

No. 792,330.

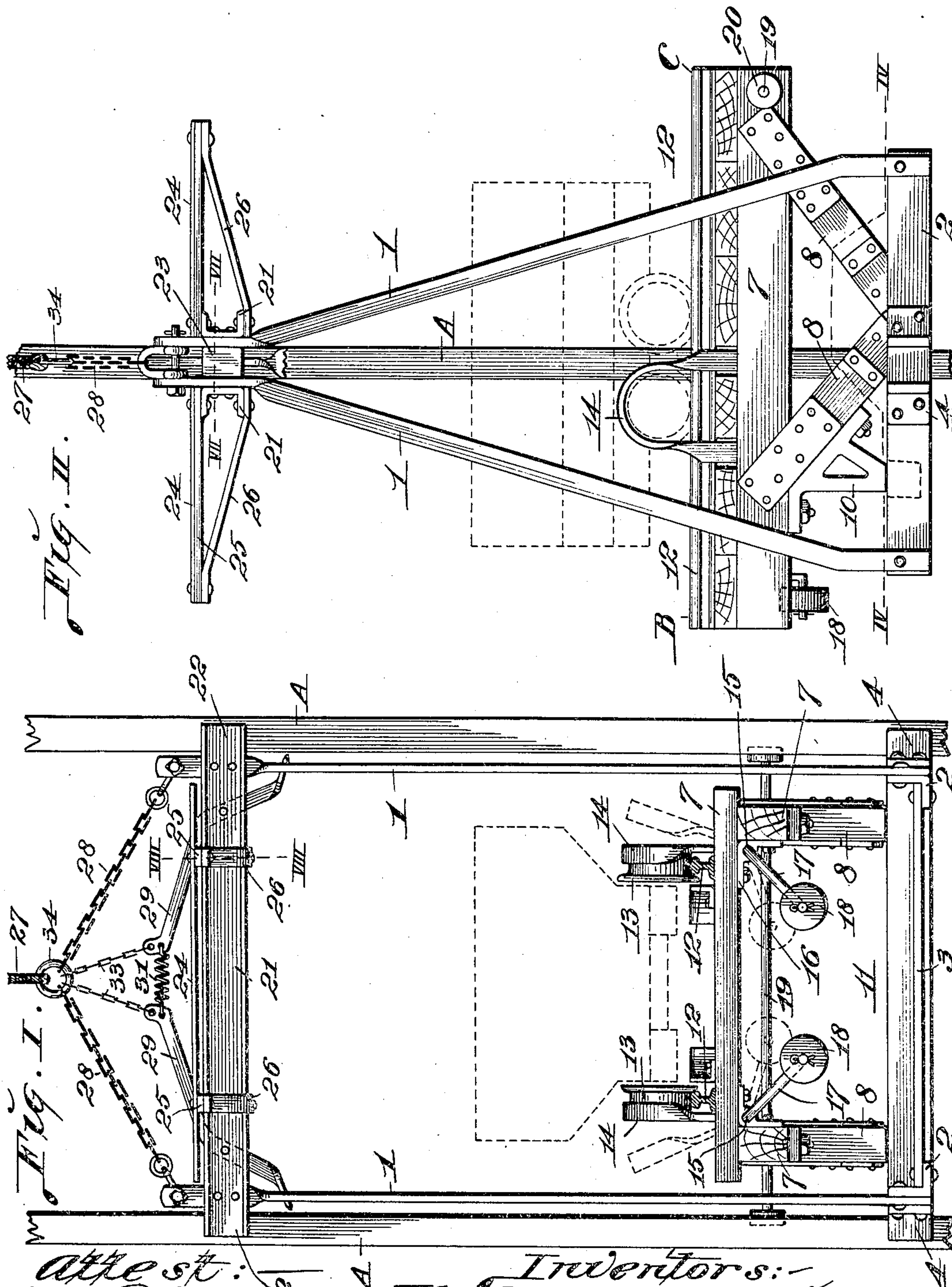
PATENTED JUNE 13, 1905.

J. HERZLER, H. HENNINGER & W. FENNER.

MINE CAGE.

APPLICATION FILED MAY 11, 1904.

2 SHEETS—SHEET 1.



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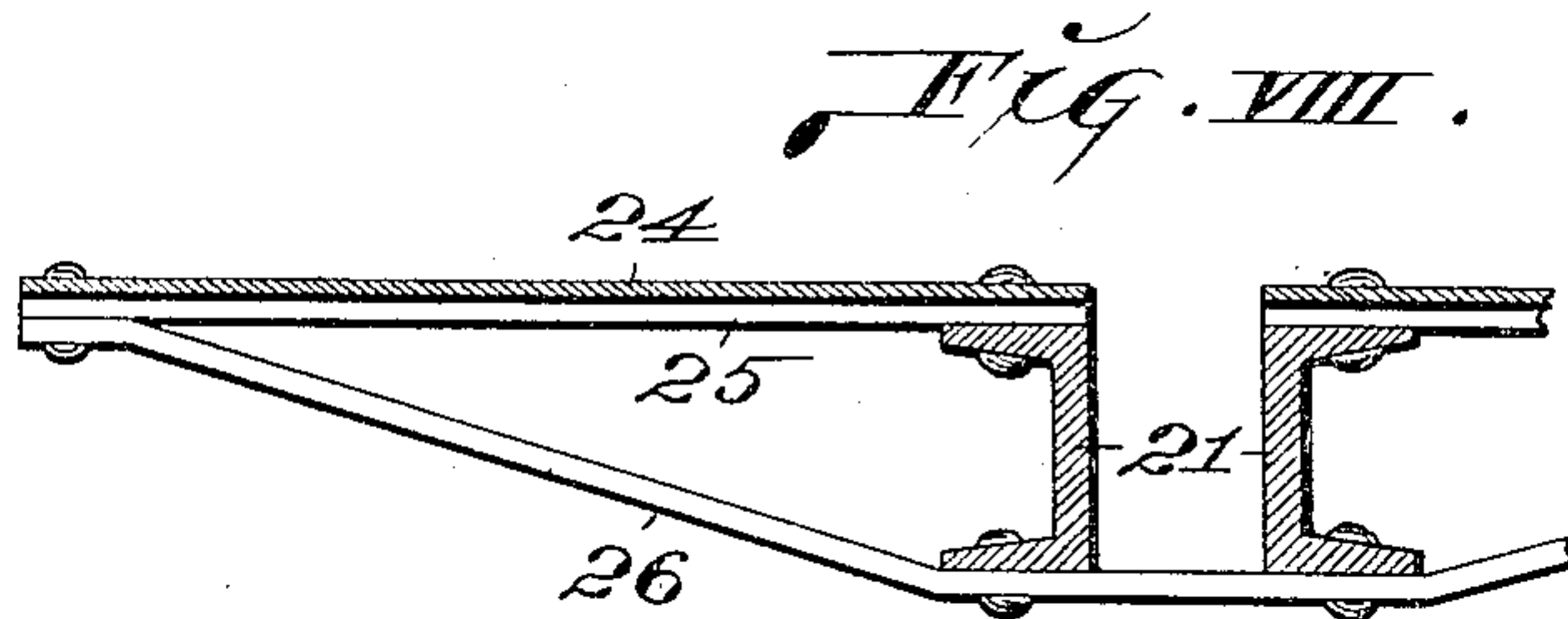
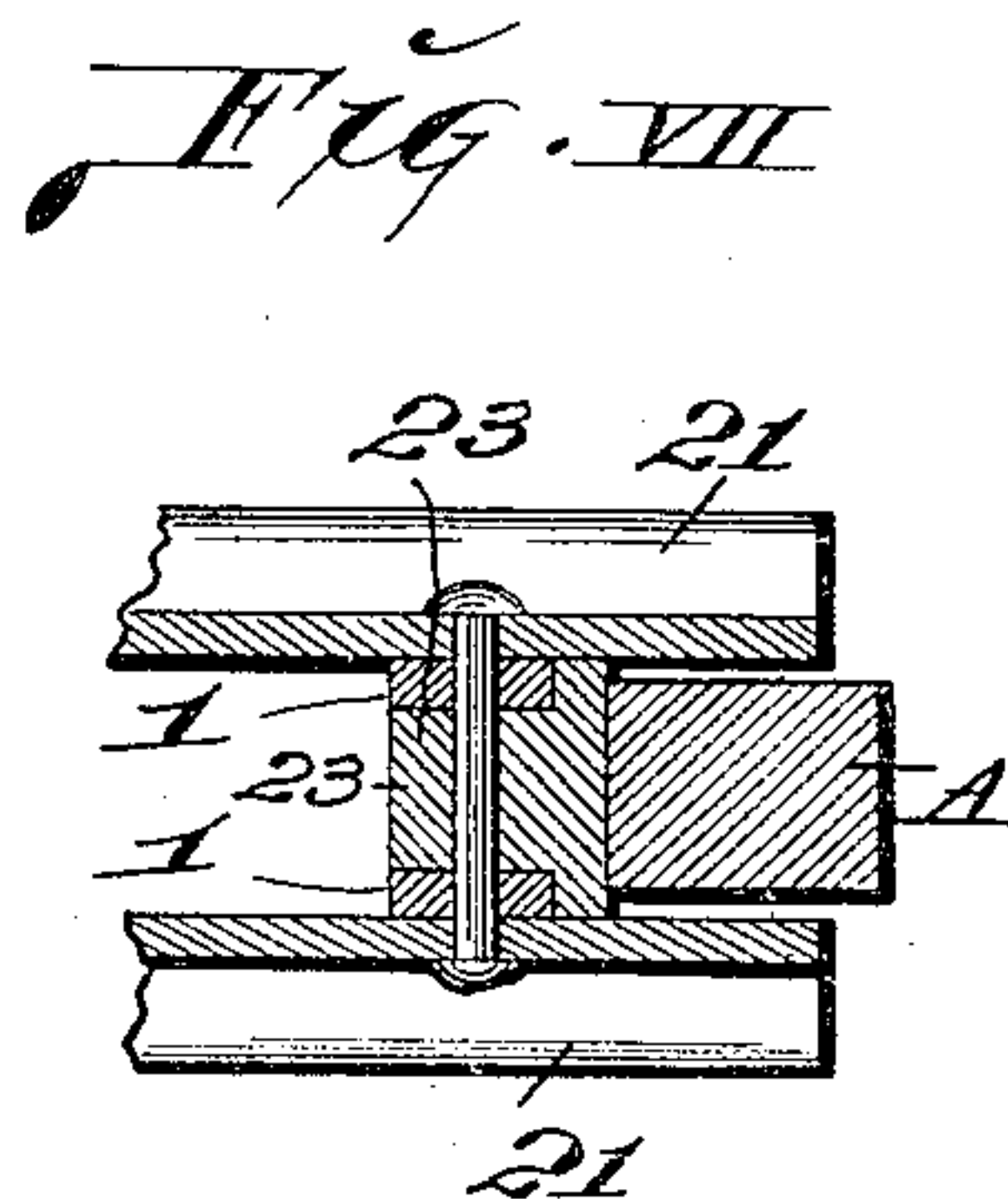
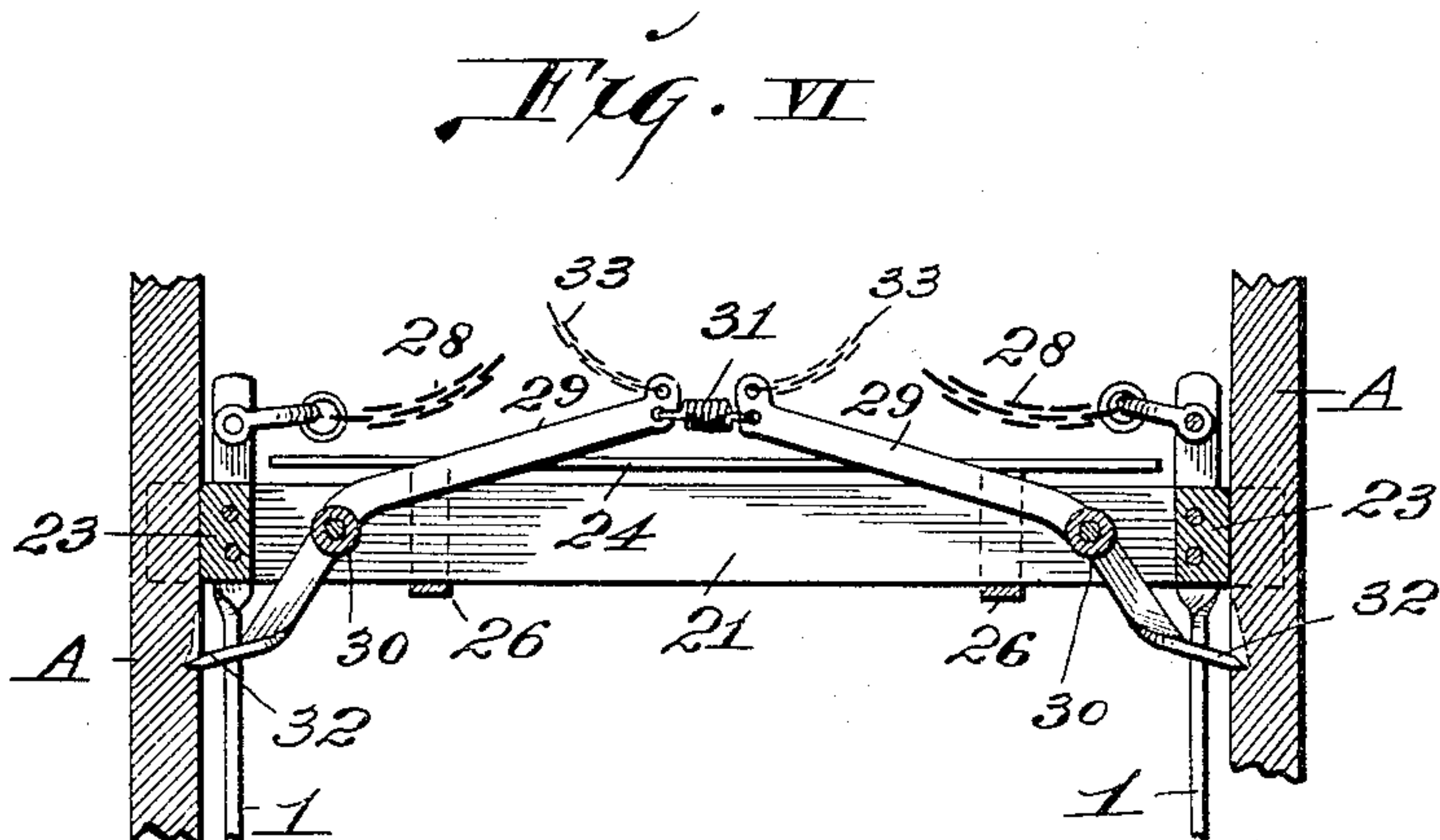
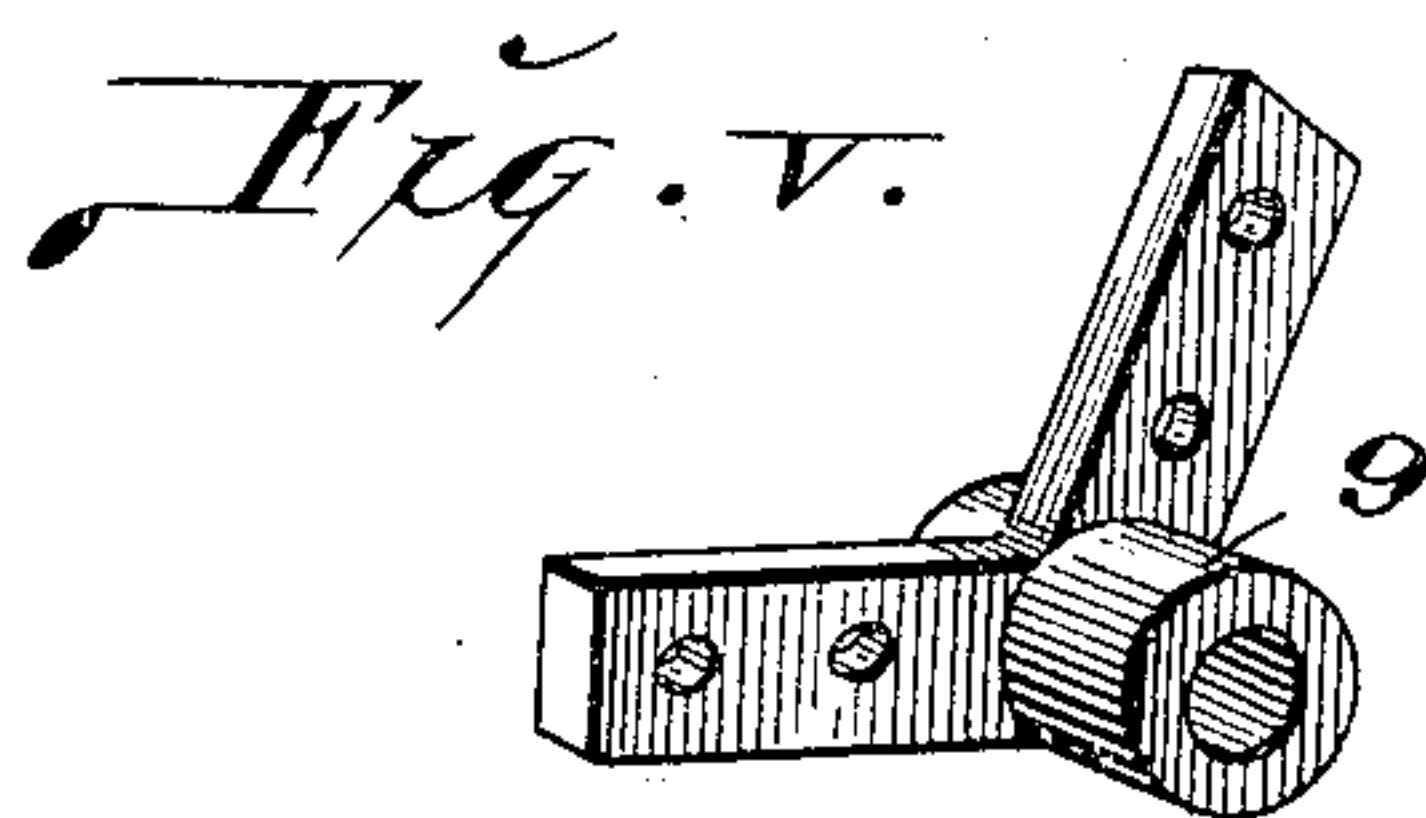
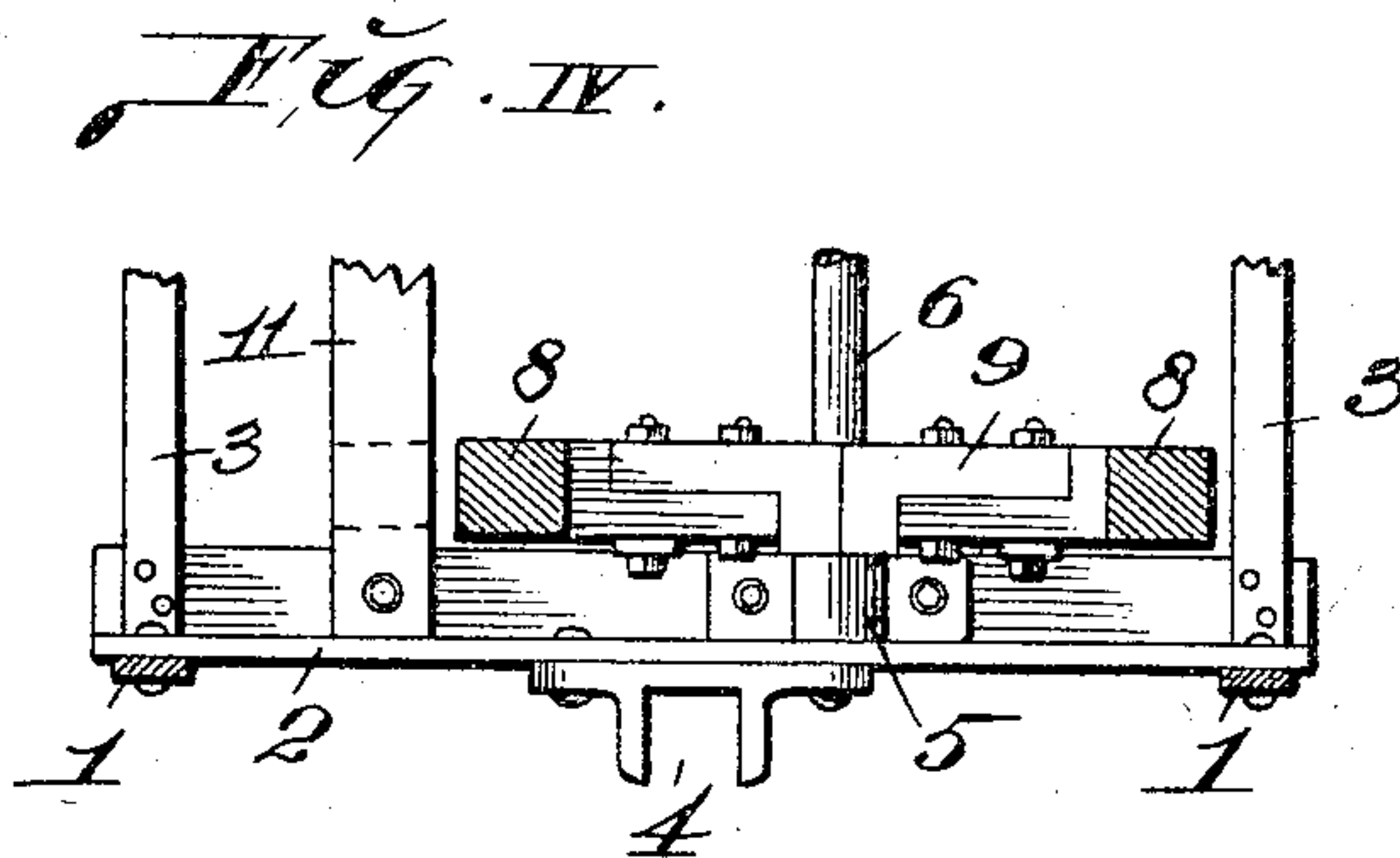
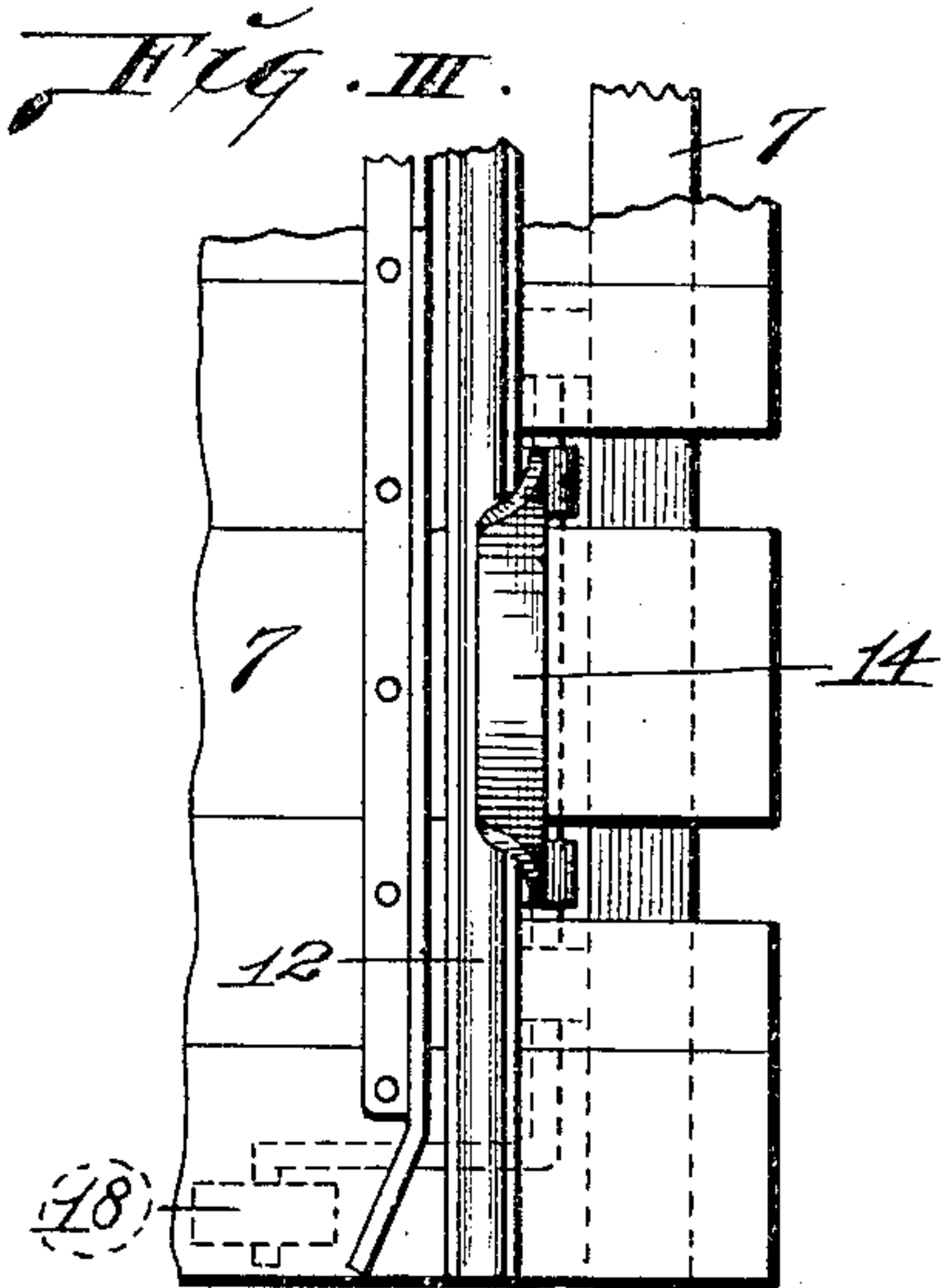
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2 SHEETS—SHEET 2.



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Inventors:—  
John Herzler,  
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By Knight, Bro & attys.



# UNITED STATES PATENT OFFICE.

JOHN HERZLER, HENRY HENNINGER, AND WILLIAM FENNER, OF BELLEVILLE, ILLINOIS.

## MINE-CAGE.

SPECIFICATION forming part of Letters Patent No. 792,330, dated June 13, 1905.

Application filed May 11, 1904. Serial No. 207,368.

*To all whom it may concern:*

Be it known that we, JOHN HERZLER, HENRY HENNINGER, and WILLIAM FENNER, citizens of the United States, residing in Belleville, in the county of St. Clair and State of Illinois, have invented certain new and useful Improvements in Mine-Cages, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

Our invention relates to a cage for hoisting coal or other cars from mines through a shaft leading thereto, and includes a safety-catch whereby the cage may be restrained from downward movement in the event of breakage of the hoisting-rope.

Figure I is an end elevation of our cage. Fig. II is a side elevation of the cage. Fig. III is a view of a portion of the cage-platform. Fig. IV is a horizontal section taken on line IV-IV, Fig. II. Fig. V is a perspective view of one of the rock-shaft rockers to which the cage-platform-supporting legs are secured. Fig. VI is a vertical section taken through the upper portion of the cage and showing in elevation the safety-catch in engagement with the cage-guides, the position of the parts being that assumed in the event of breakage of the cage-hoisting rope. Fig. VII is an enlarged horizontal section taken on line VII-VII, Fig. II. Fig. VIII is an enlarged vertical section taken on line VIII-VIII, Fig. I.

A designates cage-guides of an elevator-shaft, that are of the usual form.

1 designates end hanger-bars, to the lower ends of which are secured angle-shaped end plates 2, that, with longitudinal ties 3, constitute the bottom framework of the cage. The end plates 2 bear guides 4, that travel in engagement with the cage-guides A, as most clearly seen in Fig. I. Journaled in boxes 5 on the frame end plates 2 is a shaft 6, (see Fig. IV,) that extends longitudinally of the bottom frame of the cage.

7 designates a platform that is supported by a pair of legs 8, the lower ends of which are secured to the arms of rockers 9, mounted on the frame-supported shaft 6. The platform-supporting legs are secured to the plat-

form 7 at points that permit of a preponderance of the weight of the platform being present at the rear side B over that present at the front side C, as seen in Fig. II, so that the rear portion of the platform will overbalance the front portion with respect to the pivot-point of the platform—namely, the shaft 6.

10 designates chairs secured to the lower sides of the rearmost platform-legs and to the under side of the platform 7. These legs rest at their lower ends upon a longitudinal timber 11, mounted on the bottom frame end plates 2 to support the rear portion of the cage-platform.

12 designates rail-sections mounted upon the platform 7 and on which the truck-wheels 13 of a mine-car (indicated by dotted lines, Figs. I and II) rest.

14 designates a pair of yokes that are carried by rock-shafts 15 and are adapted to embrace the truck-wheels 13 to hold them in a fixed position on the rails 12. The rock-shafts 15 are journaled in boxes 16, and each shaft is formed with a crank-arm 17, that bears a counterbalance-weight 18, by which said crank-arms are normally held depressed to hold the yokes 14 to the car-truck wheels.

19 is a shaft journaled in the sills of the platform 7 and bearing at its ends rollers 20, that are adapted to engage a suitable stop (not shown) when the cage is hoisted to the top of the mine-shaft to thereby cause the forward end, at which said shaft 19 is located, to be tilted downwardly against the preponderance of weight of the platform and the load thereon at the rear portion of said platform. When the platform is so tilted, the mine-car may be dumped in the usual manner and during the dumping action be securely held on the platform.

21 designates a pair of top beams to which the upper ends of the end bars 1 are secured, the said beams projecting beyond the said end bars to a sufficient extent to serve as guides 22, that travel alongside of the cage-guides A. Between the end bars 1 and also between the top beams 21 are guide-blocks 23, (see Figs. II and VII,) that ride against the guides A.



24 is a hood that is supported by the top beams 21 through the medium of upper bars 25 and lower straps 26, secured, respectively, to the upper and lower sides of the top beams  
5 and secured at their outer ends to the hood 24.

27 designates the hoisting-rope of the cage, to which branch chains 28, that lead to the upper ends of the cage end bars, are secured, as seen in Figs. I and II.

10 29 designates a pair of catch-levers that are rockingly mounted intermediate of their ends upon pivot-pins 30, seated in the top beams 21. These catch-levers are positioned between said top beams, and their inner fac-  
15 ing ends are united by a retractile spring 31. The catch-levers at their outer ends terminate beyond their pivotal points in catch-arms 32, that are toothed, as seen in Fig. II, so that if they are brought into engagement  
20 with the cage-guides A they will cut thereinto, as seen in Fig. VI.

33 designates connecting-chains that are united to the inner ends of the catch-levers 29 and to the hoisting-rope 27, the manner  
25 of connection between said chains and hoisting-rope being preferably that of a ring 34, to which the hoisting-rope branch chains 28 are also connected.

30 In the event of breakage of either the hoisting-rope or the branch chains 28, which would permit fall of the cage, the retractile spring 31, connecting the inner ends of the catch-levers, acts to draw said levers toward each

other and throw the toothed catch-arms of said levers outwardly to the cage-guides, so  
35 that they will enter thereinto, as illustrated in Fig. VI, to arrest descent of the cage and avoid its falling to the bottom of the shaft in which it operates.

While we have shown the inner ends of the  
40 catch-levers 29 united by the retractile spring 31, we desire not to be limited to the use of said spring, for the reason that the inner ends of the catch-levers may be made sufficiently  
45 heavy to answer the same purpose as the spring—namely, that of lowering said inner ends in the event of breakage of the cage-hoisting rope, so that the outer ends of the levers will engage the elevator-car guides.

We claim as our invention—

50 In a mine-cage, the combination of a bottom frame, a shaft journaled in said frame, a platform, rockers mounted on said shaft, inclined legs secured to said rockers and tilt-  
55 ingly supporting said platform, chairs secured to said platform and to the rear of the rearmost of said platform-legs and normally resting with their lower end on said bottom frame, and means for tilting the forward end of the platform, substantially as set forth.

JOHN HERZLER.

HENRY HENNINGER.

WM. FENNER.

In presence of—

WILLIAM H. PFINGSTEN,

WM. MUELLER.