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(54) MOWERS

(71) I, DAVID JOHN FARRANT, a British Subject, of Welshes Farm, Clatworthy, Wiveliscombe, Somerset, do hereby declare this invention for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement.

This invention relates to mowers, in particular to mowers adapted to be towed behind tractors.

In a known method of mowing, a mower is attached behind a tractor, but at one side so that the mower cuts grass which has not been driven over by the tractor and thus flattened by the tractor wheels. Conventional mowers cannot efficiently cut grass which has been flattened. However, this method of mowing is limited to a cut of about 8 feet, by the fact that a tractor having a mower longer than about 8 feet is largely prevented from following a straight path. The tractor is dragged towards the side on which the mower is fixed by the action of the mower.

With the availability of larger, more powerful tractors, it is desirable to provide longer mowers to enable wider cuts to be made. However, with conventional mowing methods the length of mower is limited by its tendency to deviate the tractor.

Accordingly, it is an object of the invention to provide a method of mowing in which a substantially greater width of cut can be made. In this way, better use can be made of present-day tractors.

According to the invention, a mower for towing behind a tractor or the like comprises central cutters including local means, as herein defined, behind each tractor wheel arranged so that the grass which has been flattened behind that wheel can be cut, and comprising cutters positioned outside the local means with respect to the fore-and-aft axis of the tractor, the outside cutters and the central cutters being at different distances to the rear of the tractor with respect to the direction of towing, and hinge means between a frame carrying the central cutters and a frame carrying the outside cutters enabling the outside cutter frame to be folded vertically or horizontally in relation to the central cutters.

'Local means' in this specification is a feature which is at one part of the length of the mower, but is not repeated throughout most of the length of the mower.

Thus, behind the wheels, local flail cutters may be arranged to cut the grass with a rearward movement. Then the majority of the cutters will have a foward cutting movement as is conventional for standing grass, while the local cutters cut the opposite way for the flattened grass.

Alternatively, if there is a complete line of cutters arranged to cut the grass conventionally, the local means may comprise a lifting member positioned directly behind each wheel of the tractor but in front of the cutters and arranged to lift the grass flattened by the tractor wheels.

If the cutters are disc cutters, the local means can comprise two adjacent discs arranged to cut with a rearward movement behind the tractor wheels.

The corresponding forward movement can be to the side of the wheels where the grass has not been flattened.

In any case, the mower, when in use, is preferably towed behind a tractor by being coupled to its three point suspension, and is arranged substantially symmetrically about its direction of motion.

The cutters may be of any type but preferably are either disc cutters or flail cutters which can be folded about the hinge means when not in use.

The parts to be hinged are rearward of the central part to avoid interference during folding.

When using a mower according to the

invention, the main limitation to the width of cut is therefore the power of the tractor. Thus, with the mower situated symmetrically behind a powerful tractor, or perhaps 150 HP, cuts of up to 25 feet or more may be possible.

The invention may be carried into practice in various ways and three embodiments will now be described by way of example with reference to the accompanying drawings in which:

Figure 1 is a plan view of the mower in use being towed behind a tractor.

Figure 2 is a side view of the mower in use in diagrammatic form.

Figure 3 is a view similar to Figure 2 but of a second embodiment; and

Figure 4 is a view similar to Figure 1 of another embodiment.

Figure 1 shows diagrammatically a mower 11 in accordance with the invention in use, being connected to the three point linkage of a tractor 12. The mower is made up of a number of flail disc cutters 13 which are arranged side-by-side and are held at an appropriate cutting height above the ground on a frame on wheels 14. The basic mower comprises the cutters between the wheels 14 and is about 6 or 7 feet wide, but the width of cut is increased to perhaps 20 or 30 feet by adding cutters at either side of the wheels 14 with their own frames and wheels 15 which are located at the outer ends of the mower.

The wide cutter can be pulled provided it is central of the tractor, but then the grass behind the tractor wheels 16 will be rolled down in front of the cutter.

Accordingly the cutters 13*a* immediately behind the tractor wheels 16 are arranged to cut grass which has been so rolled. Figure 2 shows that they rotate in the same direction as the wheels 16, that is in the opposite direction from that of the other cutters 13. Thus, the region of flattened grass behind the wheels is cut since the cutting direction of the cutter is against the way in which the grass is lying, as shown in Figure 2.

The cutters on the wheels 15 are to the rear of the basic mower on the wheels 14 so that they can be pivoted upwards about a fore-and-aft axis on a pivot 25 by operation of a hydraulic actuator 26 between the respective cutter frames 20 to reduce the width during towing or when on a road. The adjacent ends of the cutters will not interfere with each other to prevent pivoting. The pivot 25 can also permit the side frames 20 to be swung back as shown at 27 if they strike an obstacle.

The mower could be towed from the tractor towing bar, but by coupling it to the three point suspension, one can lift the whole mower for movement when not mowing.

Figure 3 shows a second embodiment of the invention in which a rotary lifting member 16 is located immediately behing the wheels 16, but in front of the cutters 13. These lifting members rotate in the same sense as the wheels 16 and lift the flattened grass 17 to an upright position 19 before it is cut by the cutters 13*b* behind the wheels which rotate in the same direction as all the other cutters.

If disc type cutters are used, as shown in Figure 4, then it is arranged that behind each tractor wheel two adjacent discs 23 have their cutters moving rearwardly to cut the grass that has been rolled forwards. The forward travelling parts of the cutters would be at the sides of the tractor wheels as shown at 22. The other cutters 28 conveniently rotate in the same sense about vertical axes, and in other respects the arrangement is similar to Figure 1.

WHAT I CLAIM IS:-

1. A mower for towing behind a tractor or the like comprising central cutters including local means, as herein defined, behind each tractor wheel arranged so that the grass which has been flattened by that wheel can be cut, and comprising cutters positioned outside the local means with respect to the fore-and-aft axis of the tractor, the outside cutters and the central cutters being at different distances to the rear of the tractor with respect to the direction of towing, and hinge means between a frame carrying the central cutters and a frame carring the outside cutters enabling the outside cutter frame to be folded vertically or horizontally in relation to the central cutters.

2. A mower as claimed in Claim 1 including an actuator for pivoting the outside cutter frame.

3. A mower as claimed in Claim 1 or Claim 2 in which the local means comprise lifting members positioned directly behind the wheels of the tractor and in front of conventional cutters, and arranged to lift the grass flattened by the tractor wheels for cutting by such conventional cutters.

4. A mower as claimed in Claim 1 or Claim 2 in which the cutters are disc cutters and the local means comprise behind each of the tractor wheels, two adjacent discs arranged to cut with a rearward movement.

5. A mower as claimed in Claim 1 or Claim 2 in which the local means, but not the other cutters, comprise flail cutters arranged to cut grass with a rearward movement.

6. A mower constructed and arranged substantially as herein specifically described with reference to Figures 1 and 2 or Figure 3 or Figure 4 of the accompanying drawings.

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2 SHEETS *This drawing is a reproduction of the Original on a reduced scale*
Sheet 1

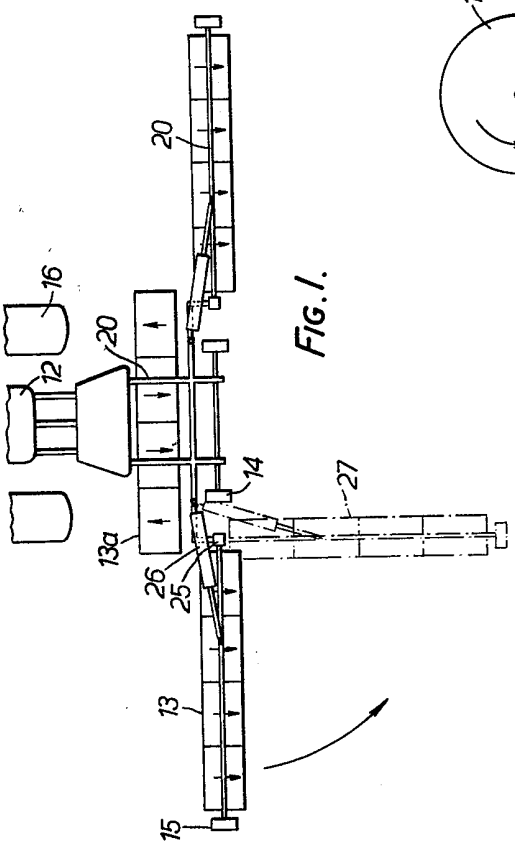

FIG. 1.

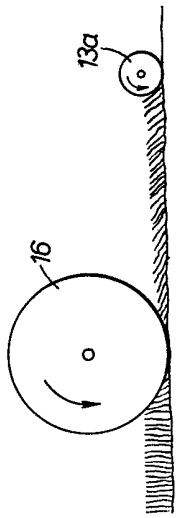

FIG. 2.

1567939 COMPLETE SPECIFICATION

2 SHEETS *This drawing is a reproduction of the Original on a reduced scale*

Sheet 2

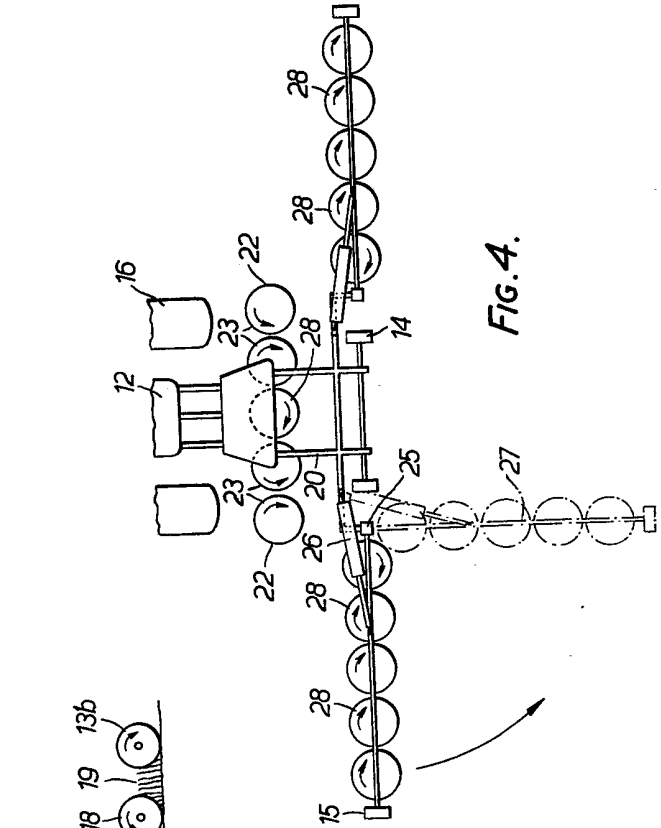

FIG. 4.

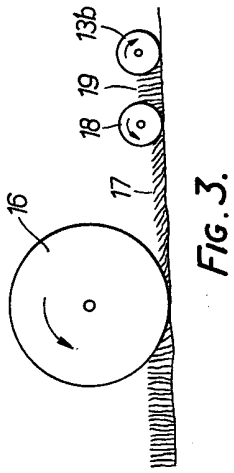

FIG. 3.