

No. 767,263.

PATENTED AUG. 9, 1904.

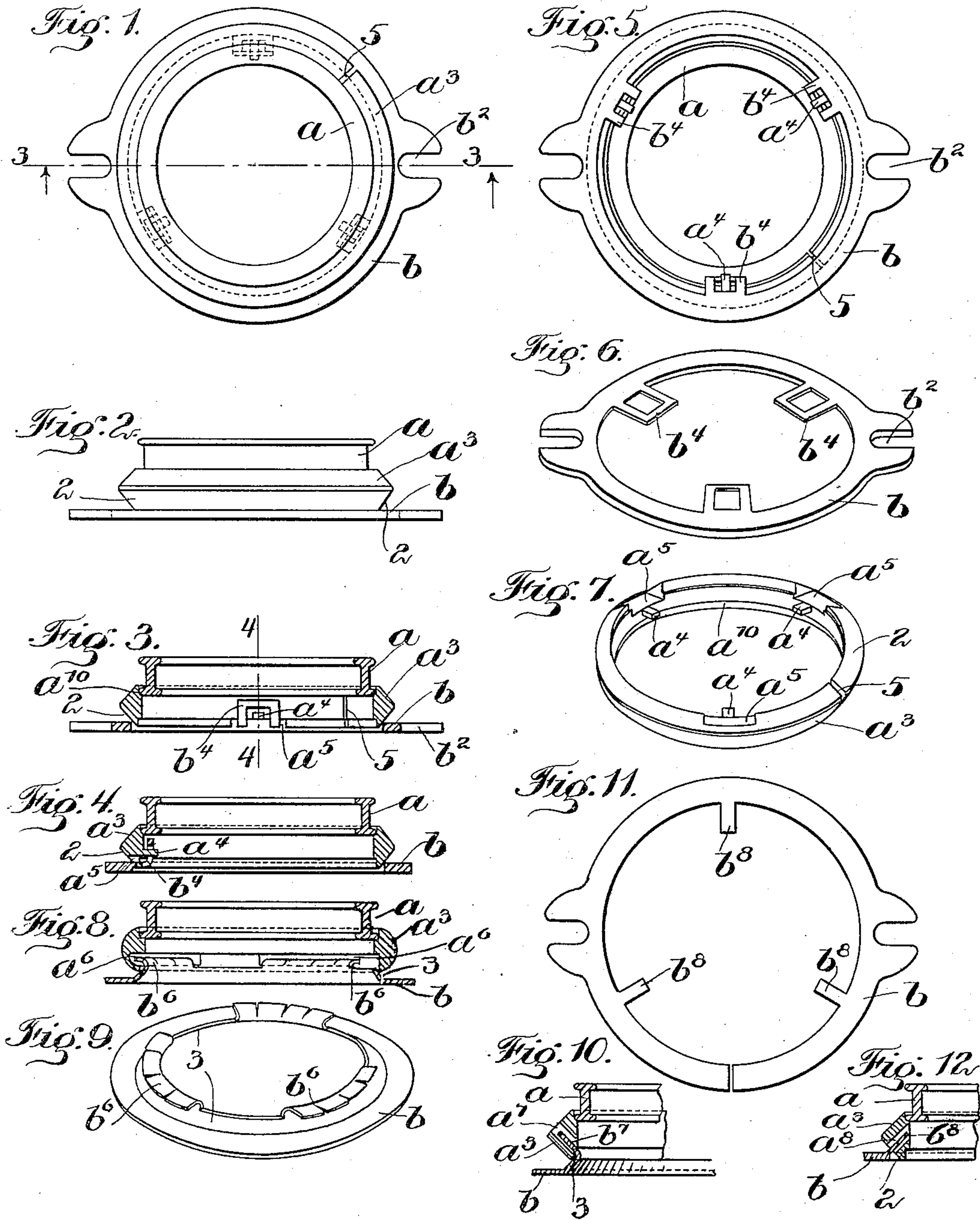
H. F. COTTLE.

SPINNING APPARATUS FOR SPINNING FRAMES.

APPLICATION FILED JUNE 15, 1903.

NO MODEL.

2 SHEETS—SHEET 1



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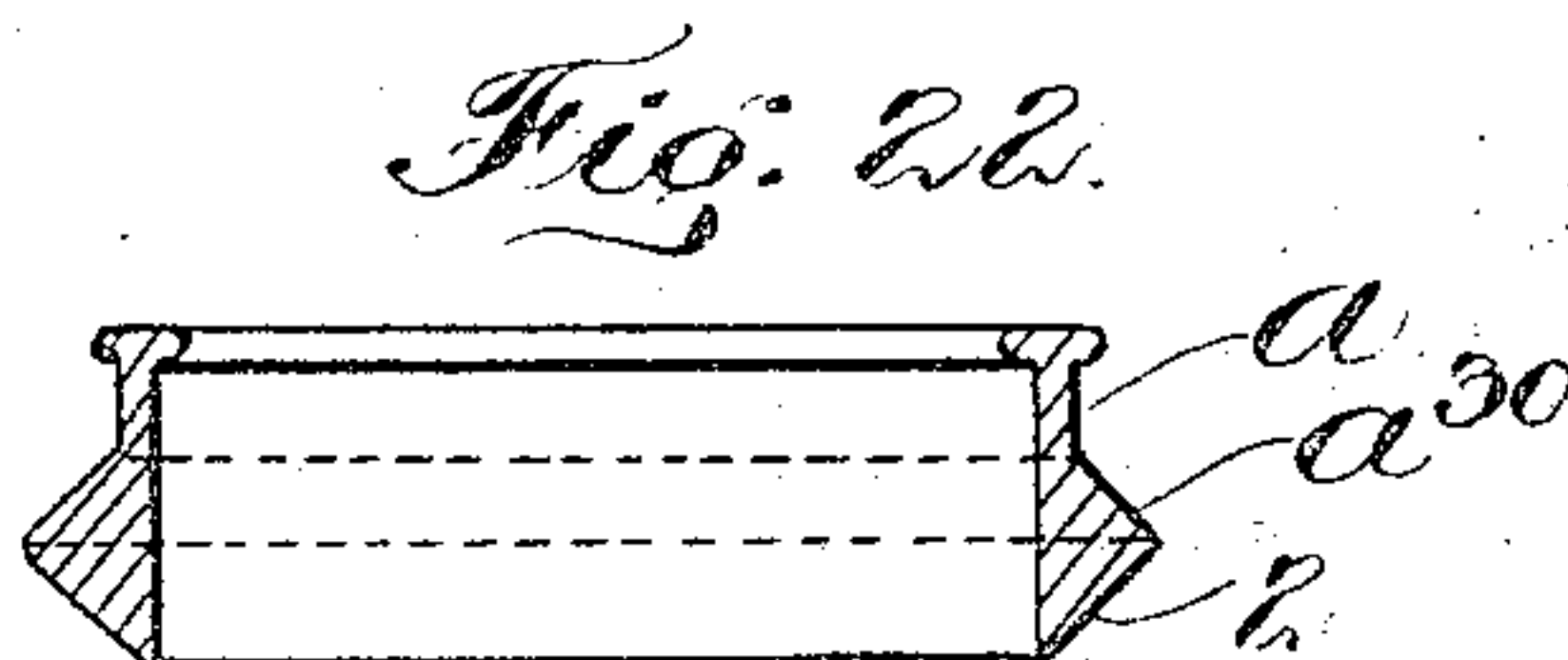
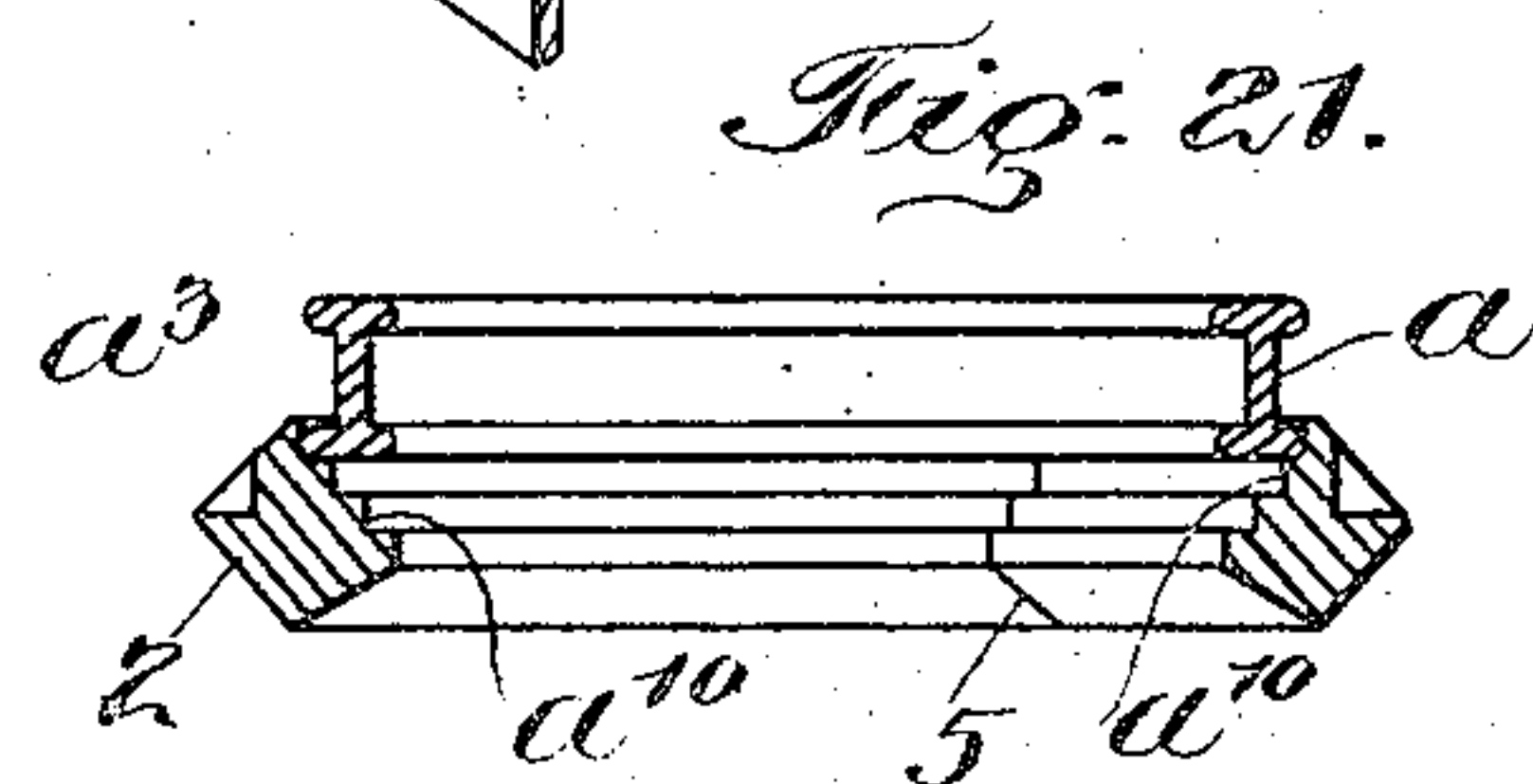
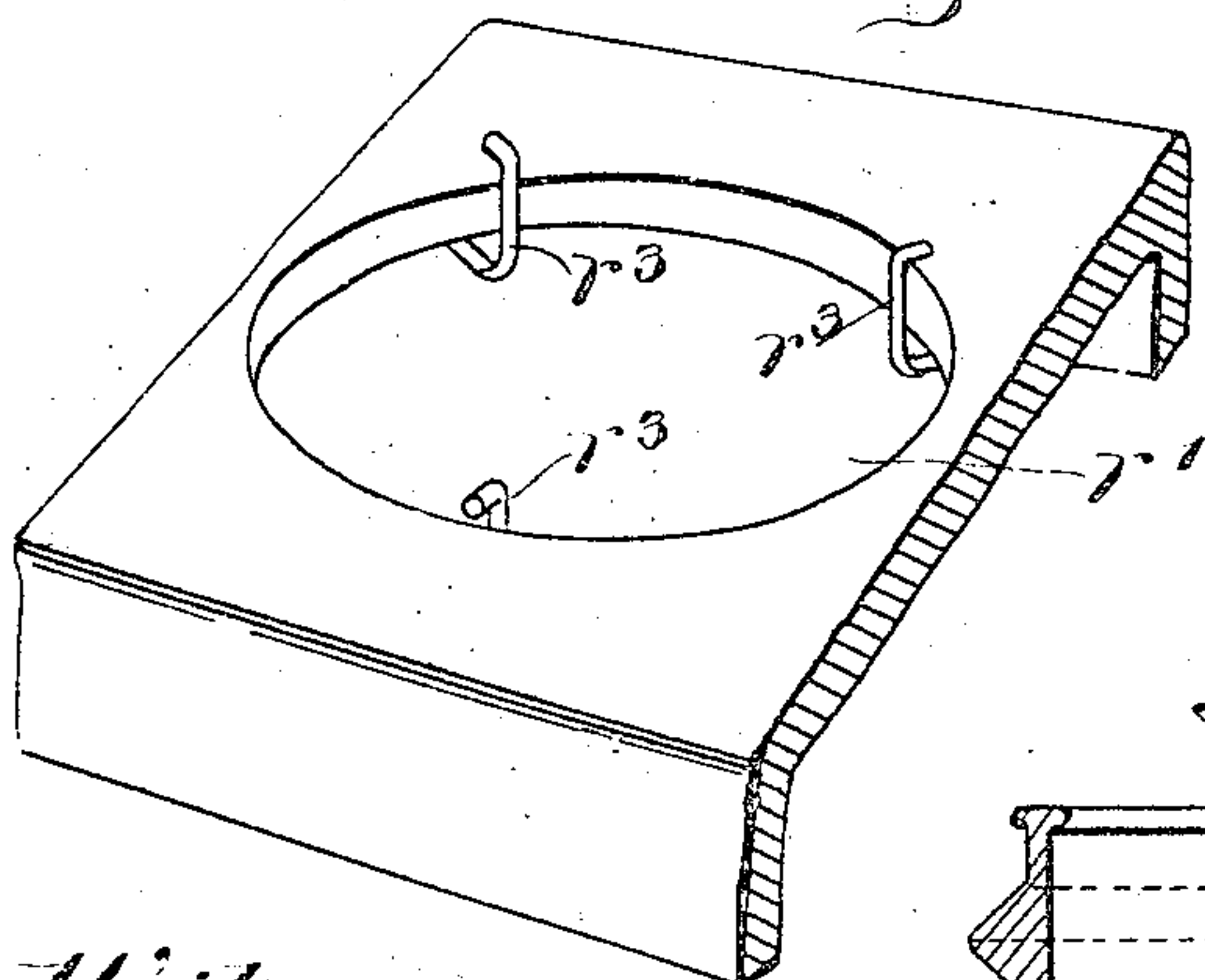
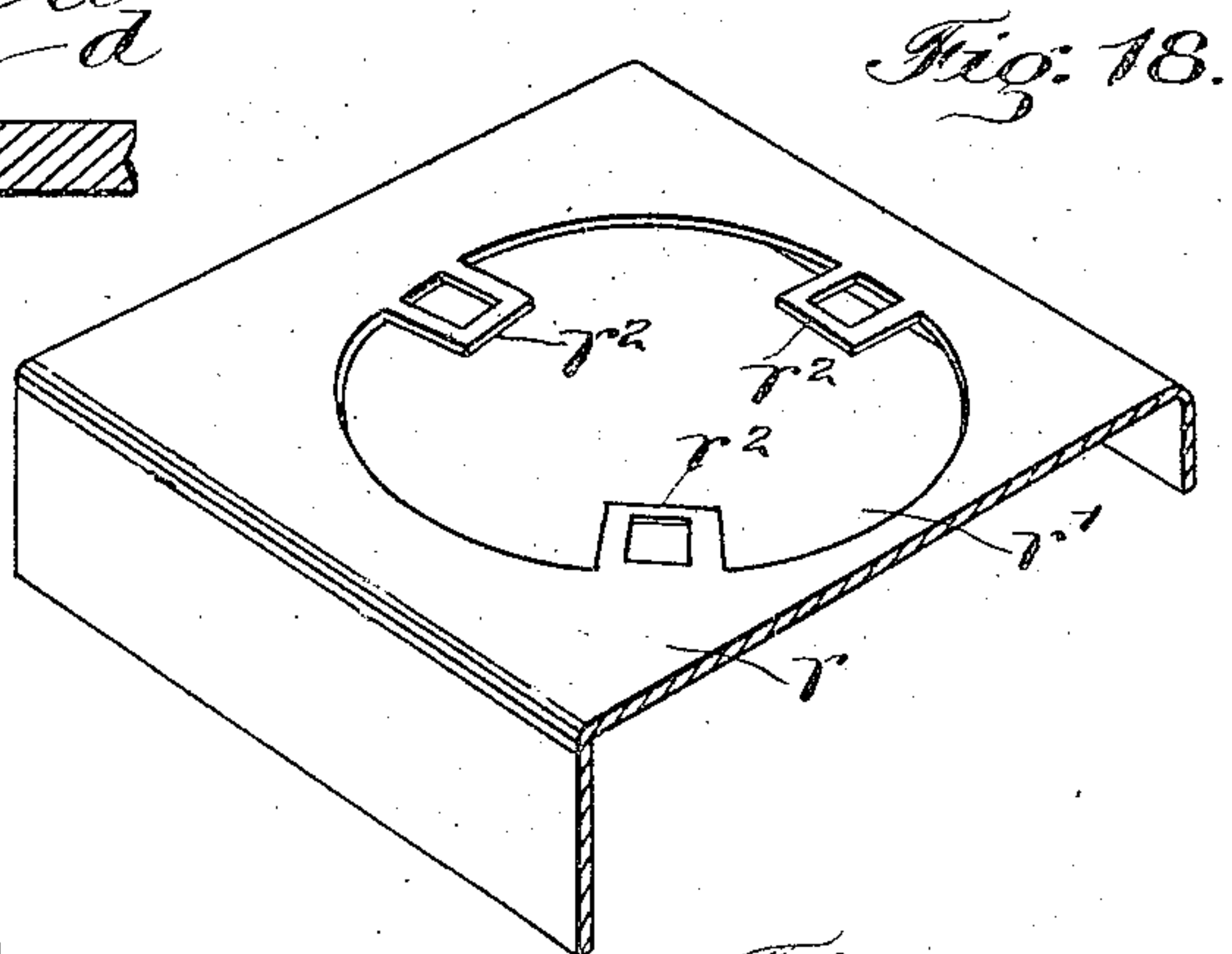
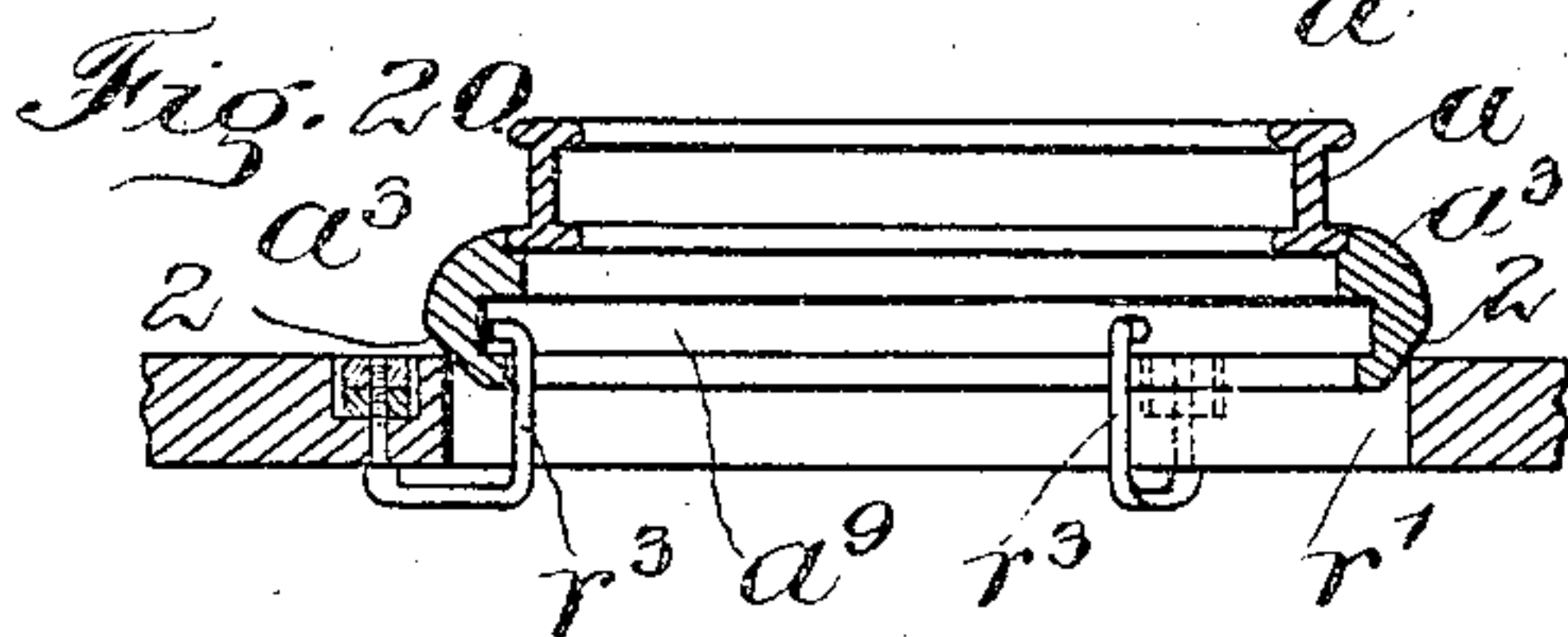
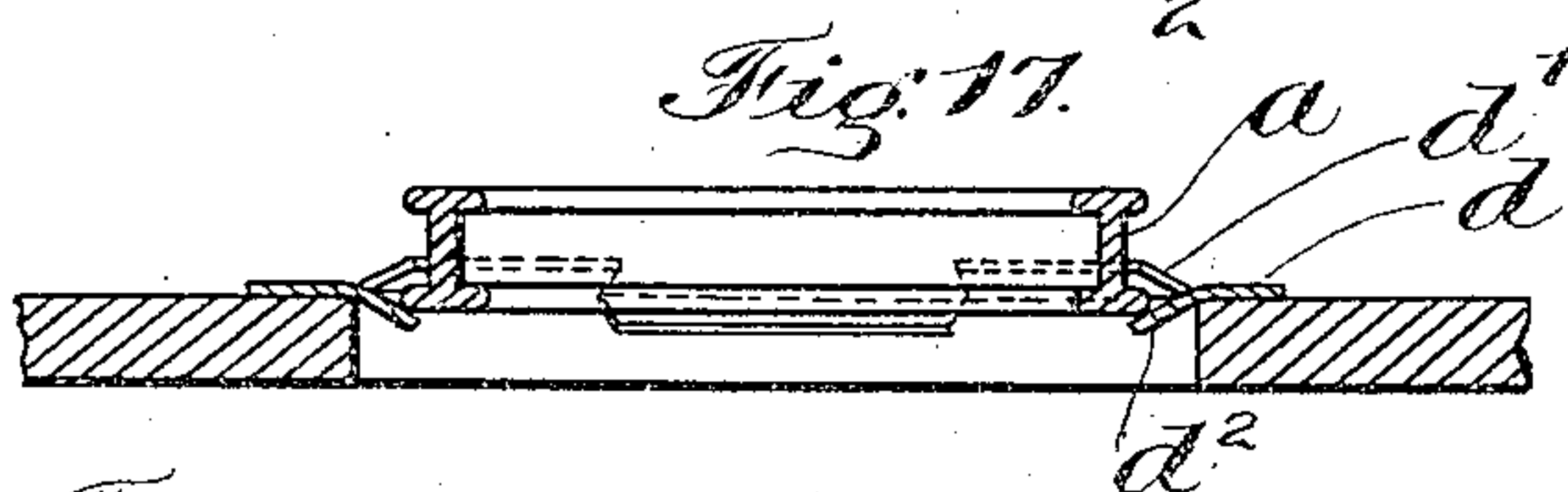
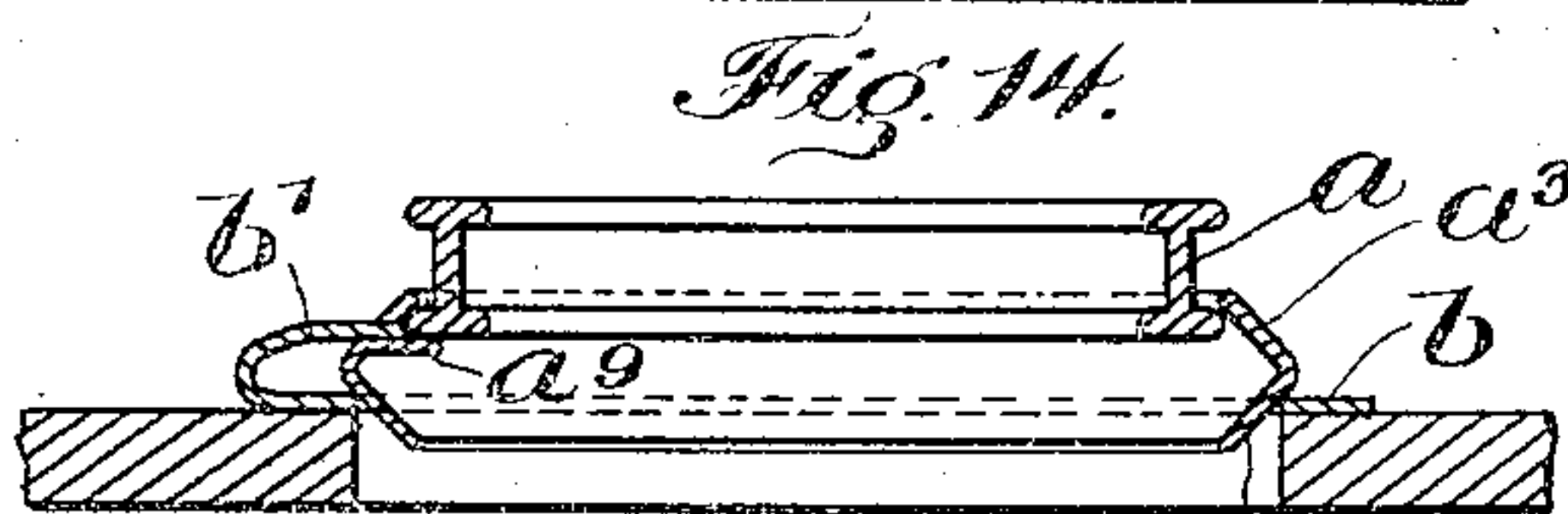
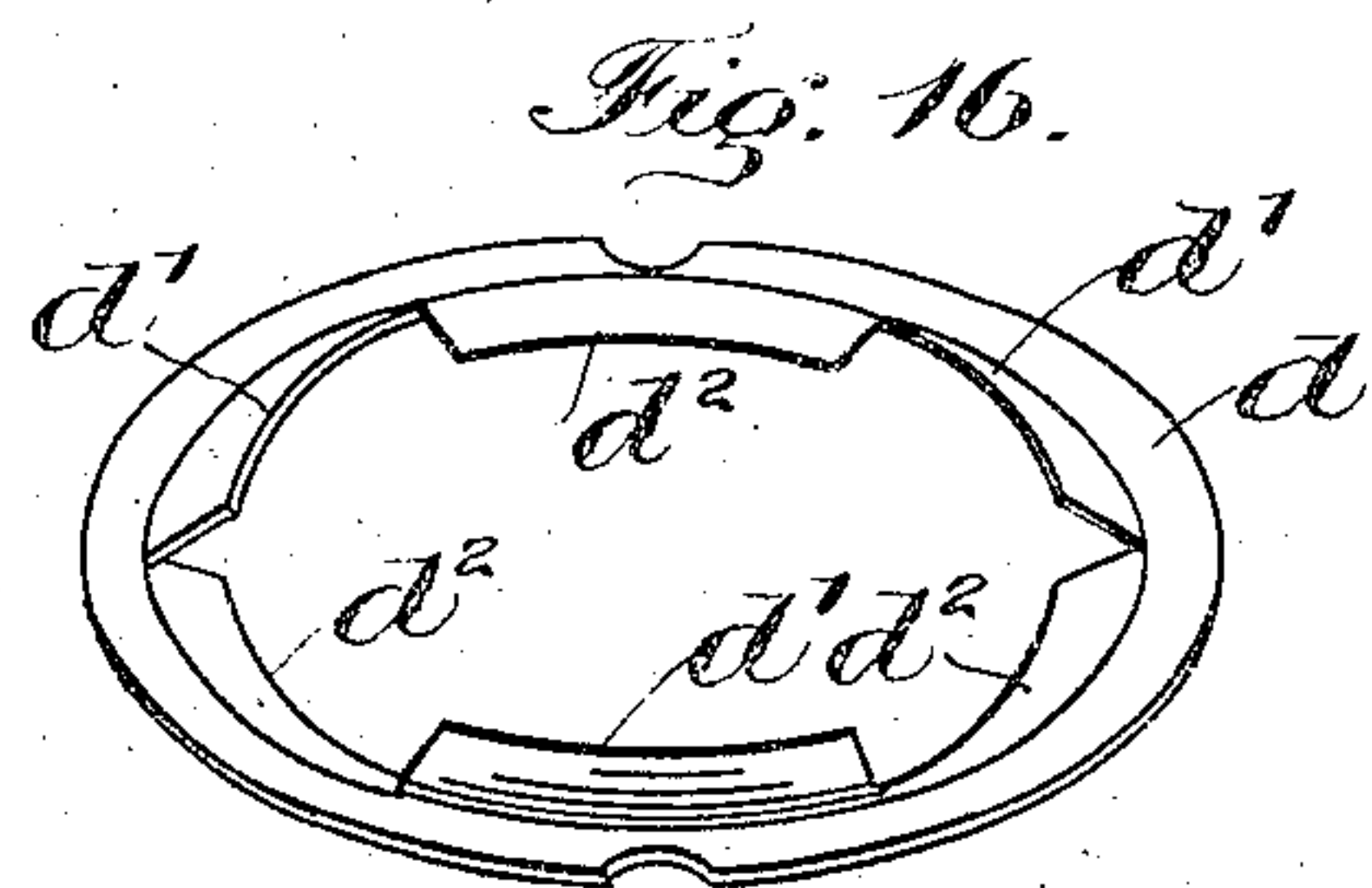
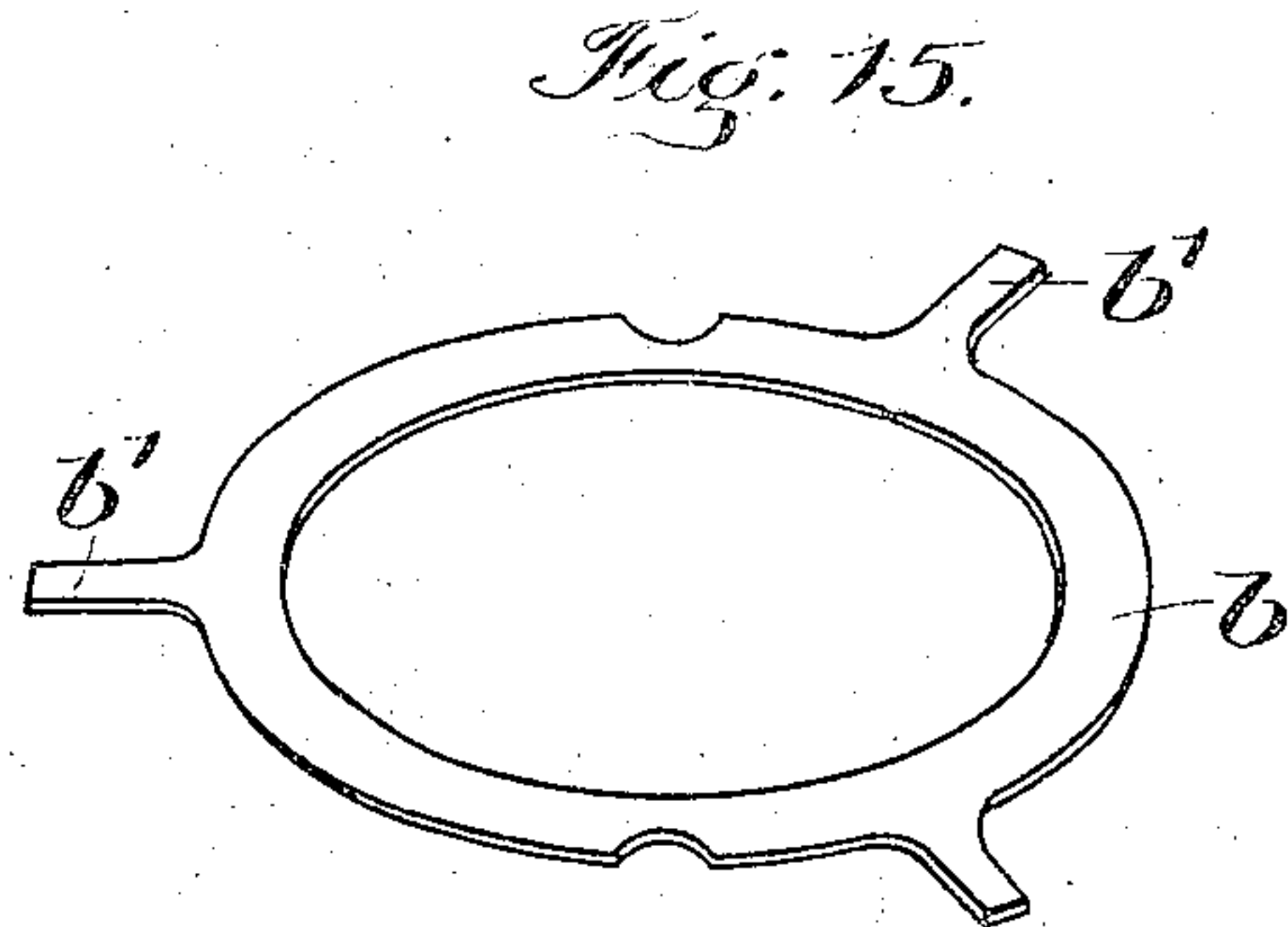
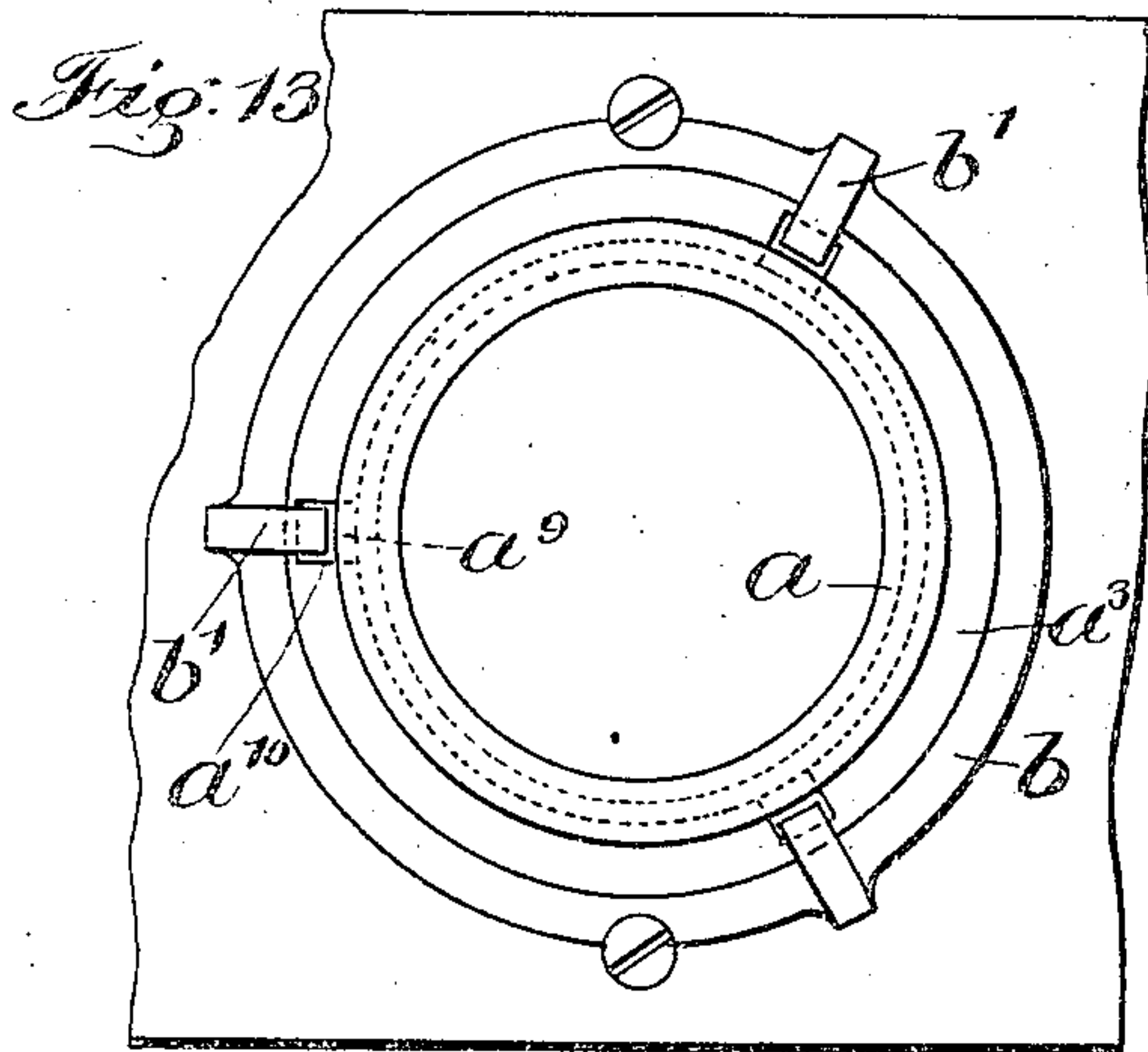
H. F. COTTLE.

SPINNING APPARATUS FOR SPINNING FRAMES.

APPLICATION FILED JUNE 15, 1903.

NO MODEL.

2 SHEETS—SHEET 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

HENRY F. COTTLE, OF DORCHESTER, MASSACHUSETTS.

SPINNING APPARATUS FOR SPINNING-FRAMES.

SPECIFICATION forming part of Letters Patent No. 767,263, dated August 9, 1904.

Application filed June 15, 1903. Serial No. 161,442. (No model.)

To all whom it may concern:

Be it known that I, HENRY F. COTTLE, of
Dorchester, in the county of Suffolk and State
of Massachusetts, have invented certain new
and useful Improvements in Spinning Appa-
ratus for Spinning-Frames, of which the fol-
lowing is a specification.

This invention has for its object to enable a
spinning-ring to be automatically adjusted to
the spindle as to its concentricity therewith
and also to enable the upper edge of the ring
or the ring-race on which the traveler moves
to be automatically leveled in compensation
for any irregularities or deviations of the ring-
support from a true horizontal position.

The invention consists in the improvements
which I will now proceed to describe and
claim.

Of the accompanying drawings, forming a
part of this specification, Figure 1 represents
a top plan view of a spinning-ring and a sup-
port or holder therefor embodying my in-
vention. Fig. 2 represents a side elevation
of the ring and holder shown in Fig. 1. Fig.
3 represents a section on line 3 3 of Fig. 1.
Fig. 4 represents a section on line 4 4 of Fig.
3. Fig. 5 represents a bottom plan view of
the ring and holder shown in Fig. 1. Figs. 6
and 7 represent detached perspective views of
the support and the ring-base or weight shown
in the preceding figures. Fig. 8 represents
a sectional view of a ring and its support
constituting another embodiment of my in-
vention. Fig. 9 represents a perspective
view of the support shown in Fig. 8. Fig.
10 represents a sectional view of a portion of
a ring and its support constituting another
embodiment of my invention. Fig. 11 rep-
resents a plan view of the blank from which
the support shown in Fig. 10 is made. Fig.
12 represents a modification of the construc-
tion shown in Figs. 10 and 11. Figs. 13 to 17,
inclusive, represent other modifications here-
inafter referred to. Fig. 18 represents a per-
spective view of a portion of a sheet-metal
ring-rail formed as a ring-support in accord-
ance with my invention. Fig. 19 represents
a perspective view of a cast-metal ring-rail
also formed as a ring-support. Fig. 20 rep-
resents a sectional view of the rail, shown in

Fig. 19 and a ring engaged therewith. Fig.
21 represents a sectional view of a ring and
a base engaged therewith, the base being
formed to engage different rings. Fig. 22 rep-
resents a ring and its weighted base formed as
one part.

The same characters of reference indicate
the same parts in all the figures.

In carrying out my invention I provide a
support or holder for a spinning-ring *a*, said
holder having rigid confining members adapt-
ed to permit a limited upward or tipping
movement or inclination of any part of the
ring and a limited longitudinal or edgewise
movement of the ring. In the preferred em-
bodiments of my invention, hereinafter de-
scribed, the said rigid confining members co-
operate with complementary confining mem-
bers affixed to the ring in permitting limited
rotary movements of the ring, while prevent-
ing more than a fractional part of a complete
rotation.

A ring supported in accordance with my in-
vention is adapted to tip in any desired direc-
tion without being lifted or separated at any
point from its seat. The ring is therefore
adapted to be leveled or made horizontal by
the action of the traveler, so that if the ring-
rail happens to be slightly out of level, as is
often the case, the ring will be caused by the
traveler to assume a level position on its seat
without being actually lifted from its seat at
any point, and therefore without imposing an
uneven strain on the yarn.

In each of the preferred embodiments of
my invention provision is made for weight-
ing the base or lower portion of the ring to
steady it and prevent abrupt fluctuations or
jerky movements, such as would be liable to
occur with an ordinary reversible ring, the
lower portion of which is of substantially the
same weight as the upper or traveler-guiding
portion.

In the embodiment of my invention shown
in Figs. 1 to 7, inclusive, the holder is com-
posed of a ring *b*, preferably of sheet metal,
having a flat under surface adapted to rest on
the upper surface of the ring-rail and pro-
vided with slots *b*² to engage attaching-screws,
whereby the holder may be rigidly secured to

the ring-rail. The inner margin of the ring-shaped holder b constitutes a seat for a base portion or annular weight a^3 , which is affixed to the lower flange or race of the ring a and moves in all directions with the ring. The lower portion of the base a^3 presents a frusto-conical or tapering face 2, the lower portion of which bears upon the inner edge of the holder b . Said inner edge constitutes a seat on which the base is free to tip in any direction required to level the base and ring, the face 2 remaining in contact with all parts of the seat without being raised therefrom by any tipping movement permitted by the described construction. The base and holder are provided with complementary confining parts, which permit limited vertical and edge-wise movements of the base and ring and also limited rotary movements of said parts. Said members comprise slotted ears b^4 , projecting inwardly from the inner edge of the holder and bent upwardly, as shown in Figs. 3 and 4, and fingers a^4 , formed on the inner surface of the base a^3 , said fingers projecting into the slots of the ears b^4 . The lower edge of the base a^3 is provided with recesses a^5 to accommodate the ears b^4 . Said ears may be formed integral with the holder b , as shown in Fig. 6, which shows the ears before they are bent upwardly.

In Figs. 8 and 9 I show a construction in which the frusto-conical or inclined face corresponding to the face 2 is an inclined flange 3, formed on the holder b . In this case the lower edge of the base a^3 bears loosely on the inclined flange 3, so that the base and ring are free to have the same movements that are provided for by the construction shown in Figs. 1 to 7. The confining members are ears b^6 , formed on the holder b , said ears projecting upwardly and outwardly, their outwardly-projecting portions engaging segmental grooves a^6 , formed in the inner surface of the base a^3 . The rotary movements of the base and ring are limited by the ends of the grooves a^6 .

In Fig. 10 I show a construction similar to that shown in Figs. 8 and 9, the chief difference being as follows: Outwardly-inclined ears b^7 are formed on the upper edge of the inclined flange 3, said ears entering inclined slots a^7 in the base a^3 .

In Figs. 11 and 12 the holder b is flat and its inner edge forms a seat, as in the construction first described, the base a^3 having an inclined face 2 resting loosely on said seat. The base is provided with inclined slots a^8 , which receive inwardly-inclined ears b^8 , formed on the holder b .

In Figs. 13 and 14 I show the holder b provided with ears b' on its outer margin. Said ears are bent backwardly, so that they overhang the base a^3 . The base is V-shaped in cross-section, its upper edge bearing on the upper side of the bottom flange of the ring a

and being cut at intervals to form ears a^9 , bearing on the under side of said flange, the base being thus rigidly secured to the ring. The ears b' are narrower than the slots a^{10} , formed by the inward bending of the ears a^9 , and stand at such height that there is room between their under sides and the said tongues for a slight vertical movement of the base and ring, the ears b' permitting a limited horizontal and limited gyratory movement of the base.

In each of the above-described embodiments of my invention the weighted base a^3 is preferably secured detachably to the ring, so that after the upper race has been worn by the traveler the ring may be inverted. In the construction shown in Figs. 1 to 12 the base a^3 is formed to be sprung upon the lower flange of the ring, the base being cut through at one side, as shown at 5, and of resilient construction, so that it will exert a strong frictional hold on the ring, the base being also provided with a ring-engaging shoulder a^{10} .

In Figs. 16 and 17 I show a holder composed of a ring d , preferably of sheet metal, having radial incisions extending from its inner edge partly across to its outer edge, said incisions forming tongues d' d' , which are bent upwardly, and tongues d^2 d^2 , which are bent downwardly. The tongues d^2 collectively form a seat for the base of the ring a , which seat is practically frusto-conical in form and coöperates with the lower flange of the ring a in permitting a tipping movement of the ring. The ears d' overhang the said seat and the lower flange of the ring. Sufficient space is formed between the ears d' d^2 to permit the ring to move horizontally and vertically to a limited extent. In this embodiment of my invention the ring is not weighted and is adapted to rotate.

The ring-holder may form an integral part of a sheet-metal ring-rail r , as shown in Fig. 18, in which I show the ring-rail provided with a circular orifice r' , the margin of which forms a seat for the frusto-conical face 2 on the base a^3 , the rail also having slotted ears r^2 corresponding to the ears b^4 . Either of the other forms of holder above described may be made integral with a sheet-metal ring-rail.

In Figs. 19 and 20 I show a cast-metal ring-rail having an orifice r' and a series of bent fingers r^3 , which engage an annular groove a^9 in the base a^3 .

In Fig. 21 the base a^3 is provided on its inner surface with a series of shoulders a^{10} of different diameters, whereby it is enabled to engage rings of different sizes, the base being adapted to be sprung onto the ring.

I do not limit myself to a base made as a separate part detachably connected with the ring, it being obvious that when a reversible ring is not desired the ring and base may be formed as a single part, as shown in Fig. 22, in which a^{30} represents the weighted base.

It will be seen that my invention enables

the ring to properly adjust itself to the spindle in such manner as to prevent any irregularity in the pull of the yarn on the traveler and ring and automatically compensate for the vibration of the spindle. An even product is thus assured, and the wear of the traveler is materially reduced, thereby allowing the frame to be run at a higher speed.

I claim—

1. A spinning apparatus comprising a ring-holder having a ring-seat and a spinning-ring independently movable thereon, said parts having complemental means for permitting an automatic leveling movement of the ring without separation of the ring from the seat.

2. A spinning apparatus comprising a ring-holder having a ring-seat and a spinning-ring independently movable thereon, said parts having complemental means for permitting an automatic leveling movement of the ring without separation of the ring from the seat, the base of the ring being weighted to steady its leveling movements.

3. A spinning apparatus comprising a ring-holder having a ring-seat and a spinning-ring independently movable thereon and provided with an annular weight at its lower portion, said parts having complemental means for permitting an automatic leveling movement of the ring without separation of the ring from the seat.

4. A spinning apparatus comprising a spinning-ring and a ring-holder having rigid confining parts, one of the coacting faces of the parts hereinbefore termed the ring and the ring-holder being inclined relatively to the other, whereby automatic leveling of the ring is permitted without separation of said faces.

5. A spinning apparatus comprising a spinning-ring having an annular weight at its lower portion, and a ring-holder on which the ring and weight are independently movable, the said weight and holder having complemental coacting faces formed to permit the automatic leveling of the ring and weight without separation of the weight from the holder.

6. A spinning apparatus comprising a spinning-ring, and a ring-holder having a seat on which the ring-base rests loosely, said seat and base having relatively inclined faces to permit the automatic leveling of the ring, and confining members formed and arranged to permit limited longitudinal and vertical movements of the ring.

7. A spinning apparatus comprising a spinning-ring, and a ring-holder having a seat for the ring-base, one of the parts herein called the base and seat having a frusto-conical or tapering formation, whereby a tipping movement of the ring without separation from its seat is permitted, the said parts having also complemental confining members formed and

arranged to permit limited horizontal and vertical movements of the ring.

8. A spinning apparatus comprising a spinning-ring having an annular weight at its lower portion and a ring-holder having a seat on which said weight rests loosely, one of the parts herein called the weight and base having a tapering or frusto-conical formation, whereby a tipping movement of the ring and weight without separation of the weight from the seat is permitted, the said parts also having complemental confining members formed and arranged to permit limited horizontal and vertical movements of the weight and ring.

9. A spinning apparatus comprising a ring-holder having a ring-seat, and a reversible spinning-ring having an annular weight detachably secured to its lower portion and provided with a face resting loosely on and formed to coact with said seat as described, said ring and weight being independently movable on the holder.

10. A ring-rail having a ring-supporting seat integral with the rail, combined with a ring having a face resting loosely on said seat and formed to coact therewith as described.

11. A ring-rail having a ring-supporting seat integral with the rail, and ring-confining members projecting above said seat, combined with a ring having a face resting loosely on the seat and formed to coact therewith, the ring being engaged with said members.

12. A sheet-metal ring-rail having a ring-supporting seat and ring-confining members all integral with the rail, combined with a ring loosely mounted on said seat and engaged with said members.

13. A spinning-ring having a weighted lower portion provided with means for coacting as described with a fixed seat.

14. A spinning-ring having a resilient weighted base formed to embrace the lower portion of the ring and provided with means for coacting as described with a fixed seat.

15. A spinning-ring having a resilient weighted base internally shouldered to engage the lower flange of the ring and provided with means for coacting as described with a fixed seat.

16. A resilient spinning-ring base of annular form, having a ring-engaging shoulder adapted to be held by the resilience of the base in engagement with a spinning-ring.

17. A spinning-ring base of annular form, having a plurality of ring-engaging shoulders of different diameters.

In testimony whereof I have affixed my signature in presence of two witnesses.

HENRY F. COTTLE.

Witnesses:

C. F. BROWN,
E. BATCHELDER.