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(71) Applicants: CREATIVE HOME AND KITCHEN LLC

[US/US]; 8460 N.W. 30th Terrace, Doral, FL 33122 (US).

MU MECANICOS UNIDOS S.A.S [CO/CO]; Carrera 42 33-173 (Aut.sur) Itagüí, Medellín (CO).

(72) Inventor: ZAPATA, David; Carrera 42 33-173 (Aut. Sur Km. 9) Itagüí, Itagüí, 055412 (CO).

(74) Agent: SANCHELIMA, Jesus; 235 S.W. Le Jeune Road, Miami, FL 33134 (US).

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(54) Title: HAND OPERATED PRESS

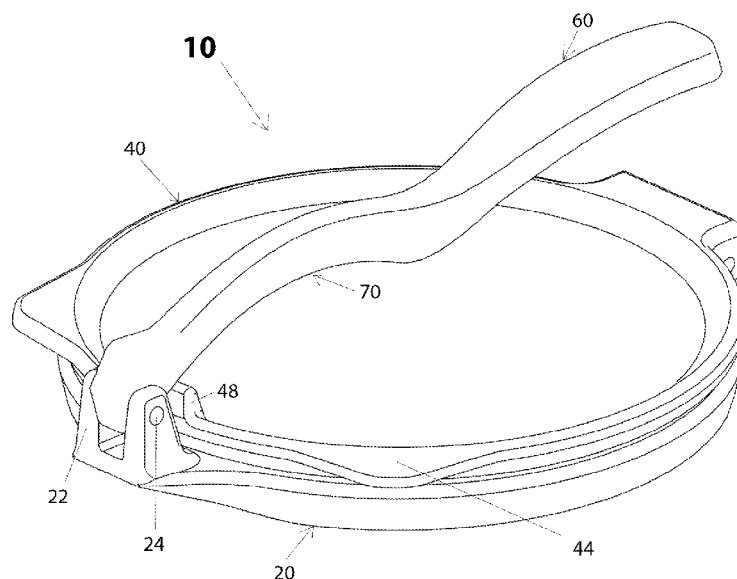


Fig. 1

(57) Abstract: A hand operated press (10) for foodstuff includes a base plate assembly (20) with a moving plate assembly (40) hingedly mounted at a predetermined points of their peripheries. An actuating arm (60) is hingedly mounted to the periphery of the base plate assembly (20) at a point opposite to where moving plate assembly (40) is hingedly mounted. A concave portion (70) in the actuating arm with a concavity facing the distal end of the moving plate comes in cammingly contact avoiding a perpendicular angle of attack. A protuberance (48) extending from the distal end (47) of the moving plate assembly (40) further ensures the cammingly contact while preventing actuating arm assembly (60) to totally collapse against the base plate assembly. A curved portion adjacent to the concave portion prevents a user's fingers from coming in contact with the base plate assembly.



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— *of inventorship (Rule 4.17(iv))*

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"HAND OPERATED PRESS"

II. BACKGROUND OF THE INVENTION

1. Field of the Invention.

[001] The present invention relates to a press for foodstuff and, more particularly, to such presses that are hand operated.

2. Description of the Related Art.

[002] Several designs for hand operated presses for foodstuff have been designed in the past. These hand operated presses are used to flatten masses of ground grains, such as corn or flour. None of them, however, include a design for the actuating arm that drives the moving plate in a press to avoid a locking action when the relative angular disposition of the actuating arm and the moving plate approaches 90 degrees. And furthermore, none provides for protection of a user's hand or fingers as the actuating plane approaches the plane of the moving plate.

[003] For example, see IMUSA's tortilla press 8 inches wide, sold through Amazon, like in all the other manual tortilla presses, the actuating arm is

substantially straight.

https://www.amazon.com/s/?ie=UTF8&keywords=imusa+tortilla+press&tag=googhydr20&index=aps&hvadid=241892706861&hvpos=1t1&hvnetw=g&hvrnd=13645542784087233244&hvpone=&hvptwo=&hvqmt=e&hvdev=c&hvdvcmdl=&hvl ocint=&hvlocphy=9011912&hvtargid=kwd11009764285&ref=pd_sl_25a2ivwfr_ e (last visited January 25, 2018). This creates a problem when the foodstuff or product to be flattened has predetermined dimensions that brings actuating arm substantially perpendicular to the moving plate of the tortilla press. In the prior art tortilla presses the pressing operation starts typically at an angle **D** between the base and the moving plate of no more than 7 degrees and angle **C** between the base and the moving plate of 12 degrees or less corresponds to the locking position. See figure 4 showing the prior art tortilla press.

[004] On the other hand, the present invention provides a press that allows the pressing operation to start at angle between the base assembly and the moving plate of up to 28 degrees corresponding to an angle **A** between the moving plate assembly and the base for the maximum locking position, as seen in figure 3.

[005] The present invention overcomes these difficulties by providing a curved angle of attack for the actuating arm that cammingly coacts with the edge of the

moving plate to avoid the locking effect that would otherwise be produce with a straight actuating arm. This also allows for larger masses of foodstuff to be pressed.

[006] Other publications describing the closest subject matter provide for a number of more or less complicated features that fail to solve the problem in an efficient and economical way. None of these patents suggest the novel features of the present invention.

III. SUMMARY OF THE INVENTION

[007] It is one of the main objects of the present invention to provide a tortilla press that overcomes the locking engagement of the actuating arm with the moving plate in a manual tortilla press over a range of angular positions of the moving plate with respect to the base thereby permitting the process.

[008] It is another object of this invention to provide a tortilla press that can be readily used with ease and protects the user from hurting his or her hand when operating the press.

[009] It is yet another object of this invention to provide such a device that is inexpensive to implement and maintain while retaining its effectiveness.

[010] Further objects of the invention will be brought out in the following part of the specification, wherein detailed description is for the purpose of fully disclosing the invention without placing limitations thereon.

IV. BRIEF DESCRIPTION OF THE DRAWINGS

[011] With the above and other related objects in view, the invention consists in the details of construction and combination of parts as will be more fully understood from the following description, when read in conjunction with the accompanying drawings in which:

Figure 1 represents an isometric representation of an embodiment for the present invention.

Figure 2 shows an elevated side view of a press incorporating the features of the present invention with the plane of actuating arm assembly **60** at the closest position with respect to moving plate assembly **40**. Protuberance **48** prevents actuating arm assembly **60** from coming close to moving plate assembly **40**.

Figure 3 is similar to figure 2 except that the moving plate assembly and actuating arm are raised with protuberance **48** in contact with concave portion **70** of actuating arm **60**. Moving plate **40** is at a maximum operating angle **A** with respect to base plate **20**.

Figure 4 illustrates a prior art press showing the maximum operating angle **D** and blocking angle **C** where the force is applied axially to the moving plate.

Figure 5 is an enlarged representation of curved portion of the activating arm.

Figure 6 is an isometric view of actuating arm **60**.

Figure 7 is an isometric view of base plate **20**.

Figure 8 is an isometric view of moving plate **40**.

V. DETAILED DESCRIPTION OF THE EMBODIMENTS OF THE INVENTION

[012] Referring now to the drawings, where the present invention is generally referred to with numeral **10** in figures 1 and 2, it can be observed that it basically includes base plate **20**, moving plate **40** hingedly mounted substantially at the periphery of plate **20** and actuating arm **60** hingedly mounted to plate **20** opposite to where moving plate **40** is mounted. A representation of a prior art press is shown in figure 4.

[013] As seen in figures 1 and 2 base plate assembly **20** is designed to have an inner flat surface **21** and supportive surface **21a**, preferably flat. Base plate assembly **20** is made of a sturdy material, such as iron. It has a substantially flat surface **21** where the foodstuff is placed, as seen in figure 7. Base plate assembly **20** includes bearing structure **22** with ears **23** having respective through openings **25**. Pin **24** is passed through openings **25** as seen in figure 1. Bearing structure **28** is mounted at a peripheral edge of base plate assembly **20** opposite to bearing structure **22**, and extending outwardly from the peripheral edge, ear members **29** with through holes **27**.

[014] Moving plate assembly **40** can be made of the same sturdy material used for base plate **20** as seen in figures 1 and 8. Body **42** includes through hole **43**. Pin **45** to go through through hole **43** moving plate assembly **40**. Assembly **40** is hingedly mounted to ear members **29** at the peripheral edge **20** of base plate **20** with hinge body **42**. Opposite to hinged edge **46** is distal edge **47**. It has a cooperative dimension to be almost coextensive with the dimensions of plate **20**, but sufficiently shorter to coact with actuating arm **60**. Tabs **44** extend outwardly from the periphery of moving plate **40** to facilitate pulling the latter away from base plate **20**.

[015] Actuating arm **60** is best seen in figure 6. Arm **60** has two ends. Through orifice **63** is located at one end. The other end is ergonomically shaped to function as a handle. Arm **60** is elongated and has pivoting end **61** and distal end **62**. Actuating arm **60** is hingedly mounted to bearing structure **22** at the periphery of base plate **20** and opposite to where moving plate **40** is hingedly mounted as seen in figure 1 and 2. This permits the distal end of moving plate **40** to cammingly coact with actuating arm **60** through protuberance **48**. Through orifice

63 has cooperative dimensions to cooperate with through openings **25** to allow pin **24** to pass through making pin **24** a pivoting point.

[016] The distal end of moving plate **40** and protuberance **48**, are preferably rounded to permit them to cammingly coact with the inner surface of concave or curved portion **70** of actuating arm **60** and avoiding lock between them. As best seen in figure 3, actuating arm **60** includes a concave portion **70** extending from end **73** to end **74**, with the surface facing moving plate **40**. This curved portion **70** is intended to provide a slanted angle of attack around the area that moving plate **40** comes in contact through protuberance **48** with actuating arm **60** which is close to 90 degrees (when the two are almost perpendicular to each other). Below 90 degrees the cammingly force applied through protuberance **48** increases as angle **A** decreases, see figure 3. In one of the embodiments, protuberance **48** is provided to coact with the inner end **73** of concave portion **70** to prevent actuating arm **60** to reach the upper surface of moving plate **40**, as shown in figure 2. This prevents injury to a user's fingers.

[017] It has been found that the prior art presses, including tortilla presses, present extreme resistance when the angular relationship **B** between the moving plate and the actuating arm is between 74 and 90 degrees, see figure 4. Many foodstuff items bring the moving plate to this relative angular position between moving plate. One alternative would be to make the base plate and moving plate considerably larger to avoid the perpendicularity they typically reach. This is not desirable for many reasons including added costs, larger foot print, and difficult to operate. However, the present invention solves this problem by accommodating curved portion **70** in the actuating arm **60** that facilitates the operation of the manual press. By avoiding a perpendicular attack angle that wastes a substantial portion of the force applied in compression, the present invention provides a curved surface that avoids this and creates a camming effect even when the moving plate **20** is substantially perpendicular with respect to actuating arm **60**.

[018] The foregoing description conveys the best understanding of the objectives and advantages of the present invention. Different embodiments may be made of the inventive concept of this invention. It is to be understood that all

matter disclosed herein is to be interpreted merely as illustrative, and not in a limiting sense.

VI. INDUSTRIAL APPLICABILITY

[019] The present invention's industrial applicability includes a tortilla press that overcomes the locking engagement of the actuating arm with the moving plate in a manual tortilla press over a range of angular positions of the moving plate with respect to the base thereby permitting the process. This invention provides a tortilla press that can be readily used with ease and protects the user from hurting his or her hand when operating the press. It also provides such a device that is inexpensive to implement and maintain while retaining its effectiveness.

VII. CLAIMS

What is claimed is:

1. A hand operated press, comprising:
 - A) a base plate assembly having a first surface resting on a supporting surface and a substantially flat second surface opposite to said first surface, said base plate assembly including a peripheral edge and a first bearing structure mounted at a predetermined location along said peripheral edge and further including a second bearing structure mounted to said peripheral edge at a predetermined location opposite to said predetermined location;
 - B) a moving plate assembly having substantially the same dimensions as said base plate assembly and being hingedly mounted to said first bearing structure and including a substantially flat third surface that is selectively brought in abutting contact with said second surface and said moving plate assembly including a distal edge; and

- C) an actuating arm assembly having first and second ends said first end being hingedly mounted to said second bearing structure, said arm assembly including a concave portion extending from said first end a predetermined distance towards said second end, the concave portion is selectively brought in cammingly contact with said moving plate assembly's distal end when the axes of said contacting arm assembly and said moving plate assembly are within an angular relationship range with the moving plate assembly's distal end is in contact with said concave portion.
2. The press set forth in claim 1 wherein said moving plate includes a protuberance extending substantially perpendicularly away from said second surface and cammingly coacting with said concave portion.
3. The press set forth in claim 2 wherein said angular relationship includes a substantially perpendicular disposition.
4. The press set forth in claim 3 wherein said protuberance has cooperative dimensions to prevent said actuating arm to be brought closer than a

predetermined angular position with respect to said moving plate thereby avoid injury to a user's fingers.

5. The press set forth in claim 4 wherein said moving plate includes at least one tab extending outwardly from the periphery of said moving plate.
6. The press set forth in claim 1 wherein said actuating arm assembly includes a curved portion extending from said second end to said concave portion, and having a cooperative curvature to permit a user's fingers grabbing said curved portion avoid coming in contact with said moving plate assembly.
7. The press set forth in claim 6 wherein said moving plate assembly includes a protuberance extending substantially perpendicularly away from said second surface and cammingly coacting with said concave portion.
8. The press set forth in claim 7 wherein said angular relationship includes a substantially perpendicular disposition.

9. The press set forth in claim 8 wherein said protuberance has cooperative dimensions to prevent said actuating arm to be brought closes than a predetermined angular position with respect to said moving plate thereby avoid injury to a user's fingers.
10. The press set forth in claim 9 wherein said moving plate includes at least one tab extending outwardly from the periphery of said moving plate.

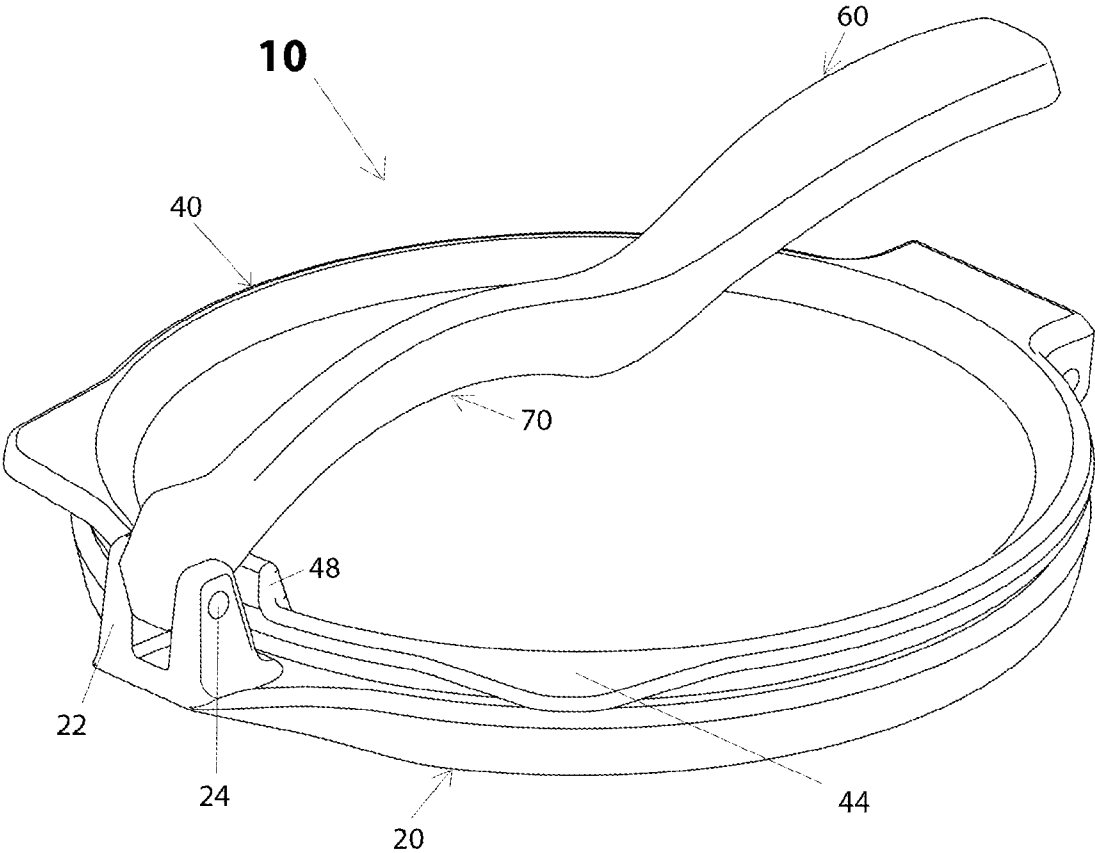


Fig. 1

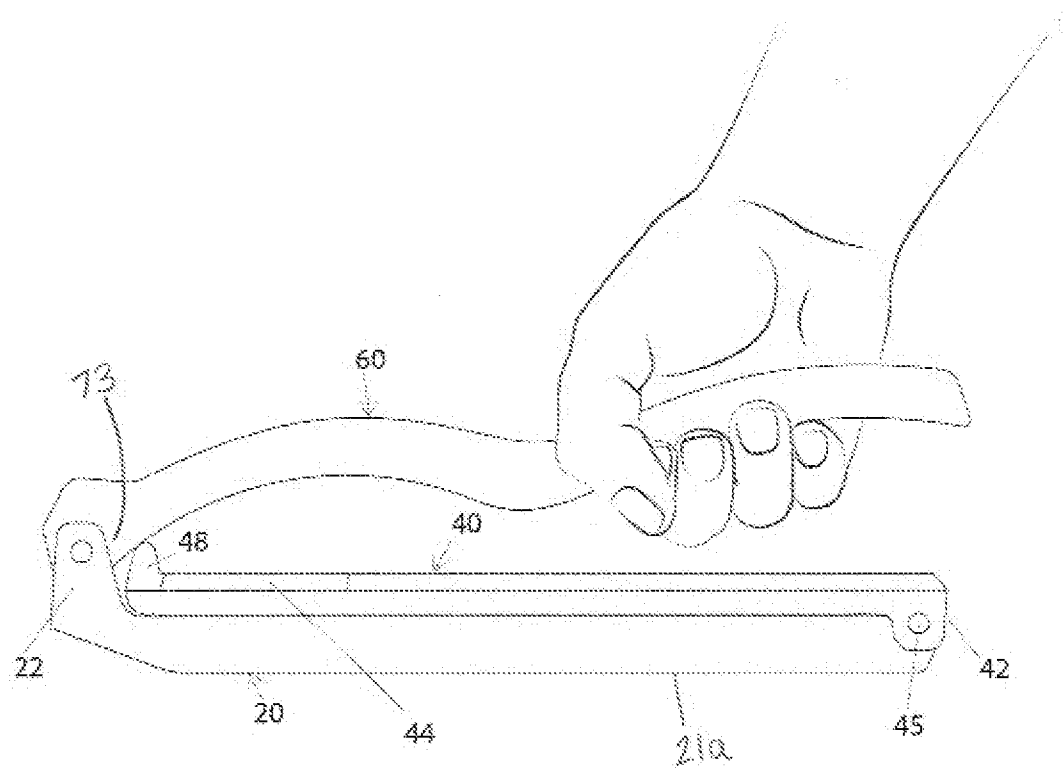


Fig. 2

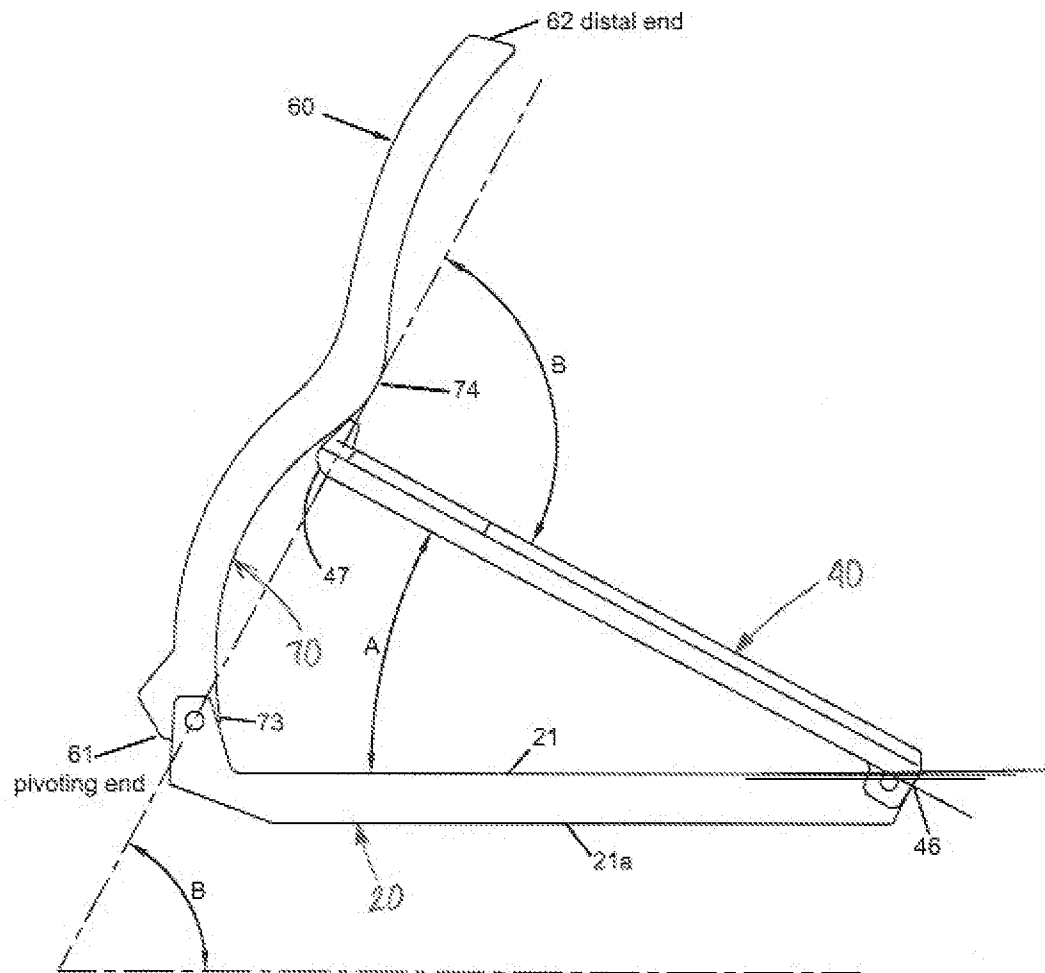


Fig. 3

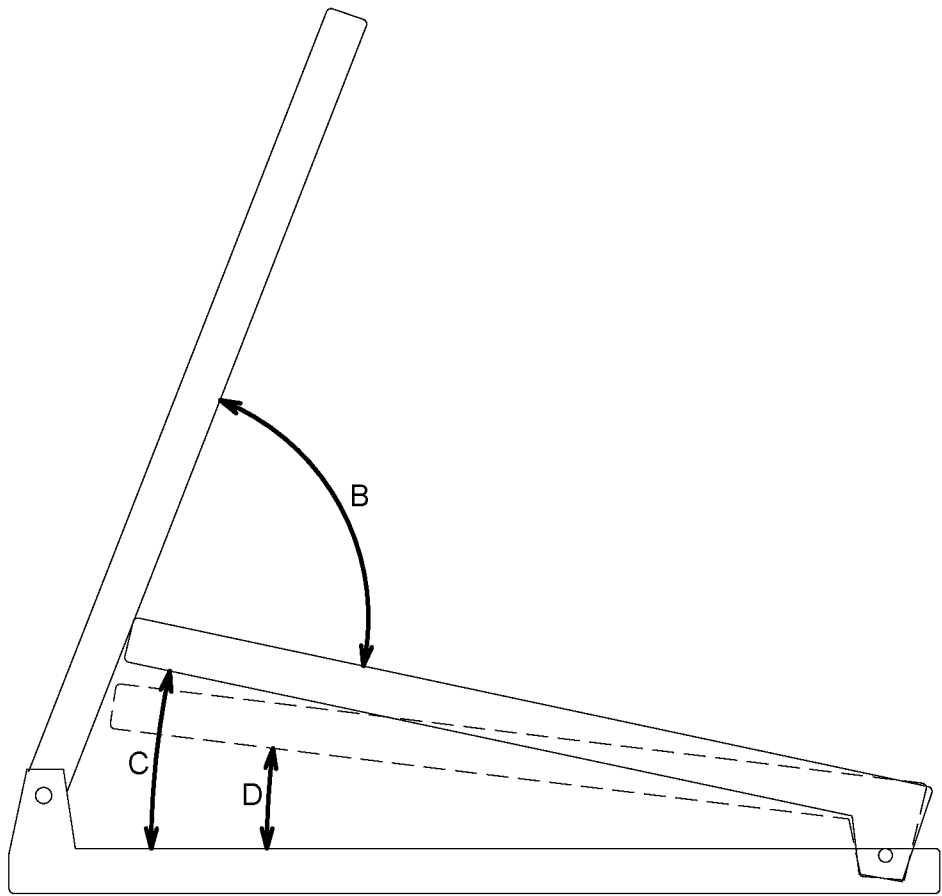


Fig. 4
Prior Art

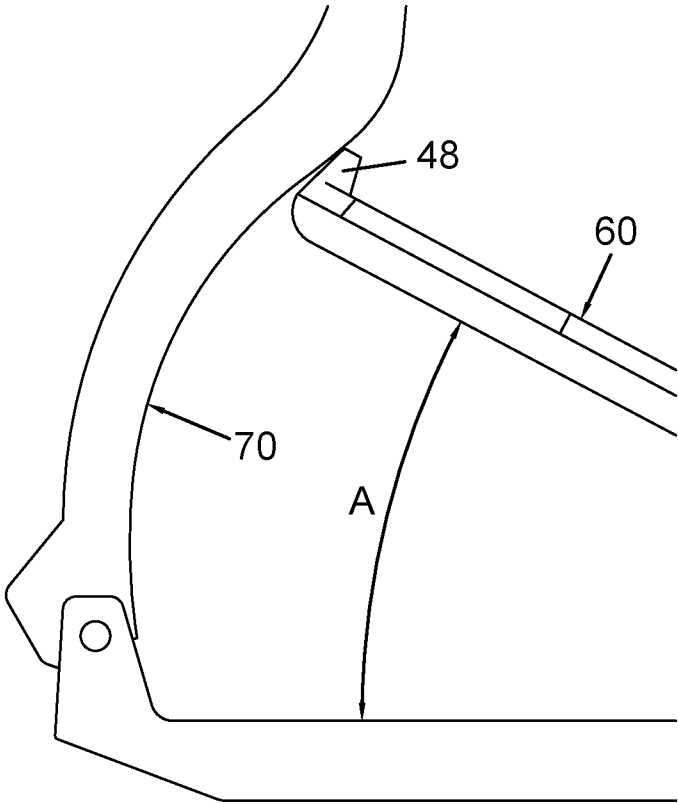


Fig. 5

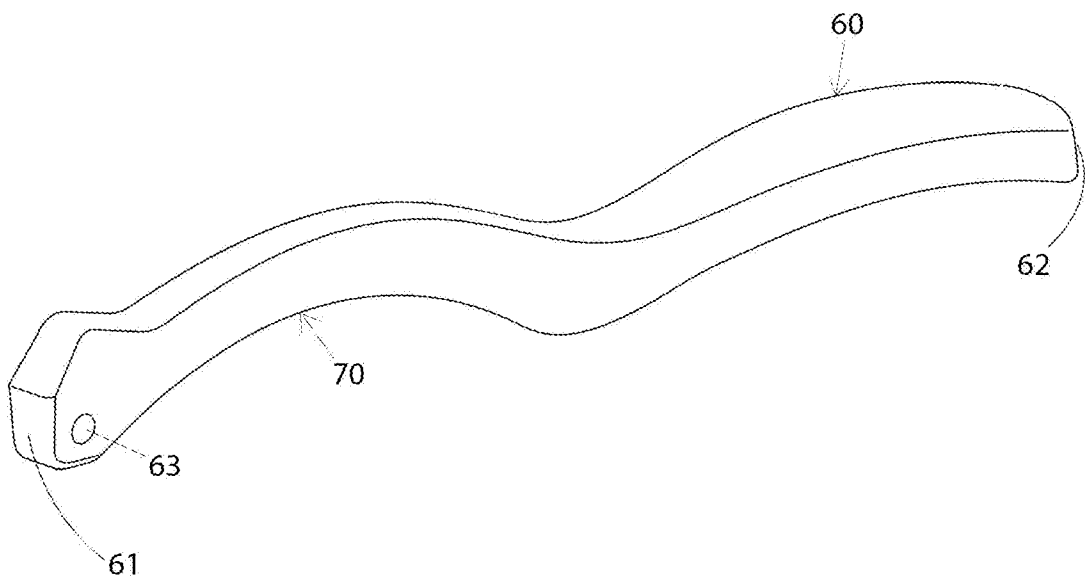


Fig. 6

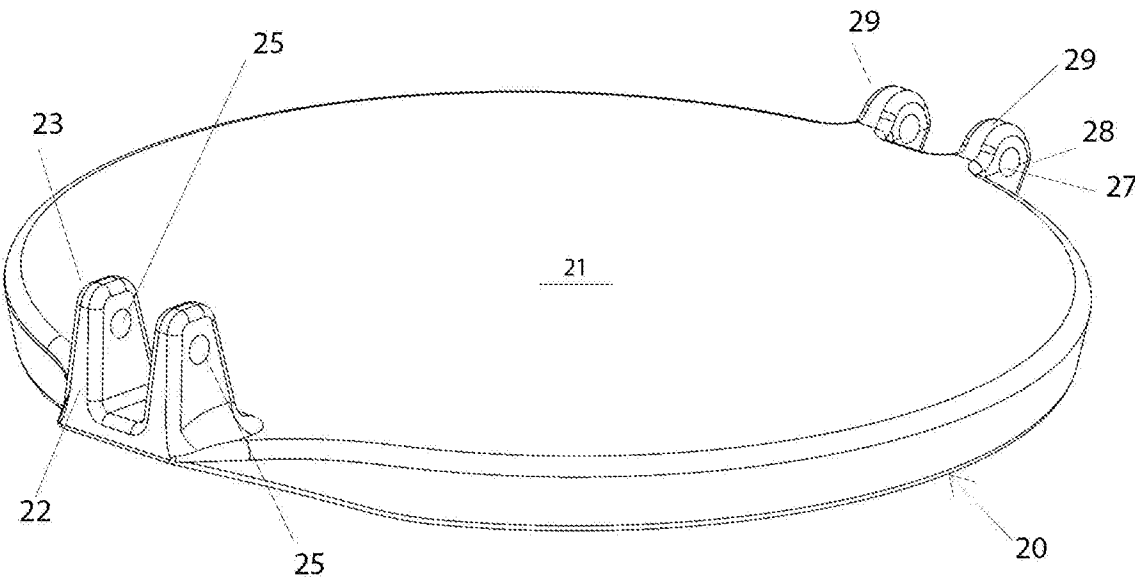


Fig. 7

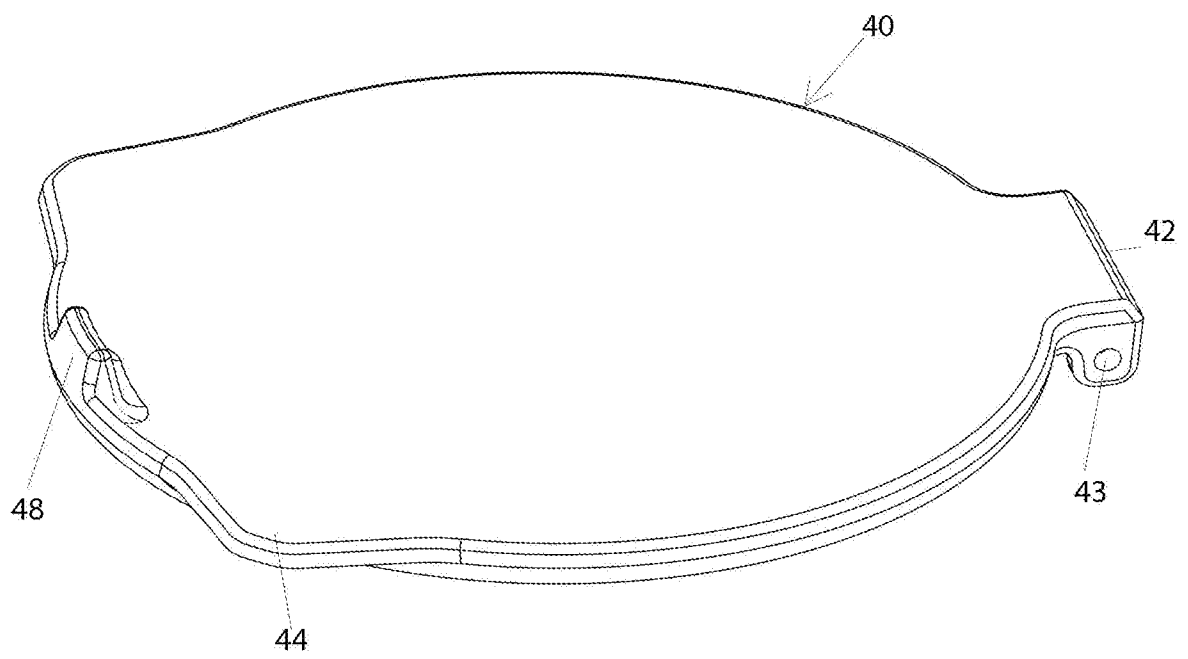


Fig. 8

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 19/21408

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A21C 11/02, B30B 1/04, B30B 1/06, B30B 1/26, A21B 5/02 (2019.01)

CPC - A21C 11/02, B30B 1/04, B30B 1/06, B30B 1/26, A21B 5/02, A21B 5/023, A21C 11/006, B30B 1/261, B30B 15/285

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

See Search History Document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

See Search History Document

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

See Search History Document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2017/0347669 A1 (McCarney) 7 December 2017 (07.12.2017) Entire document especially para [0027]-[0028] and figs. 1-4	1-10
A	US 9,801,399 B2 (Potato Flats Incubator Restaurant) 31 October 2017 (31.10.2017) Entire document especially col 6, ln 6-15, 31-41 and figs. 4A-B	1-10
A	'Round Wood Tortilla Press to Make Sopes 5" Small - 7" x 9". MexGrocer.com LLC. 14 June 2017 (14.06.2017) [online], [retrieved on 30 April 2019]. Retrieved from the internet: <URL: https://web.archive.org/web/20170614054437/https://www.mexgrocer.com/29440-87152.html > Entire document especially figs. 1 and 2	1-10
A	US 2016/0174577 A1 (Saldana Garza) 23 June 2016 (23.06.2016) Entire document	1-10
A	US 3,352,258 A (Lassaulx) 14 November 1967 (14.11.1967) Entire document	1-10
A	WO 2005/032976 A1 (Myklebust) 14 April 2005 (14.04.2005) Entire document	1-10
A	US 6,067,897 A (Grieco) 30 May 2000 (30.05.2000) Entire document	1-10
A	US 5,996,476 A (Schultz) 7 December 1999 (07.12.1999) Entire document	1-10
A	US 9,149,046 B2 (McCarney) 6 October 2015 (06.10.2015) Entire document	1-10
A	US 1,459,976 A (Gore et al.) 26 June 1923 (26.06.1923) Entire document	1-10

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

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Date of the actual completion of the international search

18 April 2019

Date of mailing of the international search report

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