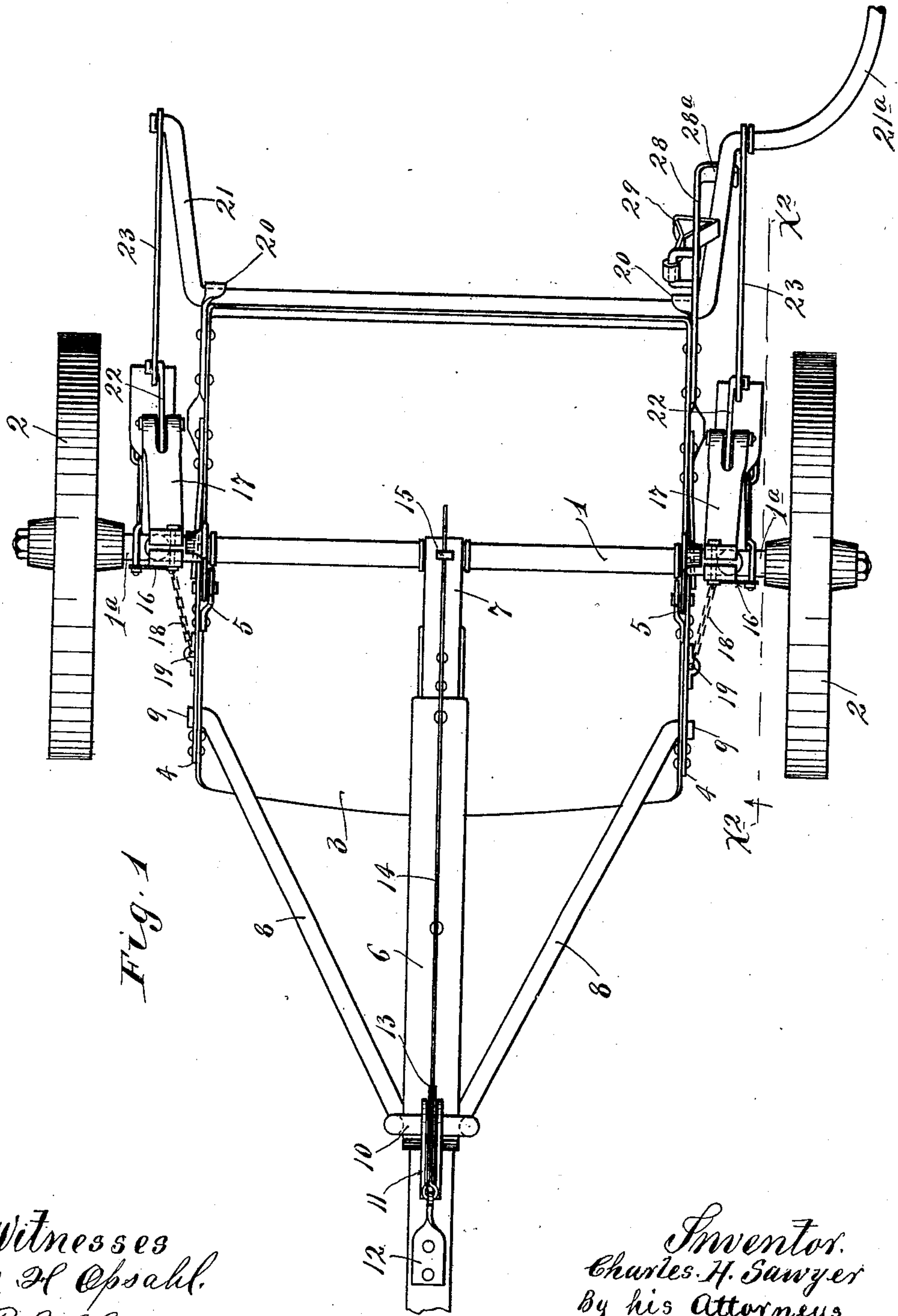


925,035.

Patented June 15, 1909.  
4 SHEETS—SHEET 1.



Witnesses  
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WHEELED SCRAPER.  
APPLICATION FILED FEB. 10, 1909.

4 SHEETS—SHEET 2.

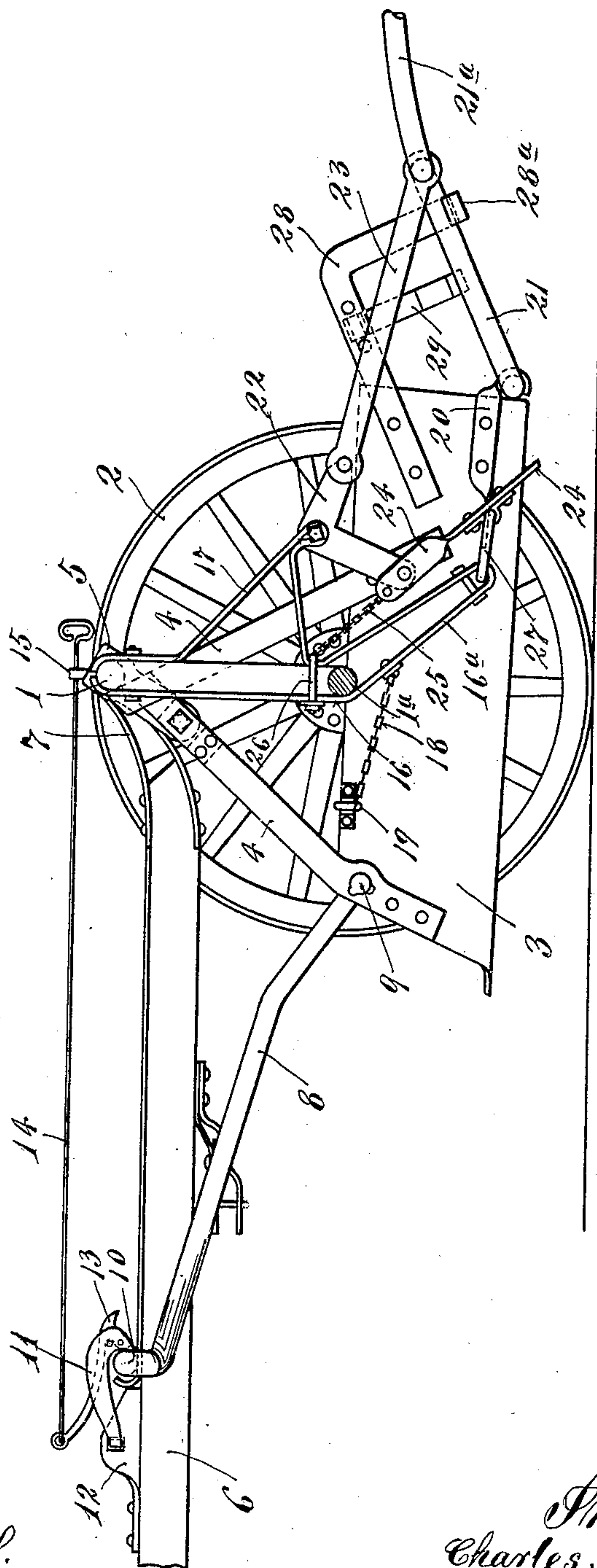


Fig 2.

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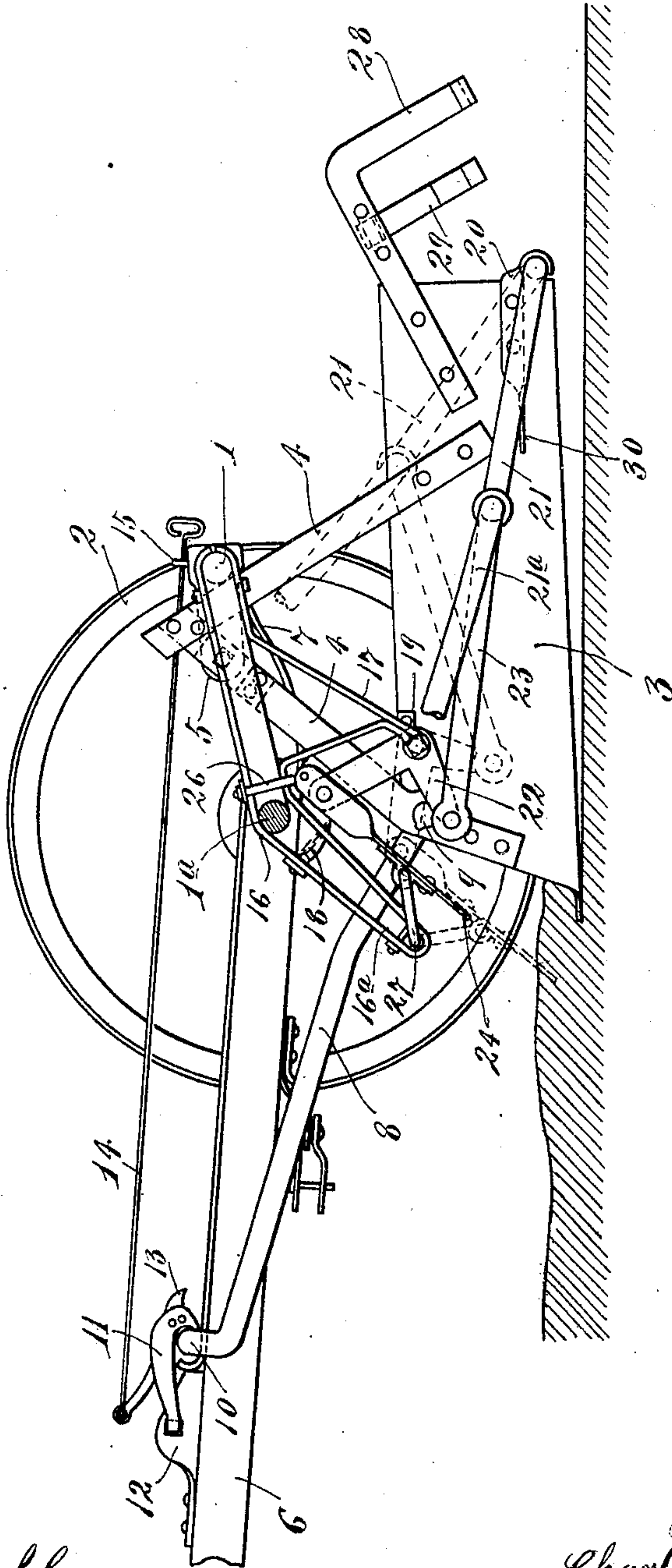
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4 SHEETS—SHEET 3.

Fig. 3



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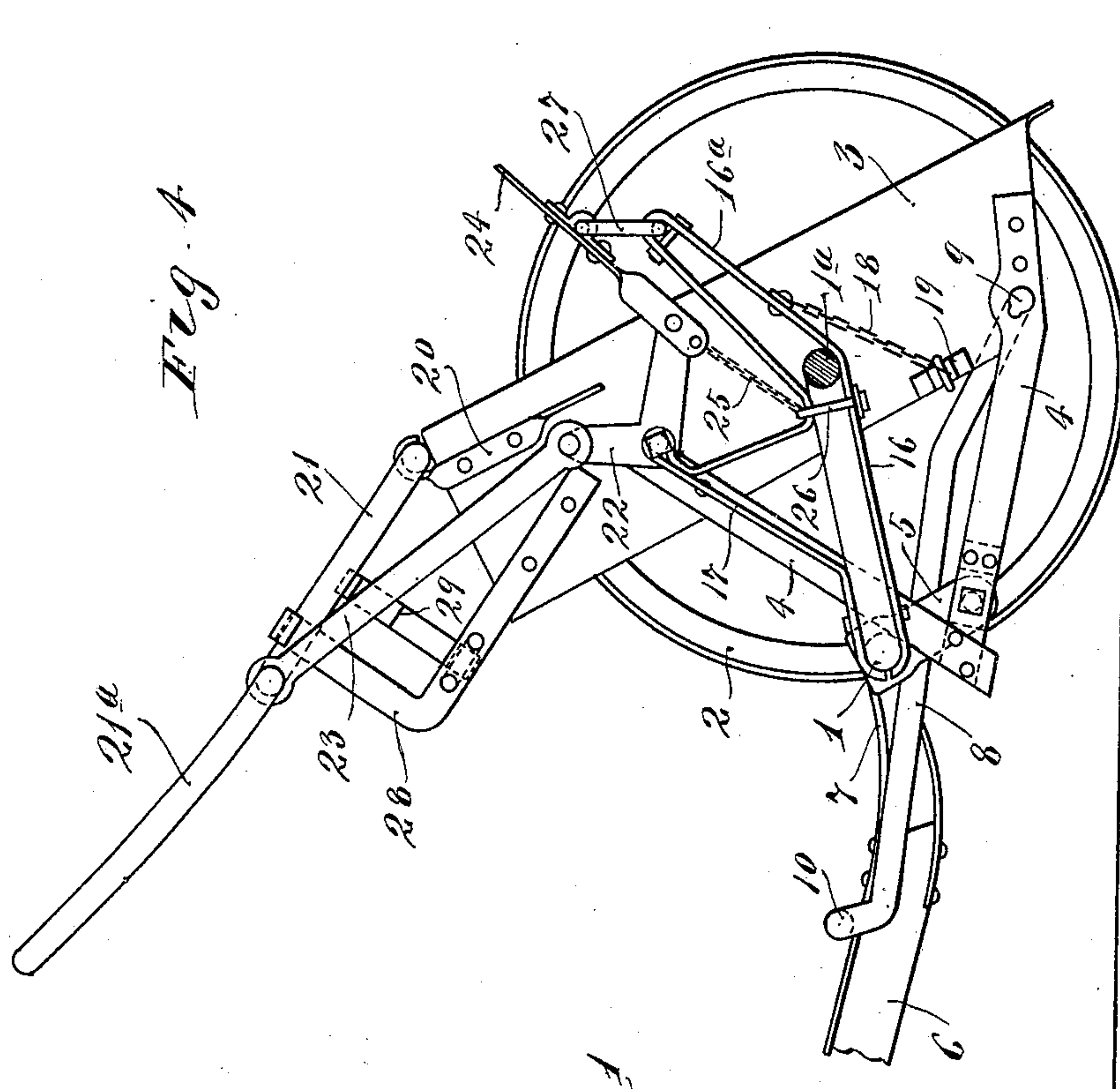


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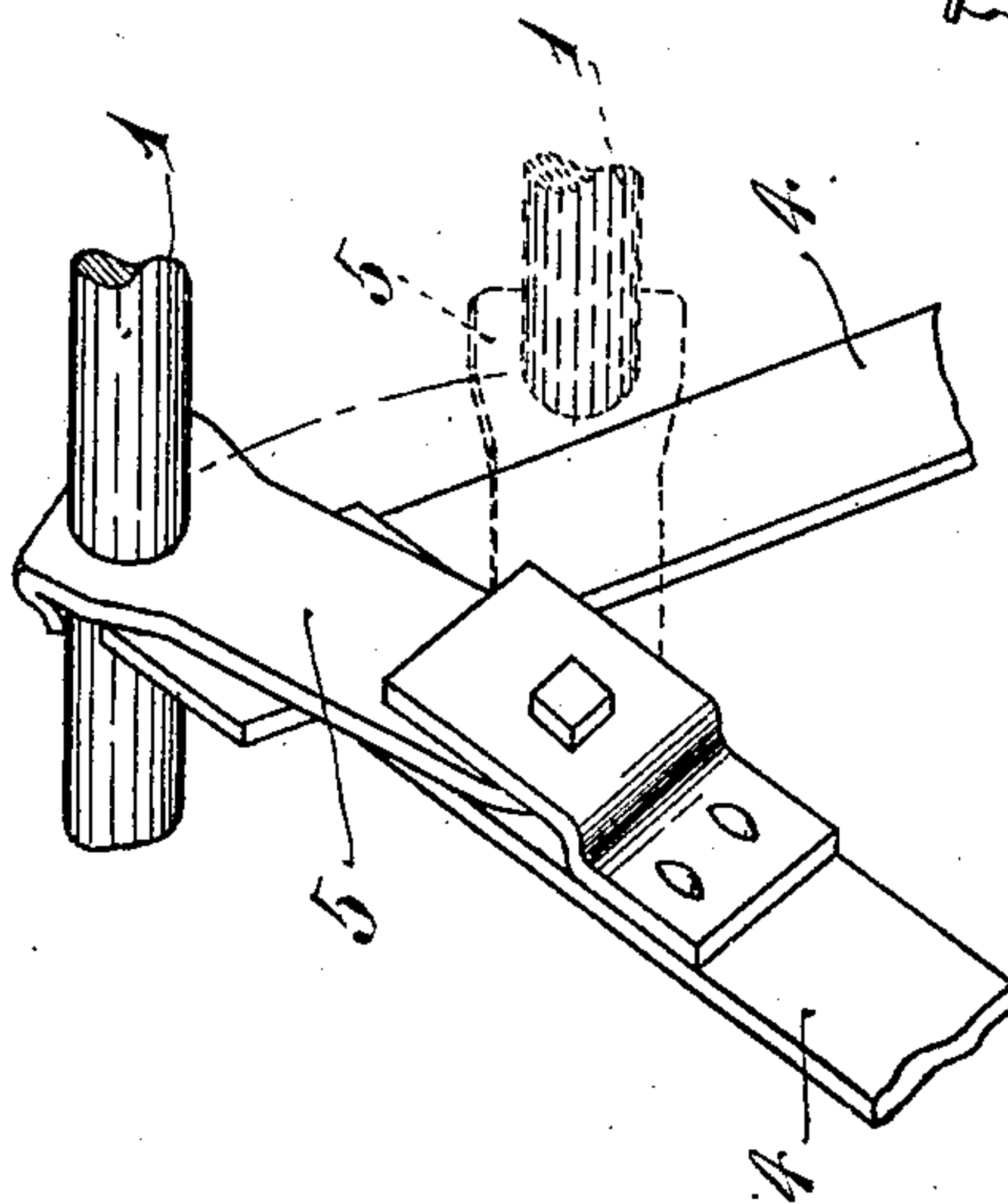
925,035.

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4 SHEETS—SHEET 4.



*Fig. 5*



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# UNITED STATES PATENT OFFICE.

CHARLES H. SAWYER, OF MINNEAPOLIS, MINNESOTA.

## WHEELED SCRAPER.

No. 925,035.

Specification of Letters Patent.

Patented June 15, 1909.

Application filed February 10, 1909. Serial No. 477,116.

*To all whom it may concern:*

Be it known that I, CHARLES H. SAWYER, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Wheeled Scrapers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to wheel scrapers, and is designed as an improvement on that type of wheel scrapers disclosed and claimed in Letters Patent of the United States No. 795,655, issued to me of date July 25th, 1905.

The objects of the present invention are to increase the efficiency and use of manipulation of wheel scrapers of the character above indicated, and to these ends, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings: Figure 1 is a plan view of the improved scraper, some parts being broken away; Fig. 2 is a vertical section taken on the line  $x^2 x^2$  of Fig. 1, showing the scraper in its loaded position; Fig. 3 is a view corresponding in the line of its section to Fig. 2, but showing the scraper bowl in its filling or extreme or lowermost position; Fig. 4 is also a view corresponding in the line of its section to Fig. 2, but showing the scraper bowl in its dumping position; and Fig. 5 is a perspective view, showing the construction of the means for connecting the scraper bowl to the crank portion of the crank axle of the truck.

The numeral 1 indicates a heavy crank axle upon the trunnions  $1^a$  of which, truck wheels 2 are loosely journaled in the usual or in any suitable way.

The numeral 3 indicates the scraper bowl, which at its opposite sides, is rigidly secured to the lower end portions of laterally spaced hanger brackets shown as afforded by upwardly converging metal bars 4, rigidly connected at their upper ends. To one bar of each hanger bracket, near the upper end thereof, a hanger link 5 is pivotally connected at its lower end. The upper ends of the two hanger links 5 are pivotally mounted on the transversely extended body crank portion of

the crank axle 1, as best shown in Figs. 2 and 5.

The pole 6, at its rear end, is shown as provided with a looped metal strap extension 7, that is pivotally connected to the intermediate portion of the transversely extended crank like body portion of the axle 1.

The numeral 8 indicates a heavy drag bail, the prongs of which project rearward and are pivotally attached at 9 to the upper front portions of the sides of the bowl 3. The forwardly extended intermediate portion of the bail 8 is bent at 10 to form a loop which slides upon the pole 6. This loop 10, when the parts are in the position shown in Fig. 2, is adapted to be engaged and held by a latch dog 11 that is pivoted to a bearing 12 on said pole 6. A releasing lever 13 is pivoted to the free end of the lock dog 11 and has a projecting end that is engageable with the pole to lift said lock dog into a releasing position, when said lever is drawn rearward; and to accomplish this release, from the rear of the scraper, a tripping rod 14 is connected to the upper end of the said lever 13, and is guided at its rear end by a bearing 15 secured on the pole extension strap 7.

Rigidly secured, preferably on each arm of the crank axle 1, is a lifting lever 16 formed, as shown, by heavy metallic straps bent to form a depending looped leg  $16^a$  and a rearwardly offset bearing arm or bracket 17. Short chains 18 connected to the lever leg  $16^a$  and to bearings 19, on the sides of the scraper, serve to limit the forward swinging movement of the crank axle 1 to an approximately upright position indicated in Fig. 2, when the bail 8 is locked to the pole as shown in said Fig. 2. The said chains 18 also limit the downward swinging movement of the said crank axle when the bail 8 is released from the lock dog 11, and the scraper bowl is turned into its dumping position shown in Fig. 4.

In suitable bearings 20 on the rear end of the scraper bowl 3, a double headed operating crank shaft or bail 21 is journaled. Bell cranks 22 are intermediately pivoted to the support-arms or brackets 17, and their rearwardly extended arms are connected by links 23 to the crank like ends of the said operating crank shaft or bail 21. It should be here noted that the said operating crank shaft or bail 21, at one end, is provided with an extension  $21^a$  that affords a suitable hand piece by means of which it may be oscillated



or moved as hereinafter more fully described. The other arms of the bell cranks 22 are pivotally connected to so called ground engaging plates 24, at points just below the upper extremities of their stems, and the extreme upper ends of the latter are connected by short chains 25 to the crank axle 1. As shown, the upper ends of said chains 25 are indirectly connected to the crank axle through the lifting levers 16, and nut equipped U-bolts 26, which as shown, are employed to connect the said parts together, see Figs. 2 and 4. The intermediate portions of the ground engaging plates 24 are connected by short links 27 to the lower extremities of the legs 16<sup>a</sup> of the lifting lever 16. The extreme downward movement of the arms of the operating bail or crank shaft 21 is limited by a stop device shown as in the form of a bent flat metal bar 28, rigidly secured as shown, to the left hand side of the scraper bowl 3, and having a laterally bent lower end 28<sup>a</sup> that directly engages the left hand arm of said bail. To lock the said operating bail 21 in the position shown in Figs. 2 and 4, a gravity held lock dog or lever 29 is pivotally connected at its upper end to the bar 28. The forward and downward movement of the arms of the operating bail 21 are limited by the stop device shown as afforded by the laterally bent end 30 of the left hand bearing 20. This stop 30 is adapted to directly engage the left hand arm of said operating bail when the parts are in the position shown in Fig. 3.

As before stated, Fig. 2 shows the parts in the position that they will occupy when the scraper bowl is loaded, or, when the scraper is being moved from one place to another. Otherwise stated, Fig. 2, shows what may be assumed to be the normal positions of all of the parts.

When the scraper bowl is to be lowered and thrown into action, the lock dog or lever 29 is, by the foot, or otherwise, pressed laterally so as to release the operating bail 21. Then the said operating bail is thrown forward, under which movement, sufficient force is transmitted through the links 23, bell cranks 22 and bearing brackets 17, to cause the crank axle to assume the oblique position shown in Fig. 3, and thereby lowering the scraper bowl to its operative position, shown by full lines in Fig. 3. In this position of the parts, the ground plates 24, it will be noted, are held above the ground in inoperative positions as shown by full lines in Fig. 3.

When the scraper bowl has been filled with dirt and is to be raised, the operating bail 21 is raised as far as shown by dotted lines in Fig. 3, and this, through the links 23 and bell cranks 22, forces the ground plates 24 into the ground as shown by dotted lines in Fig. 3. When these ground plates are thus engaged

with the ground, and the scraper is drawn forward, they anchor the lower ends of the legs 16<sup>a</sup> of the lifting levers and cause the crank axle 1 to be turned upward and forward to its vertical or normal position shown in Fig. 2, thereby lifting the loaded scraper bowl above the ground and carrying the ground plates 24 rearward and above the ground. Also the above movement throws the operating bail 21 back to its normal position where it will be automatically locked by the lock dog 29. The initial upward movement of the crank axle 1 from the position shown in Fig. 3, toward the position shown in Fig. 2, turns the short links 5 upward until the crank axle strikes the extreme upper ends of the hanger bars 4; and under this initial movement, the upward movement of the links serves to lift the cutting edge of the scraper bowl out of the ground. The continued movement of the crank axle toward the position shown in Fig. 2, completes the lifting movement of the scraper bowl.

When the parts are in the position shown in Fig. 2, and it is desired to dump the load from the scraper bowl, it is only necessary to pull rearward on the tripping rod 14 so as to raise the lock dog 11 and release the drag bail 8. When this is done, the pull from the pole on the upper portion of the crank axle, will tilt the loaded scraper bowl and turn the same upside down or into the dumping position shown in Fig. 4. In the position of the parts shown in Fig. 4, the weight of the scraper bowl is taken by the chains 18, and the transverse crank portion of the axle 1 strikes the drag bail 8 and limits the downward movement of the said parts 1 and 8 and of the rear end of the pole.

To aright the scraper bowl or to restore the parts to their normal positions, indicated in Fig. 2, it is only necessary to pull rearward on the hand piece 21<sup>a</sup> of the operating bail 21.

A large number of scrapers constructed as above described and as illustrated in the drawings, have been put into actual use and have been found highly efficient for the purposes had in view.

The so called ground engaging plates 24, in the present application, as well as in the prior patent above identified, constitute extensible ground engaging sections of the lifting arms 16<sup>a</sup>, but in the present application, the link connections between the two parts gives a very greatly improved action. Also the link connections between the crank portion of the crank axle and the hanger brackets of the scraper bowl give a very greatly improved action, as above more fully set forth.

What I claim is:

1. In a wheeled scraper, the combination with a crank axle and wheels mounted on the trunnions thereof, of a scraper bowl suspended from said crank axle, a lifting arm



mounted to oscillate with the said crank arm, and provided with an extensible ground engaging section, and a link connecting said ground engaging section to the end of said lifting arm, substantially as described.

2. In a wheeled scraper, the combination with a crank axle and wheels mounted on the trunnions thereof, of a scraper bowl pivotally suspended from the crank portion of said axle, a lifting arm mounted to oscillate with said crank axle and having an extensible ground engaging section, a link connecting said ground engaging section to the lower end of said lifting arm, and lever connections to said ground engaging section for throwing the same into and out of operative position.

3. In a wheeled scraper, the combination with a crank axle and wheels mounted on the trunnions thereof, of a scraper bowl pivotally suspended from the crank portion of said axle, a pair of lifting arms rigidly connected to the side arms of said crank axle, and provided at their lower ends with ground engaging sections, links connecting said ground engaging sections to the lower ends of said lifting arms, bell cranks pivotally connected to supports carried by said crank axle and also pivotally connected to the respective ground engaging sections, an operating bail mounted in the rear portion of said scraper bowl, and links connecting said operating bail to said bell cranks.

4. In a wheeled scraper, the combination with a crank axle and wheels mounted on the trunnions thereof, of a scraper bowl pivotally suspended from the crank portion of said crank axle, a lifting arm connected to oscillate with said crank axle, a stop chain connecting said lifting arm to said scraper bowl, an extensible ground engaging section connected to said lifting arm, and lever connections for throwing said ground engaging section into and out of action, substantially as described.

5. In a wheeled scraper, the combination with a crank axle and wheels mounted on the trunnions thereof, of a scraper bowl pivotally suspended from said crank axle, a lifting arm mounted to oscillate with said crank arm, an extensible ground engaging section, a link connecting the intermediate portion of said ground engaging section to the lower end of said lifting arm, lever connections for moving said extensible section into and out of action, and a stop chain connecting said ground engaging section to the crank axle structure, substantially as described.

6. In a wheeled scraper, the combination with a crank axle and wheels mounted on the

trunnions thereof, of a scraper bowl suspended from the crank portion of said axle, a lifting arm connected to oscillate with said crank axle and provided with an extensible ground engaging section, an operating bail mounted on the rear end portion of said scraper bowl, lever and link connections between said operating bail and the said crank axle, an extensible ground engaging section, a bracket secured to the rear end portion of said scraper bowl and affording a stop for said operating bail, and a pivoted lock dog supported by said bracket and normally cooperating with the said bracket to hold said operating bail locked, substantially as described.

7. In a wheeled scraper, the combination with a crank axle and wheels mounted on the trunnions thereof, of a scraper bowl suspended from the crank portion of said axle, a lifting arm mounted to oscillate with said crank axle and provided with an extensible ground engaging section, and an operating bail mounted on the rear end portion of said scraper bowl and connected to said extensible ground engaging section, the said bail having one of its end arms extended to afford a hand piece or operating lever located at one side of the scraper.

8. In a wheeled scraper, the combination with a crank axle and wheels mounted on the trunnions thereof, of a scraper bowl suspended from the crank portion of said axle by means including a laterally spaced oscillatory link, pivotally mounted on the said axle, substantially as described.

9. In a wheeled scraper, the combination with a crank axle and wheels mounted on the trunnions thereof, of a scraper bowl, hanger brackets rigidly secured to and projecting above the sides of said scraper bowl, links pivotally connected to said hanger brackets and to the crank portion of said crank axle, lifting arms connected to oscillate with said crank axle and provided with extensible ground engaging sections, lever connections for moving said ground engaging sections into and out of operative positions, a pole pivotally connected to said crank axle, a drag bail connected to said scraper bowl, and means for locking said bail to said pole, and for releasing the same, substantially as described.

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

CHARLES H. SAWYER.

Witnesses:

HARRY D. KILGORE,  
ALICE J. SWANSON.