

No. 774,048.

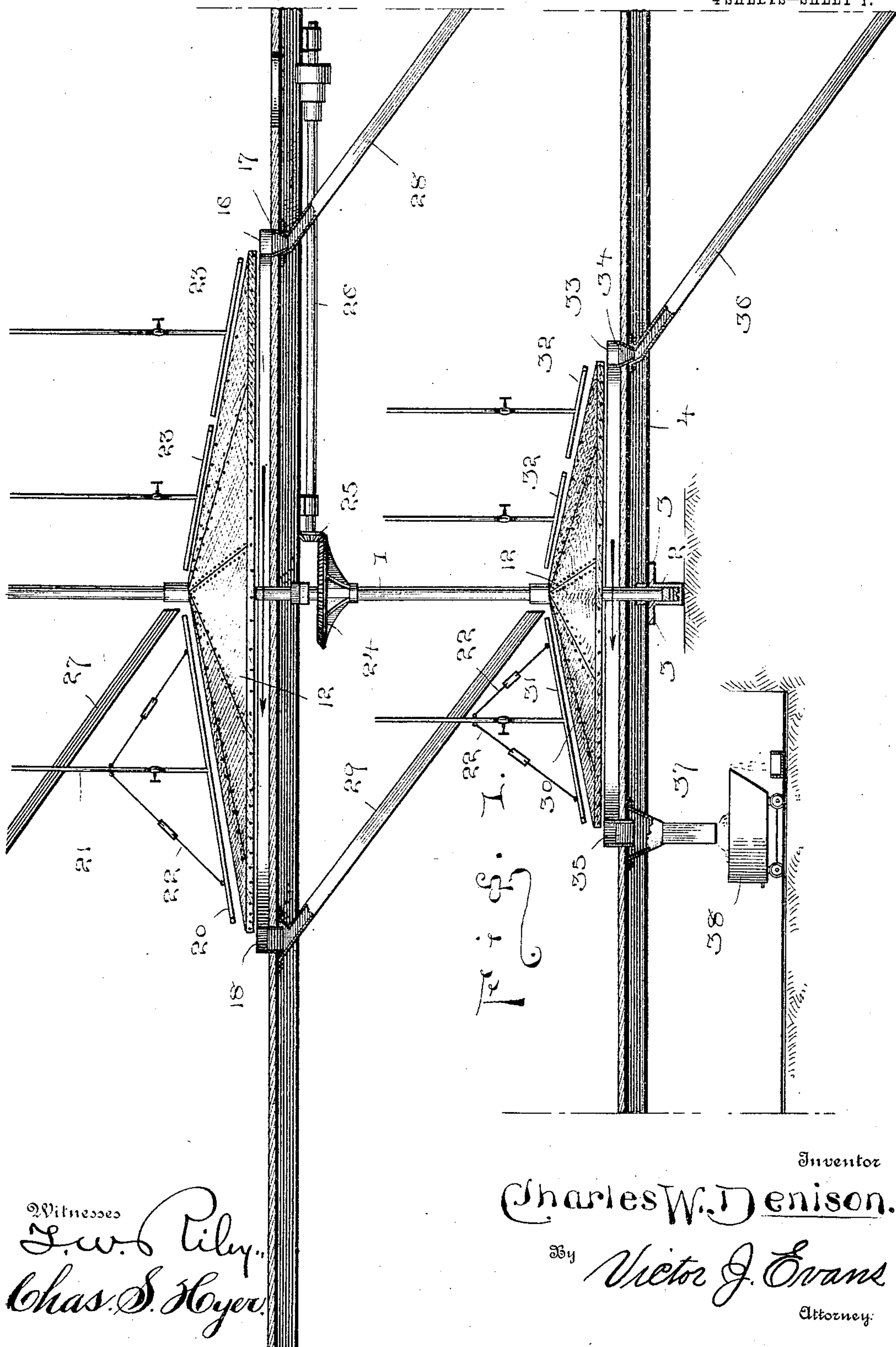
PATENTED NOV. 1, 1904.

C. W. DENISON.  
BUDDLE.

APPLICATION FILED JULY 29, 1902.

NO MODEL.

4 SHEETS—SHEET 1.



Witnesses  
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Chas. S. Hoyer

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4 SHEETS—SHEET 2.

Fig. 2.

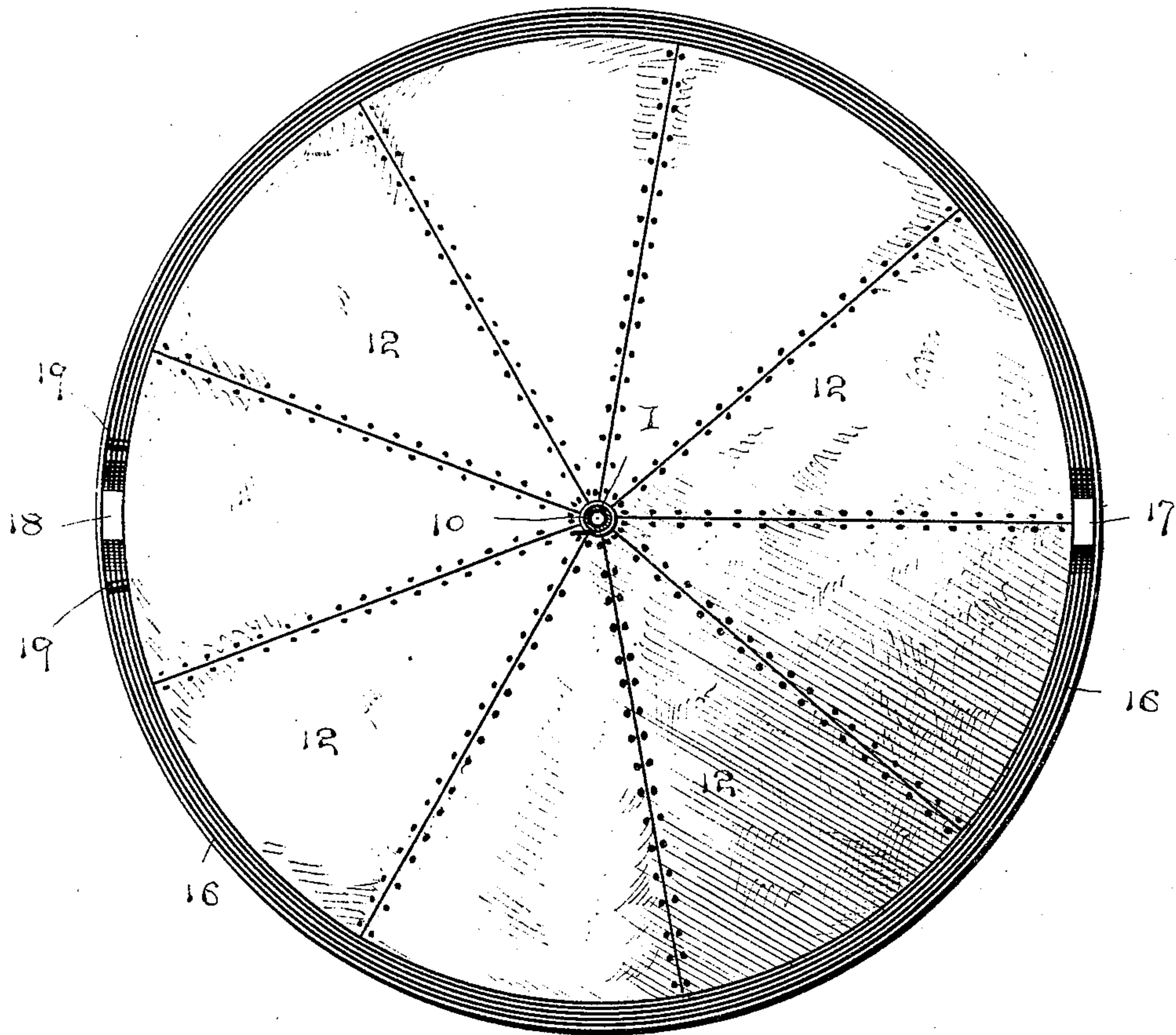
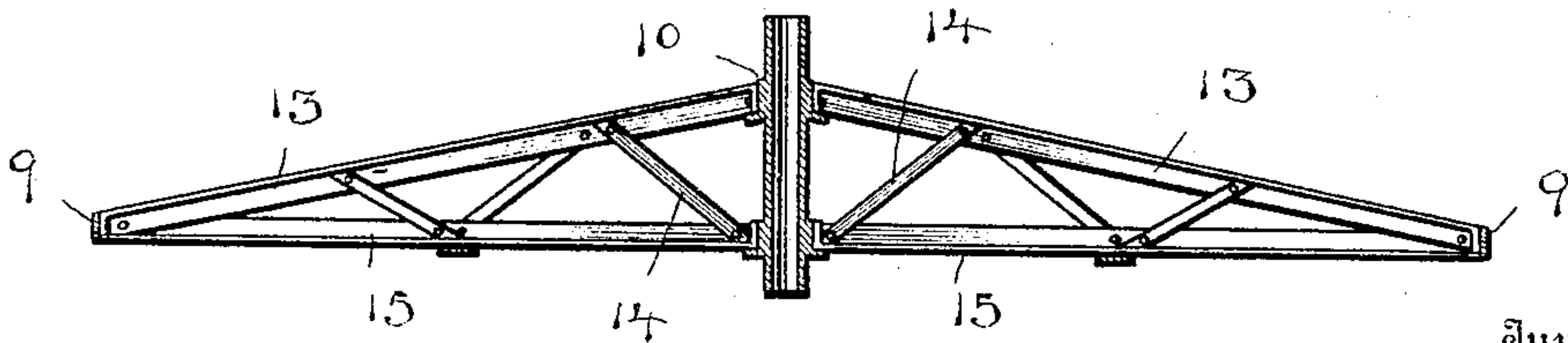


Fig. 3.



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4 SHEETS—SHEET-3.

Fig. 4.

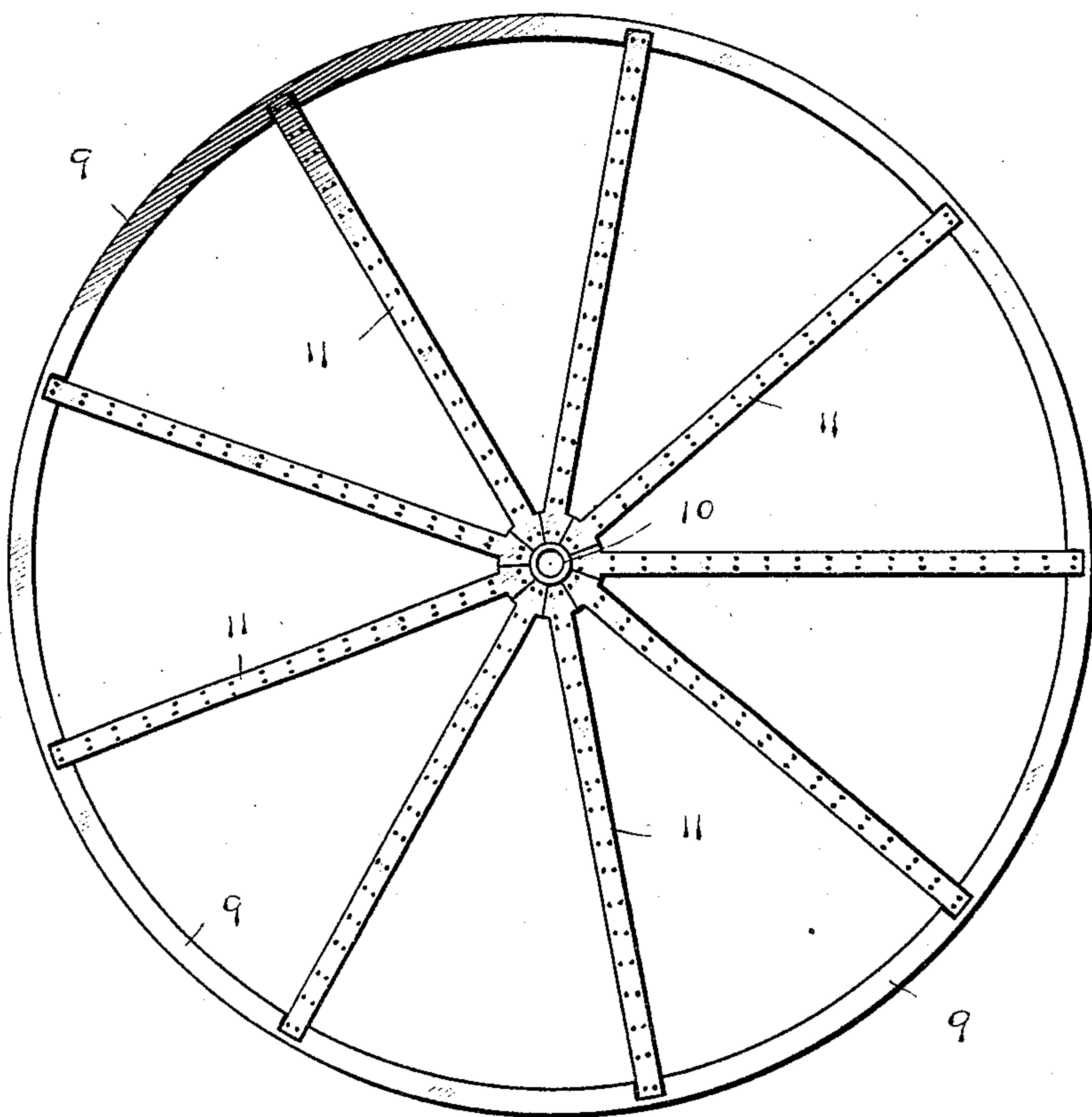
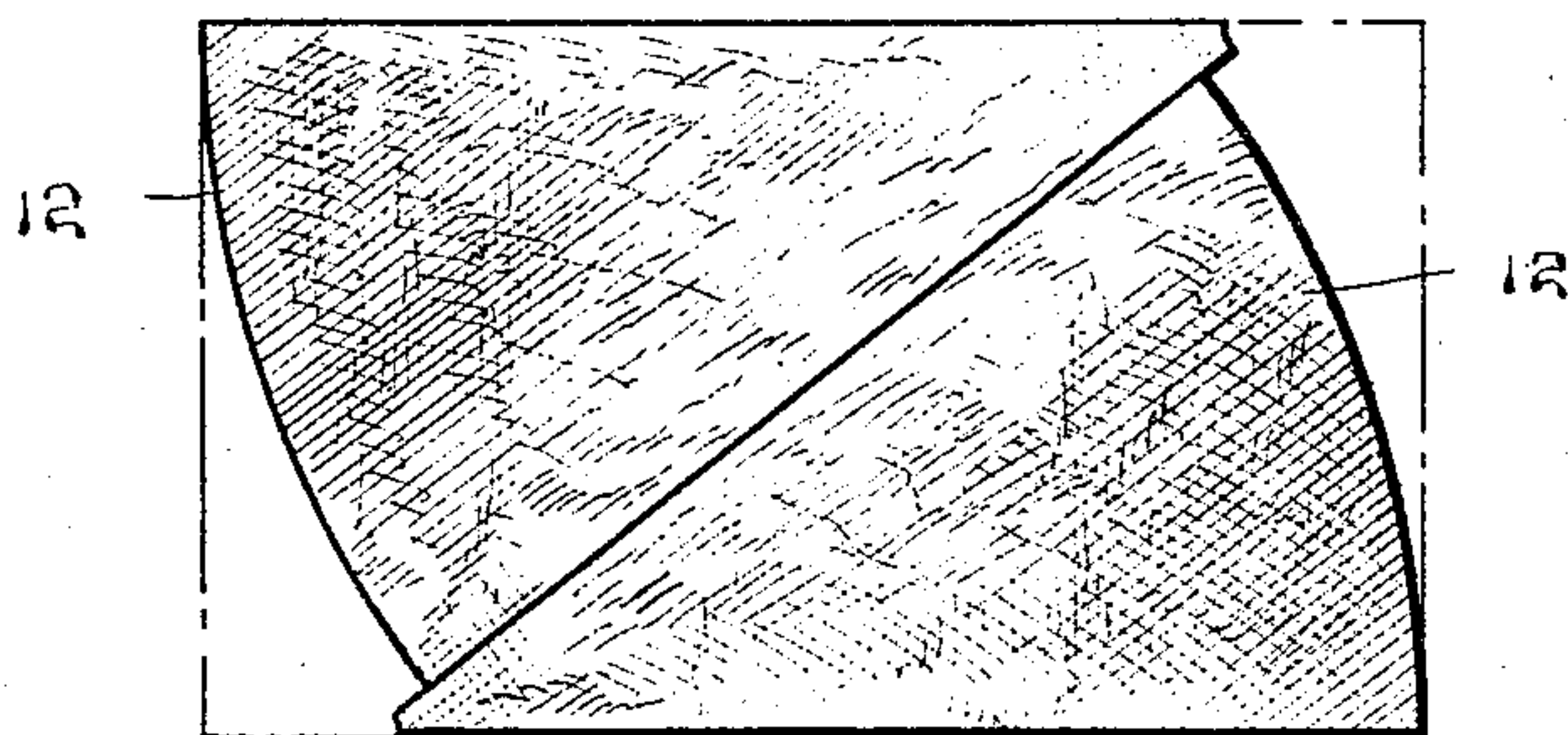


Fig. 5.



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4 SHEETS—SHEET 4.

Fig. 6.

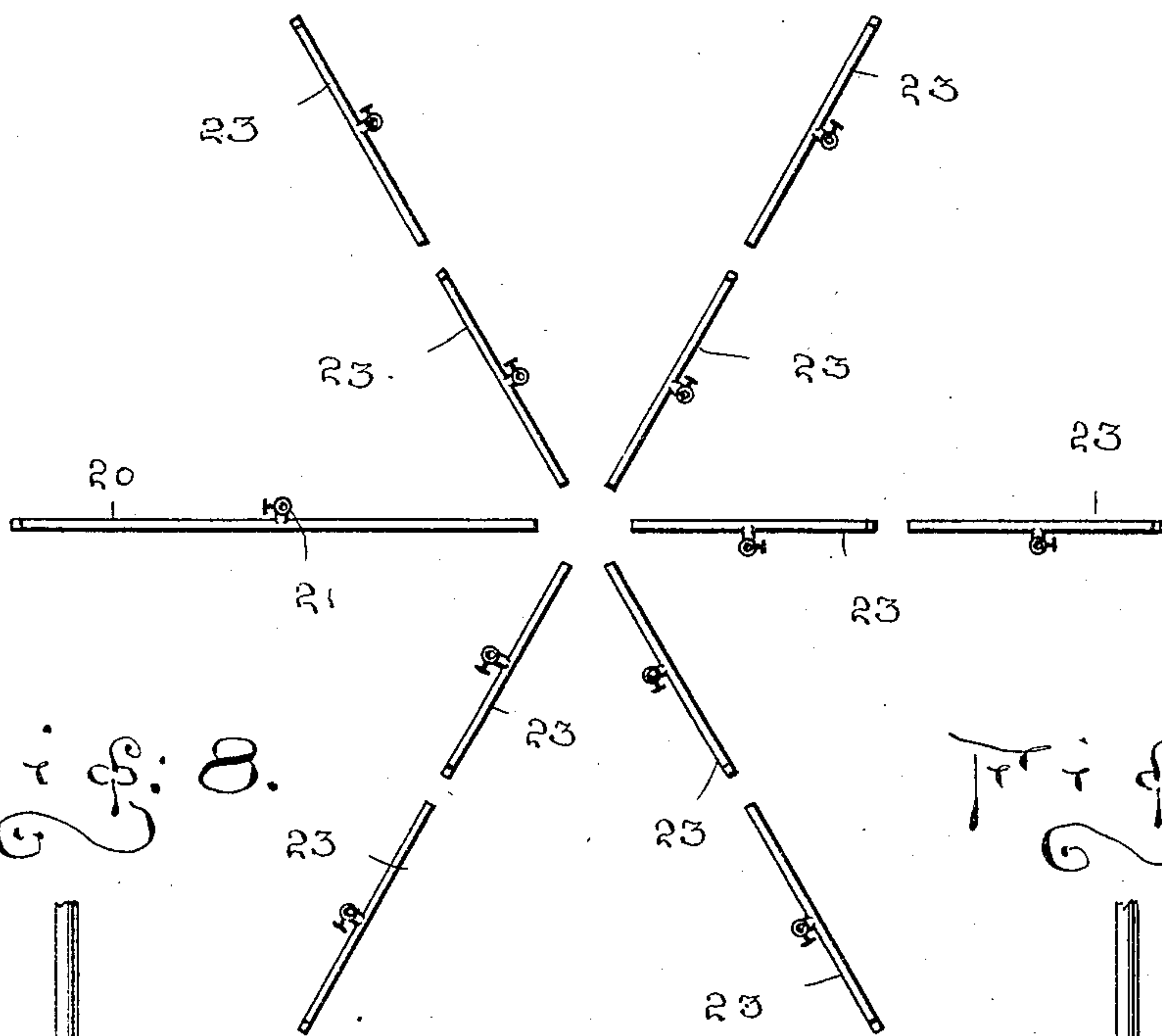


Fig. 8.

Fig. 9.

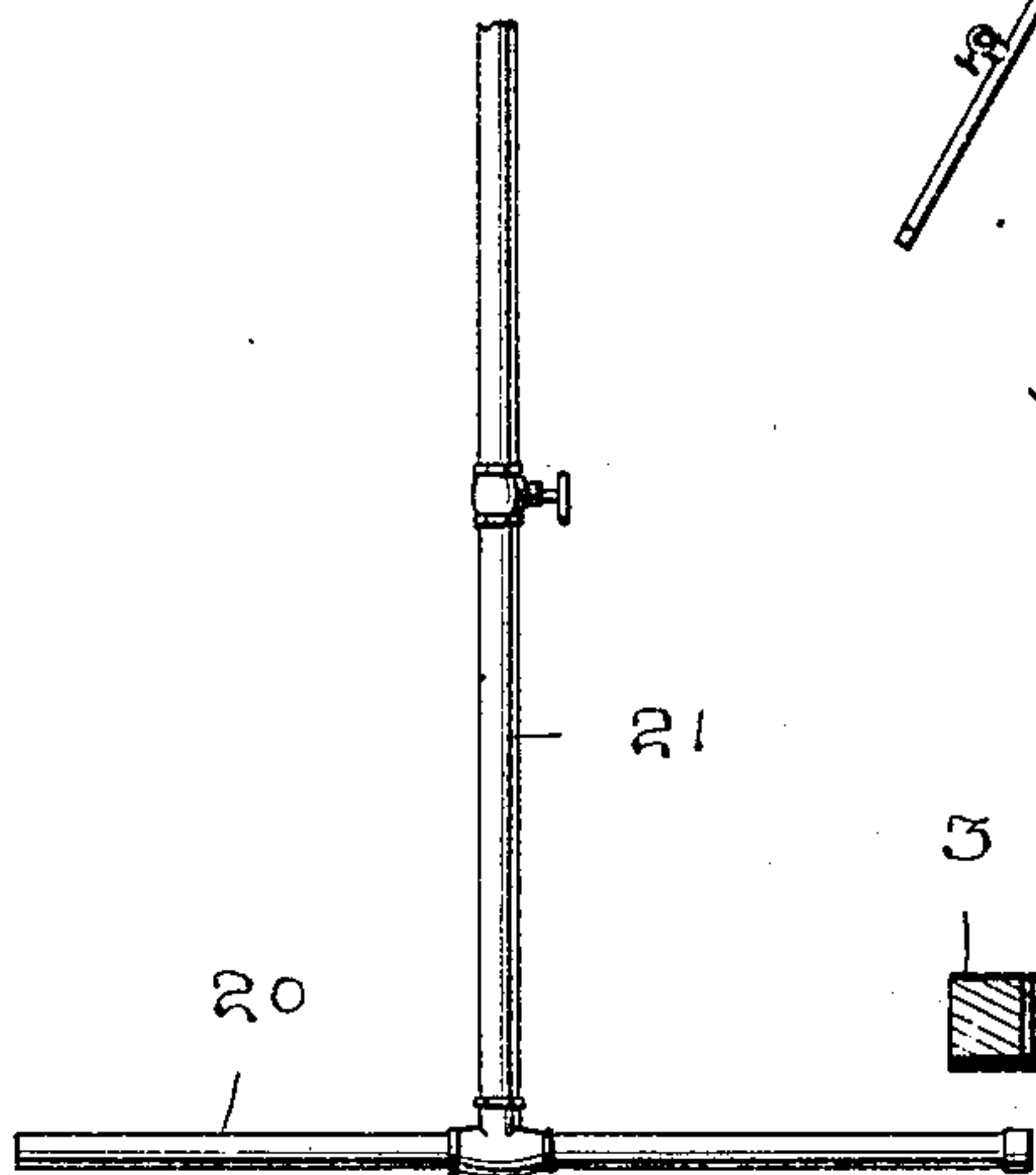
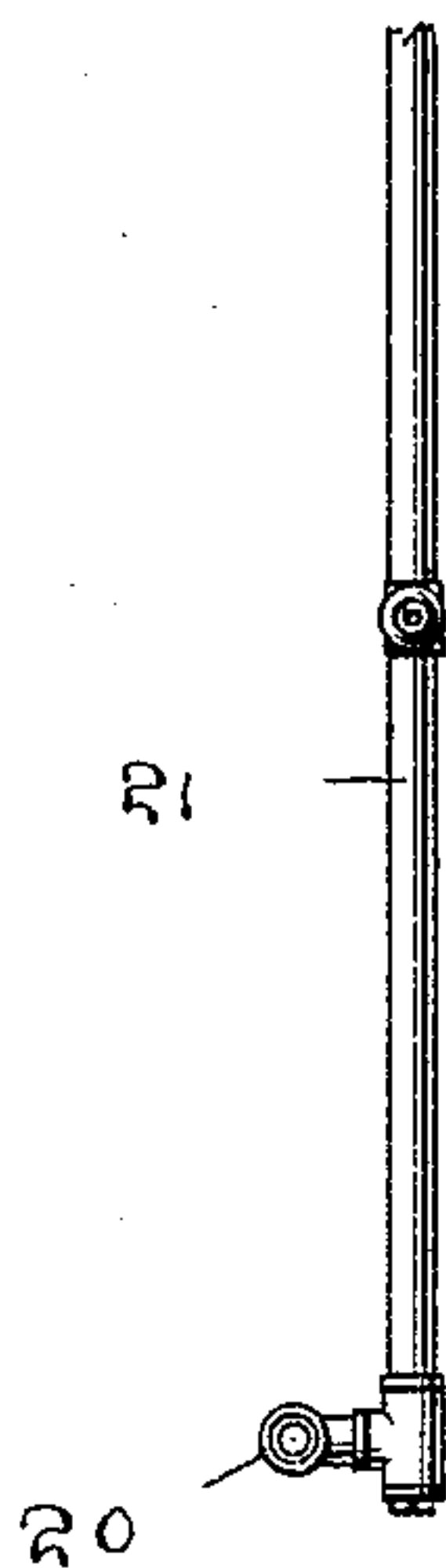
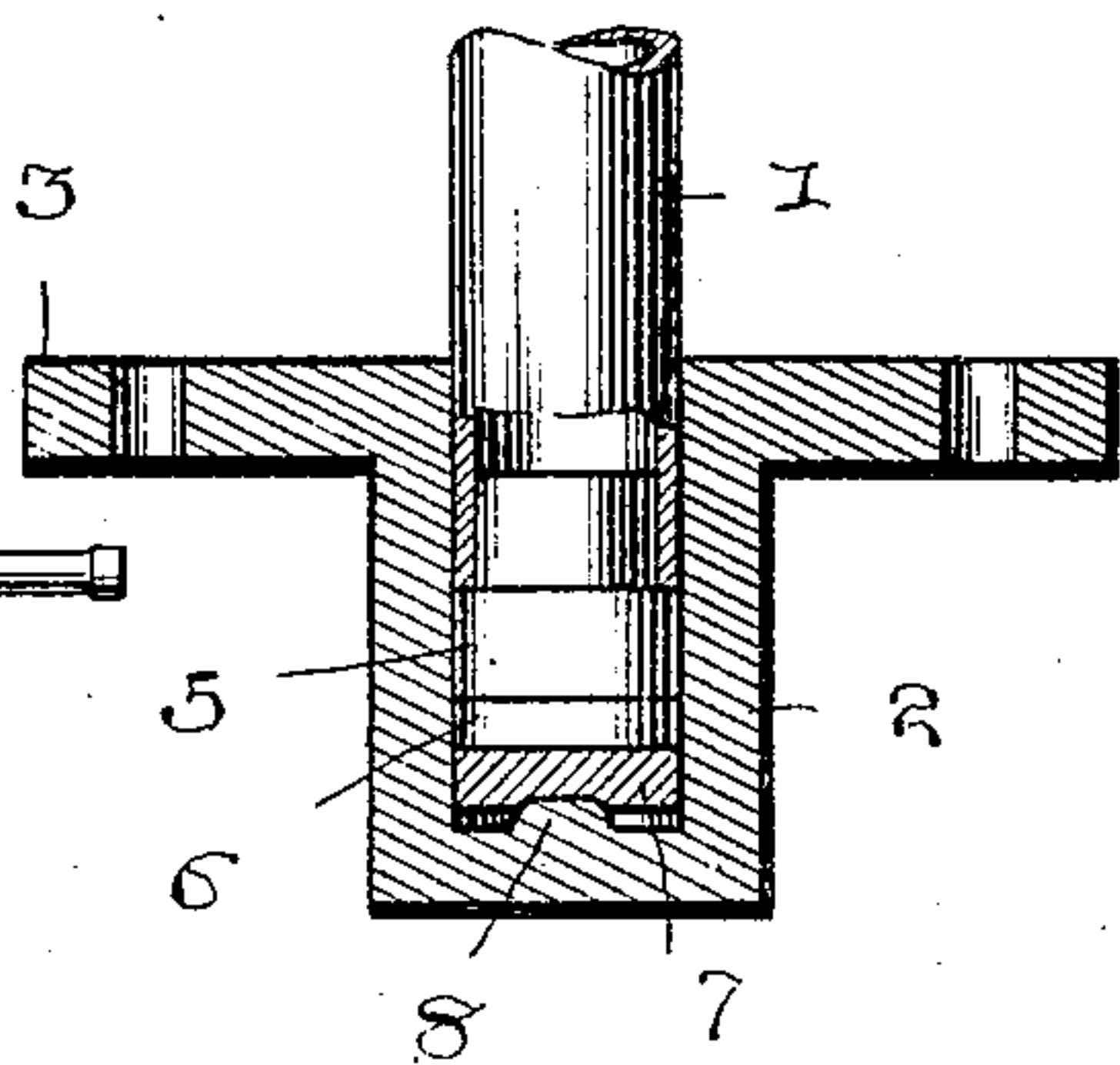


Fig. 7.



Witnesses

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# UNITED STATES PATENT OFFICE.

CHARLES W. DENISON, OF DENVER, COLORADO.

## BUDDLE.

SPECIFICATION forming part of Letters Patent No. 774,048, dated November 1, 1904.

Application filed July 29, 1902. Serial No. 117,496. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES W. DENISON, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented new and useful Improvements in Buddles, of which the following is a specification.

My invention relates to new and useful improvements in buddles for washing the tailings of ore-concentrators and other reduction-works; and the object is to provide an effective device of simple construction, large capacity, and which can be operated at slight cost.

A further object is to employ means for rapidly and thoroughly cleaning the device.

Another object is to provide a revolving buddle having a working surface of inexpensive and novel construction, whereby the finest particles of metal deposited thereon are saved.

With the above and other objects in view the invention consists in providing a rotary conical table surrounded by a stationary trough adapted to receive the waste from the table. A duck covering is provided for the table, and means are provided for washing off the concentrates and for cleaning the table.

The invention also consists in providing a novel arrangement of these rotary buddles, each of which is adapted to wash the ore, which is finally discharged in a finished condition.

The invention also consists in the further novel construction and combination of parts hereinafter more fully described and claimed, and illustrated in the accompanying drawings, showing one form of my invention, and in which—

Figure 1 is an elevation of a buddle constructed in accordance with my invention. Fig. 2 is a plan view of one of the rotary tables of the buddle and its trough. Fig. 3 is a section through the table. Fig. 4 is a plan view of one form of table with its duck cover removed. Fig. 5 is a view showing the manner in which the sections of the duck cover may be cut from a strip of material. Fig. 6 is a plan view of the wash-off and cleaning sprays. Fig. 7 is

a section through the end bearing of the shaft of the tables. Fig. 8 is a front elevation of a spray. Fig. 9 is a side elevation thereof.

Referring to the figures by numerals of reference, 1 is a vertical shaft, bearing at its lower end within a cylindrical box or step 2, having laterally-extending arms 3, adapted to be secured in any desired manner to horizontal beams or floor-joists 4 and mounted upon a suitable foundation or support. The end bearing of the shaft comprises, preferably, a hardened steel foot 5, fitted in the end of shaft 1 and resting upon a bronze block 6, which is loosely placed and can rotate upon a steel disk or shoe 7, resting loosely upon a lug 8, formed or cast within the inner end of step or cylinder 2. The shaft 1 is preferably tubular, and, as before stated, the foot 5 is adapted to fit securely in the end thereof.

A conical buddle-table is secured to and extends around the shaft 1. This table, as shown in Fig. 4, comprises a rim 9, connected to a hub 10 by means of inclined T-iron beams or spokes 11. V-shaped strips of canvas or ducking 12 are adapted to be secured to the inclined spokes 11 in any suitable manner, and they form the working surface of the buddle-table. These cloth segments 12 are preferably cut from a strip of material in the economical manner shown in Fig. 5. Wooden girths are inserted between the spokes 11 and provided with a wood covering, and the duck segments 12 extend over this solid table. Inclined T or angle irons 13 are preferably arranged upon the under surface of the table and are secured, by means of suitable braces 14, to horizontal T or angle irons 15. In this manner the table is held rigidly in position upon the shaft 1 and is prevented from sagging. The hub 10 of the table is secured to the shaft 1 in any suitable manner, so that the two will revolve in unison.

A circular stationary trough 16 is arranged under the outer edge of the table and is provided at opposite sides with outlets 17 and 18, respectively. On each side of one of these outlets 18 is provided a partition 19, and these partitions serve to prevent the contents of



the trough 16 from passing outward through said outlet 18, the said circular trough increasing in depth from these partitions to outlet 17 to facilitate the discharge of waste material. An inclined spray-pipe 20 is arranged above the table and extends from a point adjacent to the outlet 18 up to the shaft 1. This spray-pipe is supported from a supply-pipe 21 and is preferably provided with suitable adjustable braces and turnbuckles 22, whereby the same is adjusted and held rigidly in position. Smaller inclined spray-pipes 23, which can be turned and tilted at any angles required, are suspended at suitable intervals above the table and are adapted to be used for cleaning the same.

Rotary motion is imparted to the shaft 1 and the table secured thereto in any desired manner. In Fig. 1 I have shown the shaft provided with a large bevel-gear 24, which is driven by a smaller gear 25, mounted upon a horizontal shaft 26. This shaft may be operated in any desired manner.

A chute or launder 27 is arranged above the table hereinbefore described and is adapted to conduct tailings from an ore-concentrator or other mill or source to the apex of the buddle-table. Similar chutes 28 and 29 are arranged below the outlets 17 and 18, respectively, chute 28 being adapted to conduct the waste materials from the buddle, while chute 29 conducts the values from the table down to the apex of a smaller table 30, of similar construction and mounted upon the shaft 1. This table is likewise provided with wash-off and cleaning sprays 31 and 32, respectively, and is encircled by trough 33 of a similar construction to trough 16 and having outlets 34 and 35. A chute 36 extends from the outlet 34 and is adapted to conduct the waste material from the apparatus, and a suitable spout 37 is arranged below outlet 35 for discharging the values into any suitable receptacle, as an ore-car 38.

A portion or all of the tailings from an ore-concentrator or other reduction-mill, gold-washer, ground-sluice, stamp-mill, cyanid or chlorination plant are, as hereinbefore stated, discharged upon the table of my improved buddle at a point adjacent to the apex thereof. The shaft 1 is so geared as to revolve very slowly—for example, about one revolution in from one to three minutes. The material is thus spread over the inclined surface of the table, and the duck covering 12 is adapted to retain any small particles of ore which may be deposited thereon. As the material arrives under the spray 20 it is washed down into the discharge 18, from which it is conveyed, by means of chute 29, to the apex of the lower buddle-table 30, where it is treated in a similar manner, and the finished material

is finally washed into the discharge-outlet 35 by the spray 31.

In lieu of arranging the lower table 30 upon the shaft 1 it can, if desired, be mounted upon a separate shaft adapted to be revolved in unison with the shaft 1. This construction would become necessary where the inclined ground upon which the buddle is erected is not sufficiently steep to enable the tables to be placed at the requisite distance one below the other.

In the foregoing description I have shown the preferred form of my invention; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or sacrificing any of the advantages thereof, and I therefore reserve the right to make all such changes as fairly fall within the scope of my invention. I do not confine myself to the use of duck or canvas; but to suit various conditions any cloth or textile fabric—such as burlap, carpeting, gunny-cloth, or cocoa-matting—may be substituted if found more suitable for the particular mineral being treated.

Having thus described the invention, what is claimed as new is—

In a buddle, the combination with a vertical shaft, and means for rotating the same; of similar tables of different sizes secured to and revoluble with the shaft, each table comprising a hub, a circular rim, spokes connecting the rim and hub, V-shaped strips of canvas secured upon the spokes, the grain of said canvas forming pockets for the reception of flour-gold, a stationary circular trough under the edge of each table and having oppositely-disposed outlets, partitions within the troughs at opposite sides of one of the outlets, the bottom of the trough being inclined downward from the partitions to the outlet farthest removed therefrom, means for supplying material to the center of the upper table, a chute extending from one of the outlets of each trough to a waste-receiver, a chute extending from the other outlet of the upper trough to the center of the lower table, an outlet-spout depending from the other outlet of the lower trough, independently-adjustable spray-pipes suspended above the tables for cleaning the same, and an adjustable spray-pipe above each table and alining with the trough-outlet located adjacent the partitions within the trough, said pipe being adapted to direct flour-gold from the tables and between the partitions.

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

CHARLES W. DENISON.

Witnesses:

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H. HERSCHBERGER.