

J. DRISCOLL.
SAFETY ELEVATOR.
APPLICATION FILED JUNE 23, 1908.

924,750.

Patented June 15, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

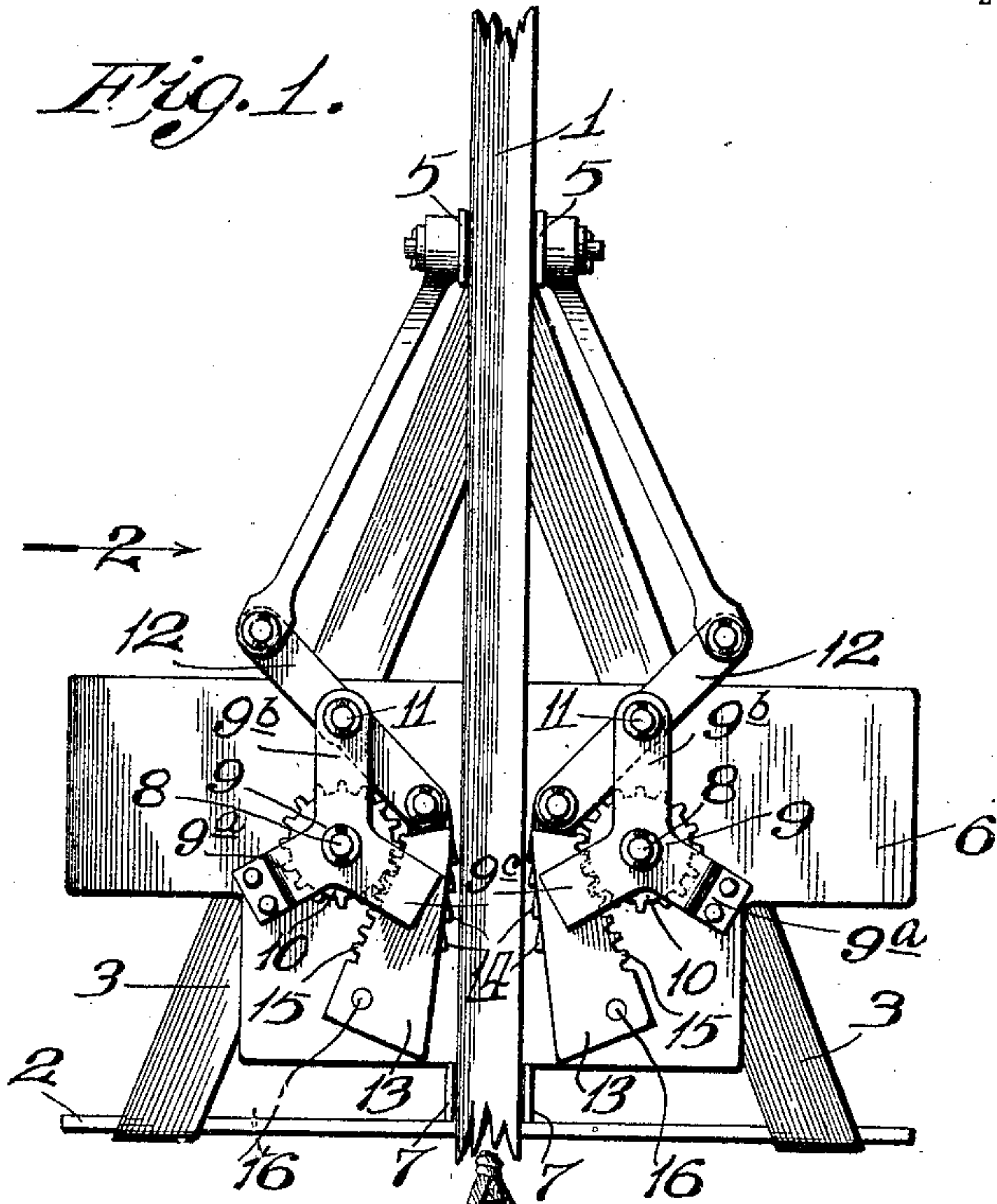
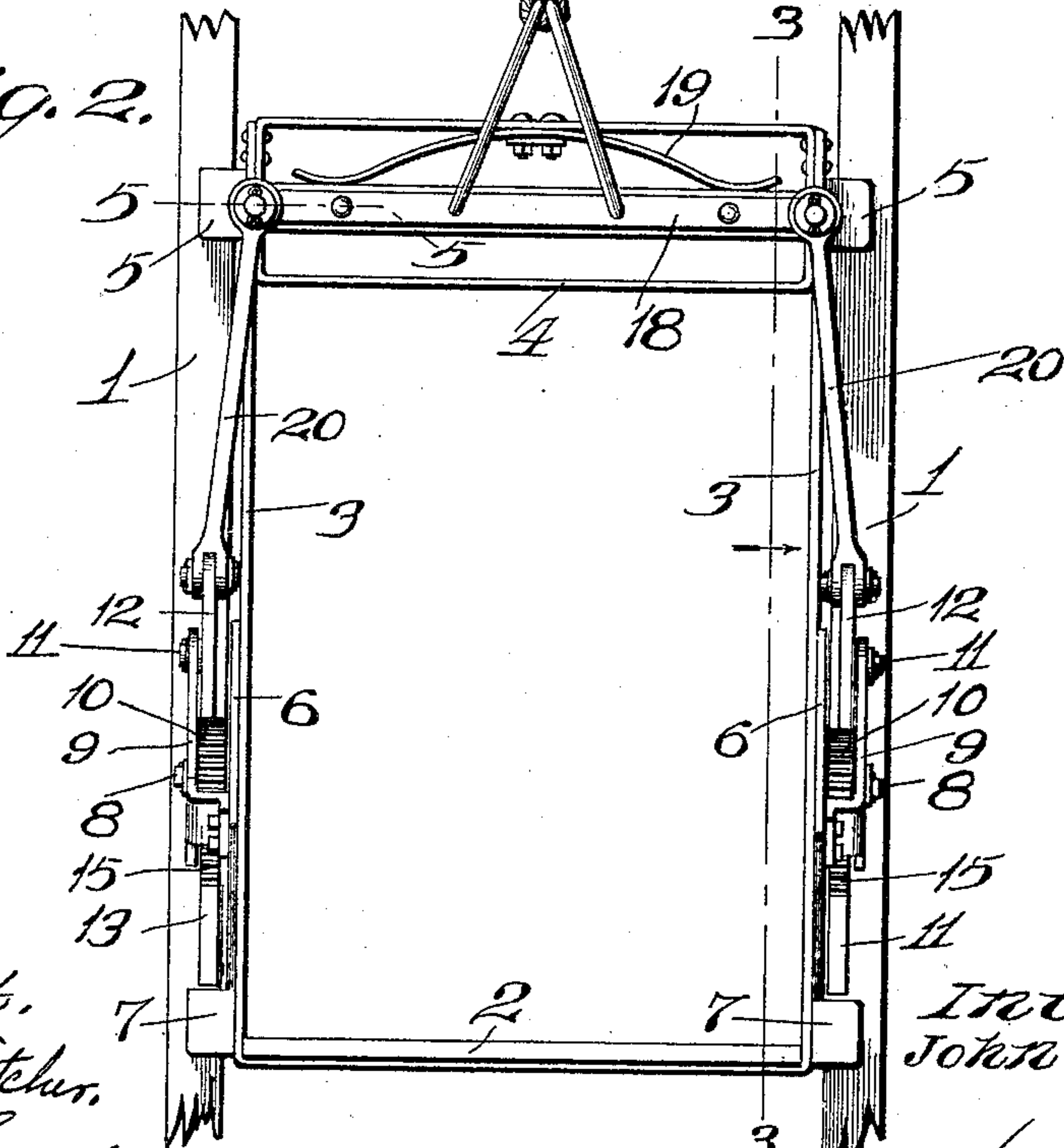


Fig. 2.



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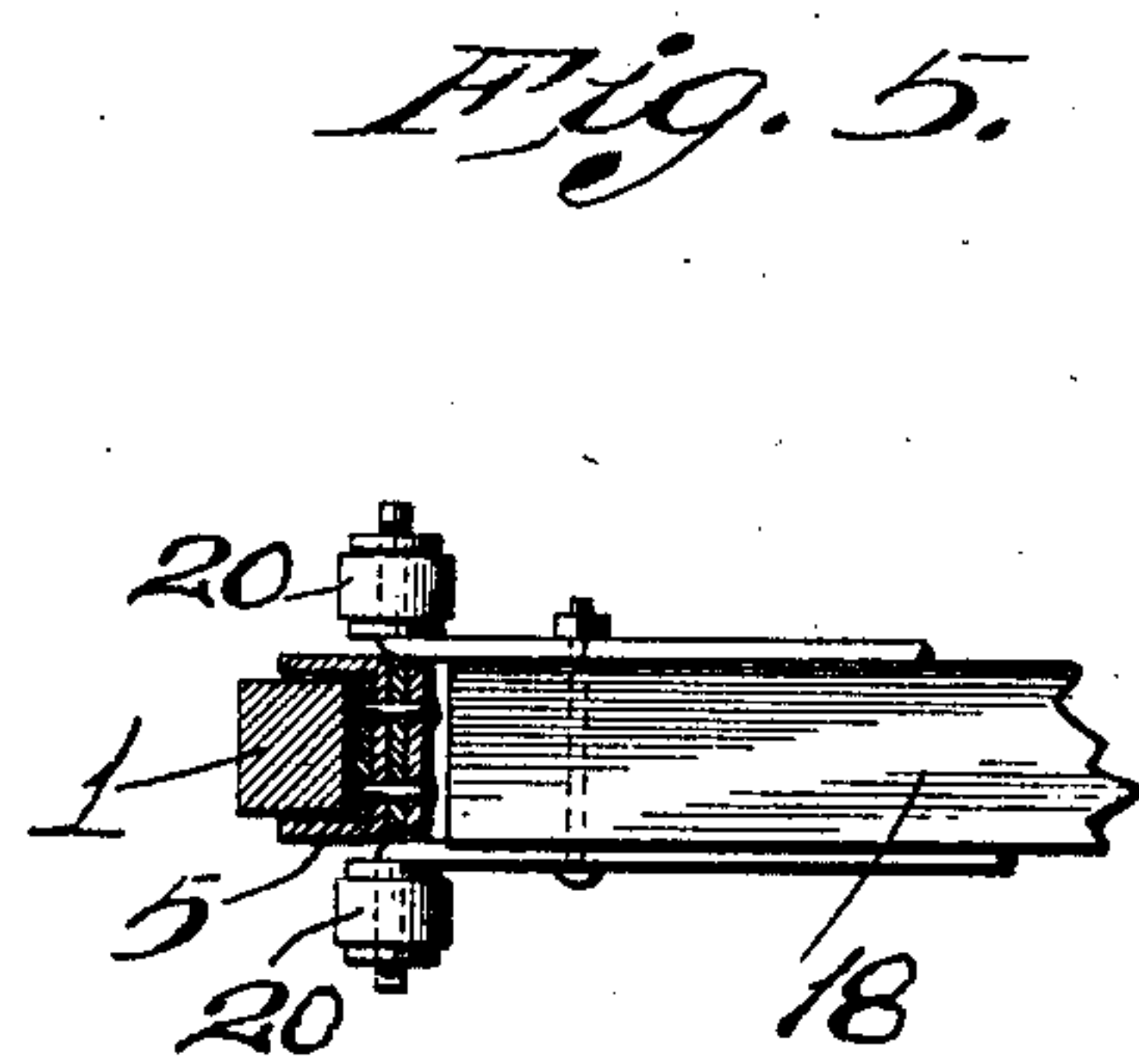
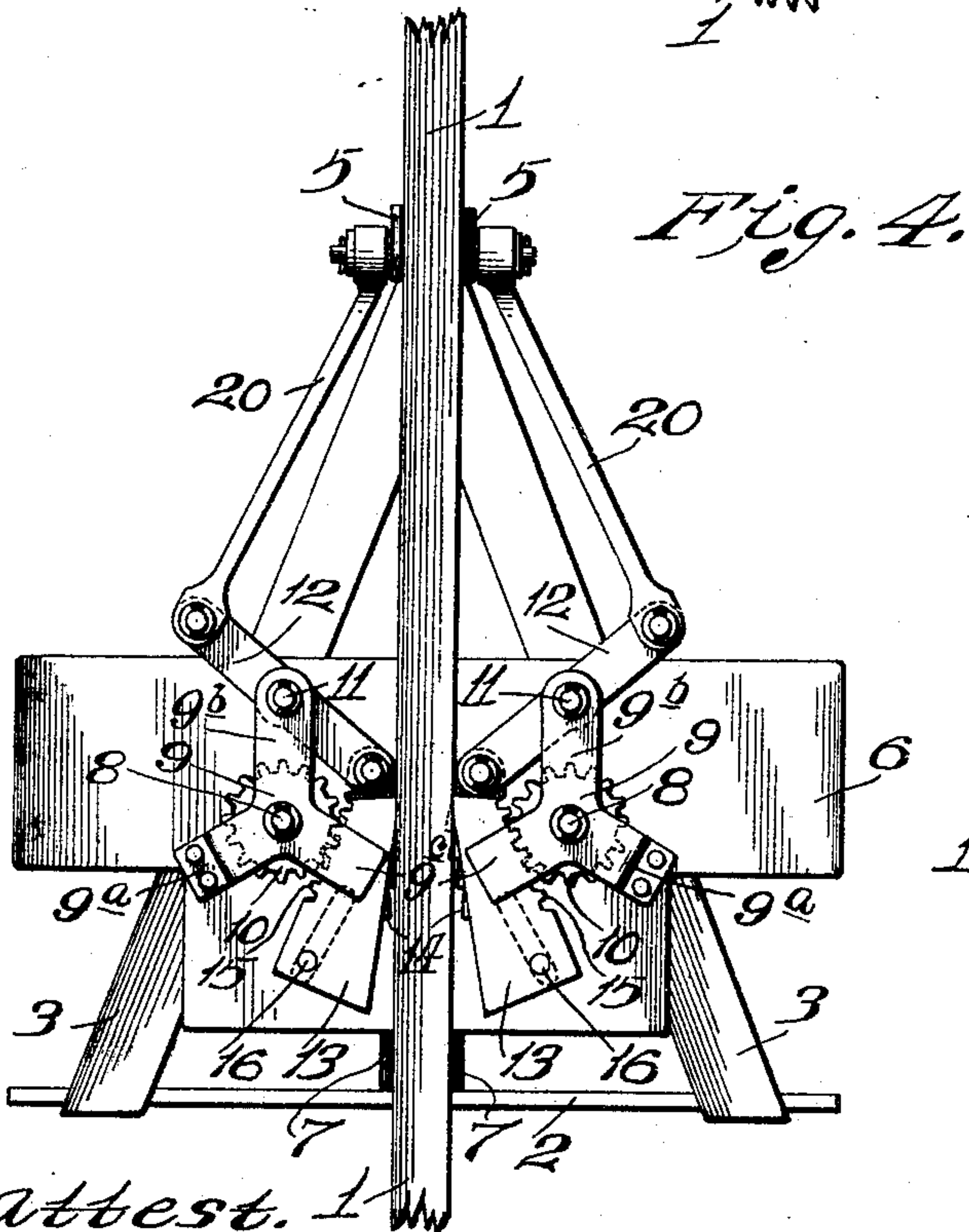
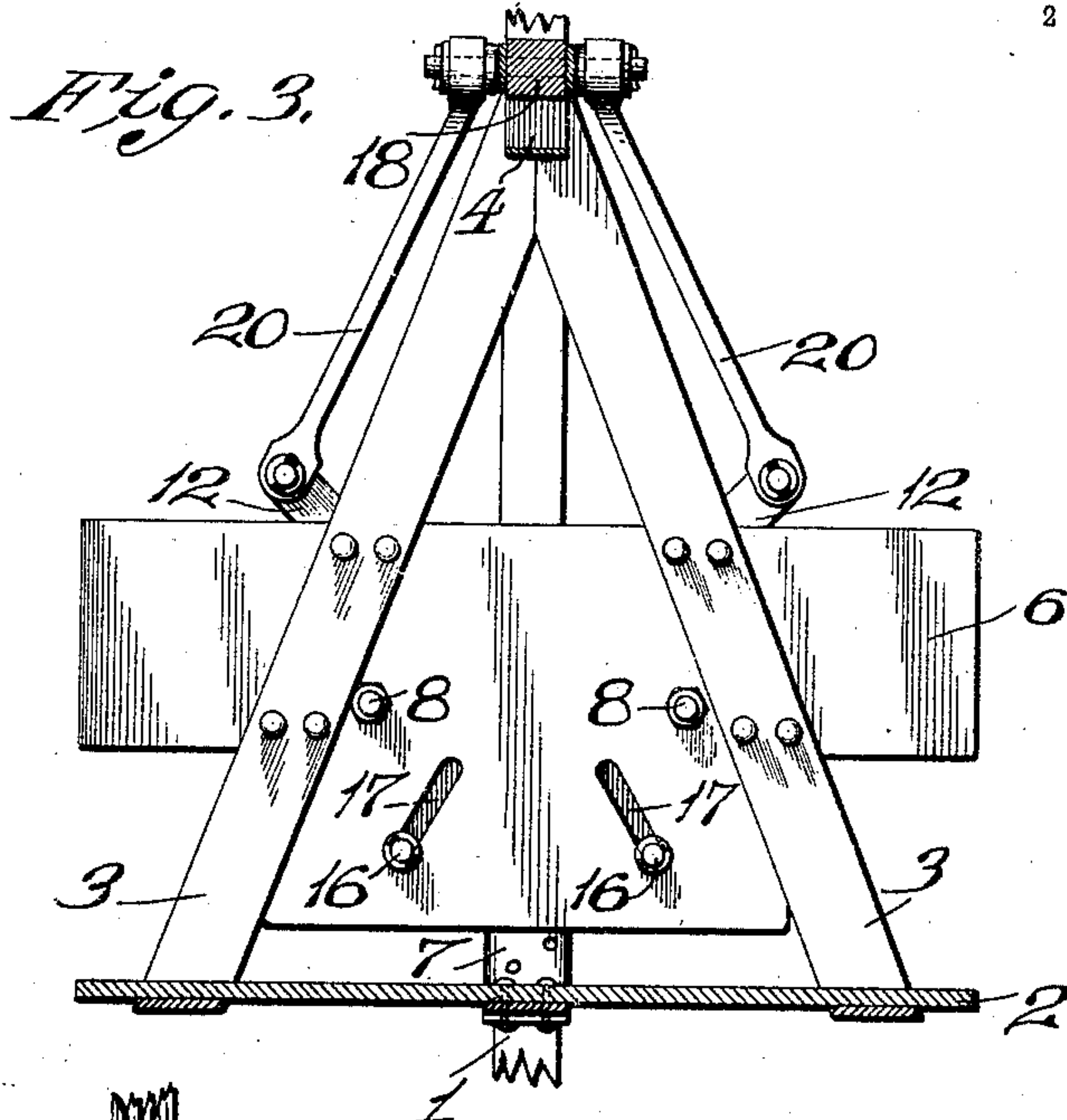
By Nigdon & Horgan.
Attys.

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2 SHEETS—SHEET 2.



attest. 1
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UNITED STATES PATENT OFFICE.

JOHN DRISCOLL, OF NEW BADEN, ILLINOIS.

SAFETY-ELEVATOR.

No. 924,750.

Specification of Letters Patent.

Patented June 15, 1909.

Application filed June 23, 1908. Serial No. 440,019.

To all whom it may concern:

Be it known that I, JOHN DRISCOLL, a citizen of the United States, and resident of New Baden, Illinois, have invented certain new and useful Improvements in Safety-Elevators, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to a safety elevator, and the object of my invention is to equip an elevator cage with safety devices which will operate automatically to prevent the cage or car from falling in case of breakage of the hoisting cables.

A further object of my invention is to arrange a pair of gripping jaws on each side of the car or cage, and to provide simple means whereby said gripping jaws are positively moved into engagement with the elevator guides whenever the hoisting cable of the elevator breaks or slackens to any undue degree whatsoever.

To the above purposes, my invention consists in certain novel features of construction and arrangement of parts which will be hereinafter more fully set forth, pointed out in the claims, and illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of an elevator cage, such as is generally used in mine shafts, and which cage is equipped with my improved safety device; Fig. 2 is an elevation of the cage seen in Fig. 1, and looking in the direction indicated by the arrow 2 in Fig. 1; Fig. 3 is a section taken on the line 3—3 of Fig. 2; Fig. 4 is a side elevation of the cage, showing the gripping jaws in engagement with the elevator guides; and Fig. 5 is a detail section taken on the line 5—5 of Fig. 2.

Referring by numerals to the accompanying drawings: 1 designates the usual guides, which are arranged on opposite sides of the elevator shaft, and between which the elevator car or cage operates. In the present instance, I have shown a cage such as in common use in mine shafts, which cage comprises a platform 2, upright side frames 3, the upper ends of which are framed together by a transversely arranged skeleton frame 4, and on the ends of this frame are fixed outwardly projecting plates 5, which engage against the side faces of the guides 1.

Fixed to the lower portions of the frames 3 are side plates 6, and arranged between the lower portions thereof and the platform 2

are outwardly projecting plates 7, which bear against the guides 1. Fixed in each side plate is a pair of pins 8, which are arranged at equal distances away from the guide 1, and the outer ends of these pins are seated in the brackets 9, each of which is provided with three arms, 9^a, 9^b and 9^c. The lower end of the arm 9^a is rigidly fixed to the side plate 6, and journaled upon each pin, beneath the corresponding bracket, is a pinion 10.

Passing through the upper end of each of the arms 9^b is a pin 11, on which is fulcrumed a lever 12, to the lower end of which lever is pivotally connected the upper end of a wedge-shaped gripping block 13, the face of which, immediately adjacent the guide 1, is provided with a series of downwardly projecting teeth 14, and the rear side of which gripping member is provided with a series of teeth 15, with which the corresponding pinion 10 meshes.

Rigidly fixed in the lower portion of each gripping member is a pin 16, which projects through an inclined slot 17, formed in the side plate 6, and the pair of slots in each plate being so formed as that when the pins travel through said slots the gripping members 13 will be moved toward one another, and toward the corresponding guide 1.

Arranged for vertical movement in the frame 4 is a cross bar 18, to which the hoisting cable of the elevator cage is connected, and fixed to the top of the frame 4 and bearing against this cross bar 18 is a spring 19, which normally forces the cross bar 18 downward.

Pivotally connected to the ends of this cross bar 18 are the upper ends of links 20, the lower ends of which are pivotally connected to the upper ends of the levers 12.

While the elevator is operating under normal conditions, the weight of the cage holds the various parts of the safety device in the positions seen in Figs. 1 and 2, with the gripping members 13 entirely free from the guides 1, and with the parts in these positions, the cage is raised and lowered in the usual manner.

Should the hoisting cable of the elevator break, the spring 19 will instantly move the bar 18 downward, which action moves the links 20 downward and swings the levers 12 upon the pins 11, and as a result the gripping members 13 are drawn upward, and owing to the inclination of the slots 17, in which the

pins 16 travel, and the arrangement of the pinions 10, which bear against the rear sides of said gripping members, the latter will be thrown into engagement against the side 5 faces of the guides 1 and the teeth 14 will grip against said guides, thus effectually preventing further descent of the cage.

As the gripping members 13 move into position to engage the guides 1, they act as 10 wedges between the pinions 10 and the side faces of the guides 1.

Safety devices of my improved construction are very simple, can be applied to all forms of elevator cars and cages, and when 15 thrown into operation the gripping members are positively moved into gripping engagement with the elevator guides.

I claim:

1. A safety elevator, comprising a cage, 20 guides between which the cage operates, a spring actuated frame at the upper end thereof, wedge shaped gripping members arranged to slide on the sides of the cage and to engage the guides between which the cage operates, 25 there being inclined slots formed through the sides of the cage, pins seated in the gripping members and operating through said slots, the rear sides of which gripping members are provided with teeth, connections between the 30 upper ends of the gripping members and the spring actuated frame whereby said gripping

members are moved vertically when the hoisting cable of the elevator is broken, and pinions journaled on the sides of the cage, the teeth of which pinions engage with the teeth 35 of the gripping members.

2. The combination with an elevator cage, of guides between which the cage operates, a spring held frame arranged on the top of the cage, a pair of wedge shaped gripping mem- 40 bers arranged on each side of the cage and adapted to engage against the sides of the guides, teeth formed on the faces of the gripping members, teeth formed on the rear sides of the gripping members, there being in- 45 clined slots formed through the sides of the cage, pins seated in the gripping members and operating through said slots, pinions journaled on the sides of the cage and engaging the teeth on the rear sides of the gripping 50 members, links fulcrumed on the cage and pivotally connected to the upper ends of the gripping members, and connections between said links and the spring held frame at the top of the cage.

In testimony whereof, I have signed my name to this specification, in presence of two subscribing witnesses.

JOHN DRISCOLL.

Witnesses:

THOMAS BAUM,
CHAS. H. MADER.