

No. 611,996.

Patented Oct. 4, 1898.

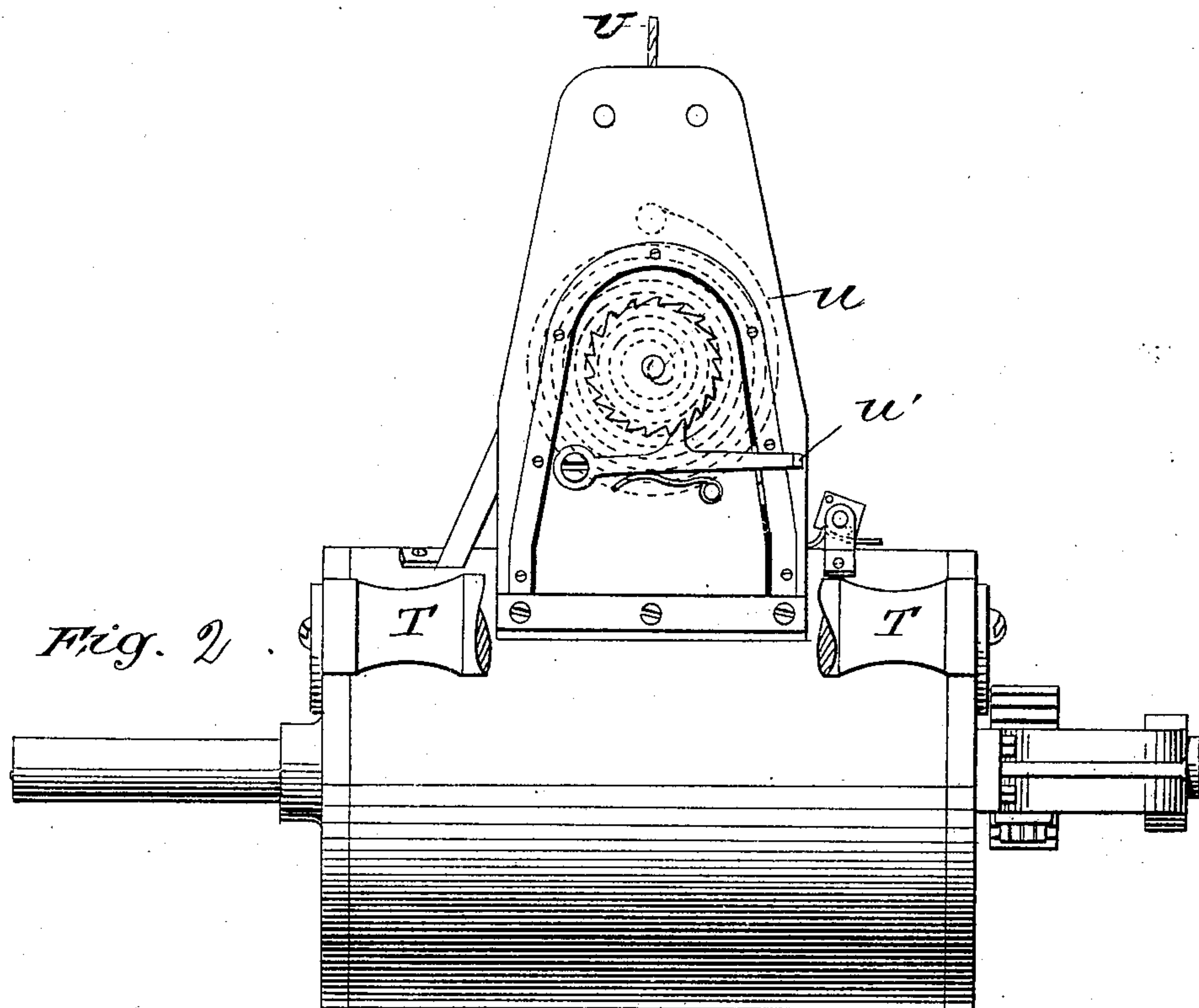
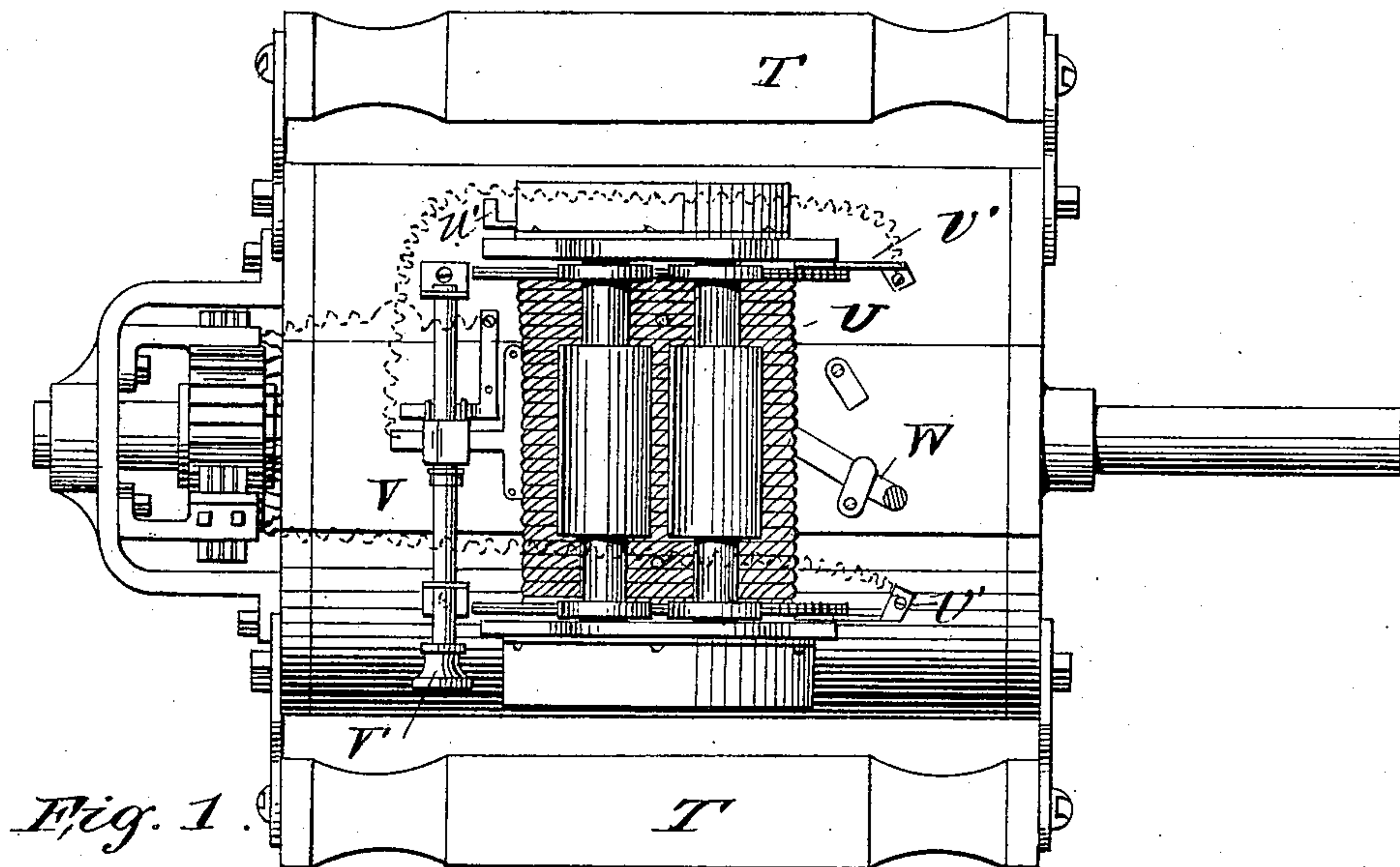
W. P. FREEMAN.

APPARATUS FOR CLEANING SHIPS' PLATES.

(Application filed June 30, 1897.)

(No Model.)

3 Sheets—Sheet 1.



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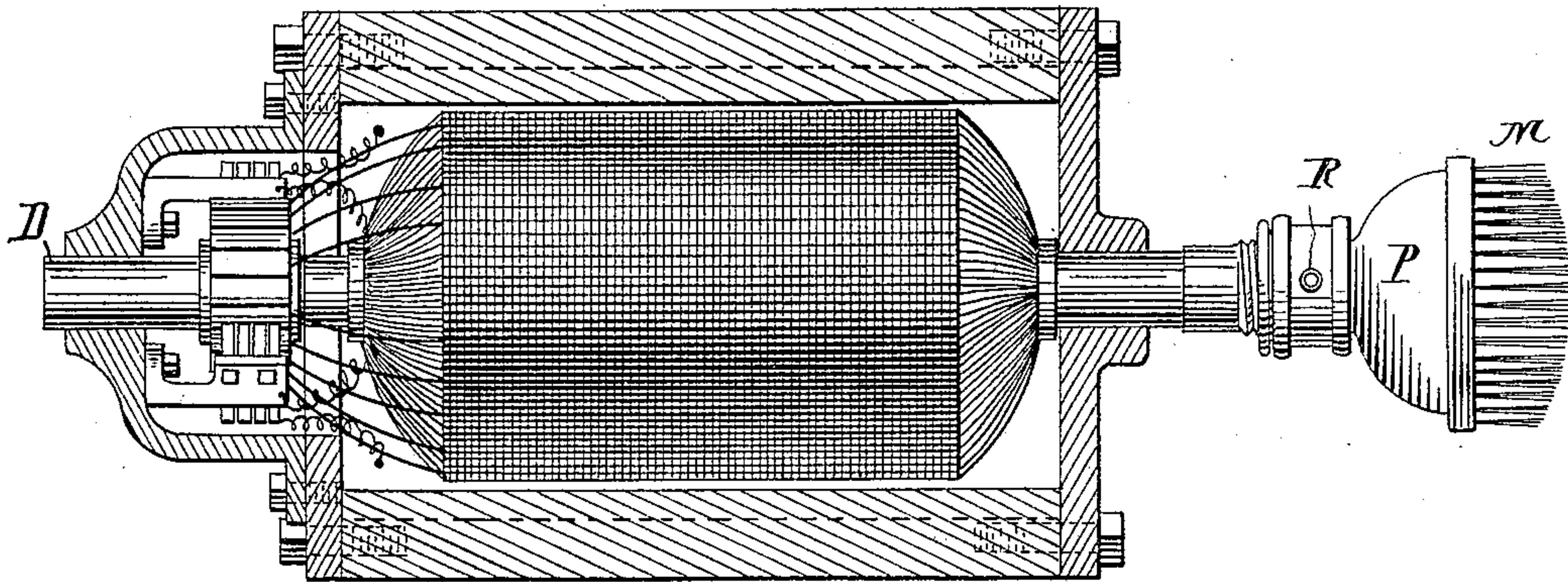


Fig. 3.

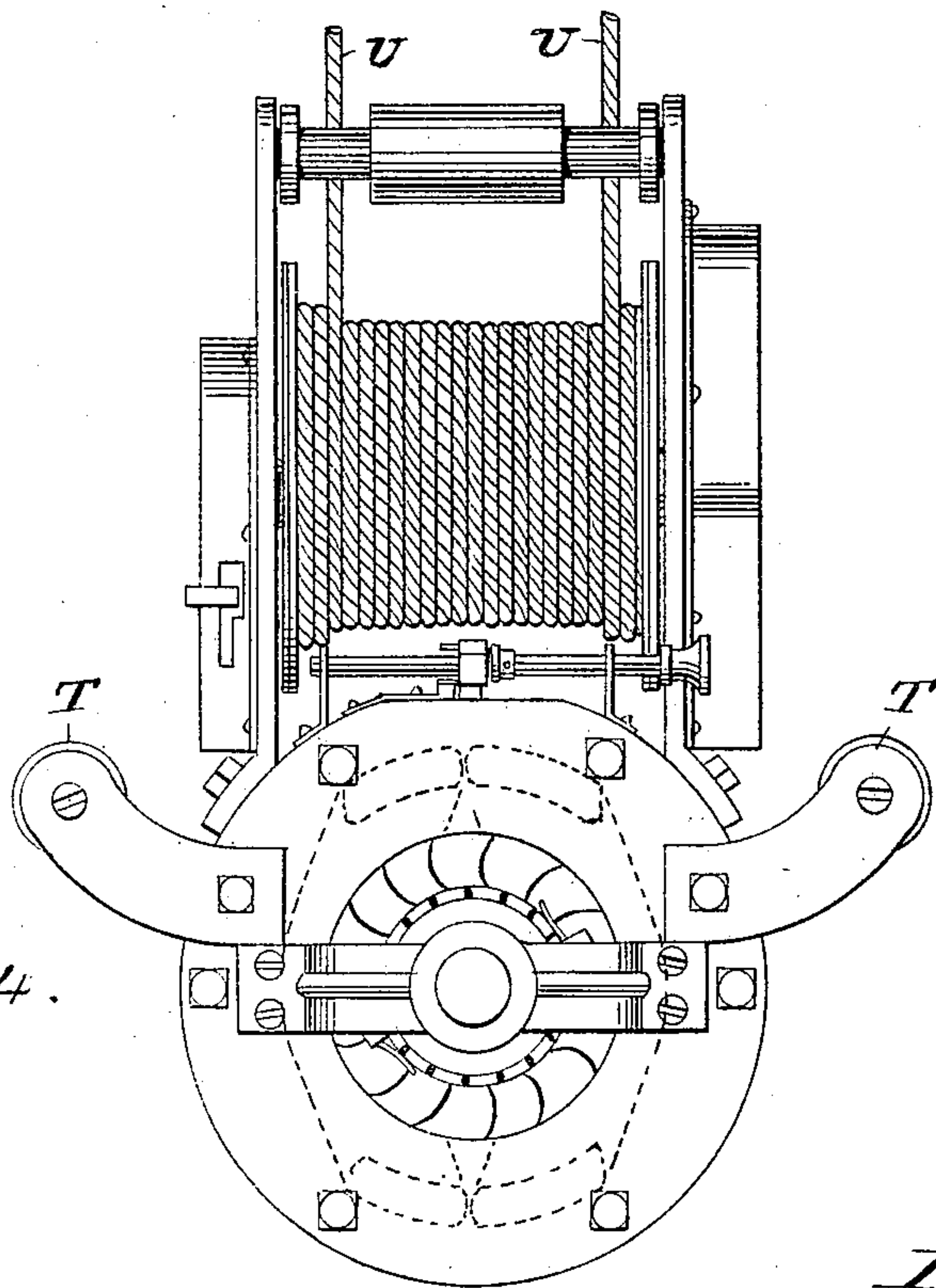


Fig. 4.

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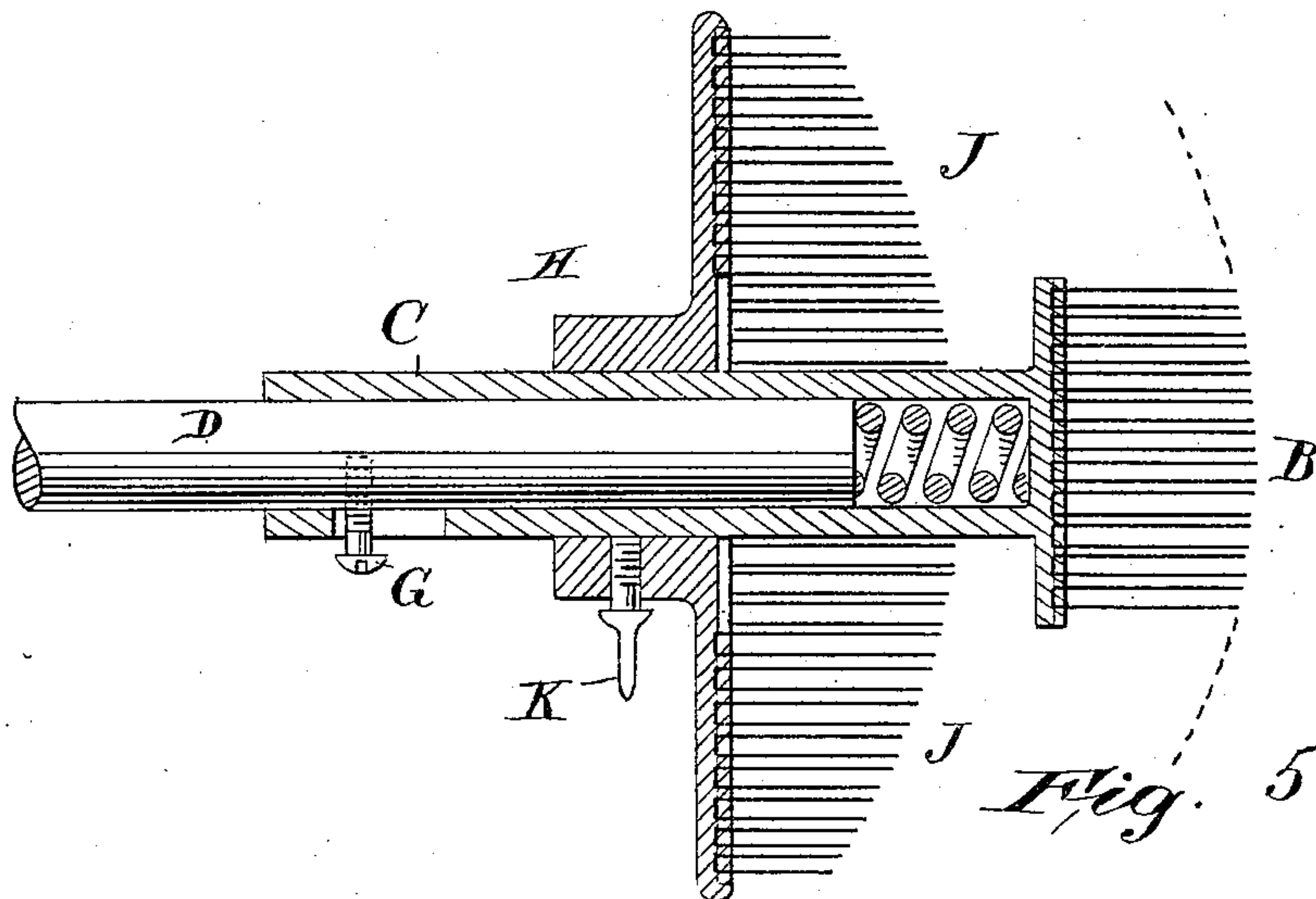
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# UNITED STATES PATENT OFFICE.

WARREN P. FREEMAN, OF NEW YORK, N. Y.

## APPARATUS FOR CLEANING SHIPS' PLATES.

SPECIFICATION forming part of Letters Patent No. 611,996, dated October 4, 1898.

Application filed June 30, 1897. Serial No. 643,029. (No model.)

*To all whom it may concern:*

Be it known that I, WARREN P. FREEMAN, of New York city, State of New York, have invented certain new and useful Improvements in Apparatus for Cleaning Ships' Plates and for other Purposes, of which the following is a description, referring to the accompanying drawings, which form a part of this specification.

10 The object of the invention is to produce a readily-portable and easily employed and controlled instrument for cleaning the old paint and adherent matter from ships' plates and various other surfaces.

15 The instrument may also be used for cleaning stone buildings and for cleaning and dressing stone. It may also be used for a variety of other purposes.

20 Briefly stated, one part of the invention consists of a rotating brush mounted on a rotary shaft and having a yielding connection between the brush and the shaft.

25 Another part of the invention is a sectional arrangement of the brush, so that it may be adjusted to present a larger or smaller operating-surface.

30 Another part of the invention is the electric motor for driving the shaft and the means for supporting and controlling the whole instrument.

Certain other features and purposes will be understood from the following description of the accompanying drawings.

35 Figure 1 is a plan view showing the instrument with the cleaner omitted. Fig. 2 is a side elevation of the same partly broken away to show the details of the raising and lowering mechanism. Fig. 3 is a section through the field-magnet poles, the field-coils being omitted. Fig. 4 is a rear end elevation. Fig. 5 is a central cross-section of the cleaning device.

Throughout the drawings like letters of reference indicate like parts.

45 It may be convenient first to describe the cleaning device and then the organization of the motor.

50 In Fig. 5 the central portion of the cleaning brush or device is shown at B. This consists, preferably, of steel wires, which, if highly tempered, may be used to clean and dress even the hardest stone surfaces. The

central section B of the brush is mounted on a sleeve C, which fits upon the rotary shaft D and is free to move endwise upon the shaft 55 for a limited distance against the action of the spring F. The sleeve is loosely secured to the shaft and its movement upon the shaft limited by means of the screw G.

Surrounding sleeve C is a shorter sleeve H, 60 which carries the brush-sections J. These sections J are so formed that when the sleeve H is slipped along the sleeve C the sections J come around the central section of the brush B, the ends of the wires reaching the position 65 indicated in dotted lines and making one brush out of the several sections B and J. The sections J may be formed as a single annular brush, the space within the annulus receiving the section B when the sections J 70 are advanced to their foremost position. When the sections J have been adjusted either forward or backward, they are fixed in position upon the sleeves C by means of the thumb-screw K. When so fixed, it will 75 be seen that the whole brush, including both sections B and J, is free to yield upon the shaft D against the action of the spring F. When adjusted as shown in Fig. 5, the section B is alone in position for use. The shaft 80 D may be run at high or low speed at will, as will be presently described. In running at slow speed the section B may be pressed against the surface to be cleaned, and the section being comparatively small considerable 85 pressure between the several wires and surfaces to be cleaned is produced. When running slowly and applied in this manner, the brush therefore scrapes the surface with considerable force. When the sections J are 90 advanced and the whole front of the brush is used, the increase of surface diminishes the pressure upon the individual wires, and if the speed of the shaft is increased the brush works very rapidly in cleaning paint and like 95 deposits from ships' plates and other surfaces, as well as in cleaning and dressing stone. After the surface has been cleaned and is ready to receive the coat of paint or metal the cleaning device is removed from the end 100 of the shaft D, and any other desired device may be applied.

It now remains to describe the means by which the rotary shaft D is preferably driven.



The shaft D is preferably the armature-shaft of an electric motor of small size, which may be of any desirable type, though I prefer the annular form of field-magnet inclosing the armature, as shown in the figures. In Fig. 3 the armature-shaft, commutator-brushes, and a paint-applying or other rotary brush M P R are clearly shown. M indicates the bristles of the brush, P the back of the brush, and R may be considered to indicate, graphically, one means of applying paint to the brush without stopping it. These details do not form a part of the subject-matter of this patent, as they can only be included in a divisional or separate application, and they are mentioned here merely as showing that other devices may be attached interchangeably with the cleaning device upon the end of the motor-shaft. The details of the organization of the electrical apparatus are not material to the invention. In the form shown in the drawings the field-magnet coils surround the armature longitudinally and are indicated in dotted lines in Fig. 4. This annular form of field-magnet gives a very compact easily-handled motor, the supporting-handles of which are shown at T. The whole instrument may be suspended by means of the two conductors U, which are wound upon a drum or reel, as indicated, which drum or reel is secured to the top of the instrument and supplied with a strong winding-spring *u*, which tends to wind up the conductors U and is of such strength as to support and preferably to tend to raise the whole instrument. The drum is held from turning by means of a pawl and ratchet, as shown in Fig. 2, which may be controlled by the thumb of one hand of the operator when he is grasping the handles T. I have shown the pawl provided with a projecting end *u'* for this purpose, conveniently placed near one of the handles T. The motor is stopped and started by means of a hand-switch V, controlled by a handle V', conveniently placed in relation to one of the handles T. The speed of the motor may be controlled by the regulating-switch W.

In using the instrument the conductors U are supplied with current and secured to a suitable support in any desired manner—preferably that shown and described in my application, Serial No. 641,806, filed June 22, 1897. In that application are also contained a full description of and claims for the supporting drum or reel and its connection with the circuits of the motor and with the conductors by which it is suspended. The in-

strument is raised or lowered by releasing the spring-reel and lifting it or lowering it to the right point opposite the surface to be treated. The cleaning device or the brush for applying paint, electrolyte, or other materials to the surface is then, after being mounted on the end of the shaft, pressed against the surface to be treated at any desired angle and the instrument moved to the right or left and raised or lowered from time to time as the work proceeds.

I make no claim to the features of the painting and plating brush when considered apart from the rest of the apparatus, as these must be made the subjects of divisional applications.

Without attempting to describe any of the many possible modifications which readily suggest themselves as being possible in the several features of my invention without departing from the principles involved,

I claim, and desire to secure by these Letters Patent, as follows:

1. The electric motor, having the supporting-handles T and projecting armature-shaft R, a spring reel or drum secured to the said motor, electric conductors partly wound upon the said drum and electrically connected with the said motor, and means for securing cleaning, painting, and other devices to the end of the said shaft, the said spring reel or drum tending to support the said motor, drum and conductors wound thereon, whereby it may be readily raised, lowered, and adjusted directly by the operator substantially as and for the purposes set forth.

2. In combination with the rotary shaft, the cleaning device consisting of relatively-adjustable sections and movable as a whole longitudinally upon the said shaft, substantially as set forth.

3. The cleaning-brush consisting of a central section B and a lateral section J, adjustable relatively to the central section B, substantially as set forth.

4. In combination with a rotary shaft and means for rotating it, a central rotating brush-section B mounted upon the end of the shaft, and a lateral section J adjustable relatively to the central section B, substantially as set forth.

In testimony whereof I have hereunto set my hand this 28th day of June, 1897.

WARREN P. FREEMAN.

Witnesses:

GEORGE H. SONNEBORN,  
HAROLD BINNEY.