

O. C. KEMP.
KNOCKDOWN OR COLLAPSIBLE STOVE.
APPLICATION FILED JULY 1, 1912.

1,094,151.

Patented Apr. 21, 1914.

4 SHEETS—SHEET 1.

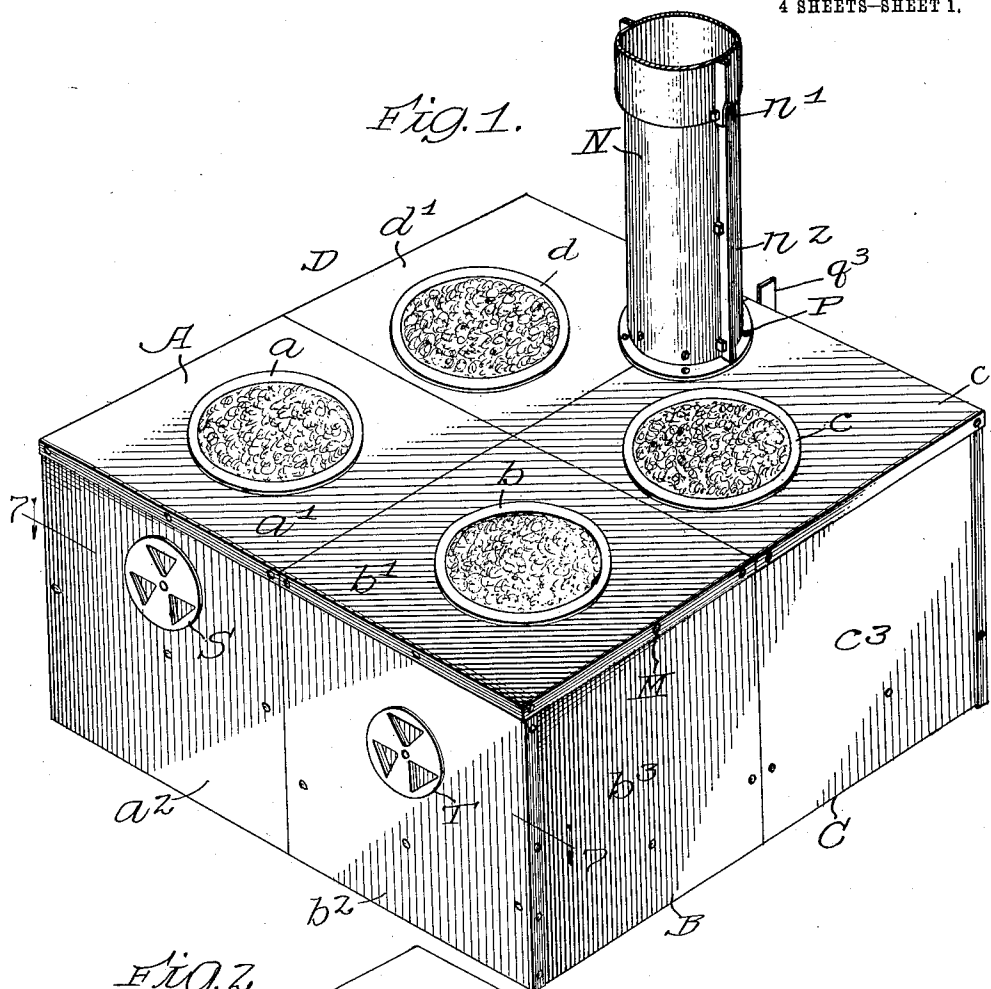
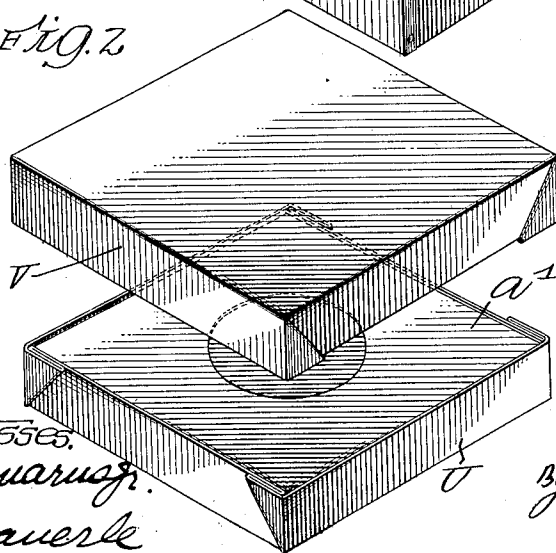


Fig. 2.



Witnesses:
G. H. Marney
R. Bauerle

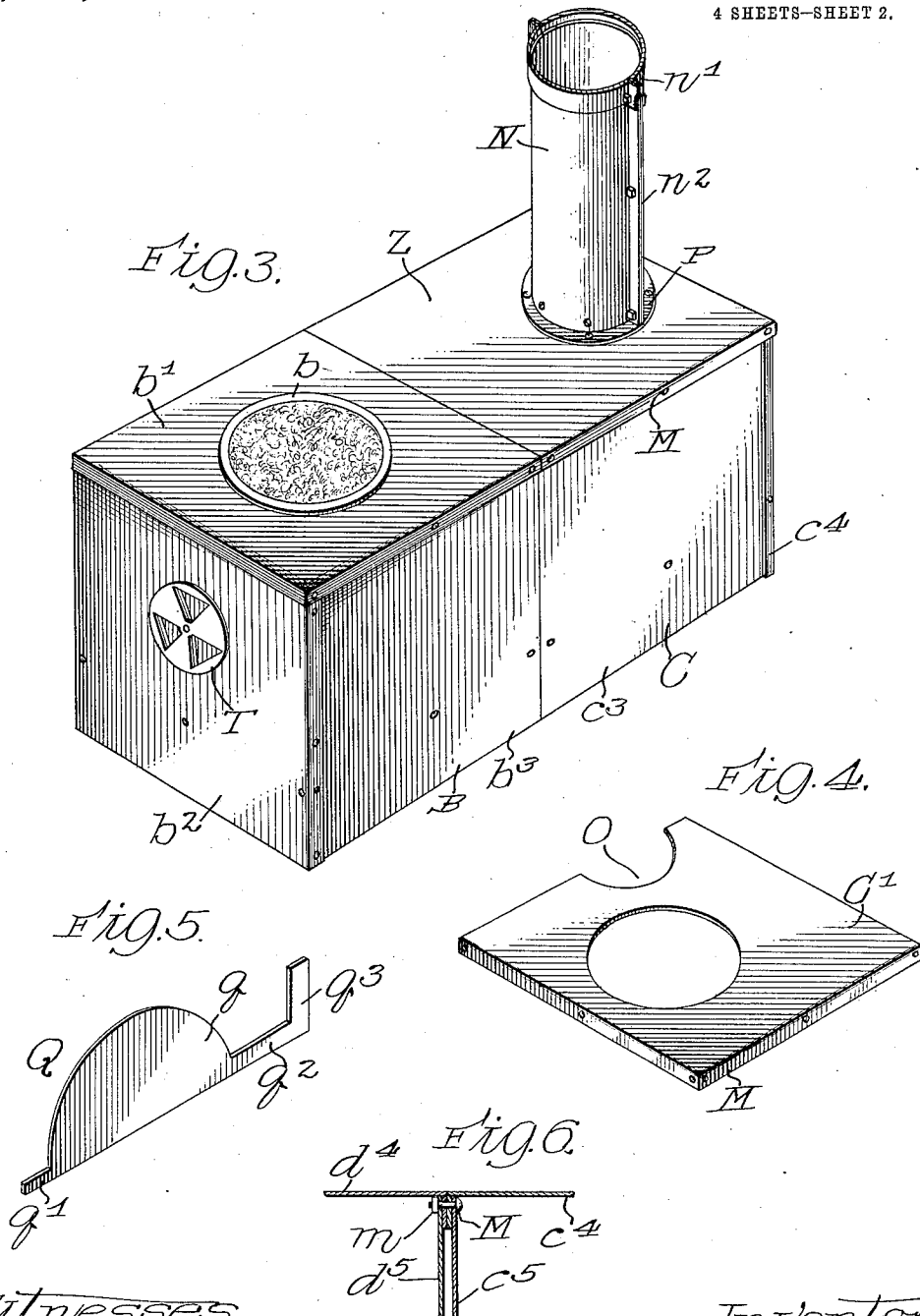
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4 SHEETS-SHEET 2.



WITNESSES.
 G. W. Dornier Jr.
 R. Bauer

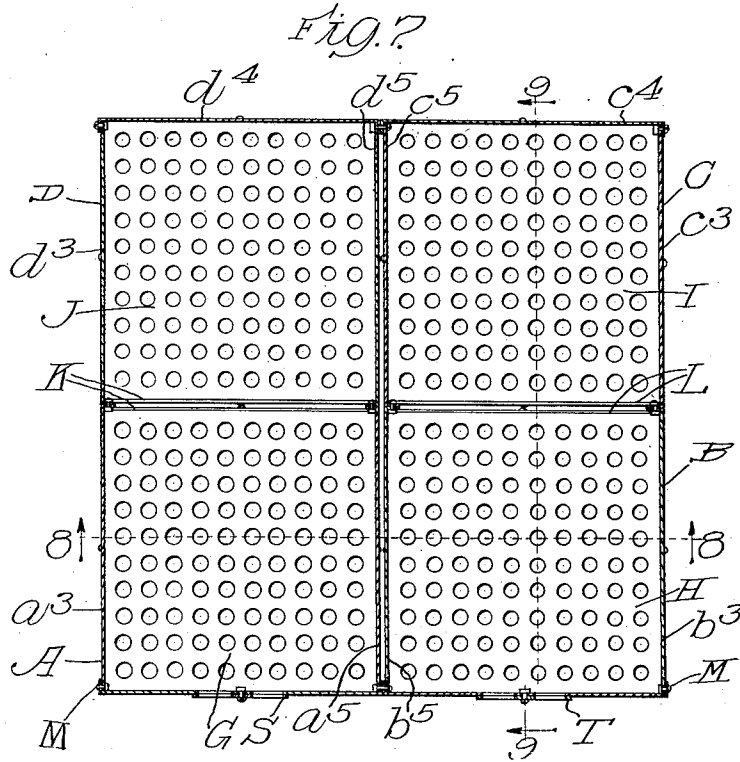
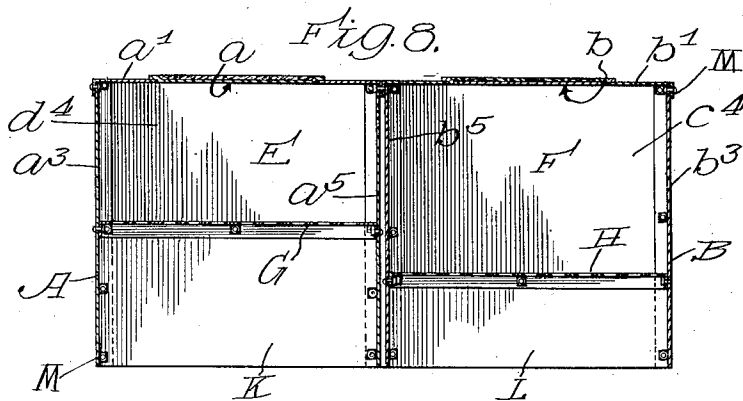
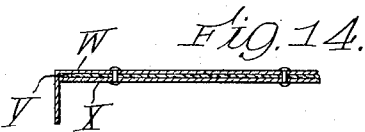
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4 SHEETS-SHEET 3.



Witnesses:
 G. W. Romar Jr.
 R. Baurek

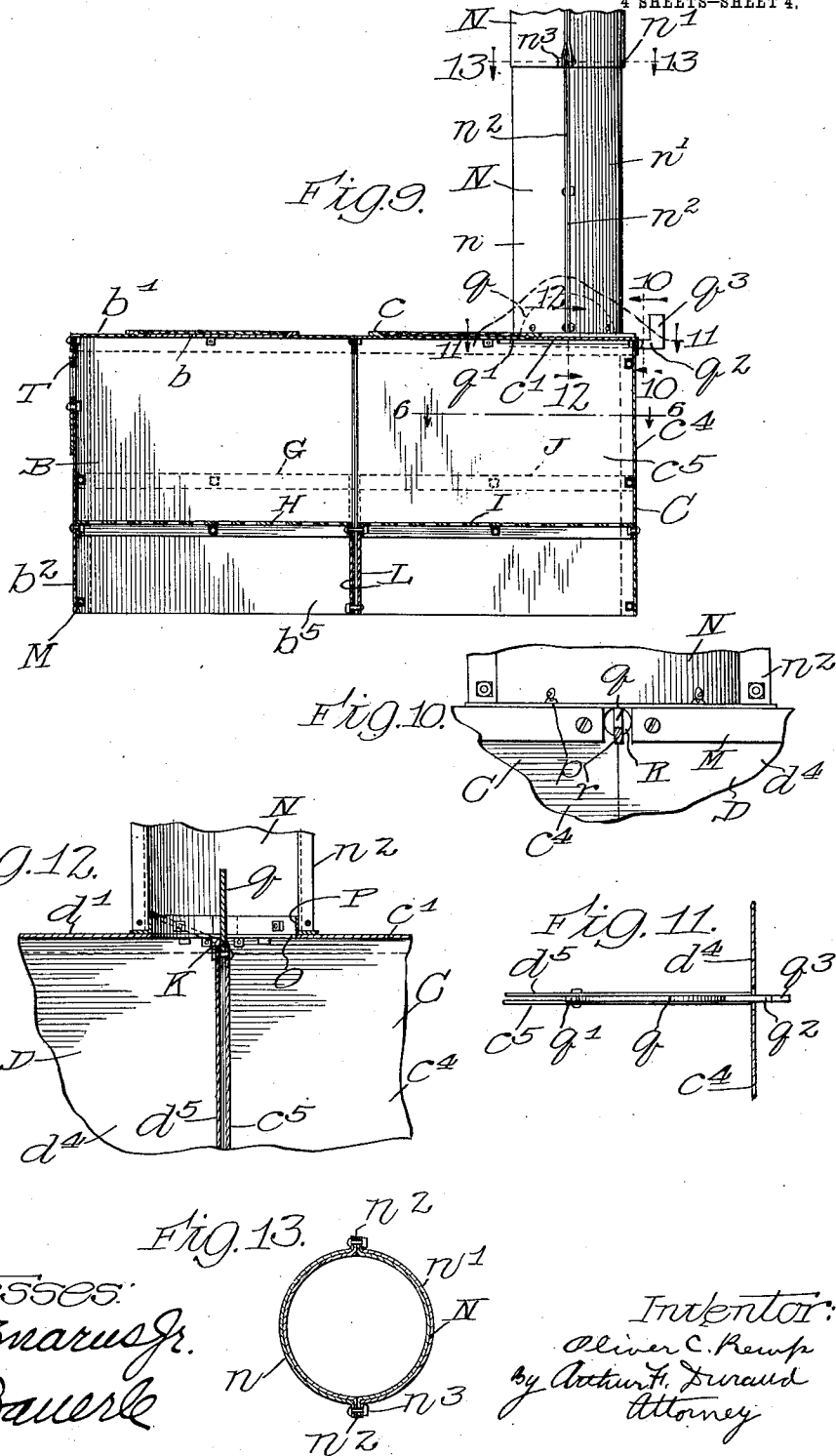
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4 SHEETS-SHEET 4.



Witnesses:
 G. Komarus Jr.
 R. Bauerle

Inventor:
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UNITED STATES PATENT OFFICE.

OLIVER C. KEMP, OF CHICAGO, ILLINOIS.

KNOCKDOWN OR COLLAPSIBLE STOVE.

1,094,151.

Specification of Letters Patent.

Patented Apr. 21, 1914.

Application filed July 1, 1912. Serial No. 707,061.

To all whom it may concern:

Be it known that I, OLIVER C. KEMP, a citizen of the United States of America, and resident of Chicago, Cook county, Illinois, have invented a certain new and useful Improvement in Knockdown or Collapsible Stoves, of which the following is a specification.

My invention relates to knock down or collapsible stoves in general, but more particularly to those employed for cooking purposes, and especially those which are adapted for use as camp or army stoves.

Generally stated, the object of my invention is to provide a novel and highly efficient knock down or collapsible cooking stove which can be taken apart and reduced to a compact and comparatively small and light package for transportation purposes.

A special object is to provide a novel and improved construction whereby a stove of this kind can be taken apart and the elements thereof crowded closely together to form a package of considerably less area than the top of the stove, when the structure is packed for shipment, and of moderate thickness.

Another object is to provide a novel and improved construction whereby practically all of the parts or elements of a knock down stove of this character are substantially of the same size and shape, thus making it possible for the different elements to be crowded or nested tightly together to form a compact package of rectangular form and of considerably less area than the top of the stove.

Another object is to provide a novel and improved construction whereby a stove of this character, although made of thin sheet metal, is nevertheless strong and rigid and capable of efficient service with less liability of becoming distorted or bent out of shape than heretofore.

Another object is to provide a novel and improved construction whereby aluminum may be employed for the entire outer surface of a stove of this kind, without danger of the sheet aluminum being injured by the fuel or fire, thus protecting a comparatively thin sheet metal stove of this kind against the danger of unduly and prematurely rusting out, which latter has always been a serious objection to stoves of this kind, especially those employed for camping purposes.

A further object is to provide a novel and

improved construction whereby a stove of this kind is composed of hollow sections, each section being substantially cubical in form, and the said sections being adapted for use in building up a stove of any desired size or capacity, the stove thus constructed being uniformly sectional in character, and expansible at will to suit the requirements of any particular case.

It is also an object to provide a novel and improved construction whereby, in a stove of this kind, the grate for supporting the fire can be either low or high, and whereby a fire can be either deep or shallow, depending upon the character of the cooking to be done.

It is also an object to provide certain details and features of improvement, such, for example, as a damper for the smoke pipe which is common to the two combustion chambers of the stove, when the latter is made double and comprises four sections, tending to increase the general efficiency and serviceability of a knock down or collapsible stove of this particular character.

To the foregoing and other useful ends my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings—Figure 1 is a perspective of a double or full sized collapsible cooking stove embodying the principles of my invention, the same being shown set up and ready for use. Fig. 2 is a perspective of the same stove knocked down and reduced to a comparatively small and substantially square package for shipment, the said package being substantially the same in area as any one of the four sections of which the stove is composed, as shown in Fig. 1, the said package being shown in the pan or other cooking utensil which serves as a container for the package, and a similar pan or utensil being shown in position to be placed over the same to serve as a cover therefor. Fig. 3 is a perspective of a similar or single stove embodying the principles of my invention. Fig. 4 is a perspective of the right hand rear section of the top of the stove shown in Fig. 1. Fig. 5 is a perspective of the damper employed for the smoke pipe of the stove shown in Fig. 1. Fig. 6 is an enlarged detail sectional view of one of the joints formed by securing together the edge portions of two end walls and the two middle or longitudinal walls of the said stove in Fig. 1, the said section be-

ing taken on line 6—6 in Fig. 9. Fig. 7 is a horizontal section through the stove on line 7—7 in Fig. 1. Fig. 8 is a transverse vertical section on line 8—8 in Fig. 7. Fig. 9 is a longitudinal section on line 9—9 in Fig. 7. Fig. 10 is an enlarged detail sectional view on line 10—10 in Fig. 9. Fig. 11 is an enlarged detail sectional view on line 11—11 in Fig. 9, with certain parts omitted. Fig. 12 is an enlarged detail sectional view on line 12—12 in Fig. 9. Fig. 13 is a horizontal section through the smoke pipe on line 13—13 in Fig. 9. Fig. 14 is a detail sectional view on a larger scale of a portion of the three ply sheet material from which the stove is made.

As thus illustrated, and referring to Fig. 1, it will be seen that my invention comprises four stove sections, A, B, C and D, which are secured together to form a rectangular cooking stove having four grid-dles, a , b , c and d in the top thereof, and which are each substantially cubical in form, whereby the top of the stove is substantially square. The top of the stove is, therefore, composed of the right and left front sections b^1 and a^1 , and the right and left sections c^1 and d^1 , each of said sections being substantially square in outline, and each section consisting of sheet metal having the four straight edges thereof turned downward or inward to provide strengthening and attaching flanges, as shown more clearly in Figs. 8 and 9. The front stove sections A and B have front walls a^2 and b^2 , each front wall consisting of one or more layers of sheet metal having the vertical edges thereof turned inward to form vertical strengthening and attaching flanges, as shown in Fig. 7, the upper edges of these front walls being secured inside of the front flanges of the sections a^1 and b^1 in the manner shown in Fig. 8. The right hand side wall sections b^3 and c^3 are of similar character and have their vertical edges turned inward to form flanges of the kind previously explained, the upper edges of these side walls being secured inside of the flanges formed at the side edges of the sections b^1 and c^1 , in the manner shown more clearly in Fig. 8. The left hand side wall sections a^3 and d^3 are similar to the right hand side wall sections, being provided with inturned vertical flanges at their edges—that is to say, at their meeting edges, which is also the case with the outer wall sections c^3 and b^3 , and the upper edges of these side wall sections a^3 and d^3 being secured inside of the flanges of the top sections a^1 and d^1 . The rear end wall sections c^4 and d^4 are rectangular in shape, and are each composed of sheet metal, each section having the two vertical edges thereof turned inward to form flanges which are secured to the rear vertical edges of the longitudinal walls of the

stove, in the manner shown in Fig. 7. The stove is divided into two parallel and longitudinally extending combustion chambers E and F by the longitudinal partition sections a^5 , b^5 , c^5 and d^5 , these rectangular sheet metal sections being similar to the side wall sections b^3 , c^3 , a^3 and d^3 , the flanges thereof being secured together at the center of the stove in the manner shown in Fig. 7, and the front and rear edges thereof being secured to the flanges of the front and rear end wall sections, while the upper edges of these longitudinal partition wall sections are secured to the inner downturned edges or flanges of the top wall sections, as shown in Figs. 7 and 8.

The four bottom wall sections G, H, I and J, are each substantially square in form and are each provided with four downturned edges forming flanges which are secured to the side and end walls of the stove, each bottom section serving as a grate for supporting the fuel, and being preferably made of perforated sheet metal, as shown in Fig. 7. Below the two grates are the transverse partition walls K and L, these being merely straight rectangular sheets of metal with un-bent edges, whereby their vertical end edges are adapted to be secured to the vertical flanges of the side wall sections of the stove, and whereby the upper edges of these transverse partition walls are adapted to be secured to the downturned meeting flanges of the front and rear sections of the grate, as shown in Fig. 9. Throughout the construction the said flanges and edge portions of the different sheet metal sections are separably or detachably secured together by stove bolts M of any suitable, known or desired character, as shown more clearly in Fig. 6, the nuts n of said bolts being preferably disposed inside of the stove and always with one side thereof in contact with one of the sheet metal walls to prevent rotation of the nuts when the heads of the bolts are turned by the application of a screw driver thereto. Thus the front and rear sections of the stove are closed all around, except at their meeting sides, these being left open to enable the sections A and D to cooperate in forming a combustion chamber of ample size therein, and in order to enable the units B and C to cooperate in providing a similar combustion chamber within the stove. In constructing the stove the side and end and bottom wall sections are all assembled together, in the manner shown in Fig. 7, and the four top wall sections are then placed in position and secured to the knock down structure by the stove bolts which are employed for this purpose.

The details of the griddle, smoke pipe and damper construction are as follows: Each griddle is preferably composed of a round piece of sheet metal with a slight depression

in the center thereof shown in Figs. 8 and 9, so that the said griddles will fit the round holes in the top of the stove, and the depression in the top of each griddle is filled in flush with a layer of asbestos, whereby these griddles are suitable for certain kinds of cooking. The smoke pipe N is composed of telescoping sections, each section being composed of sub-sections n and n^1 , as shown in Fig. 13, these sub-sections having vertical flanges n^2 on the outside thereof, which flanges are secured together by means of stove bolts n^3 . In this way the said stove-pipe can be taken apart and each section thereof can then be subdivided and spread out flat to facilitate the packing of the stove for transportation purposes. The top of the stove is provided with an opening formed by the two half round openings O in the rear top sections c^1 and d^1 , and around this opening a collar P of angle iron is bolted flatwise upon the top of the stove. The smoke pipe telescopes downwardly over the riser of the said collar and is secured thereto by stove bolts of the kind previously described. To control the draft in the smoke pipe, a damper Q is provided, the said damper consisting of a half round portion q provided at its inner end with a short bearing portion q^1 and at its outer end with a longer bearing portion q^2 having an upturned portion q^3 that serves as a handle. The rear end walls of the stove are provided with a round opening R having a notch r at the bottom thereof, said opening being large enough to prevent rotation therein of the portion q^2 of the damper, and the said notch being adapted to allow said portion q^2 to drop downward slightly and thereby prevent the damper from rotating in either direction. This will hold the damper upright in the position shown in Fig. 12, thus maintaining both combustion chambers in communication with the smoke pipe. In this position the damper is slightly between the two rear longitudinal partition walls c^5 and d^5 and these walls serve in this way to assist in holding the damper in the upright position thereof. The end portion q^1 may rest on a stove bolt or other portion extending from one wall c^5 to the other wall d^5 at a suitable distance in front of the stove pipe hole. With this arrangement the damper can be turned in either direction to bring either combustion chamber into communication with the stove pipe, and to totally shut off the draft so far as the other chamber is concerned. When the damper is turned in either direction it rests against one or more of the stove bolts by which the stove pipe is secured to the collar P that encircles the hole in the top of the stove, or against any other portion of the pipe connection. At the front of the stove the dampers S and T control the influx of air over the fire in the two com-

bus-tion chambers, the damper S being allotted to the left hand combustion chamber, and the damper T being allotted to the right hand combustion chamber, and both dampers being of any suitable, known or approved construction.

By constructing the stove from cubical sections in the manner described, it will be seen that a stove can be provided having any desired number of combustion chambers. As shown, for example, the combustion chamber formed by the sections A and D has the grates G and J thereof disposed close up to the top of the stove, whereby a quick and hot fire may be insured for certain kinds of cooking. On the other hand, the combustion chamber formed by the sections B and C has the grates H and I thereof disposed lower down for the purpose of insuring a deep fire when other kinds of cooking are necessary.

Thus the stove is adapted to meet all the requirements and conditions which are ordinarily found necessary or desirable in the use of cooking stoves.

When the stove is knocked down and taken apart, the different rectangular sections of the side and end and top and bottom walls go together compactly and in flatwise manner, as the different flanged sheet metal sections will nest together nicely for this purpose, and the entire package will not be greater in area than one of the top wall sections of the stove, and not of more than moderate thickness. In order to make the sections nest more readily together, and in order to bring the different thicknesses of material close and solidly together, the rear sections of the sides and top and back and bottom may be made a trifle smaller than the front sections of the stove, say the thickness of the material, whereby each rear section will fit within one of the corresponding front sections, and whereby there will be just enough difference in the size of the front and rear sections to insure the desired compactness of the package when the stove is knocked down and packed for shipment. This package can then be placed in the stew pan or other cooking utensil U, provided for this purpose, and a larger pan V of the same character can then be telescoped downwardly over the pan U to form a cover for the package. Thus, an ordinary pan or other similar auxiliary of the stove is employed as the container for the flat rectangular package formed by the knocked down parts or sections of the stove, and another pan or utensil is used as the cover for said container.

The stove may be of any suitable, known or approved materials. As a matter of further and special improvement, however, the different rectangular wall sections of the stove, except those of the grate, may be composed of an outer thickness of sheet alu-

minum, an inside thickness of iron, and an intermediate thickness of asbestos, the three layers being held together by rivets in the manner shown in Fig. 14. Thus, the outer layer W of aluminum will prevent the exterior of the stove from rusting, the inner layer X of sheet iron will take the wear and tear—that is to say, will not be injured by the fuel or fire, and the intermediate layer Y of asbestos will serve to reduce the radiation of heat from the stove, and also to prevent the aluminum from being impaired by the heat. By reason of the large number of flanges on the different edges of the sections of the stove, it is possible to use comparatively thin metal, as these flanges form stiffening ribs for rendering the structure as a whole very firm and rigid.

As shown in Fig. 3, the construction is substantially the same as that previously described. In this case, however, the stove has only a single combustion chamber and is only half as large as the one previously described. For this purpose the rear section Z of the top of the stove is made with the smoke pipe hole formed entirely therein. Otherwise, as stated, the construction is exactly the same as that previously described. Thus it will be seen that by my invention I make it possible to use the same size of sheet metal sections in building the stove of either large or small capacity. Two stove sections can be secured together to form a unit or single stove, as shown, in Fig. 3, or four sections can be secured together to provide a double stove, composed of two units, as shown in Fig. 1.

With the combination of a plurality of complete interdependent stove units, such as that shown in Fig. 3, for example, and the modified top walls shown in Fig. 4, together with the damper construction illustrated, it becomes possible to increase or decrease the capacity of the stove at will, whereby a single stove like that of Fig. 3 may be had if desired, or a double stove like that of Fig. 1, if a larger stove is necessary.

What I claim as my invention is:

1. A knock down cooking stove comprising rectangular walls, each wall composed of an outer sheet of metal with one or more of the edges thereof turned in to form a flange, inner sheets of asbestos extending to the said flanges, inner sheets of metal covering said asbestos and extending to the said flanges, and means extending through the said flanges to secure the walls together.

2. A knock down cooking stove comprising rectangular walls, each wall composed of an outer sheet of metal with one or more of the edges thereof turned in to form a flange, inner sheets of asbestos extending to the said flanges, inner sheets of metal covering said asbestos and extending to the said

flanges, and means extending through the said flanges to secure the walls together, the said outer sheets of metal being aluminum.

3. A knock down cooking stove comprising rectangular walls, each wall composed of an outer sheet of metal with one or more of the edges thereof turned in to form a flange, inner sheets of asbestos extending to the said flanges, inner sheets of metal covering said asbestos and extending to the said flanges, means extending through the said flanges to secure the walls together, the said outer sheets of metal being aluminum, and the said inner sheets of metal being iron.

4. The combination of a plurality of complete interdependent stove units, each said unit comprising a combustion chamber, and means for detachably uniting said units, whereby the capacity of the stove may be increased or decreased at will, and a smoke pipe common to all of said units when united.

5. The combination of a plurality of complete interdependent stove units, each said unit comprising a combustion chamber, and means for detachably uniting said units, whereby the capacity of the stove may be increased or decreased at will, and a smoke pipe common to all of said units when united, the said units being each composed of a plurality of sub-units of uniform size.

6. The combination of a plurality of complete interdependent stove units, each said unit comprising a combustion chamber, and means for detachably uniting said units, whereby the capacity of the stove may be increased or decreased at will, and a smoke pipe common to all of said units when united, each unit having square wall sections, and each section corresponding in size to the front of the unit, whereby the knock down package formed by taking the stove apart is not larger than the front of any unit.

7. The combination of a plurality of complete interdependent stove units, each said unit comprising a combustion chamber, and means for detachably uniting said units, whereby the capacity of the stove may be increased or decreased at will, and a smoke pipe common to all of said units when united, the said units being each composed of a plurality of sub-units of uniform size, each unit having square wall sections, and each section corresponding in size to the front of the unit, whereby the knock down package formed by taking the stove apart is not larger than the front of any unit.

8. The combination of a plurality of complete interdependent stove units, each said unit comprising a combustion chamber, and means for detachably uniting said units, whereby the capacity of the stove may be increased or decreased at will, and a smoke pipe common to all of said units when united, each unit composed of a plurality of

cubical sub-units, whereby the knock-down package formed by taking the stove apart is square and of the same area as each side of any sub-unit.

9. The combination of a plurality of complete interdependent stove units, each said unit comprising a combustion chamber, and means for detachably uniting said units, whereby the capacity of the stove may be increased or decreased at will, and a smoke pipe common to all of said units when united, the said units being each composed of a plurality of sub-units of uniform size, whereby the knock-down package formed by taking the stove apart is always of less area than the top of the stove.

10. The combination of a plurality of complete interdependent stove units, each said unit comprising a combustion chamber, and means for detachably uniting said units, whereby the capacity of the stove may be increased or decreased at will, and a smoke pipe common to all of said units when united, together with a damper for said pipe, formed to close either unit and open the other, or keep both units open to said pipe.

11. A knockdown stove composed of detachably connected hollow sub-units, a smoke pipe common to all of the sub-units, each sub-unit being composed of detachably connected walls inclosing part of a combustion chamber, the detachably connected tops of said sub-units being flush and combining to form a flat top, and the flat package formed by knocking down the stove being of the same rectangular area as the side of any sub-unit, together with means for detachably uniting said sub-units.

12. A knockdown stove composed of detachably connected hollow sub-units, a smoke pipe common to all of the sub-units, each sub-unit being composed of detachably connected walls inclosing part of a combustion chamber, the detachably connected tops of said sub-units being flush and combining to form a flat top, and the flat package formed by knocking down the stove being of the same rectangular area as the side of any sub-unit, each and every sub-unit having a support for fuel, and each sub-unit having an open side communicating with the open side of the adjacent sub-unit, together with means for detachably uniting said sub-units.

13. A knockdown stove composed of detachably connected hollow sub-units, a smoke pipe common to all of the sub-units, each sub-unit being composed of detachably connected walls inclosing part of a combustion chamber, the detachably connected tops of said sub-units being flush and combining to form a flat top, and the flat package formed by knocking down the stove being of the same rectangular area as the side of any sub-unit, the said sub-units being cubical in shape to facilitate the arrange-

ment of the said walls to form a flat package when the stove is knocked down, together with means for detachably uniting said sub-units.

14. A knockdown stove composed of detachably connected hollow sub-units, a smoke pipe common to all of the sub-units, each sub-unit being composed of detachably connected walls inclosing part of a combustion chamber, the detachably connected tops of said sub-units being flush and combining to form a flat top, and the flat package formed by knocking down the stove being of the same rectangular area as the side of any sub-unit, each sub-unit having a perforated bottom wall serving as a grate for supporting the fuel, together with means for detachably uniting said sub-units.

15. A knock-down stove composed of hollow cubes, one cube disposed in front of the other, in alinement therewith, each cube comprising one half of a combustion chamber and having the square walls thereof detachably secured together, whereby the flat knockdown package formed by taking the stove apart is substantially the same in size as any said wall, together with a smoke pipe common to all the cubes, and means for detachably uniting said cubes.

16. A knock-down stove composed of hollow cubes, one cube disposed in front of the other, in alinement therewith, each cube comprising one half of a combustion chamber and having the square walls thereof detachably secured together, whereby the flat knock-down package formed by taking the stove apart is substantially the same in size as any said wall, each wall having an integral bolting flange at one or more edges thereof, together with a smoke pipe common to all the cubes, and means for detachably uniting said cubes.

17. A knock-down stove composed of hollow cubes, one cube disposed in front of the other, in alinement therewith, each cube comprising one half of a combustion chamber and having the square walls thereof detachably secured together, whereby the flat knock-down package formed by taking the stove apart is substantially the same in size as any said wall, each cube having a single opening in the top thereof, together with a smoke pipe common to all the cubes, and means for detachably uniting said cubes.

18. A knock-down stove composed of hollow cubes, one cube disposed in front of the other, in alinement therewith, each cube comprising one half of a combustion chamber and having the square walls thereof detachably secured together, whereby the flat knock-down package formed by taking the stove apart is substantially the same in size as any said wall, and a knock-down smoke pipe for said stove, common to all the cubes, said pipe composed of detachable sections

adapted to rest flatwise in said package, the length of each section being substantially the same as the width of any said wall, together with a smoke pipe common to all the cubes, and means for detachably uniting said cubes.

19. A knock-down stove composed of hollow cubes, one cube disposed in front of the other, in alinement therewith, each cube comprising one half of a combustion chamber and having the square walls thereof detachably secured together, whereby the flat knock-down package formed by taking the stove apart is substantially the same in size as any said wall, each cube having a perforated bottom with space below, together with a smoke pipe common to all the cubes, and means for detachably uniting said cubes.

20. A cooking apparatus comprising a knock-down stove structure, said structure including cubical sub-units, forming a flat rectangular package when knocked down, including a flat stove top, and a flat rectangular container for said package, serving as a cooking pan when the apparatus is set up for use, means for detachably uniting the sub-units, together with a smoke pipe common to all said units.

21. A cooking apparatus comprising a knock-down stove structure, said structure including cubical sub-units, forming a flat rectangular package when knocked down, including a flat stove top, and a flat rectangular container for said package, serving as a cooking pan when the apparatus is set up for use, said structure composed of horizontal and vertical wall sections, in addition to said top, all of which fit flatwise within said container, means for detachably uniting the sub-units, together with a smoke pipe common to all said units.

22. A knock-down stove composed of hollow cubes, and a smoke pipe common to all of said cubes, together with means for detachably uniting said cubes, said cubes being disposed in the same horizontal plane, and each cube comprising one half of a combustion chamber, whereby the square tops of said cubes combine to form a flat stove top, each cube being open at one side only having the square walls thereof detachably secured together, whereby the flat knock-down package formed by taking the stove apart is substantially the same in rectangular area as any said wall.

23. A knock-down stove composed of hollow cubes, and a smoke pipe common to all of said cubes, together with means for detachably uniting said cubes, said cubes being disposed in the same horizontal plane, and each cube comprising one half of a combustion chamber, whereby the square tops of said cubes combine to form a flat stove top, each cube being open at one side only having the square walls thereof detachably secured together, whereby the flat knock-

down package formed by taking the stove apart is substantially the same in rectangular area as any said wall, each wall having an integral bolting flange at one or more edges thereof.

24. A knock-down stove composed of hollow cubes, and a smoke pipe common to all of said cubes, together with means for detachably uniting said cubes, said cubes being disposed in the same horizontal plane, and each cube comprising one half of a combustion chamber, whereby the square tops of said cubes combine to form a flat stove top, each cube being open at one side only having the square walls thereof detachably secured together, whereby the flat knock-down package formed by taking the stove apart is substantially the same in rectangular area as any said wall, each cube having a single opening in the top thereof.

25. A knock-down stove composed of hollow cubes, and a smoke pipe common to all of said cubes, together with means for detachably uniting said cubes, said cubes being disposed in the same horizontal plane, and each cube comprising one half of a combustion chamber, whereby the square tops of said cubes combine to form a flat stove top, each cube being open at one side only having the square walls thereof detachably secured together, whereby the flat knock-down package formed by taking the stove apart is substantially the same in rectangular area as any said wall, said pipe composed of detachable sections adapted to rest flatwise in said package, the length of each section being substantially the same as the width of any said wall.

26. A knock-down stove composed of hollow cubes, and a smoke pipe common to all of said cubes, together with means for detachably uniting said cubes, said cubes being disposed in the same horizontal plane, and each cube comprising one half of a combustion chamber, whereby the square tops of said cubes combine to form a flat stove top, each cube being open at one side only having the square walls thereof detachably secured together, whereby the flat knock-down package formed by taking the stove apart is substantially the same in rectangular area as any said wall, each cube having a perforated bottom with space below.

27. A cooking apparatus comprising a knock-down structure forming a flat rectangular package when knocked down, including a flat stove top composed of separable sections, each section the same in size as said package, and a container for said package, serving as a cooking pan when the apparatus is set up for use, said container being of less area than the said top, together with a smoke pipe common to all the sections, and means for detachably uniting the sections.

28. A cooking apparatus comprising a

knock-down structure forming a flat rectangular package when knocked down, including a flat stove top composed of separable sections, each section the same in size as
5 said package, and a container for said package, serving as a cooking pan when the apparatus is set up for use, said structure comprising horizontal and vertical wall sections, in addition to said top, all of which fit flat-
10 wise within said container, said container

being of less area than the said top, together with a smoke pipe common to all the sections, and means for detachably uniting the sections.

Signed by me at Chicago, Illinois, this 15
13th day of June, 1912.

OLIVER C. KEMP.

Witnesses:

GEO. F. SCHMIDT,

HORACE V. CHAPMAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."