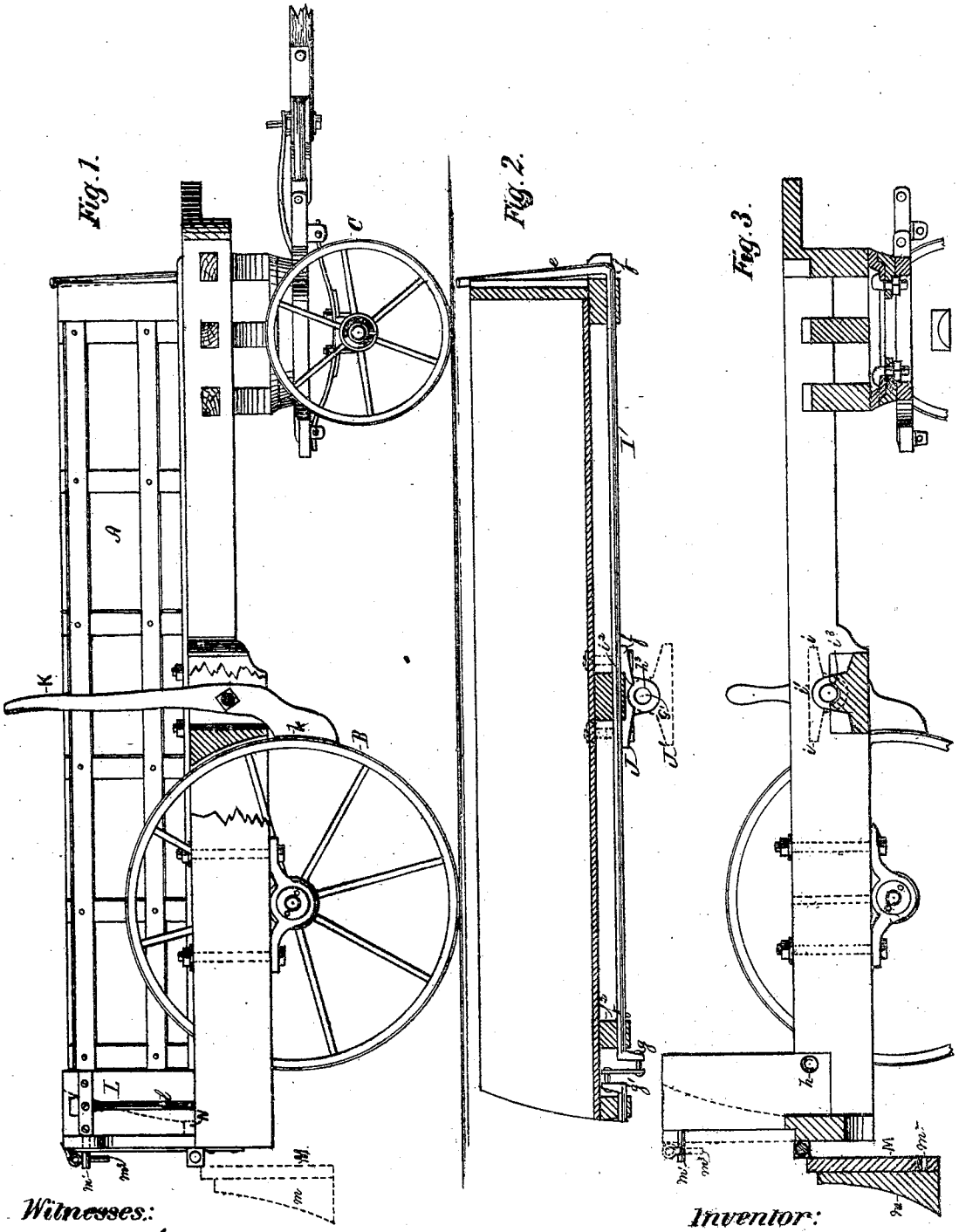
4 Sheets--Sheet 1.

J. SKEEN.

Improvement in Dumping-Wagons.

No. 128,429. Patented June 25, 1872.



Witnesses:

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Inventor:

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Dyer, Beadle & Co. attys.

4 Sheets--Sheet 2.

J. SKEEN.

Improvement in Dumping-Wagons.

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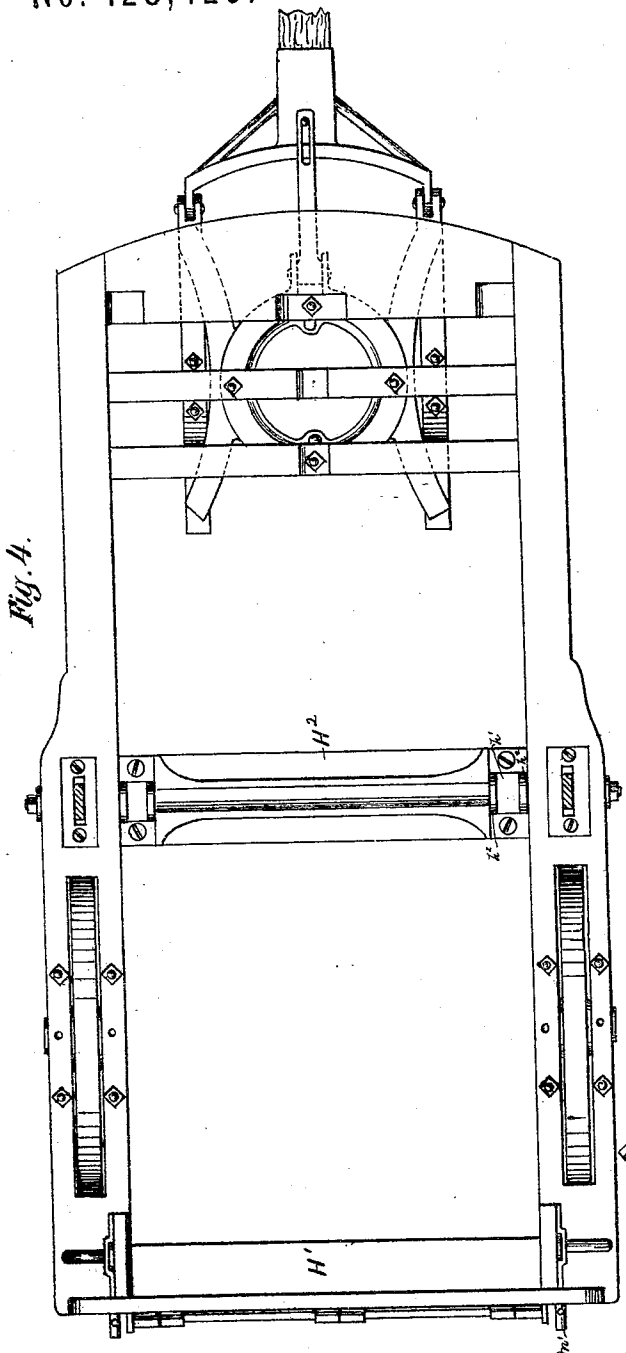

Fig. 4.

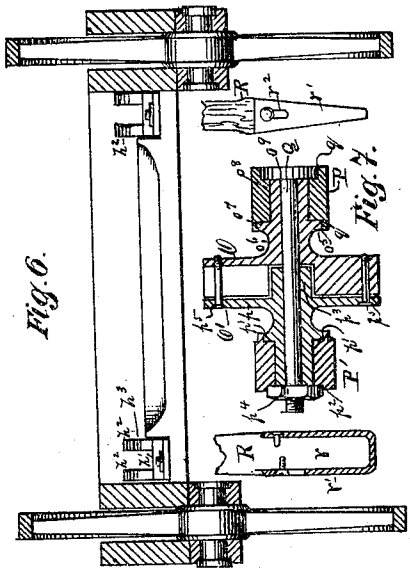

Fig. 6.

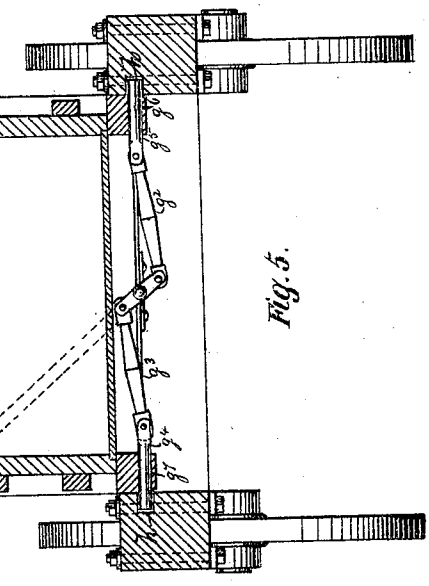

Fig. 5.

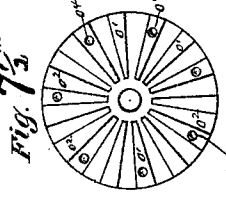

Fig. 7.

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4 Sheets--Sheet 3.

J. SKEEN.

Improvement in Dumping-Wagons.

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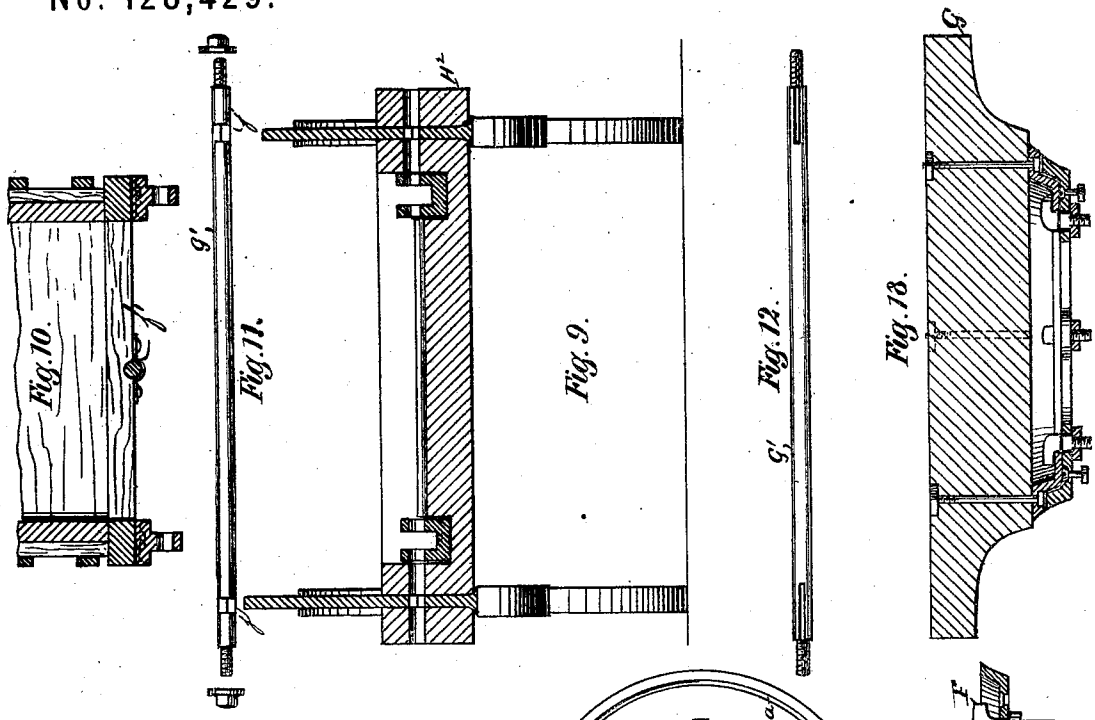

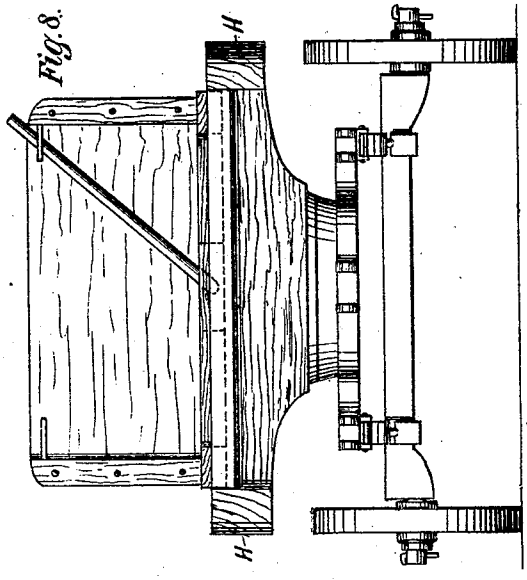

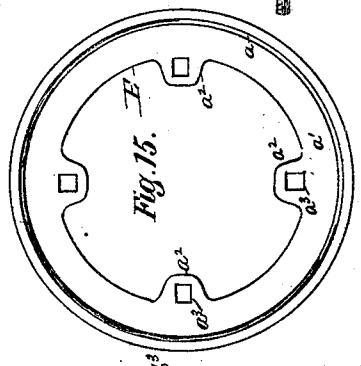

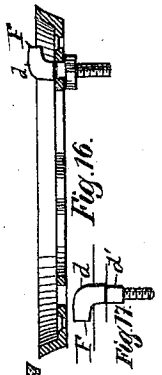

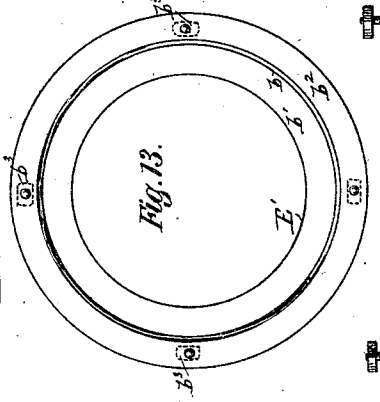

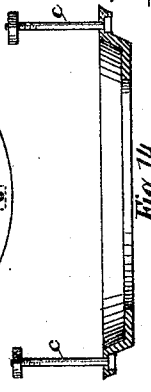

Witnesses:

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Emma Greenaway

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4 Sheets--Sheet 4.

J. SKEEN.

Improvement in Dumping-Wagons.

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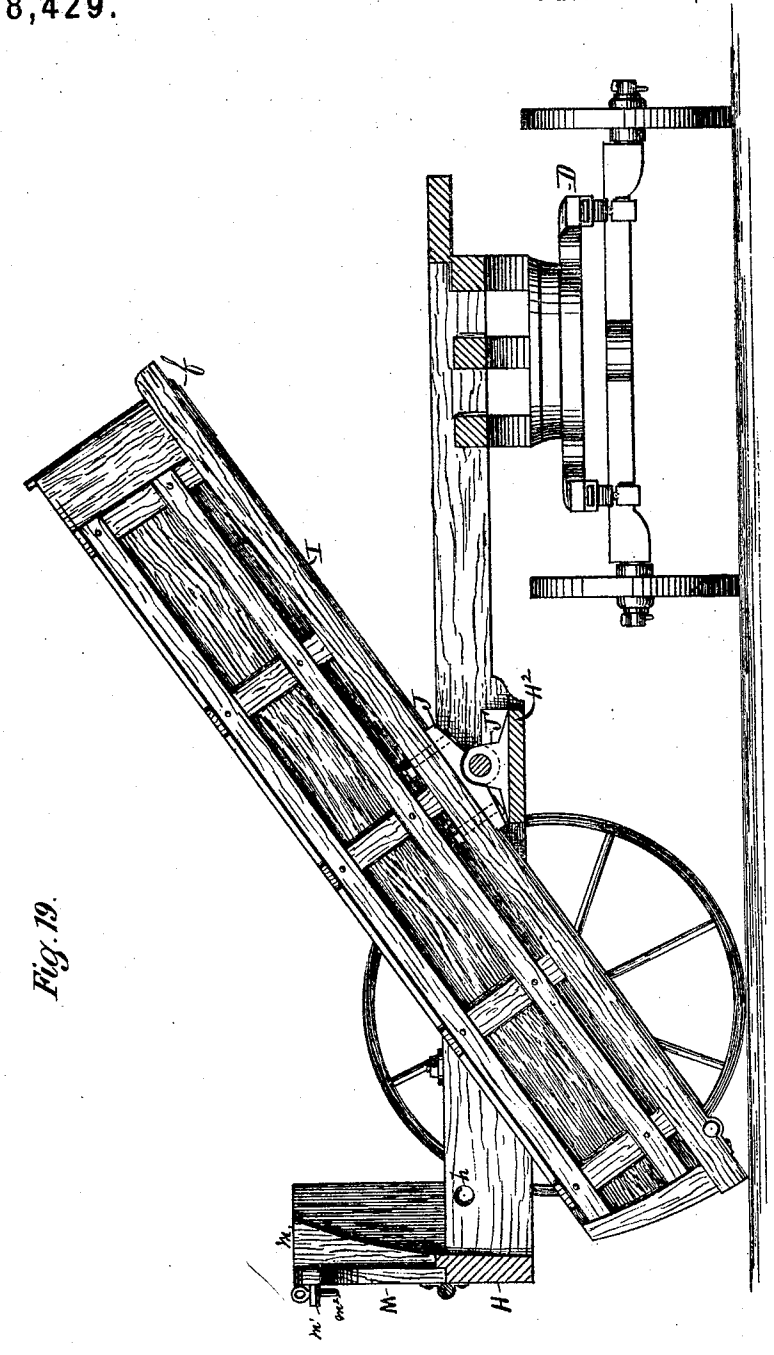

Fig. 19.

Witnesses:

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E Greenaway

Inventor:

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attys.

UNITED STATES PATENT OFFICE.

JACOB SKEEN, OF MOUND CITY, ILLINOIS.

IMPROVEMENT IN DUMPING-WAGONS.

Specification forming part of Letters Patent No. 128,429, dated June 25, 1872.

SPECIFICATION.

To all whom it may concern:

Be it known that I, JACOB SKEEN, of Mound City, in the county of Pulaski and State of Illinois, have invented a new and useful Improvement in Dumping-Wagon; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

In the drawing, Figure 1 is a side elevation of my wagon with a part broken out, showing the brake in position; Fig. 2, a similar elevation of the body detached, showing the pivotal bearings, and the contrivances for locking the same in position; Fig. 3, a similar view of the frame, with the body removed, and with the fifth-wheel in section; Fig. 4, a top view of the same; Fig. 5, an end elevation of the wagon from the rear; Fig. 6, a vertical central cross-section through the hind wheels; Fig. 7, a vertical longitudinal central section of the hub to the hind wheels, and detached views of the lower end of the spokes; Fig. 7½, a separate plan view of one of the portions of the hub; Fig. 8, an end elevation of the wagon from the front; Fig. 9, a vertical cross-section through the center of the wagon; Fig. 10, a similar section through the center of the body; Fig. 11, a separate view of the main rocker-bar; Fig. 12, a modification of the same; Fig. 13, a top-plan view of the upper part of the fifth-wheel; Fig. 14, a vertical central section of the same; Fig. 15, a top plan of the lower part of the fifth-wheel; Fig. 16, a vertical central section of the same; Fig. 17, a separate view of the bolt which holds the two parts of the fifth-wheel together; Fig. 18, a vertical cross-section through the bolster and fifth-wheel; Fig. 19, a side elevation of the wagon with the body dumped and the frame partly in section.

Like letters of like kinds denote similar parts in each figure.

The object which I have in view is an improvement upon the dumping-wagon for which Letters Patent of the United States were granted to me, May 23, 1871, for the purpose of making said wagon lighter, stronger, more convenient, and cheaper of cost. And my invention consists in the construction and arrangement of the fifth-wheel; in the construction and arrangement of the devices for locking the body in position; in the construction and arrangement of the brake; in the construction of the hub to the hind wheels; in the construction of the spokes, and in the manner of securing them in place; in the construction and arrangement of the spindles and their bearings; in the construction and arrangement of the tail-board; in the means employed to prevent the rear end of the body from spreading; in the construction and arrangement of the rocker-bar and its connections; and in the construction and arrangement of the frame.

In the drawing, A represents the body of the wagon, B the hind wheels, C the front wheels, and D the metallic bed-block which supports the fifth-wheel, which is secured to it and is in turn supported by the springs of the wagon. The fifth-wheel, which is composed of a lower ring, E, and an upper ring, E′, of cast metal, preferably steel, is constructed of the form shown particularly in Figs. 13, 14, 15, and 16, the lower ring having a body, *a*, arranged nearly in vertical line, and inwardly-projecting horizontal flange a^1 at the bottom, and ears a^2 upon said flange provided with rectangular openings a^3. Into and upon this ring the upper ring E′ fits pretty closely, conforming in its outside shape to the inside shape of the lower ring, and having a similar body, *b*, inwardly-projecting flange b^1, and, in addition, a flange, b^2, outwardly projecting from the top of the body, which last-named flange has openings b^3, in which are standards *c*, threaded at their tops and provided with nuts, and at their bottoms countersunk so that the bottom of the flange b^2 presents a smooth surface where it turns upon the top of the body *a*. The two rings are secured together so as to turn freely, however, one upon and within the other, by means of square bolts F, shown particularly in Fig. 17, having projecting heads *d*, shoulders d^1, and threaded bottoms provided with nuts. These bolts pass through the openings a^3 in the ears of the lower ring, as far as their shoulders, with their projecting heads extending over the flanges b^1 of the upper ring, and are secured by the nuts screwed up against the un-

der sides of the said ears. The standards *c* pass up through bolster-ties G, preferably three in number, constructed as shown in Fig. 18, which bolster-ties are framed into the side rails H of the wagon. A locking-rod, I, having its front end *e* upturned in a line with the front of the body, and near it, to form a lever or handle for operating the bolts, is arranged centrally under the bottom of the wagon, as shown in Fig. 2, and turns in suitable bearings, *f*, *f*^{1}, and *f*^{2}, extending to a point near the rear end of said body. At this point it has two cranks, *g* and *g*^{1}, set opposite to each other, upon which are pivoted at right angles pitmen *g*^{2} and *g*^{3}, pivoted in turn to bolts *g*^{4} and *g*^{5} which pass through suitable bearings, *g*^{6} and *g*^{7}, secured to the bottom of the body aforesaid. By turning the lever *e* in one direction away from a vertical line these bolts are shot into proper openings *h* incased with metal on the inner sides of the said rails, and the body of the wagon is held securely in a horizontal position. When the lever is turned in the other direction the bolts are withdrawn, and the body of the wagon is in condition to turn upon its axis and dump its contents.

The side rails H of the wagon, before spoken of, are made of heavy timber, in the form shown in Fig. 1, and tied together as before stated by the bolster-ties at the front ends. At the rear ends, and covering them, is a cross-tie, H^1, dovetailed and mortised into the ends of said rails, and otherwise firmly secured thereto. The side rails are also secured together by a central cross-tie, H^1, firmly secured at either end to the under side of the outside rails, and covered upon its bottom with a metal plate. Upon the top of this cross-tie H^2, and near either end of it, are placed the rockers J and J^1, shown in Figs. 2, 3, 9, and 19, composed of a lower bearing, J^1, the base *h*^{1} of which is securely fastened upon said cross-tie, while its ears *h*^{2}, having circular openings *h*^{3}, embrace the ear *i* of the upper bearing J, whose base *i*^{1} is securely fastened to the body of the wagon. A semicircular recess, *i*^{2}, in the base of the upper bearing, permits the top of the ear *h*^{1} to rest upon it in its operation, and serves to relieve the rocker-bolt G′ from injury from sudden shocks, and is assisted in this result by a similar curved recess, *i*^{3}, to coincide with the curved form of the ear *i* whose outer surface turns in said recess.

The rocker-bolt G′ just mentioned, shown particularly in Fig. 11, passes through the side rails from outside to outside of the wagon, and through the ears of the rockers before described, having a portion, *j*, near each end squared where it passes through the brake-levers, and is made a little tapering, so that it may be inserted from one side. It is secured in place by nuts upon its threaded ends, and is turned a little in the movement of the brake-levers. A modification of this rocker-bolt is shown in Fig. 12, having, instead of the squared portion, a key-seat for a spline. Upon this squared portion of the rocker-bolt are placed on each side of the wagon, in suitable openings in the side rails, the brake-levers K of cast metal, preferably of steel, the form of which is shown in Fig. 1, in such position that the heavy shoe *k*, by its weight, will hang a little distance from the rim of the wheel, when not applied as a brake. One of the brake-levers may have a long handle, as shown in Fig. 1, for operation by hand, when the driver is walking, and the other may be provided with a rod or chain for use by the driver when upon the wagon. In either case the movement of one of the levers applies both of the shoes at once as brakes.

The rear ends of the wagon-body are rounded, as shown in Figs. 1 and 10. Outside of these ends a standard, L, is mortised firmly into the side pieces, and held securely by a curved metallic brace, *h*, secured to its top and to said side piece, the position of which standard is such that the outsides of the rear end of the wagon-body play quite closely between them, and they thus serve, among other purposes, to keep the sides of said body from spreading, as is apt to be the case in bodies, particularly those which widen a little, as this does, toward the rear, and are used for carrying heavy loads, like coal, iron, and ore.

The tail-board M is pivoted to the outside of the end cross-tie of the wagon, as shown in Figs. 1 and 3, and is provided upon its inner side with a box, *m*, built of boards, largest at its top, and curved inwardly toward its bottom, when in place, which line of curvature causes it to fit closely over the curved ends of the wagon-body. This box has a length which enables it to fit closely between the insides of the standards L, and it is held in place vertically by bolts *m*^{1} secured to the outside of said standards near their tops, which bolts pass through proper openings *m*^{2} in such tail-board, and are secured by suitable pins *m*^{3}.

The object of the curved box *m*, above described, is to make a closer fit to the end of the body and to give a freer discharge of the load, it being intended that in the ordinary use of the wagon in dumping the tail-board should be kept up.

A metallic bar, N, extending between the standards L and secured upon the end cross-tie before named, serves to protect the cross-tie and the end of the body, when the tail-board is down, in carrying loads which project beyond the wagon.

The hind wheels of the wagon turn through openings in the side rails, as shown in the patent of May 23, 1871. The hub of this wheel is made of cast metal, preferably of steel, in two portions, O and O′, and is shown in detail in Fig. 7, and the portion O is shown separately in Fig. 7½. The portion O has a disk, *o*, upon one side of which are radial flanges *o*^{1}, which are so arranged that in every instance each flange has a corresponding one directly opposite to it in the same line of di-

rection, and each opening o^2, between two of the flanges, has a corresponding opening opposite.

By this arrangement of the flanges and openings I am enabled to have every part finished up in a planer and a lathe. These flanges, moreover, taper gradually from outside toward the centers, which do not come together, but leave a circular opening, o^3. These flanges are, moreover, furnished with holes o^4 for the purpose of securing the two portions of the hub together. Upon the other side the disk o is cast with a projection, o^5, with a groove, o^6, upon it, a shoulder, o^7, and outside of that a spindle, o^8. A circular opening, o^9, passes longitudinally through this spindle, and the projection before named, and the center of the disk. The other portion O′ of this hub has a corresponding disk, p, a similar projection, p^1, and spindle p^2 on the outside, but smaller than the corresponding parts on the portion O, and on the inside of the disk a projection, p^3, of a size to fit closely into opening o^3 between the inner ends of the flanges before named, a corresponding circular longitudinal opening, p^4, through the spindle and projections named, and holes p^5 in the disk, through which, and through the holes in the flanges before named, proper threaded bolts pass and hold both portions of the hub together.

Cast-metal bearings P, preferably of steel, are secured upon the under sides of the side-rails of the form shown in Figs. 1 and 3, and provided with openings for the hollow spindles before named to turn in, having recesses q around the outsides of such openings, into which, upon the insides of such bearings, the shoulders of the spindles fit and turn, and are secure from sand and dirt, while upon the outsides similar recesses serve the same purpose for the head, and the circular nut upon a tie-bolt, Q.

This tie-bolt, which serves as additional security for the hub, passes through the same in the longitudinal openings before named in the spindles, and may turn with them, which result is promoted by the projection of the ends of the spindles a trifle into the outer recesses before named in the bearings, by means of which the nut of the bolt being screwed up tightly will not touch against the bearing in its revolutions, neither will the head of the bolt at the opposite end.

The spoke R has its lower tapering end r covered with a strip of sheet metal, r^1, bent around said end, and secured by passing a headed pin through it and the spoke, and upsetting the point so that the same cannot withdraw. Upon one of the ends of the strip of metal, preferably that end where the head of the pin is, a slot, r^2, is made in continuation of the opening through which the pin passes. When the spoke is driven to its place there will be a slight elongation of the strip of metal in a wedging form, which will serve to hold the spoke in its place very securely.

In the construction of a dumping-wagon like this, for use in cities, it is essential that it may occupy but a small space in the street when loading and unloading, and may be turned in a small compass. This is effected by my fifth-wheel, which is capable of an entire revolution, and which, in addition, has the merit of great strength with little weight and extreme cheapness, requiring ordinarily no preparation after casting but cleaning in a tumbling-box; but the separate running-surfaces may be smoothed by turning one within the other, or may be finished entirely without and within on a lathe.

In such a wagon, moreover, which dispenses with a hind axle, the peculiar construction of the hub becomes essential, and has the advantages of great strength, lightness, and cheapness, of running easily, and of being secure from dirt and sand.

The operations of the several parts of my device which have not been explained in detail are obvious upon inspection of the drawing, and the advantages of construction are equally apparent.

Having thus described my dumping-wagon, what I claim as new therein, and my own invention, is—

1. The combination, in a fifth-wheel, of the cast-metal rings E and E′ and the hook-bolts F, constructed and operating substantially as set forth.

2. The means employed for locking and unlocking the body of the wagon, so that the same may be held in a horizontal position or in a position for dumping, consisting of the rod I provided with cranks g g^1, pitmen g^2 g^3, and bolts g^4 g^5, substantially as described and shown.

3. The combination of the brake K k with the rocker-bolt G, constructed and operating substantially as set forth.

4. The hub O O′, constructed and arranged substantially as described and shown.

5. The spokes R, provided with sheet-metal strips r^1 having the slot r^2, constructed, arranged, and operating substantially as described and shown.

6. The combination of the spindles o^8 and the bearings P, constructed and arranged substantially as described and shown.

7. The tail-board M provided with box m, constructed and arranged substantially as described and shown.

8. The combination of the braced standards L and the body of the wagon, substantially as described and shown.

9. The combination of the rockers I I^1 with the rocker-bar G^1, constructed and arranged substantially as described and shown.

10. The combination of the side rails H, bolster-ties G, and cross-ties H^1 and H^2, constructed and arranged substantially as described and shown.

Witnesses: JACOB SKEEN.
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G. H. GREELY.