March 6, 1928. 1,661,735

C. C. PERSONETT

ROAD MACHINE

Filed April 7, 1927 3 Sheets-Sheet 1

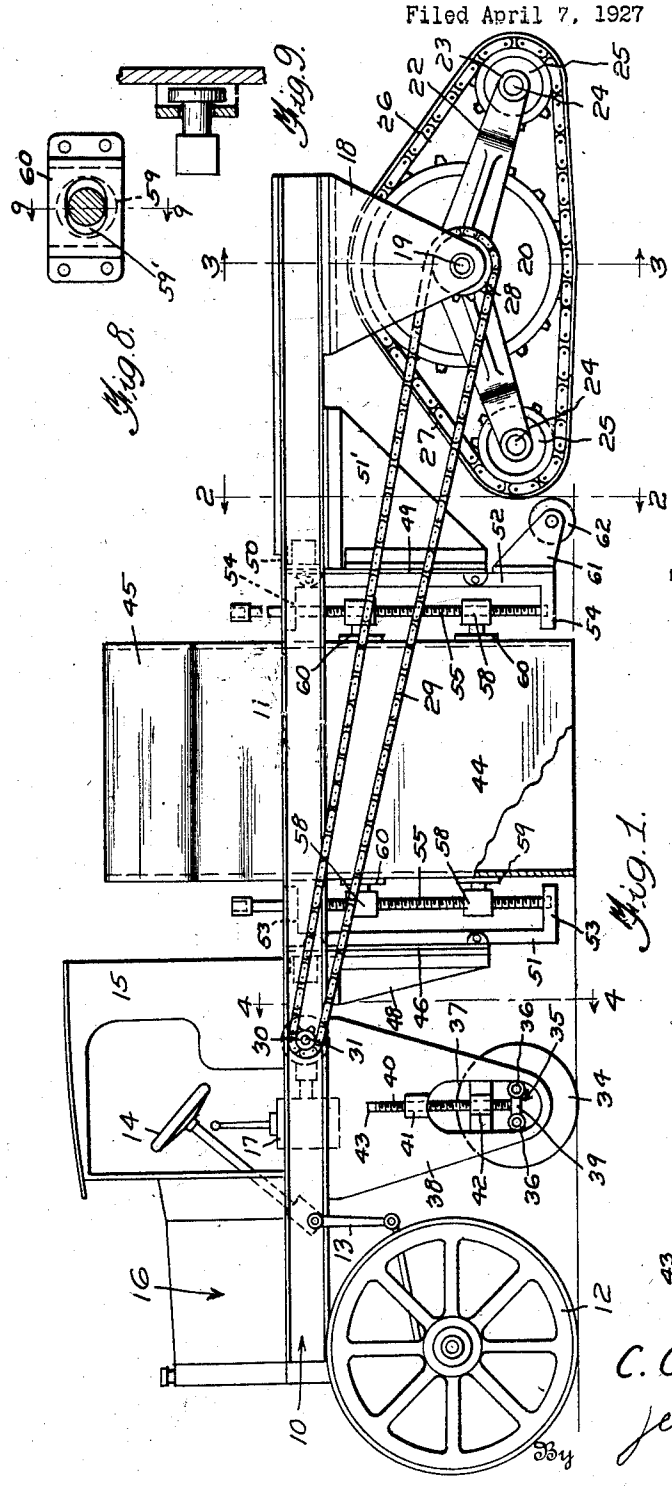


Fig. 1.

Fig. 8.

Fig. 9.

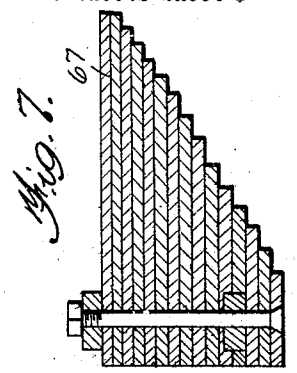


Fig. 7.

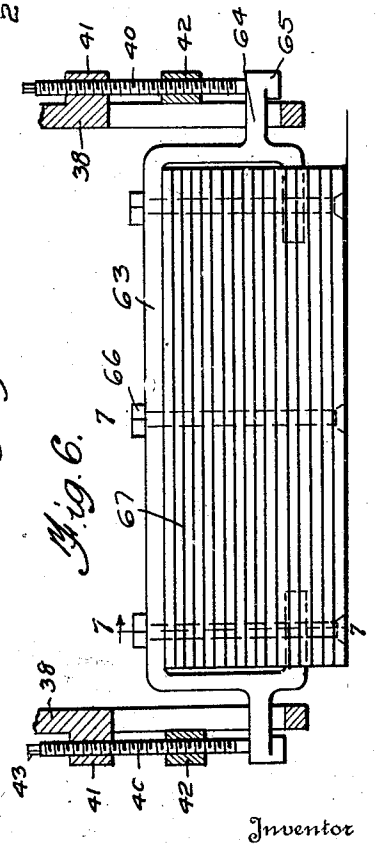


Fig. 6.

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ROAD MACHINE

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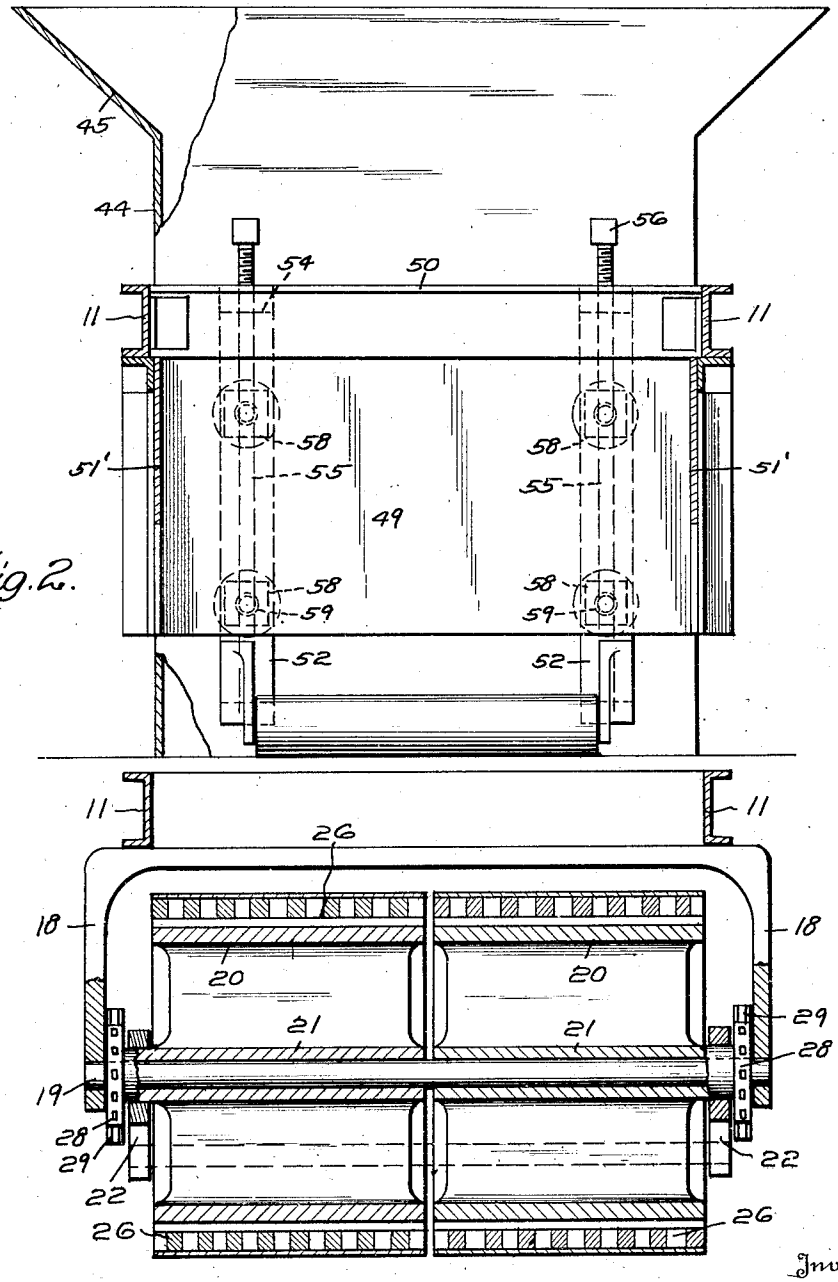


Fig. 2.

Fig. 3.

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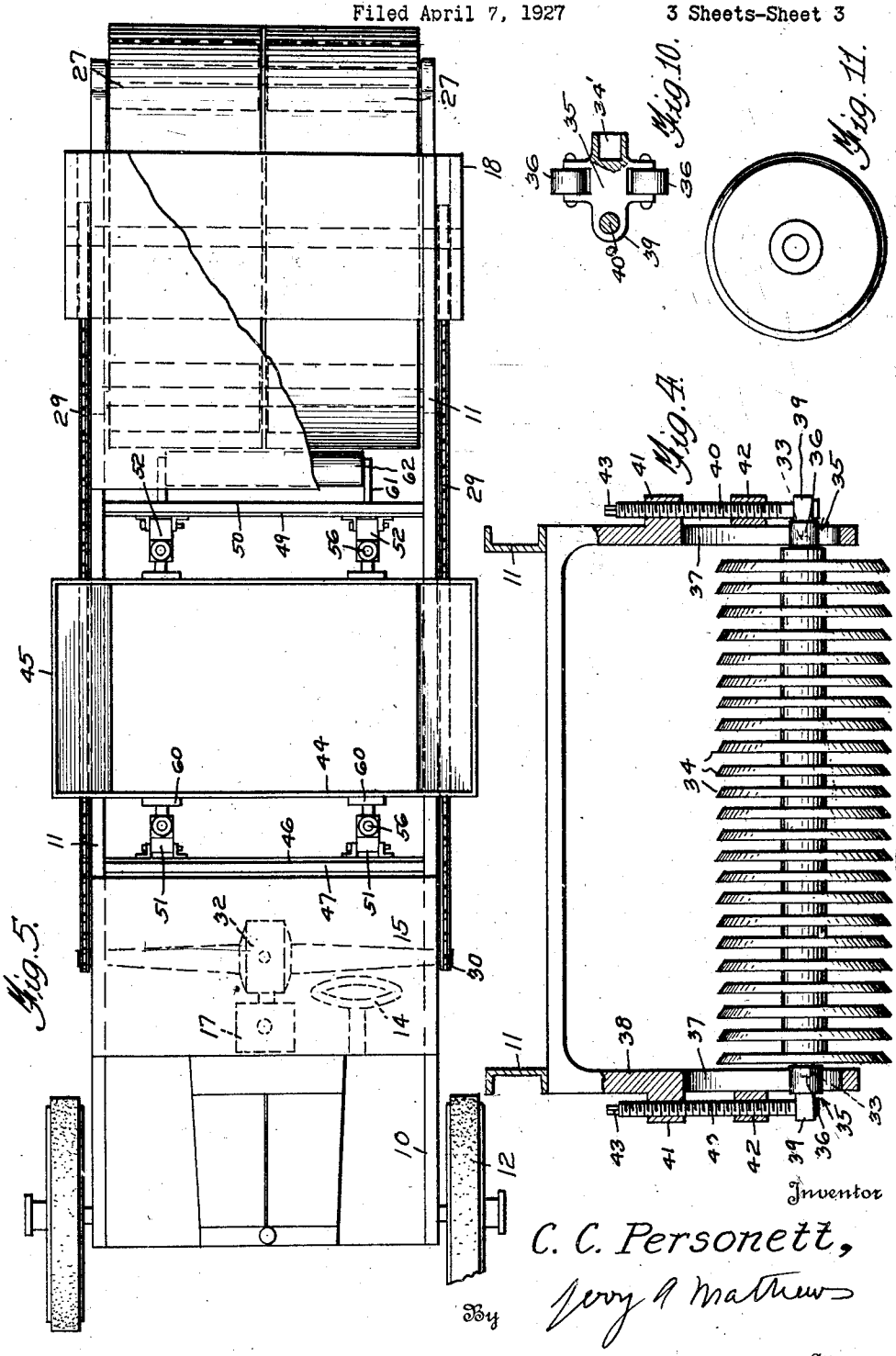
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ROAD MACHINE

Filed April 7, 1927 3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE.

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ROAD MACHINE.

Application filed April 7, 1927. Serial No. 181,742.

My invention relates to a road building machine.

In accordance with my invention I provide a machine embodying a wheeled frame, carrying an open bottom distributing box. Means are provided to adjust the box vertically, so that its bottom will assume the selected elevation, and also to tilt the box laterally, so that its bottom will assume a proper angular position, corresponding to the desired crown of the road. The machine is so constructed that the road may be laid in a desired number of layers, of suitable thickness. When each layer is laid, it is suitably packed by a traction device, which also serves to propel the machine, and the deposited layer will be smooth and solid.

The distributing box and supporting means, are preferably removable as a unit, so that an oil spraying mechanism may be placed upon the machine, in the place occupied by the box.

The machine also preferably embodies a scarifying mechanism, arranged in advance of the distributing box, and serving to cut up and level the road, to the desired elevation, prior to the placing of the layer of concrete or the like upon the same.

The various parts of the machine are all under control of the operator and the machine as a whole is convenient to manipulate.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a side elevation of a machine embodying my invention,

Figure 2 is a transverse section taken on line 2—2 of Figure 1,

Figure 3 is a transverse section taken on line 3—3 of Figure 1,

Figure 4 is a similar view taken on line 4—4 of Figure 1,

Figure 5 is a plan view of the machine,

Figure 6 is a front end elevation of a modified form of scarifying device,

Figure 7 is a transverse section taken on line 7—7 of Figure 6,

Figure 8 is an elevation of the outer side of one of the sockets carried by the distributing box,

Figure 9 is a transverse section taken on line 9—9 of Figure 8,

Figure 10 is a plan view of a carriage, and,

Figure 11 is a side view of a disk included in the rotary scarifier.

In the drawings, wherein for the purpose of illustration, is shown a preferred embodiment of my invention, the numeral 10 designates a frame or chassis, embodying longitudinal beams 11, preferably in the form of channel irons.

The forward end of the chassis is supported by the front wheels 12, having the usual steering mechanism 13, associated therewith, which is operated by a steering wheel 14, arranged within a cab 15. Mounted upon the chassis in advance of the cab 15 is an engine 16 of any well known or preferred type, driving through transmission gearing 17, of any well known or preferred type.

The rear end of the frame or chassis 10 is provided with depending brackets 18, rigidly attached thereto. These brackets are provided in their lower ends with journals for receiving a transverse axle 19, held therein against longitudinal displacement. Independently rotatable upon this axle or shaft are large toothed wheels 20, having tubular hubs 21. Pivotally mounted upon the outer portions of the tubular hubs 21 are rocker arms 22, extending beyond the shaft or axle 19, forwardly and rearwardly, for substantially equal distances. These rocker arms are provided at their free ends with bearings 23, for receiving transverse shafts 24, upon which are independently rotatably mounted smaller toothed wheels 25, there being two pairs of these toothed wheels 25. Passing about the sets of toothed wheels 20 and 25 is a pair of longitudinal sprocket-chains 26, provided upon their outer sides with continuous endless treads 27, which may be formed of flexible sheet metal or other suitable material, and secured thereto to travel therewith. It is thus seen that I have provided a pair of independently driving endless treads, which serve to pack or smooth the previously laid layer, and since these endless treads may be driven independently they aid in turning the machine, which is preferably backed when turning.

Rigidly mounted upon the outer ends of

the tubular hubs 21 are sprocket wheels 28, engaged by sprocket-chains 29, extending forwardly, and engaging sprocket wheels 30, which are rigidly mounted upon separate jack shafts 31. These jack shafts lead to gearing 32, driven from the transmission gearing 17. The gearing 32 is preferably of such a construction that the jack shafts may be rotated at different speeds, and if desired one jack shaft may be driven in an opposite direction to the other jack shaft, whereby the endless treads may be driven at different speeds, and in opposite directions, if desired. The gearing 32 may be in the form of the ordinary differential gearing, if desired.

Arranged near and at the rear of the front wheels 12 is a scarifying mechanism, embodying a transverse shaft 33, upon which are rigidly mounted sharp disks 34. The ends of the shaft 33 are journaled within openings 34′, formed in carriages 35. These carriages are equipped at their sides with guide rollers 36, to engage the walls 37, formed by openings in depending brackets 38, which are rigidly attached to the side beams 11 and depend therefrom. The carriages 35 are equipped with outwardly projecting lugs 39, having swiveled connections with vertically adjusting screws 40, having screw-threaded engagement within bearings 41 and 42, rigidly secured to the brackets 38. The upper ends of these adjusting screws are provided with heads 43, so that they may be turned by means of a wrench or the like. It is thus seen that the scarifying cylinder may have both ends adjusted vertically, for the same distance, or the opposite ends of the scarifying cylinder may be raised for different distances, whereby the scarifying cylinder may assume a selected transverse angle. There is sufficient play between the lower ends of the adjusting screws 40 and the lugs 39 to permit of this angular adjustment.

Arranged within the frame or chassis 10, directly behind the scarifying mechanism, is the distributing mechanism, embodying a distributing box 44. This distributing box is generally vertically arranged, and extends transversely of the frame, as its bottom is entirely open, and is preferably provided at its top with a flaring mouth or hopper 45.

Arranged forwardly of and near the distributing box 44 is a suitably stiff transverse sheet or plate 46, the upper end of which extends between the longitudinal beams 11, and is bolted or otherwise rigidly attached to a transverse beam 47, secured to the longitudinal beams 11. The plate 46 is extended laterally beneath the beams 11 and extends outwardly so that its ends are substantially flush with the outer surface of these beams. The plate 46 has rigid connection with brace-brackets 48, which are rigidly attached to the plate and to the lower sides of the beams 11. In a similar manner, a transverse sheet or plate 49, which is suitably stiff, has its upper end reduced and extended between the beams 11, and this upper end is rigidly attached to a transverse beam 50, secured to the longitudinal beams 11. Beneath the beams 11, the vertical edges of the plate 49 project outwardly and are substantially flush with the outer surface of these beams, and the plate 49 is rigidly attached to brace-brackets 51′, which are also attached to the lower surface of the beams.

Preferably detachably rigidly secured to the front transverse plate 46 and the rear transverse plate 49, are pairs of vertical uprights 51 and 52, provided at their upper and lower ends with horizontal extensions 53 and 54. The upper extensions 53 and 54 have openings for rotatably receiving smooth portions of adjusting screws 55, provided at their upper ends with socket-heads 56, whereby they may be turned by a suitable tool. The lower smooth ends of these screws operate within recesses, formed in the tops of the lower extensions 53 and 54. Mounted upon the screw-threaded portions of the vertical adjusting screws 55 and having screw-threaded engagement therewith are blocks or carriages 58, provided with headed studs 59, pivoted within sockets 60, which are rigidly attached to the front and rear sides of the distributing box. These sockets 60 have horizontally elongated openings or slots 59′, upon their outer walls to receive the shanks of the studs 59. It is thus seen that the distributing box is adjustably supported near its four corners and that it may be shifted to the selected elevation with its open bottom horizontally arranged or it may be shifted to the selected position with its open bottom tilted laterally, for producing the proper crown for the road.

Rigidly and detachably secured to the lower ends of the rear uprights 52 are brackets 61 carrying a roller 62, as shown. In Figures 6 and 7, is shown a modified form of scarifier, embodying a transverse frame 63, provided at its ends with arms 64, having heads 65. These heads have swiveled connections with the lower ends of the screws 40. Rigidly held within the frame 63, by bolts 66 or the like, are horizontal blades 67, the rear edges of which are stepped as shown.

The operation of the machine is as follows:

The machine is driven forwardly along the road, at a slow speed, such as a mile and a half an hour. The scarifying mechanism embodying the blades 34 engage the roadbed and cut or dig it up and level it off. The distributing box then passes over the roadbed thus treated and the material to be applied to the roadbed, such as concrete or

the like, is continuously fed into the upper end of the distributing box and discharges from the open bottom thereof, producing a layer of the proper thickness upon the roadbed. The traction mechanism follows the distributing box and packs and smooths the deposited layer.

It is to be understood that the forms of my invention, herewith shown and described, are to be taken as preferred examples of the same, and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of my invention, or the scope of the subjoined claims.

Having thus described my invention, I claim:—

1. In a road building machine, a frame, wheels supporting the frame so that the frame is arranged at a substantial elevation above the roadway, a hopper having its top and bottom open and positioned within the frame and extending transversely throughout the major portion of the width of the frame, said hopper extending below the frame for a substantial distance so that its outlet end is adjacent to the roadbed, pairs of uprights detachably secured to the frame and arranged upon opposite sides of the hopper near the corners thereof, adjusting screws bodily carried by the uprights and rotatable with relation thereto without moving longitudinally of the same, blocks having screw-threaded engagement with the adjusting screws, and means connecting the blocks with the hopper near the corners thereof, the adjusting screws being independently rotatable whereby the hopper may be raised or lowered and also angularly adjusted, the uprights, adjusting screws and hopper when assembled as a unit being adapted as such to be removed from within the frame.

2. In a roadbuilding machine, a frame, wheels supporting the frame so that the frame is arranged at a substantial elevation above the roadbed, a hopper having its opposite ends open and arranged within the frame and extending below the same for a substantial distance so that its lower open end may be arranged adjacent to the roadbed, pairs of uprights secured to the frame and arranged upon opposite sides of the hopper near the corners of the same, said uprights being provided at their tops and bottoms with substantially horizontal extensions, upstanding screw-threaded rods having smooth portions engaging the substantially horizontal extensions, blocks engaging the screw-threaded portions of the rods, and self-adjusting connections between the blocks and the hopper, the screw-threaded rods being separately adjustable whereby the hopper may be angularly adjusted transversely of the roadbed.

3. In a roadbuilding machine, a frame, wheels supporting the frame so that the frame is arranged at a substantial elevation above the roadbed, a hopper having its opposite ends open and arranged within the frame and extending below the same for a substantial distance so that its lower open end may be arranged adjacent to the roadbed, pairs of uprights secured to the frame and arranged upon opposite sides of the hopper near the corners of the same, said uprights being provided at their tops and bottoms with substantially horizontal extensions, upstanding screw-threaded rods having smooth portions engaging the substantially horizontal extensions, blocks engaging the screw-threaded portions of the rods, self-adjusting connections between the blocks and the hopper, the screw-threaded rods being separately adjustable whereby the hopper may be angularly adjusted transversely of the roadbed, and a scarifying device arranged beneath the frame and connected therewith and positioned in advance of the hopper said scarifying device extending throughout substantially the entire width of the hopper.

4. In a roadbuilding machine, a frame, steering wheels supporting the forward end of the frame, a combined traction and packing mechanism supporting the rear end of the frame, a hopper mounted within the frame in advance of the combined traction and packing mechanism, said hopper having its lower end open and projecting beneath the frame, upstanding adjustable screws connected with the frame and positioned near the corners of the hopper, blocks having engagement with the adjusting screws, self-adjusting connections between the blocks and the hopper, and a scarifying device arranged beneath the frame and connected therewith and positioned in advance of the hopper, said hopper extending throughout substantially the entire width of the combined traction and packing mechanism and the scarifying device extending throughout substantially the entire width of the outlet end of the hopper.

In testimony whereof I affix my signature.

CYRUS C. PERSONETT.