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SNOW PLOW HAVING OBSTACLE COMPENSATING MEANS
ON THE FORWARD EDGE OF THE BLADE
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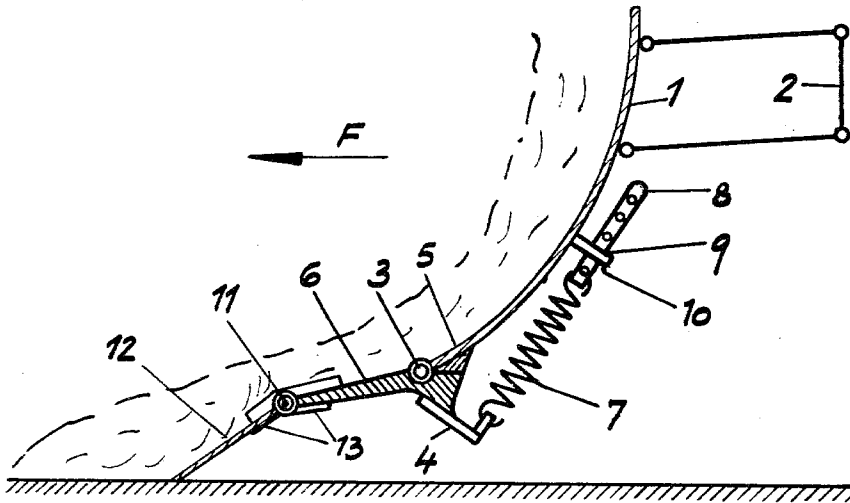


Fig. 1

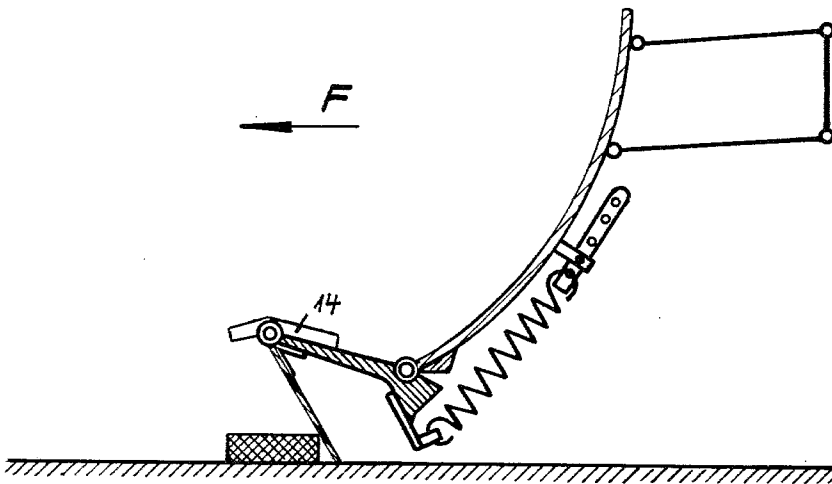


Fig. 2

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SNOW PLOW HAVING OBSTACLE COMPENSATING MEANS ON THE FORWARD EDGE OF THE BLADE

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8 Claims. (Cl. 37-42)

The present invention concerns a multi-share street snow plow having a specially shaped clearing edge.

Hitherto known constructions of this kind have a thick-walled clearing edge of about 13-16 mm. wall thickness, which is fixedly mounted on the lower share edge.

To yield to an obstruction which might suddenly protrude from the road surface plane it is known to mount the share itself so as to be pivotal to the rear or rearwardly and upwardly about one or more hinges. For this purpose it is necessary to use one or more springs of considerable strength, because otherwise the yielding movement might take place due to the usual load of snow. If the obstacle consists, for example, of a protruding drain cover, then strong spring pressure may lead to damage of the snow plow. This is all the more true since the mass to be swung back or lifted is very considerable. It is therefore advisable to travel at slow speed.

A further disadvantage of known constructions consists in that the thick-walled clearing edge with its wide bearing surface, the width of which owing to the inclined setting angle exceeds the above-mentioned wall thickness, permits only a relatively small specific surface pressure to be exerted, resulting in an unsatisfactory clearing of the snow and ice compacted by the traffic. If the plow shares are then additionally pressed against the road surface by hydraulic means, the road surface will suffer and the clearing edges wear much more rapidly; renewal of the costly clearing edge is expected to become necessary after about 90 miles of travel.

An object of the present invention is to remove all these serious deficiencies.

According to the present invention a clearing ledge for a street snow plow is characterized by the feature that it is hingedly mounted along its rear longitudinal edge and retained in an inclined forward position in the direction of the ground on a spring, preferably a bending or torsion spring. The pressure application of the clearing edge against the road surface is limited in this case only by the resilience. The soft pressure application obtainable thereby has an advantageous effect in the care of the road surface and the low wearing coefficient of the clearing ledges. Experiments have shown that replacement is necessary only after approximately 210 miles.

The clearing ledge may be made of thin steel sheet or plastics material of suitable wear resistance and hardness, having a wall thickness of about 2 mm. Such a clearing ledge—more especially with a setting angle extending at an acute angle to the road surface—without trouble scrapes snow and ice off the road surface even at high speed. It also has the advantage of being considerably cheaper than a thick-walled clearing edge required hitherto.

The components of the plow described may be mounted on known type plow shares, thus the rear longitudinal edge of the clearing ledge journalled directly to the lower edge of the share. The known devices listed initially to safeguard against damage when running over obstacles thus remain in operation.

According to one embodiment however this device is also improved in that the clearing ledge is journalled to an intermediate ledge, which in turn is pivotally journalled

along the lower edge of the share and retained by means of a tension spring mounted on the spine of the share in alignment with the share curvature on a stop. In this case the share is lowered to the road surface until the clearing ledge assumes an obtuse angle relative to the intermediate ledge facing the road surface, so that, when colliding with an obstacle, both ledges are caused to buckle. Since these two parts constitute only a small proportion of the share mass, they are also able at high speed to react instantly to an obstacle. The resistance to an undesired buckling is determined by the force of the tension spring, which may be accordingly strong without however, as in known devices, having any influence on the pressure application of the clearing ledge against the road surface.

The invention will now be described further, by way of example, with reference to the accompanying drawings, in which:

FIG. 1 is a side view of the device in its normal working position; and

FIG. 2 is a similar view when the device runs over an obstacle.

A main plow share 1 is to be imagined suspended under tension in known manner in front of an automotive vehicle, e.g. in connection with a lifting mechanism 2 for raising and lowering and mounted so as to be pivoted and adjusted in an inclined position relative to the direction of travel F on a pivoted bogie. On the lower edge there is provided an axle pin 3 about which an intermediate ledge 6 is adapted to be pivoted along its longitudinal rear edge. This intermediate ledge 6 supports an arm 4—expediently one at each end of the two share ends—to which a tension spring 7 is mounted by means of a mounting strap 8 and socket screw 9 in one of the holes formed in a mounting bracket 10 of the spine of the share and adapted to be adjustable with regard to its pre-tension; it draws the arm 4 right against a stop or abutment 5 and against the lower edge of the share in such a manner that the intermediate ledge 6 is retained in the continuation of the share curvature, otherwise however it may even yield upwardly against the force of the tension spring 7, as shown in FIG. 2.

On the lower or front edge of this intermediate ledge 6 there is an axle pin 11, about which a clearing ledge or scraper 12 of thin, hardened and tempered steel sheet or plastic (as shown by the cross hatching in FIGURES 1 and 2, respectively) is journalled and is retained facing obliquely forward against the road surface by bending springs 13. The share is lowered on to the road surface in the operational position to such an extent that the clearing ledge 12 assumes an obtuse angle relative to the intermediate ledge 6 facing the road, i.e., forwardly inclined as shown in FIG. 1. When running over an obstacle, as shown in FIG. 2, the clearing and intermediate ledge buckle and hence run over the obstacle without mutual damage. The share has to be slightly lifted afterwards by its lifting gear 2, so that the clearing ledge 12 subjected to the force of its retaining spring 13, is able to swing forwardly, whereupon the share is lowered again and the clearing ledge 12 resumes the position shown in FIG. 1.

As indicated in broken lines at 14, it is possible also to provide a stop or abutment on the intermediate ledge 6, which extends over the pivotal connection pin 11 and prevents the clearing ledge 12 from being hinged upwardly. The bending spring 13 then acts only as a return spring for the clearing ledge 12 to this stop. When the share is lowered towards the road surface, the tension spring 7 determines the effective pressure application force against the arm 4 pivotal about the hinge 3; the tension spring 7 is adjusted then expediently only to slight pre-tension.

I claim:

1. In a clearing device for attachment to a street snow plow, the combination which comprises:

a main share having a front edge and a forwardly directed front surface;

an intermediate ledge having front and rear edges;

a leading scraper having front and rear edges;

means pivotally connecting said scraper at said rear edge thereof to said ledge at said front edge thereof;

means pivotally connecting said ledge at said rear edge thereof to said share at said front edge thereof;

said ledge and scraper, in operative position of the clearing device, forming a unit which, as a whole, is forwardly inclined with respect to the ground in the direction of travel of the snow plow, said ledge having,

in said operative position of the clearing device, an upper surface which forms a continuation of said front surface of said share and an undersurface which is generally directed toward the ground along which said front edge of said scraper moves during plowing operation;

means for limiting pivotal movement of said scraper with respect to said ledge, while the clearing device is in its operative position, to pivoting in a direction toward said undersurface of said ledge;

means for limiting pivotal movement of said ledge with respect to said share, while the clearing device is in its operative position, to pivoting toward said front surface thereof; and

spring means coacting with said ledge for resiliently holding said unit in said operative position.

2. The combination defined in claim 1 wherein said scraper is constituted by a plate member of high wear resistance and hardness, said plate member being made of a material selected from the group consisting of metal and plastic.

3. The combination defined in claim 1 wherein said means for limiting pivotal movement of said ledge with respect to said share comprise coacting abutments mounted on said share and ledge, respectively.

4. The combination defined in claim 1 wherein said abutment mounted on said ledge is rearwardly elongated, and wherein said spring means comprise a spring one end of which is attached to said last-mentioned abutment and the other end of which is attached to said share.

5. The combination defined in claim 4, further comprising means for adjusting the effective length of said spring.

6. The combination defined in claim 1 wherein said means for limiting pivotal movement of said scraper with respect to said ledge comprise an abutment mounted on the upper surface of one of the two last-mentioned components of said unit and extending over the pivotal connection between said ledge and scraper to enter into contact with the other of said two components, thereby to define the end position of said scraper with respect to said ledge.

7. The combination defined in claim 1, further comprising spring means interposed between said scraper and ledge for resiliently holding said scraper in operative position relative to said ledge.

8. The combination defined in claim 1, further comprising means for lifting the interconnected share, ledge and scraper off the ground being plowed, thereby to enable the clearing device, as a whole, to be raised after said ledge has been pivoted upwardly and said scraper has been pivoted backwardly as the result of said scraper striking an obstacle, thus to allow the clearing device, as a whole, to re-assume its operative position thereafter.

References Cited by the Examiner

UNITED STATES PATENTS

401,978	4/89	Spruce	-----	16-189
1,332,591	3/20	Arthur	-----	16-189
2,055,291	9/36	Henry	-----	37-42

FOREIGN PATENTS

446,192	4/36	Great Britain.
179,551	9/54	Austria.

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