M. O. BRIGHT.

WHEELED SCRAPER.

APPLICATION FILED OCT. 26, 1914.

1,183,850.

Patented May 23, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

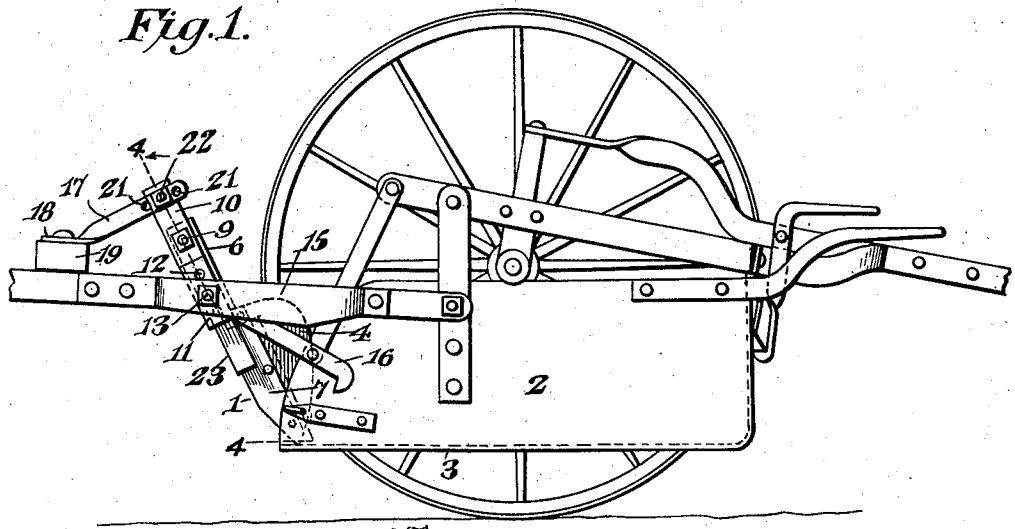
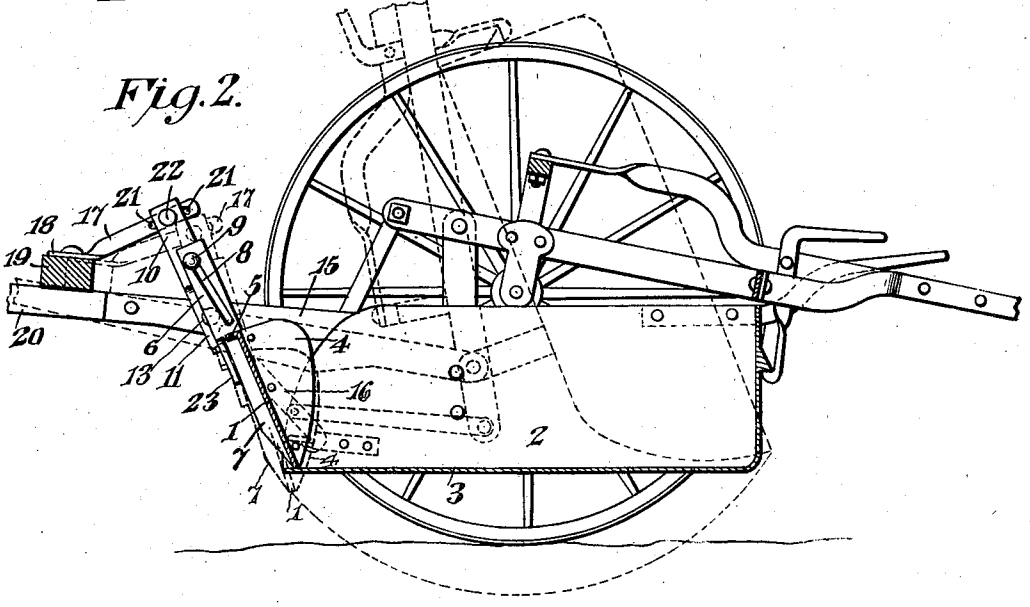


Fig. 2.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 6.

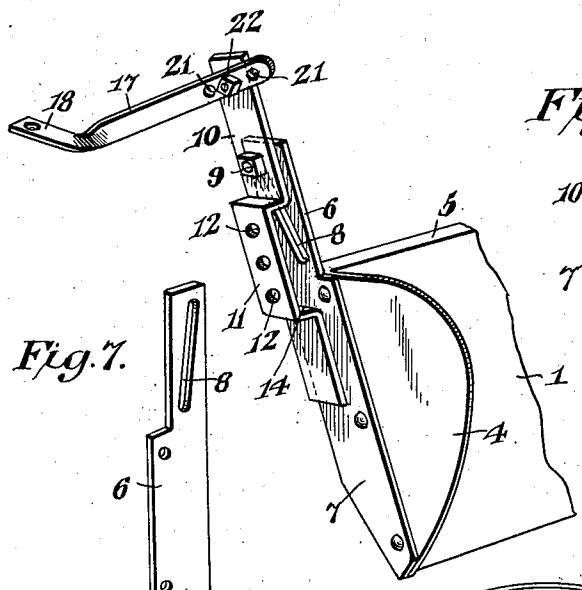


Fig. 4.

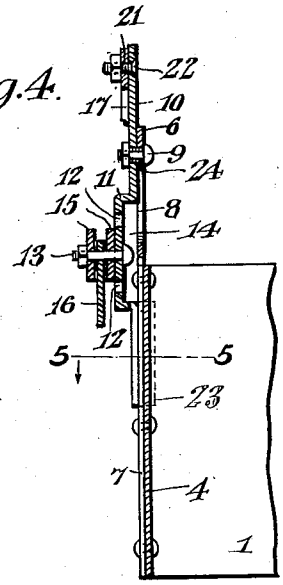


Fig. 5.

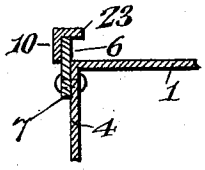


Fig. 7.

Fig. 8.

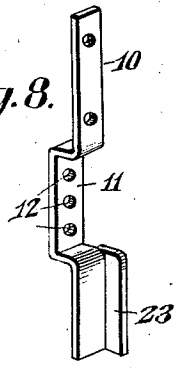


Fig. 3.

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UNITED STATES PATENT OFFICE.

MILTON OMER BRIGHT, OF STAUNTON, VIRGINIA.

WHEELED SCRAPER.

1,183,850. Specification of Letters Patent. Patented May 23, 1916.

Application filed October 26, 1914. Serial No. 868,703.

To all whom it may concern:

Be it known that I, MILTON O. BRIGHT, a citizen of the United States, residing at Staunton, in the county of Augusta and State of Virginia, have invented a new and Useful Wheeled Scraper, of which the following is a specification.

The invention relates to improvements in wheeled scrapers.

The object of the present invention is to improve the construction of wheeled scrapers, more especially the construction of the end gate for retaining the excavated material in the scraper pan, and to provide a simple, practical, and efficient end gate of this character adapted to be readily applied to various types of scrapers and capable of being opened and supported in an open position by the dirt or other excavated material, and also adapted, when the scraper pan is lifted from the ground, to close automatically so as to retain a full load in the scraper pan while the scraper is traveling from the cut to the fill.

A further object of the invention is to provide an end gate or closure which will not interfere with the dumping and other operations of the scraper pan and which will be capable of swinging inwardly or rearwardly out of the way to prevent it from being injured should the scraper come in contact with a rock, stump, or other obstruction.

With these and other objects in view the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:—Figure 1 is a side elevation of a wheeled scraper provided with an end gate or closure constructed in accordance with this invention, the scraper pan being elevated and the end gate being closed. Fig. 2 is a longitudinal sectional view of the same, the dumping position of the scraper pan being illustrated in dotted lines. Fig. 3 is a longitudinal sectional view of the scraper, the scraper pan being in its lowered or scraping position and the end gate or closure being supported in an elevated position by the dirt, the latter being indicated by dotted lines. Fig. 4 is a detail transverse sectional view taken substantially on the line 4—4 of Fig. 1. Fig. 5 is a detail sectional view on the line 5—5 of Fig. 4. Fig. 6 is a detail perspective view of one end of the end gate and the means for supporting the same. Fig. 7 is a detail perspective view of one of the plates or pieces which form the arms of the end gate. Fig. 8 is a detail perspective view of one of the supporting bars or members.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

In the accompanying drawings, in which is illustrated the preferred embodiment of the invention, 1 designates an end gate or closure designed to be constructed of heavy sheet metal such as iron or other suitable material, and located at the front of the scraper pan 2 and forming a closure for the same when the scraper pan is in an elevated position, as illustrated in Figs. 1 and 2 of the drawings. When the scraper pan 2 occupies such position, the end gate or closure 1 is arranged at an inclination and extends upwardly and forwardly from the front end of the bottom 3 of the scraper pan and it is provided with rearwardly extending shields or wings 4 tapered from their upper portions and adapted to close the space between the sides of the scraper pan and the end gate or closure to prevent the escape of the contents of the scraper pan. The wings or shields 4, which are preferably formed integral with the end gate 1, are arranged at the inner faces of the sides of the scraper pan and have rounded upper rear corners, and their rear edges are preferably curved as shown, but they may be of any other desired configuration to enable them to effectively prevent the escape of dirt at the ends of the end gate. The end gate is preferably reinforced or stiffened by an integral flange 5, arranged at the upper edge of the end gate and extending forwardly therefrom, as clearly illustrated in Fig. 2 of the drawings. Owing to the integral character of the wings or shields 4 and the top flange 5, the entire end gate structure may be stamped or otherwise formed from a single piece of metal.

The end gate is provided at its ends with upwardly extending arms 6, preferably

formed by separate flat plates or pieces fitted against the ends of the end gate and having lower attaching portions 7 riveted or otherwise secured to the shields or wings 4, but the attaching portions of the arms 6 may be of any other desired construction and the upwardly extending arms 6 may be formed in any other desired manner. The arms 6, which are arranged at the same inclination as the end gate, are provided with inclined or angularly disposed slots 8, receiving pivot bolts 9 or other suitable fastening devices, which are mounted on supporting bars or members 10. The supporting bars or members 10, which are arranged at an inclination, are provided with intermediate outwardly offset portions 11 formed by spaced right angle bends and provided with series of perforations 12 arranged at intervals and adapted to receive bolts 13, preferably arranged with their heads in the recesses 14 formed by the offsets in the supporting bars or members and securing the latter to the side bars or members 15 of the draft bail of the wheeled scraper. The bolts 13, which have their nuts at their outer ends, are the bolts employed in the wheeled scraper for pivotally connecting the rocking levers 16 to the draft bail, and the perforations 12 provide for an up and down adjustment of the supporting bars or members 10 and a consequent adjustment of the end gate to enable the latter to be properly positioned with relation to the scraper pan. The supporting bars or members are also capable of pivotal adjustment, so that the front end of the bottom of the scraper pan will extend beneath the lower edge of the end gate the desired distance to positively prevent the escape of the load at that point. Said supporting bars or members are secured in their adjustment by means of rigid inclined braces 17, bolted or otherwise secured at their lower ends 18 to the upper face of the cross bar 19 of the tongue or pole 20 and extending upwardly and rearwardly from the said cross bar 19 and provided at their upper rear portions with perforations 21, preferably arranged at intervals in an arcuate series and adapted to receive a bolt 22 which pierces the upper ends of the supporting bars. The braces firmly and adjustably support the bars or members 10 in their inclined position. The lower portions of the supporting bars or members are provided at their front edges with longitudinal flanges 23 projecting at the inner side faces of the supporting bars or members in a direction transversely of the scraper and forming stops for limiting the downward and forward swing of the end gate and cooperating with the pivots 9 in supporting the end gate in its closed position.

The end gate, which is supported by the draft bail of the machine, is adapted, as illustrated in Fig. 3 of the drawings, to be swung upwardly from its closed position by the material excavated by the scraper pan. The excavated material accumulates in front of the scraper pan and swings the end gate upwardly, as shown in Fig. 3, causing the end gate to slide forwardly until the rear end walls of the slots 8 engage the pivot bolts 9. In order to enable the end gate to slide frictionlessly on the pivot bolts 9, the latter are provided with antifriction sleeves 24. This forward sliding movement enables the end gate to swing downwardly from the position shown in Fig. 3 on a materially reduced radius when the scraper pan is lifted from its scraping position in Fig. 3 to the elevated carrying position shown in Figs. 1 and 2. The end gate, by swinging downwardly on a short radius, practically clears the contents of the scraper pan and drops down to its closed position without sweeping the front portion of the load from the scraper pan. The return movement of the end gate is first a swinging movement and then a sliding movement, and when in its closed position, it confines the load within the scraper pan and enables a full load to be carried from the cut to the fill, thereby materially increasing the capacity of the scraper. The excavated material on the scraper pan will fall against and be caught and retained by the end gate, as it is swung to and assumes its closed position, for maintaining the excavated material on the scraper pan which is ordinarily lost. It has been demonstrated that the load carried by the scraper pan with my end gate applied thereto, is increased from one-third to one-fourth more than can be carried by the scraper pans in general use. Also, as the front of the scraper pan extends beneath the end gate, the said pan is adapted to swing to the dumping position, illustrated in Fig. 2 of the drawings without the end gate interfering with the operation of the machine. Neither does the end gate interfere with the return of the scraper pan from the dotted line or dumping position illustrated in Fig. 2 to the full line horizontal position of that figure.

As the end gate is designed for use on various wheeled scrapers of the type illustrated in the accompanying drawings, and as the particular construction of the scraper pan and the means for mounting and operating the same do not constitute any portion of the present invention, further description and illustration thereof is deemed unnecessary.

What is claimed is:—

1. In combination with a wheeled scraper including a scraper pan, an end gate extending across the front of the scraper pan for confining material therein, and means rigidly connected to the end gate and pivotally and

slidably connected to the wheeled scraper to permit the end gate to be swung upwardly and rearwardly by the excavated material and to close automatically when the scraper pan is lifted from its excavating position.

2. In combination with a wheeled scraper including a scraper pan, an end gate extending across the front of the scraper pan for confining material therein, means rigidly connected to the end gate and pivotally and slidably connected to the wheeled scraper at the upper portion thereof for permitting the end gate to be swung upwardly and rearwardly by the excavated material and to close automatically when the scraper pan is lifted from its excavating position, and a stop arranged in the path of the end gate for limiting the downward and forward swing of the same.

3. In combination with a wheeled scraper including a scraper pan, an end gate extending across the front of the scraper pan for confining material therein, and means rigidly connected to the end gate and pivotally connected to the wheeled scraper to permit the end gate to be swung rearwardly and upwardly by the excavated material and to close automatically, said means also permitting a limited sliding movement of the end gate with respect to its pivot, whereby the end gate is adapted in its downward movement to swing on a reduced radius.

4. In combination with a wheeled scraper including a scraper pan, an end gate extending across the front of the scraper pan and provided at opposite sides with slots, and pivots carried by the scraper and arranged in the said slots to permit a pivotal and sliding movement of the end gate, whereby the latter is adapted to swing on a shortened radius.

5. In combination with a wheeled scraper including a scraper pan, an end gate extending across the front of the scraper pan and provided with rigid upwardly extending arms, and means slidably and pivotally connecting the same with the scraper to permit the end gate to be swung upwardly and rearwardly by the excavated material and to swing downwardly on a reduced radius.

6. In combination with a wheeled scraper including a scraper pan, supporting bars or members mounted on the scraper and provided with projecting stops and having pivots located above the stops, and an end gate extending across the front of the scraper pan and provided with projecting arms having slots receiving the pivots of the supporting bars or members, said end gate being limited in its forward movement by the said stops and being adapted to be swung rearwardly and upwardly by the excavated material.

7. The combination with a wheeled scraper having a scraper pan, of an end gate extending across the front of said pan, arms connected to and extending above said gate having inclined slots therein, and pivots carried by the scraper received in said slots whereby the end gate has sliding and pivotal movement thereon for opening and closing the pan, said end gate moving in a shortened radius in the closing of the pan.

8. In combination with a wheeled scraper including a scraper pan, supporting bars or members pivotally mounted on the scraper and provided with stops, an end gate extending across the front of the scraper pan and pivotally connected with the supporting bars or members and arranged to engage the stops thereof, and braces mounted on the scraper and adjustably connected with the supporting bars or members for securing the same in their pivotal adjustment.

9. In combination with a wheeled scraper including a scraper pan, supporting bars or members having intermediate offset portions and provided with lower laterally projecting stop flanges, means for adjustably pivoting the offset portions of the supporting bars or members to the scraper, means mounted on the scraper and adjustably connected with the supporting bars or members for securing the latter in their pivotal adjustment, pivots mounted on the upper portions of the supporting bars or members, and an end gate extending across the front of the scraper pan and provided with upwardly extending arms having slots receiving the pivots of the upper portions of the supporting bars or members, said end gate being limited in its forward swing by the stop flange.

10. The combination with a wheeled scraper including a scraper pan, a draft bail, a tongue connected therewith, and a cross bar carried by the tongue, of inclined supporting bars or members pivotally mounted on the draft bail and extending upwardly therefrom, braces secured to the said cross bar and extending upwardly and rearwardly therefrom and adjustably connected with the supporting bars or members, an end gate extending across the front of the scraper pan, and means for pivotally hanging the end gate from the supporting bars or members and for limiting the swing of the end gate.

11. In combination with a wheeled scraper including a scraper pan and supporting frame, an end gate extending across the front of the scraper pan, and means for slidably and pivotally connecting the end gate to the frame substantially in the plane of the gate, the pivotal connection being located above the supporting frame, so that the end gate will be swung upwardly and forwardly by the excavated material, causing the outer surface of the end gate to be presented to the excavated material, and the lower terminal of the end gate to assume the highest point above the scraper pan, whereby

the end gate is adapted to swing downwardly to closed position on a reduced radius.

12. In combination with a wheeled scraper including a scraper pan and supporting frame, an end gate extending across the front of the scraper pan, and means for pivotally and slidably connecting the end gate to the frame, said means consisting of a rigid pivot on one of the two parts last mentioned and a movable connection for the pivot on the other part, the pivotal connection being located above the supporting frame and movable forwardly in the movement of the end gate from its closed to its open position, so that the end gate will be swung upwardly and forwardly by the excavated material, causing the outer surface of the end gate to be presented to the excavated material, and the lower terminal of the end gate to assume the highest point above the scraper pan, whereby the end gate is adapted to swing downwardly to closed position on a reduced radius.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

MILTON OMER BRIGHT.

Witnesses:
C. N. HINES,
W. M. MCCRAY.