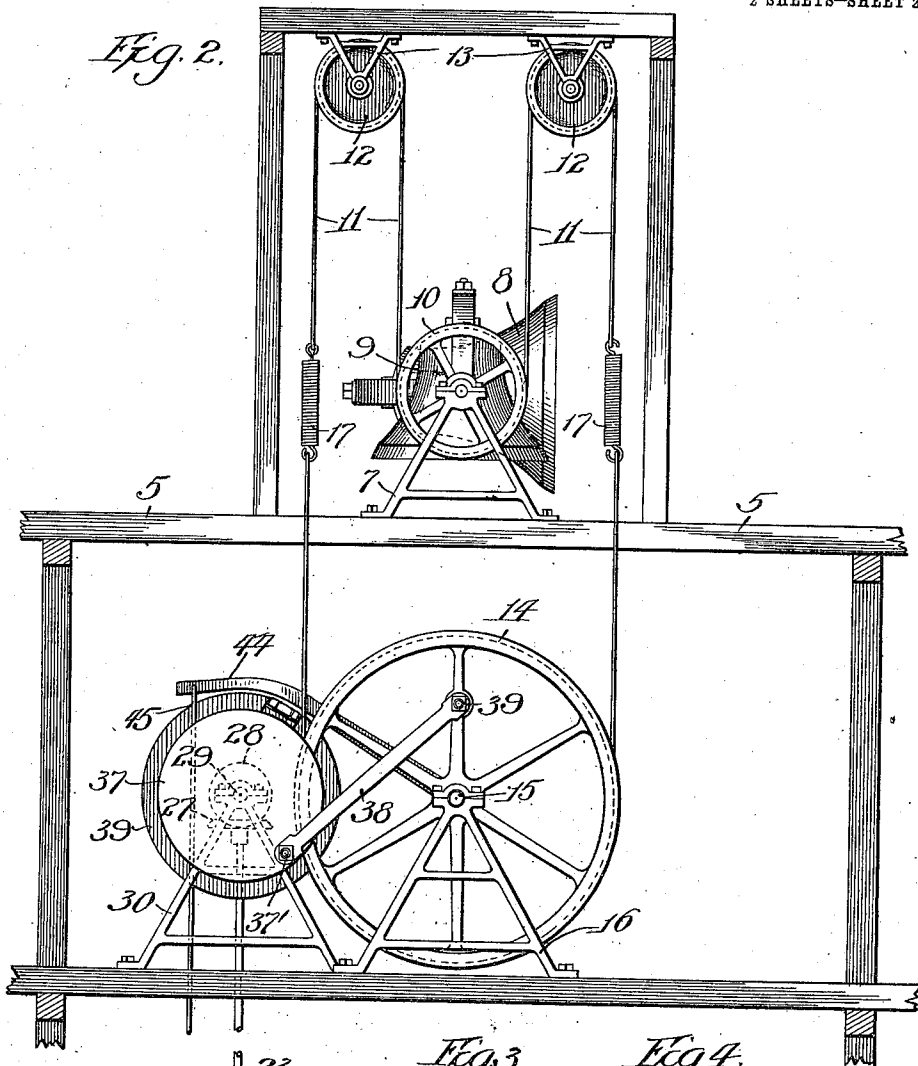
Inventor:
Charles Stamberger
By *Linthicum Belt Fuller*
Attys

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Witnesses:
Geo. Chas. Wilson.
J. Wilson

Inventor:
Charles Stamberger
By Linthicum Bell & Fuller
Attys.

UNITED STATES PATENT OFFICE.

CHARLES STAMBERGER, OF LAMOILLE, ILLINOIS.

BELL-RINGING APPARATUS.

996,157.

Specification of Letters Patent. Patented June 27, 1911.

Application filed July 25, 1910. Serial No. 573,688.

To all whom it may concern:

Be it known that I, CHARLES STAMBERGER, a citizen of the United States, residing at Lamoille, in the county of Bureau and State of Illinois, have invented certain new and useful Improvements in Bell-Ringing Apparatus, of which the following is a specification.

This invention relates in general to bell ringing apparatus and particularly to an apparatus for ringing bells which are usually mounted in a tower such as church bells, fire bells, fog bells, etc.

When a plurality of bells is employed it is desirable that the strokes of the bells shall occur positively and uniformly at proper intervals and that the strokes of the bells shall follow each other in regular succession, and one of the objects of this invention is to produce an apparatus by means of which a plurality of bells located in a tower or belfry may be tolled in regular and rhythmic succession by an operator stationed in the basement or on the main floor of the building in which the bells are located.

Another object is the provision of mechanism whereby one of the bells may be readily disconnected from the operating mechanism permitting such bell to remain quiet while the other bell is being tolled. By the simple manipulation of a lever the bell may be disconnected or again connected to the operating mechanism whereupon both bells may again be swung simultaneously. My mechanism is so constructed that the connection between the bells is automatically effected when the bells are in the proper relative positions whereby the bells are timed so that the detonations from the respective bells follow each other in regular rhythmic sequence, to produce a pleasing and harmonious effect.

Other objects and advantages of my invention will become apparent as it is better understood from the following description when taken in connection with the accompanying drawings illustrating a preferred embodiment thereof.

On the drawings—Figure 1 is a front elevation of an apparatus embodying my invention; Fig. 2 is an end elevation thereof; Fig. 3 is an enlarged detail view of the spring-pressed latch for connecting the bells together; and, Fig. 4 is an enlarged sectional detail of the disks and the latch connection.

Referring to the drawings, 5 designates a suitable but simple form of frame in which my improved bell ringing apparatus is mounted. In actual practice, however, this frame will usually be in the form of a suitable tower or belfry in which the bells may be mounted. The lower part of the frame designated by the reference 6, may be and usually is, substituted by the walls of the main floor or basement of the building in which the bell ringing apparatus is located. In the frame there are provided suitable standards 7 in which the bells 8 and 9 are swingingly mounted. While I have shown in the drawings for the purposes of illustration merely, only two bells, it will be evident that any desired number may be employed instead, and that they may be operated in substantially the manner hereinafter described, by simply duplicating certain parts of the mechanism which are shown on the drawings.

Each bell has secured upon its bearing shaft a sheave 10 around which a rope 11 or other flexible connection is wrapped and to which the rope is secured at one point to prevent slipping of the rope on the sheave. Above the bells and in alinement with the sheaves 10 there are mounted a plurality of idlers 12 over which each end of the flexible connections 11 are led. The idlers 12 may be of any preferred construction and may be mounted in any suitable manner. On the drawings they are shown as journaled in depending brackets 13 secured to the top of the frame 5.

Beneath the bells and in substantial alinement with the sheaves 10 and idlers 12, are mounted the oscillatory members or large sheaves 14 journaled at 15 in suitable standards or brackets 16 supported upon a cross-piece of the frame 5. The ends of the flexible connections 11 are led from the idlers 12 down and around the oscillatory sheaves 14 and are securely fastened at one point to said sheaves to move therewith. When the sheaves 14 are oscillated or rocked it will be evident that the bells will be swung in their bearings through the intermediary of the flexible connections 11. In order to relieve the bells from the shocks due to sudden starting and stopping of the sheaves 14, I preferably interpose in each flexible connection 11 a pair of coil springs 17 or other yielding elements which absorb the shocks, obviate any danger of breakage, and render

the operation of the apparatus smooth and easy.

In the basement or on the main floor of the building or in any other easily accessible location, there is mounted in standards 18 a shaft 19 having secured on one end thereof a hand-wheel 20 provided with a handle 21, and on the other end a bevel-gear 22. A vertical shaft 23, the lower end of which rests in a bearing 24 on one of the standards 18, carries a bevel-gear 25 adapted to mesh with the bevel-gear 22. The upper end of the shaft is supported in a bracket 26 projecting from the standard 31, and carries a bevel-gear 27 which meshes with a bevel-gear 28 secured upon the horizontal shaft 29 which in turn is supported in standards 30 and 31, respectively. Upon the outer end of the shaft 29 there is secured a disk or wheel 32 to which one end of a pitman 33 is journaled at 32', the other end of the pitman being connected with the corresponding sheave 14. It will be evident that when the hand-wheel 20 is turned the horizontal shaft 29 will be continuously rotated by the shaft 23 and that an oscillatory movement will be imparted to the sheave 14 by means of the pitman 33 to swing the bell 8 back and forth in its bearings through the intermediary of the flexible connection 11.

An independent shaft 34 is mounted at one end of and in alinement with the shaft 29, one end thereof being carried in a standard 35 while the other end is supported, as shown in Fig. 4, upon the end of the shaft 29 by means of the disk 39 which is keyed to the shaft 34 and fits loosely over the end of the shaft 29. Upon the outer end of the shaft 34 there is secured a disk or wheel 37 which is connected at 37' with one end of a pitman 38, said pitman being attached at its other end to the oscillatory sheave at 39'. It will be evident that rotation of the shaft 34 will impart an oscillatory movement to the sheave 14 in a similar manner to that in which an oscillatory movement is imparted to the other sheave 14 from the shaft 29.

A disk 36 is secured upon the shaft 29 adjacent to the disk 39 upon the shaft 34. These disks are provided for the purpose of connecting the independent shaft 34 with the shaft 29 in order that the shafts may rotate in unison. In order to effect this connection between the shafts the disk 39 is provided with a pair of laterally projecting ears 40 between which there is mounted a latch 41 pivoted on a pin 42. The peripheries of disks 36 and 39 are notched, as shown in Fig. 4, and the inner end of the latch 41 is normally held in engagement in the notches by a spring 43 disposed upon the pin 42 which presses against the outer face of the disk 39 and the lower face of the outer end of the latch. It will be evident

that this latch when engaged in the notches, as is shown, rigidly connects the shaft 34 to the shaft 29 so that it will rotate therewith.

When the apparatus is assembled, the flexible connections 11 are adjusted upon the sheaves 14 before being secured thereto so that the bells assume a position at an angle of 90° to each other. When the shafts 29 and 34 are connected together in the manner above described, and the mechanism is operated by turning the crank 21, the bells will be swung simultaneously, but owing to the relative angular positions of the bells they will be brought into engagement with their clappers in regular and alternating succession. The size of the sheaves 10 and 14 are preferably so proportioned that the bells will swing through an arc greater than 180°, thus permitting the clappers to rest for an appreciable period against the edges of the bells after striking the same. This action insures a positive and uniform stroke and produces a clear and ringing tone.

It is sometimes desirable to toll only one of the bells and in order that the other bell may remain quiet in the meantime, I have provided mechanism for disconnecting the bell 9 from the horizontal shaft 29 to thereby permit this bell to remain quiet while bell 8 continues to ring. For this purpose I have pivoted a lever 44 upon the shaft 15 of the sheave 14, said lever extending forwardly over the outer end of the latch 41. A connecting rod 45 is attached at its upper end to the lever 44 and at its lower end to a bell-crank lever 46, preferably provided near its outer end with a weight 47. When the lever 46 is in the position shown on the drawings, the lever 44 is maintained above the path of travel of the outer end of the latch 41, but when the lever 46 is swung to the right, viewing Fig. 1, through an angle of 180°, the outer end of the lever 44 is depressed to bring it into the path of travel of the latch 41 so that when the latch during its rotation with the disks is brought into engagement with the under face of the lever 44, the inner end of the latch is raised out of engagement with the notch in the disk 36 thereby disconnecting the shaft 34 from the shaft 29. The bell 9 will now remain quiet while the tolling of the bell 8 can be continued.

When it is again desired to toll both bells simultaneously, the lever 46 is returned to the position shown in the drawings, thereby permitting the latch 41 to be forced into the notch in the periphery of the disk 36 when said notch during the rotation of the disk comes under the end of the latch. Since there is only one notch in the disk 36 the bells will always be automatically connected when they are in their proper angular relation. If desired, however, other notches might be provided in the disk 36 so

that the bells could be connected in different angular relations to produce different intervals between the successive strokes of the bells.

5 It will be evident from the above description that I have provided an apparatus by means of which a plurality of bells may be tolled simultaneously, and have provided simple mechanism by means of which one of
10 the bells may be disconnected from the operating mechanism to remain idle while the other bell is being tolled. Furthermore, when the bells are again connected together they will always be connected in their proper
15 angular relation, one to the other, to give the desired tolling effect.

While I have shown and described a preferred embodiment of my invention, it will be obvious that various mechanical changes
20 may be resorted to such as substituting other well known forms of driving mechanism for the manual mechanism shown, and that various other changes in the arrangement and proportion of the parts may be resorted to
25 without departing from the spirit of the invention or sacrificing any of the material advantages thereof.

What I desire to claim is:

1. In a bell ringing apparatus, the combination of a bell support, a plurality of
30 bells swingingly mounted on said support, an oscillatory member disposed beneath each bell, a yielding connection between each member and its bell, a continuously rotating shaft, a link permanently connecting one
35 of said oscillatory members to said shaft, an independent shaft, a link permanently connecting another of said oscillatory members to said independent shaft, and means for
40 automatically connecting said independent shaft to the continuously rotating shaft only when the oscillatory members are in a predetermined relative position.

2. In a bell ringing apparatus, the combination of a frame, a plurality of bells
45 swingingly mounted in said frame, a driving shaft, a driven shaft operated by said driving shaft, connections between said driven shaft and one of said bells, an independent
50 shaft, connections from said independent shaft to another of said bells, and means for connecting said independent shaft to the driven shaft only when said shafts are in
55 relative predetermined position whereby both of said bells will be operated synchronously from the driving shaft.

3. In a bell ringing apparatus, the combination of a frame, a plurality of bells mounted to swing therein, a driving shaft, a driven shaft operated thereby, connections
60 between said driven shaft and one of the bells, a disk mounted upon one end of said driven shaft, an independent shaft disposed in alinement with said driven shaft, a disk mounted upon said independent shaft adjacent the disk on the driven shaft, connections
65 between said independent shaft and a bell, and a latch carried by one of said disks and adapted to engage the other disks when said shafts assume a predetermined relative
70 position whereby the driven and independent shafts are connected together so that both bells will be operated simultaneously from the driving shaft.

4. In a bell ringing apparatus, the combination of a frame, a pair of bells swingingly mounted therein, a continuously rotating shaft, operative connections between
75 said shaft and one of said bells, an independent shaft, operative connections between said independent shaft and the other bell, a spring-pressed latch adapted to normally connect the independent shaft with the continuously rotating shaft, a lever mounted
80 adjacent the path of travel of said latch, and means for moving said lever into the path of the latch to disconnect said independent shaft from the continuously rotating shaft to permit one of the bells to be rung independently of the other.
90

5. In a bell ringing apparatus, the combination of a frame, a pair of bells swingingly mounted therein, a pair of oscillatory members mounted beneath said bells, connections
95 between said oscillatory members and the bells, a continuously rotating shaft, a pitman connecting said shaft with one of said oscillatory members, an independent shaft, a pitman connecting said independent shaft with the other oscillatory member,
100 means for normally connecting said continuously rotating and independent shafts whereby both bells will be operated simultaneously to ring in alternation, and means for disconnecting said shafts whereby one of the
105 bells may be rung while the other remains quiet.

CHARLES STAMBERGER.

Witnesses:

I. J. WILSON,
HENRY M. HUXLEY.