Jan. 12, 1960 G. N. KROUSE 2,920,895

SPECIMEN GRIP

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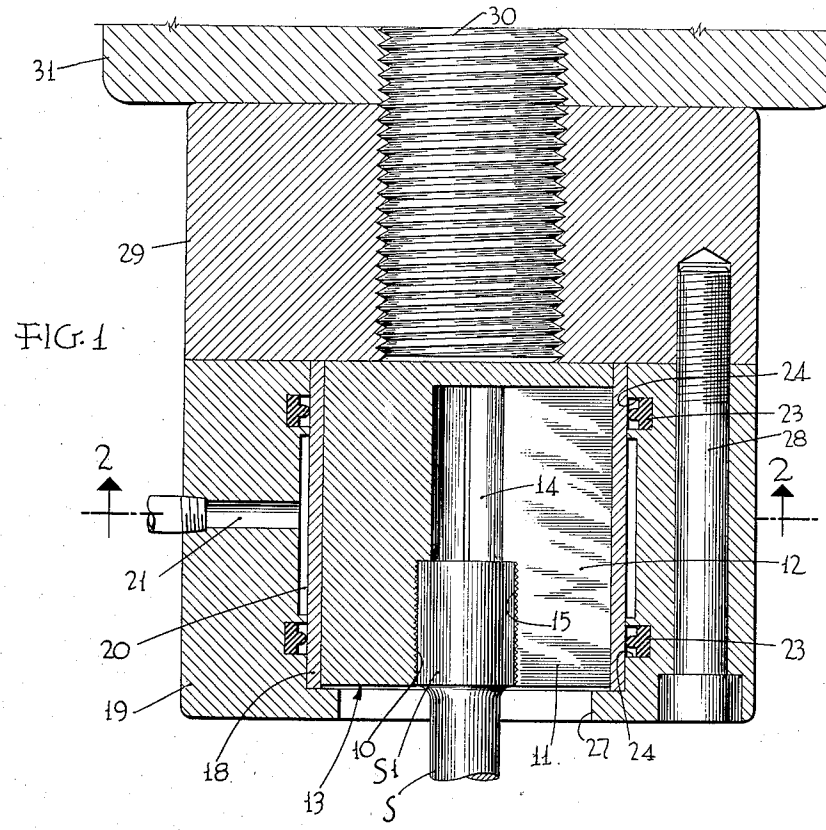
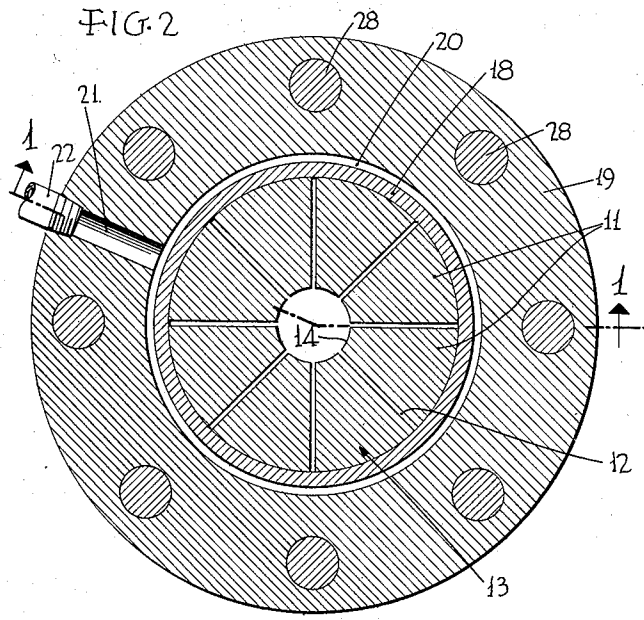


FIG. 1

FIG. 2



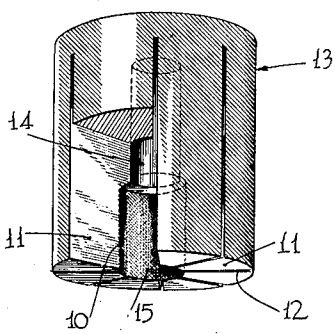


FIG. 3

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This invention relates to a specimen grip and has for an object the provision of improvements in this art.

One of the objects of the invention is to provide a specimen grip which will firmly, evenly and securely grip the specimen.

Another object is to provide a specimen grip which can be quickly and reliably operated by hydraulic fluid pressure.

Another object is to provide a specimen grip which is formed of few and simple parts and is easy to assemble or take apart and is relatively inexpensive to manufacture.

The above and other objects of the invention will be apparent from the following description of an exemplary embodiment, reference being made to the accompanying drawings wherein:

Fig. 1 is a longitudinal section through the gripping device with a specimen therein, the section being taken on the line 1—1 of Fig. 2;

Fig. 2 is a transverse section taken on the line 2—2 of Fig. 1; and

Fig. 3 is a perspective view on a reduced scale with parts cut away to show the interior.

The specimen S to be gripped is of a usual form having an enlarged end or head S1. It is desired to grip the specimen for repetitive tension and compression cycles.

The end S1 is engaged by the roughened gripping surfaces 10 of a plurality of segmental elements 11 formed by making slits 12 upward from the lower end of a cylindrical grip member or block 13. The slits end at a distance from the upper end of the member 13 so as to leave the segments all attached to the uncut upper end portion. The grip member has a bore 14 extending the length of the slits and a counterbore 15 at the lower end within which the roughened arcuate gripping surfaces 10 are formed. The bore, slits and thin upper section provide some springiness or resiliency in the segmental elements 11 and since the specimen head and grip bore are very accurately sized there need not be much movement for gripping and releasing the specimen.

A continuous thin metal sleeve 18 closely surrounds

the grip member 13. This sleeve responds to externally applied pressure to reduce in diameter and close the segmental elements 11 to grip the specimen.

The sleeve 18 is surrounded by a heavy metal mounting ring 19 which has an annular liquid chamber 20 surrounding the sleeve at about its mid-length. A port 21 and tube 22 provide for the introduction of high pressure liquid into the annular chamber and for the exhaust of fluid therefrom. Seals 23 in grooves 24 in the heavy mounting ring 19 confine the fluid for pressure build up. The seals are of the type which increase their effective seal as the fluid pressure increases. An interior flange 27 on the bottom end of the mounting ring 19 holds the sleeve 18 and the grip member 13 in position.

Cap screws 28 clamp the mounting ring to a test machine head member 29 and this head member is secured by a heavy screw 30 to the mounting member 31 of the machine.

In action, the introduction of liquid under high pressure into the annular pressure chamber 20 will reduce the diameter of the sleeve 18 and thereby spring the segments 11 inward to firmly grip the specimen. When the fluid pressure is relieved the segments spring apart sufficiently to release the specimen.

It is thus seen that the invention provides a simple and reliable specimen grip of the desired character.

While one embodiment of the invention has been described for purposes of illustration it is to be understood that there may be other embodiments within the scope of the invention.

What is claimed is:

1. A specimen grip comprising a plurality of segmental gripping elements adapted to surround and grip a specimen, a thin metal sleeve closely surrounding the segmental gripping elements, a member surrounding said sleeve and having a sealed annular pressure chamber surrounding said sleeve between its ends, and means for supplying pressure fluid to said annular chamber to reduce the diameter of said sleeve and press said segmental gripping elements upon said specimen.

2. A specimen grip as set forth in claim 1, in which said segmental elements are formed on a cylindrical member having a central bore and slits extending from one end to a point near the other end to give the segments resilience to clear the specimen when fluid pressure is relieved.

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