

Nov. 26, 1935.

E. A. WEEKS

2,022,393

SNOWPLOW

Filed Jan. 21, 1933

4 Sheets-Sheet 1

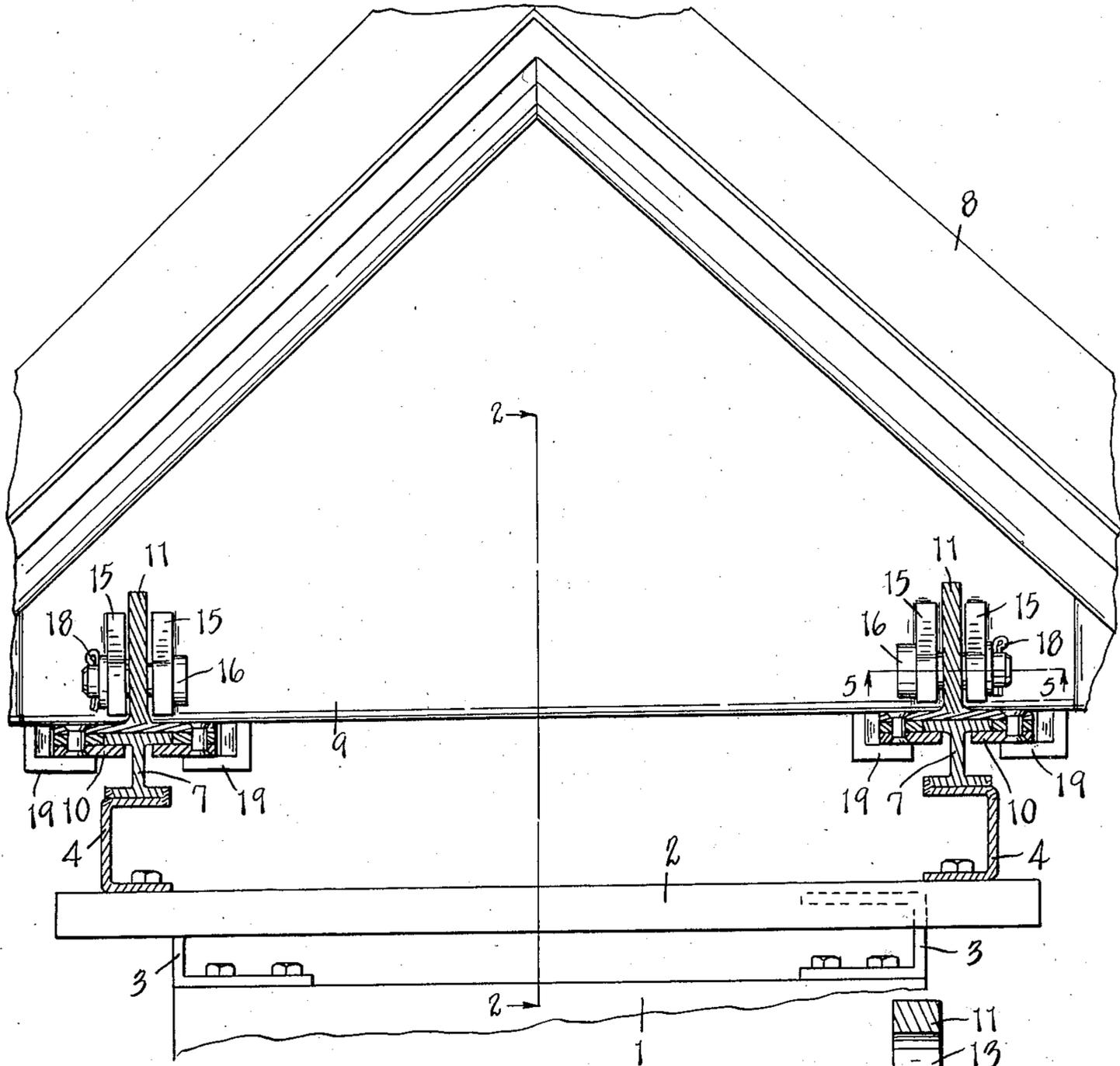


Fig. 1

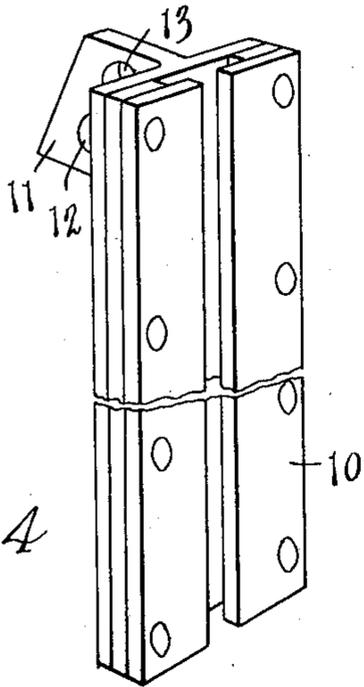


Fig. 4

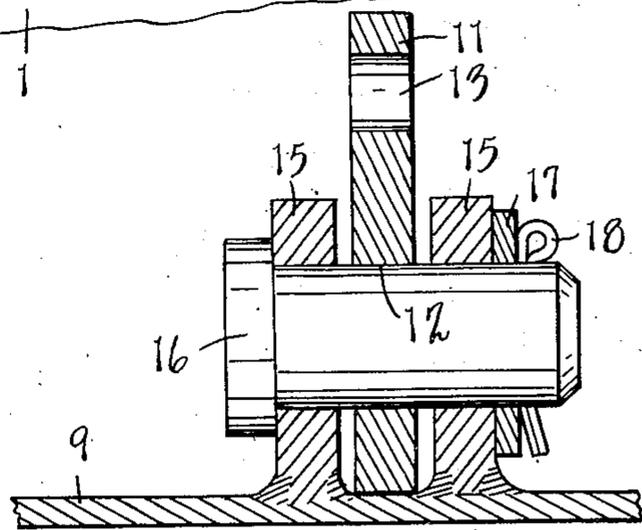


Fig. 5

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4 Sheets-Sheet 2

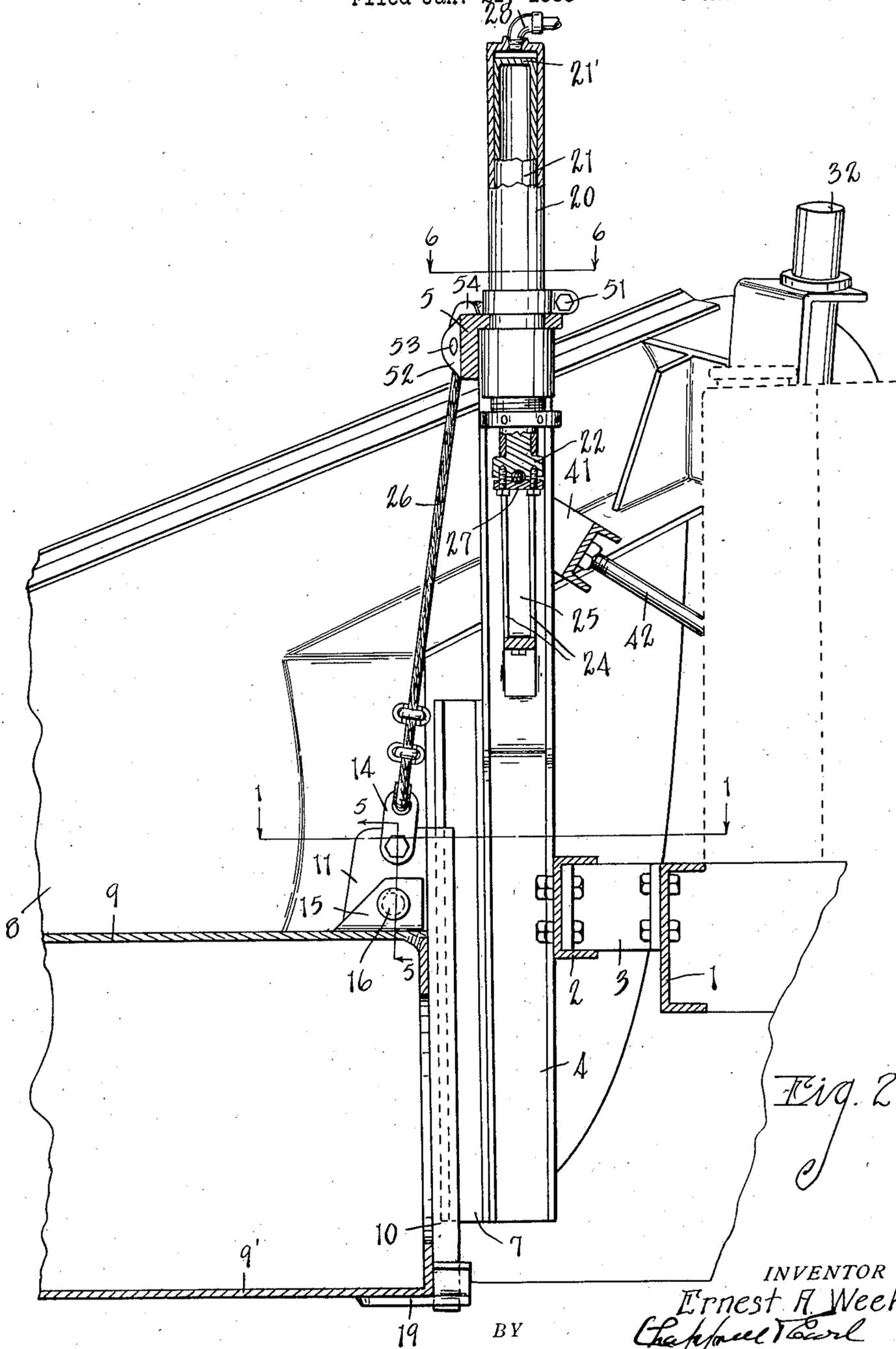


Fig. 2

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4 Sheets-Sheet 3

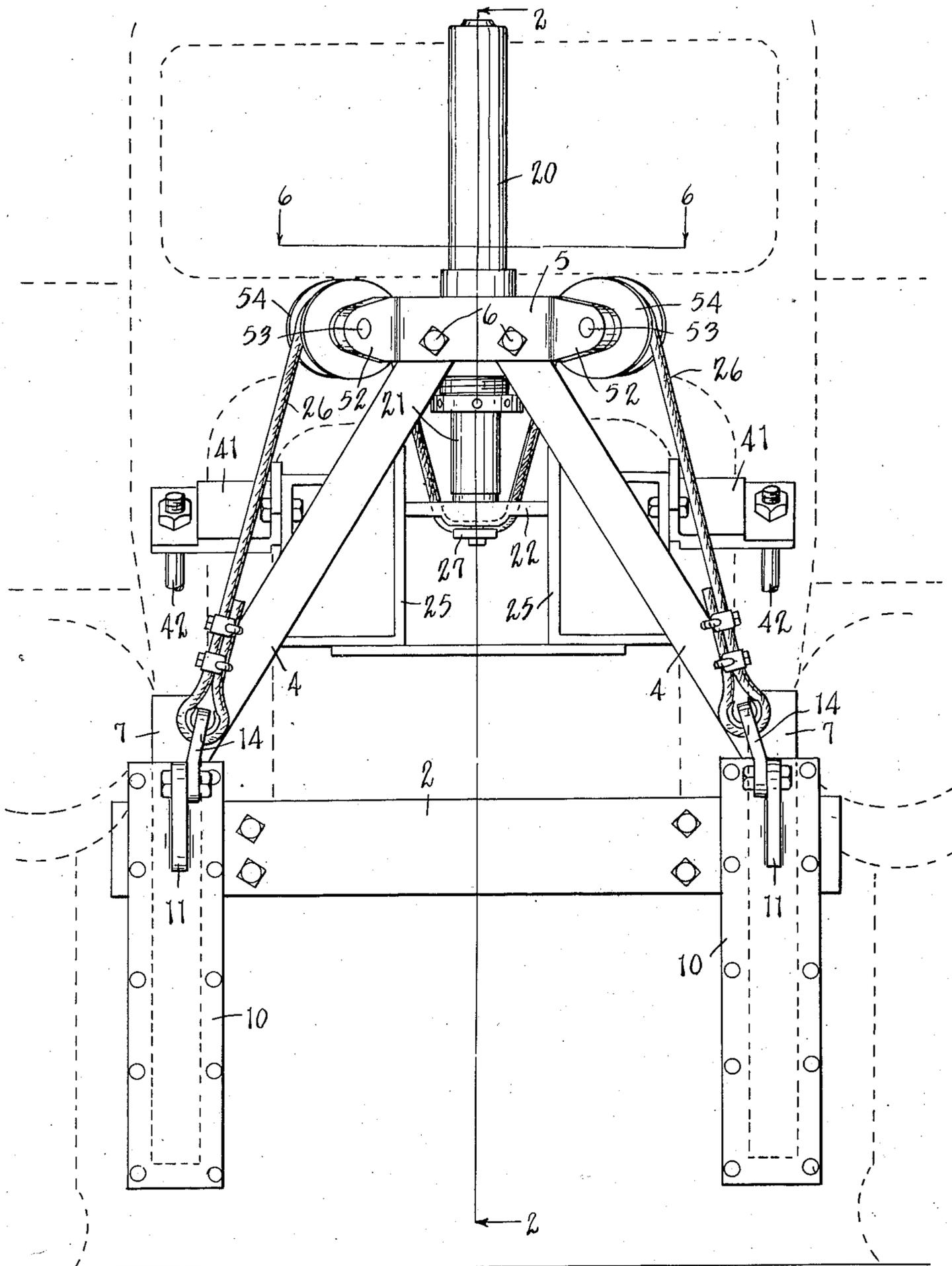


Fig. 3

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4 Sheets-Sheet 4

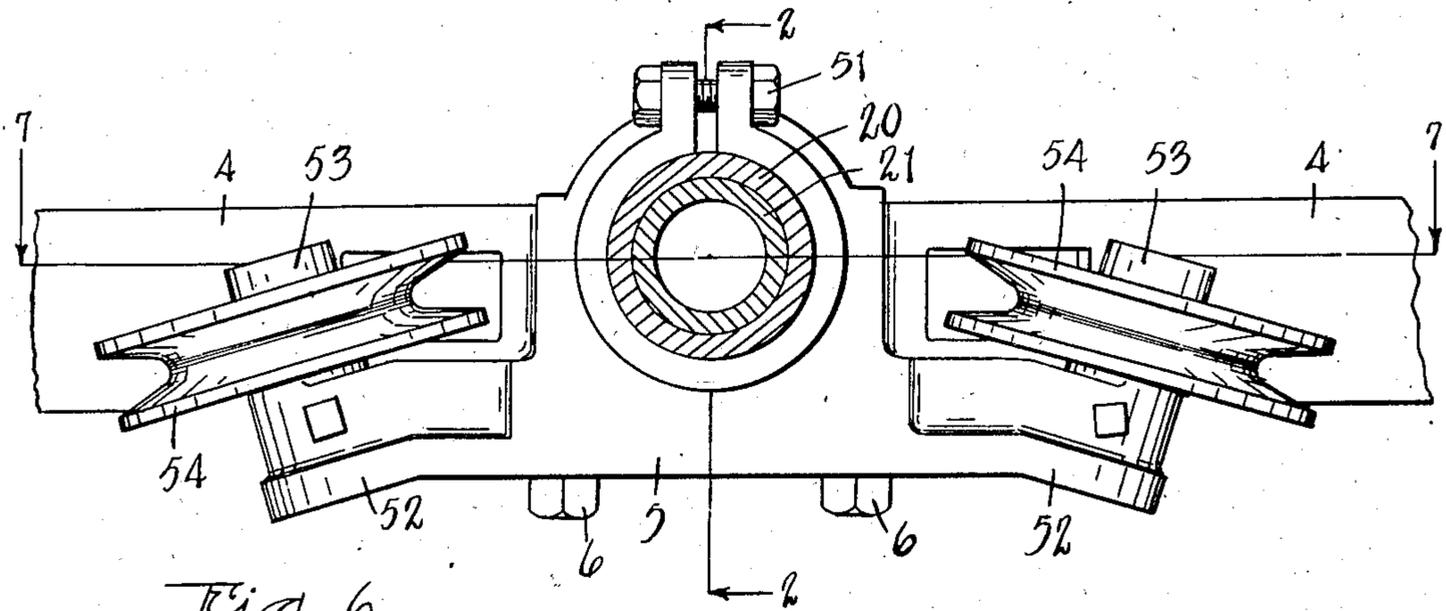


Fig. 6

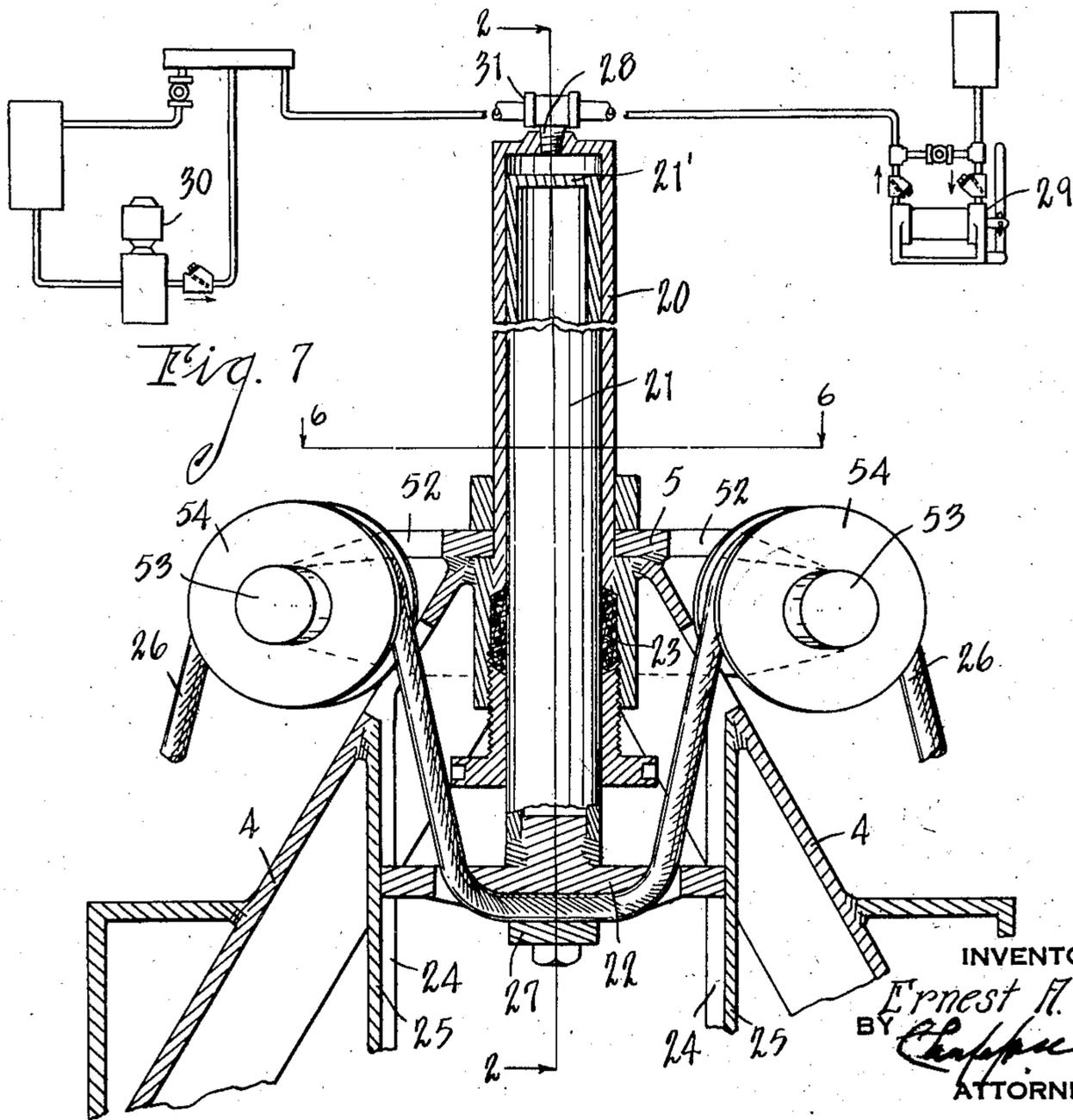


Fig. 7

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UNITED STATES PATENT OFFICE

2,022,393

SNOWPLOW

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Application January 21, 1933, Serial No. 652,776

9 Claims. (Cl. 37—44)

The objects of this invention are:

First, to provide improved hydraulic control means for the elevation of a snow plow or scraper.

Second, to provide improved detachable attaching means whereby different sizes and different designs of snow plows can be readily installed the one for the other.

Third, to provide improvements in the framework of such structures.

Fourth, to provide improvements in the hydraulic cylinders and controls.

Further objects and advantages pertaining to details and economies of construction and operation will appear from the description to follow.

I accomplish the objects of my invention by the mechanism and means illustrated in the accompanying drawings, in which:

Fig. 1 is a detail sectional plan view taken on line 1—1 of Fig. 2.

Fig. 2 is a detail vertical sectional elevation view taken on line 2—2 of Figs. 1, 3, 6, and 7, the forward ends of the brace rods being shown.

Fig. 3 is a detail front elevation view of the carrying frame and slides and hydraulic means with a snow plow detached and the position of the truck and chassis indicated by dotted lines, the forward ends of the brace rods being shown.

Fig. 4 is an enlarged detail fragmentary view of the plow carrying slides.

Fig. 5 is an enlarged detail sectional plan view taken on line 5—5 of Figs. 1 and 2.

Fig. 6 is an enlarged detail plan view of the hydraulic cylinder and adjacent parts, taken on line 6—6 of Figs. 2, 3, and 7.

Fig. 7 is a detail sectional elevation view taken on the plane of line 7—7 of Fig. 6, the guide pulleys for the actuating cables being shown in full lines and the ends of the frame being broken away, the actuating pump means being shown diagrammatically and being carried by the truck chassis.

The parts will be identified by their numerals of reference which are the same in all the views.

1 is the front cross bar of the truck. 2 is the main supporting cross bar of the frame for the hydraulic cylinder. This is connected to the truck chassis by a pair of U-shaped brackets 3 being suitably bolted in place. The frame side bars 4 extend upwardly and inwardly to connect to the hydraulic cylinder bracket 5 to which they are secured by suitable bolts 6. These bars 4 are braced by brackets 41 and brace rods 42, the forward end only of the brace rods being shown, the rear ends being connected to the frame. Vertical slideway angle bars 7, preferably I-bars, are electrically welded or otherwise secured to the upright

portion of the frame bars 4. The guideways are preferably machined to make them true. On these are carried the snow plow 8 which is provided with a main cross web 9. This plow is carried on the slides 10 which are made up of flat bars disposed as seen in cross section in Fig. 1 to embrace and reciprocate upon the slideways 7.

A forwardly projecting lug 11 is on each slide, containing a pin hole 12 for the attachment of the snow plow and a pin hole 13 for the connection to the link 14 for the hydraulic connection. On the brace web 9 are secured a pair of lugs 15 which are disposed to embrace the lug 11 at each side and through which is disposed the connecting pin 16 retained in place by washer 17 and cotter pin 18.

Secured to the lower cross member 9' of the plow are a pair of engaging lugs 19, 19 at each side which hook upon and engage the lower end of the guide 10 when the plow is brought into place. The plow is elevated by the vertical hydraulic cylinder 20, carried by the bracket 5 to which it is clamped by the clamping bolt 51. Within this reciprocates the hollow plunger 21 which is a section of smooth pipe machined or otherwise with its upper end enclosed at 21', although the plunger might be a solid cold rolled shaft. To the lower end of the plunger is secured by welding or otherwise the crosshead 22. A regular form of stuffing box 23 is provided at the lower end of the cylinder, full size thereof, as is seen detailed in Fig. 7. The crosshead engages guide ribs or ways 24 on vertical members 25 of the frame.

The bracket 5 is provided with laterally projecting arms 52 carrying journal pins 53 on which are journaled guide pulleys 54, 54 at each side. A cable 26, at its central part, is secured by clamp 27 to the central part of the crosshead and is extended laterally over the guide pulleys 54 and downwardly to the connecting links 14 at each side.

Fluid is delivered to the hydraulic cylinder through connection 28, being provided by a regular hand pump mechanism indicated diagrammatically at 29 or by a power driven pump mechanism indicated diagrammatically at 30, either being connected as desired or required through the T 31.

My improved hydraulic cylinder means and connections can be used for the control of any sort of a plow. The attaching means are available either for an A-shaped plow or for a straight blade scraper, as desired. My invention does not relate to the form of the plow, other

than to provide it with the suitable guide connections. The plow is very readily attached and detached.

The truck with the slideway frames thereon is driven up to the back side of the plow and the parts are shifted until the plow can be raised into position and the engaging lugs 19, 19 engage the lower end of the slide 10. The lug 11 is then adjusted between the ears 15, 15 and the pivot pin 16 inserted. When this is done, the plow is ready to be manipulated and be moved up and down with facility by the actuation of the hydraulic cylinder. The plow is very firmly engaged and held in place to do its work, being capable of adjustment up and down to meet the requirements.

To detach the plow, it is only necessary to drop it down onto the ground when the lugs 19, 19 will be disengaged and the withdrawal of the pin 16 releases the plow and the truck is ready for another style of plow or any other style of scraper or digger that may be desired.

The plow may be provided with lateral wings. I show a pivot 32 at one side therefor, see Fig. 2.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a snow plow or scraper structure, the combination with a truck chassis, of a supporting frame consisting of a horizontal cross bar and upright bars bent to form an A-support at their upper ends, a hydraulic cylinder, a bracket at the upper end of said frame for carrying the same, vertical slideways secured to the vertical members of the said frame, slides thereon, a carrying lug at the upper end of each of the said slides, a plow or scraper with a horizontal supporting member, lugs thereon disposed to cooperate with the lugs on said slides, pivot pin connections therefor, guide lugs on the said plow for embracing the lower end of said slides, whereby the plow can be readily attached or detached, and a hydraulic cylinder having connections to operate said slides.

2. In a snow plow or scraper structure, the combination with a truck chassis, of a supporting frame consisting of a horizontal cross bar and upright bars bent to form an A-support at their upper ends, vertical slideways secured to the vertical members of the said frame, slides thereon, a carrying lug at the upper end of each of the said slides, a plow or scraper with a horizontal supporting member, lugs thereon disposed to cooperate with the lugs on said slides, pivot pin connections therefor, guide lugs on the said plow for embracing the lower end of said slides, whereby the plow can be readily attached or detached, and connections to operate said slides.

3. In a snow plow or scraper structure, the combination with a truck chassis, of a supporting frame consisting of a horizontal cross bar and upright bars bent to form an A-support at their upper ends, vertical slideways secured to the vertical members of the said frame, slides thereon, a carrying lug at the upper end of each

of the said slides, a plow or scraper with a horizontal supporting member, lugs thereon disposed to cooperate with the lugs on said slides, and pivot pin connections therefor.

4. In a snow plow or scraper structure, the combination with a truck chassis, of a supporting frame consisting of a horizontal cross bar and upright bars, vertical slideways secured to the vertical members of the said frame, slides thereon, a carrying lug at the upper end of each of the said slides, a plow or scraper, lugs thereon disposed to cooperate with the lugs on said slide, and pivot pin connections therefor.

5. In a snow plow or scraper structure, the combination with a truck chassis, of a supporting frame consisting of a horizontal cross bar and upright bars, vertical guideways secured to the vertical members of the said frame, slides thereon, a carrying lug at the upper end of each of the said slides, a plow or scraper, lugs thereon disposed to cooperate with the lugs on said slide, and connections therefor.

6. In a structure of the class described, the combination of a truck chassis, an upright guideway carried by the truck chassis, a slide adjustably supported thereon, a plow or scraper having a pivot pin connection to the upper part of said slide, and embracing lugs on the said plow or scraper to embrace the lower part of said slide.

7. In a snow plow or scraper structure, the combination with a supporting attaching frame secured to the front of the chassis frame of a truck and having guideways thereon, of slides on said guideways, an upright hydraulic cylinder clamped to the top of said frame, a plunger extending from the bottom of said cylinder, a stuffing box embracing the said plunger, a crosshead on the said plunger, suitable guides therefor, laterally projecting arms having guide pulleys, a cable connected centrally to the said crosshead disposed over the said pulleys and connected to said slides, and a plow or scraper secured to the said slides.

8. In a snow plow or scraper structure, the combination with a supporting attaching frame secured to the front of the chassis frame of a truck and having guideways thereon, of slides on said guideways, an upright hydraulic cylinder clamped to the top of said frame, a plunger extending from the bottom of said cylinder, a crosshead on the said plunger, suitable guides therefor, connections from said plunger to said slides, and a plow or scraper secured to the said slides.

9. In a snow plow or scraper structure, the combination with a supporting attaching frame secured to the front of the chassis frame of a truck and having guideways thereon, of slides on said guideways, an upright hydraulic cylinder clamped to the top of said frame, a plunger extending from the bottom of said cylinder and connections from said plunger to said slides, and a plow or scraper secured to the said slides.

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