Nov. 23, 1937. D. B. BAKER ET AL 2,099,789

FRONT END CONSTRUCTION FOR TRACTORS

Filed Feb. 24, 1936 2 Sheets-Sheet 1

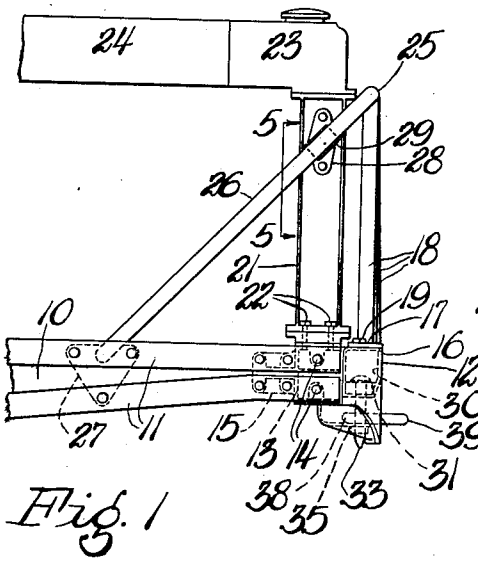



Fig. 1

Fig. 2

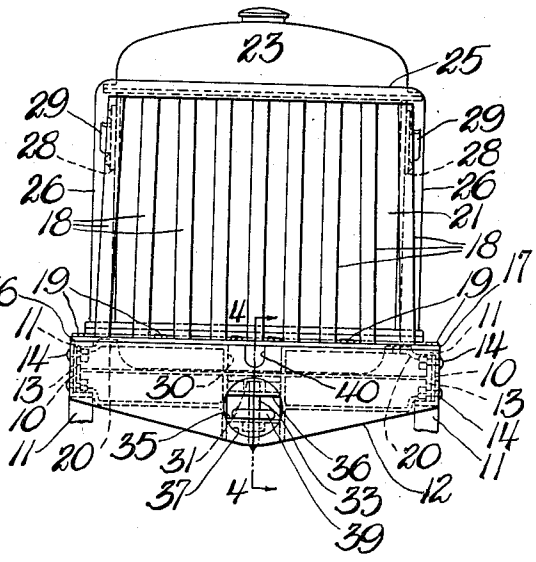



Fig. 3

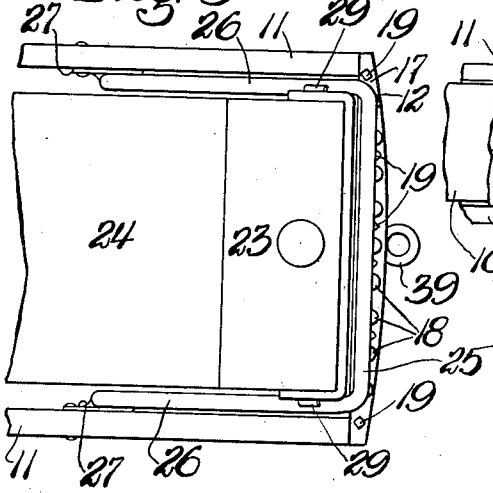



Fig. 4

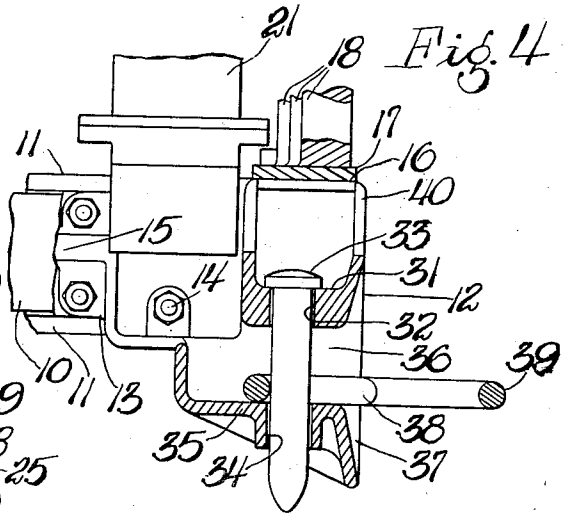
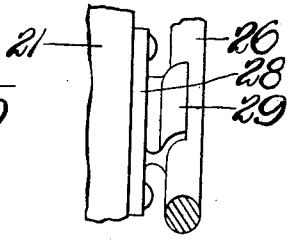



Fig. 5



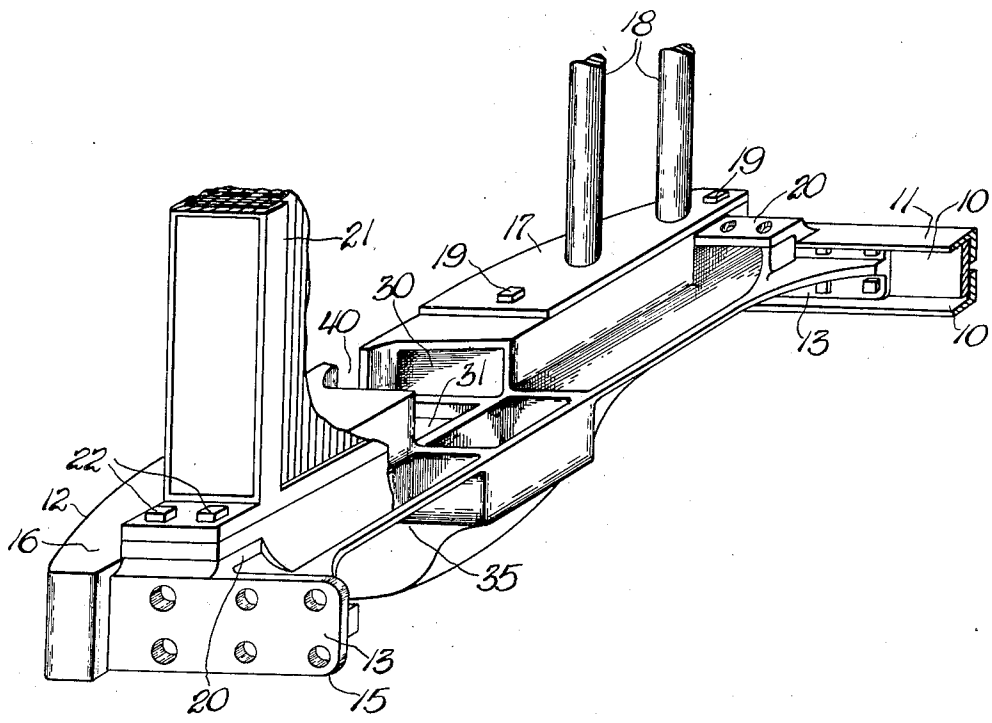

Inventors
D. B. Baker
C. R. Rogers
N. O. Panzegrau
By V. F. Lallagne,
Atty.

Nov. 23, 1937. D. B. BAKER ET AL 2,099,789

FRONT END CONSTRUCTION FOR TRACTORS

Filed Feb. 24, 1936 2 Sheets-Sheet 2

Fig. 6




Inventors
D. B. Baker
C. R. Rogers
N. O. Panzegrau
By V. E. Lanagan
Atty.

Patented Nov. 23, 1937

2,099,789

# UNITED STATES PATENT OFFICE

2,099,789

## FRONT END CONSTRUCTION FOR TRACTORS

David B. Baker, Riverside, Clifford R. Rogers, Oak Park, and Norman O. Panzegrau, Chicago, Ill., assignors to International Harvester Company, a corporation of New Jersey

Application February 24, 1936, Serial No. 65,385

16 Claims. (Cl. 180—68)

The invention relates to a front end construction for tractors. More particularly it relates to the provision of an improved front end bolster including means to mount a radiator and guard combined with brace means to hold the radiator and guard securely in place on the bolster and in relation to the front end of the tractor frame.

Strength and rigidity are of prime importance in tractors of the heavy duty type, and the simpler and fewer the parts, the better it is in preventing misalignment thereof when the tractor is subjected to heavy load shocks.

With the factor of strength and simplicity in mind, it is the main object of the invention to provide an improved front end construction for tractors.

Another object is to provide an improved, front bolster therefor including a radiator and guard support, and a means for carrying a draft appliance coupling.

Other objects will be apparent to those skilled in this art as the disclosure is more fully made.

These objects are achieved by the example of the invention herein shown and described wherein generally the longitudinally disposed, laterally spaced, side frame members of the tractor main frame carry at their front ends a cross bolster formed with pads for mounting the radiator for the tractor engine, said bolster including a draft coupler and carrying a sturdy guard to save the radiator located therebehind from injury. This guard includes a brace means which connects to the sides of the radiator to hold it secure at its upper end, and also connects to the main frame of the tractor at points behind the bolster to hold the guard rigidly in place on the bolster.

In the sheet of drawings,—

Figure 1 is a side elevational view of the front end of a tractor showing the improved front end structure of the invention;

Figure 2 is a front elevational view of said structure;

Figure 3 is a plan view;

Figure 4 is an enlarged, detail, sectional view through the bolster taken along the line 4—4 of Figure 2, looking in the direction of the arrows;

Figure 5 is a detail view, partly in section, through the fastening for the brace to the radiator shell, taken along the line 5—5 of Figure 1, looking in the direction of the arrows, and

Figure 6 is a fragmentary perspective view of the front end structure.

The main frame of the tractor comprises a pair of longitudinal side plates 10 lying in vertical planes and being transversely spaced apart. The upper and lower edges of these plates are reenforced by angle bars 11 having horizontal flanges which are inturned, as appears in Figure 2.

The front ends of these plates 10 are cross-connected by a heavy, cast, front bolster 12, which at its opposite ends includes vertical flanges 13, that are securely fastened by bolts 14 to the adjacent frame side plates 10. These flanges project rearwardly a distance to provide longitudinal extensions 15 secured by other bolts to the plates 10. The front face of the bolster is bowed out forwardly to serve as a bumper and provides a level, horizontal top surface 16, on which is mounted a sturdy guard structure.

This guard comprises a lower, horizontal plate 17 including upstanding bars 18 welded thereto, the said plate 17 being secured at intervals by bolts 19 to the top side 16 of the bolster. In back of the guard structure 18 and rearwardly of the forwardly projecting flat horizontal surface 16, the bolster 12 is provided at opposite ends with upstanding pads 20, on which is mounted a usual radiator 21 held in place thereon by bolts 22. The upper end of the radiator includes a header 23 and a hood 24, which is disposed therebehind to cover the usual motor, not shown but carried on the forward ends of the frame pieces 10 in a manner well understood in this art.

The upper end of the guard bars 18 are connected as by welding to a horizontal upper cross piece 25, which has each end extended rearwardly and downwardly in an inclined manner, as indicated at 26, with the low rear ends thereof at each side of the tractor being securely welded to a plate 27, which is carried on the inside of the side plates 10 of the tractor main frame by means of rivets or other appropriate securing means. Furthermore, each side of the radiator near its upper end carries a bracket 28 including a saddle portion or block 29 in which the extensions 26 snugly fit, said extensions 26 then being welded to the saddle and bracket 28 whereby they serve to support the radiator 21 near its upper end in a very rigid manner.

The bolster 12 midway between its ends is of greater depth in a vertical direction than it is at its ends, to provide a broad bumper surface. This mid-portion of the bolster 12 is hollowed out, as at 30, to provide cavity or recess, which is formed with a floor 31 provided with a vertical bore 32,

into which is dropped a draft pin **33**, the lower end of which passes through an aligned bore **34** formed in a lower extension **35** included in the cast bolster **12**. This extension **35** is spaced below the floor **31** to provide a rectangular, horizontal opening **36**, which has a mouth **37** generally formed, as indicated in Figure 4, as a circular concave dish portion. The pin **33** receives a draft ring **38** formed as a part of a chain, or the like, **39**, the chain serving as an appropriate draw means for pulling attached implements or devices when the tractor is moving rearwardly. The entrance into the chamber above the floor **31** is provided by an opening **40**, which also serves as a passage for admission of a hand crank used in starting the motor. The pin **33** is dropped through the bores **32** and **34** before the guard structure **18** is secured to the level surface **16** of the bolster.

From this detailed description it will now be seen that an improved front end construction for tractors has been provided, the gist of which resides in the provision of an improved bolster for carrying a draft coupling pin, a radiator and a guard for the radiator, the parts all being unified as a compact assembly in which the parts are reduced to a minimum, so that strength and rigidity will be attributes of the construction.

It is the intention to cover all such changes and modifications of the illustrative form of the invention disclosed which do not in material respects constitute departures from the spirit and scope of the invention as defined in the appended claims.

What is claimed is:

1. A front end construction for tractors comprising a pair of longitudinal main frame, spaced apart, side members, a transverse bolster connecting the front ends of said members, a radiator carried on the bolster, said bolster having a horizontal surface projecting forwardly of the radiator, a guard for the radiator mounted on said surface, the guard including a top piece the ends of which extend rearwardly and downwardly past the sides of the radiator near its upper end, said ends being connected to anchor brackets respectively secured to the main frame side members, and blocks mounted on each side of the radiator in which a portion of said ends is carried and to which they are respectively secured.

2. A front end construction for tractors comprising a pair of longitudinal main frame, spaced apart, side members, a transverse bolster connecting the front ends of said members, said bolster formed with a pad at each end, a radiator carried on the pads, said bolster having a horizontal surface projecting forwardly of the radiator, a guard for the radiator mounted on said surface, the guard including a horizontal top piece, end braces extending from the guard rearwardly and downwardly past the sides of the radiator near its upper end, said braces being connected to anchor brackets respectively secured to the main frame side members, and blocks mounted on each side of the radiator in which a portion of said braces is carried and in which they are respectively secured.

3. A front end construction for tractors comprising a pair of longitudinal main frame, spaced apart, side members, a transverse bolster connecting the front ends of said members, a radiator carried on the bolster, said bolster having a surface projecting forwardly of the radiator, a guard for the radiator mounted on said surface, the guard including upright bars and a horizontal top piece integrally formed therewith and the ends of which are bent rearwardly and downwardly past the sides of the radiator near its upper end, said ends being connected to anchor brackets respectively secured to the main frame side members, and saddle blocks mounted respectively on each side of the radiator in which a portion of said ends is carried and in which they are respectively secured by welding.

4. A front end construction for tractors comprising a pair of longitudinal main frame, spaced apart, side members, a transverse bolster connecting the front ends of said members, said bolster formed with a pad at each end, a radiator carried on the pads, said bolster having a horizontal surface projecting forwardly of the radiator, a guard for the radiator mounted on said surface, the guard including a horizontal top piece the ends of which are bent rearwardly and downwardly past the sides of the radiator, said ends being connected to anchor brackets respectively secured to the main frame side members, and means on each side of the radiator for connecting a portion of said ends to the radiator.

5. A front end construction for tractors comprising a pair of longitudinal main frame, spaced apart, side members, a transverse bolster connecting the front ends of said members, a radiator mounted on the bolster, said bolster having a surface projecting forwardly of the radiator, a guard for the radiator mounted on said surface, brace portions for the guard extending respectively rearwardly and downwardly past the sides of the radiator near its upper end, said braces being connected respectively to the main frame side members, and brackets mounted respectively on each side of the radiator for connecting a portion of said braces to the sides of the radiator.

6. A front end construction for tractors comprising a pair of longitudinal main frame, spaced apart, side members, a transverse bolster connecting the front ends of said members, a radiator carried on the bolster, said bolster having a portion projecting forwardly of the radiator, a guard for the radiator mounted on said portion, braces for the guard extending rearwardly and downwardly between the sides of the radiator and the main frame side members, and a draft coupling pin carried within a cavity formed in the bolster between its ends.

7. A front end construction for tractors embodying a pair of longitudinal transversely spaced side frame members, said construction comprising a transverse bolster having its ends connected respectively to the frame members, said bolster including a pad at each end adapted to carry a radiator, the bolster having a flat horizontal surface in advance of the pads for carrying a radiator guard, said bolster being bowed convexly to provide a bumper surface and formed between its ends with a cavity including an apertured web portion for carrying a draft pin, said bolster being formed with an inwardly dished portion including a passage leading longitudinally rearwardly through the bolster to make the pin accessible when mounted in place.

8. A front end construction for tractors embodying a pair of longitudinal transversely spaced side frame members, said construction comprising a transverse bolster having its ends connected respectively to the frame members, said bolster including pad surfaces adapted to carry a radiator, the bolster having a portion extending in advance of the pad surfaces for carrying a radiator guard, said bolster providing a bumper surface

and formed between its ends with a cavity including an apertured web portion for carrying a draft pin, said bolster being formed with an inwardly dished portion including a passage leading longitudinally rearwardly through the bolster to make the pin accessible when mounted in place.

9. A front end construction for tractors embodying a pair of longitudinal transversely spaced side frame members, said construction comprising a transverse bolster having its ends connected respectively to the frame members, said bolster including a pad at each end adapted to carry a radiator, the bolster having a flat horizontal surface in advance of the pads for carrying a radiator guard, said bolster being formed between its ends with a cavity including an apertured web portion for carrying a draft pin, said bolster further being formed with an inwardly dished portion including a passage leading longitudinally rearwardly through the bolster to make the pin accessible when mounted in place.

10. A front end construction for tractors embodying a pair of longitudinal transversely spaced side frame members, said construction comprising an integrally formed transverse bolster having its ends connected respectively to the frame members, said bolster including pads adapted to carry a radiator, the bolster having a flat horizontal surface in advance of the pads for carrying a radiator guard, said bolster being formed between its ends with a cavity including an apertured web portion for carrying a draft pin, said bolster including a passage from its front face leading longitudinally rearwardly through the bolster to make the pin accessible when mounted in place.

11. A front end construction for tractors having a pair of longitudinal side frame members transversely spaced apart, a cross bolster connected between the front ends of said members, a radiator carried on the bolster, said bolster carrying a guard for the radiator in front of the radiator, and means included in the bolster at a point substantially midway between its ends for mounting a draft coupling pin.

12. A front end construction for tractors comprising a transverse bolster carrying a radiator and a guard therefor, and means included in the bolster for carrying a draft coupling pin.

13. A front end construction for a tractor including a pair of longitudinal main frame, spaced apart frame members, a radiator carried between said members, and a substantially U-shaped member having its ends connected to the frame members rearwardly of the radiator, the cross portion of said U-shaped member being disposed across the front of the radiator, each leg of the U-member being secured to the radiator.

14. A front end construction for a tractor including a pair of longitudinal main frame, spaced apart frame members, a transverse bolster connecting the front ends of said members, a radiator carried on said bolster, and a substantially U-shaped member having its ends connected to the frame members rearwardly of the bolster, the cross portion of said U-shaped member being disposed across the front of the radiator, each leg of the U-member being secured to the radiator.

15. A front end construction for a tractor including a pair of longitudinal main frame, spaced apart frame members, a transverse bolster connecting the front ends of said members, a radiator carried on said bolster, a substantially U-shaped member having its ends connected to the frame members rearwardly of the radiator, the cross portion of said U-shaped member being disposed across the front of the radiator at a height substantially in the vicinity of the top thereof, each leg of the U-member being secured to the radiator, and radiator guard means disposed between the cross portion and the bolster.

16. A front end construction for a tractor including a pair of longitudinal main frame, spaced apart frame members, a transverse bolster connecting the front ends of said members, a radiator carried on said bolster, a substantially U-shaped member having its ends connected to the frame members rearwardly of the radiator, the cross portion of said U-shaped member being disposed across the front of the radiator at a height substantially in the vicinity of the top thereof, means disposed between the radiator and the U-shaped member for securing same together, and radiator guard means including substantially upright members disposed between the cross portion and the bolster.

DAVID B. BAKER.
CLIFFORD R. ROGERS.
NORMAN O. PANZEGRAU.