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Mattsson

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[54] **CHAIR**

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[51] **Int. Cl.** **A47c 5/04**

[58] **Field of Search** ..... 297/44, 45, 42, 419, 420, 297/421, 422, 423, 445, 446, 447, 294, 295, 239, DIG. 4, 440

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[57] **ABSTRACT**

A wheeled chair construction having a frame formed by a pair of identical, parallel side frame members and a pair of essentially identical seat frame members each having seat and wheel support portions joined one to each of side frame members in a vertically spaced relationship and a vertically inclined connecting portion extending transversely adjacent the rear of the chair for connecting the seat and wheel support portions.

9 Claims, 6 Drawing Figures

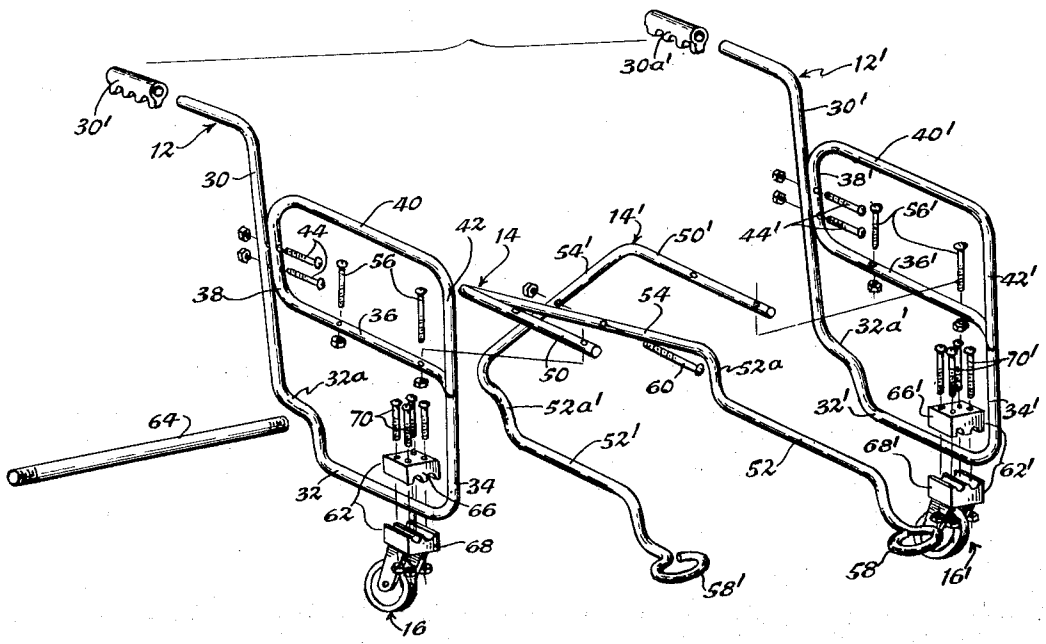


Fig. 1.

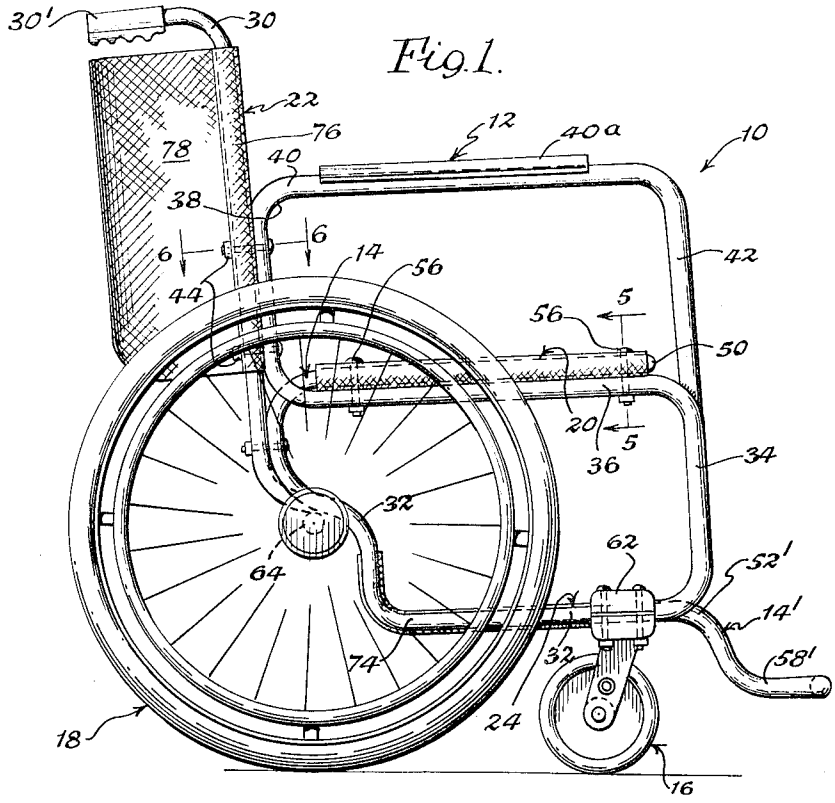
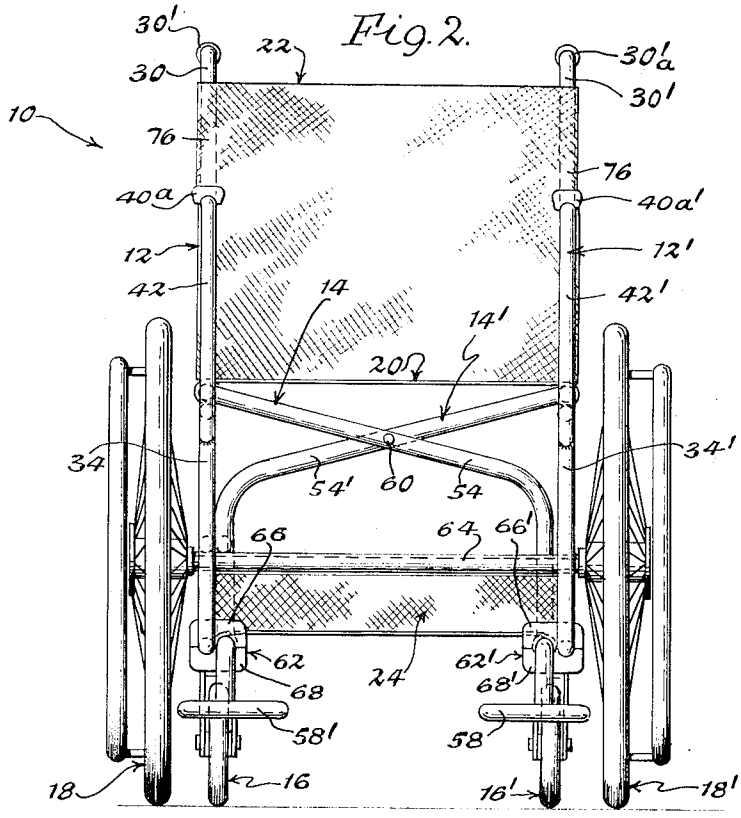

30'
30
22
76
78
40
12
40a
10
38
6
6
44
14
56
42
56
5
50
20
5
36
34
32
64
62
52'
14'
74
32
58'
24
18
16

Fig. 2.


30'
22
30'a
30
30'
10
76
76
40a
40a'
12
12'
42
42'
14
14'
20
34
34'
54'
60
54
66
64
66'
62
62'
24
68
68'
58'
58
18
16
16'
18'

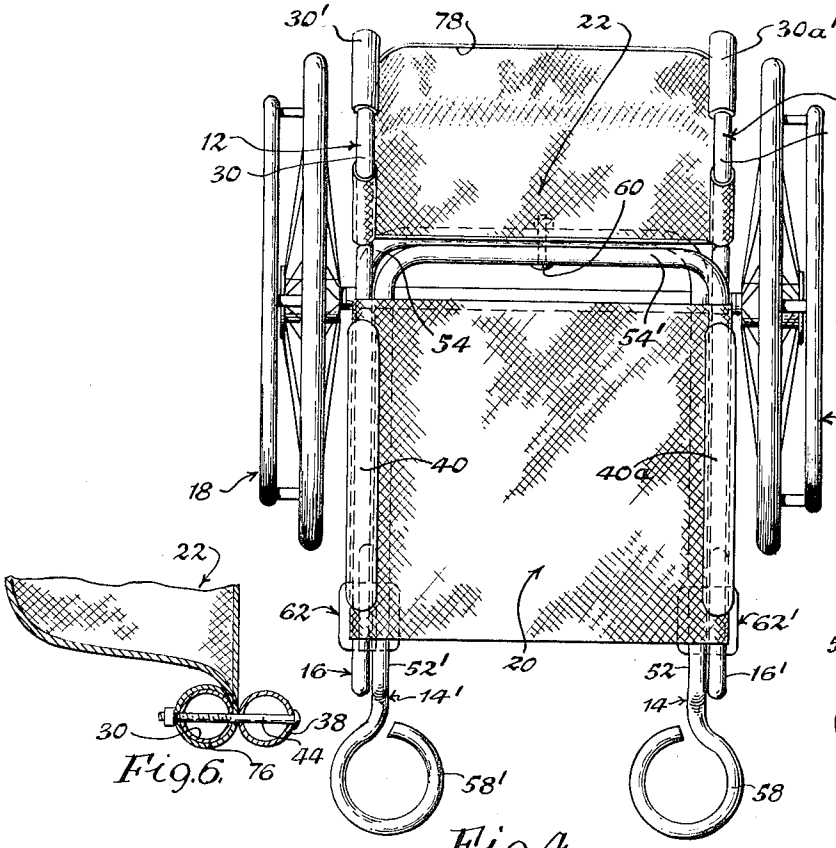


Fig.3.

Fig.6.

Fig.4.

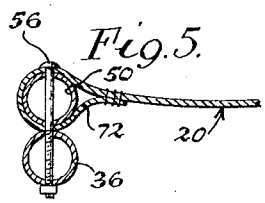
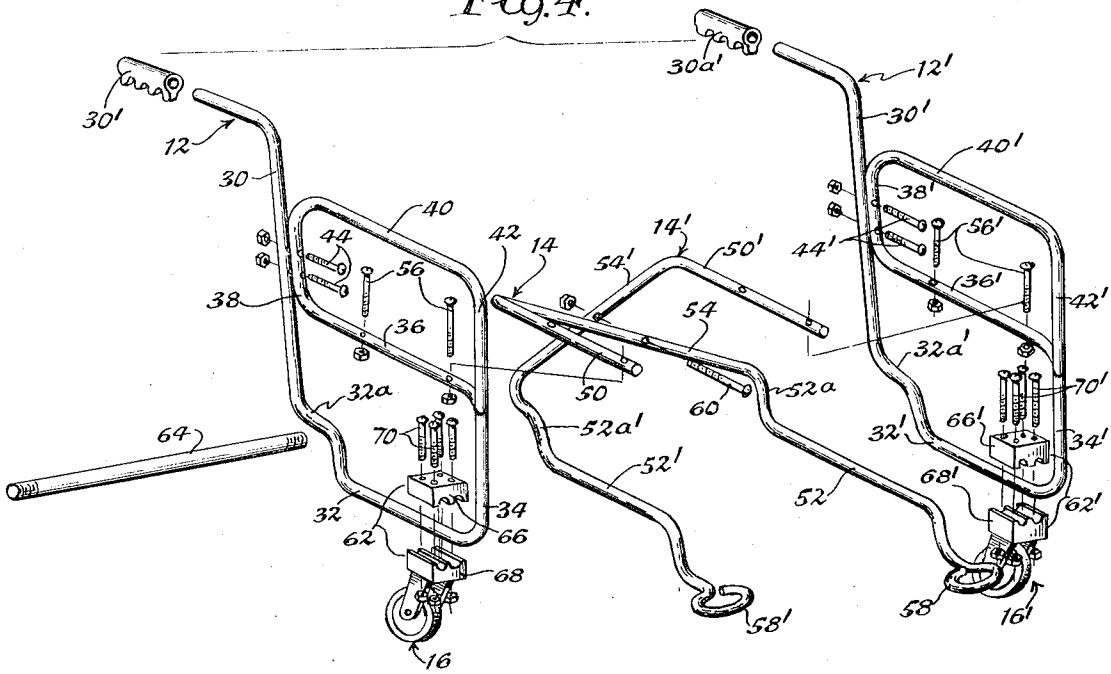


Fig.5.



CHAIR

SUMMARY OF THE INVENTION

The present invention is directed towards wheel type chairs and more particularly to a novel chair frame construction admitting to light weight and low cost fabrication techniques.

The frame of the chair of the present invention is preferably fabricated from four metal tubes bent to define a pair of identical side frame members and a pair of essentially identical seat frame members. Each seat frame member defines seat and wheel support portions, which are joined to the side frame members in a vertically spaced relationship and a vertically inclined connecting portion, which extends transversely adjacent the rear of the chair for connecting the seat and chair support portions. The wheel support portions cooperate with their associated side frame members to form points of attachment for the wheels of the chair. Preferably, the free ends of the wheel support portions extend forwardly of their associated side frame members and define rests for the feet of an occupant of the chair.

A preferred form of the present chair additionally includes a combination backrest-storage compartment, which extends between the side frame members; a seat, which extends between the seat portions; and a storage shelf, which is arranged vertically below the seat and extends between the wheel support portions.

DRAWINGS

The nature and mode of the present invention is more fully described in the following detailed description taken with the accompanying drawings wherein:

FIG. 1 is a side elevational view of the chair according to the present invention;

FIG. 2 is a front elevational view thereof;

FIG. 3 is a top plan view thereof;

FIG. 4 is an exploded perspective view of the chair framework;

FIG. 5 is a sectional view taken generally along line 5—5 in FIG. 1; and

FIG. 6 is a sectional view taken along line 6—6 in FIG. 1.

DETAILED DESCRIPTION

Reference is now made to FIGS. 1–3, wherein a chair formed in accordance with the present invention is generally designated as **10.** Chair **10** features a novel frame construction having a pair of side frame members **12** and **12'** and a pair of seat frame members **14** and **14'**; and further generally includes a pair of swivel mounted front wheels **16** and **16'**, a pair of rear wheels **18** and **18'**, a seat **20,** a back rest **22** and a storage shelf **24.**

In accordance with the preferred form of the present invention, side frame members **12** and **12'** are of identical construction and individually formed by shaping, as by bending, a single tube of steel, aluminum or other suitable material. With reference to FIGS. 1–4, members **12** and **12'** include sequentially end connected upstanding handle-back rest parts **30** and **30'** fitted with molded handle grips **30***a* and **30***a'*, respectively; lower forwardly extending wheel support parts **32** and **32'**; lower front parts **34** and **34'**; rearwardly extending seat parts **36** and **36'**; upstanding connector or rear parts **38** and **38'**; upper forwardly extending arm rest parts **40** and **40'**; and upper front parts **42** and **42'**, which have

their lower ends joined, as by brazing, to the juncture of parts **34** and **36** and **34'** and **36'**, respectively. Connector parts **38** and **38'** are suitably fixed to handle-back rest parts **32** and **32'**, as by bolts **44** and **44'**, to complete the side frame members. If desired, the arm rest parts may be fitted with arm rests **40***a* and **40** *a'*.

Again referring to FIGS. 1–4, it will be understood that seat frame members **14** and **14'** are of substantially identical construction and also preferably formed by shaping, as by bending, a single tube of steel, aluminum or other suitable material to define seat portions **50** and **50'**; wheel support portions **52** and **52'**; and vertically inclined connecting portions **54** and **54'**, which are arranged to extend transversely adjacent the rear of the chair frame to connect the rearwardly disposed ends of seat and wheel support portions **50** and **52** and **50'** and **52'**, respectively. Seat portions **50** and **50'** extend substantially co-extensively with seat parts **36** and **36'** and are suitably immovably affixed thereto in an overlying relationship, as by means of bolts **56** and **56'**, respectively. Wheel support portions **52** and **52'** extend substantially coextensively with wheel support parts **32'** and **32,** respectively, and are affixed to lie transversely inwardly thereof in the manner to be described. The thus associated seat portions and parts **50** and **36** and **50'** and **36'** may be considered to define a pair of spaced seat support units, whereas the associated wheel support portions and parts **52'** and **32** and **52** and **32'** may be considered to define a pair of spaced wheel support units.

Preferably, the forward ends of wheel support portions **52** and **52'** are formed with extensions, which extend forwardly of their associated side frame members and are shaped to define foot rests **58** and **58'** for an occupant of the chair. If desired, connecting portions **54** and **54'** may be interconnected adjacent their midpoints by a pin, rivet or bolt **60.**

While various arrangements may be employed to imovably interconnect portion **52'** and part **32** and portion **52** and part **32'** and to attach the wheel support units to the wheels of the chair, it is preferred to interconnect their front ends by combination front wheel mounting-clamp devices **62** and **62'**, respectively and to interconnect their rear ends by fixing same, as by welding or brazing, to a rear wheel mounting device, such as may be in the form of a tube or shaft **64.** To accommodate the chair to receive large diameter rear wheels **18** and **18'** of the type commonly employed for occupant propelled invalid chairs, the rearwardly extending ends of parts **32** and **32'** and portions **52** and **52'** are stepped or vertically offset, as indicated at **32***a*, **32***a'*, **52***a* and **52***a'*. Devices **62** and **62'** are best shown in FIG. 4 as including upper plates **66** and **66'** and front wheel mounting lower plates **68** and **68'**, which have their facing contoured surfaces clamped in engagement with the wheel support units by bolts **70** and **70'** . If desired, devices **62** and **62'** may be fitted with quick release latch devices, not shown, for their associated wheels **16** and **16'** in order to prevent "runaway" of a "parked" chair. The construction of wheels **16, 16', 18** and **18'** and the manner in which they are connected to mounting device **64** and lower mounting plates **68** and **68'** may be conventional and thus forms no part of the present invention.

It will be understood that diverse types of seats may be employed in combination with the chair frame thus

far described. However, to reduce material costs and facilitate fabrication of the chair, it is preferable to form seat **20** from a single sheet of vinyl or other plastic material, which has its opposite marginal edges or ends looped, as best shown in FIG. **5** at **72**, to slideably receive seat portions **50** and **50'**. After assembly, seat **20** is constrained from sliding lengthwise of seat portions **50** and **52'** by bolts **56** and **56'**.

In a like manner shelf **24** is preferably formed of a vinyl or other plastic material whose opposite marginal edges or ends are formed with loops **74** to freely receive wheel support portions **52** and **52'**. Shelf **24** is maintained in position during use by front edge engagement with devices **62** and **62'** and rear edge engagement with mounting device **64**.

Back rest **22** is also preferably formed of vinyl sheet material, whose opposite marginal edges or ends are looped, as at **76**, to freely receive handle-back rest parts **30** and **30'**; the back rest being retained in position after the chair is assembled by means of bolts **44** and **44'**. When the chair of the present invention is primarily intended for use as a shopping chair, back rest **22** would be provided with an integrally formed storage compartment or basket **78**.

It will be appreciated from the foregoing that chair **10** is characterized as being of sturdy, but light weight, low cost construction, due to the novel construction of the chair frame comprising only four metal tubular members. The reverse bending and mode of interconnecting the several parts of the side frame members provides extremely strong, but light weight sides for the chair, while the design of the seat frame members and their mode of attachment to the side frame members provides the chair with transverse stability to prevent inward movement of the sides of the chair under occupant loading. Moreover, the specific manner disclosed for use in attaching the seat, shelf and back rest to the elements of the chair frame, both facilitates fabrication of the chair and replacement of these elements when worn or damaged.

I claim:

1. A wheeled chair comprising in combination:

a chair frame, said frame including a pair of side frame members and a pair of seat frame members, each of said side frame members being defined by deforming a single piece of metallic tubing and including an upstanding handle-back rest part, a wheel support part extending forwardly from adjacent a lower end of said handle-back rest part, a lower front part extending upwardly from adjacent a forward end of said wheel support part, a seat part extending rearwardly from adjacent an upper end of said lower front part, a rear part upstanding from adjacent a rearward end of said seat part, an arm rest part extending forwardly from adjacent an upper end of said rear part and an upper front part extending downwardly from adjacent a forward end of said arm rest part and having a lower end thereof fixed adjacent the juncture of said lower front part and said seat part, said rear part being fixed to said handle-back rest part, each of said seat frame members having a seat portion fixed to and extending substantially co-extensively with said seat part of one of said side frame members and cooperating therewith to define a seat support unit, a wheel support portion extending substantially coextensively with said wheel support part of an other of said side frame members and cooperating therewith to form a wheel support unit and a vertically inclined connecting portion for rigidly interconnecting the rearwardly disposed ends of said seat and wheel support portions, said seat portions being disposed vertically above said seat parts, said wheel support portions being disposed transversely inwardly of said wheel support parts;

a pair of front wheel support devices associated one with each of said wheel support units for clampingly fixing together forward ends of its associated wheel support part and wheel support portion;

a pair of front wheels mounted one by each of said front wheel support devices;

a single rear wheel support device extending transversely of said frame and being fixed to rearward ends of said wheel support parts and said wheel support portions;

a pair of rear wheels mounted adjacent opposite ends of said rear wheel support device;

a seat extending transversely of said chair frame and being supported by said seat support units; and

a back rest extending transversely of said chair frame and being supported by said handle-back rest parts.

2. A chair according to claim **1**, wherein integrally formed forwardly disposed ends of said wheel support portions extend forwardly of said wheel support parts to define foot rests for an occupant of said chair.

3. A chair according to claim **1**, wherein a shelf extends transversely of said chair frame and is supported by said wheel support units intermediate said front and rear wheels.

4. A chair according to claim **1**, wherein said seat is formed with opposite marginal edges looped to receive said seat portions, said back rest is formed with opposite marginal edges looped to receive said handle-back rest parts, and a shelf extends transversely of said chair frame beneath said seat, said shelf having opposite marginal edges thereof looped to receive said wheel support portions.

5. A frame for a wheeled chair, which comprises in combination:

a pair of side frame members, each of said side frame members being of integral bent metal tubular construction and having sequentially end connected parts including an upstanding handle-back rest part, a lower forwardly extending wheel support part, a lower front part, a rearwardly extending seat part, an upstanding connector part, an upper forwardly extending arm rest part, and an upper front part, said upstanding connector part being fixed to said handle-back rest part, and said upper front part being lower end fixed adjacent the juncture of said lower front part and said seat part; and

a pair of seat frame members, each of said seat frame members being of integral bent metal tubular construction and including a rearwardly extending seat portion fixed to said seat part of one of said side frame members, a forwardly extending wheel support portion fixed to said wheel support part of an other of said side frame members and a transversely extending connecting portion end connected to rearwardly disposed ends of said seat and wheel support portions, said seat portions being disposed vertically above and extending substantially coextensive with their associated seat parts,

said wheel support portions being disposed transversely inwardly of and extending substantially coextensive with their associated wheel support parts, and said wheel support portions having forward end portions arranged forwardly of said side frame members and shaped to define foot rests for an occupant of said chair.

6. A wheeled chair comprising in combination:

a pair of side frame members, each of said side frame members being of integral bent metal tubular construction and having sequentially end connected parts including an upstanding handle-back rest part, a lower forwardly extending wheel support part, a lower front part, a rearwardly extending seat part, an upstanding connector part, an upper forwardly extending arm rest part, and an upper front part, said upstanding connector part being fixed to said handle-back rest part, and said upper front part being lower end fixed adjacent the juncture of said lower front part and said seat part;

a pair of seat frame members, each of said seat frame members being of integral bent metal tubular construction and including a rearwardly extending seat portion fixed to and extending substantially coextensive with said seat part of one of said side frame members to define a seat support unit, a forwardly extending wheel support portion fixed to and extending substantially coextensive with said wheel support part of an other of said side frame members to define a wheel support unit, and a transversely extending connecting portion end connected to rearwardly disposed ends of said seat and wheel support portions;

a single rear wheel support device extending transversely of said side frame members and being fixed to the rearward end of each said wheel support unit;

a pair of front wheel support devices fixed one to each of said wheel support units for fixing together forward ends of its associated wheel support part and wheel support portion;

a pair of rear wheels mounted adjacent opposite ends of said rear wheel support device;

a pair of front wheels mounted one by each of said front wheel support devices;

a seat supported by said seat support units; and

a back rest supported by said handle-back rest parts.

7. A chair according to claim 6, wherein said seat portions are disposed vertically above their associated seat parts, and said wheel support portions are disposed transversely inwardly of their associated wheel support parts.

8. A chair according to claim 7, wherein said seat portions are bolt affixed to their associated seat parts, and said front wheel support devices clampingly fix together forward ends of said wheel support portions and their associated wheel support parts.

9. A frame for a wheeled chair including:

a pair of side frame members, each of said side frame members being of integral bent metal tubular construction and having sequentially end connected parts including an upstanding handle-back rest part, a lower forwardly extending wheel support part, a lower front part, a rearwardly extending seat part, an upstanding connector part, an upper forwardly extending arm rest part, and an upper front part, said upstanding connector part being fixed to said handle-back rest part, and said upper front part being lower end fixed adjacent the juncture of said lower front part and said seat part;

a pair of seat frame members, each of said seat frame members being of integral bent metal tubular construction and including a rearwardly extending seat portion immovably fixed to and extending substantially coextensive with said seat part of one of said side frame members to define a seat support unit, a forwardly extending wheel support portion immovably fixed to and extending substantially coextensive with said wheel support part of an other of said side frame members to define a wheel support unit and a transversely extending connecting portion end connected to rearwardly disposed ends of said seat and wheel support portions, said wheel support portions having forward end portions arranged forwardly of said side frame members and shaped to define foot rests for an occupant of said chair;

a pair of front wheel support devices fixed one with each of said wheel support units adjacent forward ends thereof; and

a single rear wheel support device extending transversely of said frame and having its opposite ends fixed to rearward ends of said wheel support units.

* * * * *