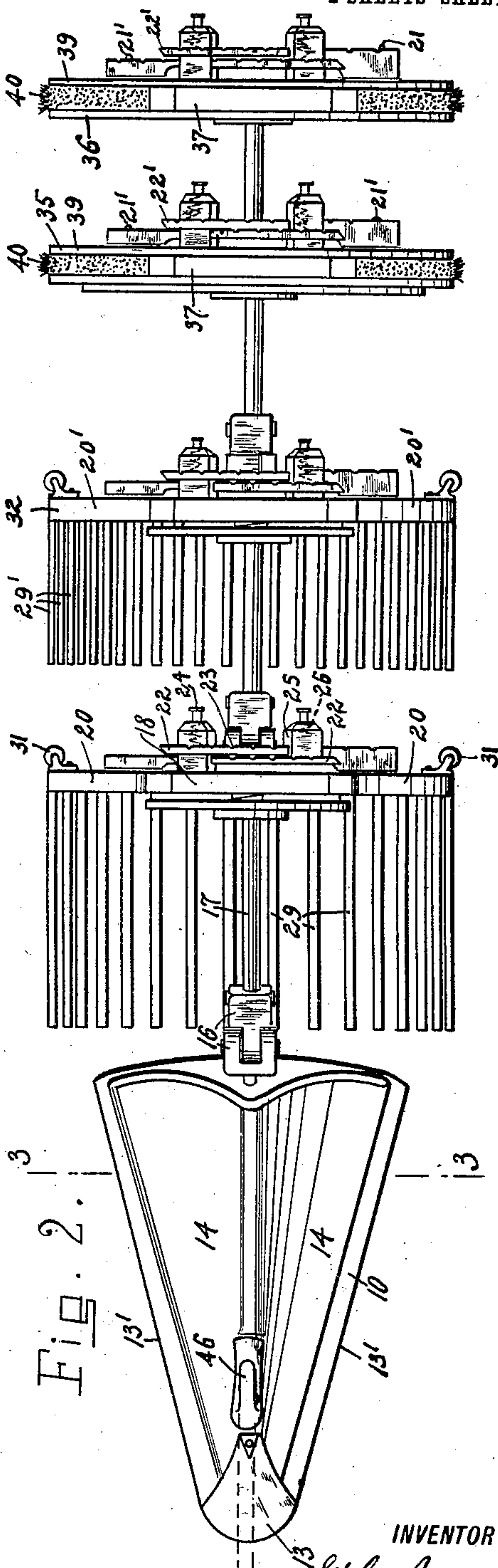
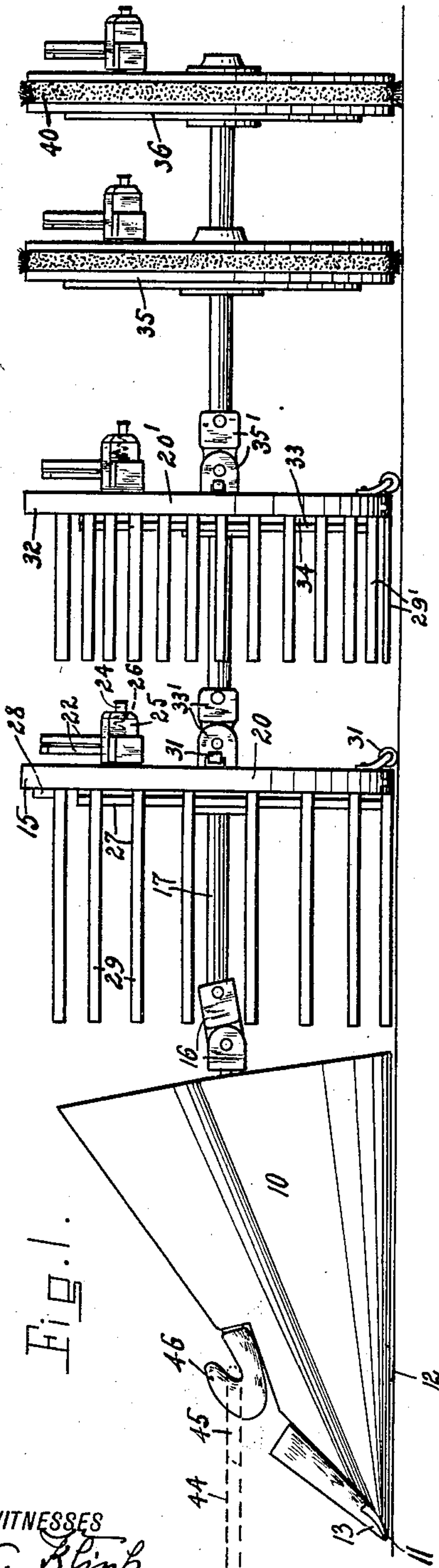


G. JAMNICKY.
APPARATUS FOR CLEANING SEWER PIPES.
APPLICATION FILED MAY 5, 1911.

999,652.

Patented Aug. 1, 1911.

2 SHEETS-SHEET 1.



WITNESSES
D. Klink
S. Binstbaum

INVENTOR
G. Jamnicky
BY
Sigmund Herzog
his ATTORNEY

G. JAMNICKY.
APPARATUS FOR CLEANING SEWER PIPES.
APPLICATION FILED MAY 5, 1911.

999,652.

Patented Aug. 1, 1911.

2 SHEETS—SHEET 2.

Fig. 3.

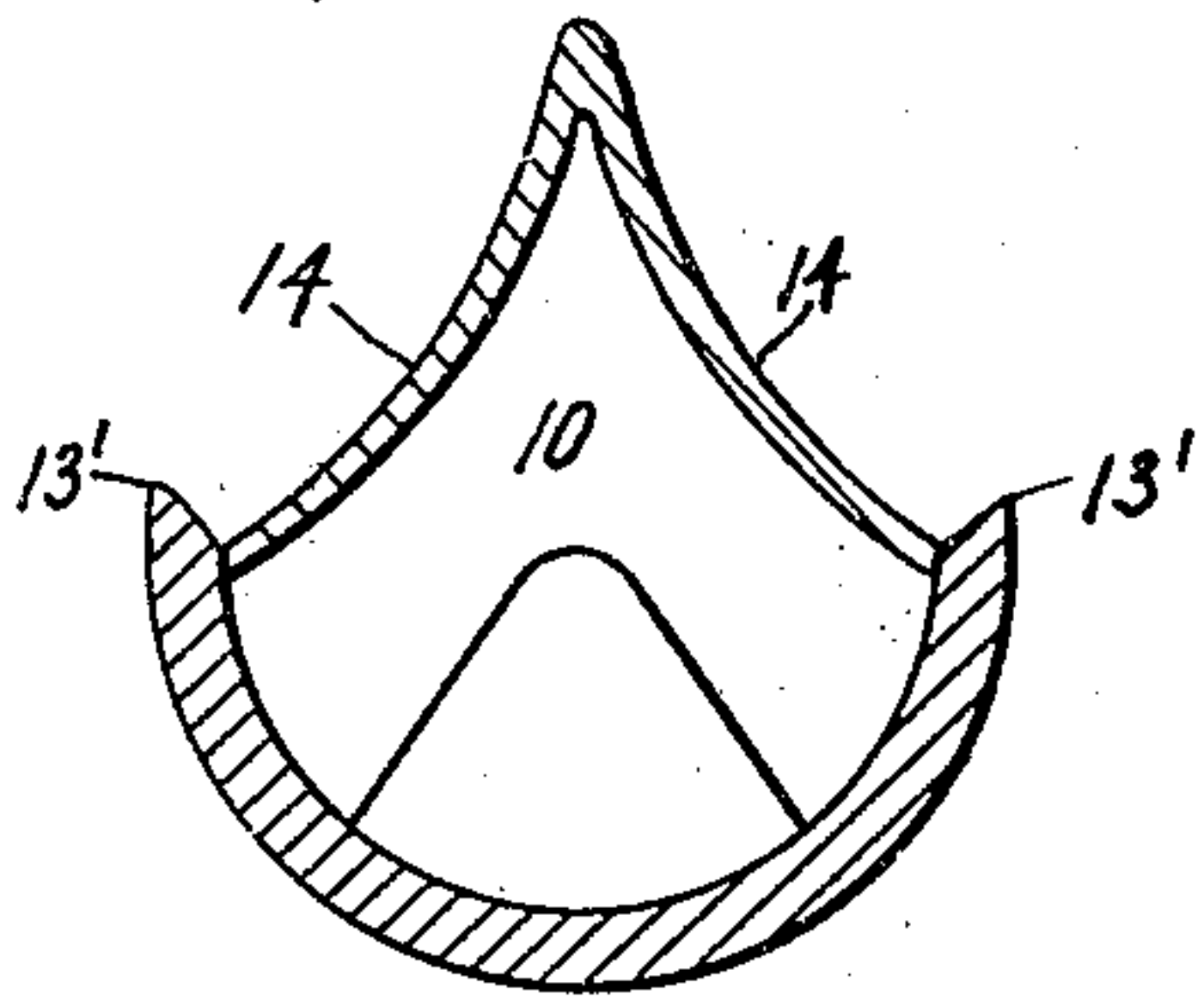


Fig. 6.

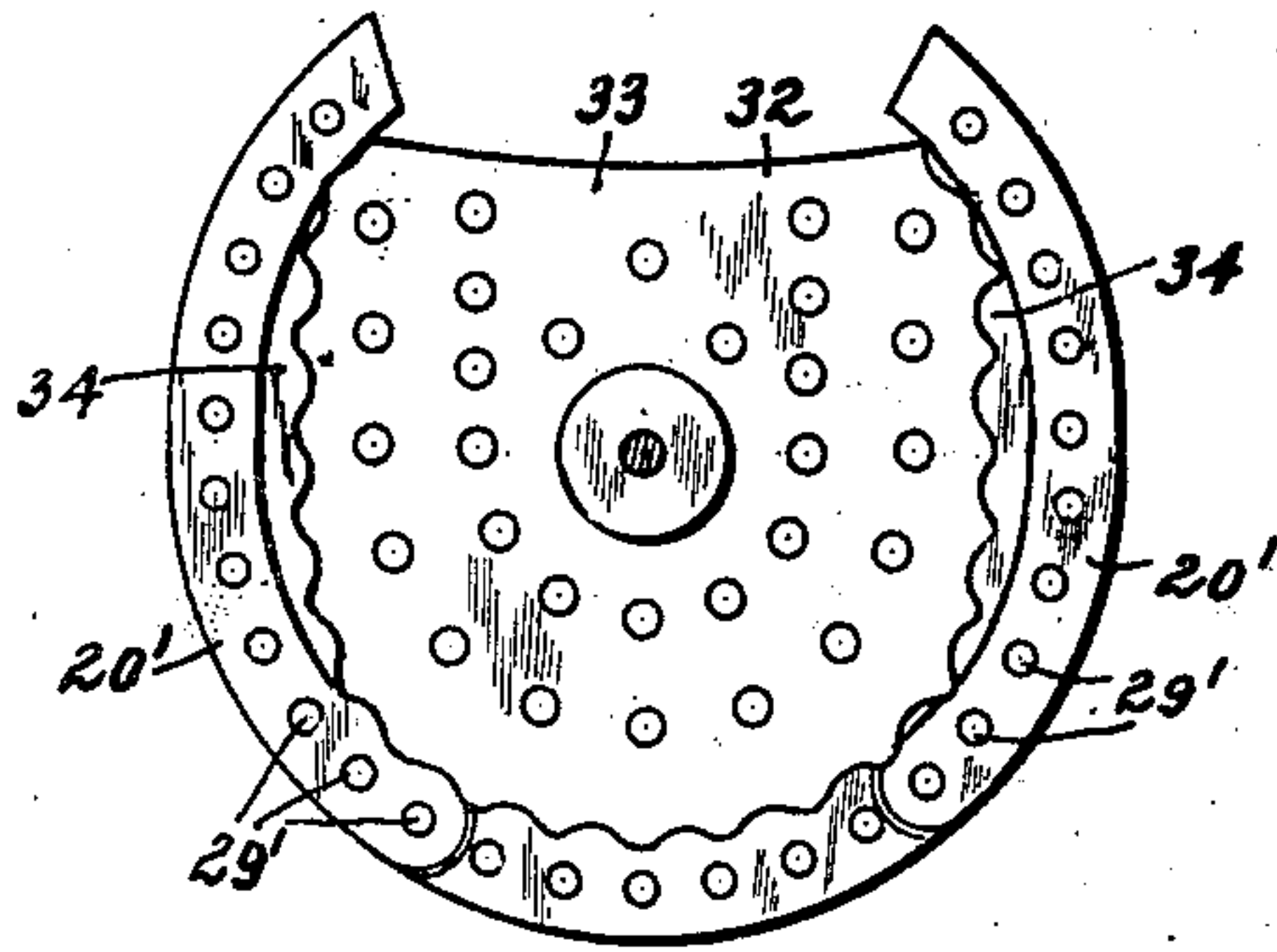


Fig. 4.

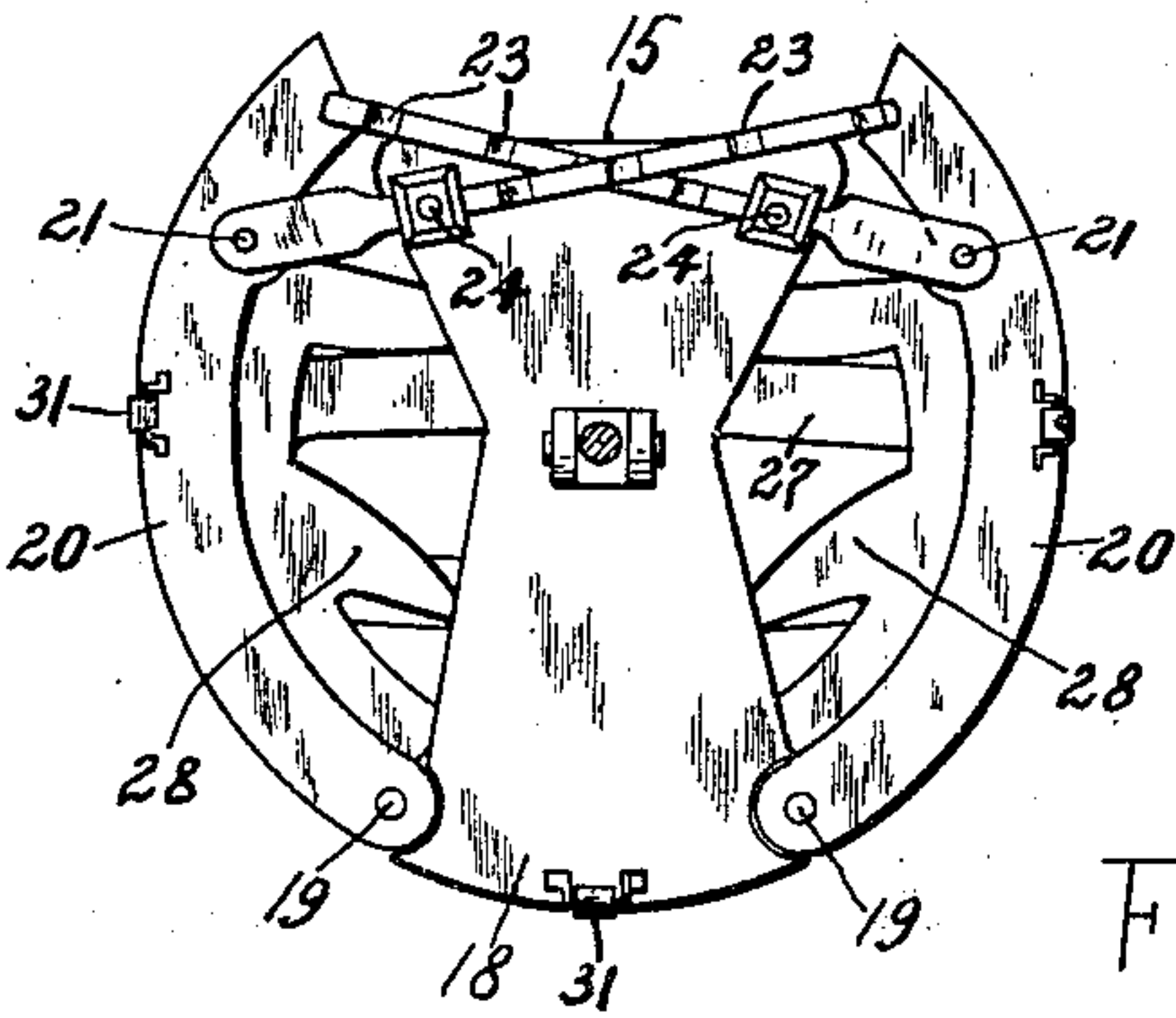


Fig. 5.

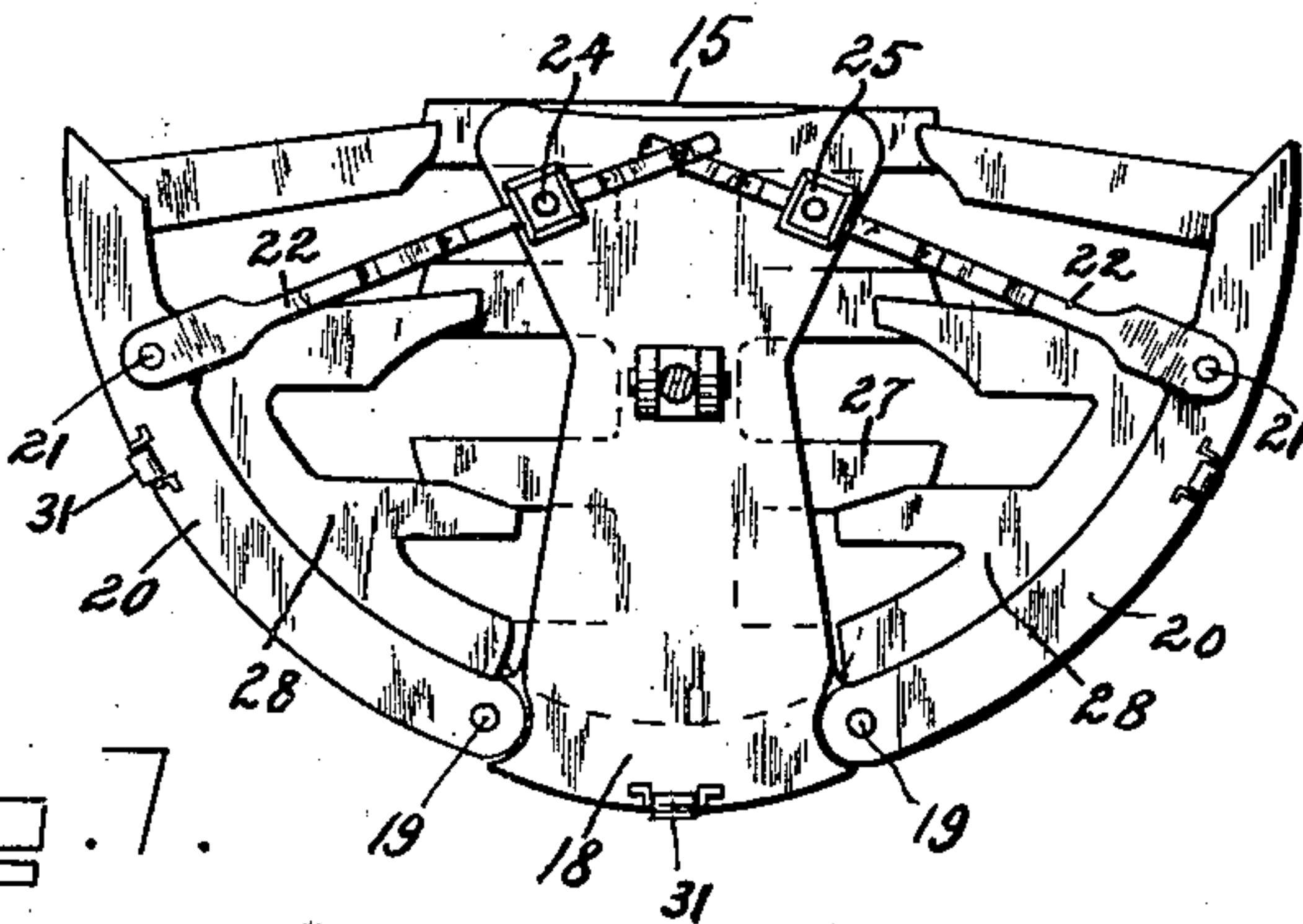


Fig. 7.

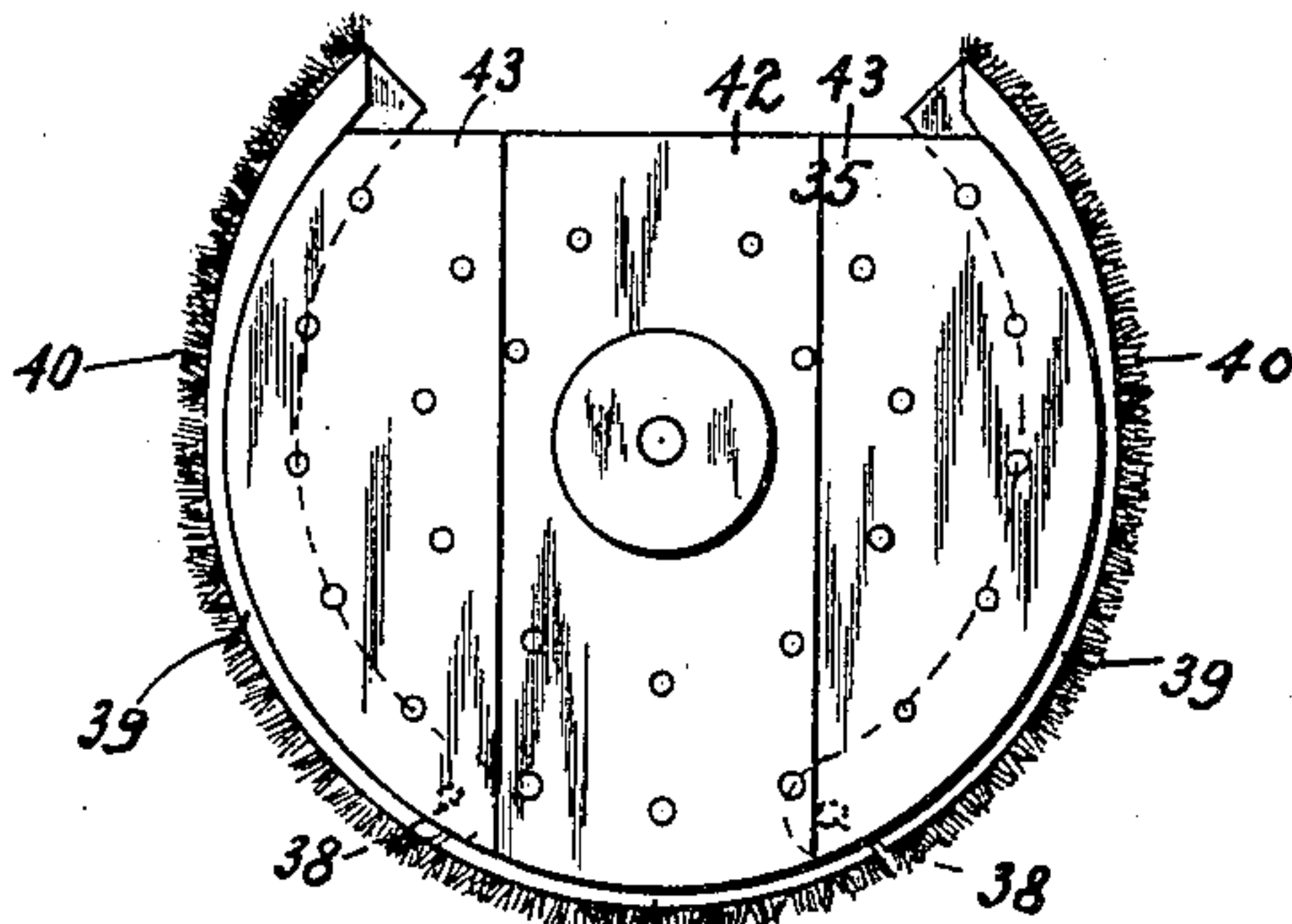
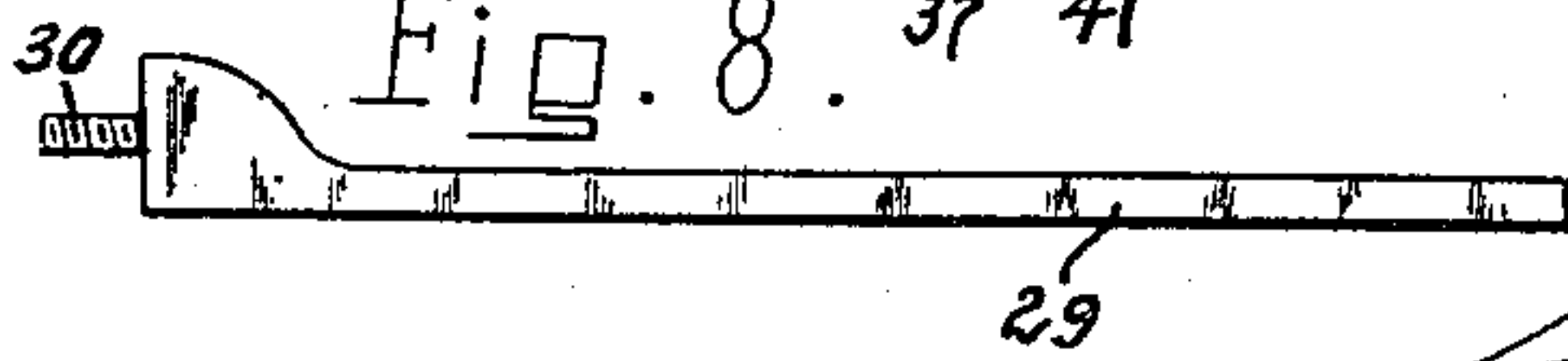


Fig. 8.



WITNESSES
W. Klink
S. Birnbaum

INVENTOR
Gábor Jamnicky
BY
Sigmund Herzog
his ATTORNEY

UNITED STATES PATENT OFFICE.

GÁBOR JAMNICKY, OF NEW YORK, N. Y.

APPARATUS FOR CLEANING SEWER-PIPES.

999,652.

Specification of Letters Patent.

Patented Aug. 1, 1911.

Application filed May 5, 1911. Serial No. 625,250.

To all whom it may concern:

Be it known that I, GÁBOR JAMNICKY, a subject of the King of Hungary, and resident of the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Apparatus for Cleaning Sewer-Pipes, of which the following is a specification.

10 The present invention relates to improvements in apparatus for cleaning sewer pipes, and has for one of its objects to provide a simple device of this character which will effectively dig out the deposit in the sewer pipe, and convey it along to a place where the contents of its buckets may be discharged.

15 Another object of the invention is to provide a device of this character which is made in sections, to be easily placed into the sewer pipe through a manhole of ordinary size and construction.

20 A further object of the invention is to construct a self adjusting bucket which can be placed into a sewer pipe of the usual size, and which increases in size as the diameter of the latter increases.

25 A still further object of the invention is to provide a scraper which will also automatically accommodate itself to the gradually increasing size or cross section of the sewer pipe.

30 With these and other objects in view, which will appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter fully described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and details of construction without departing from the spirit or sacrificing any of the advantages of the invention.

35 One of the many possible embodiments of the invention is illustrated in the accompanying drawings, in which:—

40 Figure 1 is a side elevation of a sewer cleaning apparatus embodying the invention; Fig. 2 is a plan view thereof; Fig. 3 is a section taken on line 3—3 of Fig. 2; Fig. 4 is a rear elevation of one of the buckets in its normal position; Fig. 5 is a similar view of the bucket in its extended position; Fig. 6 is a front elevation of another bucket in its normal position; Fig. 7 is a

front elevation of one of the scrapers; and Fig. 8 is a side elevation of a detail of construction.

45 In the drawings, the numeral 10 indicates the digging element of the apparatus, comprising a hollow body tapering toward its front end 11, and mounted, preferably, upon a roller 12 to reduce the friction between it and a sewer pipe. To the front portion of this body is attached a spade 13, which, together with the longitudinal inclined scraping edges 13' of this body, will break or turn up the deposit in the sewer pipe, which is then conducted along the upper concave walls 14, 14 of this body into the bucket 15, arranged in the rear of the digging element, and pivotally connected thereto by the intermediary of links 16, 16, which are attached to the body 10 and to an arm 17, which latter is carried by the main frame 18 of the bucket 15. To this main frame are fulcrumed at 19, 19 the side frame portions 20 of the bucket, to the upper ends of which are pivoted at 21, 21 notched bars 22, 22, the notches 23 of which are adapted to be engaged by pins 24, shiftably arranged in lugs 25, 25, which are attached to the frame 18 of the bucket. The pins 24 are held in engagement with said bars by springs 26, 26, or other suitable means. The rear wall of the bucket is formed by a notched plate 27, which is secured to the main frame 18 of the bucket, and by the notched plate members 28, 28, which are carried by the side frame members 20, 20, and overlap said plate 27. The sides of the buckets are made up of a plurality of, preferably, parallel bars 29, 29, which are reduced in diameter at their rear ends 30, and provided at these reduced portions with screw threads, fitting into screw threaded holes in the main frame 18 and in the side frame portions 20. The bars 29, 29 are spaced apart, whereby a grate-like structure is provided, which is open at its front and top portions and closed at its rear portion by a back wall provided with a plurality of openings, formed by the coacting notched plate members 27 and 28.

50 In order to reduce the friction between the bucket and the wall of the sewer, rollers 31 are mounted upon said frame portions, which will contact with the walls of the sewer.

55 Behind the bucket 15 is arranged a second bucket 32, pivotally attached to the bucket 15 by links 33', 33'. The construction of this

bucket differs from that of the bucket 15 only in that its rear wall is formed by a perforated plate 33 and perforated plate members 34, which are attached to its side frame members 20', 20'. Its bars 29' are located closer to each other than the bars 29 of the bucket 15, and are, preferably, shorter. It will be observed from an inspection of the drawings that the perforations in the plates 33 and 34 are considerably smaller than the openings formed by the notched plates 27 and 28 of the bucket 15. The purpose of this arrangement will be hereinafter more fully described.

To the bucket 32 are attached by means of links 35', 35' two scrapers 35 and 36. These scrapers are arranged one behind the other and are alike, so that the description of one of the same will be sufficient. Each of the same comprise a main frame 37, to which are pivoted at 38 two side frame portions 39, 39, provided with bristles 40, 40 on their peripheral portions, and so is also the main frame provided with bristles 41, 41 at its lower peripheral portion. The main frame and side frames are connected by notched bars 22', pivoted at 21' to the side frame portions 39, and connected with the main frame in the same manner as the bars 22 of the buckets are connected with their main frames 18. In front of the frame 37 and the side frame portions 39 is arranged a perforated plate member 42, attached in any suitable manner to the main frame 37. This plate member is, preferably, made of a plurality of sections 43, 43 for a purpose hereinafter to be described. The perforations in the plate 42 are smaller than the perforations in the plates 33 and 34.

The entire apparatus is moved along the sewer pipe by a rope or other flexible connection 44, the looped end 45 of which engages a hook-shaped projection 46 of the digging element 10.

The operation of the device is as follows: The rope or chain 44 is drawn through that section of the sewer pipe which is about to be cleaned to the manhole, where the cleaning operation is to be started. The digging element 10 is then first brought through the manhole into the sewer pipe, its hook-shaped projection 46 engaged with the rope, which is then pulled forward so that the digging element is drawn into the pipe. The buckets and the scrapers are then placed in a similar manner into the pipe, their links 16, 16, 33', 33' and 35', 35' engaged with each other, whereby the apparatus is ready for action. It will be observed that the configuration of the separate elements of the apparatus is substantially circular when they are in their closed positions, and conform thus substantially to the lower portion of the cross section of the sewer pipe. As the apparatus is now drawn along,

the spade 13 and the edges 13' of the digger will break or turn up the deposit in the sewer pipe, which will then move up the concave surfaces 14, 14 into the bucket 15. If there are any stones or foreign matter in the pipe, the size of which is larger than the openings formed by the coacting notched plate members 27 and 28, those stones or foreign matter will remain in the bucket 15, while the finer material will pass through said openings into the bucket 32, where again those portions which are larger in size than the perforations in the back wall of this bucket will remain within the same, and the smaller particles will pass through said perforations, and float in the drainage water or other liquid sewage, to be carried by the same forward in the direction of its flow. The scrapers 35 and 36 will thoroughly scrub and scour the walls of the pipe, and remove thus therefrom such matters which the spade 13 and the inclined scraping edges 13' of the digging element 10 did not remove therefrom.

It will be observed that, when the cross section of the pipe increases in its size, the deposit in the buckets 15 and 32 will force the side frame portions of the same toward the wall of the pipe so that all solid refuse moving upward on the concave walls 14 of the digging element will be deposited therein. The pins 24, 24, coacting with the notches in the rods 22, prevent the buckets from collapsing. The scrapers 35 and 36 will also be extended to conform to the increased size of the sewer by their own weight, and be prevented from collapsing by the notched bars 22' coacting with the pins mentioned.

If the device is to be used in a sewer, the manhole of which is not large enough to admit the elements thereof when assembled, the different parts of the apparatus can be taken apart and easily assembled in the sewer. In such cases, of course, the perforated wall 42 of the scrapers must be made in a plurality of sections 43, 43.

What I claim is:

1. In an apparatus for cleaning sewer pipes, the combination with a digger, of a plurality of buckets pivotally connected to each other and said digger, each of said buckets comprising a main frame, two side frame portions fulcrumed thereto, a plurality of grate bars attached to said main frame and said side frame portions at right angles to the plane of said frame portions, and a perforated rear wall, and a plurality of scrapers pivotally attached to the last in the series of said buckets, substantially as and for the purpose specified.

2. In an apparatus for cleaning sewer pipes, the combination with a digger, of a plurality of self adjusting buckets pivotally connected to each other and said digger,

each of said buckets comprising a main frame, two side frame portions fulcrumed thereto, a plurality of grate bars attached to said main frame and said side frame portions at right angles to the plane of said frame portions, a perforated rear wall, and locking means for holding said side frame portions in their extended positions against the wall of said sewer pipe, and a plurality of scrapers pivotally attached to the last in the series of said buckets, substantially as and for the purpose specified.

3. In an apparatus for cleaning sewer pipes, the combination with a digger, of a plurality of buckets pivotally connected to each other and said digger, each of said buckets comprising a main frame, two side frame portions fulcrumed thereto, a plurality of grate bars attached to said main frame and said side frame portions at right angles to the plane of said frame portions, and a perforated rear wall, a plurality of scrapers pivotally attached to the last in the series of said buckets, each comprising a main frame, two side frame portions pivoted thereto provided with bristles upon their peripheral portions, and means for forcing the side frame portions of said scrapers always into contact with the wall of the sewer pipe.

4. In an apparatus for cleaning sewer pipes, the combination with a digger, of a plurality of buckets pivotally connected to each other and said digger, each of said buckets comprising a main frame, two side frame portions fulcrumed thereto, a plurality of grate bars attached to said main frame and said side frame portions at right angles to the plane of said frame portions, and a perforated rear wall, a plurality of scrapers pivotally attached to the last in the series of said buckets, each comprising a main frame, two side frame portions pivoted thereto provided with bristles upon their peripheral portions, and resilient means for forcing the side frame portions of said scrapers always into contact with the wall of the sewer pipe.

5. In an apparatus for cleaning sewer pipes, the combination with a digger having a hook-shaped projection thereon adapt-

ed to be engaged by a rope or cable, of a plurality of buckets pivotally connected to each other and said digger, each of said buckets comprising a main frame, two side frame portions fulcrumed thereto, a plurality of grate bars attached to said main frame and said side frame portions at right angles to the plane of said frame portions, and a perforated rear wall, and a plurality of scrapers pivotally attached to the last in the series of said buckets, substantially as and for the purpose specified.

6. In an apparatus for cleaning sewer pipes, the combination with a digger having a hook-shaped projection thereon adapted to be engaged by a rope or cable, of a plurality of self adjusting buckets pivotally connected to each other and said digger, each of said buckets comprising a main frame, two side frame portions fulcrumed thereto, a plurality of grate bars attached to said main frame and said side frame portions at right angles to the plane of said frame portions, a perforated rear wall, and locking means for holding said side frame portions in their extended positions against the wall of the sewer pipe, and a plurality of scrapers pivotally attached to the last in the series of said buckets, substantially as and for the purpose specified.

7. In a sewer cleaning apparatus, a self adjusting bucket comprising a main frame, two side frame portions pivotally connected thereto, a plurality of grate bars attached to said main frame and said side frame portions at right angles to the plane of said frame portions, a perforated rear wall made in sections, one of which is attached to said main frame and others to said side frame portions, and locking means for holding said side frame portions in their extended positions when forced by the deposit in the bucket against the wall of the sewer pipe.

Signed at New York, in the county of New York and State of New York, this 20th day of April, A. D. 1911.

GÁBOR JAMNICKY.

Witnesses:

SIGMUND HERZOG,
S. BIRNBAUM.