June 17, 1941. R. G. LE TOURNEAU 2,245,865

ROLLER

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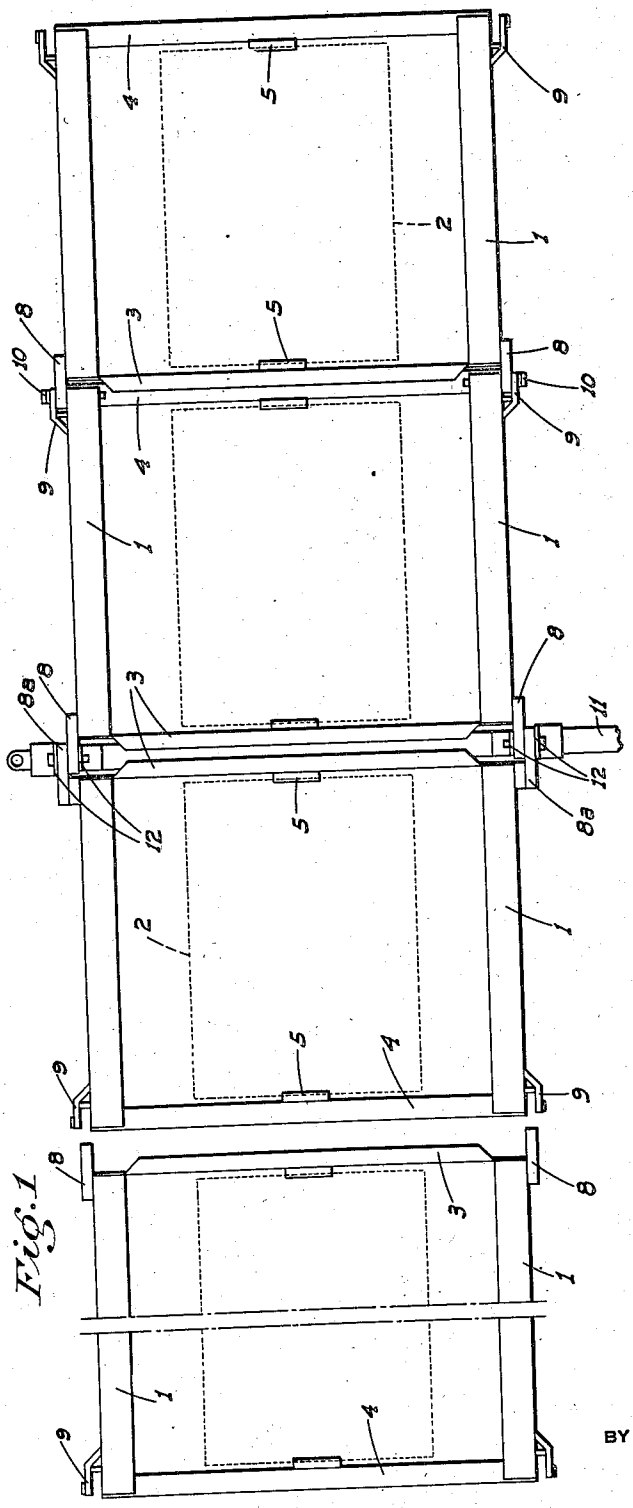


Fig. 1

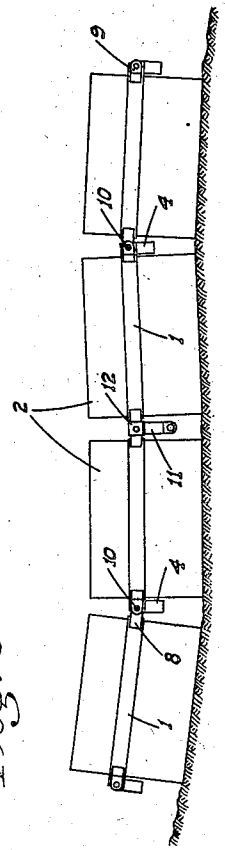


Fig. 2

INVENTOR
R. G. LeTourneau

BY
ATTORNEY

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Fig. 4

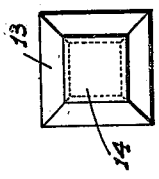
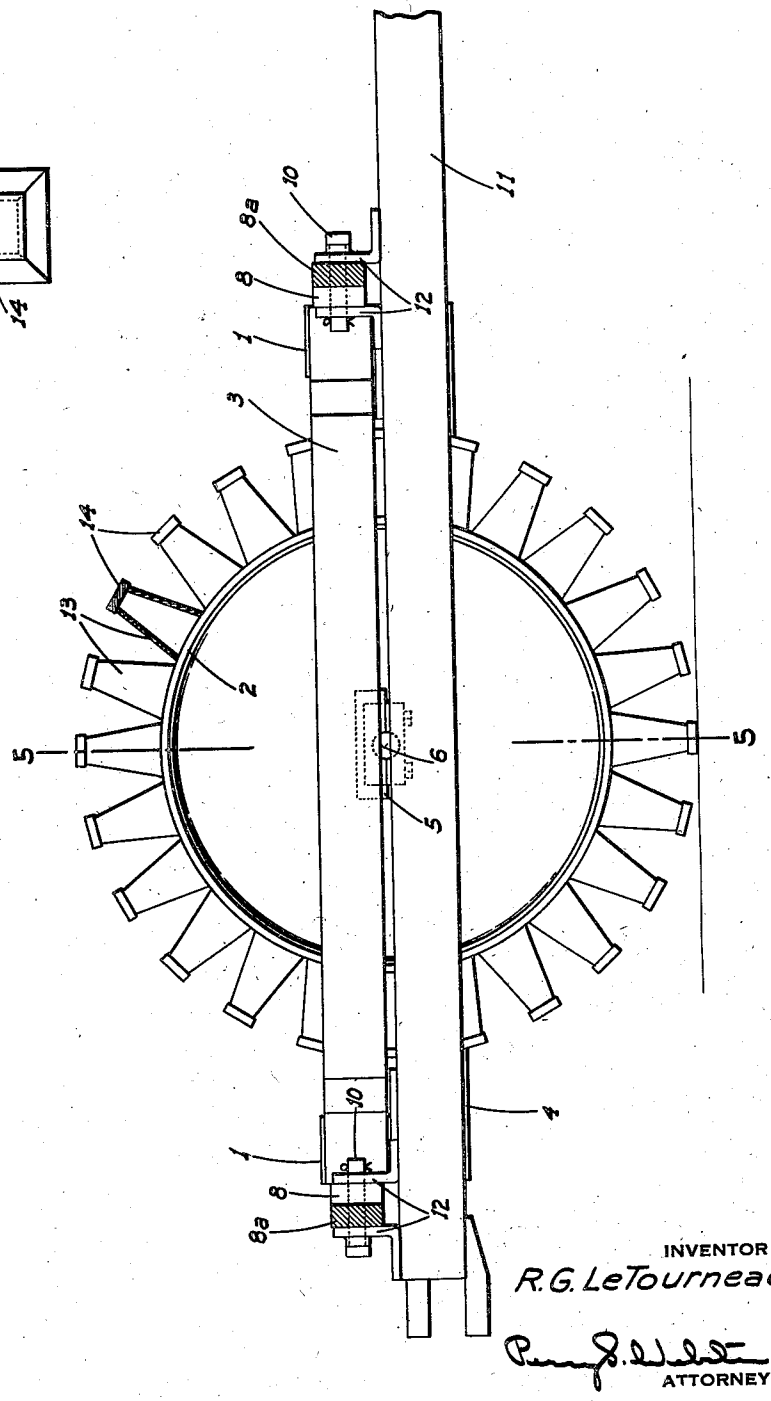


Fig. 3



INVENTOR
R. G. LeTourneau

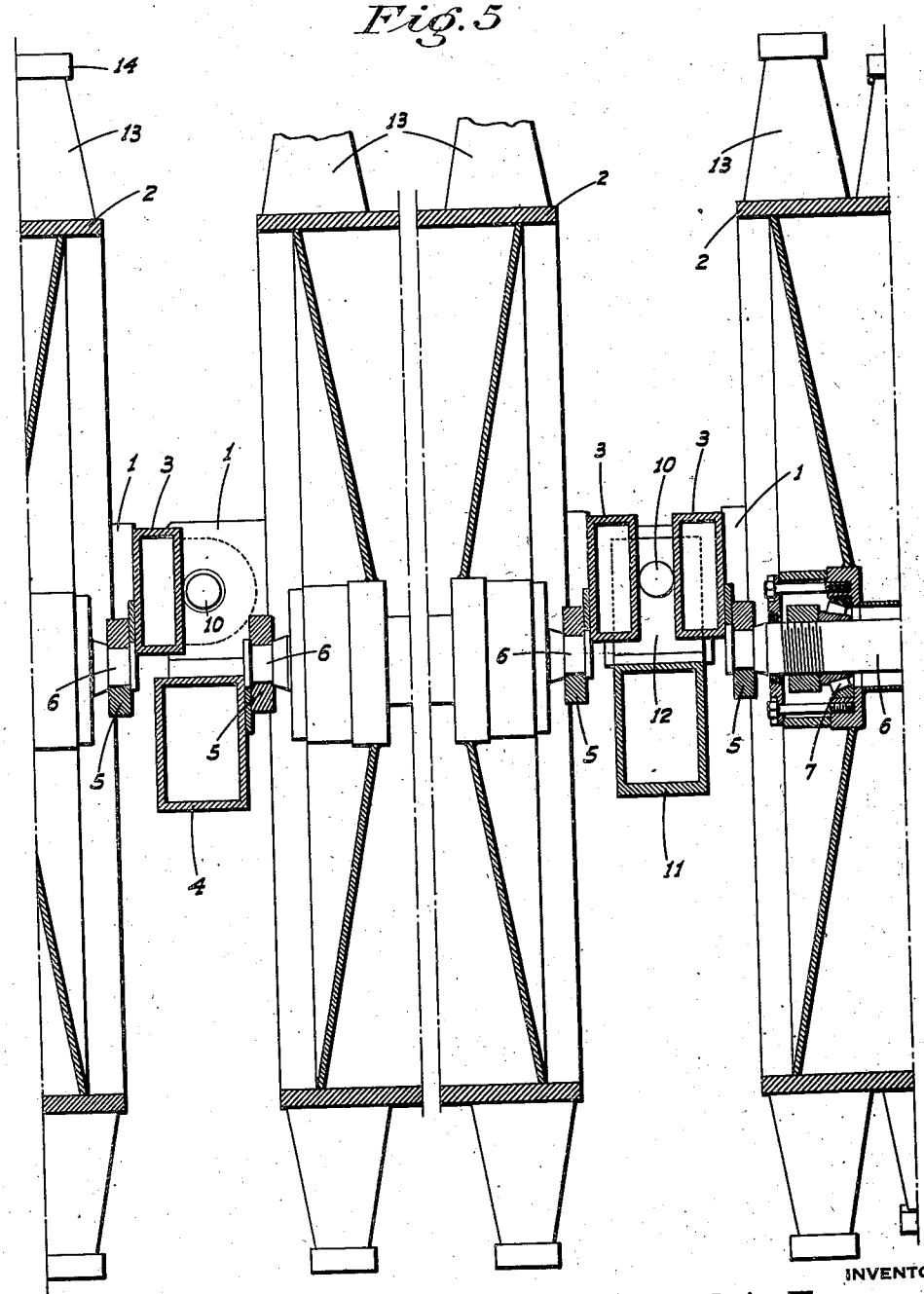
ATTORNEY

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Fig. 5



INVENTOR

R. G. LeTourneau

BY

ATTORNEY

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2,245,865

UNITED STATES PATENT OFFICE

2,245,865

ROLLER

Robert G. Le Tourneau, Peoria, Ill., assignor to R. G. Le Tourneau, Inc., a corporation of California

Application December 31, 1938, Serial No. 248,792

2 Claims. (Cl. 55—47)

This invention relates to multiple-unit ground rollers of the self adjusting type, and particularly represents improvements over the roller shown in my Patent No. 1,794,696, dated March 3, 1931.

One of the objects of the present invention is to simplify and yet strengthen the mounting of the alined rollers in flexible connection with each other and to arrange the connecting and mounting means so that one or more rollers may be added to or removed from the assembly easily and at will and as operating conditions may demand.

Although by no means limited to any particular form of roller, the structure is especially intended to be used with sheep's-foot rollers such as are used in rolling and packing ground after grading operations on projects of various kinds. In a roller of this type, it is a further object of my invention to provide tamping feet on the roller so constructed that a very efficient ground compressing or compacting action is obtained, while at the same time the tendency for the feet to tear out of the ground and loosen the adjacent portions of the same is practically eliminated.

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:

Figure 1 is a top plan of a multiple-unit roller frame and tongue assembly, with one of the frame units disconnected.

Figure 2 is a diagrammatic front view of the structure showing the rollers conforming to varying transverse ground contours.

Figure 3 is an enlarged side view of a sheep's-foot roller and frame unit, shown in connection with the draft tongue.

Figure 4 is a top plan view of a roller foot.

Figure 5 is an enlarged fragmentary vertical section of the multiple unit structure, taken on line 5—5 of Fig. 3.

Referring now more particularly to the characters of reference on the drawings, each roller supporting frame unit comprises front and back beams 1 spaced apart sufficient to receive the roller 2 therebetween and longer than said roller, a side or end beam 3 connecting beams 1 at one end and on the level of said beams, and another side or end beam 4 connecting the beams 1 at the other end and disposed below the same.

The beams 3 and 4 are provided centrally of their length and on their inner faces with horizontally alined clamping supports 5 for the roller shaft 6, the roller turning on the shaft with anti-friction bearings 7 therebetween as shown in Fig. 5.

The beams 1 at one end are provided with hinge ears 8 projecting so as to overlap the outside of the relatively opposite end of the beams 1 of an adjacent frame unit, while cooperating hinge ears 9 project from the opposite end of the beams 1 to overlap ears 8. Removable hinge pins 10 project through corresponding pairs of ears. The length or extent of projection of ears 8 beyond the beams 1 is such that when the hinge pins are in place the adjacent end beams 3 and 4 of adjacent frame units overlap each other as shown in Fig. 5, so that the rollers may come as close together as possible.

The frame units are preferably employed in multiples of two with the center pair disposed so that their frame beams 3 are both at adjacent ends or in facing yet clearance relation to each other as shown. Also, one or the other of these central frames is provided with a hinge ear 8a to overlap the adjacent ear 8 of the other frame, as shown in Fig. 1.

The draft tongue 11 is connected to the central pair of frames in the following manner:

The tongue projects between the frames under and clear of the adjacent beams 3 to a point rearwardly thereof, and is provided with upstanding pairs of lugs 12 which receive the front and back pairs of hinge ears 8 and 8a therebetween, as particularly shown in Fig. 3; the hinge pins 10 of said ears projecting through these lugs as well as through the ears. The tongue is therefore rigid with the frames as regards relative longitudinal and lateral displacement, but the frames can swivel in a vertical plane relative to each other and to the tongue.

From the above description it will be seen that all the roller frames are connected to each other both at front and rear, and that while all the frames are free to swivel relative to each other in a vertical plane, they are positively maintained against mis-alinement in a horizontal plane. It will also be seen that as long as the two central rollers are maintained, as many more may be readily coupled thereto as may be desired or found practicable. Also, transportation of the structure is facilitated, since the individual rollers may all be uncoupled from each other and from the tongue.

When the rollers are of the sheep's-foot type as is preferably the case, each foot 13 is a hollow

member formed of four plates welded together and arranged as the frustum of a relatively tall pyramid, which is capped by a square plate 14 but little larger than the adjacent portion of the foot. The feet are welded in place on the rollers and are of course arranged about the rollers in staggered relation so that the spacing between all feet is substantially the same.

By thus constructing the feet, they are large without being excessively heavy, and their shape insures a compacting of the ground between adjacent feet as the latter sink into the ground. At the same time, and due also to the shape of the feet, they do not tend to tear up the ground as they leave the same, since the holes they initially make are relatively wide at the top, permitting the feet to readily withdraw from such holes without materially disturbing the ground.

From the foregoing description it will be readily seen that I have produced such a device as substantially 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. In a multiple unit roller, a pair of roller mounting frames disposed in alined side by side relation, each frame comprising a front beam, a side beam tied to one end of the front beam and another side beam tied to the other end of the front beam on a level above that of the first named side beam, the frames being disposed so that the upper side beam of one frame overlaps the lower side beam of the other frame, and hinge means connecting the front beams for relative swivel movement in a plane lengthwise of said front beam.

2. A structure as in claim 1, with roller-shaft supporting elements on the inner faces of the side beams, and shafts engaging said elements and extending between the side beams of the frames and terminating adjacent said inner faces of the beams.

ROBERT G. LE TOURNEAU.