

No. 765,542.

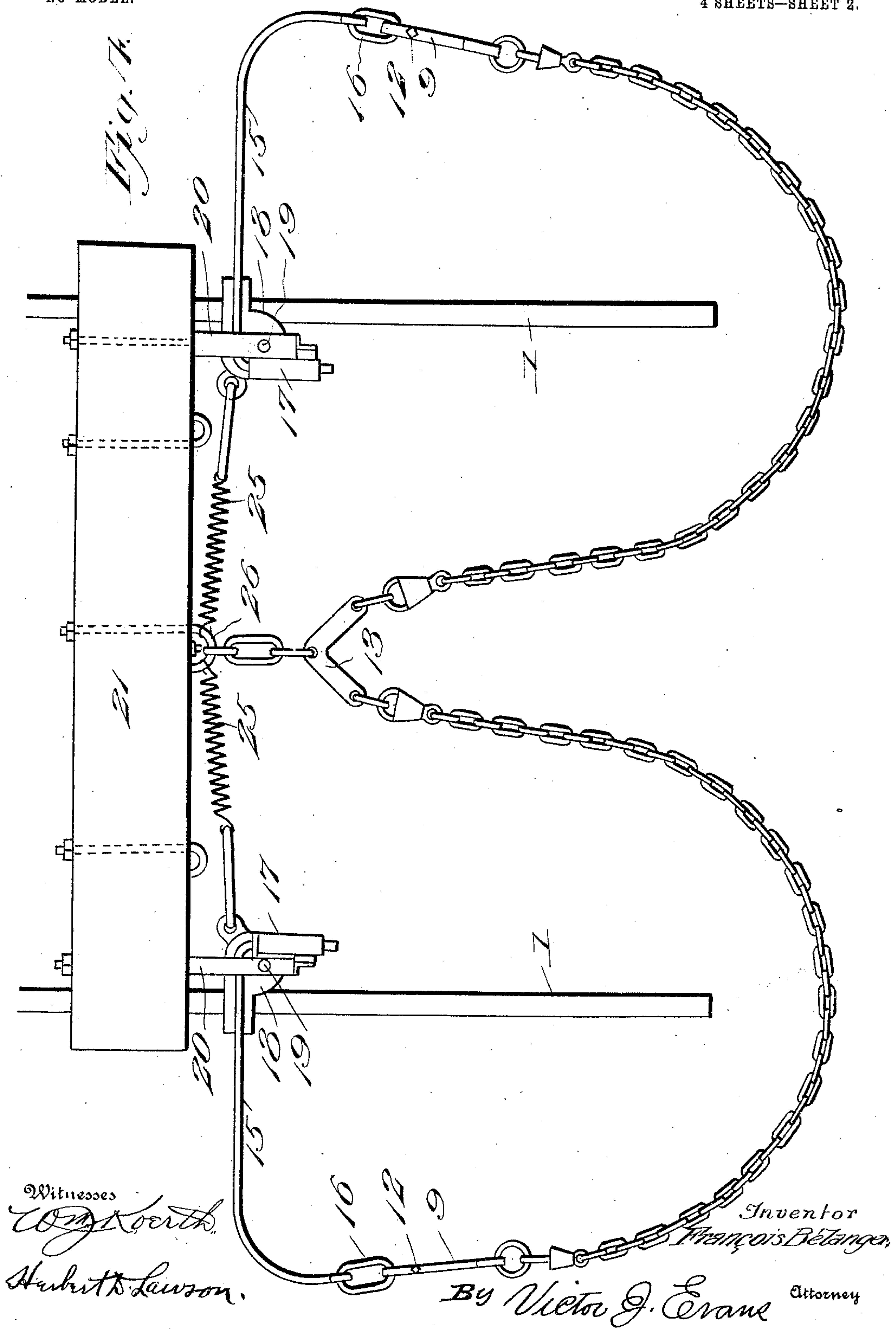
PATENTED JULY 19, 1904.

F. BÉLANGER.
GRADING MACHINE.

APPLICATION FILED JUNE 6, 1903.

NO MODEL.

4 SHEETS—SHEET 2.



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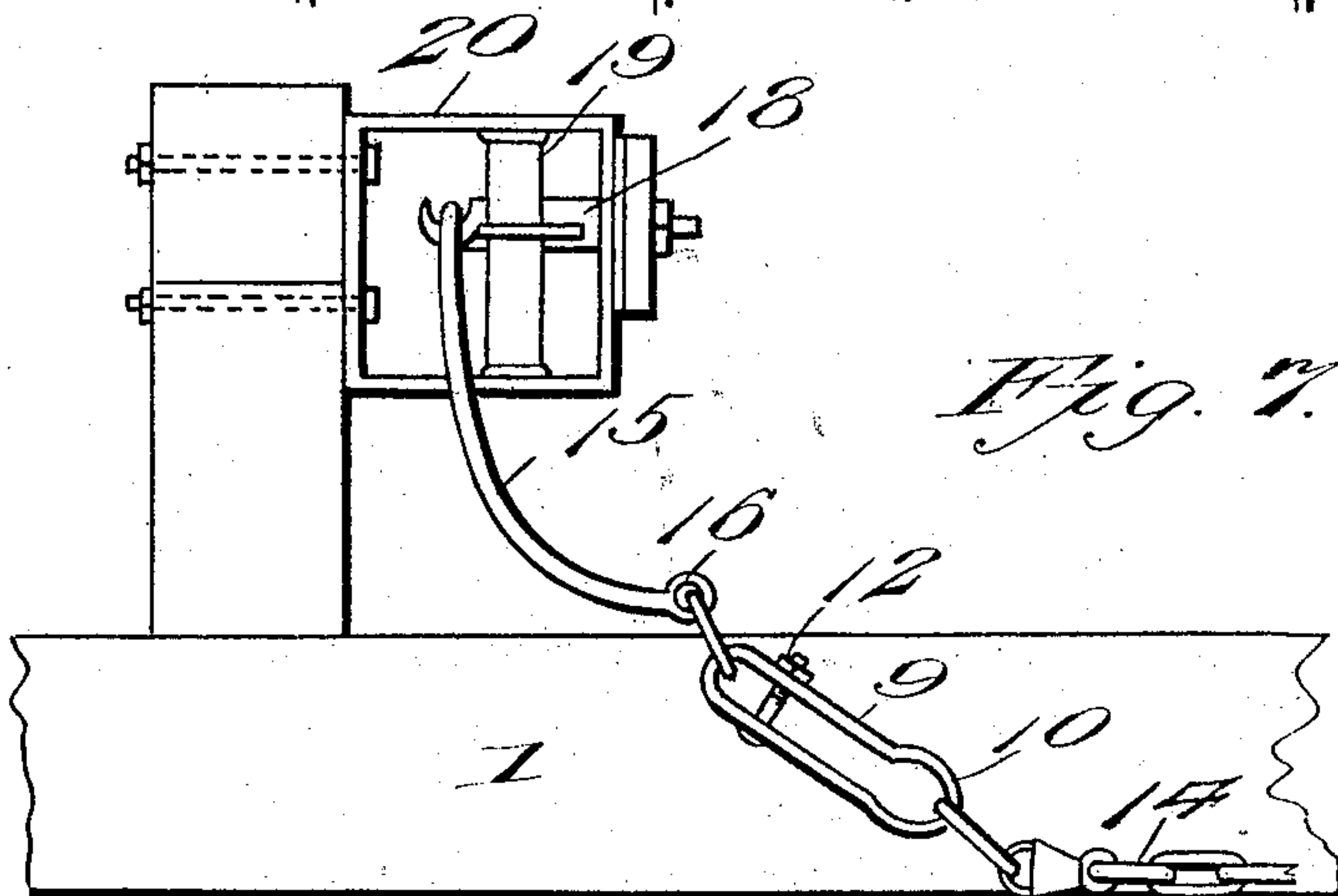
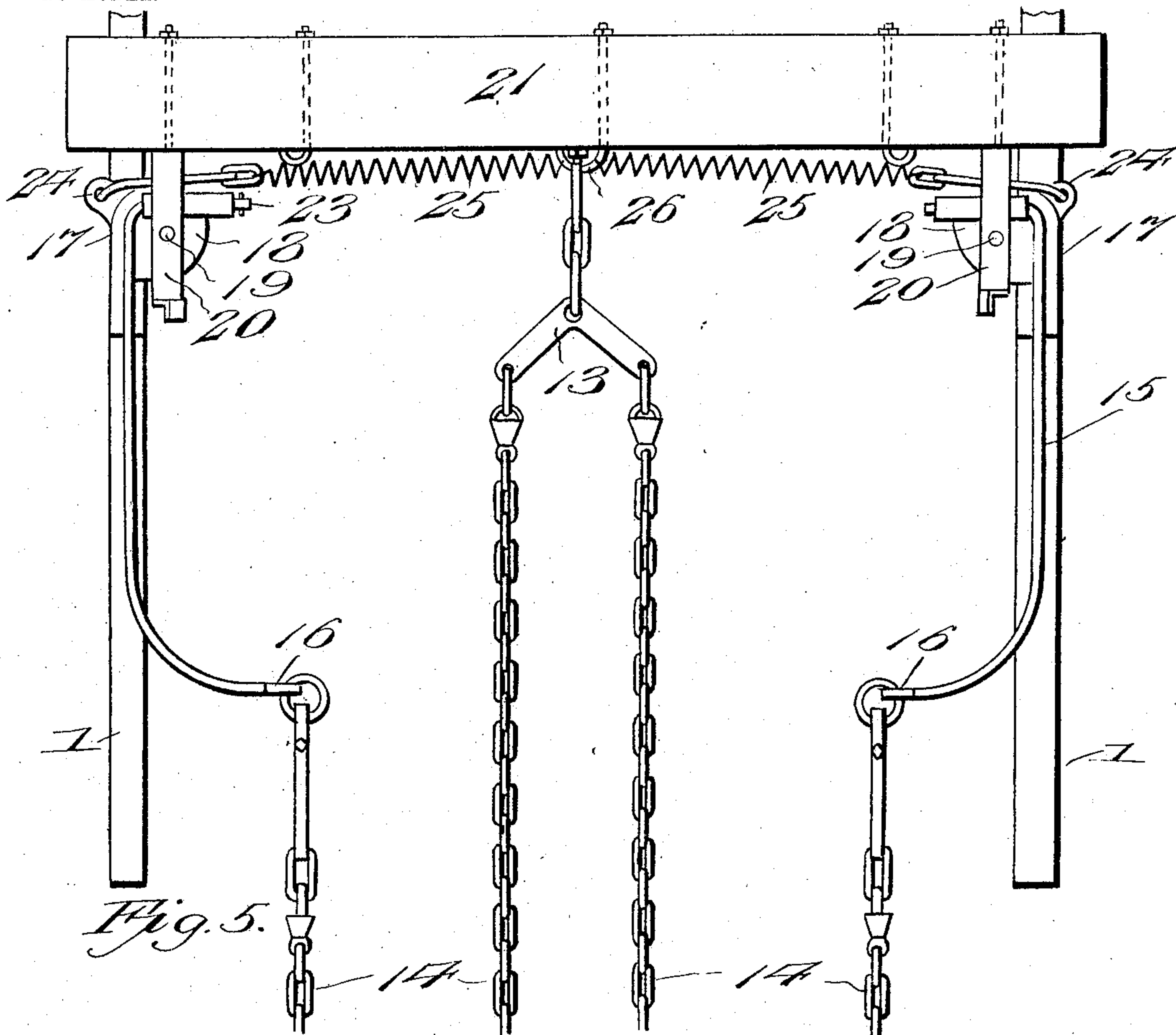
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Witnesses

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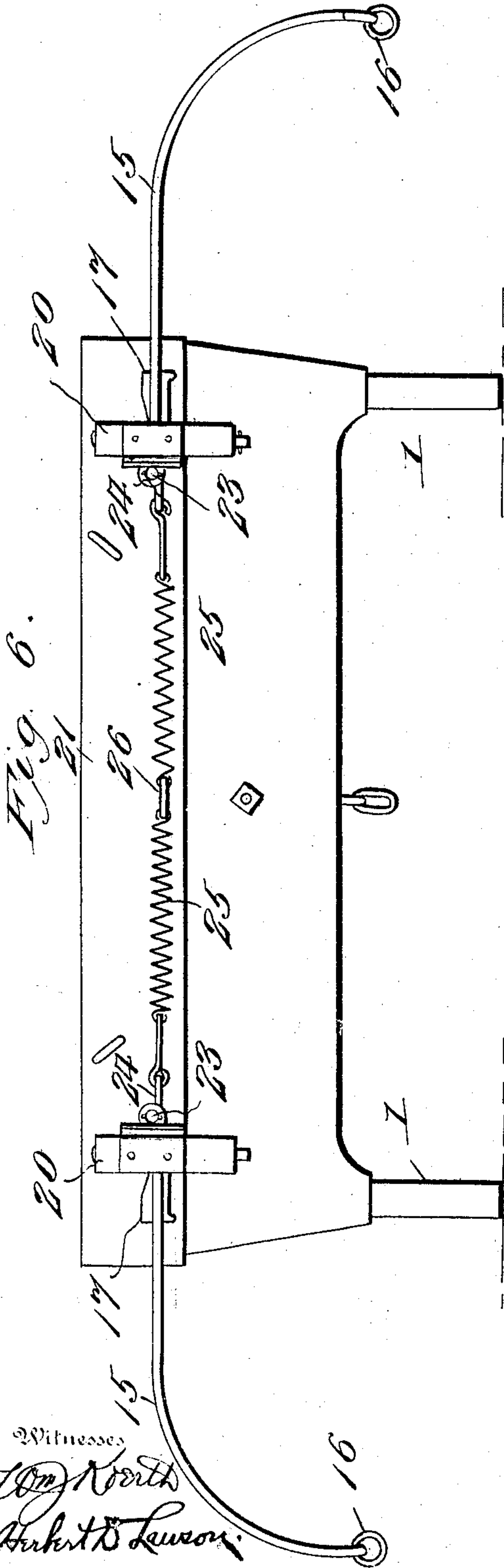
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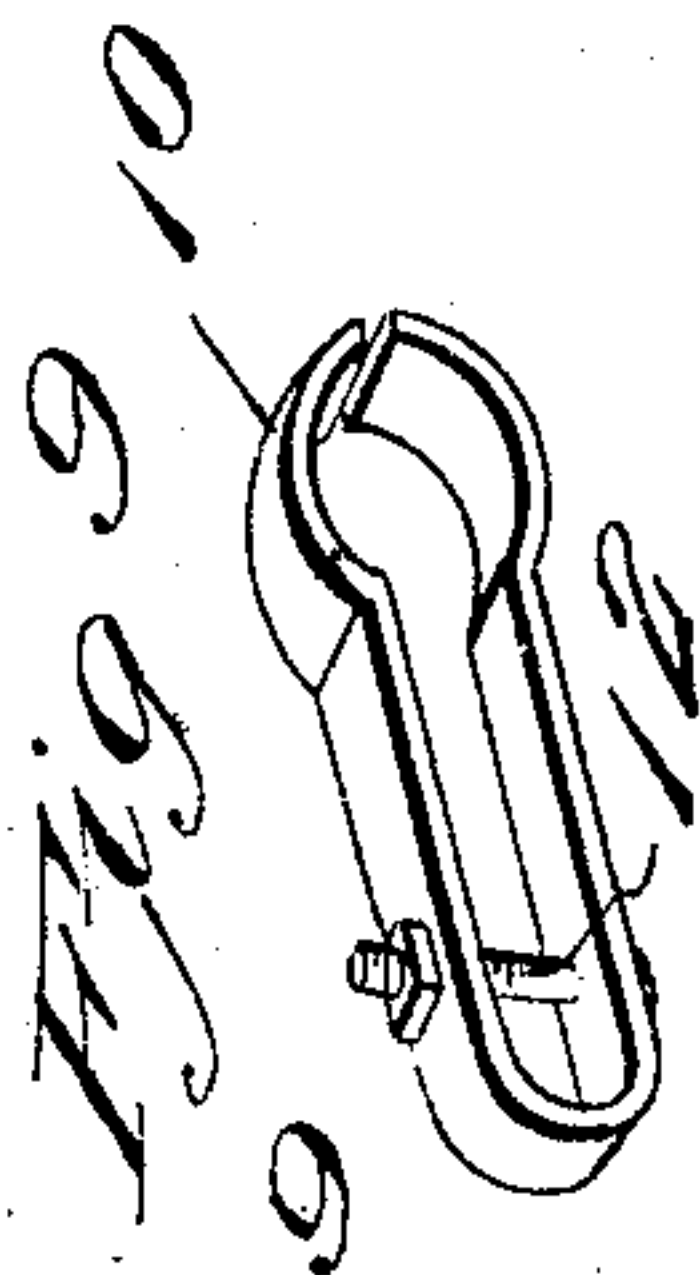
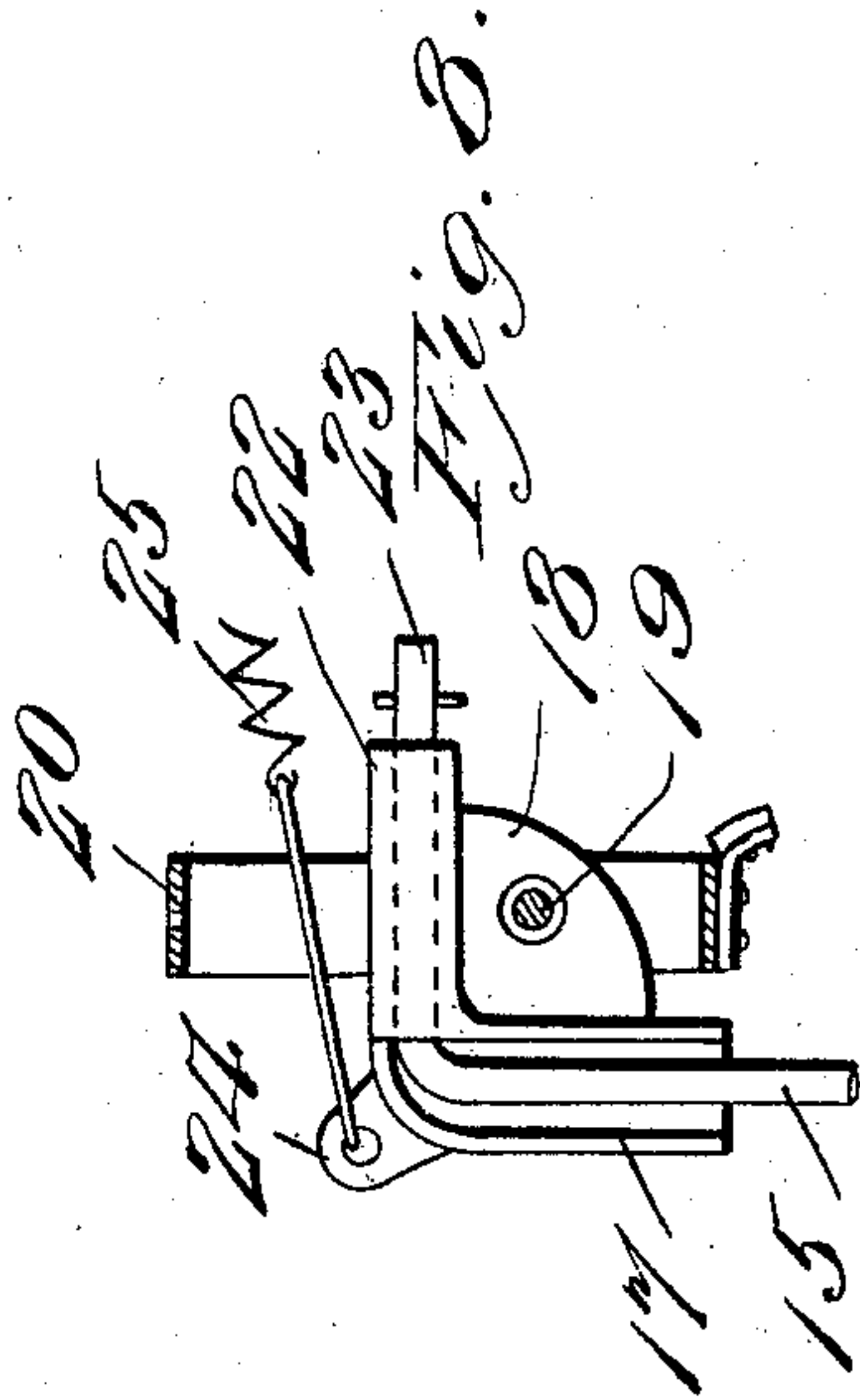
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NO MODEL.

4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

FRANÇOIS BÉLANGER, OF LANGDON, NORTH DAKOTA.

GRADING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 765,542, dated July 19, 1904.

Application filed June 6, 1903. Serial No. 160,415. (No model.)

To all whom it may concern:

Be it known that I, FRANÇOIS BÉLANGER, a citizen of the United States, residing at Langdon, in the county of Cavalier and State of North Dakota, have invented new and useful Improvements in Grading-Machines, of which the following is a specification.

My invention relates to new and useful improvements in grading-machines. Its object is to provide a device of this character especially adapted for filling ruts formed in snow-covered roads through constant traveling thereover.

A further object is to provide a machine which may be readily drawn over a road and has a novel arrangement of chains whereby the snow will be drawn toward the ruts and fill the same.

With the above and other in view the invention consists in the novel construction and combination of parts, which will be more fully hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a sled having my improved leveling apparatus thereon. Fig. 2 is an end elevation thereof with the chains raised out of operative position. Fig. 3 is a side elevation showing one of the rods and the parts connected thereto. Fig. 4 is a plan view of the rear portion of the sled having a modified form of my improved grading apparatus connected thereto. Fig. 5 is a similar view showing the leveling-chains in a position differing from that disclosed in Fig. 4. Fig. 6 is an end elevation of the sled with the apparatus thereon and showing the chain-supporting arms adjusted to another position, the chains being removed from the arms. Fig. 7 is a side elevation of the arms and the parts connected thereto when in the positions illustrated in Fig. 4. Fig. 8 is a section through the arm-supporting means disclosed in Figs. 4, 5, 6, and 7, and Fig. 9 is a detail view of a chain-holding device used in connection with the apparatus.

Referring to the figures by numerals of reference, 1 1 are runners of a sled, having a cross-beam 2 thereon, through which extend hooked bolts 3. The outer bolts in this cross-

beam are connected by means of chains 4 with sleeves 5, through which extend arms 6. The forward ends of these arms are connected in any suitable manner to the front of the sled, and the rear ends thereof are provided with eyes 7, in which are arranged links 8, which serve to connect the eyes 7 to chain-holding devices 9, each of these devices consisting of a strip of spring metal bent upon itself, as shown in Fig. 9, and having bow-shaped extensions 10 at the free ends thereof, which are adapted to be clamped together upon a link 11 of a chain by means of a bolt 12.

To the central bolt 3 in the beam 2 is connected an angle-plate 13, from the ends of which extend chains 14, which are adapted to loop around the rear ends of the runners 1 and which are connected to the links 11 hereinbefore referred to. The remaining bolts 3 serve the purpose of supporting chains 14 out of contact with the ground when it is not desired to use them and as illustrated in Fig. 2.

In Figs. 4 to 8 I have shown a modified form of apparatus in which the arms 6 are dispensed with, and in lieu thereof I employ outwardly-extending adjustable arms 15. These arms are curved, and their outer ends are connected, by means of links 16, with fastening devices 9, such as hereinbefore described, and which engage the chains 14. The inner ends of the arms 15 are arranged within curved flanges 17, formed at the inner edges of segments 18, which are pivoted upon pins 19, arranged in upright positions within brackets 20. These brackets extend rearwardly from a cross-beam 21, substantially similar to the beam 2, hereinbefore referred to. Extending inwardly from the inner ends of the flanges 17 and at right angles thereto are tubular extensions 22, within which are revolvably mounted extensions 23, integral with and extending at right angles to the inner ends of the arms 15. Lugs 24 extend from the points of conjunction between the flanges 17 and their tubular extensions 22, and these lugs are connected, by means of springs 25, with a bolt 26, arranged at the center of the cross-beam 21.

In operation when it is desired to smooth a snow-covered road by filling the ruts therein the chains are detached from the hooks 3, used

for supporting them out of operative position, and are permitted to drop in rear of the runners 1. These chains will, as is obvious, draw the snow from the sides of the ruts inward to a point directly in rear of the runners in view of the fact that the distance from the angular plate 13 to each of the runners is equal to the distance from said runners to the outer ends of the adjacent arms 15. Should the chains be brought in contact with an immovable object, the strain upon the holding devices 9 will be such as to cause the bow-shaped extensions 10 thereof to spring apart, thereby permitting the chains to become detached and preventing breakage thereof. By providing chain-holding arms such as shown in Figs. 4 to 8 the chains may be adjusted downward, as shown in Fig. 6, so as to bring the line of draft on the chain nearly into a horizontal position, or they may be adjusted inward, as shown in Fig. 5, so as to only cover the tracks made by the team of animals.

The device is extremely simple in construction and can be readily attached to any form of sled. By the use of the apparatus a road may be quickly leveled so as to prevent the formation of ruts and the consequent rough traveling. The springs 25 serve to hold the arms 15 in the position to which they are adjusted and at the same time permit a slight movement thereof, so as to relieve the chains of undue strain.

In the foregoing description I have shown the preferred form of my invention; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such changes as fairly fall within the scope of my invention.

Having thus described the invention, what is claimed as new is—

1. A grading attachment for sleds comprising a cross-beam, and grading-chains connected thereto and adapted to extend in rear of the runners of a sled.

2. In a grading attachment for sleds the combination with a cross-beam; of laterally-extending arms and grading-chains connected at opposite ends to the cross-beam and arms and adapted to extend around the rear ends of the runners of a sled.

3. In a grading attachment for sleds, the combination with a cross-beam; of laterally-

extending arms, grading-chains connected at opposite ends to the cross-beam and arms and adapted to extend in rear of the runners of a sled, holding devices connected to the arms, and spring-jaws thereto engaging the chains and adapted to be automatically released therefrom.

4. A grading attachment for sleds comprising a cross-beam, adjustable arms extending laterally therefrom, and grading-chains connected at opposite ends to the arms and cross-beam.

5. In a grading attachment for sleds, the combination with a cross-beam having brackets thereon; of laterally-extending arms pivotally mounted within the brackets, grading-chains connecting the arms and cross-beam, and means for holding the arms in adjusted positions.

6. In a grading attachment for sleds, the combination with a cross-beam having brackets thereon; of segments journaled within the brackets, arms pivotally mounted within the segments and extending laterally therefrom, grading-chains connected at opposite ends to the cross-beam, and arms and springs connecting the segments and cross-beam.

7. The combination with a sled having a cross-beam upon the runners thereof; of arms extending laterally from the cross-beam, grading-chains connected at opposite ends to the cross-beam and arms and arranged in rear of the runners, connecting devices between the arms and chains, and spring-jaws thereto engaging the chains and adapted to be automatically detached therefrom.

8. The combination with a sled having a cross-beam upon the runners thereof; of brackets upon the cross-beam, segments pivoted therein, arms pivoted upon the segments, springs connecting the segments with the cross-beam, grading-chains connected to the cross-beam between the runners, connecting devices secured to the arms, and spring-jaws thereto engaging the chains and adapted to be automatically detached therefrom, said chains extending in rear of the runners.

In testimony whereof I affix my signature in presence of two witnesses.

FRANÇOIS BÉLANGER.

Witnesses:

F. E. B. MERCER,
JOHN KUSKE.