

No. 828,396.

PATENTED AUG. 14, 1906.

W. F. FRASER.

DEVICE FOR FEEDING LACING HOOKS AND THE LIKE.

APPLICATION FILED FEB. 10, 1906.

3 SHEETS—SHEET 1.

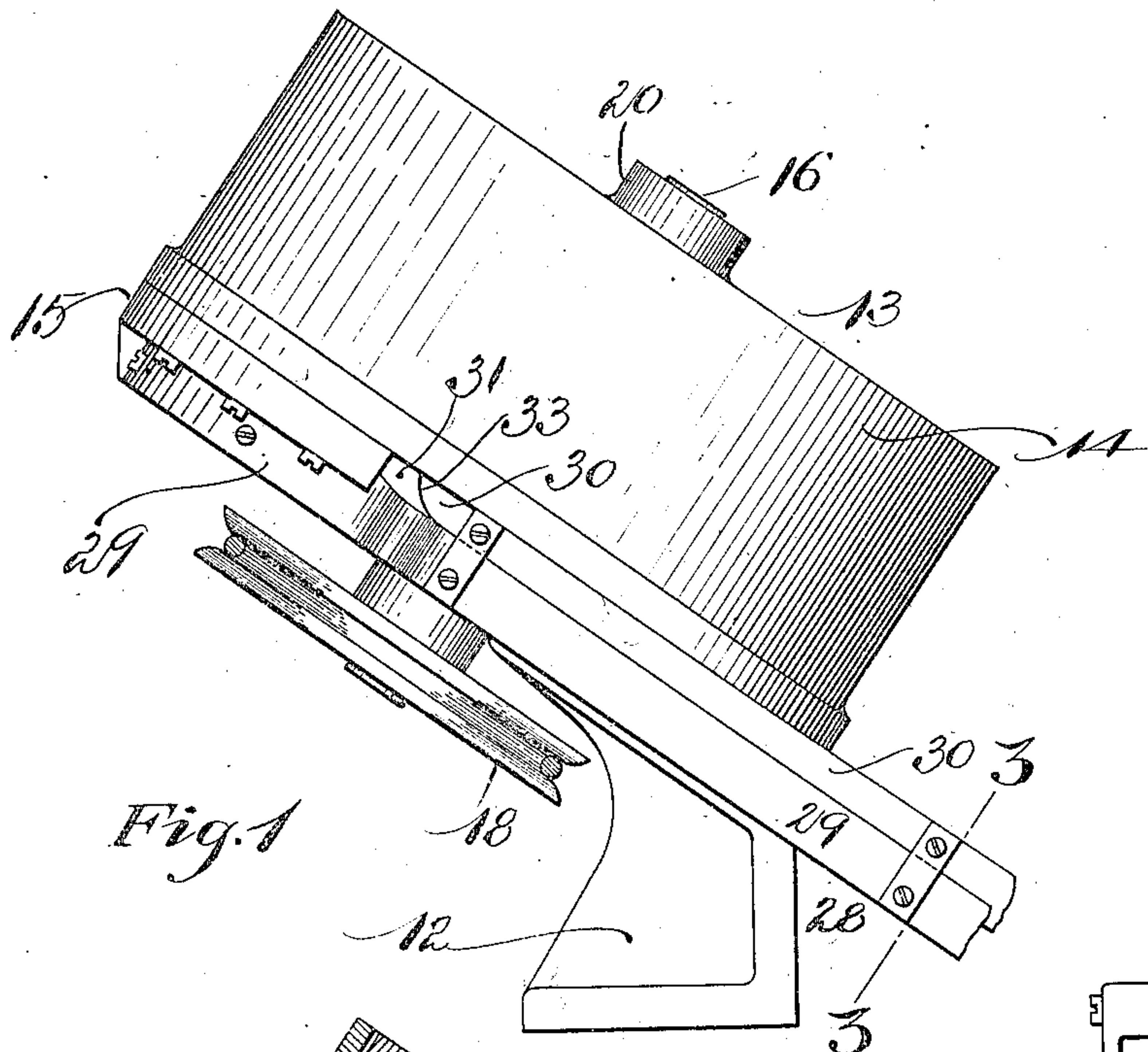


Fig. 1

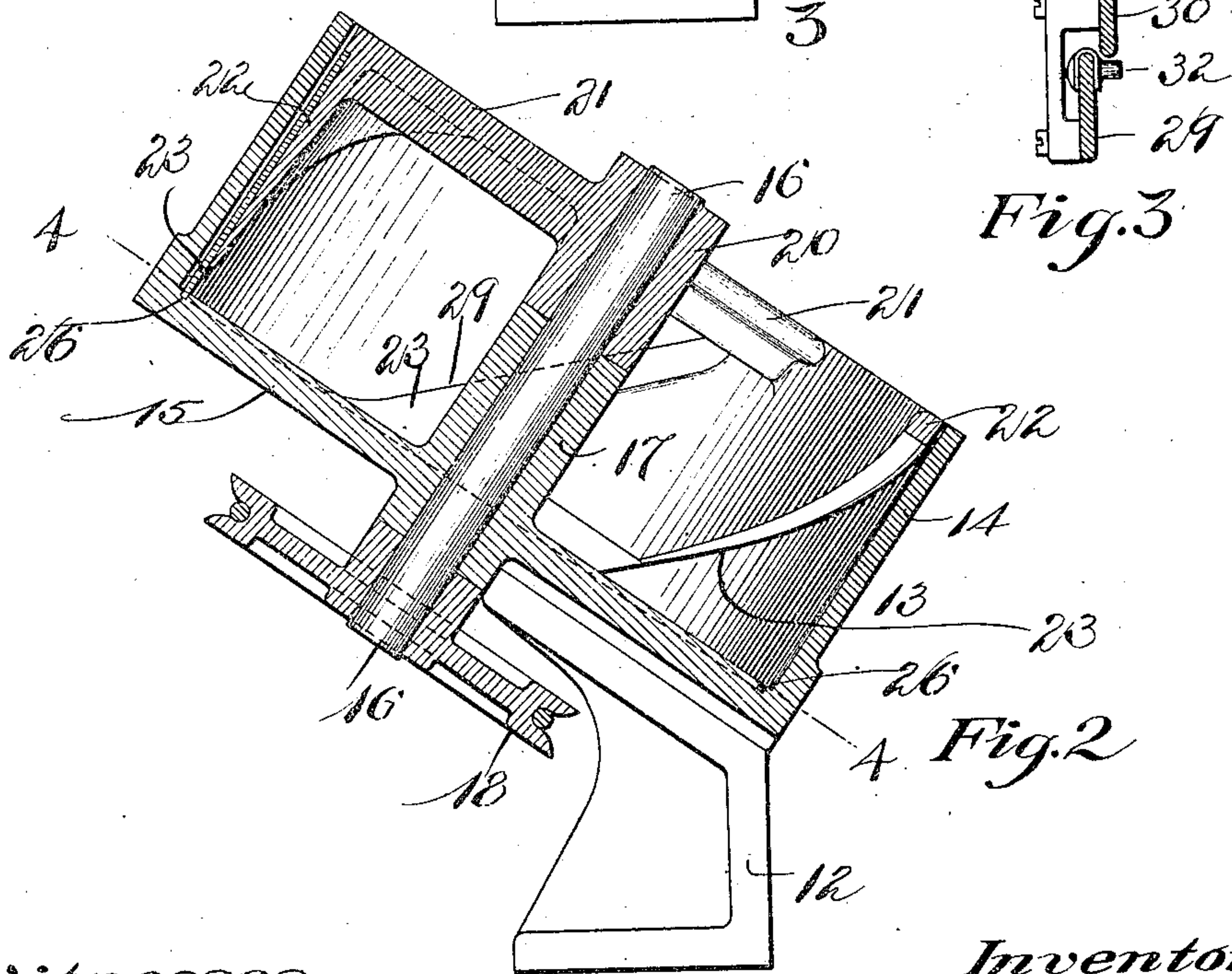


Fig. 2

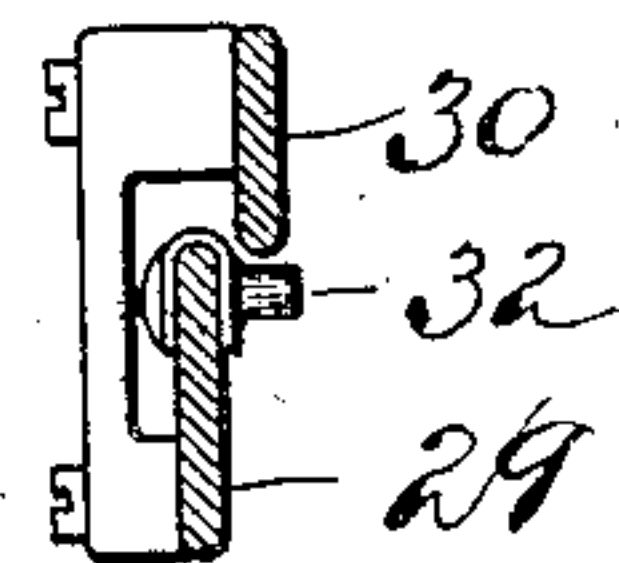


Fig. 3

Witnesses
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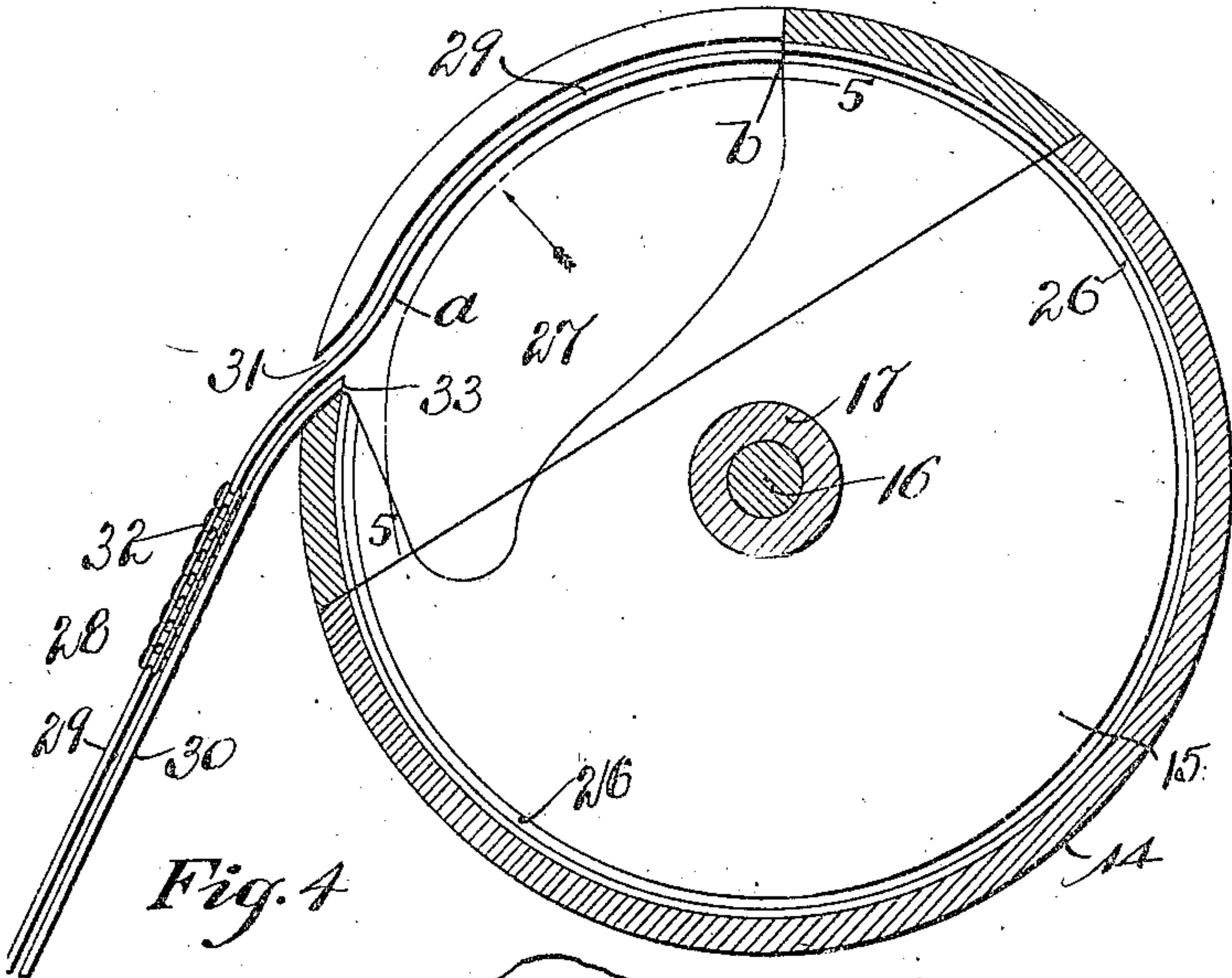


Fig. 4

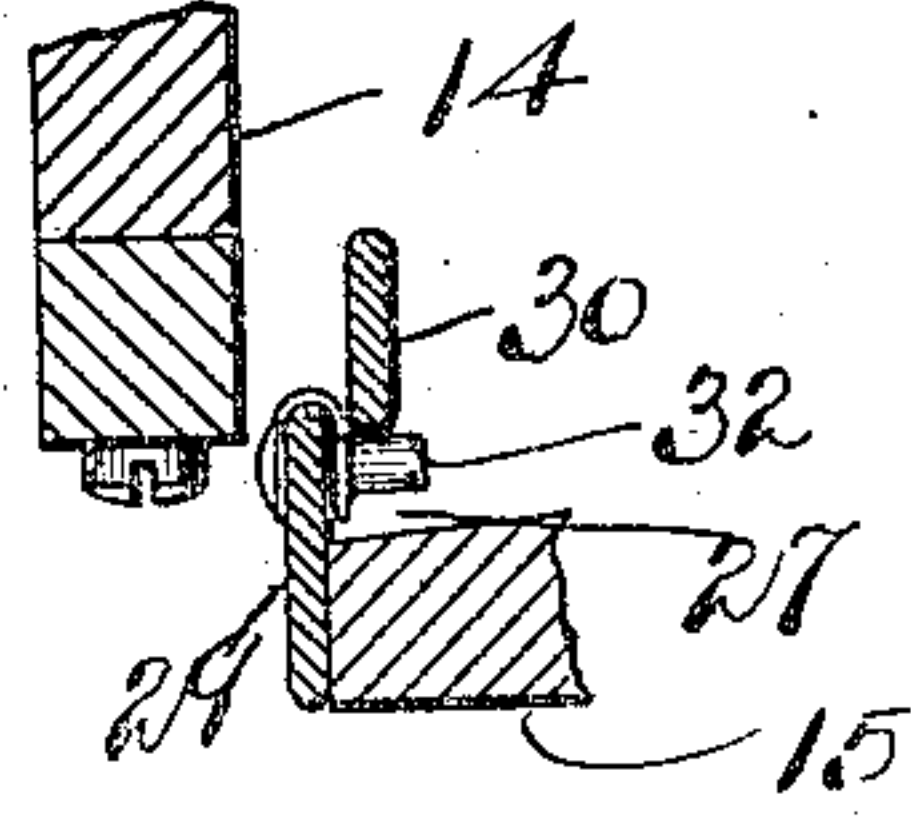


Fig. 8

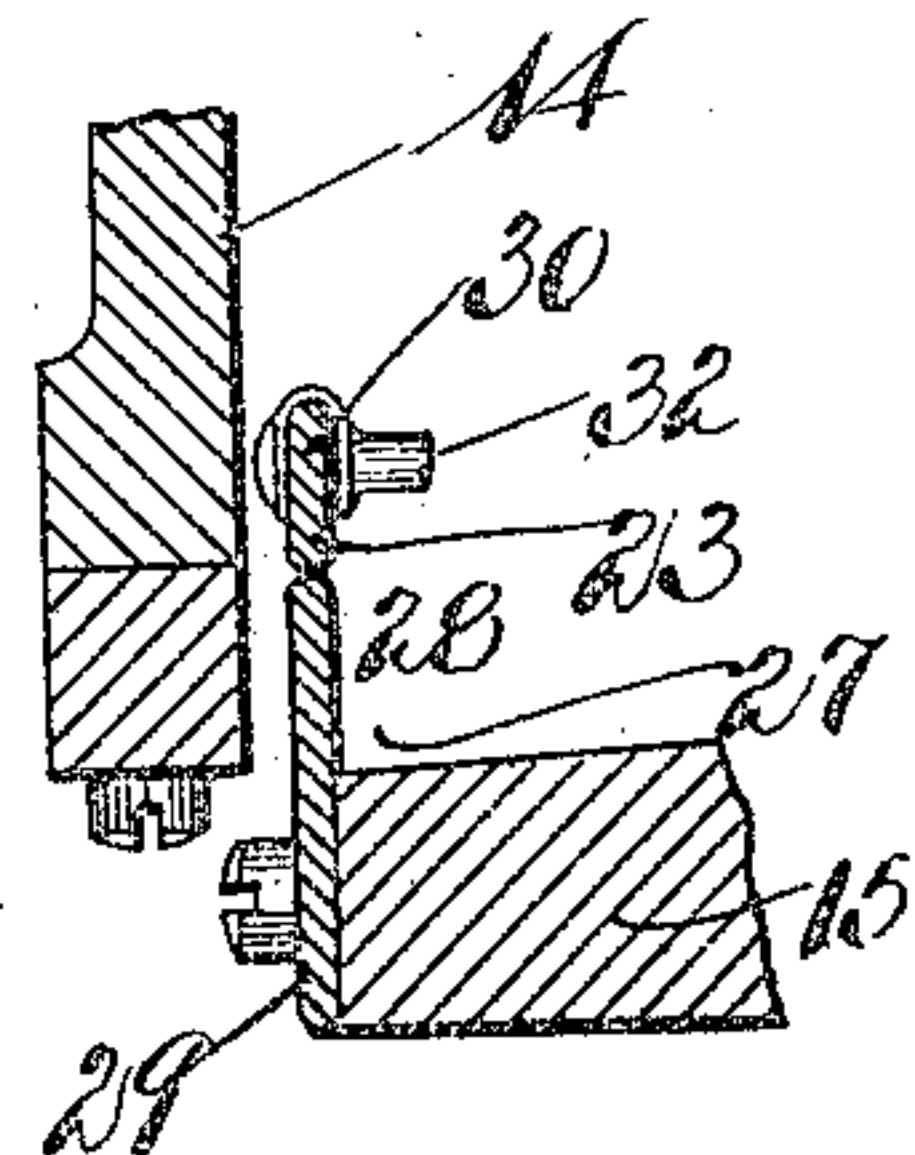


Fig. 9

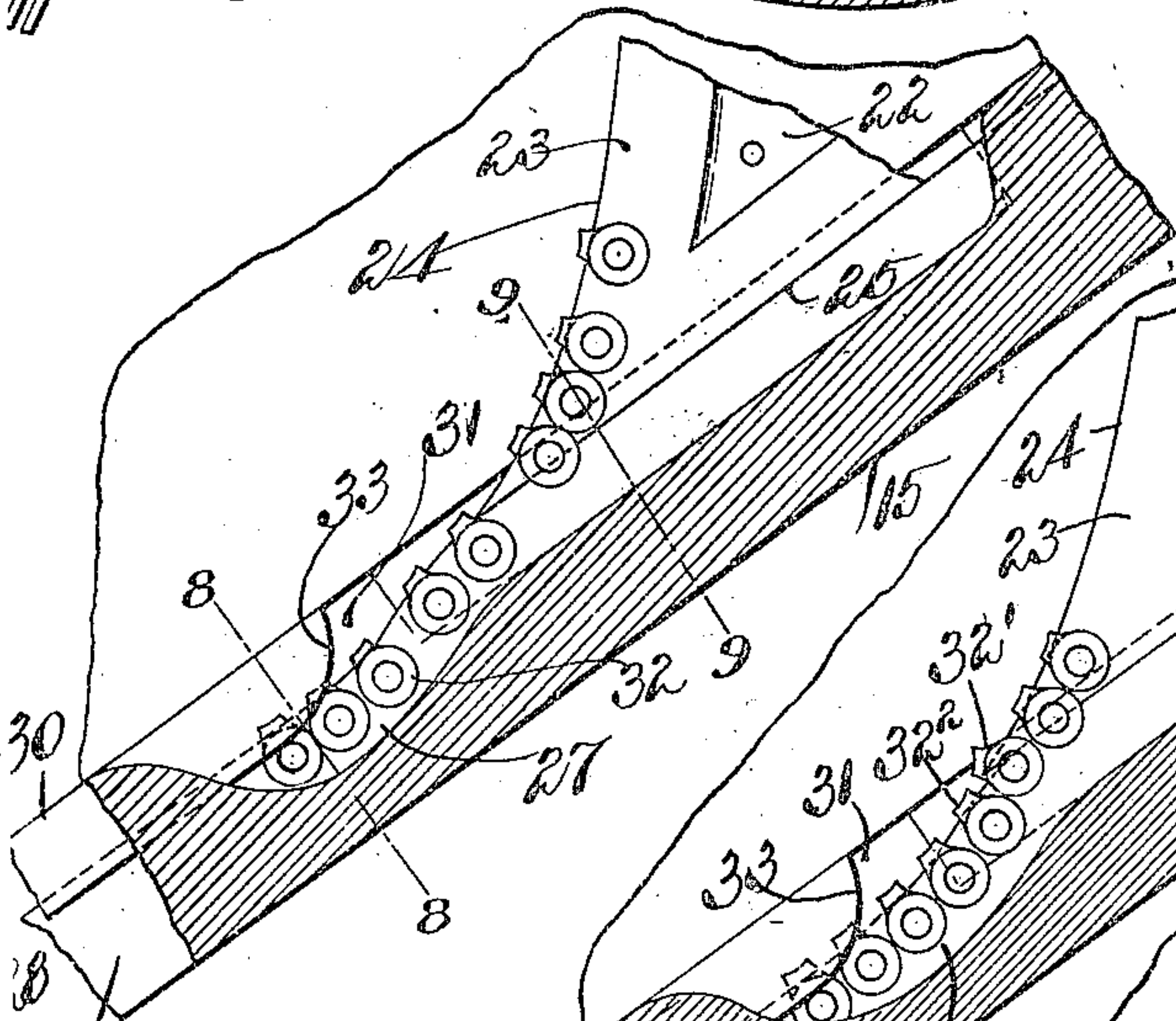


Fig. 5

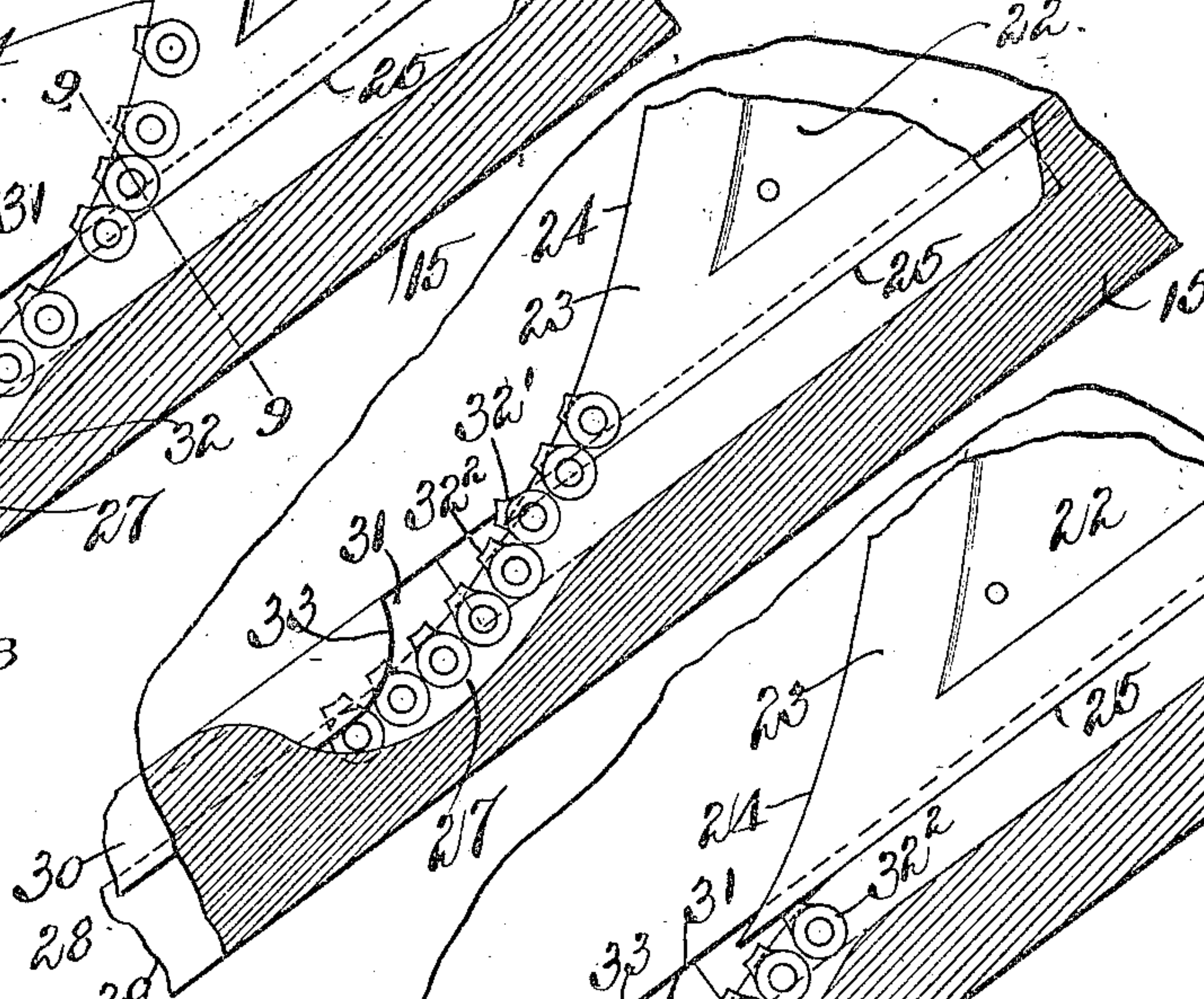


Fig. 6

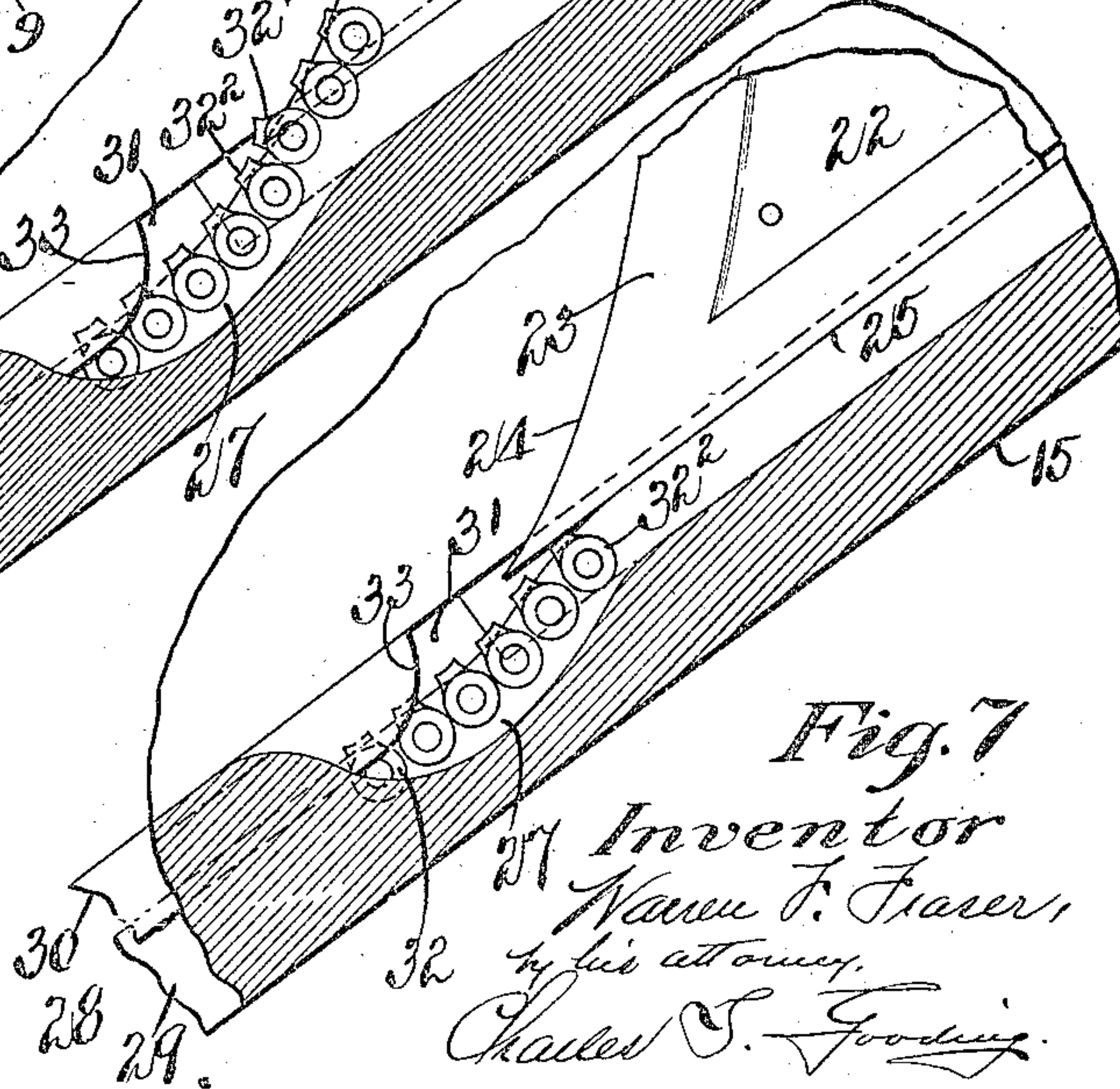


Fig. 7

Witnesses.

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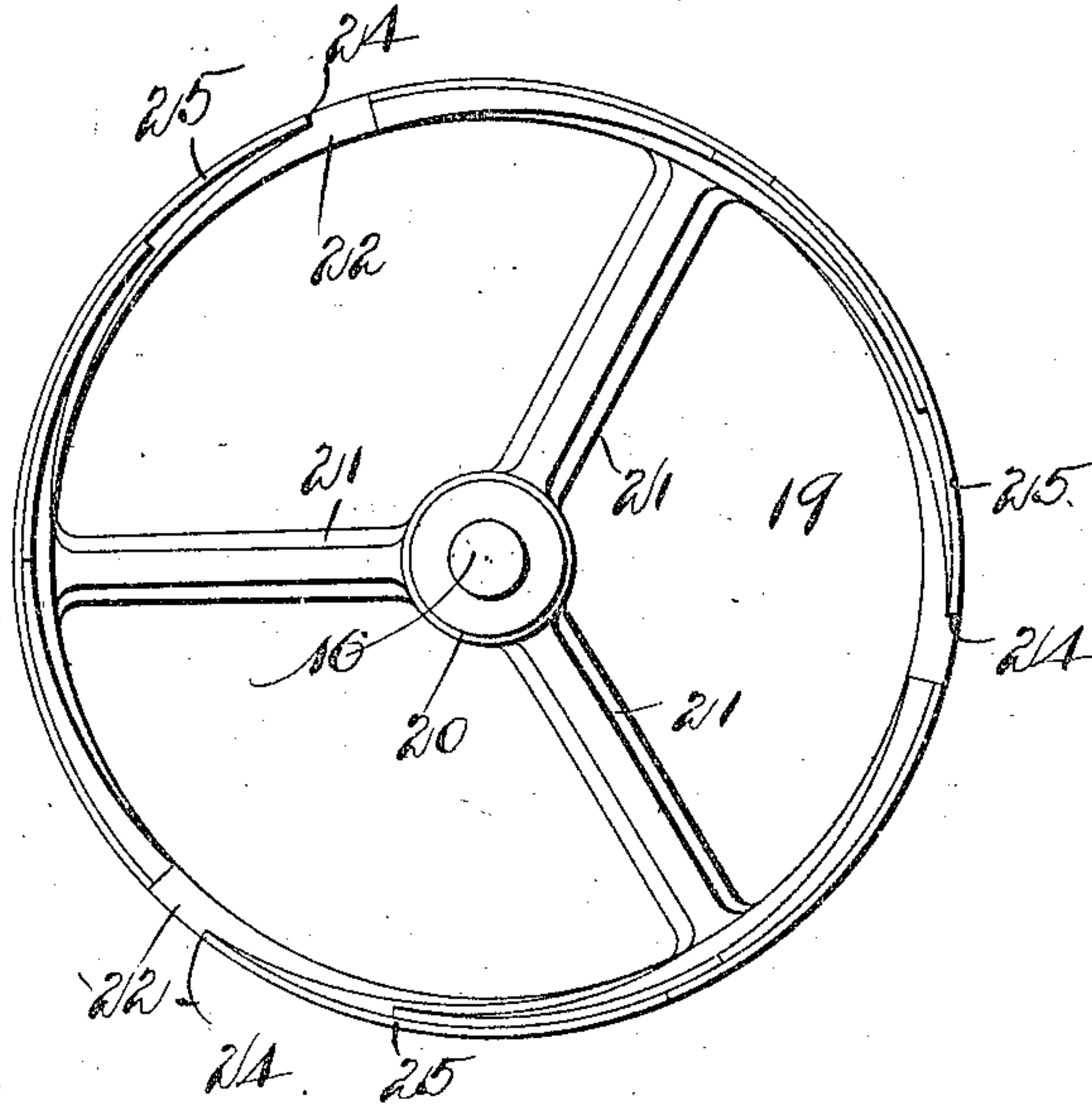


Fig. 10

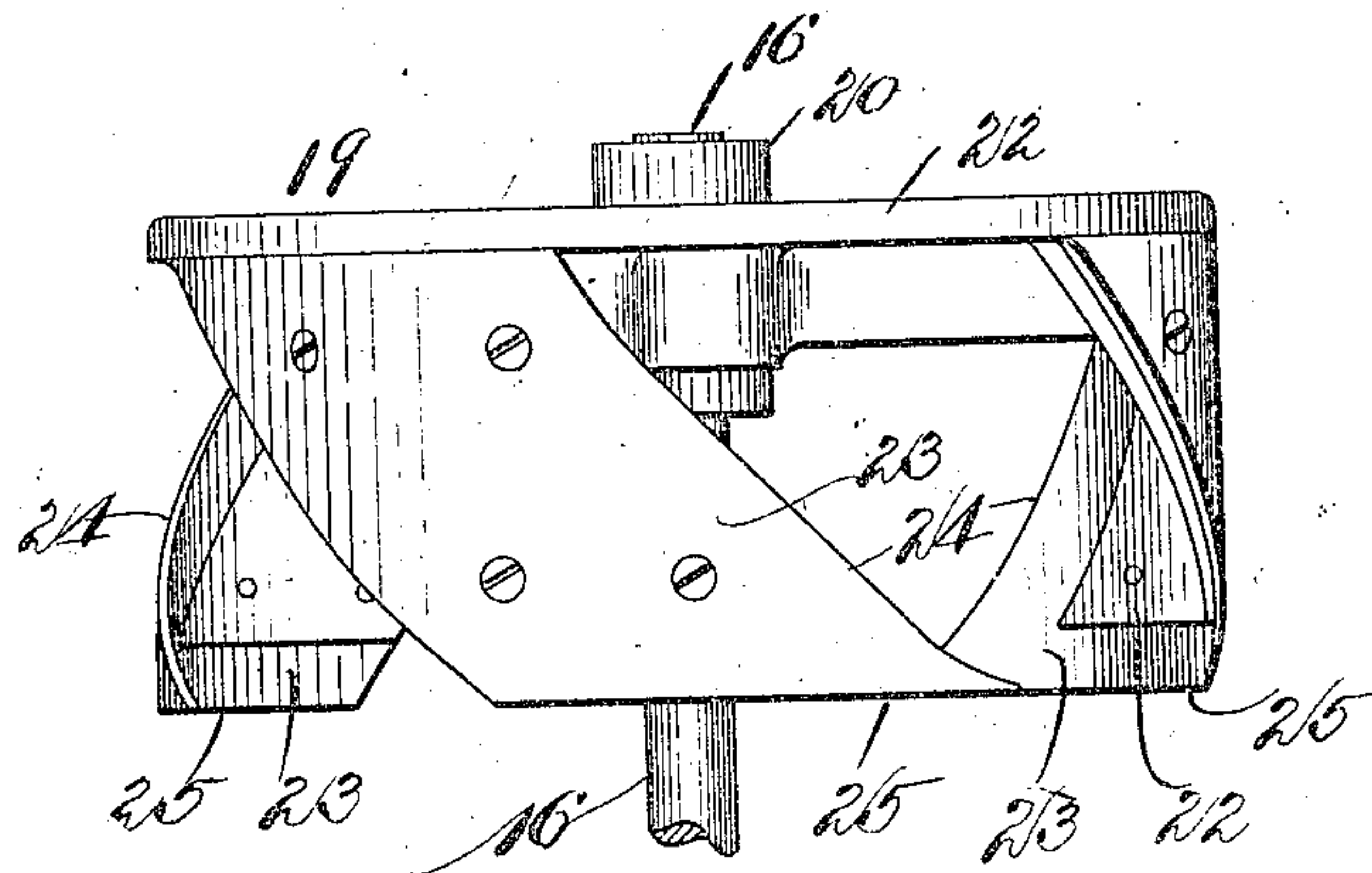


Fig. 11

Witnesses

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Inventor

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UNITED STATES PATENT OFFICE.

WARREN F. FRASER, OF DORCHESTER, MASSACHUSETTS.

DEVICE FOR FEEDING LACING-HOOKS AND THE LIKE.

No. 828,396.

Specification of Letters Patent.

Patented Aug. 14, 1906.

Application filed February 10, 1906. Serial No. 300,368.

To all whom it may concern:

Be it known that I, WARREN F. FRASER, a subject of King Edward VII, residing at Dorchester, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Devices for Feeding Lacing-Hooks and the Like, of which the following is a specification.

This invention relates to a device for separating lacing-hooks or the like from a mass of the same contained in a hopper and feeding the same to a raceway leading out of said hopper to any desired point in a machine where they may be driven and clenched in sheet material.

The object of the invention is to provide a device of the character set forth which will separate a large number of lacing-hooks per minute from the mass of lacing-hooks contained in the hopper and feed them to the raceway, the mechanism by which the lacing-hooks are taken from the hopper and fed to the raceway being capable of continuous rotation and the raceway so constructed and arranged with relation to the picker-blade, by which the lacing-hooks are taken from the hopper and carried to the raceway, that hooks can feed onto the raceway from the picker-blade while the picker-blade is rotating.

The invention consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims thereof.

Referring to the drawings, Figure 1 is a side elevation of my improved device for feeding lacing-hooks. Fig. 2 is a central longitudinal vertical section, partly in elevation, of the same. Fig. 3 is an enlarged detail section, partly in elevation, taken on line 3 3 of Fig. 1 looking toward the left in said figure, illustrating the position of a lacing-hook on the raceway. Fig. 4 is a section of the hopper, with the raceway and bottom of the hopper shown in plan, the sectional portion being taken on line 4 4 of Fig. 2. Fig. 5 is an enlarged section, partly in elevation, taken on line 5 5 of Fig. 4 looking in the direction of the arrow in said Fig. 4 and illustrating a portion of one of the picker-blades with lacing-hooks thereon which are in position to slide downwardly therefrom upon the raceway, the hopper being shown broken away in said view to save space in the drawings. Fig. 6 is a sectional elevation similar to Fig. 5, illustrating one of the picker-blades moved for-

ward slightly from the position shown in Fig. 5 and illustrating how the lacing-hooks which are on the picker-blade are carried back into the hopper when the raceway is filled. Fig. 7 is another illustrative view similar to Figs. 5 and 6, illustrating the raceway filled with lacing-hooks and the end of one of the picker-blades passing over that portion of the raceway upon which the lacing-hooks are located. Fig. 8 is a section, partly in elevation, taken on line 8 8 of Fig. 5 looking toward the right in said figure. Fig. 9 is a section, partly in elevation, taken on line 9 9 of Fig. 5 looking toward the right in said figure. Fig. 10 is an underneath plan view of the rotary picker. Fig. 11 is a front elevation of said rotary picker.

Like characters refer to like parts throughout the several views of the drawings.

In the drawings, 12 is a bracket adapted to be fastened to the frame of the machine. 13 is a hopper rigidly fastened to said bracket 12 and consisting of a hollow casing 14, having a cylindrical bore and a bottom 15. The hopper 13 is fastened to the bracket 12, so that the bottom thereof stands at an angle. A shaft 16 is journaled to rotate in a bearing 17, forming a portion of said hopper, and projects therethrough, a pulley 18 being fastened to the lower end of said shaft and the picker 19, fast to the upper end of said shaft.

The picker 19 consists of a hub 20, with arms 21 21 extending radially outward therefrom and connected together at their outer ends by a rim 22. The rim 22 has three blades 23 23 fast thereto, said blades being formed concentric with the picker 19 or with the median axial line thereof, the front edge 24 of each of said blades being formed upon a helical curve. The lower edge 25 of each of the blades 23 projects into an annular groove 26, Fig. 4, which extends partly around the bottom of the hopper 13. The lower edge 25 of each of the blades 23 projects into the groove 26 as the picker is being rotated. A portion, however, of the bottom of said hopper is cut away to form a depression 27.

The raceway 28 is formed in two parts—a lower portion 29 and an upper portion 30. The lower portion 29 extends for a part of its length—that is, from *a* to *b*, Fig. 4—on a curve concentric with the interior of the hopper 13, the upper edge of said curved portion *a b* being adjacent to and preferably touching the lower edge 25 of each of the picker-blades as they are rotated in the operation of the

machine. The lower portion 29 of said raceway extends from the curved portion *a b* thereof and from the point *a* outwardly through a hole 31, provided in the periphery of the hopper at the bottom thereof. The upper edge of the raceway extends downwardly from the point *a* of said raceway as the raceway passes through the opening 31, beneath the plane in which the upper edge of the curved portion *a b* of said raceway is located.

The upper portion 30 of the raceway 28 is preferably located at one side of said raceway, as illustrated in Fig. 8, so that said upper portion bears against the shanks of the lacing-hooks 32, located upon the lower portion 29. Said upper portion 30 of the raceway terminates in a curve 33 at its uppermost end, which extends upwardly in order to prevent any clogging of the lacing-hooks.

The operation of the device is as follows: The lacing-hooks are placed in a mass in the interior of the hopper 13 and the picker 19 rotated by means of the pulley 18 and shaft 16. As the different blades 23 of the picker pass through the mass of lacing-hooks at the lower end of the hopper some of these lacing-hooks are separated from the mass and are carried by the picker-blades upwardly away from the mass of lacing-hooks, said lacing-hooks resting on the front edge of the picker-blade with the heads located in the space between the picker-blade and the interior of the hopper-casing 14, the shanks projecting toward the center of said hopper. As soon as each picker-blade arrives above the curved portion *a b* of the raceway the lacing-hooks slide off the picker-blade and onto the raceway. Said raceway being at an angle, these lacing-hooks slide down the raceway on the lower portion 29 thereof, out through the opening 31, and downwardly along the raceway to the point in the machine to which it is desired that they shall be guided.

In Fig. 5 the picker-blade is illustrated with the point thereof at the end *a* of the curved portion *a b* of said raceway, with the raceway full of lacing-hooks, and as the picker-blade is rotated it will be seen that the lacing-hooks upon the picker-blade cannot slide therefrom onto the raceway, but will be carried past the raceway at the downwardly-curved portion of its upper edge and will then slide off the picker-blade into the hopper. The lowermost lacing-hook upon the picker-blade will be tipped, as illustrated in Fig. 6 at 32', and carried back into the hopper by the point of the picker-blade, which will drag this lowermost lacing-hook across the lacing-hook 32² adjacent thereto and finally drop the same into the hopper in the recessed portion 27 thereof. As the curved portion from *a* to *b* of the raceway part 29 is in alinement with the picker-blade as it passes thereover, it will be seen that said picker-blade forms, in effect,

a continuation of the raceway, so that the moment the picker-blade arrives at the point *b* the lacing-hooks on the picker-blade can begin to slide off onto the curved portion of the raceway, down said raceway, and out of the hopper. Therefore on account of this construction the picker can be continuously rotated instead of intermittently rotated, as in devices heretofore constructed, and, moreover, when the raceway is filled, as illustrated in Figs. 6 and 7, the continuous rotation of the picker-blade does not injure the hooks on the raceway, neither is the continuous rotation of said picker-blades blocked or interfered with by the lacing-hooks which stand upon the raceway, the same being pushed out of the way, as illustrated in Fig. 6, leaving the raceway full and allowing the blade to pass over the uppermost lacing-hook 32², located thereon.

Having thus described my invention, what I claim, and desire by Letters Patent to secure, is—

1. In a device for feeding lacing-hooks and the like a hopper having a cylindrical bore, a rotary picker having a blade, the front edge of which is formed upon a helical curve concentric with said hopper, and a raceway extending for a part of its length around the bottom of said hopper, with its upper edge in alinement with the bottom of said picker-blade and concentric therewith.

2. In a device for feeding lacing-hooks and the like, a hopper having a cylindrical bore, a rotary picker having a blade, the front edge of which is formed upon a helical curve concentric with said hopper, and a raceway extending for a part of its length partly around the bottom of said hopper in a curve concentric with the interior of said hopper, the lower edge of said picker-blade being adjacent to the upper edge of said curved portion of said raceway.

3. In a device for feeding lacing-hooks and the like, a hopper having a cylindrical bore, a rotary picker having a blade, the front edge of which is formed upon a helical curve concentric with said hopper, and a raceway extending for a part of its length partly around the bottom of said hopper in a curve concentric with the interior of said hopper, the lower edge of said picker-blade being adjacent to the upper edge of said curved portion of said raceway, said raceway extending from said curved portion outwardly through a hole provided in said hopper.

4. In a device for feeding lacing-hooks and the like, a hopper having a cylindrical bore, a rotary picker having a blade, the front edge of which is formed upon a helical curve concentric with said hopper, and a raceway extending for a part of its length partly around the bottom of said hopper in a curve concentric with the interior of said hopper, the lower edge of said picker-blade being adjacent to

the upper edge of said curved portion of said raceway, said raceway extending from said curved portion outwardly through a hole provided in said hopper, the upper edge of
 5 said raceway extending downwardly from said curved portion beneath the plane in which the upper edge of said curved portion is located.

5. In a device for feeding lacing-hooks and
 10 the like, a hopper having a cylindrical bore, a rotary picker having a blade, the front edge of which is formed upon a helical curve concentric with said hopper, and a raceway extending for a part of its length partly around
 15 the bottom of said hopper in a curve concentric with the interior of said hopper, the lower edge of said picker-blade being adjacent to the upper edge of said curved portion of said raceway, the bottom of said hopper
 20 being provided with a depression adjacent to said curved portion of said raceway.

6. In a device for feeding lacing-hooks and the like, a hopper having a cylindrical bore, a rotary picker having a blade, the front edge
 25 of which is formed upon a helical curve concentric with said hopper, and a raceway extending for a part of its length partly around the bottom of said hopper in a curve concentric with the interior of said hopper, the
 30 lower edge of said picker-blade being adjacent

to the upper edge of said curved portion of said raceway, said raceway extending from said curved portion outwardly through a hole provided in said hopper, the upper edge of
 35 said raceway extending downwardly from said curved portion beneath the plane in which the upper edge of said curved portion is located, the bottom of said hopper being provided with a depression adjacent to said curved portion of said raceway.

7. In a device for feeding lacing-hooks and the like, a hopper having a cylindrical bore, an annular groove extending partly around the bottom of said hopper and concentric with said bore, a rotary picker having a
 45 blade, the front edge of which is formed upon a helical curve concentric with said bore, and a raceway extending for a part of its length partly around the bottom of said hopper in a curve concentric with the interior of said
 50 hopper, the upper edge of said curved portion of said raceway being flush with the bottom of said groove.

In testimony whereof I have hereunto set my hand in presence of two subscribing wit-
 55 nesses.

WARREN F. FRASER.

Witnesses:

CHARLES S. GOODING,
 ANNIE J. DAILEY.