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A. C. GILBERT

1,777,667

CONSTRUCTION TOY

Original Filed June 7, 1927

Fig. 1.

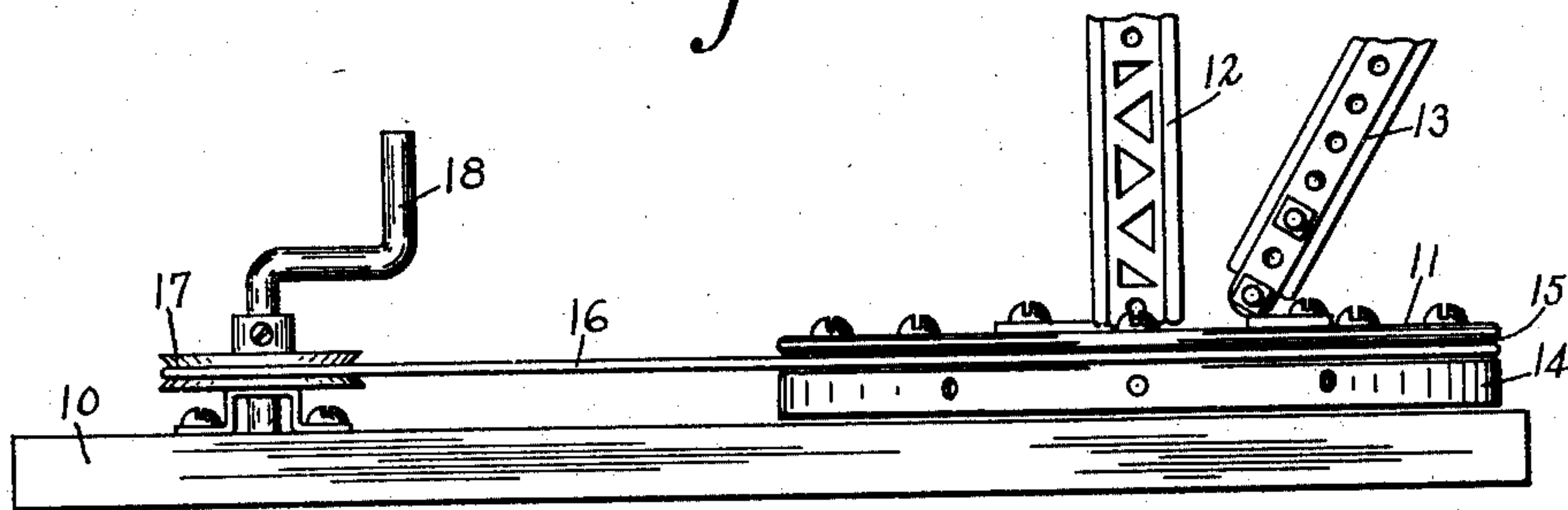


Fig. 2.

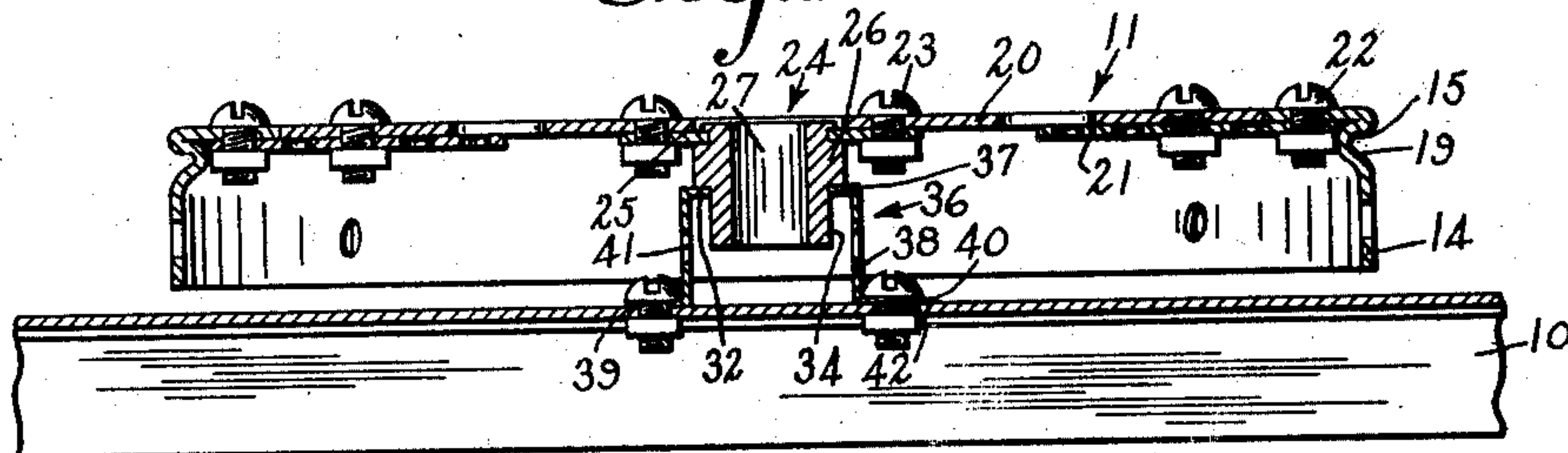


Fig. 3.

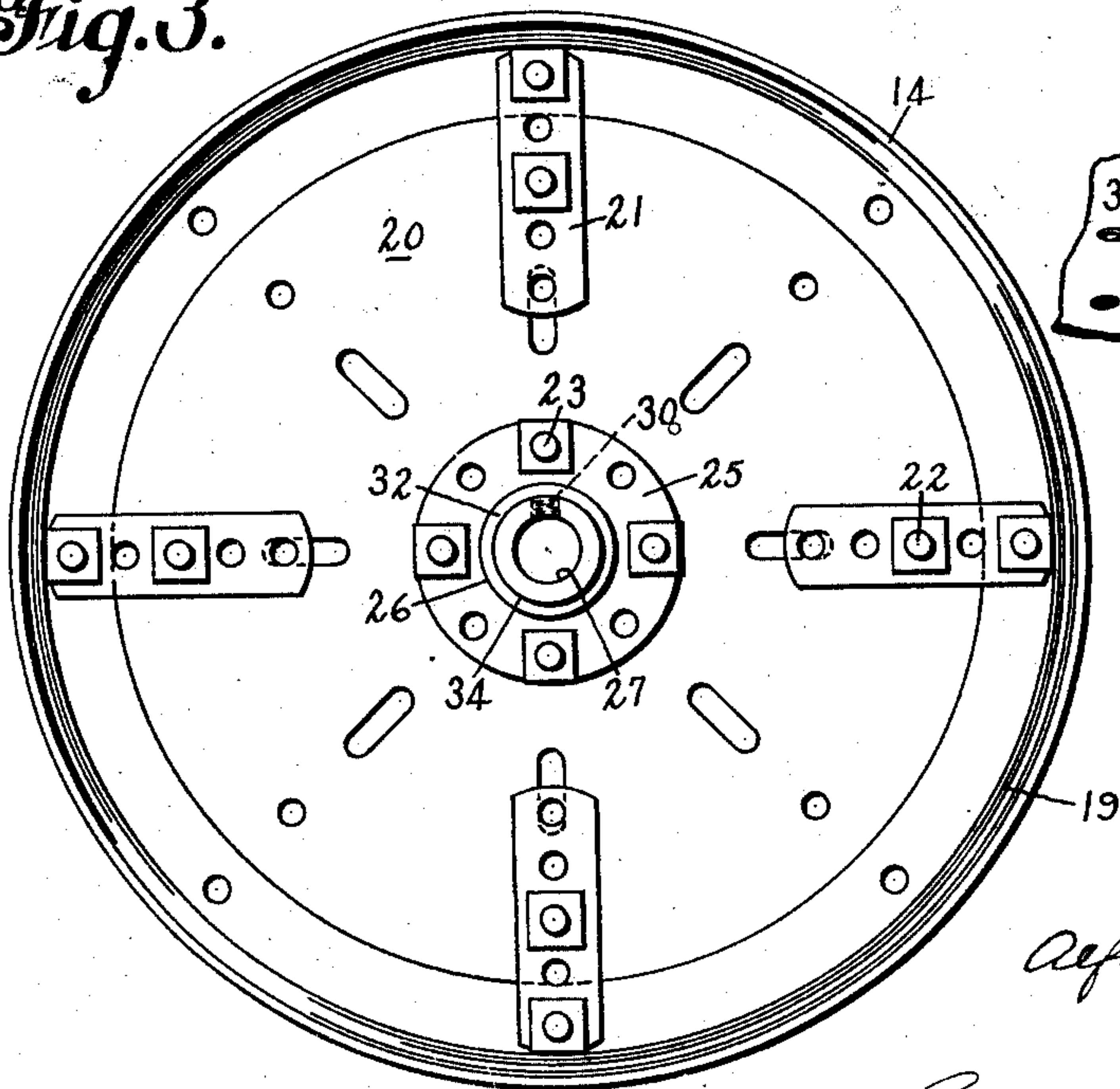


Fig. 4.

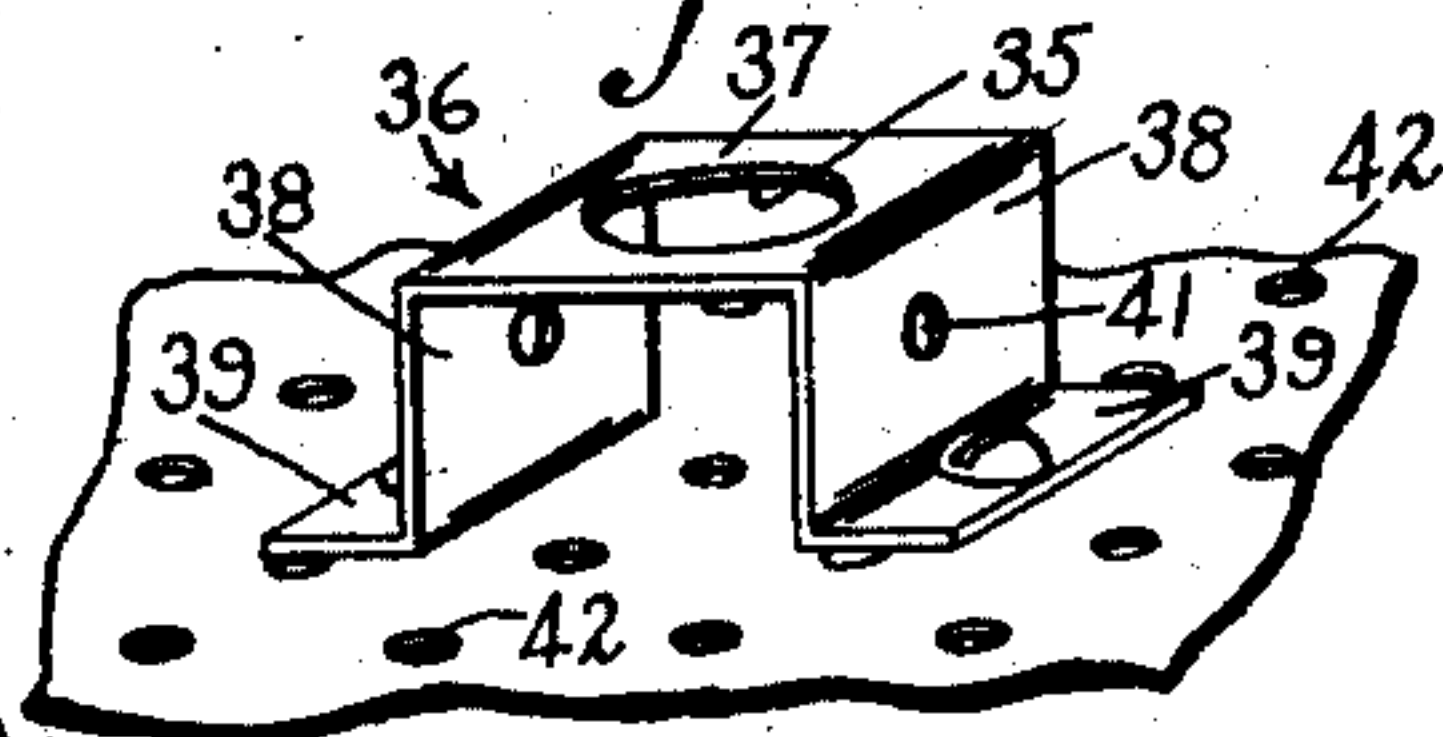
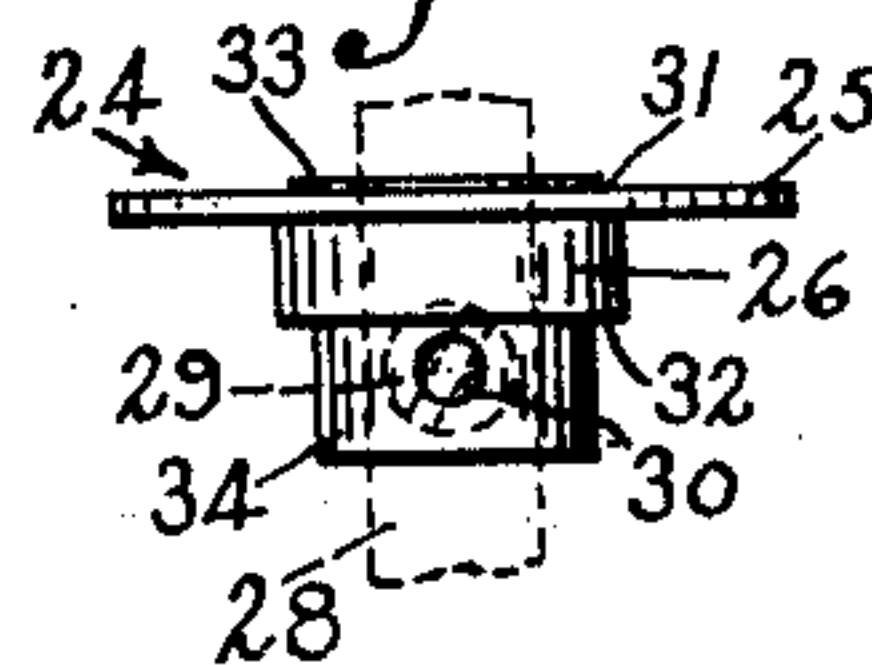


Fig. 5.



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UNITED STATES PATENT OFFICE

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CONSTRUCTION TOY

Original application filed June 7, 1927, Serial No. 197,141. Divided and this application filed December 22, 1928. Serial No. 327,867.

This invention relates to construction toys, and more particularly to certain structural units or elements, such as strips, mast steps, perforated disks, bushed disks and flanged rings, each having perforations disposed therein to receive securing means whereby these parts may be detachably assembled together and to other toy construction elements in various relations to form a variety of structural toy models. The particular toy elements to which this invention relates, are adapted for use in forming various toy models, as is more particularly described and illustrated in a copending application, Serial No. 197,141, filed June 7, 1927, of which this application is a division.

The principal object of this invention is to provide construction toy elements, susceptible of a variety of uses whereby the number of different parts of a toy of this type will be maintained at a minimum.

Another object of this invention is to provide a disk-like member, having in its structure a plurality of toy structural elements each of which is adapted for use in various relations with one or more of the others, to form various toy structures or units thereof.

Still another object of this invention is to provide in a construction toy an improved form of bushed disk, adapted for use with and as a part of the disk-like member or other toy, whereby the same may be secured to or journaled upon a shaft.

A further object of this invention is to provide an improved and novel form of supporting member, which is adapted to support the novel form of bushed disk and the disk-like member of this invention, or other toy elements, and which may also be adapted to be mounted upon other elements of a construction toy in various positions.

To these and other ends, the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 is a partial side view of a construction toy, illustrating the toy elements embodying the features of my invention;

Fig. 2 is a vertical section through a unit of the construction toy, shown in Fig. 1;

Fig. 3 is a bottom plan view of the disk-like member shown in Fig. 2;

Fig. 4 is a perspective view of an element of the construction toy, and

Fig. 5 is a side view of another element of the construction toy.

The toy illustrated in Fig. 1 comprises a base plate 10, having a disk-like member 11, rotatably mounted thereon, which in turn supports a mast 12 and a swinging boom 13. The disk-like member 11 is provided with a peripheral flange 14, in which is provided a belt groove 15. The disk-like member 11 is rotatably mounted upon the base 10, and may be rotated by means of a belt 16, disposed in the groove 15 and in the groove of a pulley wheel 17. The pulley wheel 17 may be rotated by any suitable means, for instance, by a crank 18.

The disk-like member 11, in this instance, forms a toy unit composed of a plurality of construction toy elements, which are susceptible of a variety of uses. The disk-like member 11 is composed of a flanged ring 19, having the flange 14 disposed about its periphery. A disk 20 is disposed within the opening in the ring, and is secured thereto by means of perforated strips 21 and bolts 22, which pass through corresponding perforations in each part. The disk 20 is provided with suitable perforations through which bolts 23 may pass to secure a bushed disk 24 thereto in substantially the center thereof.

In certain aspects of this invention, the disk 20 may be omitted as a separate part and be formed integrally with the flanged ring with the bushed disk 24 secured thereto. The flange 14 extends outwardly away from the ring portion, being formed integrally therewith by turning the material of the ring at its periphery over upon itself and then extending it substantially at right angles to the plane thereof. The belt groove 15 may be formed in the flange 14 by depressing the material thereof inwardly the required amount.

The bushed disk 24 comprises a perforated disk 25, having an opening in the center

thereof and a bushing 26. The bushing 26 is provided with a shaft opening 27, through which a shaft or rod 28, as shown in dotted lines in Fig. 5, may be inserted and secured therein by means of a set screw 29, threaded into the bushing in a threaded opening 30 provided therein. The bushing 26 is reduced in diameter at each end thereof, to form oppositely directed shoulders 31 and 32. One end 33 of this bushing is adapted to pass through the center opening in the disk 25, and be secured therein in any suitable manner, such as riveting over the material of the bushing end, as shown in the drawings. The other end 34 of the bushing 26 is adapted to pass through an opening 35 in another element of the construction toy, to be journaled therein, and supported by means of the engagement of the shoulder 32 upon the surface of such toy element.

In the toy illustrated, the disk-like member 11 is rotatably supported upon the base 10 by means of a toy element or mast step 36. The mast step 36 is produced from a strip of sheet metal, and comprises a flat top portion 37, having leg portions 38 at each end thereof, and disposed substantially at right angles thereto. Extending outwardly from and at substantially right angles to each of the leg portions 38 is a foot portion 39. A perforation 40 is provided in each of the foot portions 39, and a perforation 41 is provided in each of the leg portions 38. The perforations 40 are spaced apart an amount which is a multiple of the spacing between perforations in other toy elements, such as the perforations 42 provided in the base 10. When the bushed disk 24 is assembled to the disk-like member 11, and is rotatably mounted on the mast step 36, as shown in Fig. 2, the shoulder 32 of the bushing 26 rotatably supports the disk-like member 11, with the flange 14 spaced from the base 10 and substantially parallel thereto.

In a certain aspect of this invention, the bushing 26 may be secured directly to the ring portion of the disk-like member within an opening in the center thereof; in the same manner as it is secured to the disk 25. By the provision of the toy element or mast step 36, the bushed disk 24, and the disk-like member 11, a toy unit is formed of a plurality of toy elements which are adapted for use in various relations with one or more of the others, to form other toy structures than that illustrated.

While I have shown and described a preferred embodiment of my invention, it will be understood that the same is not to be limited to the details shown, but is capable of modification and variation which will lie within the spirit of the invention and the scope of the appended claims.

What I claim is:

1. A toy unit, composed of a plurality of toy elements, one of said elements compris-

ing a ring having a flange extending at an angle from and about the periphery thereof, said flange having a groove extending peripherally thereabout, and a disk disposed within the opening formed by the internal periphery of said ring, a bushed disk secured to said disk at the center thereof, the bushing portion of said bushed disk having a reduced end, a base plate, and a member secured to said base plate having an opening therein adapted to rotatably receive the reduced end of said bushing.

2. In a construction toy, an element provided with a flat top portion having a perforation therein, leg portions depending from said top portion, and a foot portion extending from the lower end of each leg portion, each foot portion having a perforation therein, the perforations of said foot portions being spaced apart an amount which is a multiple of the spacing of perforations in other toy elements, and a disk-shaped element having a depending portion adapted to enter the perforation in said flat top portion of the first mentioned toy element, said depending portion presenting a shoulder adapted to rotatably support said disk upon said flat top portion.

3. In a construction toy, an element provided with a flat top portion having a perforation therein, leg portions depending from said top portion, and a foot portion extending from the lower end of each leg portion, each foot portion having a perforation therein, the perforations of said foot portions being spaced apart an amount which is a multiple of the spacing of perforations in other toy elements, and a flanged disk having means cooperating with the flat top portion of said first mentioned toy element to rotatably mount said disk upon said element, and a base plate having perforations corresponding in spacing to the spacing between the perforations in said foot portions of said elements and being secured thereto.

4. In a construction toy, an element provided with a flat top portion having a perforation therein, leg portions depending from said top portion, and a foot portion extending from the lower end of each leg portion, each foot portion having a perforation therein, the perforations of said foot portions being spaced apart an amount which is a multiple of the spacing of perforations in other toy elements, and a flanged disk having means cooperating with the flat top portion of said first mentioned toy element to rotatably mount said disk upon said element, said disk having a groove in the periphery thereof, and a base plate having perforations corresponding in spacing to the spacing between the perforations in said foot portions of said element, and being secured thereto, and means including a member co-

operating with the groove in said disk to rotate the same.

5. A toy unit, composed of a plurality of toy elements, one of said elements comprising a ring having a flange extending at an angle from and about the periphery thereof, and a disk disposed within the opening formed by the internal periphery of said ring, a bushed disk secured to said disk at the center thereof, a bushing portion of said bushed disk having a reduced end, a base plate, and a member secured to said base plate having an opening therein adapted to rotatably receive the reduced end of said bushing.

6. In a toy unit, a disk-shaped member having a bushing secured thereto and extending therefrom, said bushing being provided with an axially directed shoulder upon its peripheral surface and spaced inwardly from an end of said bushing, to adapt the shoulder end of said bushing to enter an opening in a supporting member, and be rotatably received therein and supported by said shoulder thereon.

7. In a toy unit, a disk-shaped member having a bushing secured thereto and extending therefrom, said bushing having one end thereof reduced in diameter to form an axially directed shoulder thereon, said shoulder being disposed intermediate said disk-shaped member and the reduced end of said bushing, the reduced end of said bushing being adapted to enter an opening in another toy element to be journaled therein, and to permit such shoulder to seat thereon whereby said disk portion will be spaced from the adjacent surface of the toy element.

8. In a toy unit, a disk-shaped element having an opening therein, a bushing element having each of its ends reduced in diameter to form oppositely and axially directed shoulders thereon, one of said ends being received in the opening in said disk element and secured thereto, with the adjacent shoulder abutting said element, the other end of said bushing being adapted to enter an opening in the supporting member and be journaled therein, with the adjacent shoulder abutting the surface thereof to support said disk substantially parallel to said supporting member.

9. A toy unit, comprising a plurality of toy elements, including a disk-shaped member having a flange depending from the periphery thereof, a bushed disk secured to said disk-shaped member at the center thereof, the bushing portion of said bushed disk having a reduced end forming an axially directed shoulder spaced from said disk portion thereof, a base plate, and a member secured to said base plate having an opening therein adapted to rotatably receive the reduced end of said bushing and to permit said shoulder to rest thereon, whereby the edge of said flange

will clear the surface of said base plate when said disk is rotated.

10. A toy unit comprising a plurality of toy elements, including a disk-shaped member, a bushed disk secured to said disk-shaped member at the center thereof, the bushing portion of said bushed disk having a reduced end forming an axially directed shoulder spaced from said disk portion thereof, and a member having an opening therein adapted to rotatably receive the reduced end of said bushing to permit said shoulder to rest thereon to space the disk-shaped member therefrom.

11. In a construction toy, an element provided with a flat top portion having a perforation therein, leg portions depending from said top portion, and a foot portion extending from the lower end of each leg portion, and a rod receiving bushing having a reduced end portion forming a shoulder disposed intermediate the ends of said bushing, said reduced end being adapted to enter the perforation in said flat top portion of said element and be supported thereby by the engagement of said shoulder upon said portion.

In witness whereof, I have hereunto set my hand this 13th day of December, 1928.

ALFRED C. GILBERT.

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