

No. 649,195.

Patented May 8, 1900.

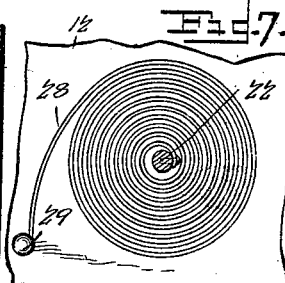
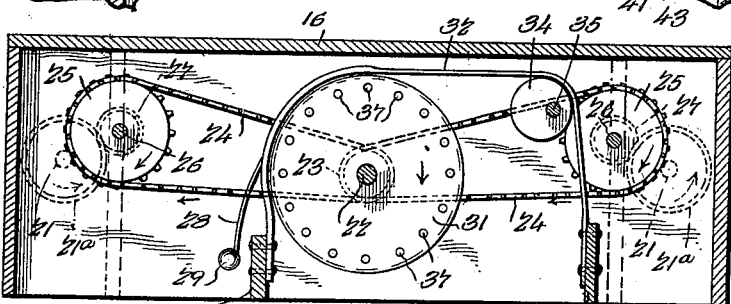
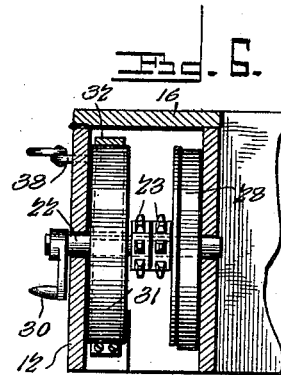
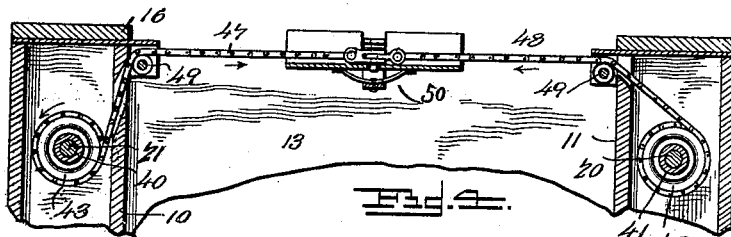
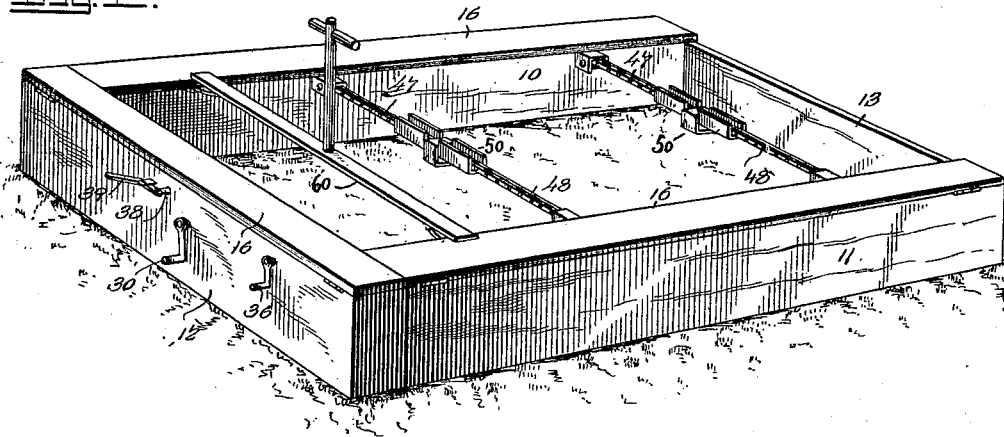
C. J. DIETRICH.
BURIAL APPARATUS.

(Application filed Oct. 21, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



Witnesses

E. F. Stewart

H. J. Berukorf

By *W. S. Attorneys,*

C. J. Dietrich Inventor

C. A. Snow & Co.

No. 649,195.

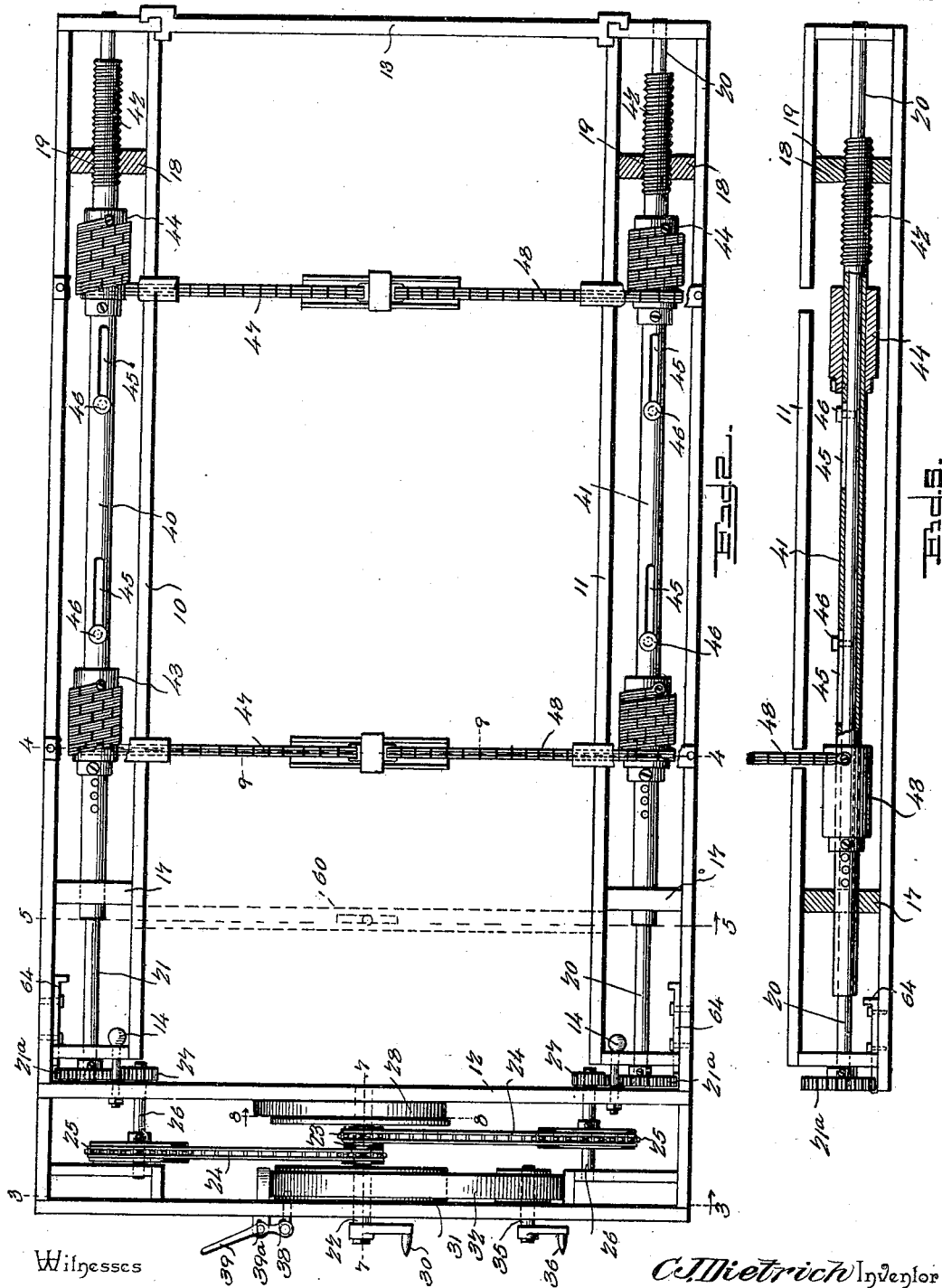
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2 Sheets—Sheet 2.



Witnesses

E. F. Stewart
H. J. Burkhof

By *Two* Attorneys,

C. J. Dietrich Inventor

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

C JOSEPH DIETRICH, OF LA GRANGE, ILLINOIS.

BURIAL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 649,195, dated May 8, 1900.

Application filed October 21, 1899. Serial No. 734,370. (No model.)

To all whom it may concern:

Be it known that I, C JOSEPH DIETRICH, a citizen of the United States, residing at La Grange, in the county of Cook and State of Illinois, have invented a new and useful Burial Apparatus, of which the following is a specification.

My invention relates to improvements in burial apparatus of that class which employ chains, straps, or equivalent pliable devices for lowering a casket into a grave.

One object of the invention is to provide means by which the lowering chains or straps may be automatically and quickly withdrawn from a grave subsequent to lowering the casket therein.

A further object is to provide means operable automatically to rewind the members of one or more lowering-chains on their respective shafts or spools without, however, permitting said chain members to coil upon themselves.

A further object is to brake the lowering mechanism, so that the descent of a casket may be retarded or arrested, and to provide an improved locking device for holding said lowering mechanism independently of the brake mechanism.

With these ends in view the invention consists in the novel combination of mechanisms and in the construction and arrangement of parts, as will be hereinafter fully described and claimed.

To enable others to understand the invention, I have illustrated a preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view of a burial apparatus embodying my invention. Fig. 2 is a plan view of the apparatus with the cover for the frame removed in order to more clearly show the relation of the several operating devices. Fig. 3 is a vertical transverse section through a chambered end of the casing or frame in the plane indicated by the dotted line 3 3 of Fig. 2 and looking in the direction of the arrow, said view illustrating the brake mechanism and the gearing connecting the lowering-shafts. Fig. 4 is a transverse sectional elevation taken in the plane indicated

by the dotted line 4 4 of Fig. 2. Fig. 5 is a detail sectional plan view of one side of the casing, a lowering-shaft therein, and a slidable coiling-shaft, which is revoluble with the lowering-shaft and is capable of an endwise movement automatically for the purpose of rewinding a chain member on the shaft without coiling said member on itself. Fig. 6 is a vertical detail sectional elevation taken in the plane of the line 7 7 of Fig. 2. Fig. 7 is a detail sectional elevation taken in the plane of the line 8 8 of Fig. 2 to show the recoil-spring which actuates the lowering-shaft and the parts associated therewith for automatically rewinding the members of the lowering-chains.

The same numerals of reference are used to indicate like and corresponding parts in each of the several figures of the drawings.

The frame or casing of the apparatus consists of the parallel sides 10 11 and the ends 12 13, the latter arranged at right angles to the sides. The two sides and the end 12 each consist of a pair of walls arranged parallel and joined together, so that each part is of chambered or hollow construction adapted for ready assemblage or disengagement, whereby the same may be taken apart for convenience in storage or transportation. The end 13 is a single board or timber adapted to be readily fastened to the inner opposing walls of the parallel sides; but the chambered or hollow end 12 is united or coupled to the sides by the bolts 14. Each chambered side and the end 12 has a removable top 16, preferably hinged in place, as shown by Figs. 4, 5, and 7, to permit access to the mechanism contained therein. The hollow sides of the frame receive the lowering devices, while the end 12 houses or contains the gearing for the lowering-shafts and the brake mechanism. Each side of the casing or frame is provided with the bearing-bars 17 18, which are made fast with the walls of said side, and in one of these bearing-bars is a threaded opening or nut 19, adapted to receive a threaded end on a tubular coiling-shaft, as will hereinafter appear.

20 21 designate the lowering-shafts, which are arranged longitudinally in the chambers of the sides 10 11, respectively, so that they may be journaled in the bearing-bars 17 18,

each shaft having one end journaled in an end closure of the chambered side, while its other end protrudes beyond the opposite end closure of the side, the protruding end of the shaft being provided with a gear 21^a.

22 designates a power-shaft which is arranged transversely across the chambered end 12 of the frame, said shaft lying equidistant from the parallel lowering-shafts and supported beyond the ends thereof having the gears 21^a. This power-shaft is provided with the sprocket-pinions 23, arranged side by side and made fast with said shaft, said pinions serving to propel the sprocket-chains 24, which extend in opposite directions from the shaft 22. The sprocket-chains engage the sprocket-gears 25, which are fast with short counter-shafts 26, the latter journaled in the end 12 in parallel relation to the shaft 22 and the lowering-shafts 20 21. The short counter-shafts have the gear-pinions 27, arranged to mesh with the gears 21^a on the lowering-shafts 20 21, whereby the gearing communicates the motion of the power-shaft simultaneously to the two lowering-shafts in a manner to rotate the latter in the same direction, as indicated by the arrows in Figs. 3 and 4.

One of the important features of my invention consists of means whereby the lowering-shafts are automatically rotated in a direction to rewind the members of the divided lowering-chains subsequent to the operation of lowering the casket and of the release of the chain members by an automatic coupling. To this end I provide a powerful helical spring 28, which is housed or contained in the end 12 of the casing. This spring is coiled around the power-shaft 22 on one side of the gearing, and one end of the spring is made fast with the shaft, while its other end is fastened at 29 to a wall of the end 12. (See Figs. 2 and 7.) The helical spring is arranged to be placed under tension by the motion of the power-shaft, which is intergeared with the lowering-shafts, the latter being rotated automatically by the gravity of the load thereon, whereby the spring is automatically placed under tension. On the release of the lowering-chain members the spring reacts to propel the shaft 22 in a direction to drive, through the intermediate gearing, the lowering-shafts 20 21 in the reverse direction to the arrows of Fig. 4, and thus the lowering-shafts are automatically actuated to rewind the members of the divided chains. One end of the power-shaft 22 is extended or prolonged outside of the end 12, (see Figs. 2 and 7,) and a hand-crank 30 is secured to this protruding end for the purpose of rotating the shaft in case the spring ceases to act. I have also provided the lowering apparatus with a brake mechanism and a locking mechanism for controlling the load on the lowering-frame. One element is a disk 31, which is common to the brake mechanism and the locking mechanism, said disk being made fast with the shaft 22 on the opposite

side of the gearing 23 from the rewinding-spring 28. A brake-band 32 is arranged to partially encompass the peripheral edge of the brake-disk, as shown by Fig. 4, one end of said band being fastened to a lug 33 on one side of the disk, while the other end of the band is made fast with a similar lug on the opposite side of the disk and at a greater distance therefrom than the lug 33. This relation of the lugs provides for a sufficient engagement of the band with the edge of the disk to have the necessary braking action thereon and also accommodates a cam 34, the latter having engagement with the brake-band to tighten said band and draw it into close frictional engagement with the disk. This brake-band is carried by a short horizontal shaft 35, which protrudes beyond the end 12 and is provided with a crank 36 for its convenient rotation, whereby the position of the brake-cam may be changed to release the brake-band from the disk or to tighten the band against the disk. A series of holes 37 is provided in one face of the disk, near the edge thereof, and a locking-pin 38 is slidably fitted in an opening of the end 12 at a point to enter one of the openings 37 in said disk. The locking-pin is pivoted to a lever 39, which is fulcrumed on a lug 39^a, fast with the end 12, whereby the pin may be adjusted into engagement with one of the series of apertures in the disk, or it may be retracted from said disk. It is to be observed that the power-shaft 22, the brake-cam shaft 35, and the locking-pin 38 are all located on and supported by the end 12 of the casing and the actuating-cranks 30 36 and the lever 39 are in convenient access to an operator stationed at one end of the apparatus. The brake-cam may be actuated independently of the locking-pin to retard the uncoiling of the lowering-cables and the descent of the casket thereon; but to arrest the downward movement of the load it is preferable to employ the locking-pin, which is adapted to have fixed engagement with the disk 31, and thereby positively lock the apparatus against operation.

40 41 designate the tubular rewinding-shafts for the lowering-chains. These shafts are fitted snugly on the lowering-shafts 20 21, respectively, each tubular shaft having a threaded end 42 and the spools 43 44. The threaded end of each tubular rewinding-shaft is screwed into the opening or nut 19 of the bearing-bar 18. The spools 43 44 are made fast with the tubular shaft in spaced relation one to the other, so that the lowering-chains may be arranged at proper distances one from the other to support the load which may be imposed thereon. Each tubular shaft is connected with the proper lowering-shaft by devices which insure the rotation of the tubular shaft with the lowering-shaft, but at the same time the tubular shaft is capable of a limited endwise movement, such endwise

movement being effected simultaneously with the revoluble motion of the lowering-shaft. As one means for connecting the tubular shaft with said lowering-shaft I provide the straight longitudinal slots 45 in the tubular shaft and employ the screws or pins 46, the latter being made fast with the lowering-shaft and fitting in the slots of the tubular shaft. It is to be understood that each tubular shaft has one end loosely journaled in the bearing-bar 17, while its opposite screw-formed end 42 has threaded engagement with the nuts in the bearing-bar 18. On the rotation of the shafts 20 21 in one direction, due to the strain imposed on the lowering-chains by the load thereon, the tubular shafts and their spools rotate with the lowering-shaft and have an endwise movement on the latter in order to unwind the lowering-chains from the spools. After the load shall have been deposited in a grave or vault and the members of the divided chains uncoupled or released the rewinding-spring 28 becomes active to operate through the gearing in a manner to propel the lowering-shafts 20 21 in the reverse direction to that indicated by the arrows in Figs. 3 and 4. With the shafts rotating as described under the energy of the rewinding-spring the tubular shafts rotate with the lowering-shafts and are moved endwise by their threaded engagement with the nuts, whereby the spools on the tubular shafts are shifted with relation to the path of the chain members. This shifting of the spools during the rotation thereof causes the chain members to be wound on the spools in succeeding layers without, however, permitting either chain member to coil upon itself, and thus the chain members are wound on the spools in a manner to freely unwind therefrom on the next operation of the apparatus, so that the layers of the chain member will not become wedged or bound in place.

In connection with the lowering-shafts and the spools on the tubular shafts I employ two divided lowering-chains, which are spaced apart, as shown by Figs. 1 and 2. Each chain consists of the members 47 48, and the members 47 of the two chains are attached to the spools on the tubular shaft 40, while the members 48 are attached to the spools on the other tubular shaft 41. (See Fig. 2.) The chain members 47 are coiled in one direction around the spools on the tubular shaft 40, while the other members 48 are coiled in the same direction around the spools of the shaft 41, said chain members 47 48 passing over suitable guide-rollers 49, as shown by Fig. 4, whereby the chains are arranged to properly and uniformly uncoil from the spools on the rotation of the shafts in the direction indicated by the arrows in Figs. 3 and 4. The chain members 47 48 are provided at their meeting ends with coupling devices 50, (indicated externally in the drawings,) which coupling devices are adapted to automatically uncouple the chain members when the coffin is lowered to the bottom of the grave. Said coupling devices are

not more fully shown nor described therein, as the same constitute a separate invention, on which I contemplate the filing of a divisional application for Letters Patent of the United States.

The operation is as follows: With the parts in the position shown by Figs. 1 and 2 the casket is deposited on the chains and the couplings thereof in a proper position to be lowered, which may be readily ascertained by a page 60. (Shown by Fig. 1.) The brake 10 is adjusted to forcibly apply the brake-band against the disk 31, and the pin 38 is withdrawn from engagement with the disk, thus permitting the load to descend by gravity and drawing on the chains to rotate the shafts 20 21 and move the tubular shafts and spools endwise for the chains to properly uncoil from the spools. The descent of the load is controlled by the operation of the brake, and at this period the shaft 22 is rotated by the gearing to place the rewinding-spring under tension. When the casket reaches the bottom of the grave and the chains are automatically uncoupled by the device before mentioned in order that the rotation of the shaft under the action of the spring 28 may automatically rewind the divided chains on the spools, as has been explained, the shafts and spools are moved endwise for the chain members to coil in separate layers one after the other on the spools, as shown by Fig. 2.

Although I have shown and described the apparatus as equipped with chains as the means for lowering the casket, I do not limit myself to these particular devices, because I may use straps, cables, or ropes in lieu of the chains.

Changes may be made in the form and proportion of some of the parts while their essential features are retained and the spirit of the invention embodied. Hence I do not desire to be limited to the precise form of all the parts as shown, reserving the right to vary therefrom.

The frame or casing of the apparatus may be dismantled by removing the bolts which connect the chambered end 12 with the sides, and by releasing the end 13 from the sides the sides and ends serve to support the several operating mechanisms of the apparatus. To prevent the chain members from uncoiling after they shall have been wound on the spools of the shafts, I employ the slidable locking-plates 64, which are suitably connected to the sides 10 11 in positions to engage with the gear-pinions 21^a on the lowering-shafts. It is evident that on the assemblage and union of the parts of the frame the counter-shafts and the lowering-shafts will be operatively connected by the intermeshing of the pinions on said shaft, and the locking-plates should be retracted from engagement with the gears on the lowering-shafts.

Having thus described the invention, what I claim is—

1. In a burial apparatus, the combination

with lowering-shafts, of slidable spools connected with said lowering-shafts to rotate therewith and to move endwise thereon, means for imparting simultaneous endwise movement to said spools on the rotation of said shafts in one direction, divided lowering elements connected with said spools and adapted to be wound thereon, and means for actuating the lowering-shafts simultaneously, substantially as described.

2. In a burial apparatus, the combination with a frame, lowering-shafts mounted therein and operating means for said lowering-shafts, of fixed nuts within said frame, slidable spools having threaded engagement with said nuts and connected with the lowering-shafts for rotation therewith, and lowering elements connected to said spools and adapted to be wound uniformly thereon by the endwise movement of said spools, substantially as described.

3. In a burial apparatus, the combination with revoluble lowering-shafts, of shiftable spools revoluble with said shafts and capable of a limited endwise movement thereon, and lowering devices connected with said spools to be rewound in succeeding layers thereon, substantially as described.

4. In a burial apparatus, the combination with lowering-shafts connected through intermediate devices to rotate simultaneously, of a tubular shaft carried by each lowering-shaft to rotate therewith, means to impart an endwise travel to each tubular shaft as it rotates with the lowering-shaft, and divided lowering devices connected with the tubular shafts, for the purpose described, substantially as set forth.

5. In a burial apparatus, the combination with lowering-shafts, and means connecting the same to insure rotation thereof simultaneously, of tubular shafts keyed to the lowering-shafts to rotate therewith and each having threaded engagement with a fixed nut for moving the tubular shaft endwise, the spools carried by the tubular shaft, and divided lowering devices attached to the spools and adapted

to be wound in succeeding layers thereon, substantially as described.

6. In a burial apparatus, the combination with a frame, the lowering-shafts, and lowering devices connected with said shafts, of a power-shaft geared to the lowering-shafts, and a single rewinding-spring free from connection with the lowering-shafts and attached respectively to the power-shaft and to the frame, said spring adapted to be placed under tension on the rotation of the power-shaft in one direction and to actuate the lowering-shafts simultaneously, substantially as described.

7. In an apparatus of the class described, the combination with lowering-shafts, and lowering devices, of a power-shaft geared to said lowering-shaft, a brake-disk on the power-shaft, a brake-band secured at its respective ends to stationary supports and partially embracing the disk, and a shaft carrying a brake-cam which engages frictionally with said band between its points of attachment, substantially as described.

8. In a burial apparatus, the combination with lowering-shafts, and a power-shaft geared thereto, of a brake-disk provided with perforations, a brake element arranged to engage with said disk, a locking-pin mounted to have positive engagement with the disk, and means for adjusting the locking-pin, substantially as described.

9. In a burial apparatus, the combination with lowering-shafts, of counter-shafts geared thereto, a power-shaft between the counter-shafts, sprocket-gearing connecting the counter-shafts with the power-shaft, a recoil mechanism, and a brake mechanism, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

C JOSEPH DIETRICH.

Witnesses:

CORA M. MITCHELL,
S. B. MOODY.