

A. L. SESSIONS.
 WASHER.
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1,028,290.

Patented June 4, 1912.

Fig. 1.

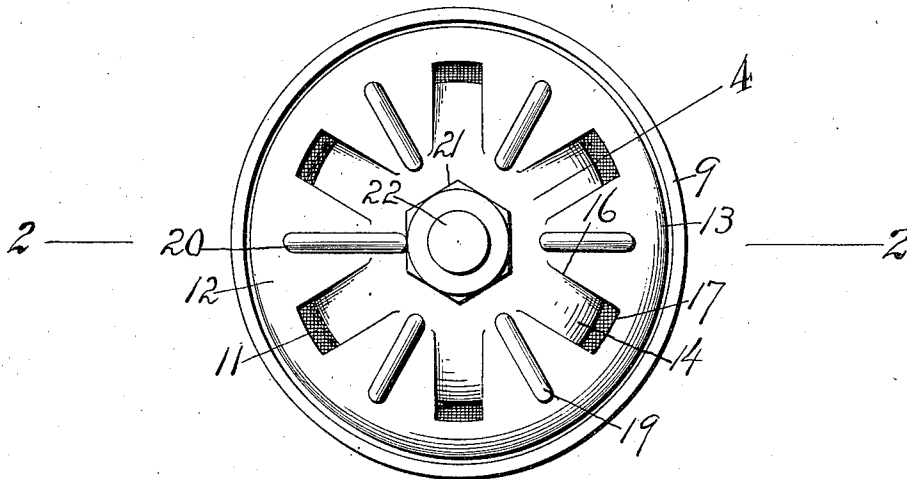


Fig. 2.

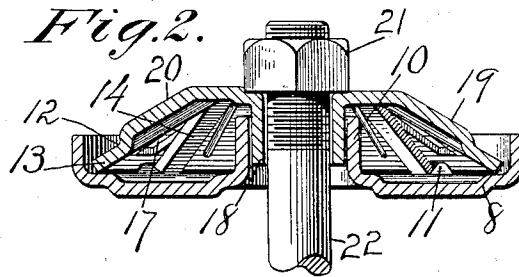


Fig. 4.

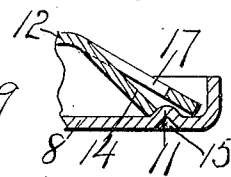
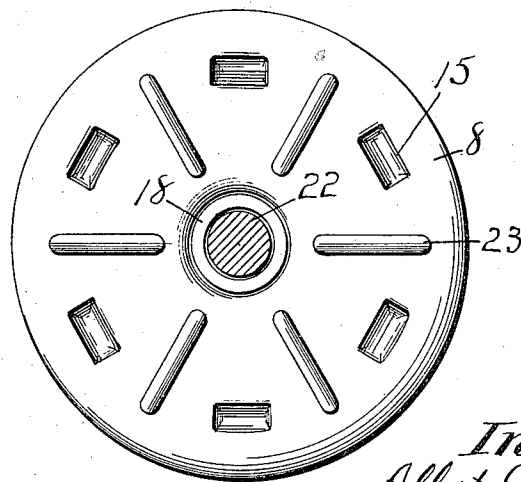


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

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WASHER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALBERT L. SESSIONS, a citizen of the United States, and a resident of Bristol, in the county of Hartford and State of Connecticut, have invented a new and Improved Washer, of which the following is a specification.

My invention relates to the class of devices acting in connection with a rod, bolt or the like to support a weight or otherwise resist a force sustained by the rod or bolt, and the object among others of the invention is to provide a device of this class that while comparatively light in structure shall be extremely strong and at the same time one that can be produced at a minimum cost of manufacture. One form of device in the use of which these objects may be attained is illustrated in the accompanying drawings, in which—

Figure 1 is a top plan view of a washer embodying my invention shown as supported on the end of a bolt or rod. Fig. 2 is a view in central depthwise section through the washer, shown in place on a rod or bolt. Fig. 3 is a bottom plan view of the same. Fig. 4 is a detail view in section through a portion of the washer on plane denoted by line 4 of Fig. 1.

A washer embodying my invention is constructed preferably in two parts each composed of comparatively thin metal, preferably sheet metal, and the construction is such that the two parts mutually act to resist the force that may be applied to the device in actual use. While the individual parts are comparatively thin, yet the structure as a whole is of a thickness usually present in solid structures of this class, and the device is such that it will effectually sustain the forces applied to such solid structures, while at the same time there is a certain spring action in the structure desirable in devices of this kind.

In the accompanying drawings the numeral 8 denotes one section of the washer which is a plate of dish-shape having a rim 9 suitably formed to receive and support a companion plate, this plate 8 also having a hub 10 centrally formed with an opening therethrough and also having projections 11. These projections are preferably formed by indenting the metal composing the plate and are located at suitable intervals around

the plate at a proper distance from the central hub 10. A companion plate 12 forming the other section of the washer is also of dish-shape having a rim 13, this rim or flaring portion of the plate being so disposed that its edge will rest against the rim or dish-shaped part 9 of the plate 8, the two dish-shaped portions 9 and 13 thus acting to mutually support any force which may be applied to either or both of the plates. The plate 12 is also provided with supports 14 projecting so that their free ends will engage the shoulders or projections 11. These supports are preferably formed by cutting slits 16 in the plate at proper distances apart to provide the requisite width for each support, the part between the slits being then bent inward to form the supports, leaving openings 17 at suitable intervals about the plate, preferably at equal distances from the center. The plate 12 has also a central hub 18 which, as is the hub 10, is preferably integrally formed with the plate of which it forms a part. These two hubs are so constructed that one fits within the other, the inner hub being located on either plate as may be desired.

In the construction shown the hub 18 fits within the hub 10. Ribs 19 are preferably located between the supports 14 to strengthen the structure of the plate, these ribs being preferably formed by indenting the metal, and one of the ribs as 20 may extend to a point to afford a lock for a nut 21 secured as by interengaging screw-threaded parts to a bolt or rod 22. The spring action of the plates in such case will be sufficient to allow the corners of the nut to pass over the locking rib 20 and the latter in the normal position of the plates will serve to hold the nut against accidental turning movement.

While I have shown and described herein one form of construction embodying the invention, it will be understood that this may be departed from to a greater or lesser extent without avoiding the invention, and I do not therefore limit myself to the precise construction herein shown and described except as required by the scope of the appended claims.

The projections or stops 11 are formed preferably by indenting the metal so that a recess 15 will appear on the under side of

the plate. This plate 8 may also be provided with corrugations or ribs 23 as a means of stiffening the plate.

I claim—

- 5 1. A washer composed of a plural number of plates each having a central opening, said washer including a dish-shaped plate, and means upon the said plates co-acting one with another to resist a force tending to
10 flatten the dish-shaped plate.
2. A washer including a pair of opposed parts of dish-shape each having a central opening with means upon one part co-acting with those upon the other part to resist a
15 force tending to flatten the parts.
3. A washer including a pair of opposed parts of dish-shape each having a central opening, the edge of one being located within the dish-shaped portion of the other, and
20 means upon said plates co-acting one with another to resist a force tending to flatten the parts.
4. A washer composed of a pair of opposed plates each having a central opening,
25 said washer including a dish-shaped plate, a support projecting from one of the plates, and a shoulder located upon the opposite plate to resist force transmitted through said support tending to flatten the dish-
30 shaped plate.
5. A washer including two opposed dish-shaped plates, the edge of one being located and resting within the dish-shaped portion of the other, shoulders upon one of the
35 plates, and supports projecting from the opposite plate to engage said shoulders.
6. A washer composed of a pair of opposed plates one of which is dish-shaped with telescoping hubs upon said plates.
- 40 7. A washer composed of a pair of opposed plates one of which is dish-shaped, a hub upon one of the plates, shoulders borne by one of the plates, and supports projecting from the opposite plate to engage
45 said shoulders.
8. A washer composed of a pair of opposed plates one of which is dish-shaped, a hub with a central opening projecting from

one of the plates, and means upon the plates co-acting one with another to resist a force
50 tending to flatten the dish-shaped plate.

9. A washer composed of a pair of opposed plates one of which is dish-shaped, supports integrally formed with one of the plates and projecting inward therefrom
55 forming an opening, and means on the opposite plate to engage said support to resist a force tending to flatten the dish-shaped plate.

10. A washer composed of a pair of opposed plates, shoulders integrally formed with one of the plates by indenting the metal thereof, supports integrally formed with the opposite plate and bent inward forming an opening and arranged to engage
65 said shoulders, and openings centrally located in the plates.

11. A washer composed of two opposed dish-shaped plates the edge of one being located within and resting against the dish-
70 shaped portion of the other, shoulders formed upon one of the plates, telescoping hubs projecting from the plates and having openings therein, and supports integrally formed with one of the plates and cut there-
75 from to form openings and arranged to engage said shoulders.

12. A washer composed of a pair of opposed plates one of which is dish-shaped, said washer having an opening to receive a
80 bolt, means upon the plates co-acting to oppose a force tending to flatten the dish-shaped plate, and a lock located upon one of the plates in position to engage a nut attached to the bolt.

13. A washer composed of a pair of opposed plates one of which is dish-shaped, struts projecting inwardly from one of said plates, and shoulders projecting inwardly from the opposite plate to receive the thrust
90 of said struts.

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