J. W. UNGER.

CAGE LOCK.

APPLICATION FILED JULY 15, 1908.

916,380.

Patented Mar. 23, 1909.

2 SHEETS—SHEET 1.

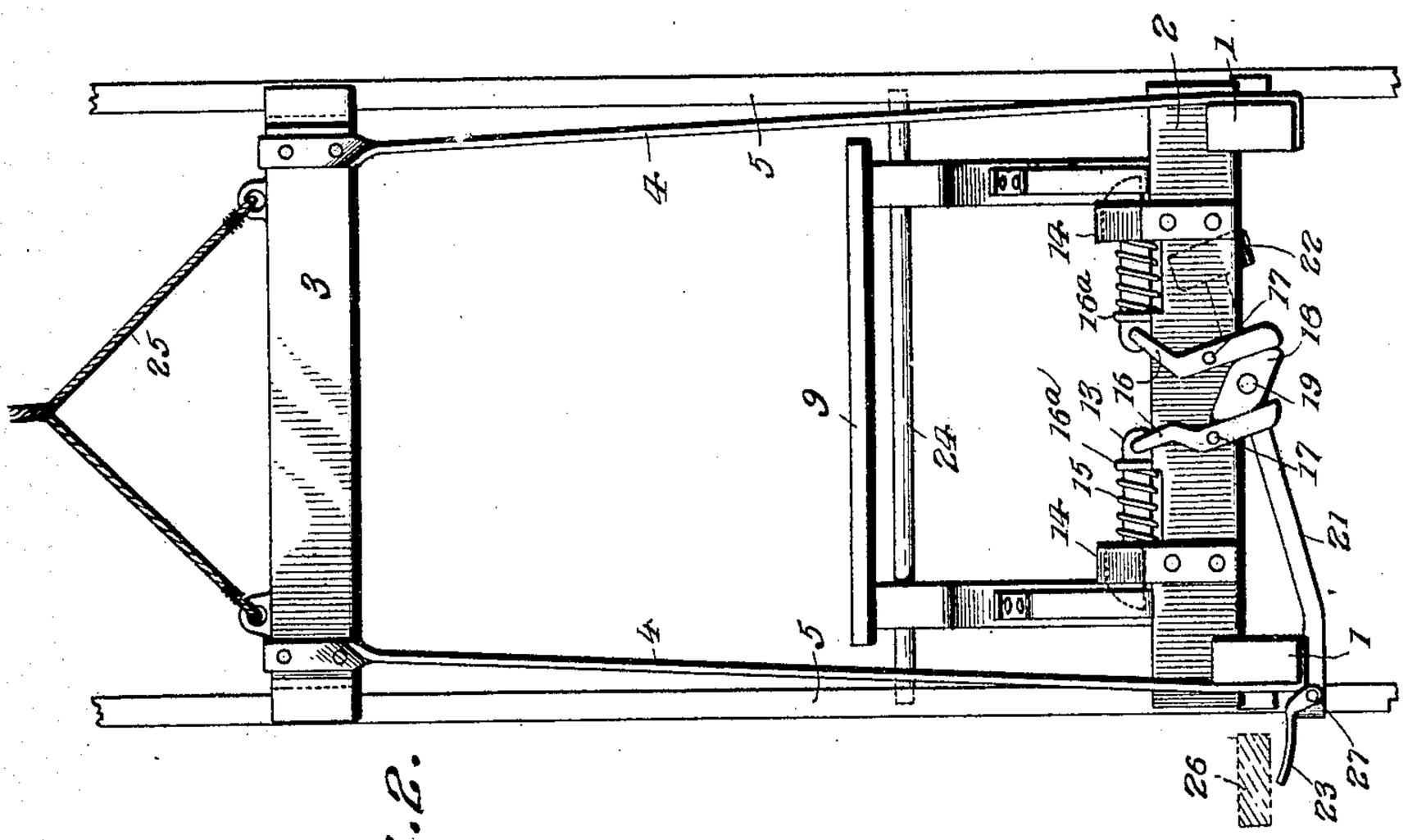

Fig. 2.

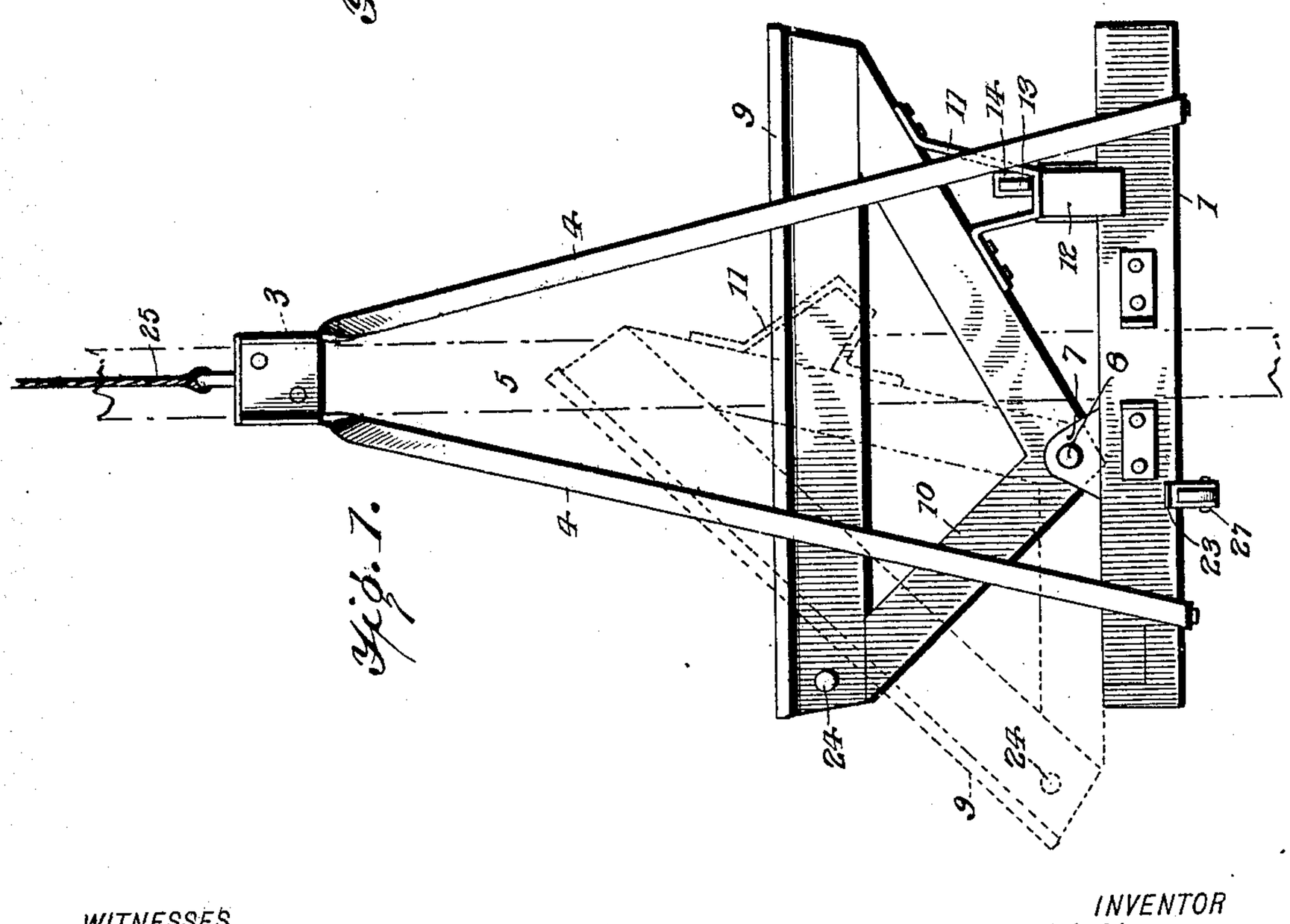

Fig. 1.

WITNESSES

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2 SHEETS—SHEET 2.

Fig. 3.

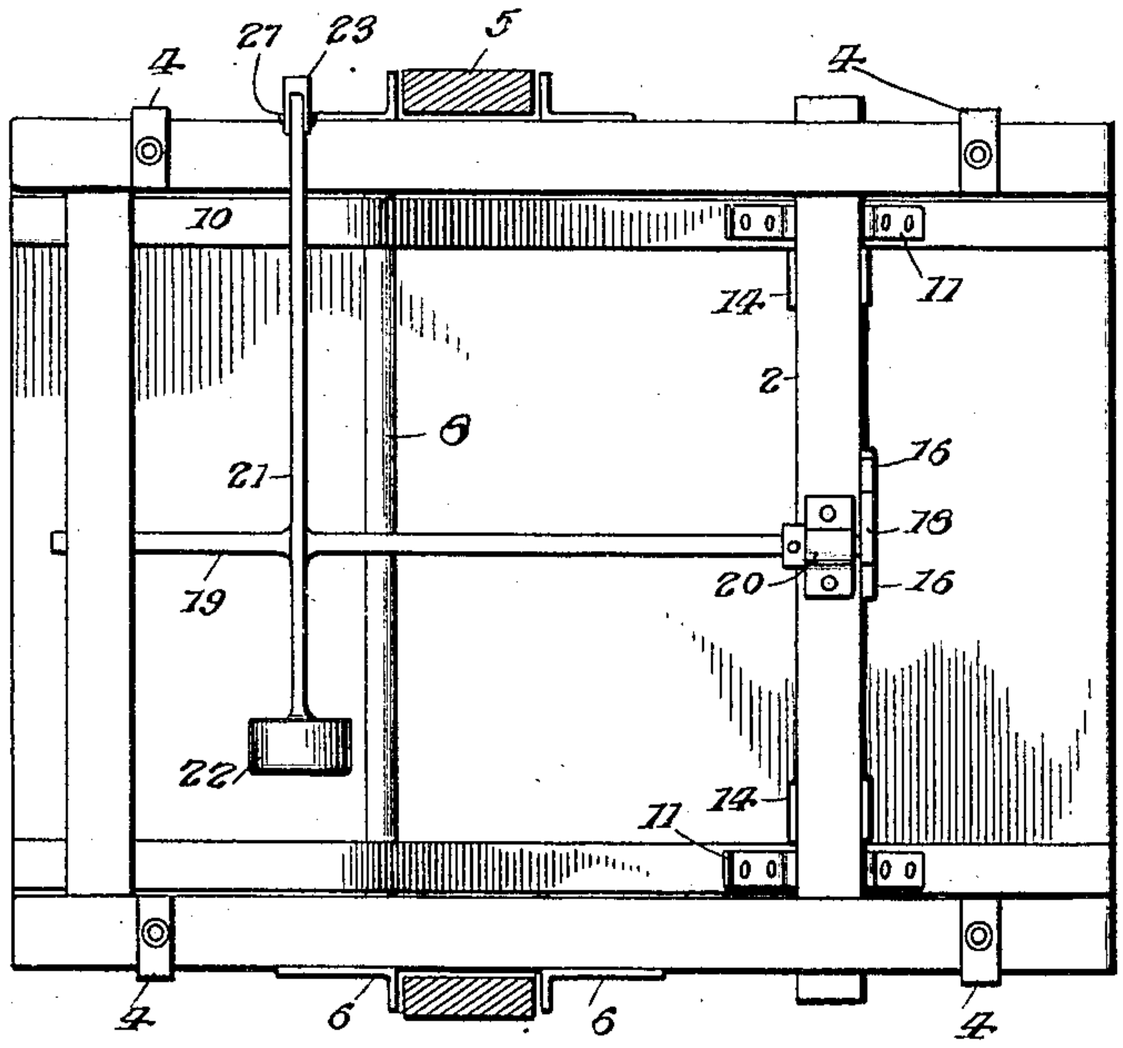


Fig. 4.

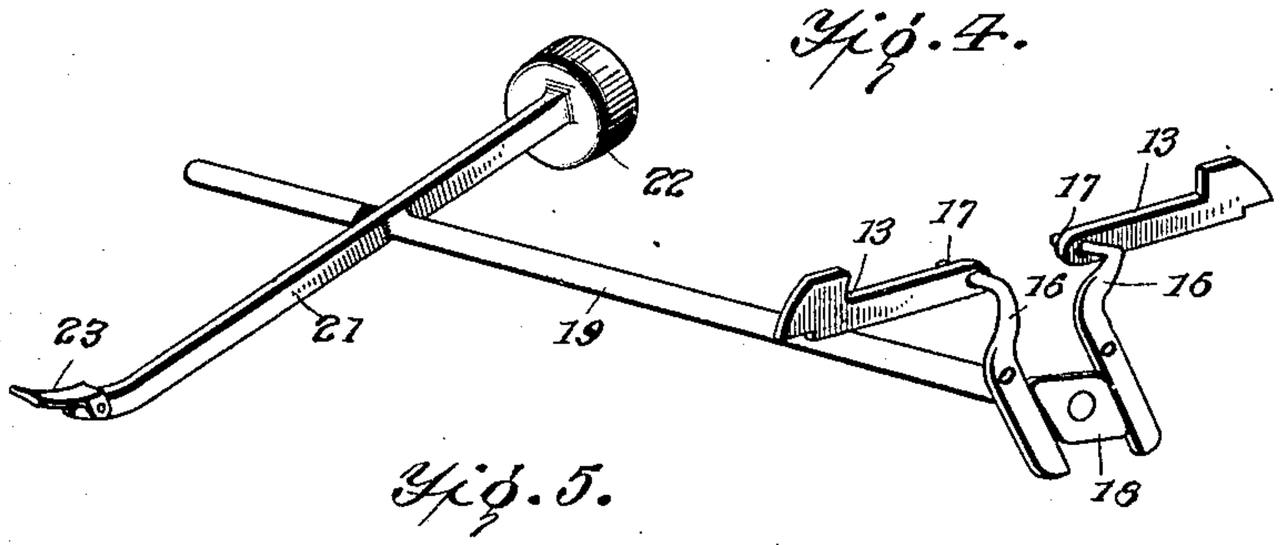
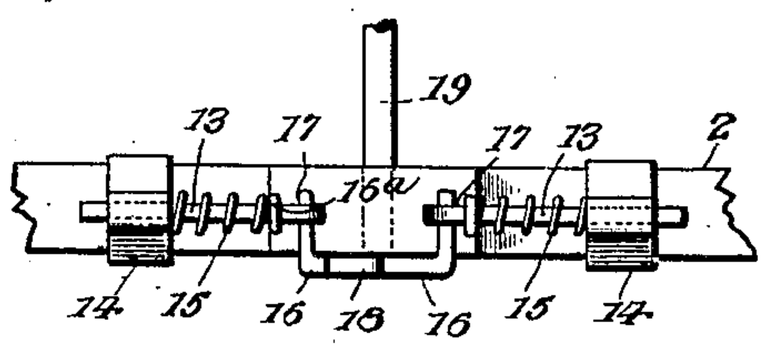


Fig. 5.



WITNESSES

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CAGE-LOCK.

No. 916,380. Specification of Letters Patent. Patented March 23, 1909.

Application filed July 15, 1908. Serial No. 443,648.

To all whom it may concern:

Be it known that I, JOSHUA W. UNGER, a citizen of the United States, residing at Christopher, in the county of Franklin and State of Illinois, have invented a new and useful Improvement in Cage-Locks, of which the following is a specification.

My invention is an improvement in cage locks and consists in certain novel constructions and combinations of parts hereinafter described and claimed.

Referring to the drawings forming a part hereof Figure 1 is a side view of the improvement. Fig. 2 is an end view. Fig. 3 is a bottom plan view. Fig. 4 is a detail perspective view of the releasing mechanism and Fig. 5 is a plan view of the locking device.

The present embodiment of the invention comprises a cage, composed of parallel beams 1, connected by cross beams 2, suspended from a lifting bar 3, by means of hangers 4, and the ends of the lifting bar are recessed to receive the guides 5 of the shaft, in the usual manner. The parallel beams 1 are also provided with guide brackets 6 embracing the guides. The cage is provided with bearings 7 at each side, and at one side of the transverse center, in which are journaled trunnions 8 connected with a tilting frame to be presently described, for supporting the car.

The tilting frame comprises a platform or floor 9, supported on substantially V-shaped brackets 10, one leg of the V being shorter than the other, as shown in Fig. 1, to bring the platform or floor into register with the cage. On the longer legs of the V-shaped bracket are secured stirrups 11, in any suitable manner, and the stirrups are adapted to rest on a cross bar 12, when the tilting frame is in normal position, that is with the floor 9 horizontal. The stirrups are arranged for engagement by sliding dogs or bolts 13, movable in guide brackets 14 secured to the cross bar and are normally retained in engagement with the stirrups by means of springs 15 contacting at one end with the guide brackets and at the other with a loop 16^a on the cross bar.

Levers 16 are pivoted to the cross bar as at 17, the upper ends of the levers being pivoted to the inner ends of the dogs, and the outer ends are adapted to be engaged by a cam 18, secured to a shaft 19, journaled in a bearing 20 on the cross bar, and the lever is provided with an integral cross arm 21, having at one end a weight 22, and at the other a treadle 23, which is engaged by a trip 26 when the cage is in dumping position. The tilting frame is provided with a transverse rod 24 projecting at each side beyond the frame for grasping to move the frame, and the lifting bar 3 is connected with the usual hoisting rope or cable 25.

In operation, the car is run onto the platform 9, which may be provided with tracks for this purpose, and hoisted to the top of the shaft. When in position for dumping, the treadle is engaged and depressed by the trip 26 to withdraw the dogs or bolts, and the handles 24 are grasped to tilt the frame. After the car is dumped the frame returns to its normal position by gravity.

It will be observed that the treadle is pivoted to the cross arm as at 27, so that should it meet an obstruction on the down trip, it may swing upward without moving the shaft. Should the treadle meet with an obstruction on its upward movement and the frame be unlocked, it would immediately be relocked automatically when the obstruction were passed.

It will be evident from the description that the device is automatic, both in locking and unlocking, and that it is both simple and efficient and not liable to easily get out of order.

I claim—

1. The combination with the cage provided at each side with bearings eccentric to the transverse center, of a tilting frame having trunnions journaled in the bearings, said frame comprising a floor and substantially V-shaped brackets, the trunnions being at the apex of the brackets, stirrups on the frame at the edge remote from the bearings, a cross bar on the cage on which the stirrups normally rest, spring actuated bolts slidable on the cross bar and engaging the stirrups, levers pivoted to the cross bar each having one end connected with a bolt, a shaft journaled on the frame and provided with a cam for engaging the free ends of the levers to withdraw the bolts when the shaft is oscillated, a cross arm on the shaft provided at its inner end with a counter-balance, a treadle pivoted to the outer end, and a trip for engagement by the treadle when the cage is in

dumping position, said treadle being mounted to swing freely in an upward direction.

2. The combination with the cage provided at each side with bearings eccentric to the transverse center, of a tilting frame having trunnions journaled in the bearings, stirrups on the frame at the edge remote from the bearings, a cross bar on the cage on which the stirrups normally rest, spring actuated bolts slidable on the cross bar and engaging the stirrups, levers pivoted to the cross bar each having one end connected with a bolt, a shaft journaled on the frame and provided with a cam for engaging the free ends of the levers to withdraw the bolts when the shaft is oscillated, a cross arm on the shaft provided at its inner end with a counter-balance, a treadle pivoted to the outer end, and a trip for engagement by the treadle when the cage is in dumping position, said treadle being mounted to swing freely in an upward direction.

3. The combination with the cage provided at each side with bearings eccentric to the transverse center, of a tilting frame having trunnions journaled in the bearings, stirrups on the frame near one edge thereof, a cross bar on the cage upon which the stirrups rest when the frame is in normal position, spring actuated bolts slidable on the cross bar and engaging the stirrups, a shaft journaled on the cage and provided with means for withdrawing the bolts from the stirrups in unison, an arm rigid with the shaft, a trip, a treadle pivoted to the arm for free upward movement and adapted for engagement by the trip to operate the shaft, and a counterbalance for returning the shaft to original position.

4. The combination with the cage, of a tilting frame journaled thereon, stirrups on the frame, a cross bar on the cage upon which the stirrups rest when the cage is in normal position, spring actuated bolts slidable on the frame and engaging the stirrups, levers pivoted to the inner ends of the bolts, a cam for engaging the levers to withdraw the bolts, an arm for actuating the cam, a trip for engagement by the arm when the cage is in dumping position, and a counterbalance for returning the cam to normal position.

5. The combination with the cage, of a tilting frame journaled thereon, stirrups on the frame, a cross bar on the cage upon which the stirrups rest when the cage is in normal position, spring actuated bolts slidable on the frame and engaging the stirrups, means for withdrawing the bolts in unison, a trip arm for actuating said means, a trip for engagement by the arm when the cage is in dumping position, and a counterbalance for returning said means to original position.

6. The combination with the cage, of a tilting frame journaled thereon, stirrups on the frame, a cross bar on the cage upon which the stirrups rest when the frame is in normal position, spring actuated bolts slidable on the frame and engaging the stirrups, means for withdrawing the bolts in unison, a trip arm for actuating said means and a trip for engagement by the arm when the frame is in the dumping position.

7. The combination with the cage, of a tilting frame journaled thereon, stirrups on the frame, a cross bar on the cage upon which the stirrups rest when the frame is in normal position, spring actuated bolts slidable on the frame and engaging the stirrups, means for withdrawing the bolts in unison, and a trip for engaging said means to operate the same when the cage is in dumping position.

8. The combination with the cage, of a tilting frame journaled thereon, means for supporting the frame in normal position, means for locking the frame in normal position, a cam for releasing the locking means, a trip for operating the cam when the cage is in dumping position, and a counterbalance for returning the locking means to locking position.

9. The combination with the cage, of a tilting frame journaled thereon, the axis upon which the frame tilts being eccentric thereto, stirrups for supporting the frame in normal position, spring actuated bolts engaging the stirrups to lock the frame in such position, and a trip arm for withdrawing the bolts in unison.

10. The combination with the cage, of a tilting frame thereon, stirrups for supporting the frame in normal position, spring actuated bolts engaging the stirrups to lock the frame in such position, and a trip arm for withdrawing the bolts in unison.

11. The combination with the cage, of a tilting frame thereon, stirrups for supporting the frame in normal position, bolts engaging the stirrups for locking the frame in such position, and a trip arm for withdrawing the bolts in unison.

12. The combination with the cage, of a tilting frame thereon, stirrups for supporting the frame in normal position, means for locking the same in such position, and a trip arm for releasing the locking means.

JOSHUA W. UNGER.

Witnesses:
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