

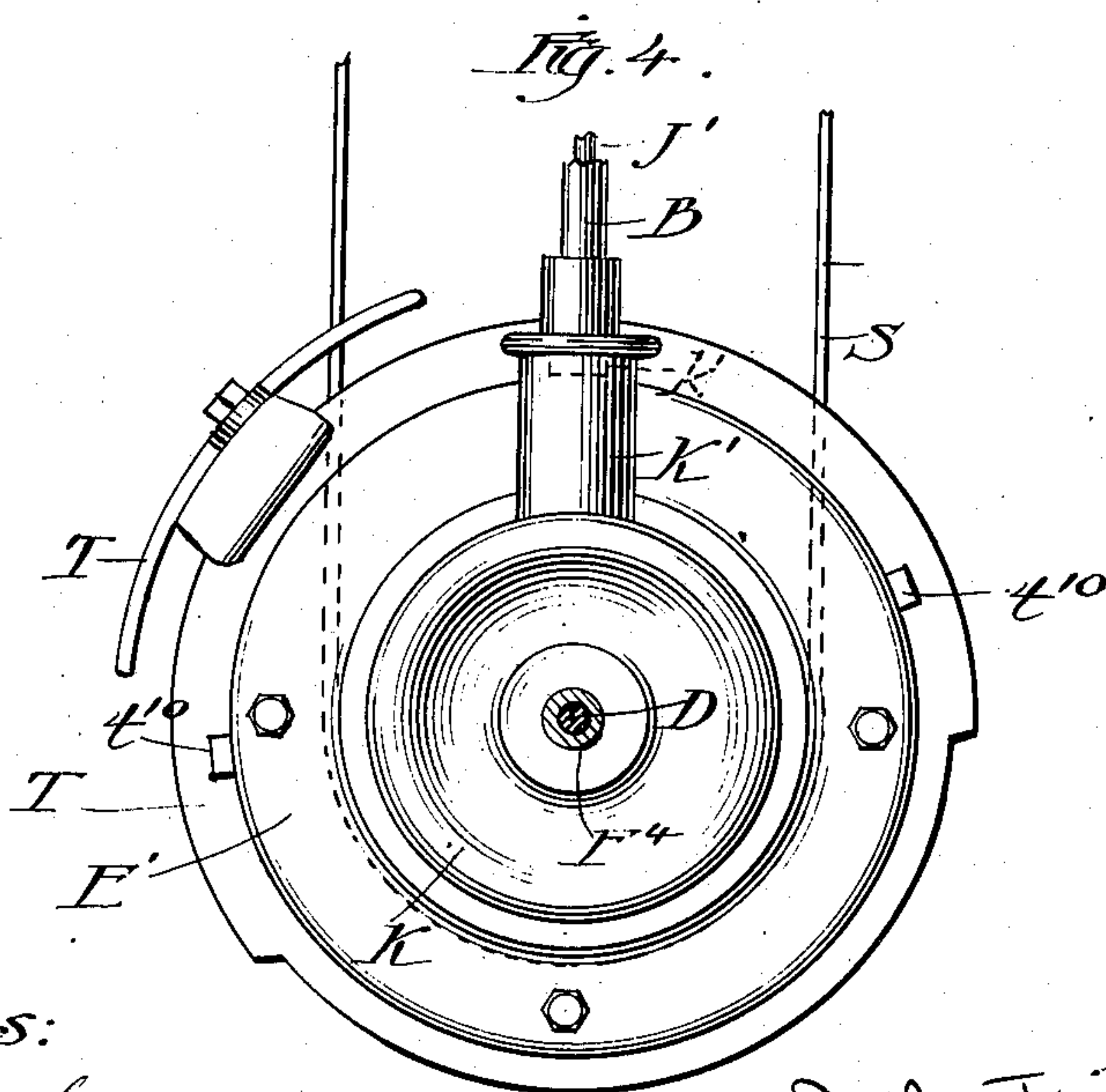
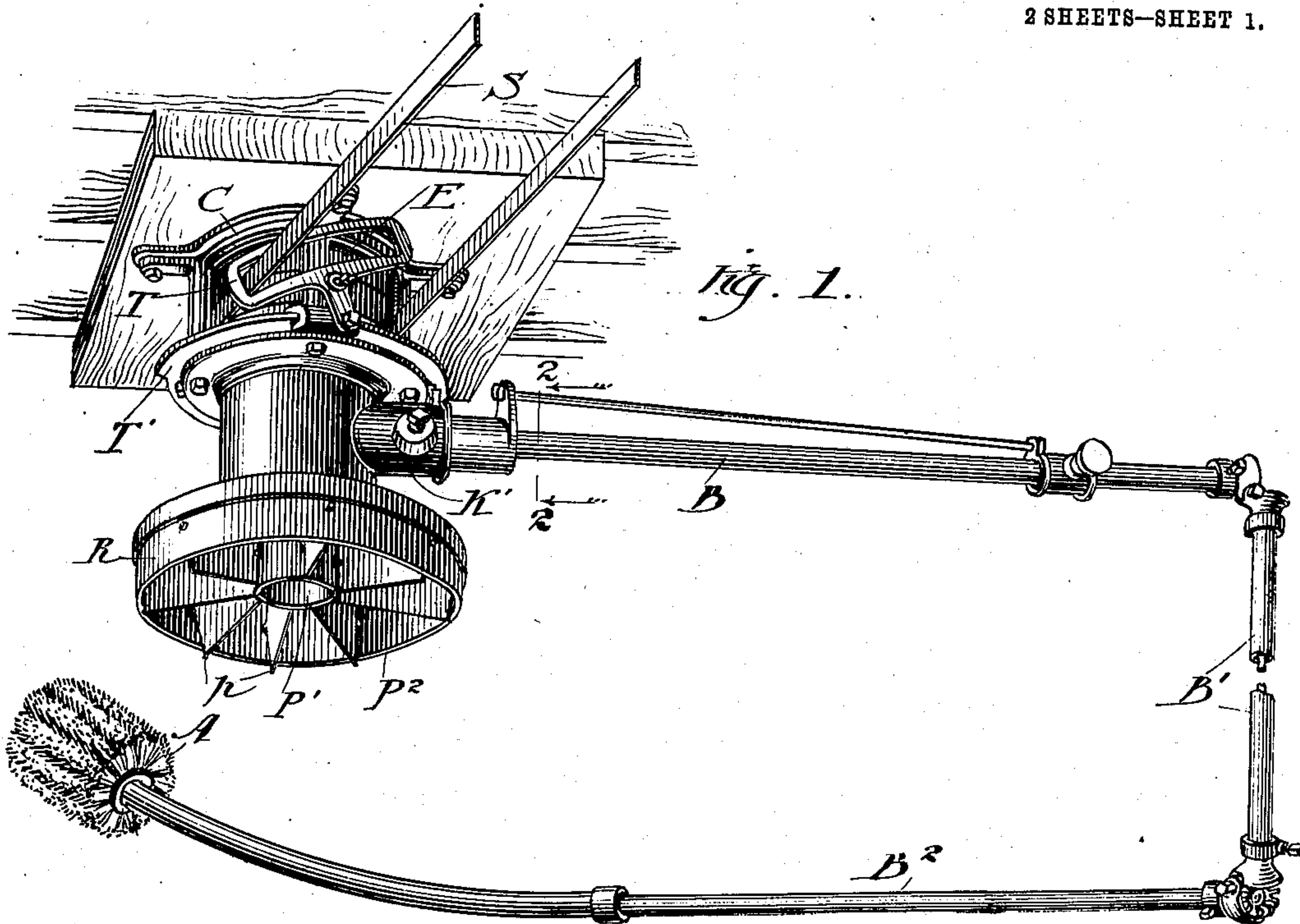
No. 858,919.

PATENTED JULY 2, 1907.

J. K. STEWART.
GROOMING MACHINE.

APPLICATION FILED FEB. 26, 1906.

2 SHEETS—SHEET 1.



Witnesses:
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M. Gertrude Ady

Inventor:
John K. Stewart
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His Attorneys.

No. 858,919.

PATENTED JULY 2, 1907.

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2 SHEETS—SHEET 2.

Fig. 2.

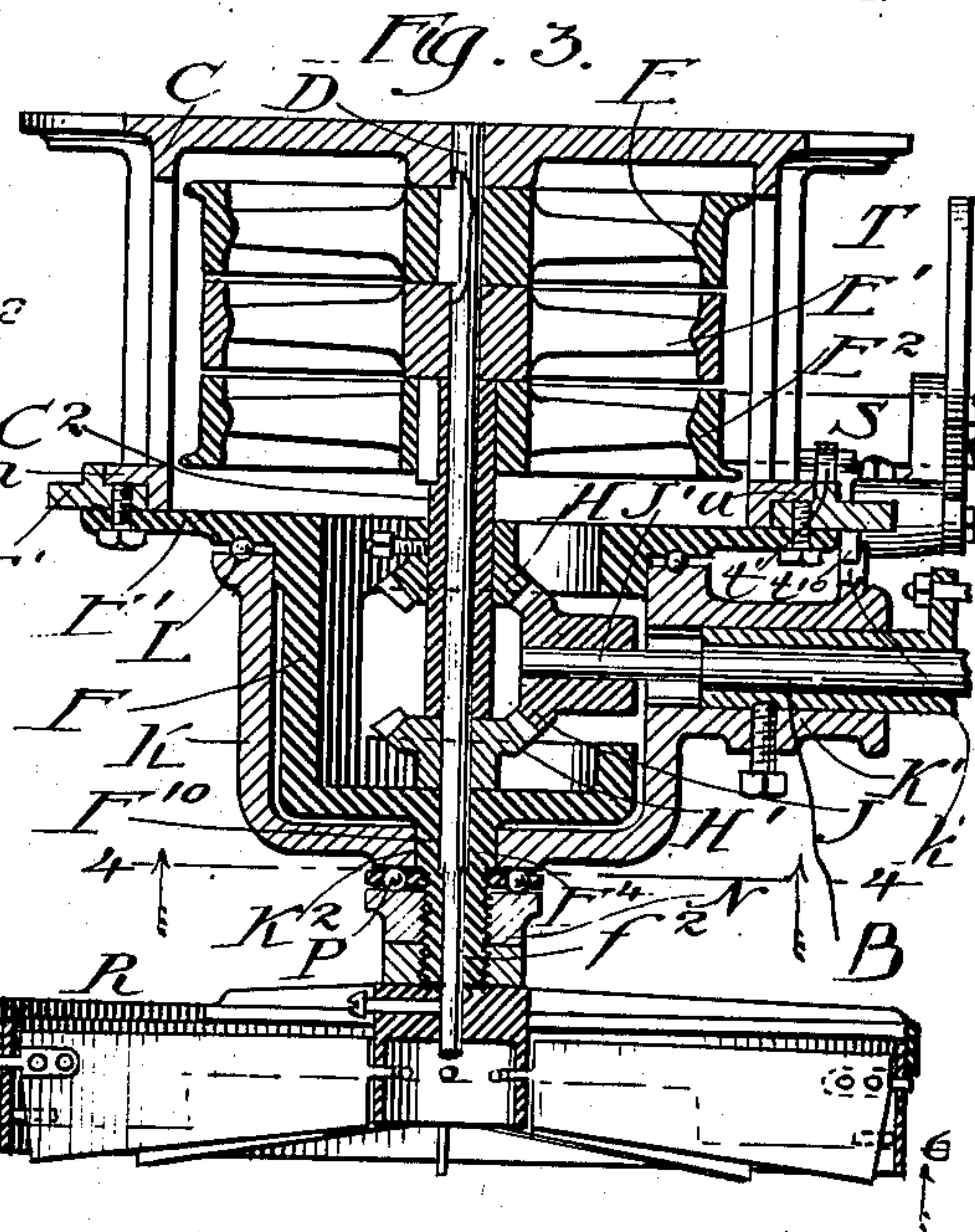
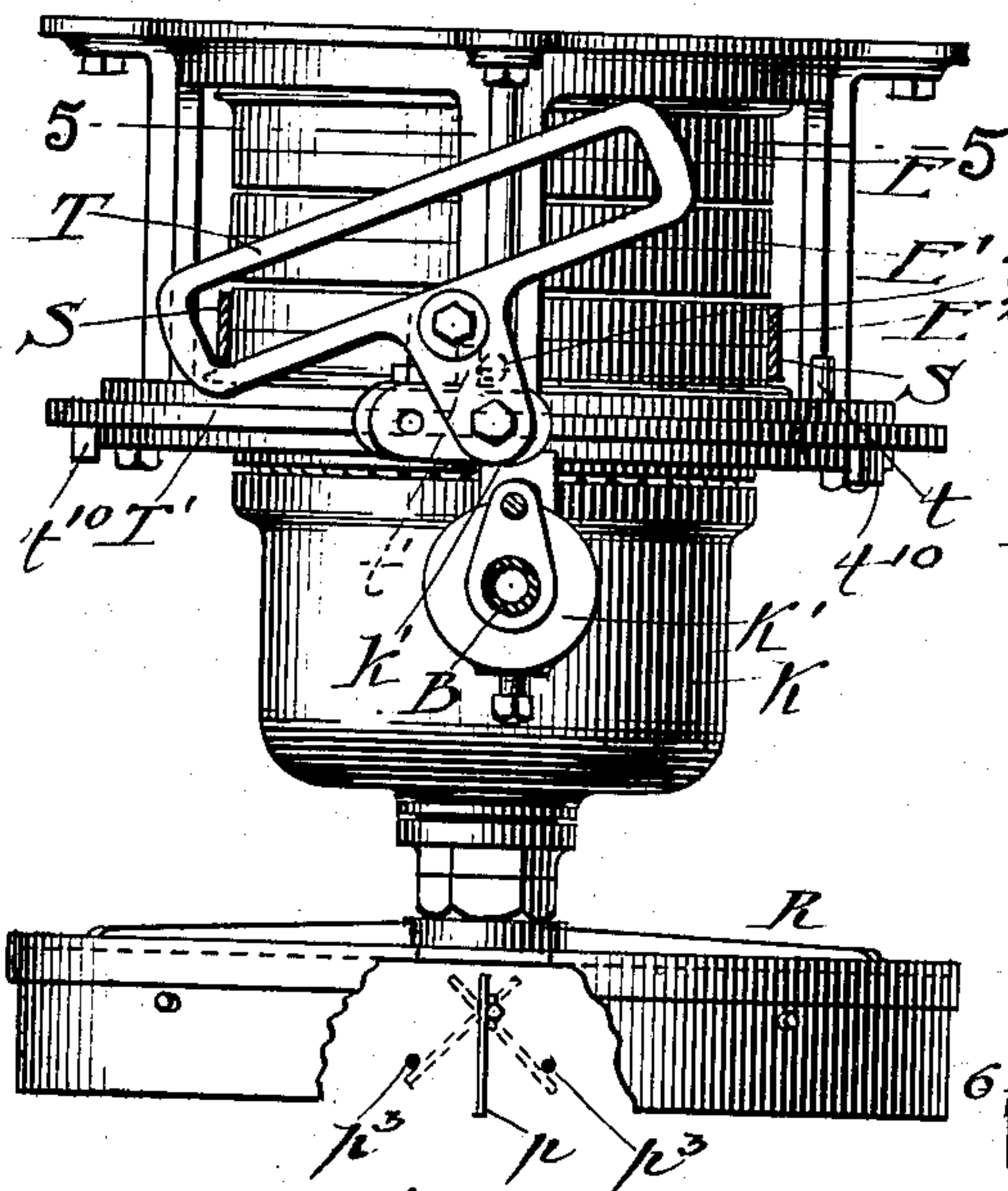


Fig. 5.

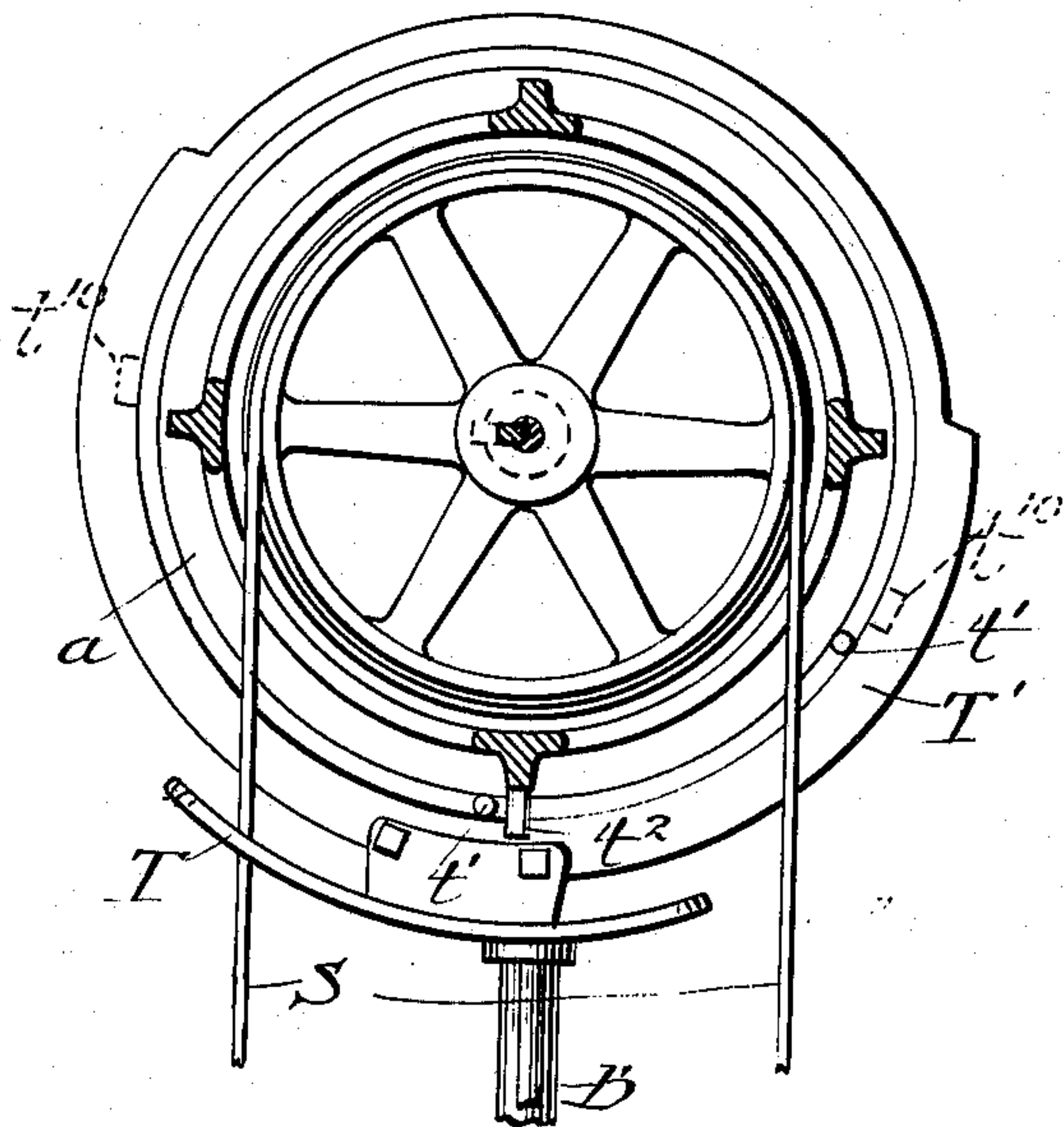
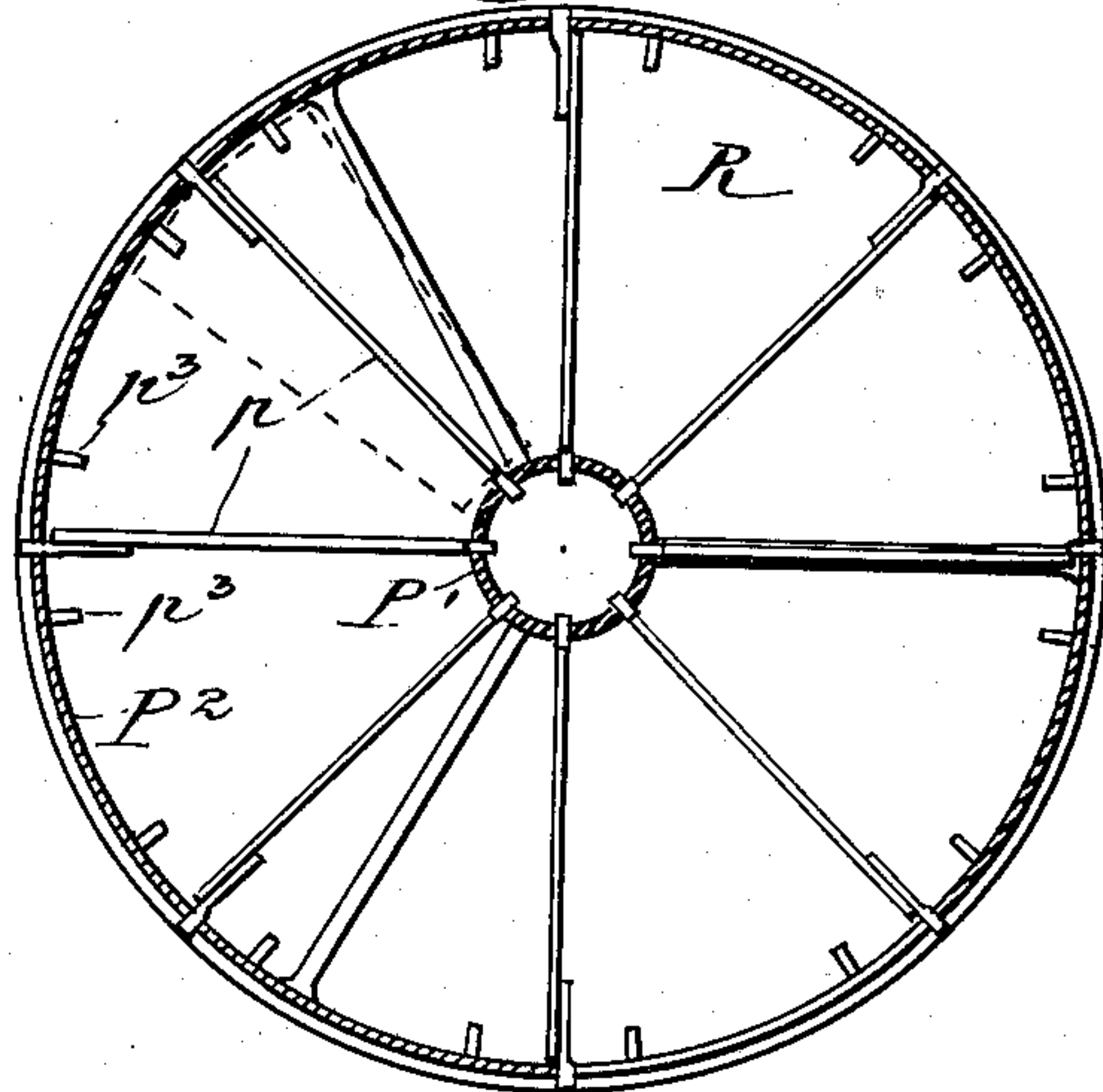


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN K. STEWART, OF CHICAGO, ILLINOIS.

GROOMING-MACHINE.

No. 858,919.

Specification of Letters Patent.

Patented July 2, 1907.

Application filed February 26, 1906. Serial No. 302,862.

To all whom it may concern:

Be it known that I, JOHN K. STEWART, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Grooming-Machines, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

The purpose of this invention is to provide an improved apparatus for operating a hand-directed power-driven grooming tool of any description, as, for example, a clipper or brush.

It consists of the features of construction set out in the claims.

In the drawings:—Figure 1 is a perspective view of the entire apparatus comprising my invention. Fig. 2 is a sectional side elevation of the same, section being made at the line 2—2 on Fig. 1. Fig. 3 is a section axial with respect to both the shafts of the device. Fig. 4 is a section at the line 4—4 on Fig. 3. Fig. 5 is a section at the line 5—5 on Fig. 2. Fig. 6 is a detail section of the fan at the line 6—6 on Fig. 3.

In the structure shown in the drawings the grooming tool or brush, A, is connected by a jointed or flexible shaft and casing, B, B', B², of which the casing of the first element, B, constitutes a gibbet arm extending off horizontally from the case of the power-transmitting mechanism. The construction of the flexible shaft is familiar and need not be particularly described. The case of the power-transmitting mechanism comprises a hanger, C, preferably adapted to be mounted upon the ceiling of the stable or room in which the device is to be used, having journaled in it the vertical shaft, D, fast on which is a pulley, E, at the upper end next to the upper bearing of the shaft. Below the fast pulley, E, on this shaft there is a loose pulley, E', and below the loose pulley there is a second loose pulley, E², having a sleeved hub, C², which extends into a gear hanger, F, formed as a part of the plate, F¹, which closes the hanger, C, at the lower side. The shaft, D, extends through said sleeved hub, C², and out through a bearing hub or sleeve, F⁴, at the center and lower side of the gear hanger, F. Said sleeved hub, C², of the pulley, E², carries rigid with it within the gear hanger a bevel-gear, H; and the shaft, D, which extends on through the hanger and out through the lower bearing, f², has rigid with it a bevel-gear, H', facing the bevel gear, H, at a sufficient distance therefrom to admit between them a bevel-gear, J, intermeshing with both H and H'. The gear, J, has its shaft extending out through a sleeve or bearing boss, K', of a gear housing, K, in which sleeve or boss the inner end of the initial element, B, of the flexible shaft casing is journaled and longitudinally stopped. This gear housing, K, is a cylindrical case substantially closed circumferentially and at the bottom, except as to the opening through the sleeve, K', above mentioned and

the opening at a central bearing, K², at the lower side, at which the case is mounted for rotation about the axis of the shaft, D, on the bearing hub or sleeve, F⁴, with which the gear hanger, F, is provided at the lower side. The gear housing, K, encompasses the gear hanger, and with intervening ball bearings, L, at its upper end seats against the under side of the plate, F', of the gear hanger. A stop-collar, N, screwed onto the projecting lower end f² of the bearing, hub or sleeve, F⁴, of the gear hanger, F retains the gear housing, K, on the gear hanger, ball bearings, P, being preferably interposed between the collar and the opposed downwardly facing end of the hub or boss of the gear housing. The gear hanger, F, is cut away at one side for about 180 degrees to afford a path for the hub or shaft of the bevel-gear, J, in the oscillating movement which the gear housing, K, is adapted to have about the axis of the shaft, D. On the lower end of said shaft, D, there is carried a fan, R, open at top and bottom so that the rotation of the fan draws or drives the air axially through it for the purpose of blowing the dust raised in the grooming process down from the animal and the operator and also for cooling both animal and operator.

It will be understood from the foregoing description that the belt, S, when operating on the pulley, E, will rotate the gear, J, and its shaft, J', in the opposite direction from that in which said shaft and gear will be rotated when the belt, still traveling in the same direction, is shifted onto the pulley, E². The belt is thus shifted from one pulley to the other by means of a belt shifter, T, which is a loop or elongated eye encompassing the oncoming belt and set oblique thereto, said shifter being mounted rigidly on a segment slide, T', which is itself mounted for sliding circumferentially about the axis of the shaft, D, on the base of the pulley hanger in a seat provided for it between a flange, a, at the bottom of the hanger and the margin of the plate, F', which forms the top of the gear hanger. (See Fig. 3.) Suitable stops, t', t², limit the throw or angular movement of the belt-shifter-carrying segment, T'. It is the intention of the structure that the direction of rotation of the flexible shaft and of the grooming tool deriving motion from the shaft, J', of the final gear, J, of the train, shall be reversed as the operator passes from one side of the animal, so that the brush or other tool employed in grooming may, without special attention on the part of the operator, receive the right direction of rotation to produce the proper effect—either with or against the hair of the animal, as desired according to the process being performed,—the direction of rotation being for this purpose necessarily opposite when operating at opposite sides of the animal. The oscillation of the gear housing about the axis of the shaft, D, which occurs without attention on the part of the operator as he carries the grooming tool connected with the

shaft, J', around from one side to the other of the animal, is made to operate the belt shifter to pass it from one of the driving pulleys to the other so as to reverse the direction of rotation of the flexible shaft while the operator is passing from one side to the other of the animal at the rear. This is effected by means of a lug, k', which projects up from the upper side of the sleeve, K', overhung by the segment slide, T', so as to encounter at proper points in the path of oscillation in the opposite directions, two downwardly projecting stop lugs, t¹⁰, t¹⁰, with which the segment slide is provided for that purpose.

It will be understood that the fan carried by the shaft, D, will have its direction of rotation reversed when the belt is shifted from one pulley to the other. In order that, notwithstanding this reversed direction of rotation, the fan may continue to blow down upon the animal for the purpose for which the fan is provided, it is constructed with its vanes, p, p, hung pivotally between the inner and outer rings, P', P², adapted to swing from a position inclined, say from 30 to 40 degrees from horizontal in one direction, to a position similarly inclined in the other direction, stops, p³, on the outer ring, P', or at any other convenient point being provided to limit the range of such swinging movement. In order that this reversion of position may occur automatically the vanes are pivoted a little above the middle line of their width, so that a larger area is exposed to the resistance of the air below than above such pivotal line, thus causing the vane to swing to one limit of the inclination permitted when the fan revolves in one direction, and to the other limit when the fan revolves in the opposite direction. It will be obvious that the direction of movement of the air through the fan being governed by the direction of the inclination of the vanes relatively to the direction of rotation, will be from the side near to which the vanes are pivoted toward the opposite side, and it will be obvious, therefore, in what manner the construction should be changed to cause the fan to blow upward instead of downward.

I claim:—

1. In a grooming machine, a pair of driving pulleys and a driving belt adapted to be shifted from one to the other; a reversing gear train whose final gear and its shaft derive reverse rotation from the two pulleys respectively; an oscillating bearing for said shaft; a belt shifter for shifting the belt from one to the other of the pulleys, and means by

which the oscillation of said bearing operates the belt shifter.

2. In a grooming machine, in combination, a pair of driving pulleys fast on coaxial shafts; a loose pulley mounted between them; a reversing gear train whose final wheel and its shaft derive opposite rotation from the two coaxial shafts respectively; a bearing for the shaft of said final wheel mounted for oscillation about the coaxial shafts; a belt shifter for shifting the belt from one fast pulley to the other over the other intermediate loose pulley, and means by which the oscillation of said bearing operates the belt shifter.

3. A grooming machine comprising a pair of driving pulleys and a driving belt adapted to be shifted from one to the other; a reversing gear train whose final gear and shaft derive reverse rotation from the two pulleys respectively; a housing which incloses said gear train mounted for oscillation about the axis of the pulleys; a bearing in said housing for the shaft of said final gear; a belt shifter and means on the housing for operating the shifter by the oscillation of the housing.

4. In a grooming machine in combination, a pair of driving pulleys fast on concentric shafts; a reversing gear train whose final gear and shaft derive reverse rotation from the two shafts respectively; a fan mounted on one of the shafts; a driving belt and means for shifting it from one pulley to the other, the fan having its vanes pivoted at a longitudinal line one side of the middle of the width of the vane and stops for limiting the tilting movement of the vanes about their pivots at two positions oppositely inclined to the plane of rotation.

5. In a grooming machine, in combination with a shaft for operating a grooming tool; a train for driving it adapted to rotate it in opposite directions; means for reversing the train; a shaft in the train whose direction is reversed when that of the tool-operating shaft is reversed; a fan on said shaft having its vanes pivoted each at a longitudinal line at one side of the middle of the width of the vane, and stops on the fan frame or case for limiting the oscillation of the vanes about their pivots at two positions oppositely inclined to the plane of rotation of the fan.

6. In a grooming machine, in combination with a grooming tool and a fan and a train in and by which they are both rotated; means for reversing the direction of rotation of the train, the fan having its vanes pivoted each at a longitudinal line at one side of the middle of the width of the vane and free to swing about their pivotal mounting, and stops on the fan frame or case for limiting the oscillation of the vanes about their pivots at two positions oppositely inclined to the plane of rotation of the fan.

In testimony whereof, I have hereunto set my hand, in the presence of two witnesses, at Chicago, Illinois, this 23d day of February, 1906.

JOHN K. STEWART.

In the presence of—

CHAS. S. BURTON,
M. GERTRUDE ADY.