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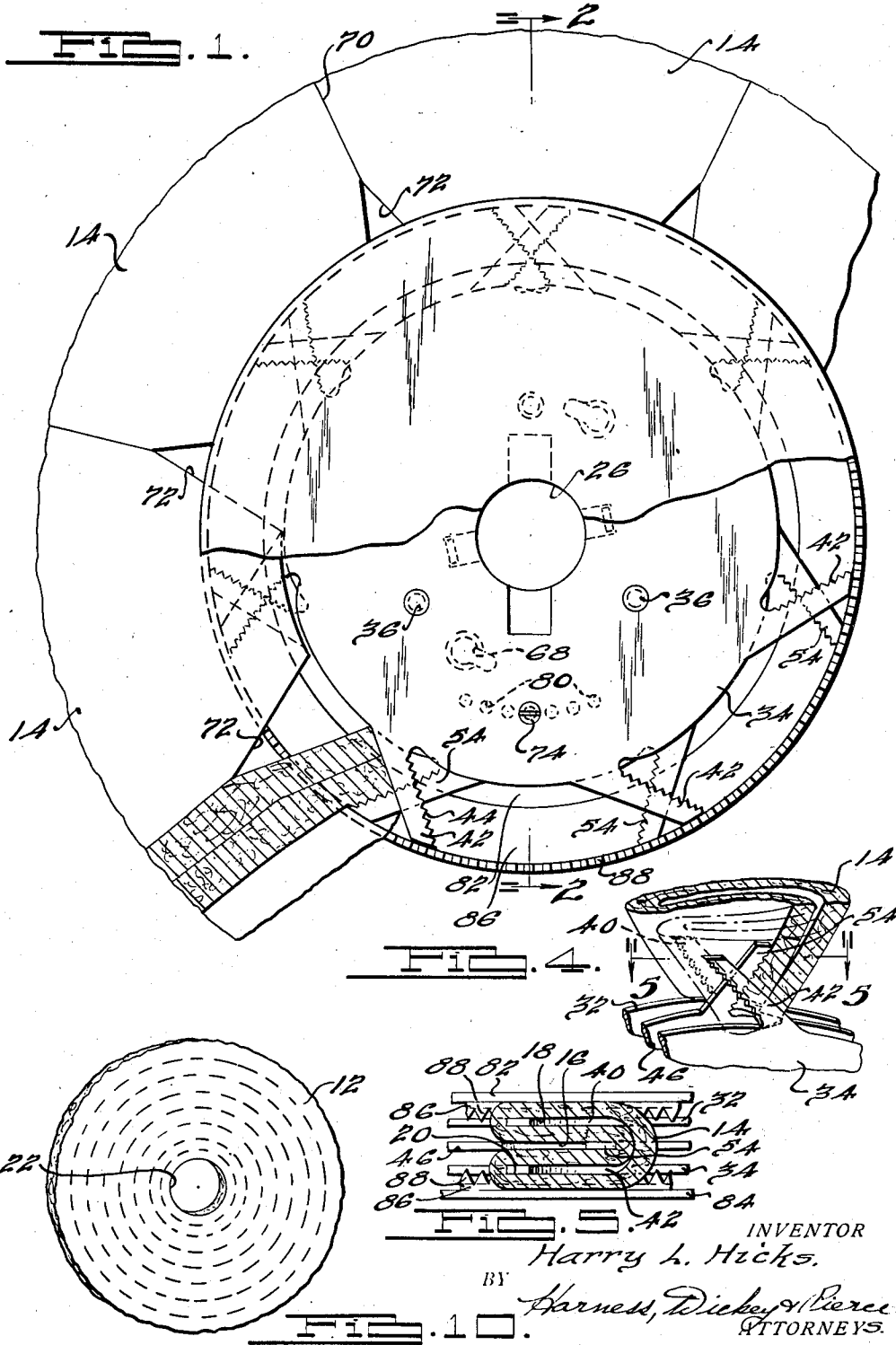
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BUFFING WHEEL AND METHOD OF SALVAGING BUFFING WHEELS

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2 Sheets-Sheet 1



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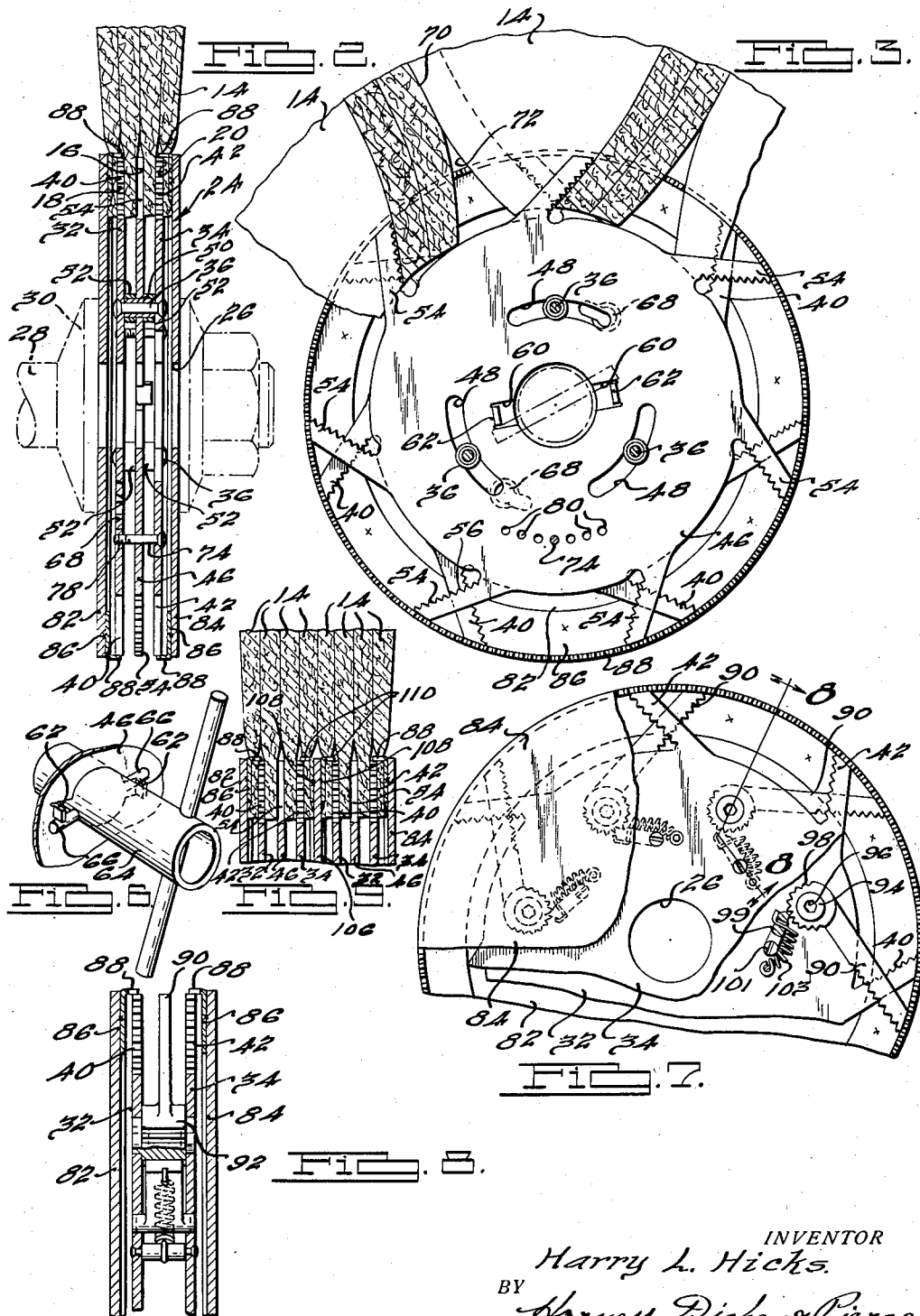
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2 Sheets-Sheet 2



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BUFFING WHEEL AND METHOD OF
SALVAGING BUFFING WHEELS

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6 Claims. (Cl. 51—193)

This invention relates to buffing wheel constructions and also relates to a method of salvaging used buffing wheels by a novel method of forming buffs.

5 One of the primary objects of the present invention is to provide a buffing wheel structure in which buffing wheel elements which have been worn away are utilized to provide a new buffing wheel construction, thereby effecting considerable saving in what has heretofore been considered as waste.

A further object of the invention is to provide an improved air-cooled buffing wheel construction.

15 Another object of the invention is to provide a mounting means for sections of used buffing wheels whereby the buffing wheels may be arranged and are securely held in position to provide a complete buff.

20 Another object of the invention is to provide an improved mounting means formed of elements which are so constructed and arranged that they are easily and quickly assembled.

25 Another object of the invention is to provide a novel method of salvaging used and worn buffing wheels in which the used buffing wheels are utilized to provide a complete buffing wheel thereby eliminating what has been heretofore considered as waste.

30 Other objects of the invention will become apparent from the following specification, the drawings relating thereto and from the claims hereinafter set forth.

In the drawings in which like numerals are used to designate like parts in the several views throughout:

40 Figure 1 is a fragmentary side elevational view, with parts broken away illustrating parts in cross-section, of a buffing wheel construction embodying features of the present invention;

Fig. 2 is a cross-sectional view, on a slightly reduced scale, taken substantially along the line 2—2 of Fig. 1;

45 Fig. 3 is a side elevational view, with parts removed showing parts in cross-section, of the structure illustrated in Fig. 2;

Fig. 4 is a fragmentary perspective view of certain details of the present invention illustrating the manner in which a buffing element is mounted according to the present invention;

Fig. 5 is a cross-sectional view taken substantially along the line 5—5 of Fig. 4;

55 Fig. 6 is a fragmentary perspective view illustrating a tool in its association with one of the

plates used for assembling the structure illustrated in Figs. 1 to 5;

Fig. 7 is a fragmentary side elevational view with parts removed illustrating parts in cross-section of a modified form of the present invention;

Fig. 8 is a cross-sectional view taken substantially along the line 8—8 of Fig. 7;

Fig. 9 is a fragmentary cross-sectional view illustrating another form of the present invention;

Fig. 10 is a perspective view of a used buffing wheel element which is utilized in the present invention.

In prior buffing wheel constructions, the buffs have been formed of fabric discs which when used gradually wear down. After the discs have been worn down considerably, but before they are entirely worn away, and while there still remains a portion of the discs, they have previously been discarded as waste, it being considered that they were too small for proper use. According to the present invention, such worn discs are utilized to form a new buffing wheel construction so that what has heretofore been considered as waste may be further used, thus effecting a considerable saving in material.

This is effected by a novel method in which the worn discs are formed into segments of a circle, or sectors, preferably by folding the disc first across its diameter, and then in half again. Such segments or sectors are then mounted upon a wheel on a greater radius than the radius of the worn sectors so that a wheel of proper diameter is provided. The sectors are also mounted in abutting relationship to each other around the periphery of the wheel so that the outer periphery of the composite wheel forms a substantially even circle. Spaces are provided through the wheel adjacent the joining faces of the sectors, and such spaces provide an effective manner of air cooling the wheel. Also, according to the present invention, novel mounting means are provided for properly positioning and clamping the sectors in operative position.

One of such used discs above mentioned is illustrated at 12 in Fig. 10. This disc 12 is formed of suitable fabric, and originally was of substantially greater diameter but has been worn down in use. It is such a used disc as this which is formed, as above mentioned, to provide the sectors utilized in the present invention.

Referring to the drawings, and referring particularly to Figs. 1 to 6 thereof, one embodiment of the present invention is illustrated, in which

the disc 12 has been formed into segments of a circle, or sectors, indicated at 14. These sectors 14 have been formed by folding the disc 12 first upon its diameter and then in half again to the shape best shown in Figs. 4 and 5, so that an internal crease 16 and side creases 18 and 20 are provided. Such side creases 18 and 20 open through the bottom through the central opening 22 which already exists in the disc.

Such segments 14 are mounted in a novel manner by mounting means generally indicated at 24. The mounting means 24 is preferably constructed of a plurality of metal elements generally in the form of discs, or circular in shape, having aligned central openings 26 therethrough for the reception of a rotatable shaft 28 and clamping means 30 which serve to rotate the wheel for the performance of the buffing operation.

The mounting means 24 includes plate members 32 and 34 which are generally in the form of discs and which are connected together in spaced relation to each other by means of rivets 36, or the like. The plate members 32 and 34 have outwardly extending inclined finger members 40 and 42, respectively, formed integral therewith and spaced equally around the periphery of the disc members. The members 32 and 34 are fixed relative to each other so that the fingers 40 and 42 are positioned in pairs around the periphery of the discs. The fingers 40 and 42 are serrated as indicated at 44 on the under-edges thereof so that the fingers grab the elements 14 in a manner which will become more apparent from the later description.

An intermediate disc member 46 is disposed within the space between the plate members 32 and 34 and is provided with arcuate slots 48 which permit limited rotative movement of the intermediate member 46 relative to the plate members 32 and 34. The rivets 36 extend through the slots 48, and collars 50 are provided over the rivets 36 to serve as spacers for the plates 32 and 34. In order to properly space the intermediate plate member 46 stub collars 52 are disposed between the plate member 46 and the plate members 32 and 34, respectively, in surrounding relation to the collar 50. The intermediate plate member 46 is thus aligned transversely with the plate members 32 and 34 but may be rotatively moved relative thereto.

The intermediate plate member 46 is also provided with outwardly extended inclined fingers 54 at spaced intervals around the periphery thereof corresponding to the spaced positions of the fingers 40 and 42. The fingers 54 are inclined but are directed toward the fingers 40 and 42 so that the fingers 40 and 52 and the fingers 54 are inclined in opposite direction toward each other. The under-edge of the fingers 54 are also serrated as indicated at 56 for the same reason as the serrations 44.

In order to move the intermediate plate member 46 relative to the members 32 and 34, central openings through the plate member 34 and the intermediate plate member 46 are provided with diametrically opposed slots 60. Such slots 60 in the intermediate plate member 46 have struck up tabs indicated at 62 at the ends thereof. A tool such as that indicated in Fig. 6 at 64 having a transversely extending pin member 66 is adapted to be received through the central openings. The extending portions of the pin members 66 abut against the tabs 62 so that the intermediate member 46 may be turned. In order to hold the plate members 32 and 34 while the inter-

mediate plate member 46 is being turned, diametrically opposed openings 68 having smaller communicating slots formed therein are provided through the plate member 32. A suitable tool having an enlarged head may then be received through the opening 32 and engaged within the slots for holding the plate member 32, and, therefore, the plate member 34, while the intermediate plate member 46 is being turned. As the intermediate plate member 46 is turned, it is evident that the fingers 54 are moved toward and from the fingers 40 and 42, depending upon the direction of rotation of the member 46. When the member 46 has been turned so that the fingers 54 are moved away from the fingers 40 and 42, the members are then in position for mounting the buffing elements 14 thereon.

In order to mount the buffing segments on the fingers, the fingers 40 and 42 are inserted upwardly within the spaces 18 and 20, respectively. The element 14 is forced down over the fingers so that the base thereof bears against the outer peripheral edge of the members 32 and 34. When in this position, the intermediate finger 54 engages in the space or crease 16 and bears against the innermost portion of this fold. As the fingers 40 and 42 are inclined in a direction opposite to that of the fingers 54, and as the fingers are inclined and bear against the inclined free edges of the folds within which they are positioned, it is evident that when the finger 54 is urged toward the fingers 42, by turning the intermediate member 46 the fingers cooperate to clamp and fix the elements into position. One of such elements 14 is held by each of the three cooperating fingers so that the elements 14 are spaced around the periphery of the wheel. When so spaced, the elements abut against each other adjacent the outer edges thereof as indicated at 70, so that the outer peripheral surface of the composite wheel is relatively even. Openings or spaces 72 are formed between the segments, and such openings serve to permit the circulation of air therethrough, which cools the wheel while in use.

When the intermediate plate 46 has been turned so that the fingers firmly clamp the elements 14, the plates may then be fixed in position relative to each other by means of a screw 74 which is adapted to extend through an opening 76 in plate 34 and be received within a threaded opening 78 in plate 32. The intermediate plate member 46 is provided with a plurality of spaced openings 80 and one of such openings is aligned with the openings 76 and 78 so that the screw 74 extends through the three aligned openings and the intermediate plate member 46 is held in its adjusted position.

In order to complete the buffing wheel, outer cover members 82 and 84 are disposed on opposite sides of the wheel; and such cover members are preferably disc-like in shape and are slightly greater in diameter than the outside diameters of the members 32 and 34 measured to the outer ends of the fingers. Annular ring members 86 are fixed to the inner faces of the cover members 84 and 82 adjacent the periphery thereof and have inwardly directed teeth 88 therearound which bite into the outer surfaces of the sectors 14 when the cover plates are assembled, to thereby further assist in properly securing these segments in place.

Referring to Figs. 7 and 8, a modified form of the present invention is illustrated, in which the intermediate plate member, above described, is

dispensed with, and intermediate fingers are provided and pivotally mounted in a modified way.

In this embodiment, the intermediate fingers 90, which correspond to the intermediate finger members 54 above described, are in the form of elongated members having hub portions 92 adjacent the inner ends thereof. Such hub portions and the fingers are disposed between the plate members 32 and 34 and are fixedly mounted to shafts 94 which are pivotally received within the plate members 32 and 34. These stub shafts extend through the plate members 32 and 34 and are provided with Allen heads 96. Such Allen heads, as is well understood in the art, have in this case hexagonal recesses within which a turning tool may be inserted. By inserting the turning tool in the Allen head, the fingers 90 may be moved toward and from the fingers 40 and 42 to clamping or non-clamping position.

The hubs 92 are formed with teeth 98 in the form of ratchets having a pawl 99 associated therewith. The pawls 99 may be fixedly mounted upon screws 101 or the like, which are pivotally received within aligned openings in the plate members 32 and 34, so that the pawls 99 may pivot toward and from the ratchet teeth 98. Springs 103 have one end fixed to the plate member 32 and the other end fixed to the forward end of the pawl so that the pawl 99 is normally urged into engagement with the ratchet teeth 98. In order to release the pawls, a screw driver or other tool may be inserted in the screw head 101 and the pawl, which is fixed to the shaft of the screw, may be turned to its non-engaging position. The fingers 90 may then be opened by insertion of the tool into the Allen head 96, and the buffing elements 14 may then be inserted on the fingers as in the embodiments described above. By then turning the fingers 90 toward the fingers 40 and 42, these fingers are then positioned so that they clamp and fix the elements in position. The fingers in this embodiment are also serrated on the under edges thereof so that the serrations bite into the buffing elements and insure proper clamping of the elements.

In Fig. 9, another modified embodiment of the invention is illustrated in which a plurality of sectors 14 are positioned side by side around the periphery of the wheel. When the parts in this embodiment are assembled an intermediate plate member 106, which corresponds to the cover members 82 and 84 in the embodiments above described, is centrally disposed of the elements and is provided with oppositely disposed annular members 108 having oppositely directed teeth 110 thereon. The members 108 and teeth 110 correspond to the annular members 86 and teeth 88 on the side cover plates, and serve to clamp the adjacent faces of adjacent buffing elements 14 in position. By thus providing a suitable number of transverse units, the width of the buffing wheel may be varied.

Formal changes may be made in the specific embodiments of the invention described without departing from the spirit and substance of the invention, the scope of which is commensurate with the appended claims.

What is claimed is:

1. A buffing wheel construction comprising a plurality of fabric discs folded into segments of a circle and having outer folds facing in one direction and an intermediate fold facing in the opposite direction, said segments being arranged around the periphery of the wheel, and mounting means for clamping said segments in position,

said last named means including spaced apart plate members having outwardly inclined fingers formed thereon received within said outer folds, means fixing said plate members relative to each other, other finger members disposed within the space between said first named fingers and movably mounted therein received within said intermediate fold, said fingers being movable relative to each other whereby they clamp said segments in position, and cover plate members disposed on opposite sides of said wheel having inwardly directed teeth formed thereon which engage said segments to hold said segments in position.

2. A buffing wheel construction comprising a plurality of fabric discs folded into segments of a circle, said segments being arranged around the periphery of the wheel, and mounting means for clamping said segments in position, said mounting means including spaced apart plate members having outwardly inclined fingers formed thereon, other finger members disposed within the space between said plate members and movably mounted relative to said first named fingers, said first and second named fingers cooperating to clamp said segments in position, all of said fingers having their under-surfaces serrated, cover plate members disposed on opposite sides of said wheel having inwardly disposed teeth adjacent the outermost ends of said fingers for engaging and holding said segments in position.

3. A buffing wheel construction comprising a plurality of fabric discs folded into segments of a circle, said segments being arranged around the periphery of the wheel, and mounting means for holding said segments in position, said last named means including spaced apart plate members having outwardly inclined fingers formed thereon, other outwardly inclined finger members movably mounted in the space between said first named plate members and extending outwardly therebeyond, said other finger members and said first named finger members being inclined toward each other, respectively, whereby said fingers cooperate to engage and clamp said segments in position.

4. A buffing wheel construction comprising a plurality of fabric discs folded into segments of a circle, said segments being arranged around the periphery of the wheel, and mounting means for clamping said segments in position, said last named means including spaced apart plate members having outwardly inclined fingers formed thereon, an intermediate plate member disposed between said first named plate members also having outwardly inclined fingers formed thereon, the fingers on said first named plate members and the fingers on said intermediate plate members being inclined towards each other, respectively, whereby said fingers cooperate to engage and clamp said segments in position.

5. A buffing wheel construction comprising a plurality of fabric discs folded into segments of a circle and having outer folds facing in one direction and an intermediate fold facing in the opposite direction, said segments being arranged around the periphery of the wheel, and mounting means for clamping said segments in position, said last named means including spaced apart plate members fixedly secured relative to each other having outwardly inclined fingers formed thereon received within said outer folds, an intermediate plate member movably mounted relative to said first named plate members in the space therebetween, said intermediate plate

members also having outwardly inclined fingers formed thereon received within said intermediate folds, and means for adjustably fixing said intermediate plate member relative to said first
5 named plate members whereby said fingers cooperate to clamp said segments in position.

6. A buffing wheel construction comprising a plurality of fabric discs folded into segments of a circle, said segments being arranged around
10 the periphery of the wheel, and mounting means

for clamping said segments in position, said last named means including spaced apart plate members having outwardly inclined fingers formed thereon, finger members pivotally mounted to said plate members in the space therebetween,
5 pawl and ratchet means associated with said last named fingers whereby said last named fingers may be moved relative to said first named fingers to clamp said segments in position.

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