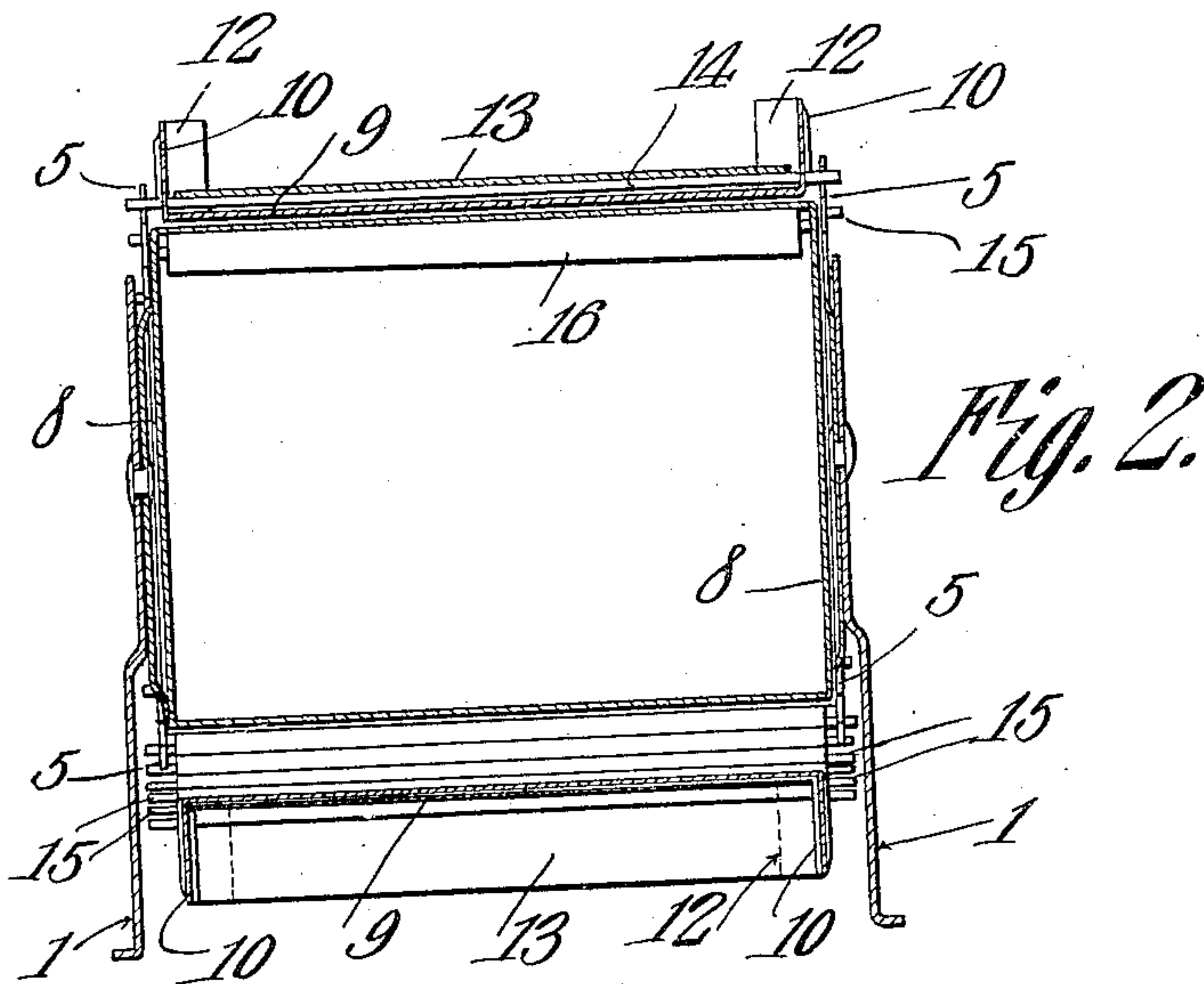
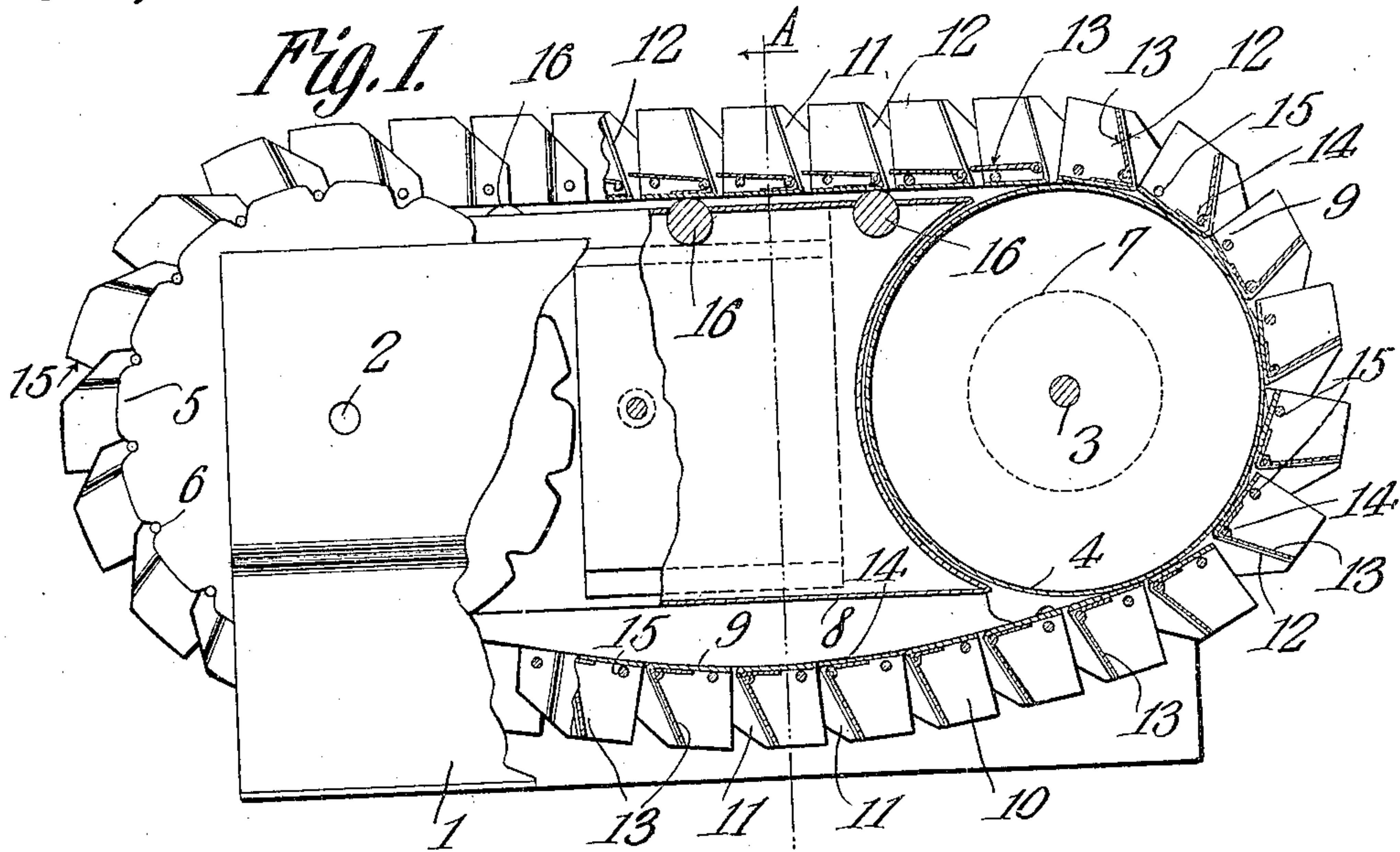


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APPLICATION FILED SEPT. 23, 1908.

Patented Apr. 6, 1909.

2 SHEETS—SHEET 1.

917,546.



Inventor

*Herman Commandoer.*

Witnesses

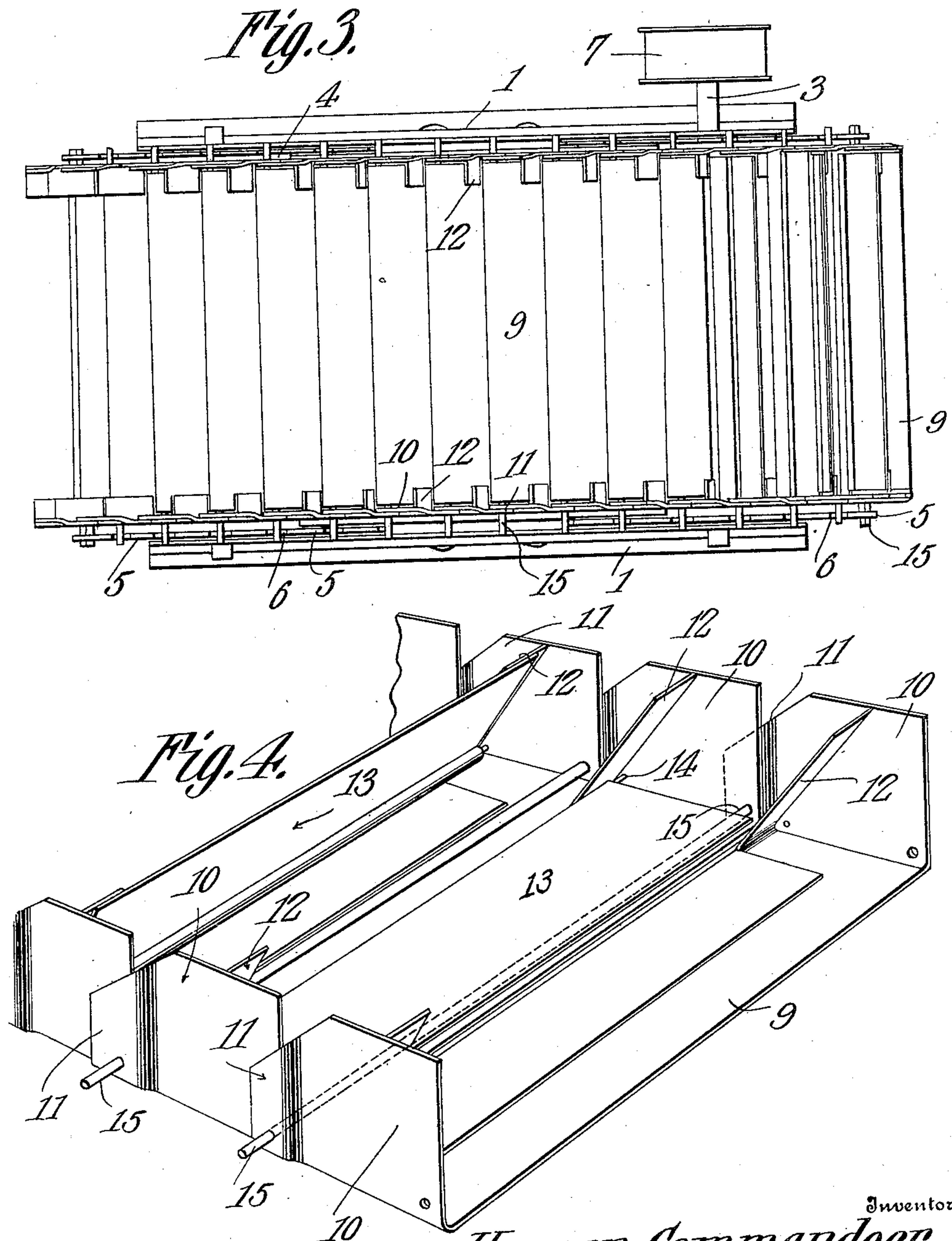
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# UNITED STATES PATENT OFFICE.

HERMAN COMMANDOER, OF MILWAUKEE, WISCONSIN.

## HYDRAULIC MOTOR.

No. 917,546.

Specification of Letters Patent.

Patented April 6, 1909.

Application filed September 23, 1908. Serial No. 454,295.

*To all whom it may concern:*

Be it known that I, HERMAN COMMANDOER, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Hydraulic Motor, of which the following is a specification.

This invention relates to current motors and is more particularly an improvement upon the structure described and claimed in Patent No. 456,266, issued to me on July 21st, 1891.

The object of the invention is to provide an endless series of blades designed to be actuated in one direction by the current of the body of water in which the motor is anchored, said blades being also disposed to feather during their movement in the opposite direction so as not to interfere with the proper actuation of the motor.

A further object of the invention is to provide a motor having a power belt constructed in a novel manner, said belt consisting of a series of buckets hingedly connected and each carrying a blade which is pivotally mounted therein.

A further object is to provide a motor which can be either partly or completely submerged and which, if desired, can be caused to float while in operation.

With these and other objects in view the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claim.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a view partly in side elevation and partly in section of the complete motor. Fig. 2 is a section on line A—B Fig. 1. Fig. 3 is a plan view of the motor. Fig. 4 is a perspective view of a portion of the power belt of the motor, the blades being shown in different positions for the purpose of better illustrating the construction and arrangement of the parts.

Referring to the figures by characters of reference 1, 1, designate side walls designed to rest upon a supporting surface and journaled within the end portions of these walls are transversely extending shafts 2 and 3, each shaft having a drum 4 secured thereon and disposed to rotate between the walls 1, each drum having annular flanges 5 at the ends thereof, said flanges being provided in their peripheries with notches 6 arranged at

regular intervals. A pulley 7 may be connected to one end of one of the shafts and utilized for transmitting motion from the motor to the mechanism, to be actuated thereby.

Interposed between the drums 4 and fitting closely between and against the side walls 1 is a hollow body 8, the ends of which are concentric with and fit close to the drums 4, while the upper and lower faces of said body are disposed tangentially to the drums. This body is air and water tight and constitutes a float of sufficient proportions to hold the motor partly submerged in the stream in which it is anchored.

An endless belt is mounted upon the drum 4 and extends over and under the float 8. This belt, shown in detail in Fig. 4, is formed of a series of cross-plates 9 having end walls 10 upstanding therefrom perpendicularly thereto, each end wall 10 being provided with a wing 11, the two wings extending beyond one edge of the plate 9. A web 12 extends upwardly from each plate 9 at each end thereof and is arranged at an incline to the plate 9, said web extending also inwardly from one of the end walls 10. These webs 12 constitute stops or retaining devices for the blades 13 of the power belt. Each blade 13 is preferably formed of a flat metal plate pivotally mounted at one edge upon a rod 14 extending longitudinally along a plate 9 and through the end walls 10 thereof, said rods being secured to these walls in any suitable manner. The blade 13 is so proportioned that when it is elevated it rests firmly against the stop webs 12 and extends throughout the height of the walls 10 but at an acute angle to the plate 9. A supporting rod 15 also extends longitudinally along each plate 9 and constitutes a rest for the blade 13 when the same is in lowered position. This rod 15 has its ends projecting through the end walls 10 and also through the wings 11 of the adjoining section of the belt, the rod therefore constituting a pivotal connection between the sections. Said rod 15 also projects a sufficient distance beyond the end walls 10 to be engaged by the notched flanges 5, so that as the belt is actuated by the body of water flowing thereagainst, the drums 4 will be positively actuated thereby.

In using the motor herein described the same is placed in a current and anchored in any suitable manner, the float 8 serving to hold the same partly submerged in deep



streams, while the side walls 1 constitute efficient supports for the motor in shallow streams. When the water is flowing in the direction of the arrow in Fig. 1 the blades 13  
5 carried by the lower ply of the belt will drop by gravity into position against their stop flanges 12 and the water, in moving there-against, will cause the belt to travel in the direction of its length and thus rotate the  
10 drums 4 and the pulley 7. As the plates 9 move upward out of the water the blades 13 thereof fall by gravity into position on the rests 14 from which positions they will again drop downward on to the webs 12 as the  
15 plates move downward into the water.

It is of course to be understood that it is necessary to anchor the motor in the stream so as to prevent it moving bodily therewith. By referring to Fig. 1 it will be seen that the  
20 drums 4 are hollow. These drums therefore coöperate with the body 8 to keep the motor afloat.

It is of course to be understood that various changes may be made in the construction  
25 and arrangement of the parts without departing from the spirit or sacrificing the advantages of the invention.

In order that friction may be reduced to the minimum anti-friction rollers 16 are  
30 preferably located upon the top of the body

8 and the upper ply of the belt rests upon the rollers.

What is claimed is:—

A motor comprising a float having recessed ends, drums projecting into said ends 35 and mounted to rotate in them, and a belt mounted upon the drums and extending above and below the float, said belt consisting of cross plates having perpendicular end walls, wings extending from the end walls of 40 each plate and lapping the corresponding walls of the adjoining plate, pivot members extending through the lapping portions of the walls and wings and longitudinally above the plates, said members constituting rests, 45 pivot devices carried by the walls and extending above the plates, blades mounted upon the last mentioned devices, and supported, when inactive, upon the rests, and inclined webs extending inwardly from the end 50 walls and constituting backings for the end portions of the blades while in working position.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature 55 in the presence of two witnesses.

HERMAN COMMANDOER.

Witnesses:

JOHN M. SCHMIDTILL,  
MAX KORTSCH.