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PATENTED APR. 7, 1908.

W. A. LOUDON.
TURBINE.
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Fig. 1.

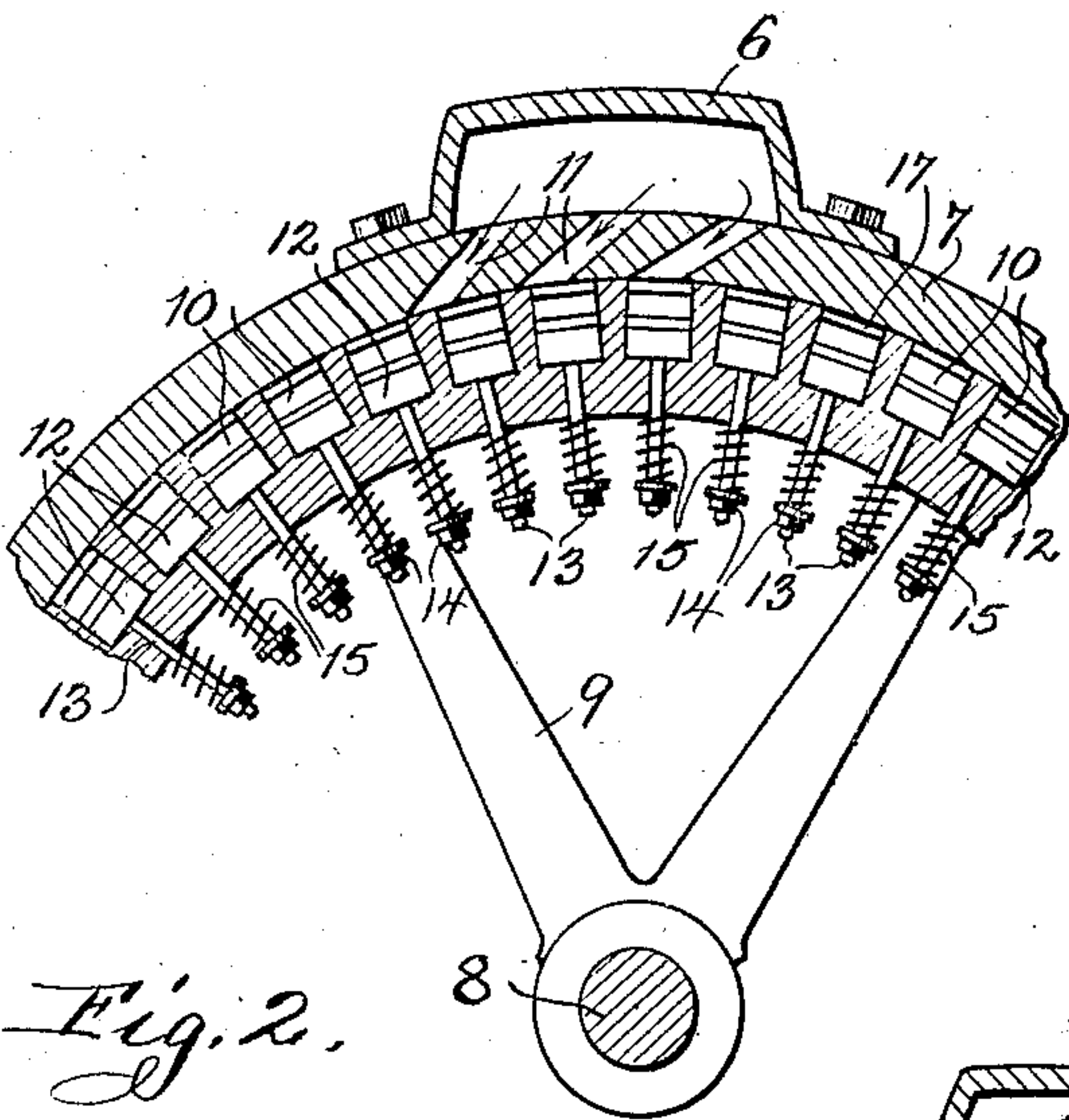


Fig. 3.

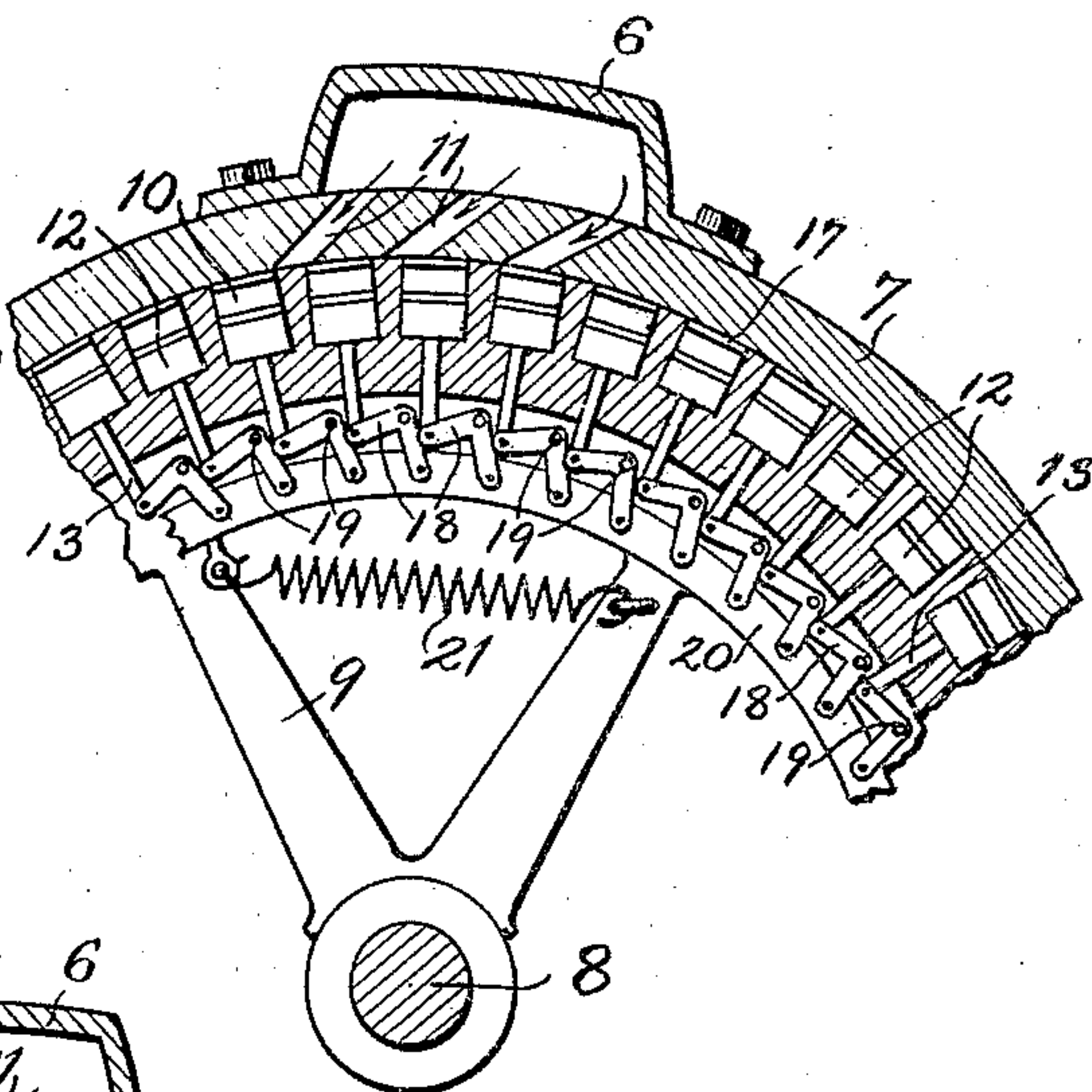


Fig. 2.

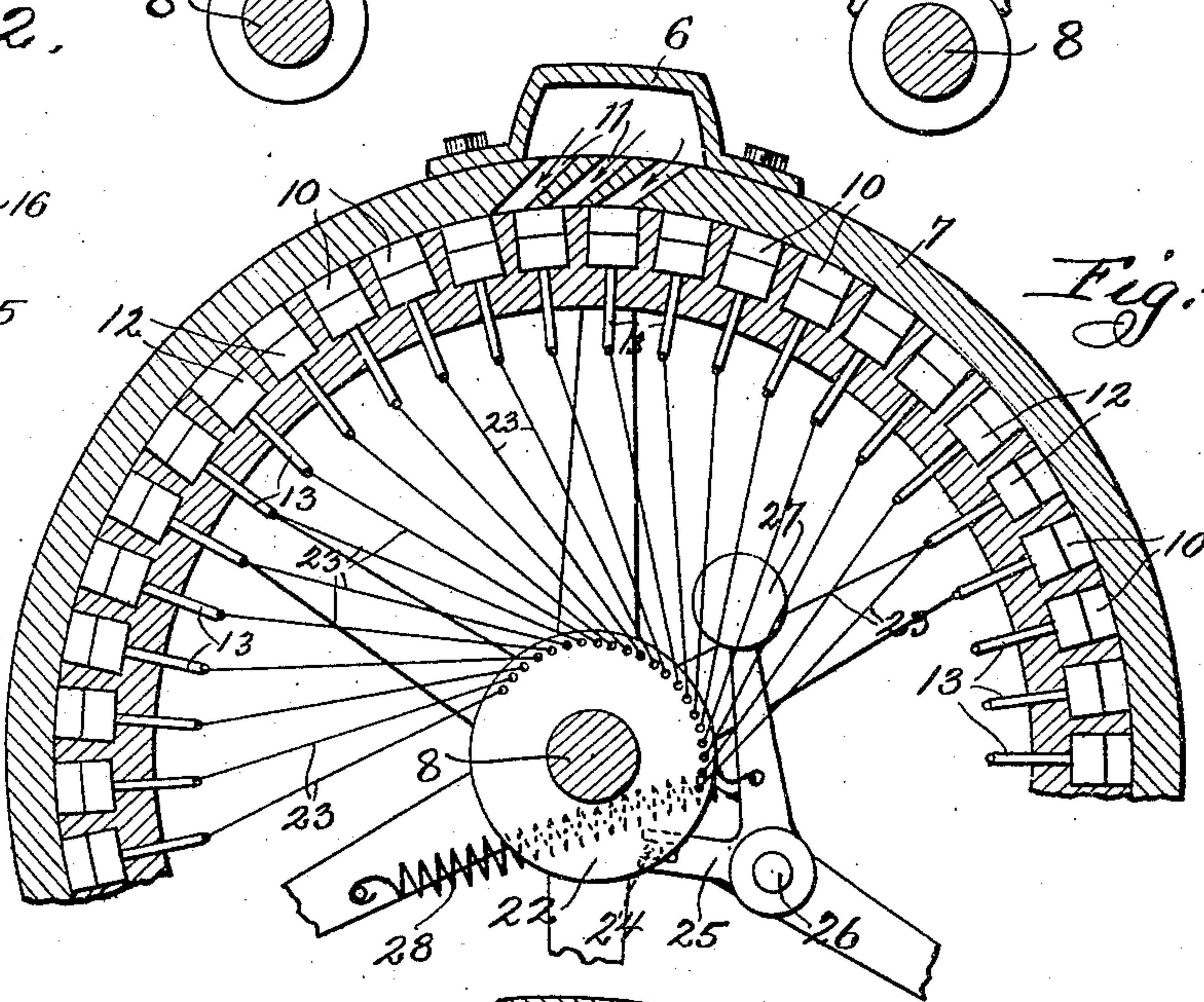
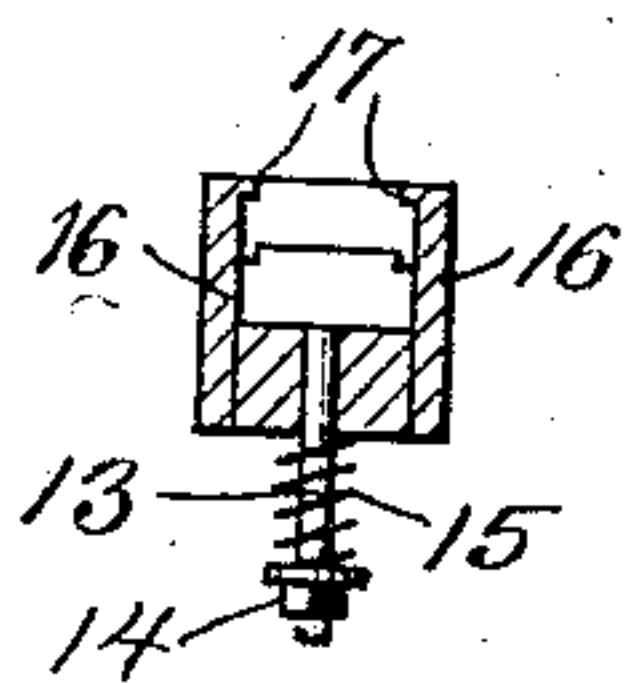
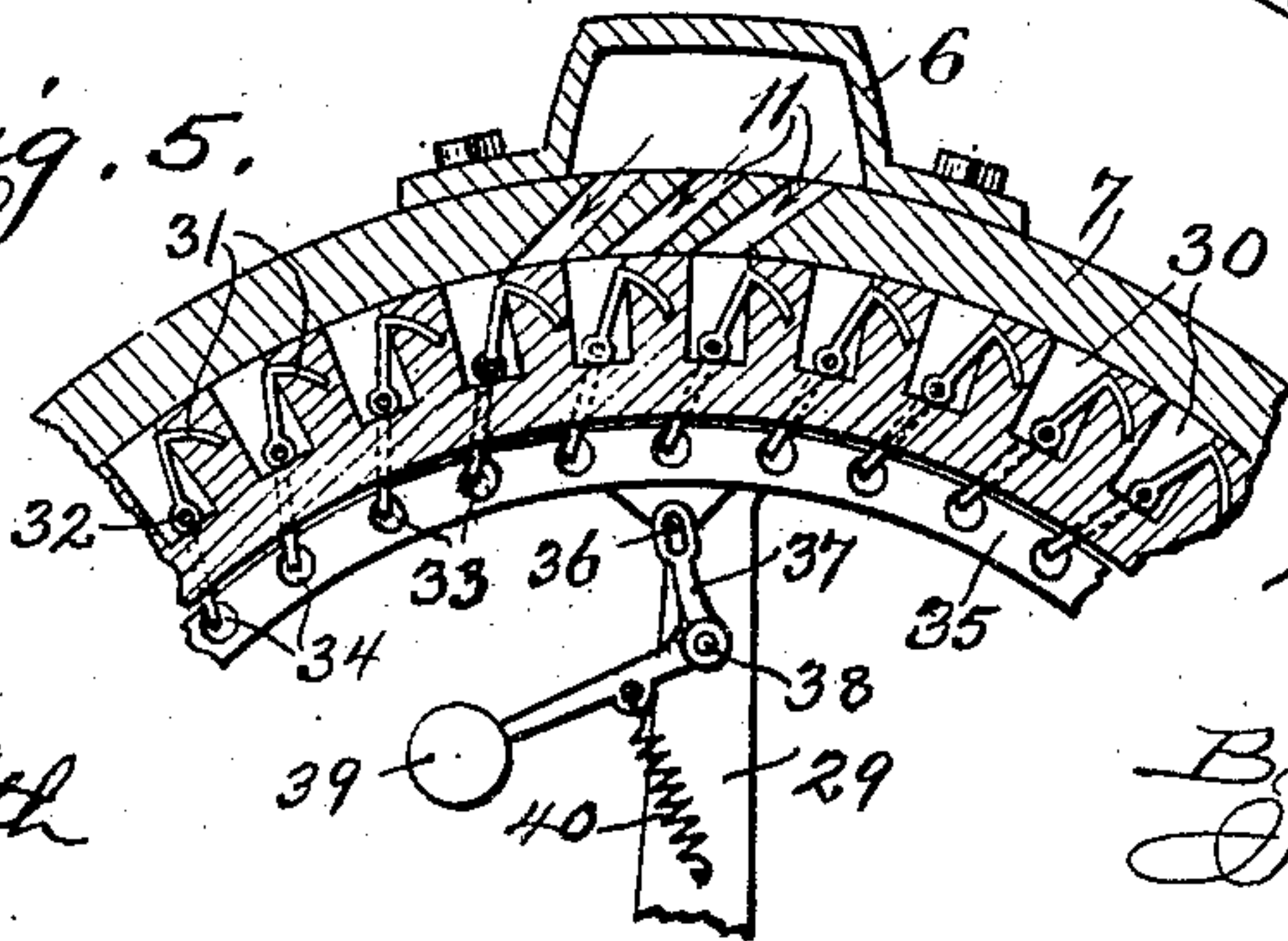


Fig. 4.

Fig. 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

TURBINE.

Patented April 7, 1908.

To all whom it may concern:

In Fig. 3, the exposed ends of the pins 13 are shown as being pivotally connected to one arm of a bell-crank lever 18 which is pivoted to the wheel 9 at 19. The other arm of the bell-crank lever 18 is pivotally secured to a floating ring 20 which is normally pulled by a spring 21 in such direction as to

hold the pistons 12 down in the bottom of the pockets 10.

In Fig. 4, the exposed ends of the pins 13 are shown as being connected to a disk 22 pivoted about the shaft 8 by connecting rods 23 in such manner that the turning of the disk in one direction will pull the pistons 12 in toward the bottoms of the pockets and turning the disk in an opposite direction will allow the pistons to move out toward the periphery of the wheel. The disk 22 is provided with an eccentric pin 24 which is engaged by the forked arm of a bell-crank lever 25 pivoted to the wheel 9 at 26 and having its other arm provided with a weight 27, so arranged that when the weight 27 swings about the pivot 26 by reason of centrifugal force as the wheel 9 rotates the bell-crank lever 25 will rotate the disk 22 in a direction to permit the pistons 12 to move out toward the periphery of the wheel 9. The movement of the weight 27 is controlled by a spring 28.

In Fig. 5 the wheel 29 is provided on its periphery with pockets 30 having the lids 31 which are pivoted at 32 and each is provided with an arm 33 extending through a slot provided therefor in the rim of the wheel 29. The free end of each arm 33 rests in a recess 34 provided in a ring 35. The ring 35 is provided with one or more pins 36 which are engaged by the slotted arm of a bell-crank lever 37 pivoted to the wheel 29 at 38 and having its other arm provided with a weight 39, in such manner that when the weight 39 swings about the pivot 38, by reason of the centrifugal force created by the rotation of the wheel 29, the bell-crank lever 37 will move the ring 35 so as to swing the lids 31 across the open end of the pockets 30 and thus decrease the size of the pockets exposed to the blast of steam from the nozzles 11. The movement of the weight 39 is controlled by a spring 40.

The means for automatically reducing and increasing the area of the pockets exposed to the jets of steam are capable of radical change from the constructions shown without in the least departing from the spirit of the invention.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent of the United States is:—

1. In a turbine, a wheel provided with pockets and means for simultaneously diminishing the capacity of said pockets.

2. In a turbine, a rotatable wheel provided with a plurality of pockets and means mounted to rotate with said wheel to simultaneously diminish the capacity of said pockets.

3. In a turbine, a wheel provided with numerous radial pockets and means for simultaneously diminishing the capacity of said pockets.

4. In a turbine, a rotatable wheel pro-

vided with a plurality of radial pockets and means mounted to rotate with said wheel to simultaneously diminish the capacity of said pockets.

5. In a turbine, a wheel provided with pockets and means operated by centrifugal force for simultaneously diminishing the capacity of said pockets.

6. In a turbine, a rotatable wheel provided with a plurality of pockets and means mounted to rotate with said wheel and operated by centrifugal force to simultaneously diminish the capacity of said pockets.

7. In a turbine, a wheel provided with numerous radial pockets and means operated by centrifugal force for simultaneously diminishing the capacity of said pockets.

8. In a turbine, a rotatable wheel provided with a plurality of radial pockets and means operated by centrifugal force mounted to rotate with said wheel to simultaneously diminish the capacity of said pockets.

9. In a turbine, a wheel provided with a plurality of pockets, pistons fitted to move in said pockets, and means for simultaneously moving said pistons.

10. In a turbine, a rotatable wheel provided with a plurality of pockets, pistons fitted to move in said pockets, and means mounted to rotate with said wheel to simultaneously move said pistons.

11. In a turbine, a wheel provided with numerous radial pockets, pistons fitted to move in said pockets, and means for simultaneously moving said pistons.

12. In a turbine, a rotatable wheel provided with a plurality of radial pockets, pistons fitted to move in said pockets and means mounted to rotate with said wheel to simultaneously move said pistons.

13. In a turbine, a wheel provided with pockets, pistons fitted to move in said pockets and means operated by centrifugal force for simultaneously moving said pistons.

14. In a turbine, a rotatable wheel provided with a plurality of pockets, pistons fitted to move in said pockets, and means mounted to rotate with said wheel and operated by centrifugal force for simultaneously moving said pistons.

15. In a turbine, a wheel provided with numerous radial pockets, pistons fitted to move in said pockets and means operated by centrifugal force for simultaneously moving said pistons.

16. In a turbine, a rotatable wheel provided with a plurality of radial pockets, pistons fitted to move in said pockets and means operated by centrifugal force mounted to rotate with said wheel for simultaneously moving said pistons.

17. In a turbine, a wheel provided with pockets and means for simultaneously diminishing the capacity of said pockets, said means comprising a disk loosely mounted

concentric with said wheel and arranged to be moved by a weighted lever.

18. In a turbine, a plurality of pockets and means for simultaneously diminishing the capacity of said pockets.

19. In a turbine, a wheel, a plurality of pockets, and individual means mounted in the pockets and rotating with said wheel to simultaneously change the capacity of said pockets.

20. In a turbine, a wheel a plurality of radial pockets, and means responsive to centrifugal force for simultaneously diminishing the capacity of said pockets.

21. In a turbine, a rotatable wheel, a plurality of radial pockets, and individual means mounted in the pockets and rotating with said wheel which are responsive to changes in centrifugal force for simultaneously changing the capacity of said pockets.

22. In a turbine, a wheel, a plurality of pockets, and individual means operated by

centrifugal force for simultaneously diminishing the capacity of said pockets as the speed of the wheel exceeds the normal.

23. In a turbine, a rotatable wheel, a plurality of pockets, individual means mounted to rotate with said wheel, and means operated by centrifugal force for simultaneously moving all of said means to change the capacity of said pockets.

24. In a turbine, a wheel, a plurality of radial pockets, individual means mounted in the pockets for simultaneously changing the capacity of said pockets, and mechanism for simultaneously moving said means.

In testimony whereof I have signed my name to this specification in presence of two subscribing witnesses this 9th day of December 1905, at Chicago, Illinois.

WILLIAM A. LOUDON.

Witnesses:

M. H. OLSEN,

R. J. JACKER.