

July 19, 1938.

W. J. ADAMS, JR

2,124,408

COMBINATION FIXED BLADE AND TILTING BOWL SCRAPER

Filed Dec. 1, 1936

2 Sheets-Sheet 1

Fig. 1

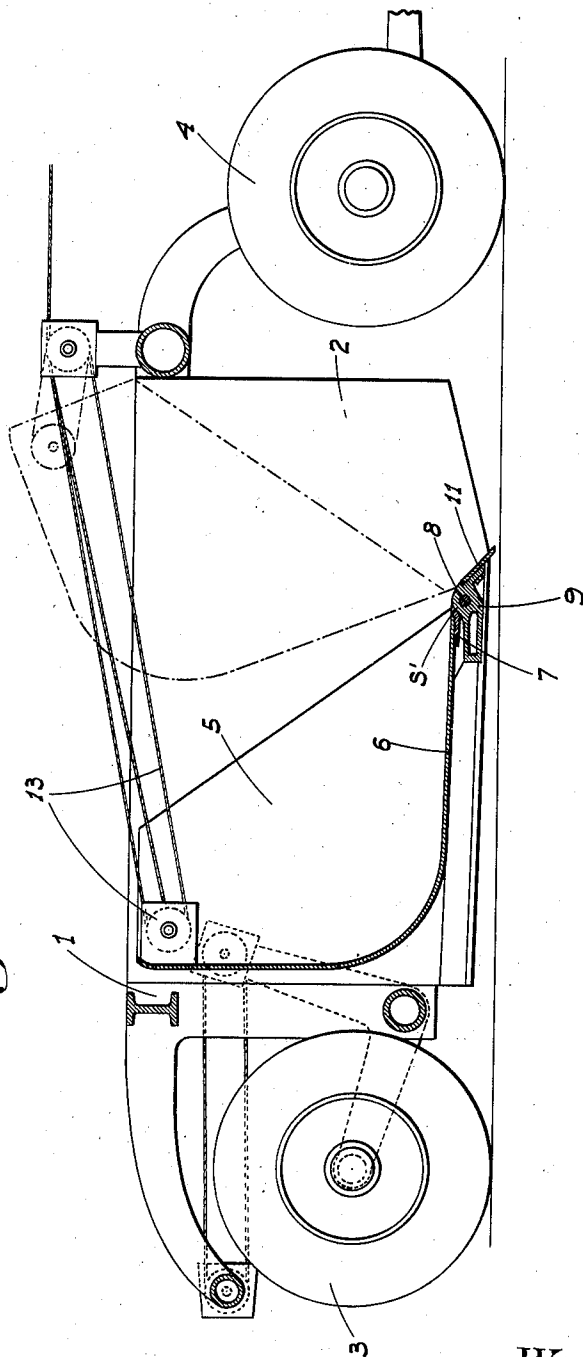
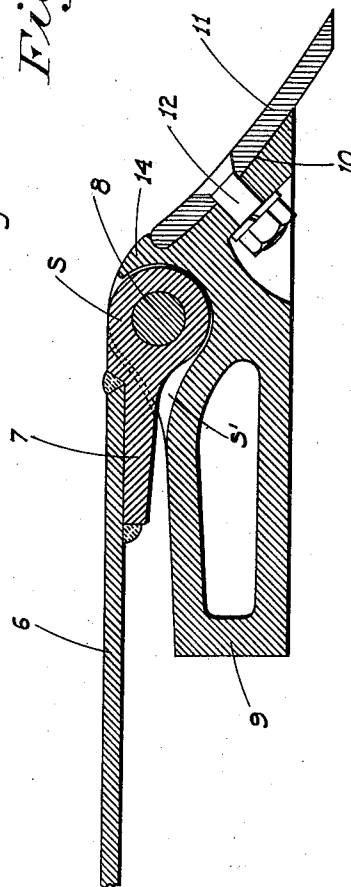


Fig. 2



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Fig. 3

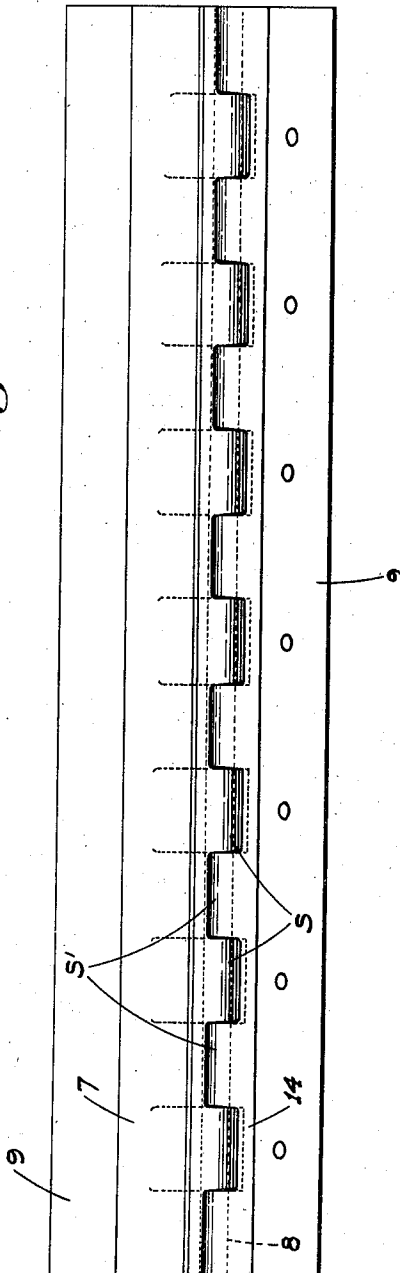
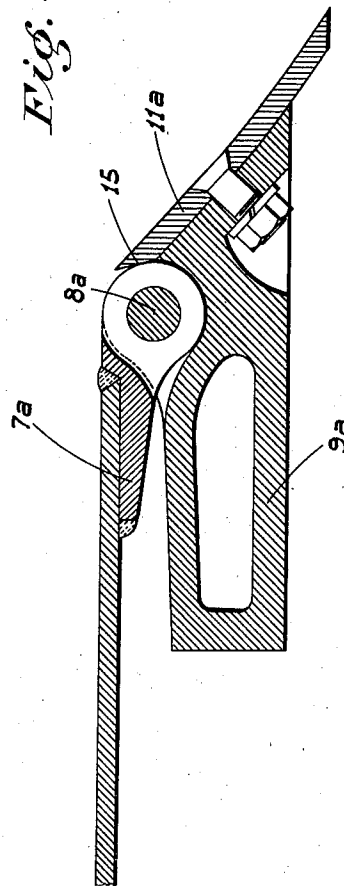


Fig. 4



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COMBINATION FIXED BLADE AND TILTING
BOWL SCRAPER

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2 Claims. (Cl. 37—126)

This invention relates to scrapers and particularly to the mounting of the cutting blade relative to the bowl in a scraper of the wheel supported front discharge type.

My principal object is to so mount the cutting blade of the bowl that the latter is hingedly connected to the blade, while said blade is secured on and stationary with the frame of the scraper at all times, regardless of the angle of setting or tilt of the bowl itself. By this construction, I combine the desired qualities of the tilting bowl type of scraper with the stationary bowl type.

The blade being fixed or stationary, I am able to maintain an even grade during the dumping cycle, and this feature is also valuable for finish grading. On the other hand, the bowl itself being tiltable, makes the most simplified and efficient form of scraper for accurate grading purposes and one which requires a minimum amount of power to dump and spread a given load of dirt.

The bowl being hinged on the cutting edge or blade, it simplifies the dumping of dirt to a given depth, since only one operation or manipulation of the scraper parts is necessary, instead of two or three as is now the case. By securing the cutting blade rigidly on the frame of the scraper, the entire thrust of the cutting blade is taken directly by the frame instead of by any pivot or hinge pins. Rigidity and strength of the scraper as a whole is therefore increased without any added weight.

A further object is to provide a special hinge unit for the purpose, so constructed that it has the necessary strength to resist the various strains to which it is naturally subjected in service.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views.

Fig. 1 is a sectional elevation of a wheel scraper showing my improved blade and bowl connection and mounting.

Fig. 2 is an enlarged section of the blade and bowl hinging unit detached.

Fig. 3 is a plan view of the hinge unit detached.

Fig. 4 is a sectional elevation of a modified form of hinge and blade unit.

Referring now more particularly to the characters of reference on the drawings, and particularly at present to Figs. 1 to 3, the scraper comprises side frames 1 from which longitudinally extending side plates 2 depend. The frame is supported at the rear by vertically adjustable wheels 3 and in the front by a swivel wheel truck 4. It may be here noted that the mounting and method of control of the wheels forms no part of this invention, the particular arrangement shown being for purposes of illustration only.

Mounted for forward tilting movement between the side plates 2 is the bowl 5 having a bottom plate 6. At its front end this plate overlaps and is rigidly secured on one leaf or plate 7 of a hinge unit which extends the full width of the bowl. This hinge is of the piano type, as shown in Fig. 3, the leaf 7 having a plurality of spaced sleeves S. These are coupled by a hinge pin 8 with the cooperating sleeves S1 of the other hinge member 9. This member is in the form of a relatively thick heavy bar, the bottom of which is substantially on a level with the bottom of the side plates 2, and which extends between and is welded on the same. Also, this bar is constructed, in cross sectional form, so as to carry the weight of dirt at that point, and which is apt to be considerable, if, as would probably be the case, a front auxiliary bowl or apron is used in connection with the bowl 5.

It will also be noted that the hinge sleeves S1, which are of course integral with member 9, form a strengthening web or arch support connecting the rear portion of the member 9, and the forward portion thereof on which the cutting blade is mounted. This will prevent the tendency to overturning of the blade support, which is present in tough digging and the like.

This bracing construction enables me to hold down the height or thickness of the member 9, as is desirable, without loss of strength. In other words, the member or bar 9 is recessed on top to receive the hinge sleeves 7a, and is recessed on the bottom to receive the bolt heads, thus reducing the overall height of the bar to a minimum, and yet the necessary strength of the bar is retained by means of the arch supports provided by the hinge sleeves S.

The front face of the member 9 is provided with a transverse recess 10 disposed at a forward and downward angle. This forms the seat for a cutting blade 11 which projects some distance below the member 9 and which is secured thereto by bolts 12. The forward face of the blade, the member 9 above the same, the pin engaging

sleeves of the hinge leaves and the top surface of the bottom blade of the bowl all have a substantially smooth juncture with each other so that no interference with the free sliding of dirt over the same is had. Tilting of the bowl may be effected by any suitable means, such as a cable and sheave unit, indicated generally by 13.

The blade of course is set to position for digging or discharge by adjusting the rear wheels, and the tilting of the bowl to any extent will obviously not alter the position or level of the blade relative to the ground in any way. When loading the scraper, all the thrust strains are taken directly by the heavy hinge bar 9 and not by the hinge pin 8 or by the bowl, so that these latter parts may be made lighter than is ordinarily the case. Also, it will be seen that no thrust strains are taken by the blade holding bolts 12 on account of the recessing of the member 9 to set such blade, and which provides an overhanging shoulder 14 integral with the member 9 above the blade and against which the top edge of the latter presses when under load. This shoulder projects in front of the hinge sleeves 7a nearly to the top thereof, and so keeps the pressure of the dirt away from said sleeves. In the form of hinge shown in Fig. 4, the construction of the lower hinge member 9a is the same as previously described, but the shoulder 14 is eliminated, and the cutting blade itself extends in front of the hinge sleeves of the upper leaf 7a, being beveled as at 15 to bear against said sleeves, the bevel or taper being the same as that of the cutting edge. The forward end of leaf 7a then thrusts against the upper edge of the blade when the bowl is being tilted to the dumping position. Since the structure is subject to a great abrasive action in use, this upper thrust edge 15 and the hinge pin 8a will wear considerably. The blade being of course replaceable, when worn, this thrust edge becomes replaced at the same time.

From the foregoing description it will be readily seen that I have produced such a device as sub-

stantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention, what I claim as new and useful and desire to secure by Letters Patent is:

1. A scraper including a supporting frame, a tiltable bowl, a cutting blade, a leaf hinge, one leaf of which extends under and is secured on the bowl at its front end, the other leaf being in the form of a relatively heavy bar which is secured at its ends on the frame, cooperating hinge sleeves formed with the leaves, a cutting blade secured against the forward edge of said other leaf; the latter being formed with an element above the blade providing an abutment for the upper edge of the blade and extending in front of and adjacent the hinge sleeve of the one leaf.
2. A hinge connection means between the bowl, cutting blade and frame of a scraper comprising an upper hinge leaf adapted to underlap and be secured on the bottom of the bowl at the front, spaced hinge sleeves on said leaf at the front, a lower leaf adapted to be secured at its ends on the frame of the scraper and comprising a rear portion and a forwardly sloping front portion forming a support for the blade, said lower leaf being recessed on top between the front and rear portions thereof to receive the lower portion of the hinge sleeves of the upper leaf whereby to hold the hinge unit to a minimum height, and hinge sleeves formed with the lower leaf to cooperate with and disposed between the hinge sleeves of the upper leaf and providing strengthening webs across the recessed portion of the lower leaf.

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