(No Model.) 4 Sheets—Sheet 1.

C. H. SAWYER.

WHEELED SCRAPER OR SELF LOADING CART.

No. 407,451. Patented July 23, 1889.

Fig. 1.

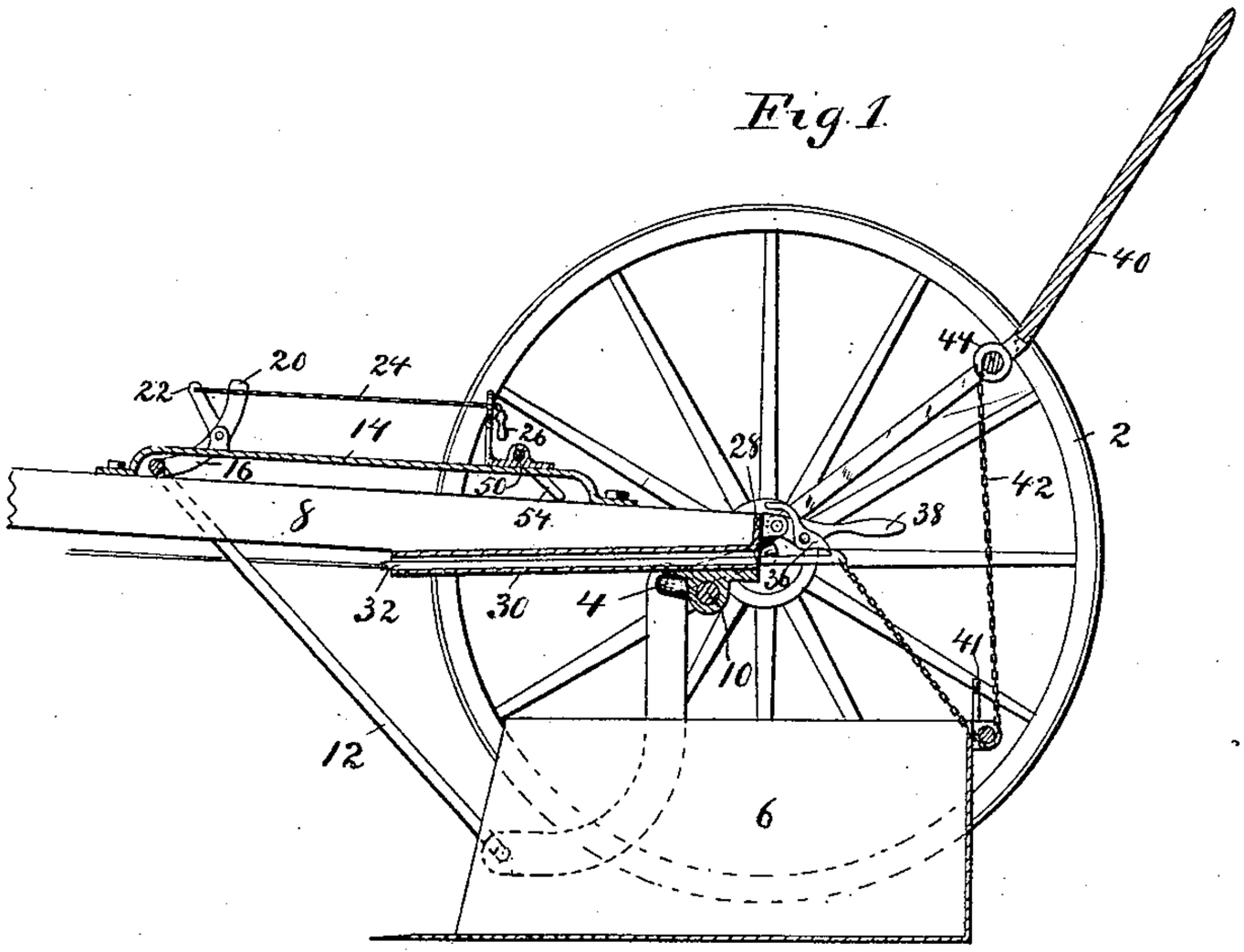
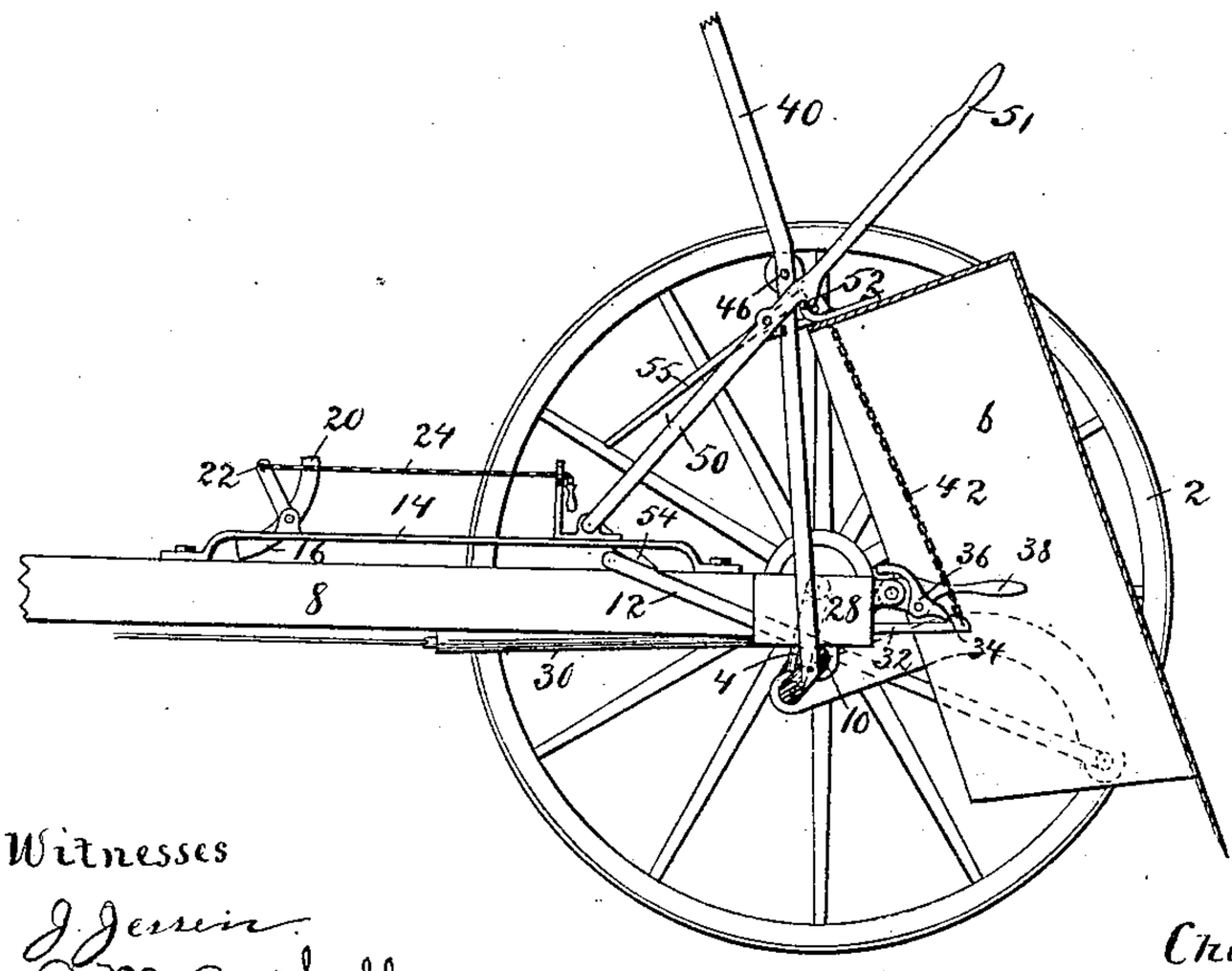


Fig. 2.



Witnesses
J. Jessein
A. M. Gaskill

Inventor
Charles H. Sawyer.
By Paul, Sanford & Mewin Attys.

(No Model.) 4 Sheets—Sheet 2.

C. H. SAWYER.

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Fig. 3.

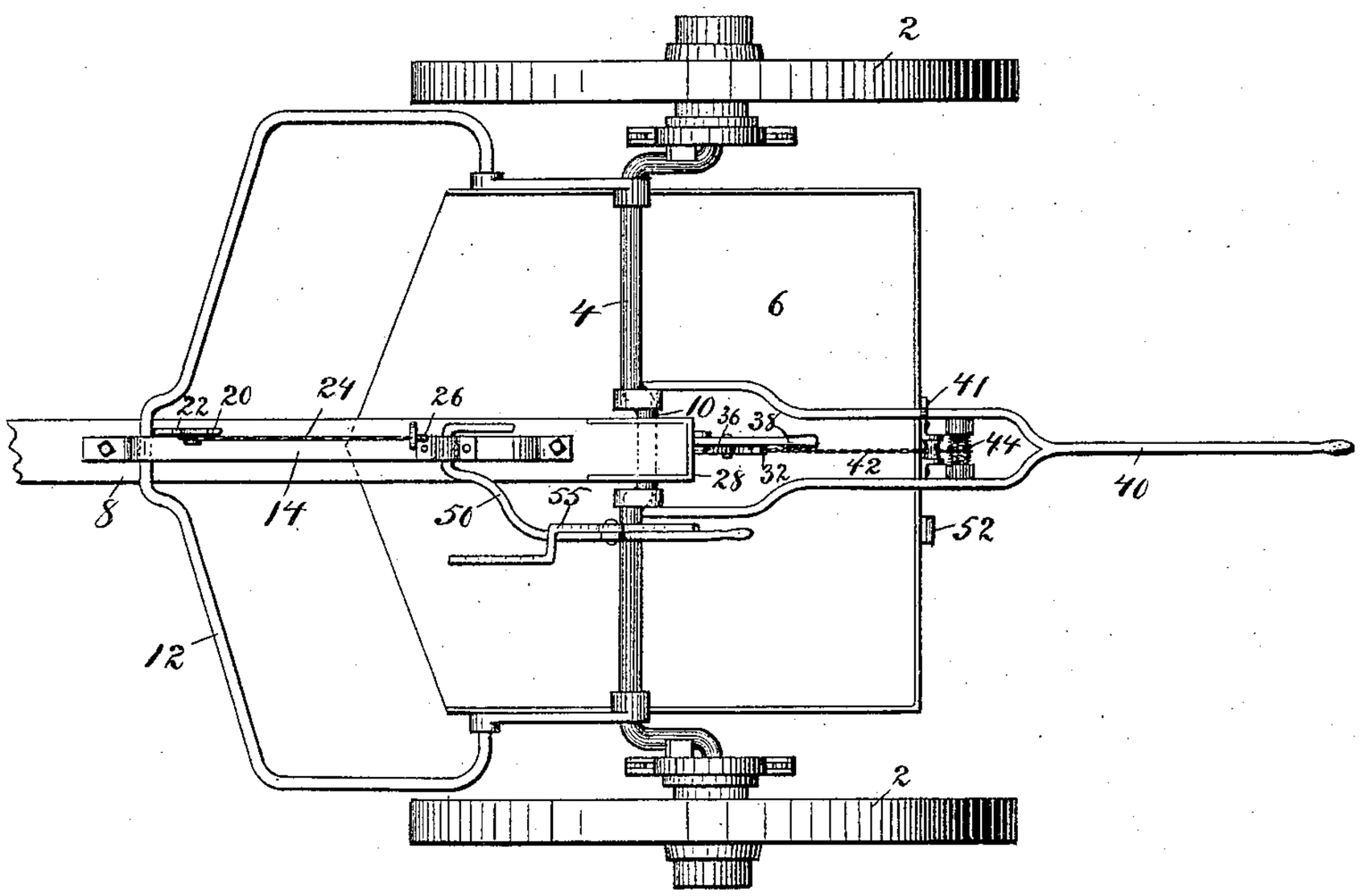
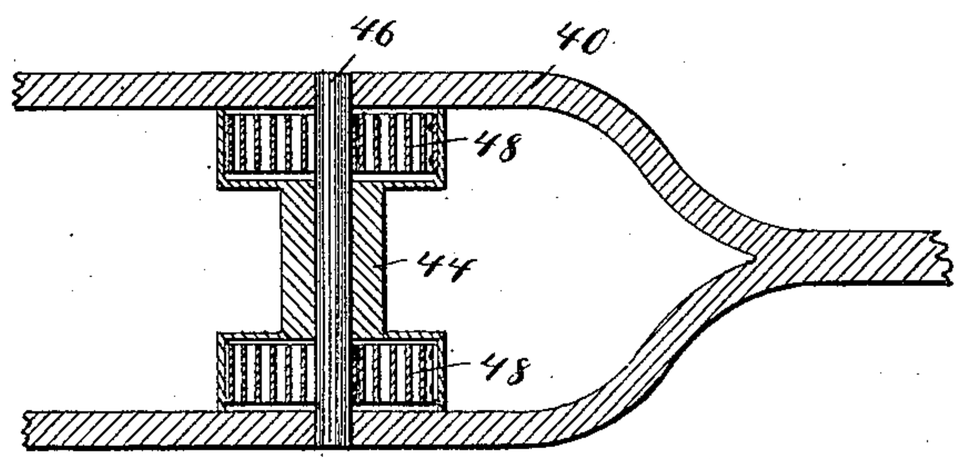


Fig. 4.



Witnesses.
J. Jessen.
A. M. Gaskill

Inventor
Charles H. Sawyer.
By Paul, Sanford & Merwin Att'ys.

(No Model.) 4 Sheets—Sheet 3.

C. H. SAWYER.

WHEELED SCRAPER OR SELF LOADING CART.

No. 407,451. Patented July 23, 1889.

Fig. 5.

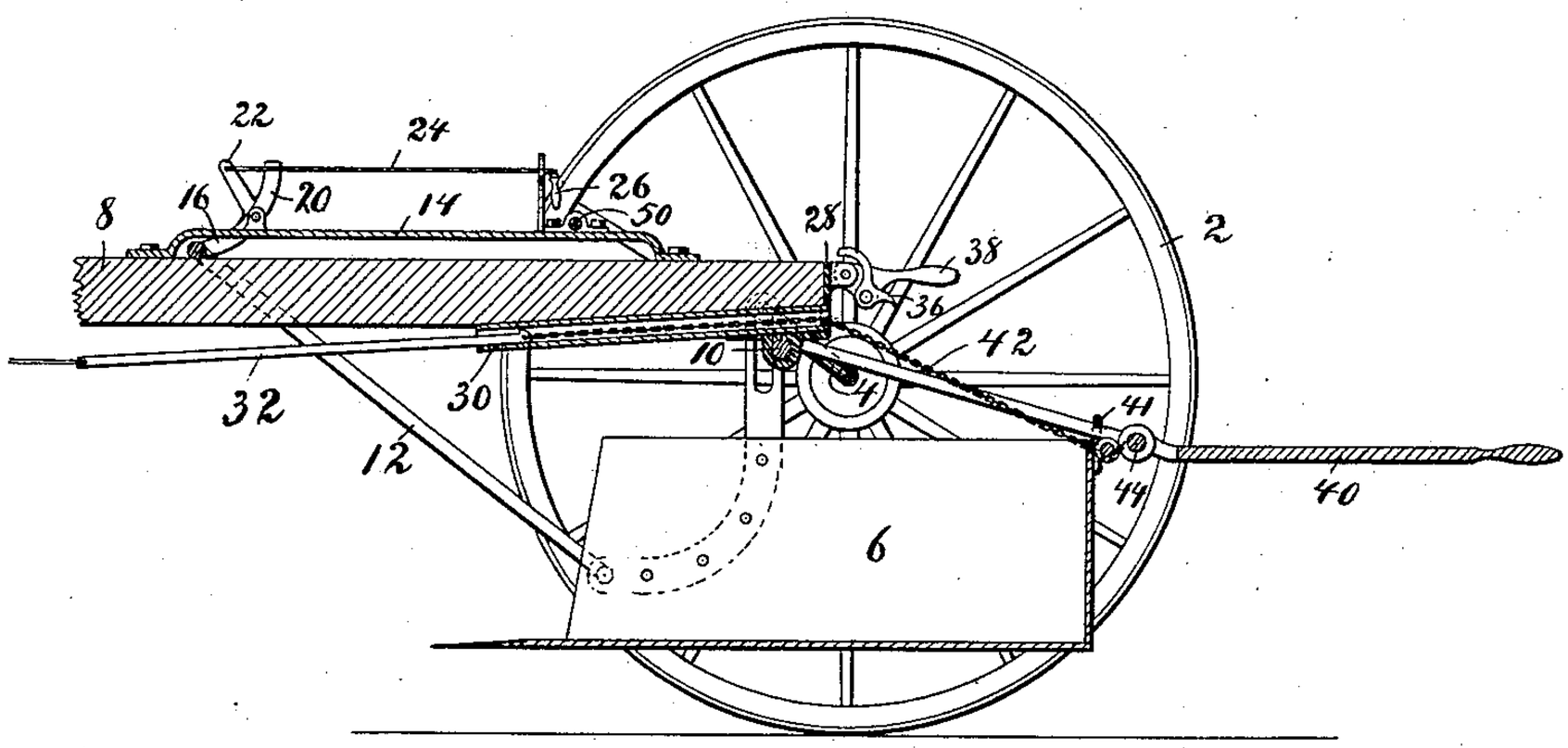
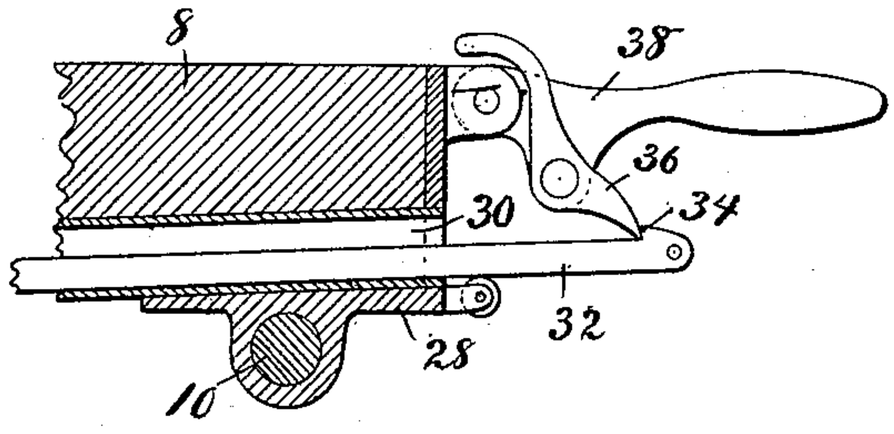


Fig. 6.



Witnesses

J. Jensen.
A. M. Gaskill

Inventor:

Charles H. Sawyer:

By Paul, Sanford & Newman Attys.

(No Model.) 4 Sheets—Sheet 4.

C. H. SAWYER.

WHEELED SCRAPER OR SELF LOADING CART.

No. 407,451. Patented July 23, 1889.

Fig. 7.

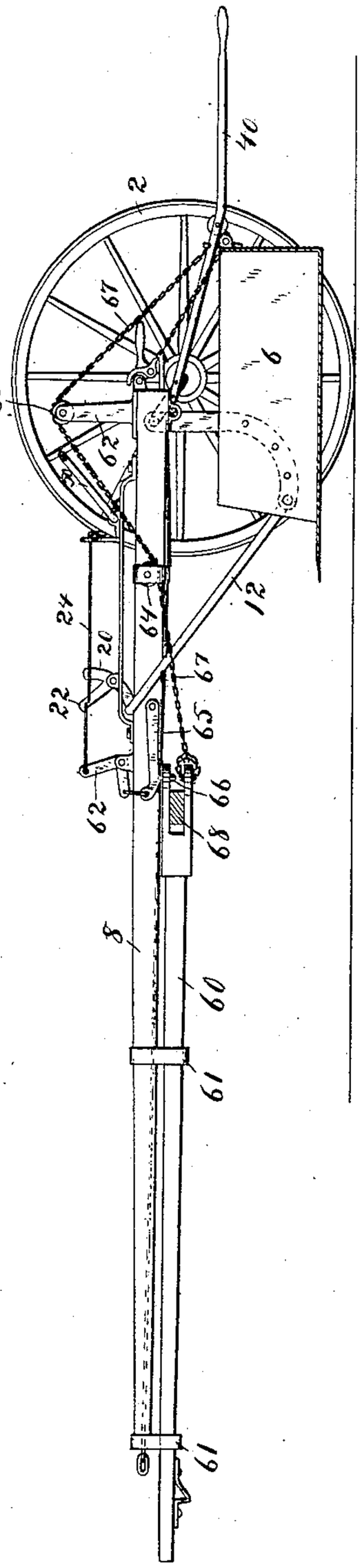
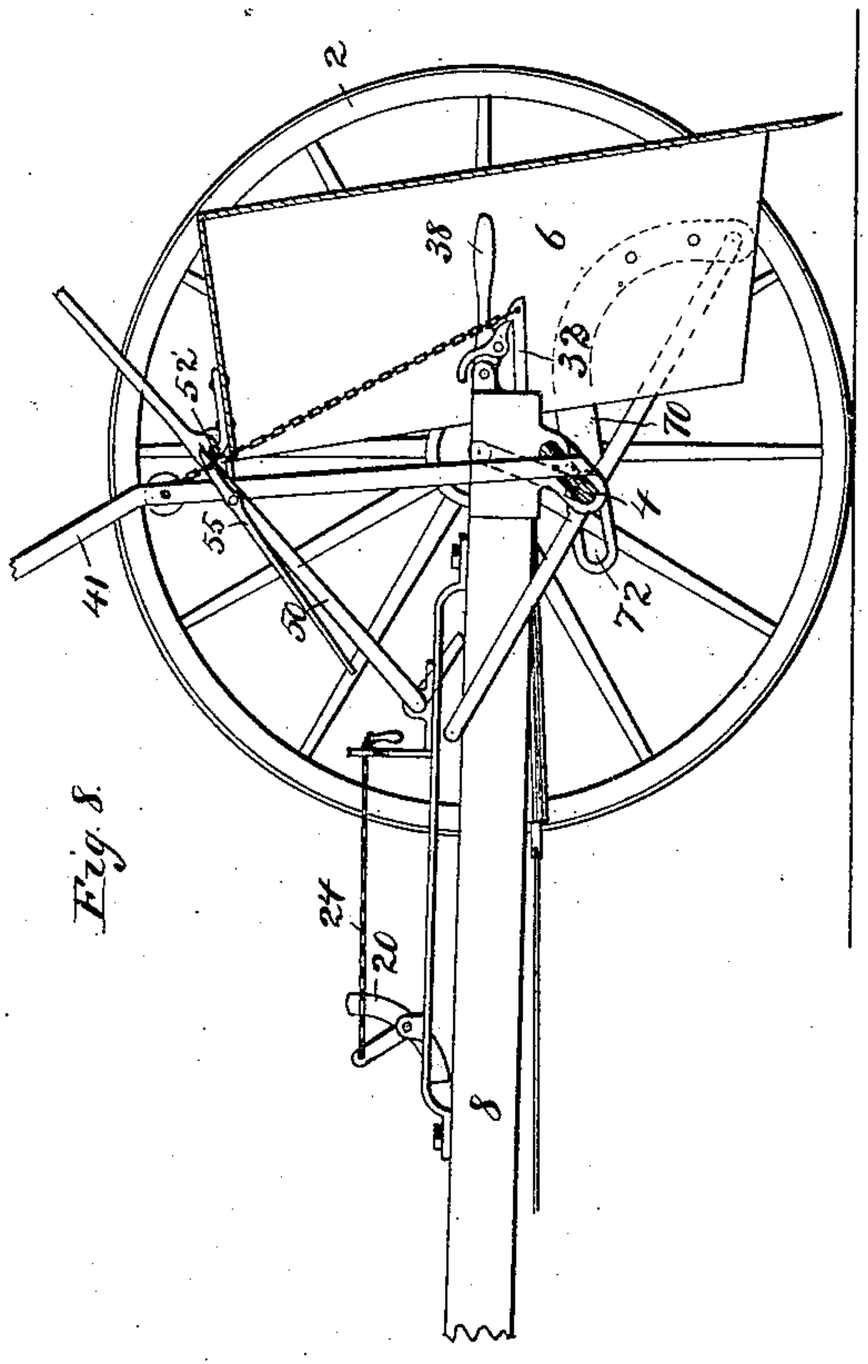


Fig. 8.



Witnesses

J. Jessen.

A. M. Gaskill

Inventor

Charles H. Sawyer.

By Paul, Sanford & Newman Attys.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

CHARLES H. SAWYER, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR OF ONE-HALF TO H. A. SMITH, OF SAME PLACE.

WHEELED SCRAPER OR SELF-LOADING CART.

SPECIFICATION forming part of Letters Patent No. 407,451, dated July 23, 1889.

Application filed March 20, 1888. Serial No. 267,833. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. SAWYER, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Wheeled Scrapers or Self-Loading Carts, of which the following is a specification.

My invention relates to improvements in appliances to be used in connection with a wheeled scraper for the purpose of convenience in operation and to simplify the construction.

My invention consists, first, in a releasing device for the bail; second, in a device for securing the snatch-bar to the tongue in such a manner that it can be readily and easily released when it is desired to raise the pan by a pull on the snatch-bar; third, in a device for holding the pan in a reversed position; fourth, in a device for drawing the snatch-bar back to its original position after it has been released from the tongue and taking up the slack in the chain, and, fifth, in means for dumping the pan while the scraper is stationary.

In the drawings which form a part of this specification, Figure 1 is a longitudinal section of a wheeled scraper embodying my invention. Fig. 2 is a similar section showing the pan locked in a reversed position. Fig. 3 is a plan view. Fig. 4 is a detail. Fig. 5 is a longitudinal section showing the pan in an elevated position. Fig. 6 is a detail. Fig. 7 is a partial longitudinal section showing the auxiliary tongue. Fig. 8 is a section showing a modification.

In the drawings, 2 represents the wheels of the scraper, 4 the cranked axle upon which said wheels are mounted, and 6 the pan suspended from said axle. The tongue 8 is suspended from the central portion of the said axle upon an offset or auxiliary crank 10.

A bail 12 is pivoted to the forward portion of the pan and extends upward and over the tongue in front of said pan, and is arranged to slide upon said tongue as the pan is dumped. A strap or guide 14 is secured to the tongue and extends over the bail, forming a way in which the bail travels, and prevents it from being thrown upward and out of place.

A catch 16 is preferably pivoted to the guide 14 and falls behind the bail when the said bail is in the forward portion of the way and retains it in this position. The catch 16 is preferably curved and provided with an end 20, which extends beyond the fulcrum or pivot, as shown in Figs. 1, 2, and 5. A handle or lever 22 is attached to the catch 16, and is preferably connected by means of a rod or rope 24 with an operating-handle 26. When it is required to dump the pan, the handle 26 is drawn back, which operation, by means of the lever 22, throws out the catch 16 and releases it from contact with the bail. The weight of the catch will cause it to stand, as shown by dotted lines in Fig. 5, with the end 20 resting upon the tongue and the bail free to slide backward on the said tongue. The bail still remains in its forward position until the back portion of the pan is raised and the nose of the pan strikes the ground, which will cause it to assume the position shown in Fig. 2, and the bail will be drawn back in the slot or way. As the bail travels back on the tongue it is brought in contact with the end 20 of the catch 16, and the force of the bail in passing will throw the catch back to its original position, and as the bail is brought back to the forward end of the slot or way it will raise the catch and pass under it, and the weight of the said catch will cause it to fall behind the bail and again lock it in position.

I prefer to provide an end casting 28, secured to the back end of the tongue, and constructed to receive the portion 10 of the axle. A tube or box 30 is preferably placed below the tongue and passes over the axle and is secured to the end casting 28. This tube or box forms a passage-way for the reception of the snatch-bar 32, which passes through it, and is provided at its rear extremity with a shoulder or notch 34. A catch 36 is pivoted to a lever 38 and engages this shoulder.

The lever 38 is preferably pivoted upon the casting 28, and the point at which the catch 36 is pivoted to the lever is in a line somewhat below the pivotal point of the lever 38. The snatch-bar is held in the tube 30 and prevented from being forced downward, so

that a forward or pulling strain upon the bar is transmitted through the catch 36 to the lever and to the end casting on the tongue.

The pivot of the catch being below the line of the pivot of the lever, the tendency will be to draw the lever toward the bar, and the two will be locked together. If the lever 38 is raised sufficiently to allow the catch 36 to revolve upon its pivot, the snatch-bar will be released and will pass forward through the tube or box 30.

I prefer to provide the catch 36 with a weighted end which extends a sufficient distance forward of the pivotal point of the said catch to cause the said catch to fall back to its original position after the snatch-bar has been released. When the snatch-bar is again drawn back, the end passes under the catch, which it raises sufficiently to allow the catch to again engage the notch 34. By this means when the snatch-bar has been drawn back and engaged by the catch it is secured to the tongue, so that the draft on it is transmitted to the tongue, while the snatch-bar may be readily released, so that the draft on it will raise the pan.

40 represents a lever the forward end of which is secured to the offset 10 on the axle, and by operating this lever the cranked axle is partially revolved, thus raising or lowering the pan.

A chain 42 is preferably attached to the lever and passes around a sheave or pulley upon the pan and is secured to the end of the snatch-bar. When the pan has been sufficiently loaded, the snatch-bar is released from the lever 38, the power or draft exerted upon the snatch-bar will be brought upon the chain, and the lever and pan will be drawn together and the pan raised. A suitable catch 41 is placed upon the pan to engage the lever and hold the two in contact, when the draft upon the snatch-bar can be released. The snatch-bar is now in its extreme forward position and it is desirable to provide means to draw it back into position for the next pull.

I prefer to provide means for automatically drawing back the bar as soon as the pull on it ceases. This device is preferably arranged as follows: A spool 44 is mounted so as to turn freely upon a pin or shaft 46 on the lever 40. One or more spiral springs 48 connect the spool with the stationary shaft in such a manner that as the chain is unwound from the spool the springs will be wound up and the tension of the springs will be increased.

The chain is preferably so arranged as to be all unwound from the spool and the springs wound up when the lever and pan are in the relative position shown in Fig. 1. The object of this is that the strain upon the chain may be transmitted to the lever directly through the pin 46 and not bring any undue tension upon the springs 48. When the lever is drawn down to the position shown in Fig. 5, the pan is raised, and if the pull on the snatch-bar ceases the springs unwind, and thereby wind up the chain and draw back the snatch-bar, which is then automatically engaged by the catch on the tongue. I prefer to provide a means for holding the pan in its reversed position which is capable of being operated to release the said pan either from the front or rear of the pan.

An arm 50 is pivoted in suitable bearings upon the tongue and extends upward and over the pan a suitable distance to meet the pan in its reversed position. This arm is provided with a recess or notch which engages the wrist 52 upon the pan when reversed, as shown in Fig. 2. The back end of the arm may be extended to form a handle 51, by which the arm can be lifted from the back of the pan and released from contact with the wrist 52.

The arm 50 may be provided with a stop 54, arranged to bear upon the tongue and hold the said arm in the required position when detached from the pan.

It may be more convenient in some instances to release the pan from the front, and I provide for this by pivoting a trip-lever 55 to the arm 50. The short end of this lever extends over the notch in the arm which receives the wrist 52, and when the said wrist is in the notch bears upon it. The opposite end of the lever extends forward in the direction of the arm, upon which it rests when not in use, and is brought within convenient reach of the operator standing in front of the pan, as shown in Fig. 2. In order to release the pan by this lever, the forward end is raised and the back end fulcrumed upon the lever 50, and, bearing upon the wrist, will cause the lever 50 to be raised from the wrist until it is released from the notch.

I prefer to provide means for dumping the pan when the scraper is stationary. This is particularly advantageous in the case of a fill when it is impossible to draw the scraper to the point where the deposit is to be made or reach the operating-lever from the rear of the pan. With my improvement it may be backed over the crest and the load deposited the same as with a dump-cart. I accomplish this as follows: An auxiliary tongue 60 is located beneath the tongue 8, to which it is secured by bearings 61, in which it is allowed to slide lengthwise of the said tongue 8. The doubletree 68, by which the draft is imparted to the scraper, is secured to this auxiliary tongue. A standard 62 is secured to the tongue 8 and projects above it a given distance, and is provided with a sheave or roll 63 at its upper extremity. A sheave 64 is secured to the tongue, and a chain or other flexible connection 67 is attached to the auxiliary tongue and passed under the sheave 64, upward and over the sheave 63, and downward to the back edge of the pan, to which it is securely fastened.

A pivoted catch 65 is attached to the tongue 8, and the projection or bolt 66 on this catch is arranged to fall into a suitable recess or

slot in the tongue 60. When this bolt engages the tongue 60, the two tongues are secured together and the draft of the team will be immediately upon the tongue 8 to move forward the load. I prefer to provide a lifting device for the catch 65, in order to detach the auxiliary tongue 60 from the main tongue 8. This may be done by means of a bell-crank lever 62, fulcrumed upon the tongue 8, one arm of which is attached to the catch 65 and the other arm connected to the rod 24, operating the bail-stop. I do not confine myself to this particular means for constructing and operating the catch, as any other means may be employed for holding the two tongues together or releasing them, at the will of the operator. It is essential that the tongue 60 and the bail 12 be released at the same time, in order to leave the pan free to be turned or dumped. As before mentioned, when the catch 65 engages the auxiliary tongue the draft is transmitted through the tongue 8 to the axle and the scraper is operated the same as if no auxiliary tongue were used. When the pan is to be dumped and it is impossible or inconvenient to get to the rear to operate it, the bell-crank 62 may be connected with the rod 24, and by drawing back the said rod the bell-crank is operated and the catch 65 raised, releasing the auxiliary tongue 60 at the same time the catch 16 is thrown out of contact with the bail. The draft applied to the doubletree 68 will now cause the auxiliary tongue to be drawn forward, sliding in the bearings 61. This operation draws the chain 67 around the sheaves 64 and 63, and the back end of the pan, to which the said chain is attached, is thrown upward, thus dumping the load.

I may prefer to provide the support 70, by which the pan is attached to the axle, with a slot 72. This slot may be made of any suitable length, and is for the purpose of preventing the pan from describing so large an arc when it is reversed. As the pan is thrown over the slot will allow the support to travel over the axle, as shown in Fig. 8, thus decreasing the distance from the axle to the bottom of the pan. The axle being the center of motion around which the pan swings, this decrease in the radius will allow the pan to be revolved in a much smaller space.

I claim as my invention—

1. The combination, in a wheeled scraper, with the cranked axle and the pan suspended from said axle, of the tongue attached to said axle, the strap 14, secured to said tongue and forming a way thereon, the bail attached to the forward end of said pan and passing under said strap and adapted to slide in said way, and the pivoted catch adapted to lock said bail in said way, substantially as described.

2. The combination, in a wheeled scraper, with the cranked axle and the pan suspended from said axle, of the tongue attached to said axle, the strap 14, secured to said tongue and forming a way thereon, the bail attached to the forward end of said pan and passing under said strap, the pivoted catch 16, having the curved end 20, and means for turning said catch upon its pivot, substantially as described.

3. The combination, in a wheeled scraper, with the axle and pan, of the tongue attached to the axle, the tube 30, secured to said tongue and passing above the axle, the snatch-bar 32, arranged in said tube and adapted to slide therein, and the chain connected with said snatch-bar and with said pan, substantially as described.

4. The combination, in a wheeled scraper, with the axle and pan, of the tongue attached to the axle, the raising-lever 40, provided with the spool 44 and springs 48, the snatch-bar, and chain connected to said snatch-bar and adapted to be wound on said spool, substantially as described.

5. The combination, in a wheeled scraper, with the axle and pan, of the tongue attached to the axle, the snatch-bar 32, having the notch 34, the pivoted lever 38, and the catch 36, pivoted on said lever and adapted to engage said snatch-bar when in its retracted position, substantially as described.

6. The combination, in a wheeled scraper, with the axle and the tongue secured thereto, of the pan supported upon said axle, the lever 50 upon said tongue and adapted to hold said pan in its reversed position, and the tripping-lever 55, pivoted upon said lever 50 and adapted to bear upon said pan, substantially as described.

7. The combination, in a wheeled scraper, with the axle and tongue, of a pan swinging on said axle, the auxiliary sliding tongue, the draft mechanism attached to said auxiliary tongue, a detachable connection between the two tongues, and a chain connecting the auxiliary tongue with the back of said pan, whereby when the auxiliary tongue is released the draft of the team will cause the pan to be dumped, substantially as described.

8. The combination, in a wheeled scraper, with the axle and tongue, of the pan swinging on said axle, the auxiliary sliding tongue, the catch 65, for connecting the two tongues together, a bell-crank lever 62, for operating said catch and releasing said tongue, and the chain 67, attached to the auxiliary tongue, passing around suitable pulleys 63 and 64, and secured to the back of the pan, whereby as the chain is drawn over the pulleys by said auxiliary tongue the pan is dumped, substantially as described.

CHARLES H. SAWYER.

Witnesses:
R. H. RIPLEY,
A. C. PAUL.