

No. 763,067.

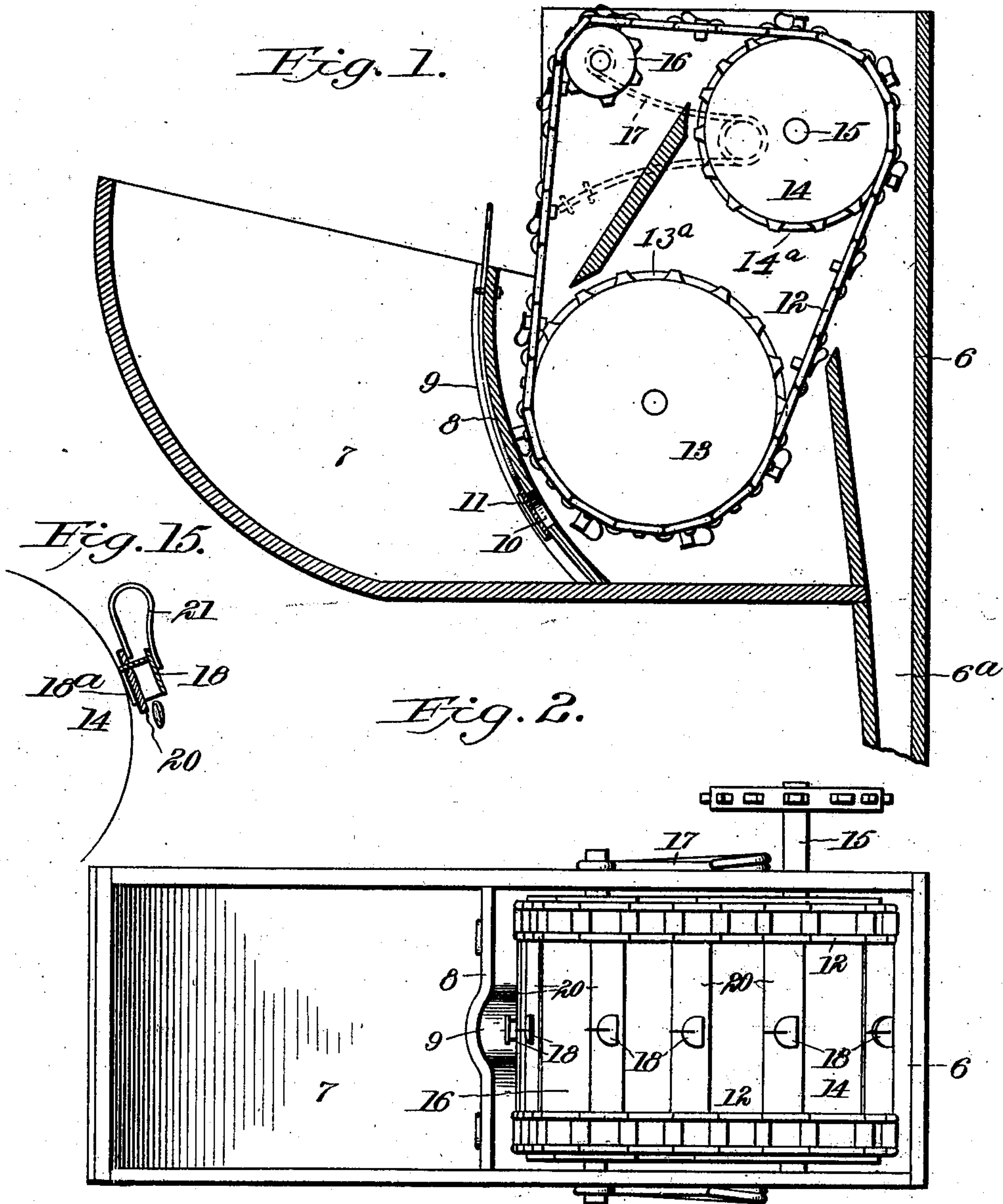
PATENTED JUNE 21, 1904.

F. L. MORGAN.
FEEDER FOR SEEDERS.

APPLICATION FILED SEPT. 16, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



WITNESSES:

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3 SHEETS—SHEET 2.

Fig. 3.

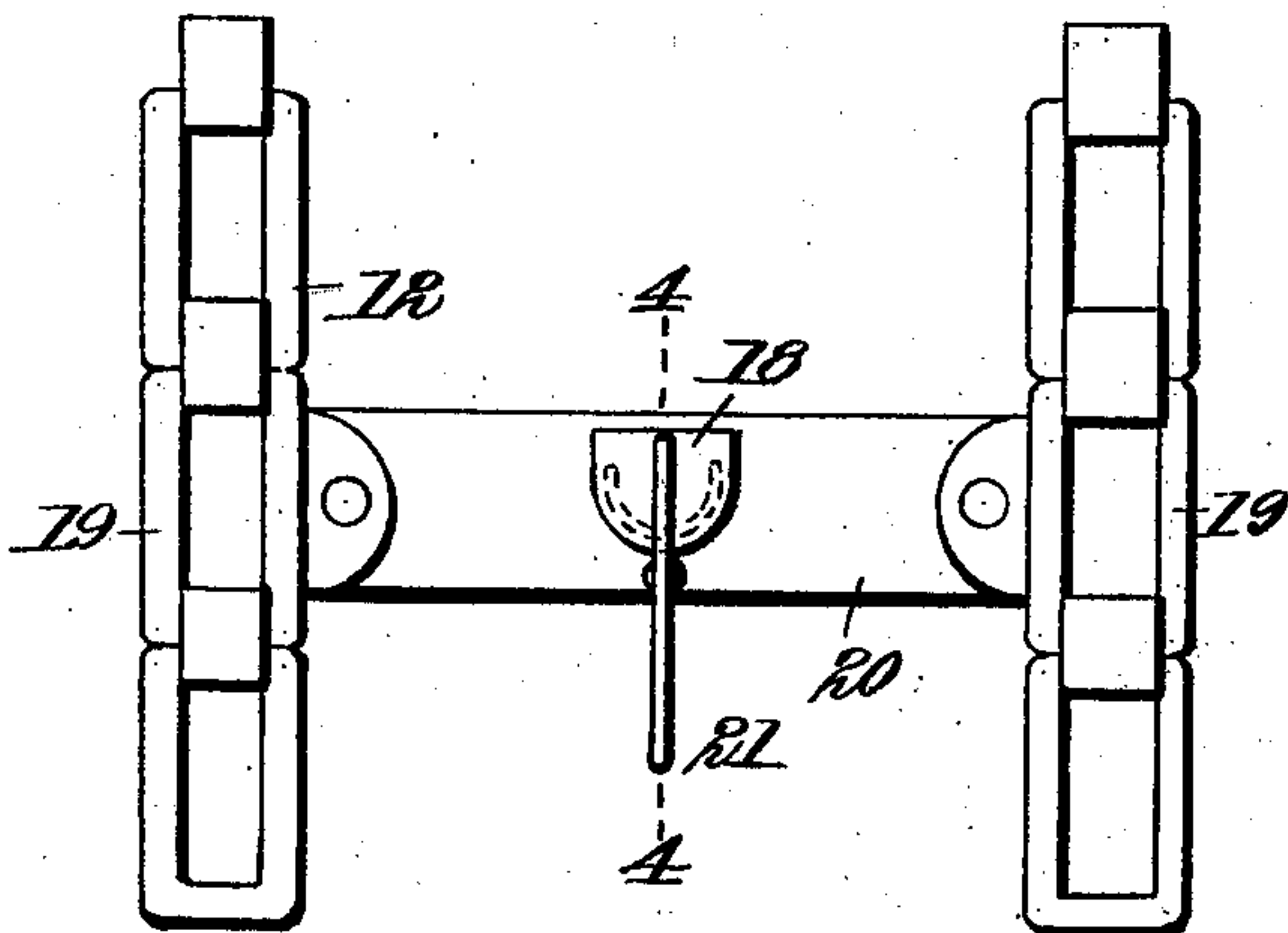


Fig. 4.

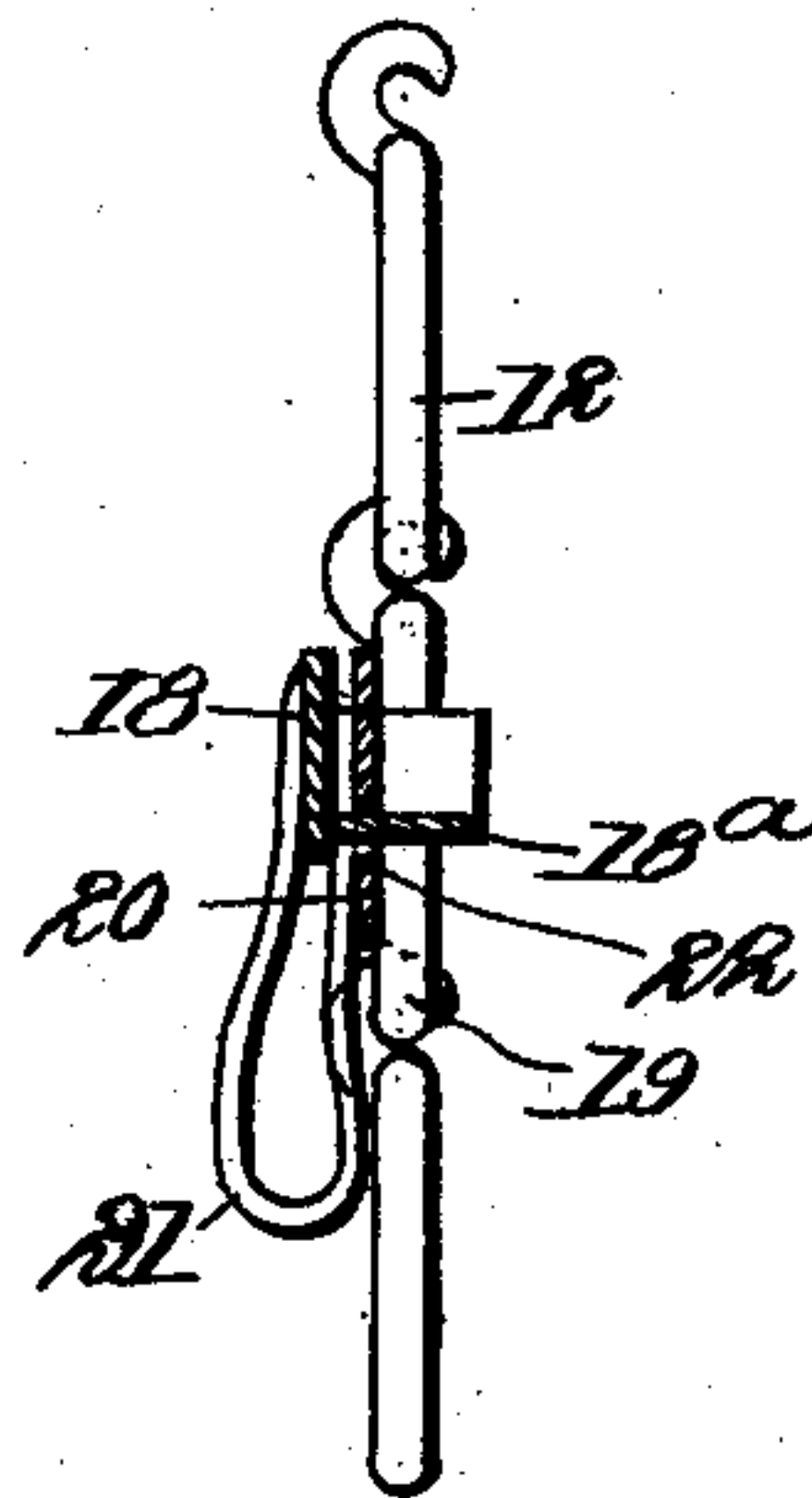


Fig. 5.

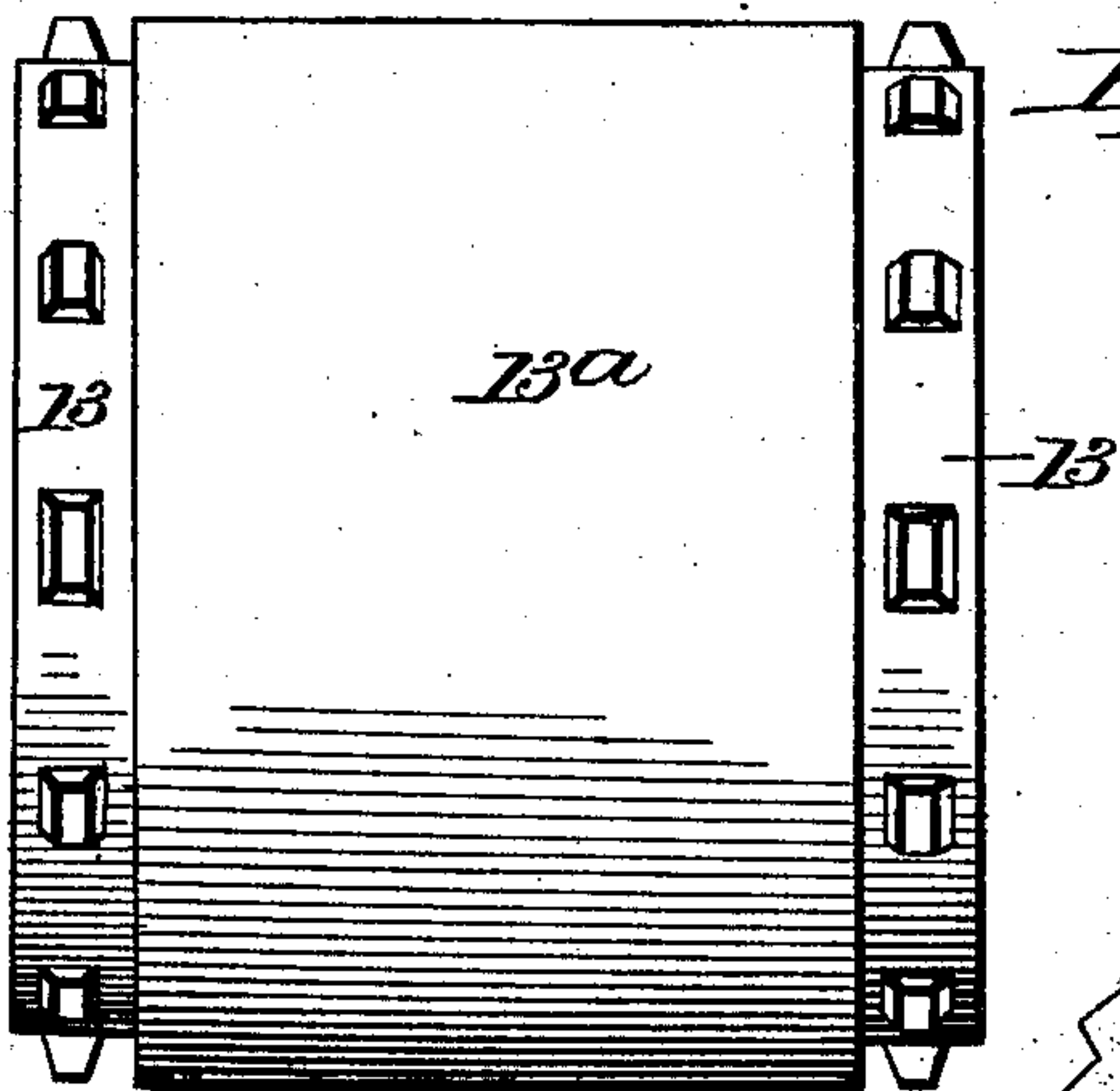


Fig. 6.

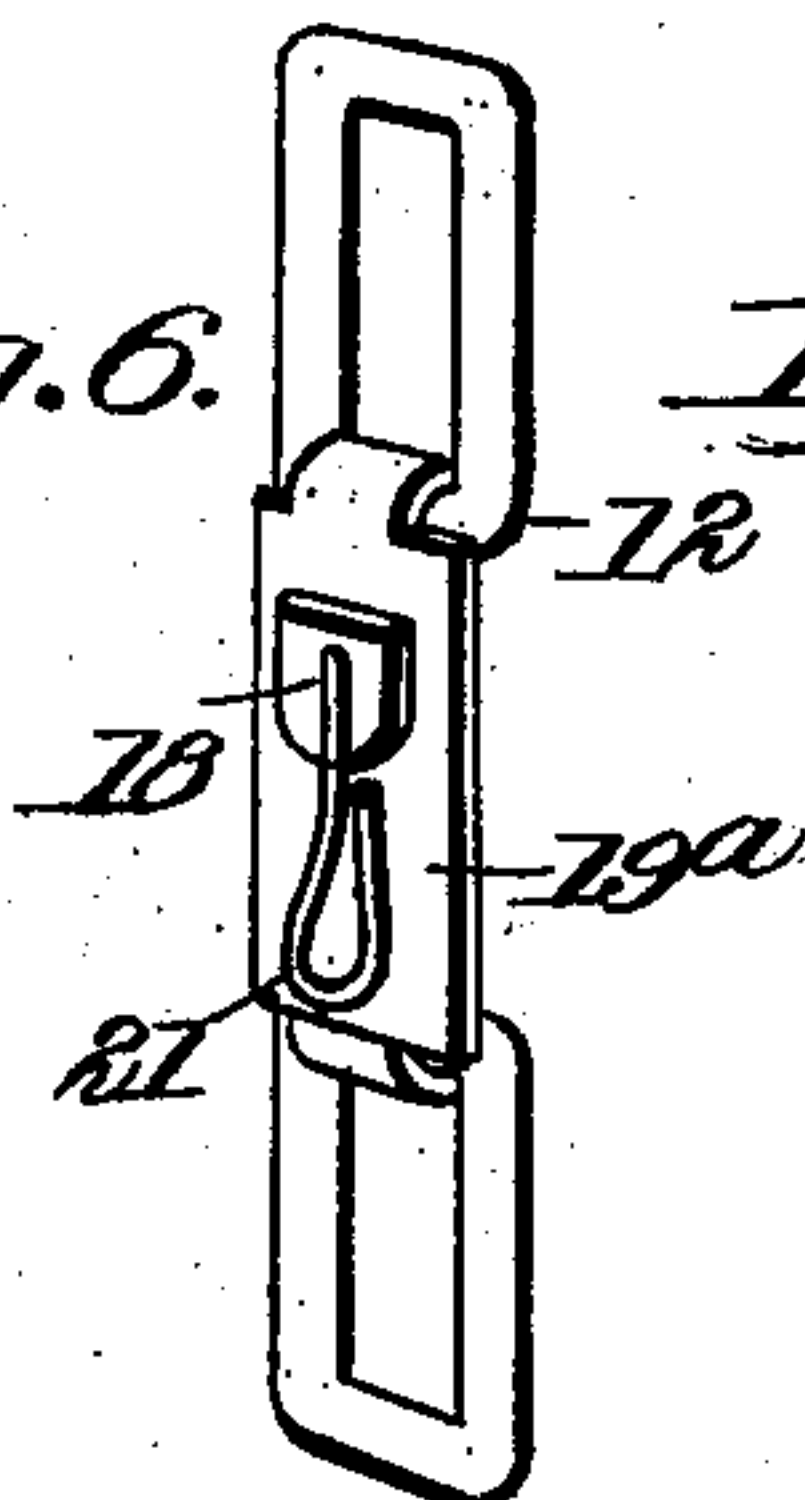


Fig. 7.

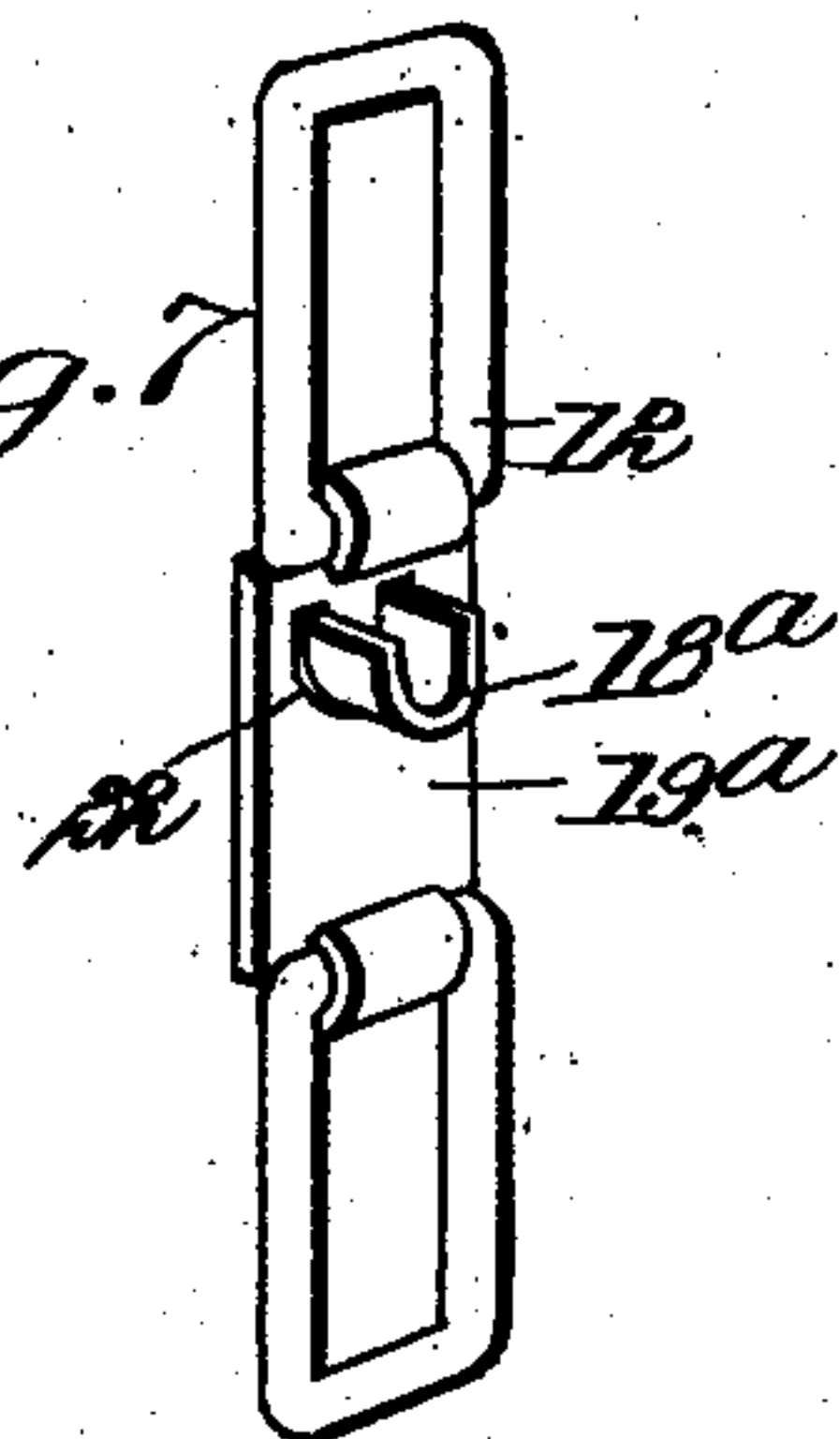
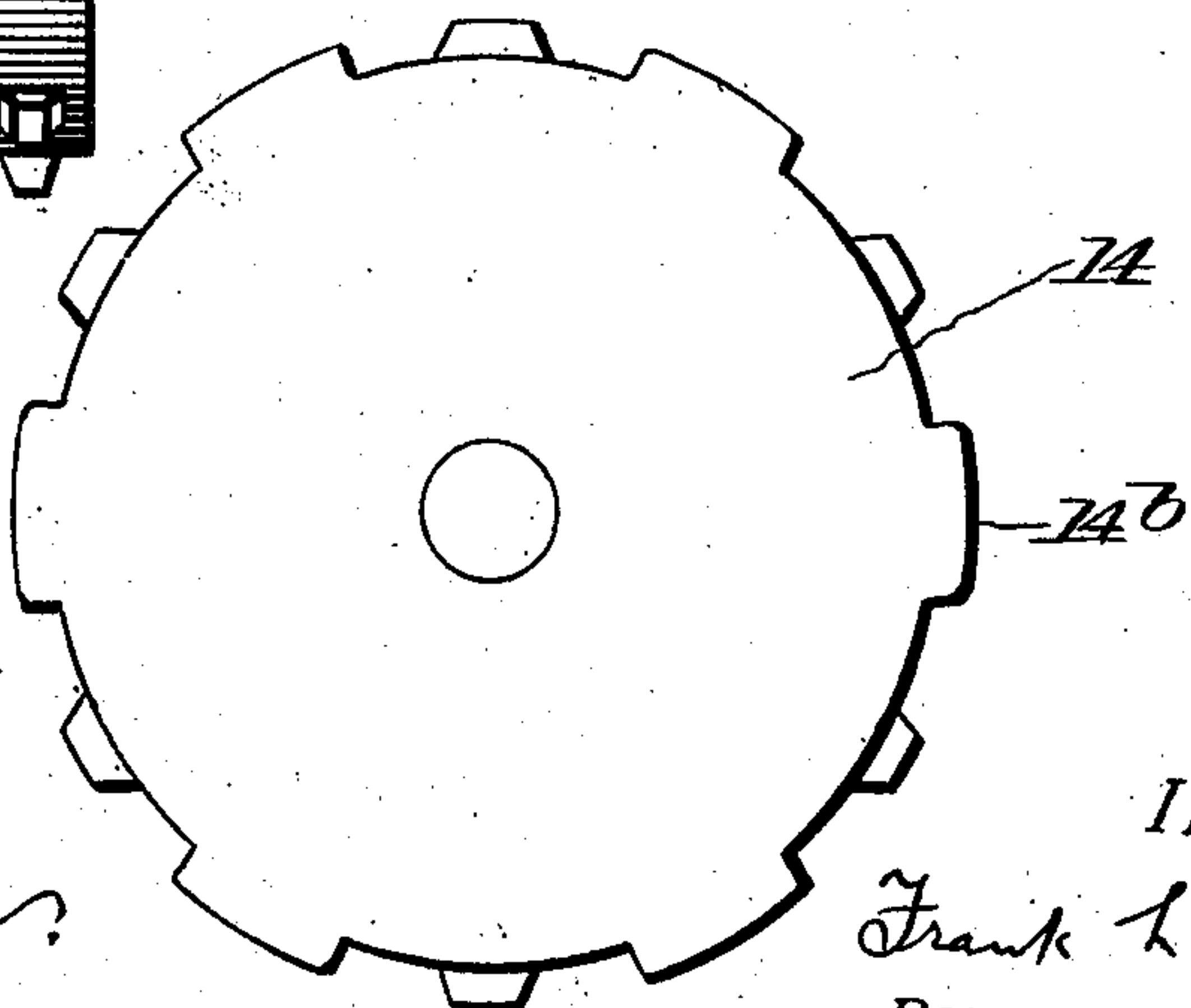


Fig. 8.



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3 SHEETS—SHEET 3.

Fig. 9. Fig. 10.

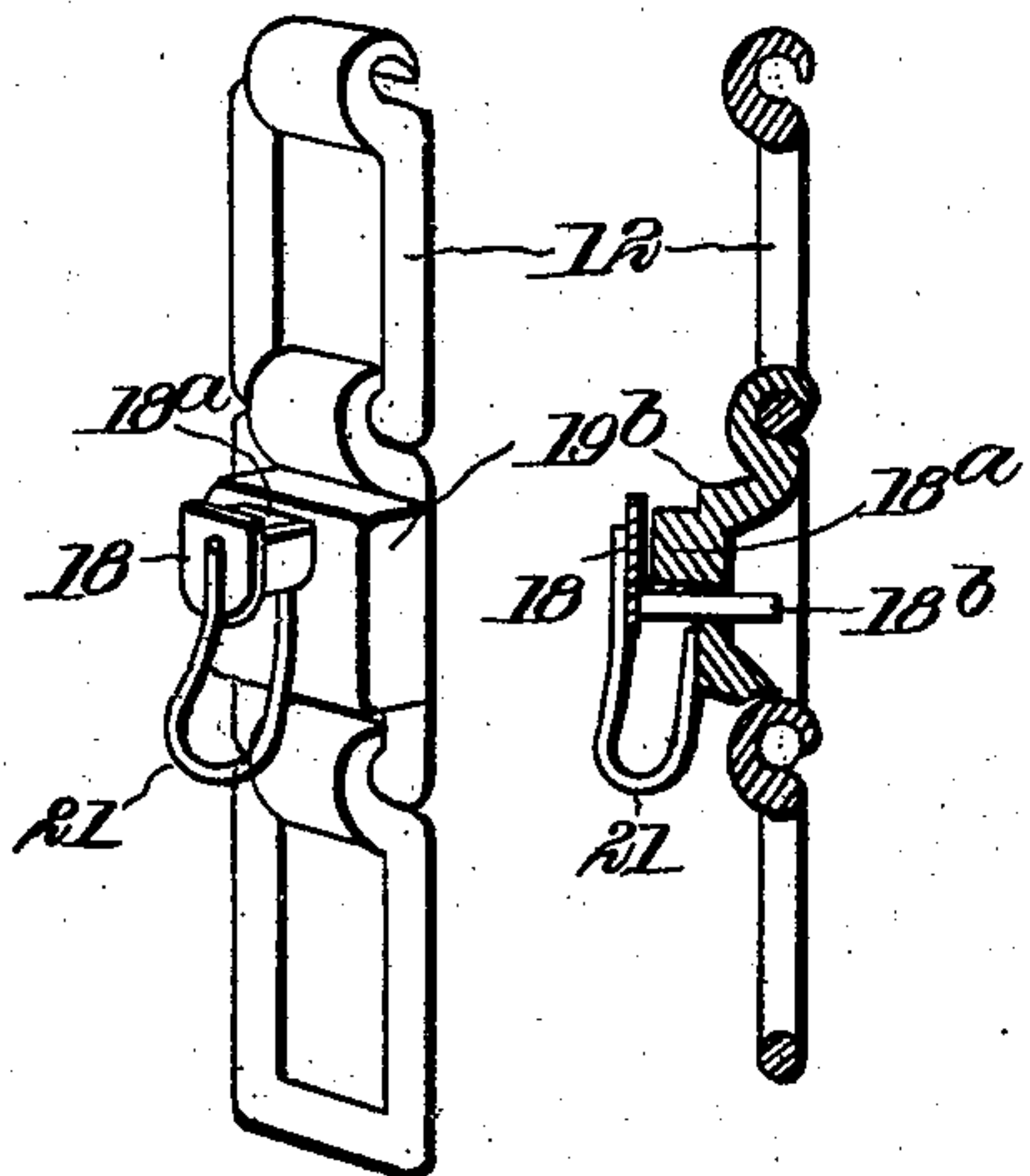


Fig. 11.

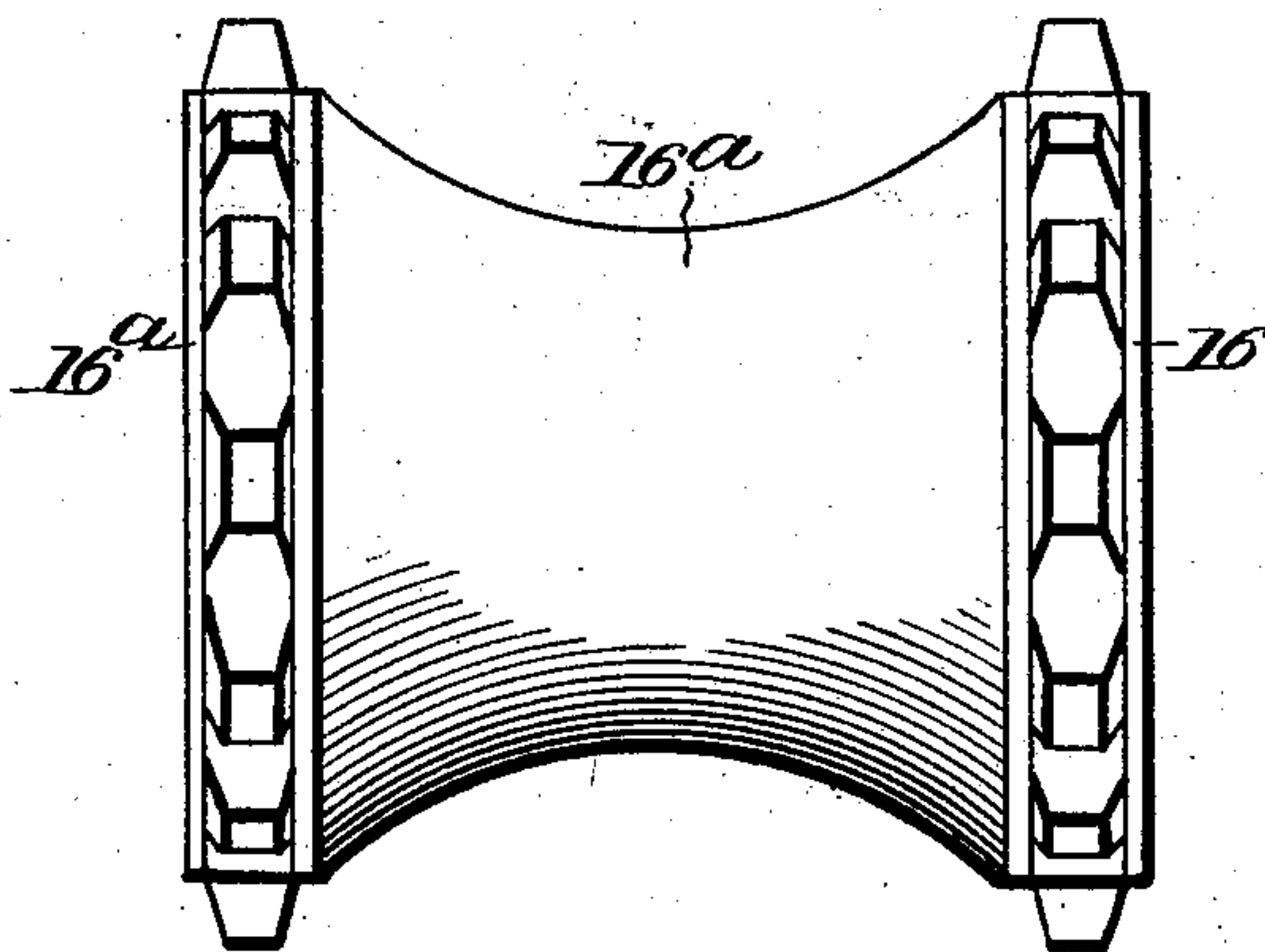


Fig. 12.

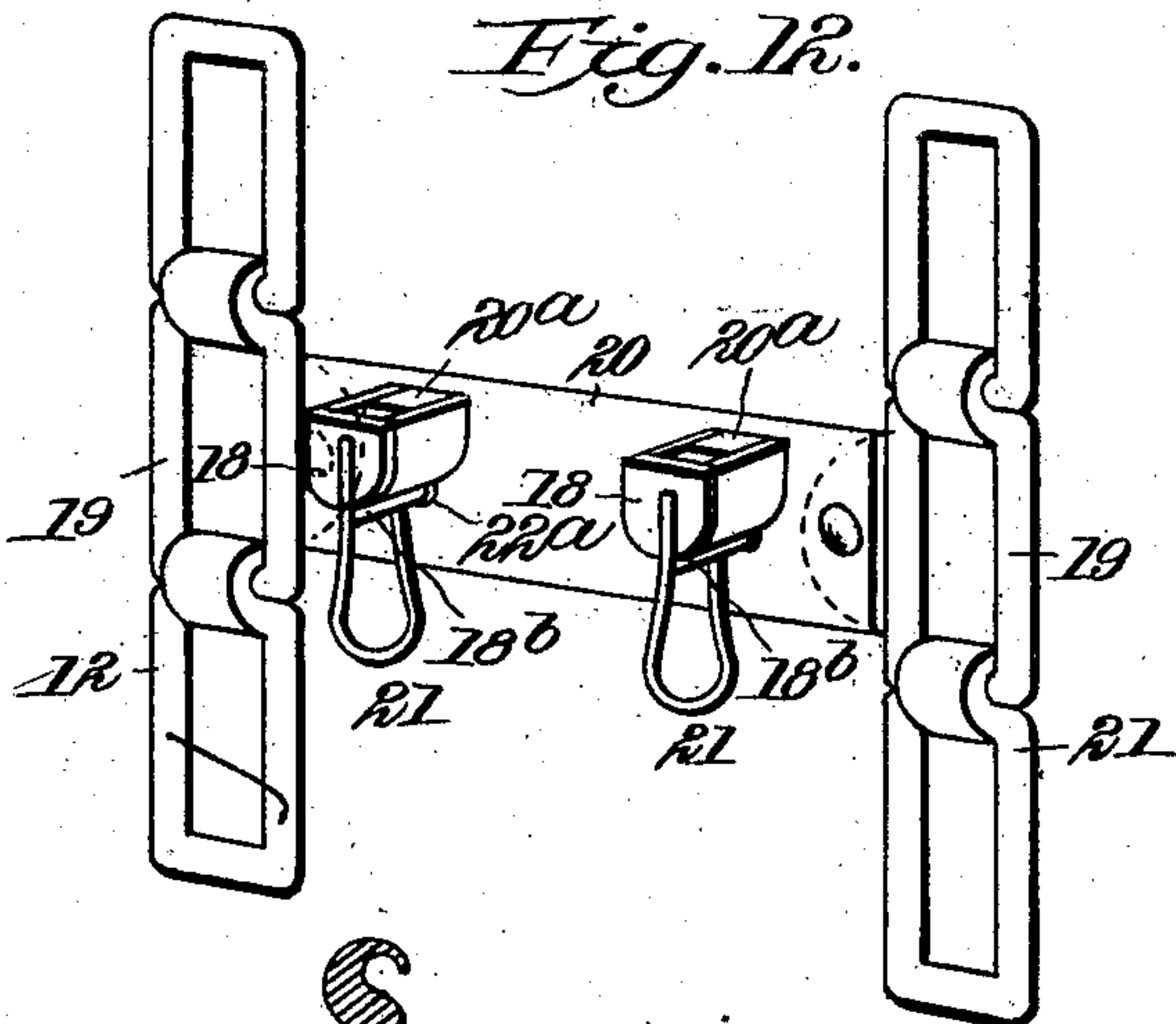


Fig. 13.

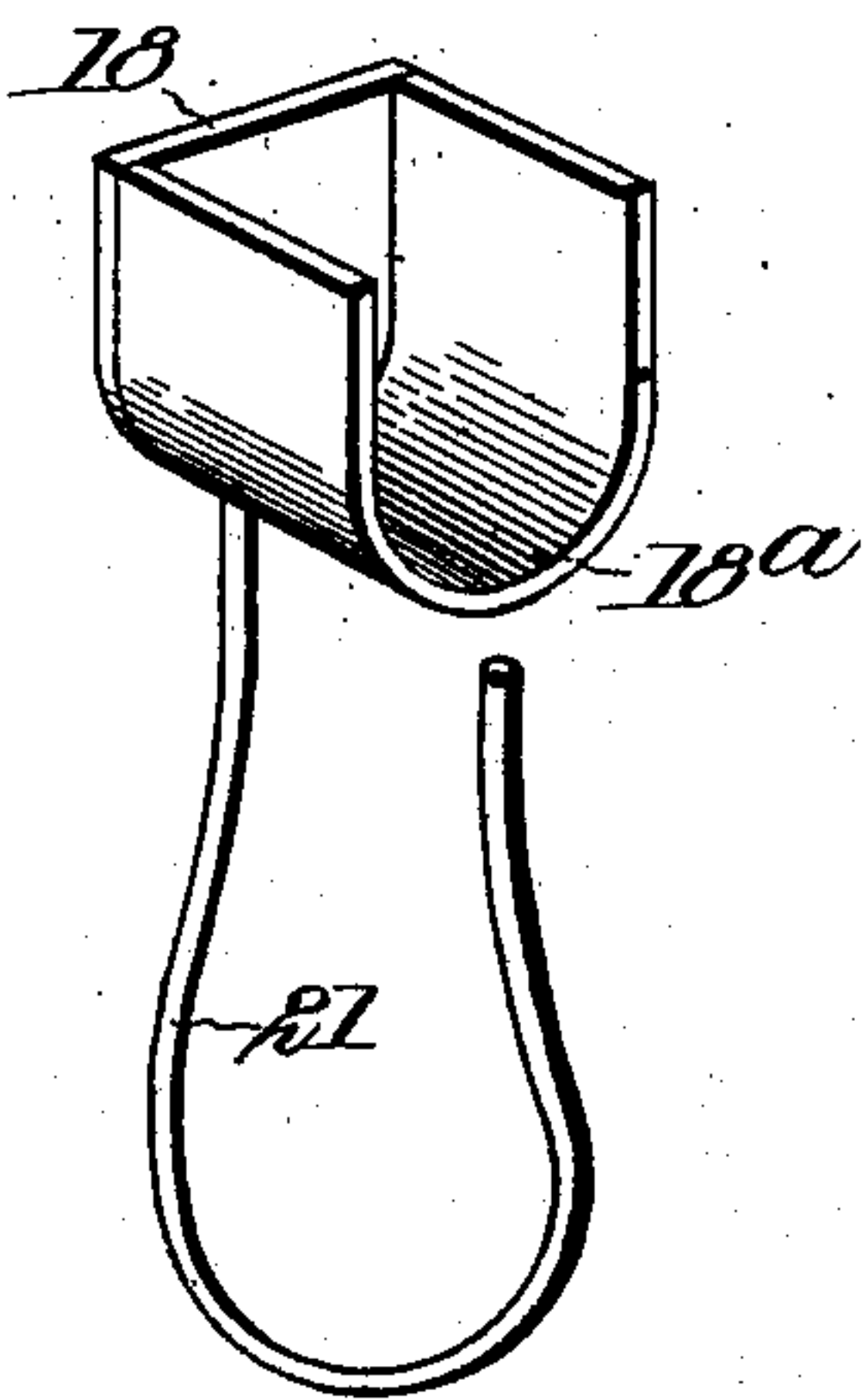
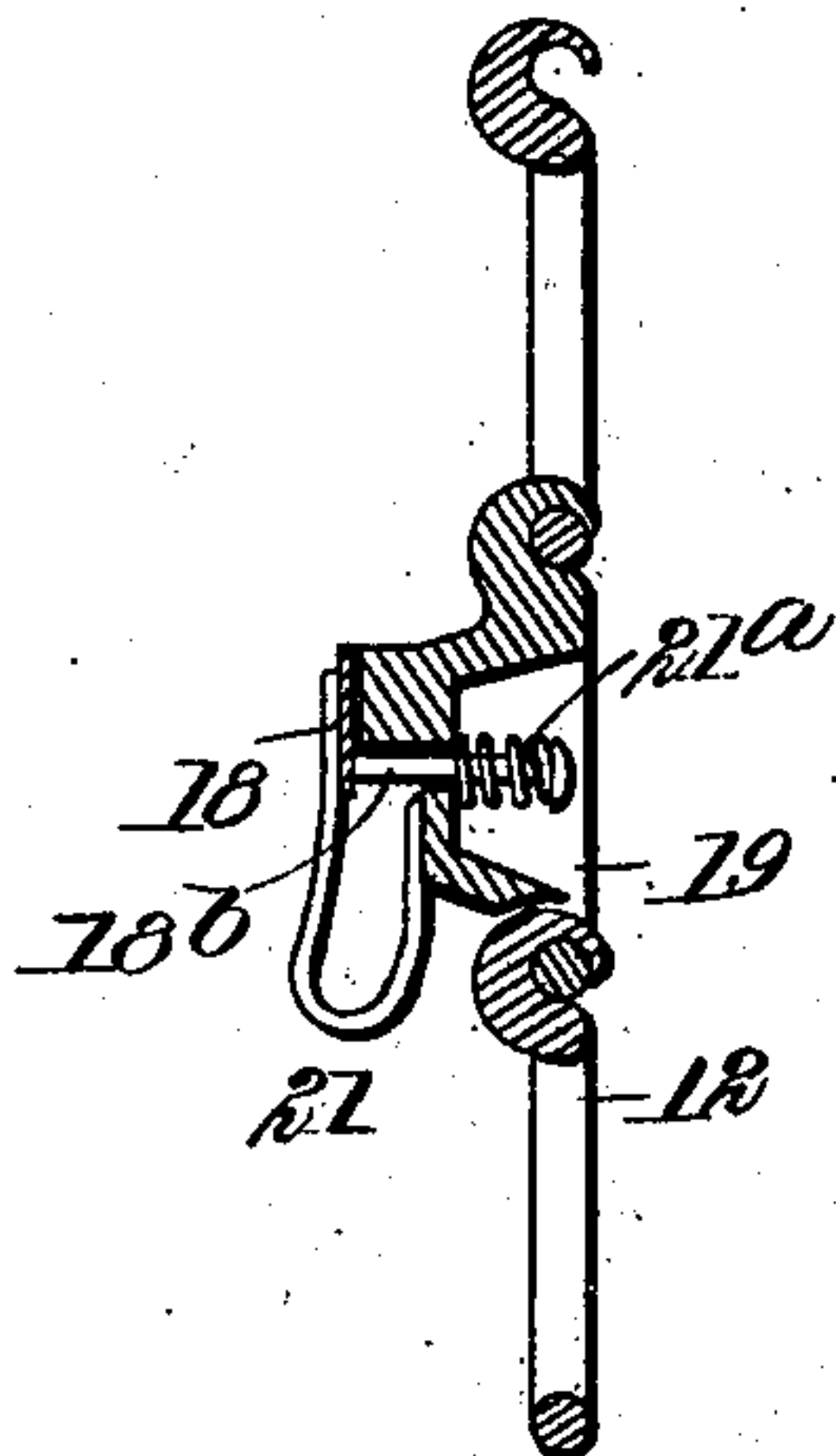


Fig. 14.



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UNITED STATES PATENT OFFICE.

FRANK L. MORGAN, OF GLADSTONE, ILLINOIS.

FEEDER FOR SEEDERS.

SPECIFICATION forming part of Letters Patent No. 763,067, dated June 21, 1904.

Application filed September 16, 1903. Serial No. 173,395. (No model.)

To all whom it may concern.

Be it known that I, FRANK L. MORGAN, a citizen of the United States, residing at Gladstone, in the county of Henderson and State of Illinois, have invented new and useful Improvements in Feeders for Seeders, of which the following is a specification.

This invention relates particularly to feeders for seed-planters, and has for its object to provide an improved construction for picking up seed from the seedbox and dropping the same through the spout which leads to the planter-shoe.

It comprises a chain belt carrying cups, and is characterized particularly with respect to the operation of the cups to pick up and deliver the grain.

Various modifications are illustrated and described herein, embodying the idea of a cup which will open to pick up the grain, hold the grain by spring-pressure during the travel of the chain, and finally open and deliver the grain down the spout.

In the accompanying drawings, Figure is a vertical section of the feeding-box of a planter provided with my improvement. Fig. 2 is a top plan view thereof. Fig. 3 is a detailed plan of a part of the chain. Fig. 4 is a section thereof on the line 4 4 of Fig. 3. Fig. 5 is a side view of a roller used with the chain illustrated in Fig. 3. Figs. 6 and 7 are perspective views of a different or modified form of chain. Fig. 8 is a side elevation of a sprocket-wheel used with the chain shown in Figs. 6 and 7. Fig. 9 is a perspective view of a modified form of chain. Fig. 10 is a sectional view thereof. Fig. 11 is a side view of an idler-pulley, around which the chain passes. Fig. 12 is a perspective view of still another form of chain carrying cups. Fig. 13 is an enlarged perspective view of one of the cups, and Fig. 14 is a sectional view of another modification. Fig. 15 is a view illustrating the cup in the act of discharging the seed.

Referring specifically to the drawings, the casing of the feeding devices is indicated at 6 and the seedbox at 7. The partition 8 between the casing and feed-box is slightly dished to a middle groove 9 and has openings 10, through which the seed is fed, these

openings being controlled by sliding valves 11 under suitable control to regulate the flow of seed.

The feed-belt is indicated at 12, and this may be double or single, as desired. It passes around sprocket-wheels 13 and 14, one of which may be driven by suitable gearing on its shaft 15 with a driving part of the machine. The chain or chains also pass around an idler 16, the shaft of which is held by spring-arms 17, attached to the sides of the casing or box 6. The springs serve to keep the chain taut. The chain or chains carry cups 18, to be more fully hereinafter described, and the lower sprocket-wheel 13 is so positioned to the partition 8 that the cups travel up through the groove 9 and pick up such seed as may fall through the openings 10. The cups are so constructed as to grasp the seed and carry the same over the idler and upon the sprocket-wheel 14, when they are released and drop down the spout 6^a, which leads to the planter-shoe. (Not shown.) Various forms of chains and cups are illustrated in the drawings. The form shown in Figs. 2, 3, and 12 are double, and the links 19 are connected by cross-bars 20, to which the cups 18 are attached by light springs 21. A cup comprises a back piece, as shown at 18, and a curved bottom piece 18^a, producing a shape somewhat similar to a diminutive hod. The cups are held in such position by the springs 21 that the backs thereof are opposed to the bars 20, and the bottoms 18^a of the cups are adapted to work through segmental openings or slots 22 in the cross-bars 20, so that normally the pressure of the springs forces the cups inwardly or with the backs 18 in contact with the cross-bars. In the form shown in Fig. 12 instead of having the bottom of the cups work through the cross-bars 20 said cross-bars have bosses 20^a, over which the cups fit, and each cup carries a pin 18^b, which projects through a hole 22^a, formed in the cross-bar 20. In either construction the action is the same. The chains pass around the wheels, and when there are double chains there are necessarily two wheels 13 and 14, spaced apart the distance of a chain from each other. In this construction between each set of these wheels is a roller (indicated at 13^a and 14^a) of

slightly-greater size than the body of the wheels. When the chain passes around said wheels, the raised peripheries of the rollers press against the inner edges of the bottoms 5 18^a of the cups or, in the form shown in Fig. 12, against the inner ends of the pins 18^b, thereby forcing the cups outwardly from the cross-bars 20 and opening the same. When passing around the drum 13^a, the cups are 10 opened to pick up seed in the groove 9, and as soon as the chain leaves the drum the springs 21 close the cups, which grasp or grip the seed between the backs 18 of the cups and the cross-bar 20, or, if the form shown in 15 Fig. 12 be used, against the boss 20^a. The grain so held is carried with the chain around the idler and upon the drum 14^a, which by the same operation as described with respect to the drum 13^a opens the cups, which re- 20 leases the seed and allows the same to fall down the spout 6^a. It should be stated that the idler 16 is grooved circumferentially, as at 16^a, so that the cups will not be opened thereby. The cups are made of a size and 25 shape suitable to hold one grain only and may be placed on a chain in a single row, as shown in Fig. 3, in a double row, as in Fig. 12, or otherwise, as desired.

Instead of using a double chain a single 30 chain may be used, as indicated in Figs. 6, 7, 9, and 10, in which case the cups are carried on the links of the chain in a variety of ways, some of which will now be described. In Figs. 6 and 7 every other link 19 of the chain 35 is a blank, as at 19^a, and the cup is carried upon this blank in the same manner as on the cross-bars heretofore described, and its front edge works through a segmental slot or hole in the blank in the same manner as described 40 with respect to the cross-bars. With this form of chain a special form of sprocket-wheel is used, having teeth spaced twice as far apart as usual, so as to take into the open links only with a raised portion between the 45 teeth, as indicated at 14^b, Fig. 8, to contact with the bottom or pick-up of the cup and open the same. The forms shown in Figs. 9, 10, and 14 are adapted for use upon ordinary sprockets, as the links are embossed, as at 19^b, 50 forming a housing which will take the tooth of the sprocket-wheel therein and thereunder, and the cup is mounted on the top of the housing, together with the boss 18^a and pin 18^b, working through a hole in the top of the 55 housing, so that when the tooth enters the housing it will strike the pin and open the cup. Fig. 9 shows the bent-wire spring 21 on the outside of the housing. In Fig. 14 the spring is coiled around the pin 18^b, as shown 60 at 21^a, and the cup is drawn in or closed by the spring.

It will be seen that the invention provides a feed-chain for cups in which the seeds are picked up and firmly held and carried to the 65 delivery-point.

Modifications may be made in the number and form of the cups and other parts of the mechanism without departing from the spirit of the invention, the scope of which is not 70 limited otherwise than as indicated in the following claims.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a belt-and-cup feeder for seeders, the combination with wheels, and a belt around 75 the same, of spring-closed cups on the outside of the belt, having projections extending on the inside thereof and adapted to contact with the wheels to open the cups.

2. In a belt-and-cup feeder for seeders, in 80 combination, a belt traveling between the seed-box and delivery-spout, having spring-closed cups thereon, and means to open the cups successively as they reach the box and spout.

3. In a belt-and-cup feeder for seeders, in 85 combination, a belt, cups carried thereby and movable to and from the same, springs tending to press the cups to the belt, to close the former, and means to press the cups from the belt, to open the cups, at desired places. 90

4. In a belt-and-cup feeder for seeders, in combination, wheels, a belt around the same, spring-supported cups carried thereby and tending to close against the belt, and projec- 95 tions extending from the cups through the belt and adapted to contact with the wheels to open the cups.

5. In a belt-and-cup feeder for seeders, in combination, a belt, spring-closed cups there- 100 on having projections extending through the belt, wheels around which the belts are bent, adapted to contact with the projections and open the cups, and an idler between the wheels, having a circumferential groove to avoid con- 105 tact with the projections.

6. In a belt-and-cup feeder for seeders, in combination, a link belt, the links having bosses projecting on the outside thereof, spring-supported cups on the links and over 110 the bosses and tending to close thereto, projections extending from the cups through the links, to the inside thereof and means inside of the belt to strike the projections and open the cups.

In testimony whereof I have signed my name 115 to this specification in the presence of two subscribing witnesses.

FRANK L. MORGAN.

Witnesses:

G. A. BEGEMAN,
C. A. LUKENS.