Jan. 8, 1929. 1,697,988

P. J. McNAMARA

SCRAPER

Filed June 14, 1927 3 Sheets-Sheet 1

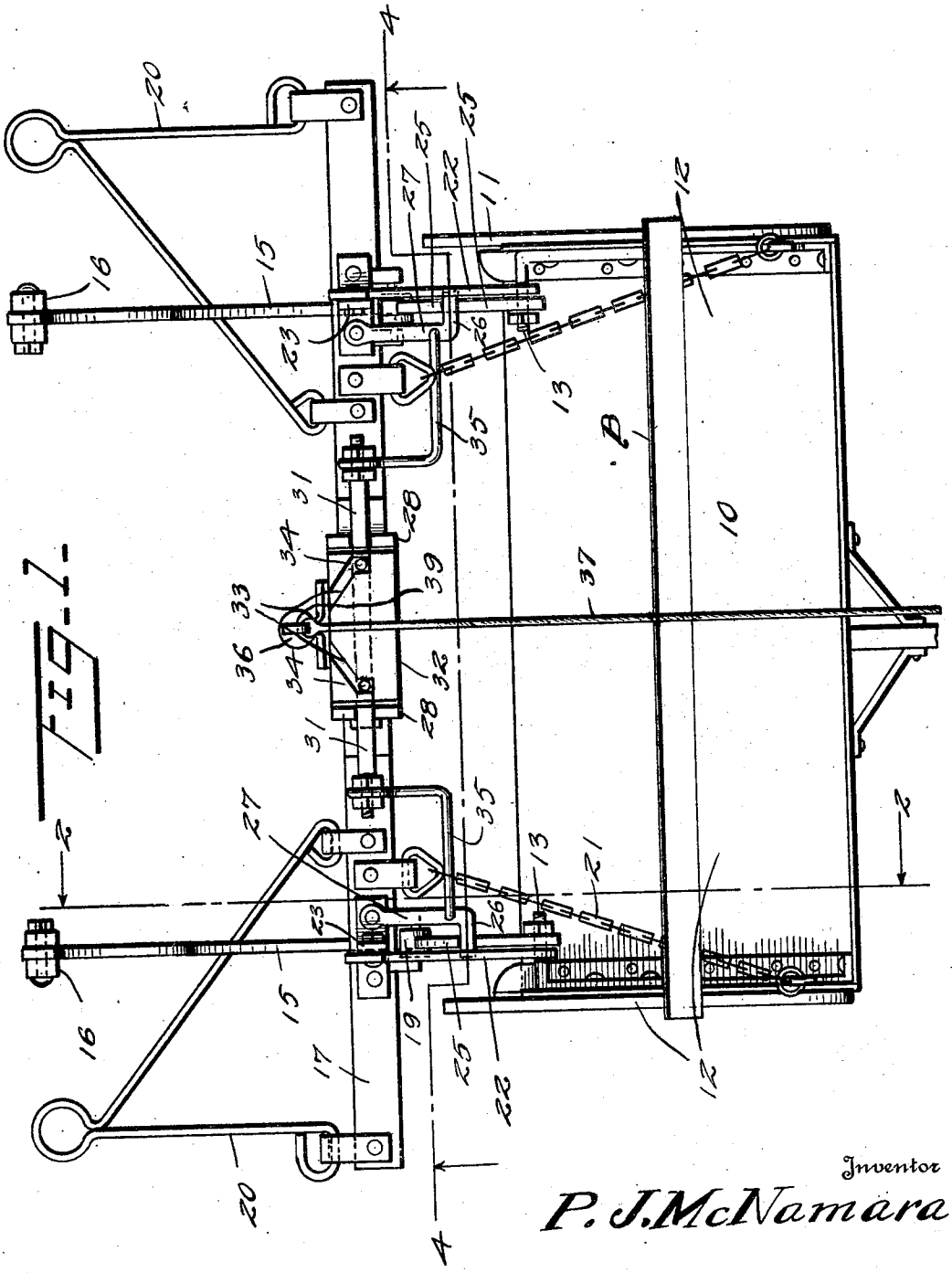


Fig. 1.

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Fig. 2.

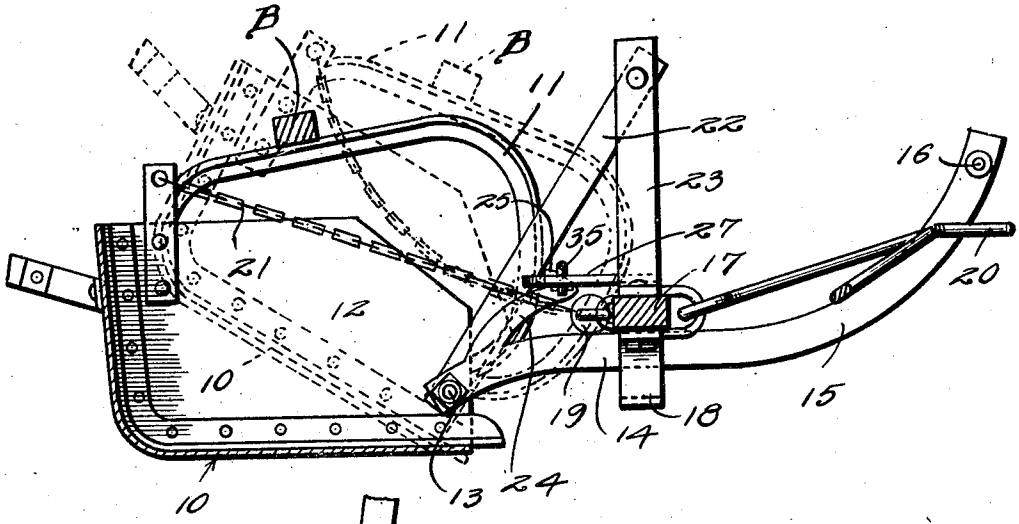
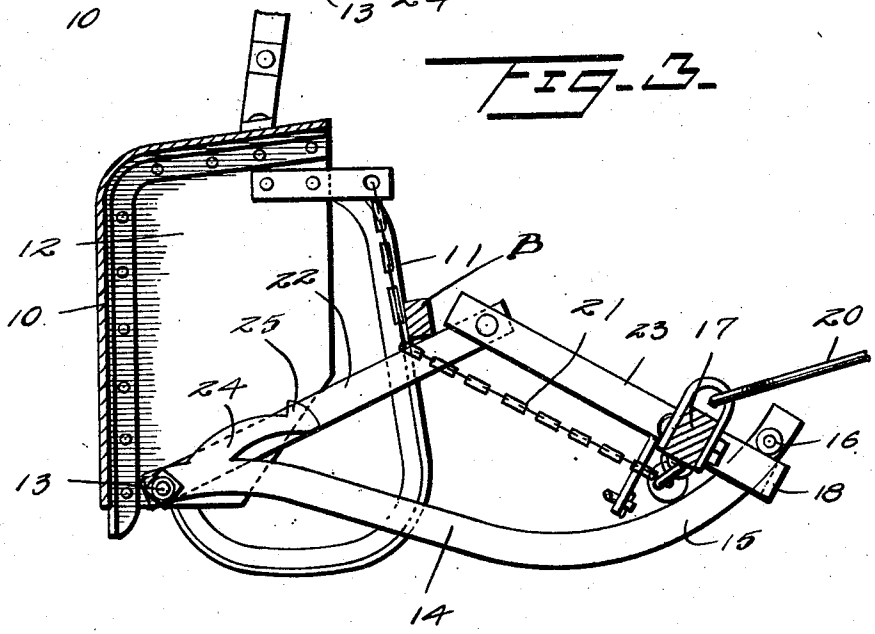


Fig. 3.



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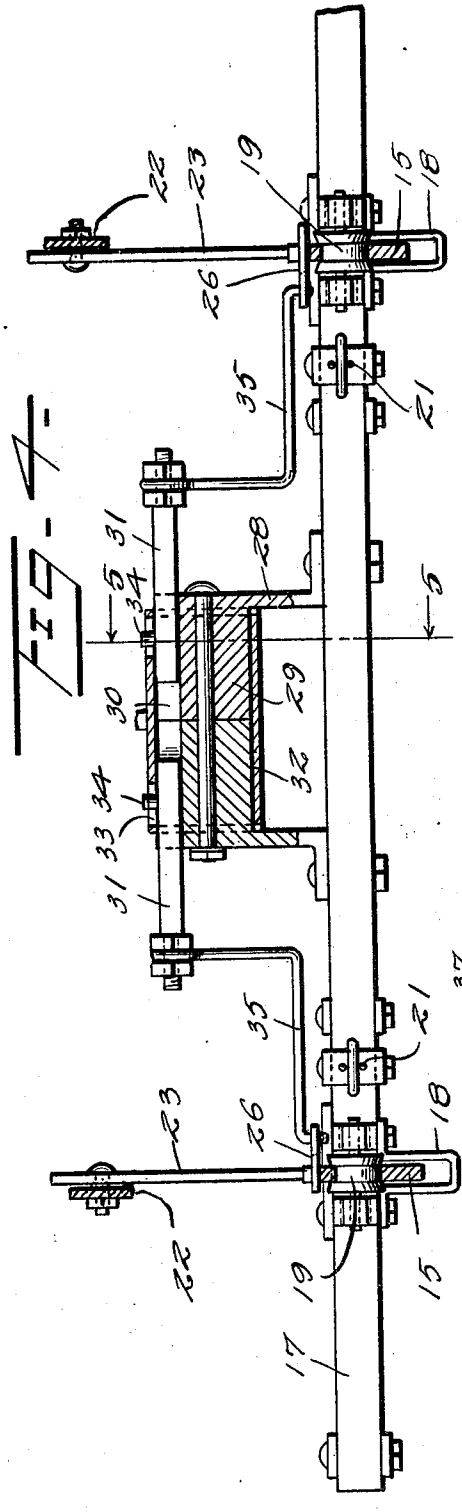


FIG. 4.

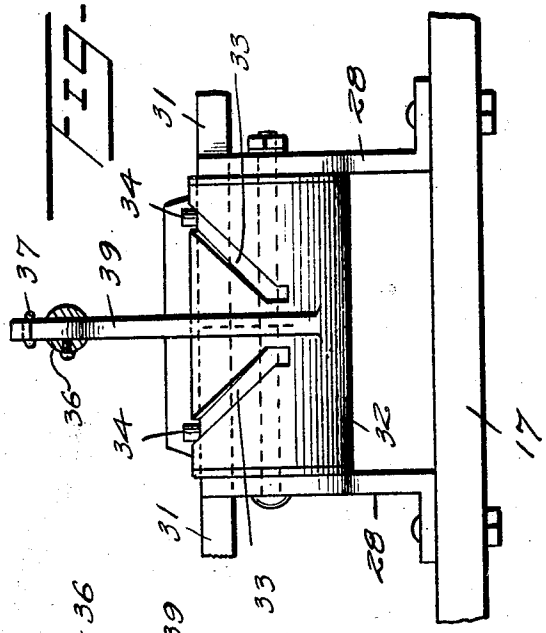


FIG. 6.

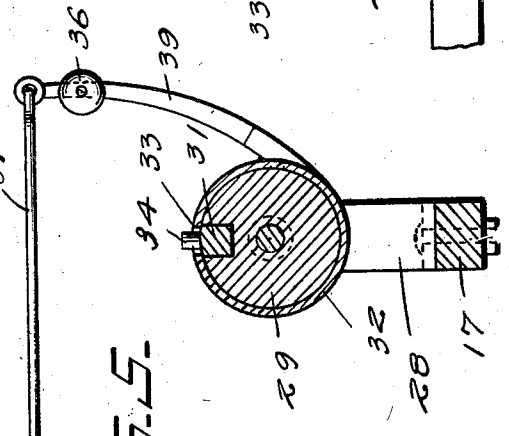


FIG. 5.

Inventor
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Patented Jan. 8, 1929. 1,697,988

UNITED STATES PATENT OFFICE.

PATRICK J. McNAMARA, OF BOWMAN, NORTH DAKOTA, ASSIGNOR OF ONE-HALF TO THEODORE B. TORKELSON, OF BOWMAN, NORTH DAKOTA.

SCRAPER.

Application filed June 14, 1927. Serial No. 198,812.

This invention relates to scrapers and more particularly to the construction of a hitch for scrapers in such manner that dumping and loading of the scraper and driving of the draft animals may all be attended to by a single person.

An important object of the invention is to produce a device of this character, in which means are provided whereby the dumping operation may be performed by the team and whereby the point of application of strain from the team to the bucket is changed during the dumping operation, so that the major portion of the strain ordinarily applied at this time is eliminated.

A further object of the invention is to provide a construction of this character such that the bucket may be released for the dumping operation by a twitch upon a control line carried in the hand of the driver of the team.

A further object of the invention is to provide a construction such that when the dumping operation is completed, the point at which the pull upon the bucket is inserted is again shifted, so that it is adjacent the lower end of the bucket while in dumping position, so that the weight of the bucket serves to assist in the spreading operation.

These and other objects I attain by the construction shown in the accompanying drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention and wherein:—

Figure 1 is a plan view of a Fresno bucket equipped with a hitch constructed in accordance with my invention;

Figure 2 is a section on the line 2—2 of Figure 1 with the bucket in the load transporting position, the bucket being shown in loading position in dotted lines;

Figure 3 is a section similar to that shown in Figure 2, but with the bucket in the dumped position;

Figure 4 is a section on the line 4—4 of Figure 1, portions being broken away to show the interior construction;

Figure 5 is a section on the line 5—5 of Figure 4;

Figure 6 is a front elevation of the control element.

Referring now more particularly to the drawings, the numeral 10 generally designates a Fresno bucket and 11 dumping runners secured to the sides 12 of the bucket and supporting the same in spaced relation to the ground during the dumping operation. In accordance with my invention, I secure to each side wall 12 adjacent the lower portion of the forward edge thereof a pivot 13 upon which is mounted a forwardly directed arm 14, the forward end of which is upwardly and forwardly curved, as at 15. The outer end of each arm 14 has secured thereto a stop 16.

The numeral 17 generally designates a beam resting upon the arm 14 and having yokes 18 embracing these arms to prevent longitudinal movement of the beam with relation thereto. The beam may be provided with rollers 19 engaging the arm to reduce friction therebetween, if so desired. This beam forms the draft beam and is provided with suitable hitches 20 for connecting the draft elements or animals thereto and is connected with the upper rear ends of the walls 12 of the bucket by chains or other suitable flexible elements 21 for transmitting the draft to this portion of the bucket instead of at the pivots 13 under certain circumstances. These flexible elements 21 are taut both when the bucket is in its transporting position and when the bucket is in its dumping position.

Likewise mounted upon each pivot 13 is a link 22, the outer ends of which are each connected with an arm 23 rigidly secured to and extending upwardly from the beam 17. Secured to the arm 14 is a rigid latch element 24 having a rearwardly facing shoulder 25 adapted to be engaged by the angular rear end portion 26 of pivoted latch elements 27 carried by the beam.

It will be obvious that when the latch elements 27 and 24 are engaged, the beam will be held against movement upon the arms 14 and accordingly the strain of draft applied thereto will be applied at the pivot 13, so that the bucket will tend at all times to remain in transporting position. If the bucket is shifted to the loading position, indicated in dotted lines in Figure 2, strain is taken from the flexible element 21 since the back of the bucket will approach the beam and the edge of the bucket is thrown into engagement with the ground, so that the drag is below the pivot point 13 and the tendency of the upper end of the bucket is always to move forwardly. This is, however, prevented by engagement of the runners 11 against the

beam 17 at this time. If it is desired that the bucket be dumped, the latch elements 27 are disengaged from the latch elements 24, permitting the beams 17 to move outwardly upon the arms 14. During this outward movement, the chains 21 again become taut, transferring the strain to the upper end of the bucket, so that further separation of the beam from the rear end of the bucket is prevented. At this time, the arms 14 swing about their pivots as the dumping movement continues. Movement to the dumping position is limited by the engagement of the link 22 with the usual cross bar B which connects the runners 11 of these buckets.

As a means for releasing the latch elements 27, I mount upon the beam at the center thereof an axle structure comprising a pair of bracket elements 28, opposed faces of which are provided with circular abutments 29, which combine in the assembled relation of the brackets to produce the axle. These abutments are provided with longitudinally extending slots 30, within which bars 31 are slidable. Surrounding the axle is a sleeve 32, which is rotatable thereon and which has oppositely angling slots 33 into which extend pins 34 carried by the bars 31. The outer ends of the bars 31 are connected, as at 35, with the latch elements 27. It will be obvious that as the sleeve 32 is rotated in one direction, the adjacent ends of the bars 31 will approach one another and the latch elements 27 will be withdrawn from engagement with the shoulders 25. When the sleeve is rotated in the opposite direction, the latch elements 27 are moved for engagement with the shoulders 25. Movement of the sleeve in the last named direction is automatic, by reason of a counterweight 36 applied to the handle thereof, and movement of the sleeve in the first named direction may be accomplished by a flexible element 37 connected to an arm 39 formed on the sleeve. The ends of the slots 33 are preferably provided with short circumferentially directed coves in which the pins 34 may seat when the sleeve is at either limit of its rotation so that the latch elements will be locked against movement.

It will be obvious from the foregoing that by use of a hitch constructed in accordance with my invention, the bucket may be controlled by a single person in all of its operations. It will also be obvious that the construction hereinbefore set forth is capable of a certain range of change and modification without materially departing from the spirit of the invention and I accordingly do not limit myself to such specific structure except as hereinafter claimed.

I claim:—

1. In combination with a scraper bucket having the usual side walls, an arm pivoted to each side wall at the forward edge thereof and adjacent the bottom of the bucket, said arms being parallel, a transversely extending beam slidably engaged with said arms adjacent its ends, a flexible element connecting said beam and the upper edge of the bucket adjacent the rear end thereof, coacting latch elements carried by the beam and said arms and normally engaged with one another, operator controlled means for releasing said latches and means for connecting the beam to the draft.

2. In combination with a scraper bucket having the usual side walls, an arm pivoted to each side wall at the forward edge thereof and adjacent the bottom of the bucket, a beam slidably engaged with said arms, a flexible element connecting said beam and the upper edge of the bucket adjacent the rear end thereof, coacting latch elements carried by the beam and said arms and normally engaged with one another, operator controlled means for releasing said latches and means for connecting the beam to the draft, a link pivotally connected with the pivot of each arm and arms projecting from the beam and to which the opposite ends of the links are connected and a member carried by the bucket with which said links engage to limit movement of the bucket to dumping position.

3. In combination with a scraper bucket having the usual side walls, an arm pivoted to each side wall at the forward edge thereof and adjacent the bottom of the bucket, a beam slidably engaged with said arms, a flexible element connecting said beam and the upper edge of the bucket adjacent the rear end thereof, coacting latch elements carried by the beam and said arms and normally engaged with one another, operator controlled means for releasing said latches, including a rotatable sleeve, operative connections between the sleeve and latches whereby upon rotation of the sleeve in one direction the latches are moved to release the same and upon rotation of the sleeve in the opposite direction, the latches are shifted to latching position, means constantly tending to rotate the sleeve in the last named direction and means for connecting the beam to the draft.

4. In combination with a scraper bucket having the usual side walls, an arm pivoted to each side wall at the forward edge thereof and adjacent the bottom of the bucket, a beam slidably engaged with said arms, a flexible element connecting said beam and the upper edge of the bucket adjacent the rear end thereof, coacting latch elements carried by the beam and said arms and normally engaged with one another, operator controlled means for releasing said latches including an axle having keyways, bars slidable in said keyways, a sleeve having oppositely angled slots surrounding the axle and

bars, pins upon the bars extending into said slots, a connection between each bar and the corresponding latch, means constantly tending to rotate the sleeve in the direction such that the pin and slot engagement of the sleeves and bars move the bars from one another, means under the control of the operator for rotating the sleeve in the opposite direction and means for connecting the beam to the draft.

5. In combination with a scraper bucket having the usual side walls, an arm pivoted to each side wall at the forward edge thereof and adjacent the bottom of the bucket, a beam slidably engaged with said arms, a flexible element connecting said beam and the upper edge of the bucket adjacent the rear end thereof, coacting latch elements carried by the beam and said arms and normally engaged with one another, operator controlled means for releasing said latches, means for connecting the beam to the draft, and dumping runners carried by said bucket and during engagement of said latch elements engaging the beam to limit tilting of the bucket when the bucket arrives at loading position.

6. In combination with a scraper bucket having the usual side walls, an arm pivoted to each side wall at the forward edge thereof and adjacent the bottom of the bucket, a beam slidably engaged with said arms, a flexible element connecting said beam and the upper edge of the bucket adjacent the rear end thereof, coacting latch elements carried by the beam and said arms and normally engaged with one another, operator controlled means for releasing said latches, means for connecting the beam to the draft, dumping runners carried by said bucket and during engagement of said latch elements engaging the beam to limit tilting of the bucket when the bucket arrives at loading position, a cross bar connecting said runners and means connecting the bucket and said beam and engaging said bar to limit movement thereof to the dumping position.

7. In combination with a scraper bucket having the usual side walls, an arm pivoted to each side wall at the forward edge thereof and adjacent the bottom of the bucket, a beam slidably engaged with said arms, a flexible element connecting said beam and the upper edge of the bucket adjacent the rear end thereof, coacting latch elements carried by the beam and said arms and normally engaged with one another, operator controlled means for releasing said latches, means for connecting the beam to the draft, dumping runners carried by said bucket and during engagement of said latch elements engaging the beam to limit tilting of the bucket when the bucket arrives at loading position, a bar connecting said runners, arms rigidly secured to said beam and links pivotally connected at their upper ends to the upper ends of said arms and at their lower ends to the bucket, said links as the bucket moves to the dumping position engaging said bar to limit the movement of the bucket.

In testimony whereof I hereunto affix my signature.

PATRICK J. McNAMARA.