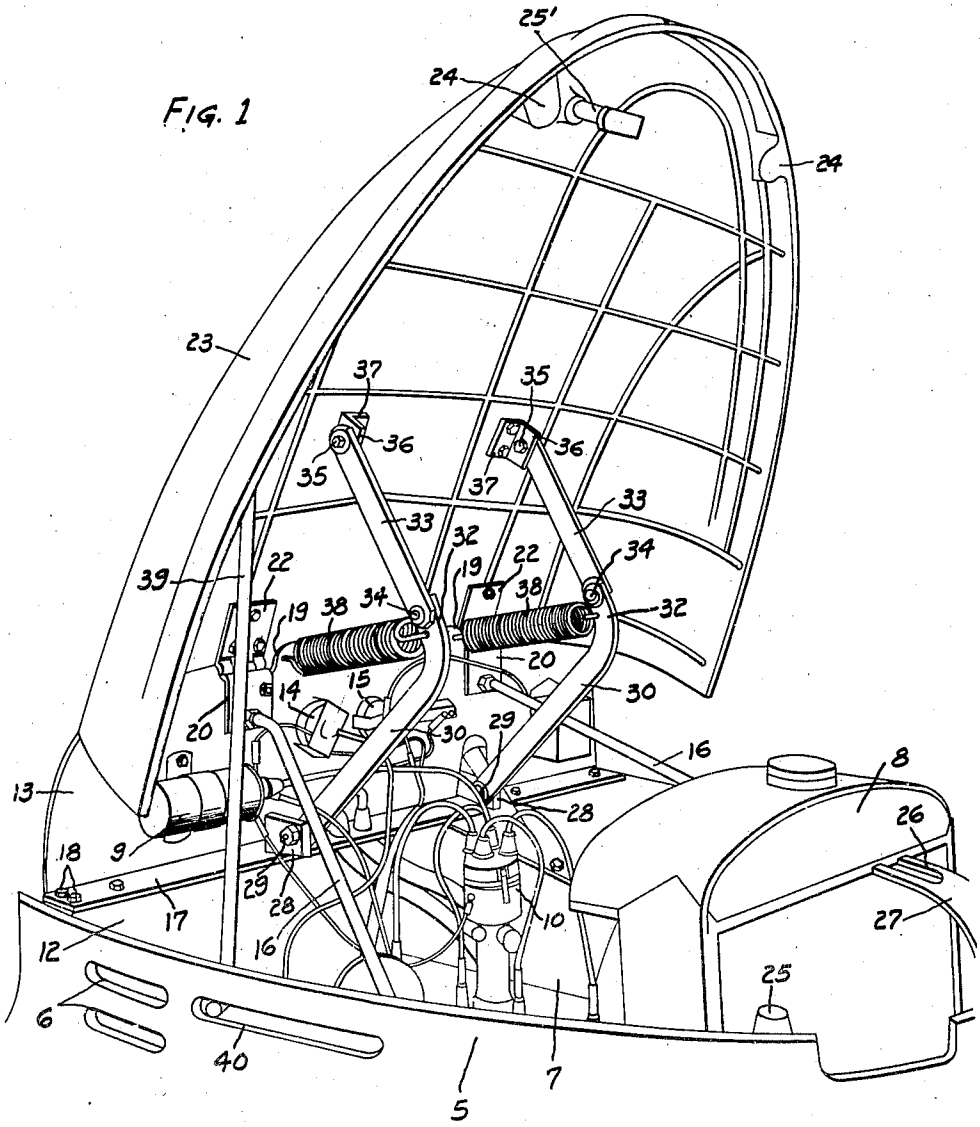
Nov. 2, 1943. W. GUNNING 2,333,173

TRACTOR

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FIG. 1



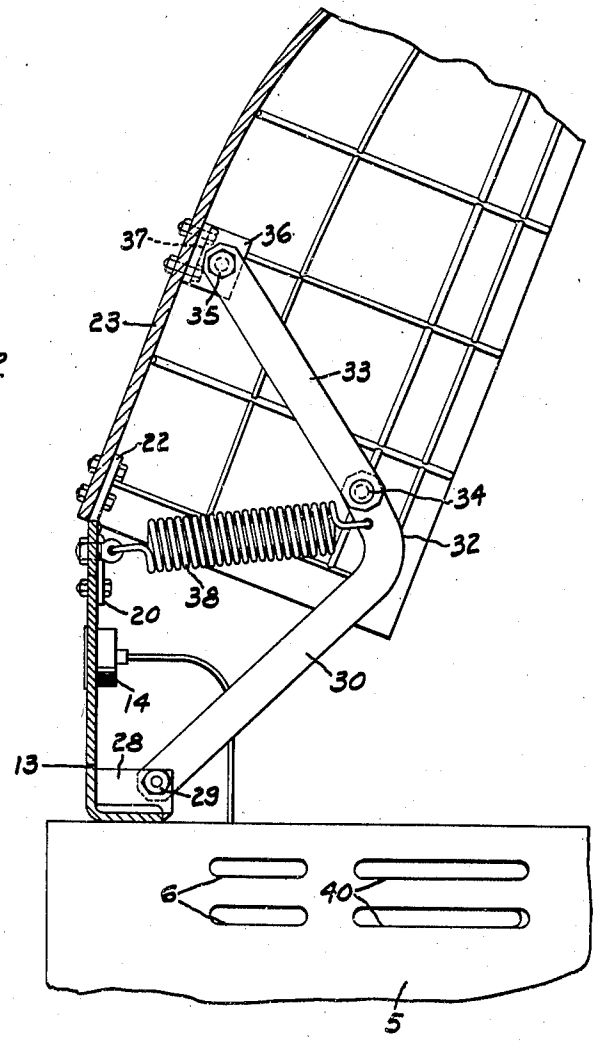
INVENTOR
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FIG. 2



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UNITED STATES PATENT OFFICE

2,333,173

TRACTOR

Wayne Gunning, Battle Creek, Mich., assignor to Clark Equipment Company, Buchanan, Mich., a corporation of Michigan

Application February 28, 1941, Serial No. 380,993

2 Claims. (Cl. 180—69)

This invention relates to industrial tractors, and more particularly is concerned with the hood hinging arrangement for an industrial tractor of the type disclosed in the copending application of Elmer J. Dunham and myself, Serial No. 291,526, filed August 23, 1939, now Patent No. 2,273,630.

Industrial tractors of the type herein disclosed are employed for pulling trailers in shops, warehouses, docks, shipyards and like, and are of relatively rugged construction. The present tractor is of a design in which the body member is formed of steel plate and the hood over the engine is formed of a steel casting or stamping of relatively thick section and which weighs an appreciable amount.

In order to facilitate the raising and lowering of the hood for access to the engine for servicing and repair, it is desirable that some means be provided so that the operator need not raise the entire weight of the hood manually, and the hinging means must also be so arranged that in closing the hood there will be no possibility of the structure damaging the fingers of the operator or slamming shut.

The present invention contemplates broadly the provision of a pair of arms pivotally secured at one end to the dash board of the vehicle and at the opposite end having pivotally connected thereto strut members, which in turn are pivotally connected to the hood. Suitable springs are arranged to assist in raising the hood and to retard lowering of the hood, thereby facilitating its opening and preventing it from slamming shut when released.

Other objects and advantages of the present invention will appear more fully from the following detailed description which, taken in conjunction with the accompanying drawings, will describe to those skilled in the art the particular construction and operation of a preferred form of the present invention.

In the drawings:

Figure 1 is a perspective view of the front end of a tractor showing the hinge construction of the present invention; and

Figure 2 is an elevational view in section showing the details of the hinge structure.

Referring now in detail to the drawings the body of the tractor is indicated generally at **5** and has the side louvers **6** formed in the converging nose portion of the tractor. Mounted directly in front of the engine **7** is the radiator **8**, which is enclosed within the nose portion of the vehicle, and the engine is provided with the usual accessories, such as the high tension coil **9**, distributor **10**, and the electrical connections therebetween. Closing the rear end of the engine compartment is the vertically extending toeboard or dashboard **12** having the vertical panel **13** upon which the high tension coil **9** is mounted, together with various instruments such as ammeter **14**, oil pressure gauge **15**, and the like. Suitable tie rods **16** extend from the panel **13** forwardly and outwardly to brace the panel against vibration, being secured at their opposite ends to the body **5**. At the lower end of the panel **13** there is provided a horizontal flange **17** which serves to support the panel in position on the dashboard **12**, as by means of studs **18**.

The top of the panel **13** is provided with two cutaway portions **19** in which are disposed the hinge elements **20**, the one leg of the hinge element **20** being rigidly secured to the inner face of the panel **13** and the opposite arm **22** of the hinge being secured to the hood **23**. The hood **23** is of generally dish shape, and may be a relatively heavy casting or stamping, and is so formed as to provide a smooth nose for the forward end of the tractor overlying, when in closed position, the upper edge of the body member. The hood is provided adjacent its forward end with two bosses **24** which, when the hood is in closed position, are adapted to engage resilient rubber bumpers **25** mounted forwardly of the radiator **8** for cushioning the hood relative to the member **5** and preventing vibration and rattling thereof. The hood is provided with a latch **25'** which is rotatable to engage in the forked end **26** of a keeper member **27** supported in the nose portion of the body member **5**. This latches the hood in position with the bosses **24** seated on the bumpers **25**.

Mounted on the flange **17** of the panel member **13** are a pair of support members **28** which may be welded or otherwise rigidly secured thereto, these members each being provided with a transverse pin or stud **29** forming a pivot for one end of a hinge arm **30**.

Each of the arms **30** is provided adjacent its free end with an arcuately turned end portion **32**, preferably extending at an appreciable angle to the curved arm **30** as shown in Figure 2. Pivotally connected to the end portions **32** of the arms **30** are strut members **33**, this connection being indicated generally at **34**. The strut members **33** have their opposite ends pivotally connected as at **35** to the vertically extending flange portions **36** of angle members **37** fixed to the inner surface of the hood. It will thus be apparent that

a hinging action is provided between the arms 30 and strut members 33 upon raising and lowering of the hood.

Suitable heavy coiled spring members 38 are connected at one end to the upper edge of the panel 13 adjacent the hinges 20, and at the opposite end are connected to the end portions 32 of the arms 30. These springs in the position shown in Figure 1 are substantially unextended, but as the hood is lowered about the hinges 20, the arms 30 move downwardly and outwardly relative to the panel 13, and consequently impart appreciable tension to the springs 38. This tension increases as the hood moves lower, thereby tending to restrain lowering of the hood. In actual practice, it is found that when the safety bar 39, which is normally engaged in slot 40 of the body member while the hood is in raised position to prevent accidental collapse thereof, is released, the hood will stay in the position shown due to the tension of springs 38. If it is attempted to move the hood downwardly, the weight of the hood will extend the springs somewhat but the hood will not slam down upon the bumpers 25, coming to rest a short distance thereabove due to the increasing tension of the springs 38. As a result, in order to close the hood, it is necessary to press the same downwardly manually onto the bumpers 25 and to then rotate the latch 25' into the end 26 of the keeper 27. The tension of the springs 38, together with the resiliency of the bumpers 25, will cause the hood to rise slightly when the latch is released, whereby the operator may place his fingers under the lower edge of the hood to raise the same.

It will be apparent that with this construction, I have eliminated any danger of the hood slamming down on the operator's fingers. Further, the construction is of distinct advantage in that the springs assist in the raising of the hood thus allowing the hood to be raised without the operator having to lift its entire weight. Similarly, when the hood is lowered it is not necessary that the operator support the weight thereof during the lowering operation, since the hood will move downwardly of its own weight against the resistance of springs 38 to a point slightly spaced from the body member 5. The operator need then merely press on the top of the hood and rotate the latch into latched position.

I am aware that various changes may be made in certain details of the present construction, and I therefore do not intend to be limited except as defined by the scope and spirit of the appended claims.

I claim:

1. In a tractor having a dash board, a vertical instrument panel supported thereon, a hood member hinged at its rear edge to said panel, a pair of laterally spaced arms pivotally supported at one end on said dash board below said hinge connection and having the opposite ends thereof turned upwardly, a pair of links pivotally connected at one end to the free ends of said arms and at the opposite end to said hood, and spring members connected at one end to the upwardly turned ends of said arms and at the other end to said panel intermediate said arm and hinge connections thereto and arranged to provide increasing resistance to closing of said hood from open position.

2. In a motor vehicle provided with a transverse vertical wall and converging side walls forming an engine compartment, a hood for said compartment hinged at its rear edge adjacent the top of said vertical wall, resilient and compressible bumpers normally extending above said side walls adjacent the forward end of said compartment, bosses on said hood arranged to engage and compress said bumpers when said hood is in closed position, an arm pivotally connected to said vertical wall and provided with an upwardly curved free end portion, a link pivotally connected at one end to said hood and at the other to the free end of said arm, a tension spring connected to and extending between the curved portion of said arm and a point on said vertical wall substantially above the first pivotal connection of said arm, said spring, curved arm and resilient bumpers cooperating to initially and partially raise said hood from a closed position, said spring and said first named arm also cooperating to maintain said hood in raised position and to retard the closing of said hood, and to retain said hood in slightly raised position.

WAYNE GUNNING.