

No. 681,675.

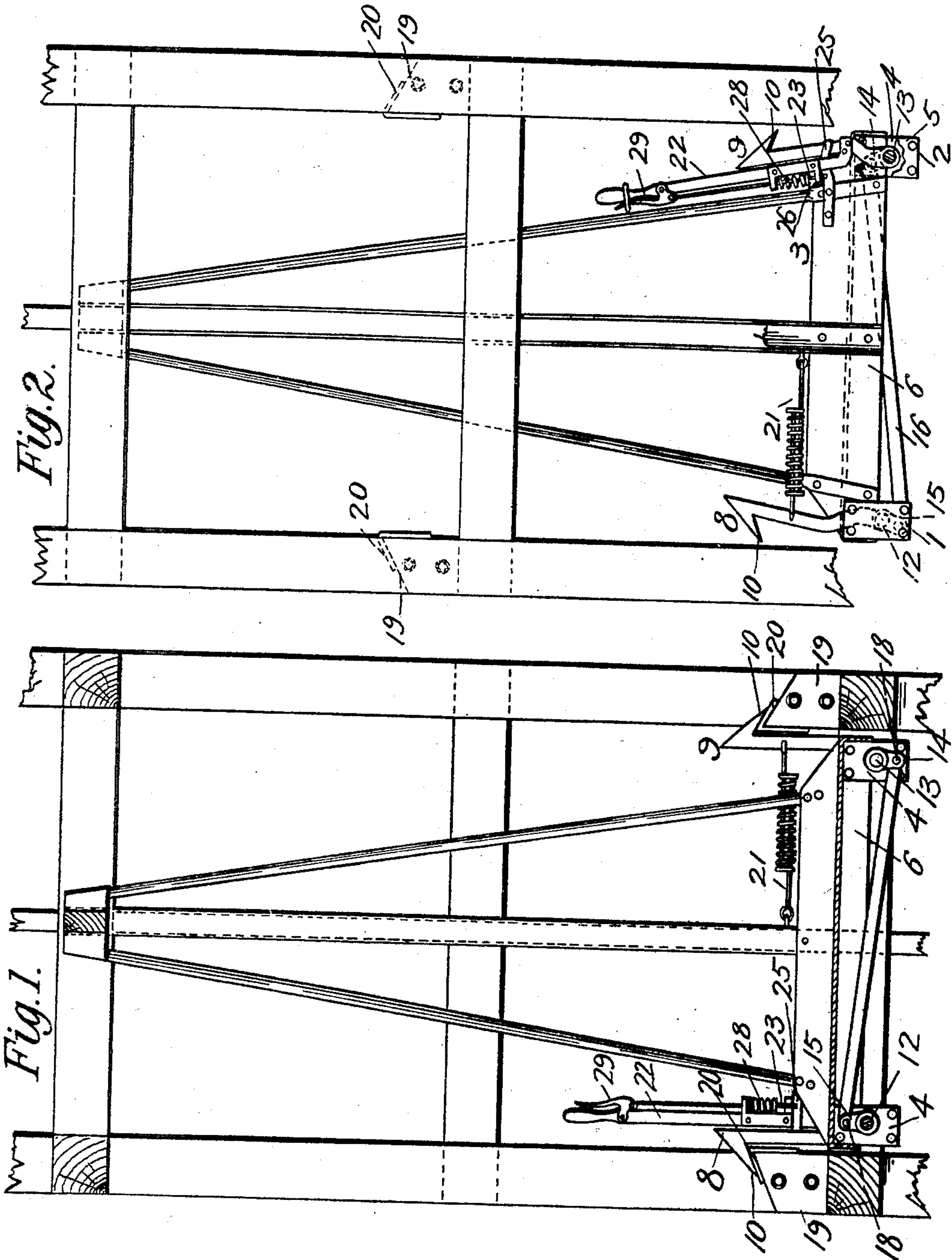
Patented Sept. 3, 1901.

M. H. BECK & J. R. CAYNOR.
CHAIR FOR MINING CAGES.

(Application filed Apr. 9, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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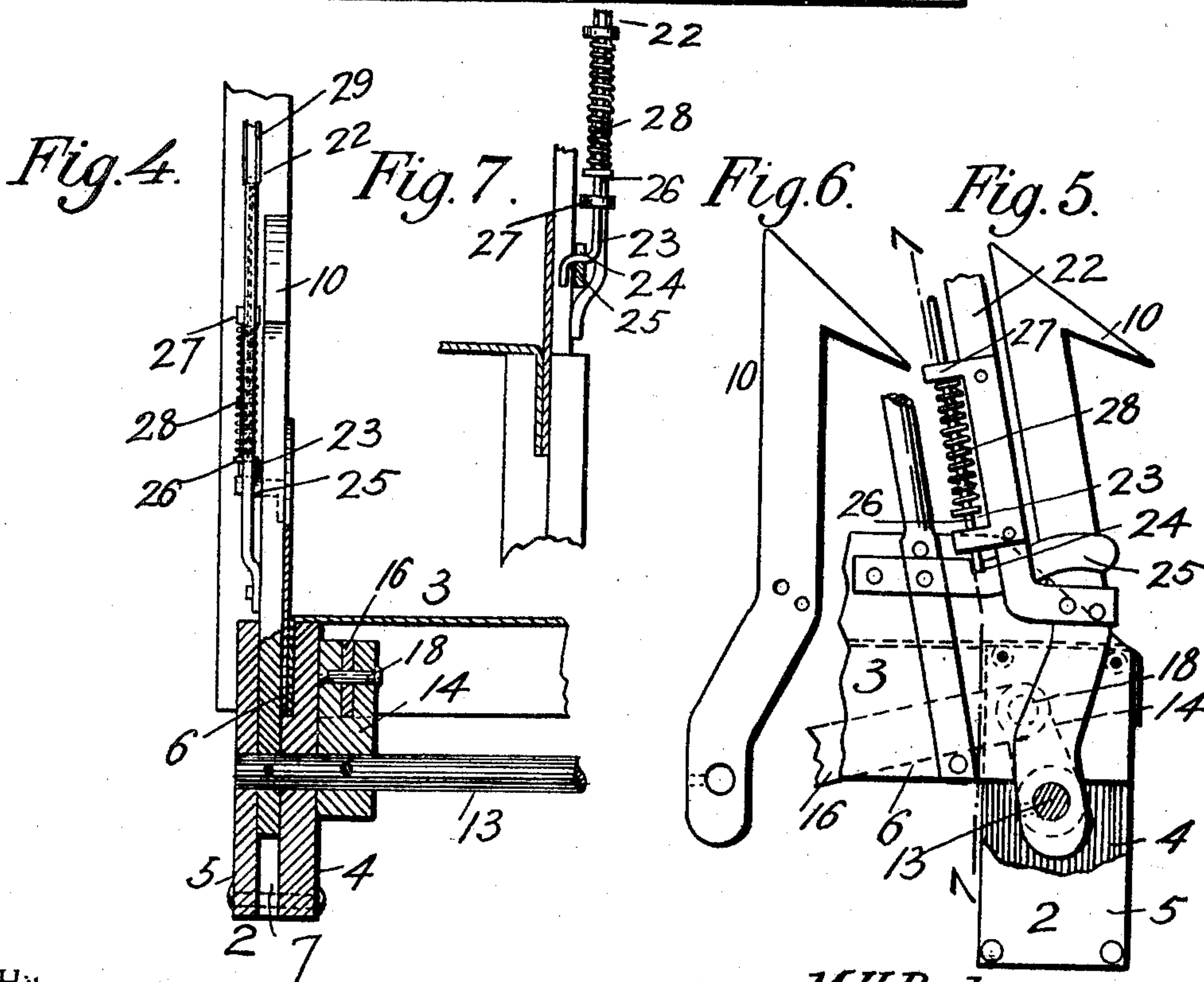
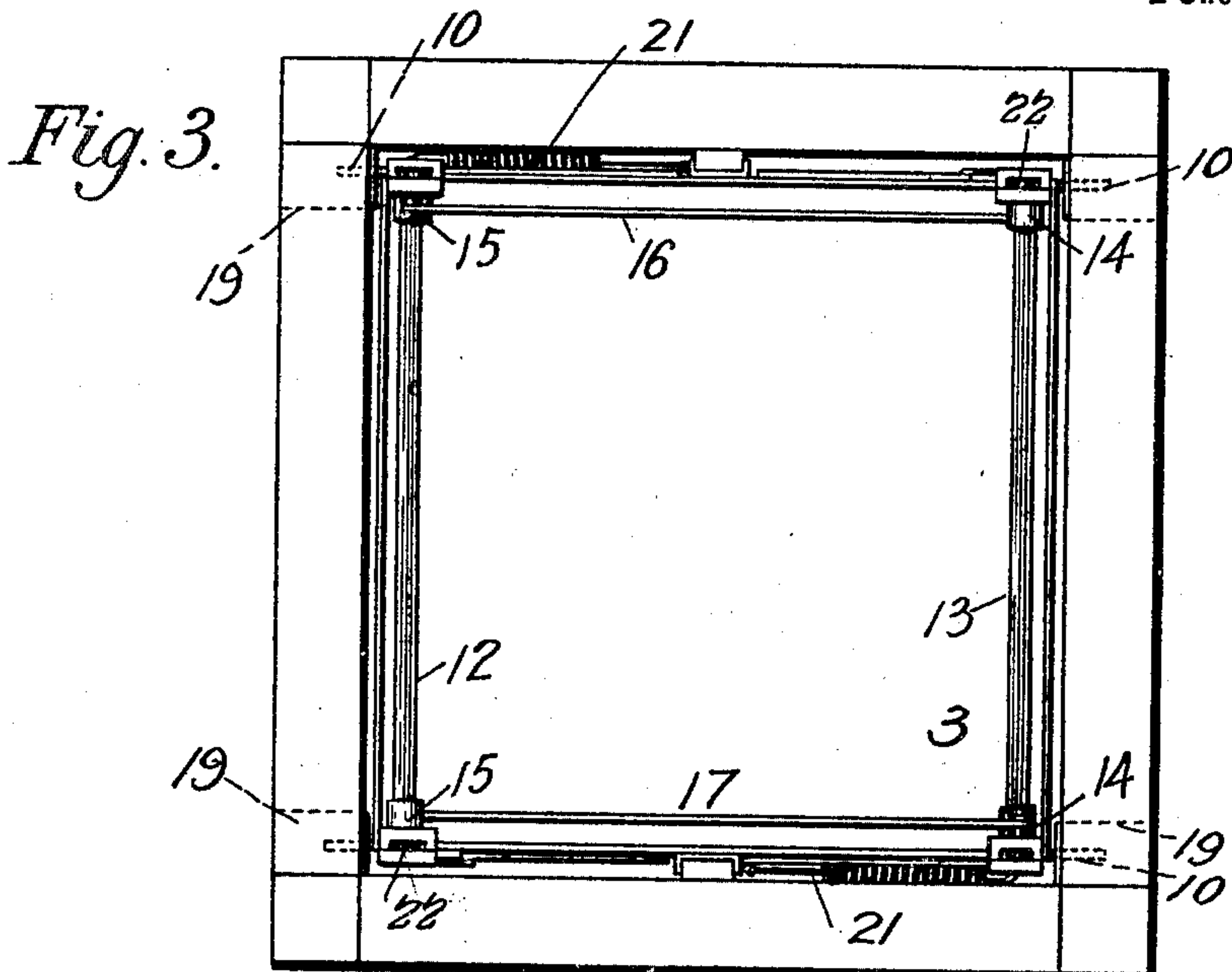
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UNITED STATES PATENT OFFICE.

MELVIN H. BECK AND JULIUS R. CAYNOR, OF VICTOR, COLORADO.

CHAIR FOR MINING-CAGES.

SPECIFICATION forming part of Letters Patent No. 681,675, dated September 3, 1901.

Application filed April 9, 1901. Serial No. 55,080. (No model.)

To all whom it may concern:

Be it known that we, MELVIN H. BECK and JULIUS R. CAYNOR, citizens of the United States, residing at Victor, in the county of Teller and State of Colorado, have invented a new and useful Chair for Mining-Cages, of which the following is a specification.

The invention relates to improvements in chairs for mining-cages.

10 The object of the present invention is to improve the construction of chairs for mining-cages and to provide a simple, inexpensive, and efficient construction adapted to be readily applied to an ordinary mining-cage without necessitating any alteration in the construction thereof and capable of being readily operated at either side to project the chairs and to retract the same.

15 A further object of the invention is to provide a device of this character in which the chairs will be automatically thrown inward by contact with the timbers of a mining-shaft when the cage is raised should the chairs be accidentally left in their extended or engaging position.

20 Another object of the invention is to arrange the engaging portions of the chairs above the floor or platform of the mining-cage to prevent the said chairs from accidentally catching and crushing the foot of the operator or other person.

25 The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

30 In the drawings, Figure 1 is a vertical sectional view of a mining-cage and a portion of the timbers of a mining-shaft provided with chairs constructed in accordance with this invention, the chairs being in engagement with the beveled blocks. Fig. 2 is a side elevation, partly in section. Fig. 3 is a reverse plan view. Fig. 4 is an enlarged sectional view illustrating the manner of mounting the chairs. Fig. 5 is an enlarged elevation of one of the chairs and one of the operating devices. Fig. 6 is a detail view of one of the chairs. Fig. 7 is a detail sectional view on the line 7 7 of Fig. 5.

35 Like numerals of reference designate cor-

responding parts in all the figures of the drawings.

1 and 2 designate lugs or brackets depending from opposite sides of a mining-cage 3 and composed of inner and outer sections 4 and 5, bolted or otherwise secured together and to the depending rim or flange 6 of the cage and provided with openings 7, extending entirely through them from top to bottom to prevent dust from accumulating in the lugs or brackets and clogging or otherwise interfering with chairs 8 and 9, mounted on the lugs or brackets. The lugs or brackets are rigidly secured to the cage, and they project below the same and are adapted to sustain the weight of the cage and prevent the connections, hereinafter described, beneath the cage from coming in contact with the bottom of the shaft and being injured. The chairs 8 and 9, which are arranged in an upright position, are provided at their upper ends with hooks 10, and they have angularly-bent shanks, which are pivoted within the openings of the lugs or brackets by means of transverse shafts 12 and 13, extending across the bottom of the mining-cage, and journaled at their ends in suitable bearing-openings of the depending lugs or brackets. These transverse shafts are each provided with a pair of arms 14 and 15, extending upward and downward from the shafts and located adjacent to the inner faces of the lugs or brackets and suitably secured to the transverse shafts. The arms, which are preferably provided with hubs to receive the shafts, are located at the inner faces of the lugs or projections, and the arms at each side of the cage are reversely arranged and are connected by rods 16 and 17. One of the arms at each side of the cage extends upward, and the other arm of that side of the cage extends downward, the connecting-bar being slightly inclined, as clearly illustrated in Fig. 1 of the accompanying drawings. The connecting-bars, which are constructed of thin metal and which are secured by pivots 18 in slots or bifurcations of the arms, are oppositely inclined, and one of the connecting-rods is adapted to push and the other to pull when either of the operating devices hereinafter described is manipulated, and by this ar-

rangement the connecting-bars are prevented
 from buckling. The engaging portions or
 hooks of the upright chairs have inclined
 lower engaging edges and beveled or inclined
 5 upper edges which extend downward and out-
 ward and which are adapted, should the chairs
 be accidentally left in an extended position
 and come in contact with the timbers of a
 mining-shaft, to cause the chairs to swing in-
 10 ward automatically and prevent injury to
 the cage or the timbers of the mining-shaft.
 The lower inclined edges are adapted to hook
 over beveled blocks 19, located at the corners
 15 of the mining-shaft and designed to be ar-
 ranged at the several stations and projecting
 above the floor or platform of the cage and
 above the adjacent surface at the station to
 locate the engaging portions of the chairs
 20 above the said platform or floor of the cage
 to prevent the feet of the operator or other
 persons from being crushed or otherwise in-
 jured by the chairs. Also the hooks and the
 beveled blocks provide an interlocking con-
 25 nection, and the chairs are securely retained
 in engagement with the blocks by the weight
 of the cage and cannot become accidentally
 thrown out of such engagement. The cage
 must be raised a short distance before the
 30 chairs can be disengaged from the blocks,
 and the latter, which have downwardly and
 outwardly inclined upper faces, are provided
 with angle wear-plates 20, conforming to the
 configuration of the upper portions of the
 35 blocks. The lower ends of the chairs are in-
 wardly offset by the angular bends, and the
 chairs 9, which are arranged at the oppo-
 site ends of the shafts, are connected with
 the cage by tension devices 21, which are
 40 adapted to draw the chairs inward auto-
 matically as soon as the same are clear of
 the blocks. The tension devices, which are
 located at opposite sides of the cage, con-
 sist of overlapped rods and a coiled spring.
 45 The overlapped rods are provided at their
 inner ends with heads, and the coiled spring,
 which is disposed on the overlapped por-
 tions of the rods, is interposed between the
 heads and is compressed when the chairs are
 50 thrown outward. The inner ends of the ten-
 sion devices are connected to the uprights or
 beams at the centers of the sides of the cage
 or to any other convenient portion, and the
 outer ends of the tension devices are con-
 55 nected to the chairs 9. The other chairs 8,
 which are located at the other ends of the
 shafts, are arranged at opposite sides of the
 cage, and each is provided with a handle or
 or lever 22, consisting of an upright bar pro-
 60 vided at its upper end with a suitable grip
 and having an angularly-bent portion or arm
 at its lower end which is secured to the chair
 8 at a point directly above the lug or bracket.
 Each handle or lever is provided with a latch,
 consisting of a spring-actuated detent 23,
 65 mounted on the handle or lever and arranged
 to engage a recess 24 of a curved guide 25.
 The curved guide is secured to the cage and

extends between the outer face of the chair
 and the inner face of the handle or lever,
 which is outwardly offset for this purpose. 70
 The spring-actuated detent may consist of
 the lower portion of a rod 26, mounted in
 suitable eyes of a sleeve or cuff 27 and en-
 75 gaged by a coiled spring 28, interposed be-
 tween a suitable stop of the rod and the up-
 per eye of the cuff or sleeve and adapted to
 hold the detent in engagement with the recess
 24 of the curved guide 25. The upper end
 of the rod 26 is connected to a suitable latch-
 80 lever 29, arranged adjacent to the grip of the
 handle or lever 22 and adapted to be grasped
 simultaneously with the same, whereby the
 detent may be readily disengaged from the
 notch of the curved guide when it is desired
 85 to operate the chairs. The chairs are adapt-
 ed to be operated from either side of the cage,
 and when the operator is manipulating one
 handle or lever 22 the other lever is designed
 to be provided with a link for engaging the
 90 latch-lever to hold the detent out of the
 notch.

In order to project the chairs beyond the
 cage, it is necessary to grip the handle or le-
 ver, release the detent, and throw the said
 handle or lever outward from the position 95
 shown in Fig. 2 to that illustrated in Fig. 1.
 This movement compresses the springs of the
 tension devices, and it will be readily appar-
 ent that the chairs are absolutely safe and
 cannot become accidentally thrown outward. 100

It will be seen that the invention is exceed-
 ingly simple and inexpensive in construction,
 that it is adapted to be readily applied to a min-
 ing-cage, and that it possesses great strength
 and durability and does not necessitate any 105
 alteration in the construction of the cage or
 weaken the same. Furthermore, it will be
 clear that the lugs or brackets are adapted
 to prevent the shafts and their connections
 from coming in contact with the bottom of 110
 the mining-shaft and that the engaging por-
 tions of the chairs are located above the plat-
 form or floor of the cage and the adjacent
 surface of the station, so that there is no lia-
 115 bility of the foot of the operator becoming
 crushed by the chairs.

What we claim is—

1. In a device of the class described, the
 combination with a cage, of an upright chair
 on the cage provided with a hook adapted to 120
 interlock with a suitable support of a mining-
 shaft, and means for operating the chair, sub-
 stantially as described.

2. In a device of the class described, the
 combination with a cage, of upright dogs 125
 mounted on the cage and provided with up-
 per beveled or inclined edges adapted to cause
 the dogs to be thrown inward should they
 come in contact with the timbers of a mining-
 shaft, and means for operating the chairs, 130
 substantially as described.

3. In a device of the class described, the
 combination with a cage, of chairs mounted
 on the cage and provided with hooks and hav-

ing beveled edges, whereby the chairs are thrown inward automatically when they come in contact with the timbers of a mining-shaft, and means for operating the chairs, substantially as described.

4. In a device of the class described, the combination with a cage, of transverse shafts mounted on the cage and provided with oppositely-disposed arms, oppositely-inclined connecting-bars pivoted to the arms and adapted to push and pull simultaneously, whereby they are prevented from buckling, chairs mounted on the shafts, and means for operating the chairs, substantially as described.

5. In a device of the class described, the combination with a cage having a depending flange, of brackets composed of sections located at opposite sides of and secured to the flange and projecting below the cage, shafts journaled on the brackets or lugs and connected with each other, chairs mounted on the shafts, and means for operating the chairs, substantially as described.

6. In a device of the class described, the combination with a cage, of upright pivotally-mounted chairs, connections between the chairs for causing the same to oscillate in unison, and a spring located above the platform of the cage and connected with the said cage and with a chair and adapted to hold the chairs normally in an inoperative position, substantially as described.

7. In a device of the class described, the combination with a cage, of an upright pivot-

ally-mounted chair, a guide mounted on the cage and having a recess, and an arm or lever mounted on the chair and provided with a latch mechanism for engaging the recess of the guide, substantially as described.

8. In a device of the class described, the combination with a cage, of shafts mounted on the cage and connected together, the chairs 8 and 9 secured to the shafts and extending upward therefrom, the tension devices secured to the cage and connected with the chairs 9, the levers or handles connected with the chairs 8, and means for locking the chairs out of engagement, substantially as described.

9. In a device of the class described, the combination with a block, having an inclined upper face, and a cage, of a chair having a hook adapted to engage the inclined face of the block, substantially as described.

10. In a device of the class described, the combination with a cage, of a block extending above the floor or platform of the cage, and a chair interlocked with the block and engaging the same at a point above the floor or platform of the cage, substantially as and for the purpose described.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

MELVIN H. BECK.
JULIUS R. CAYNOR.

Witnesses:

CLIFFORD BASTLE,
SAM BARSHAW.