

N. STOW.
Machine for Brushing Animals.

No. 227,857.

Patented May 18, 1880.

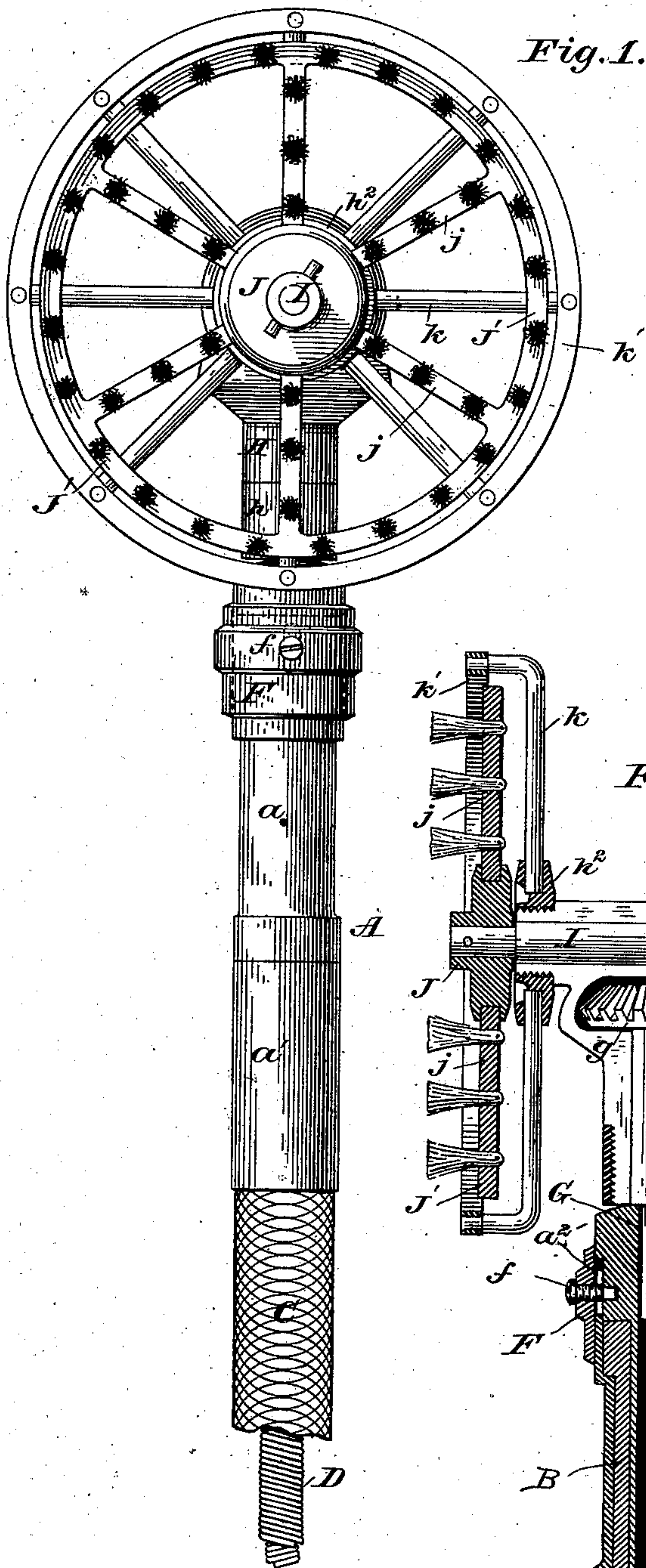


Fig. 1.

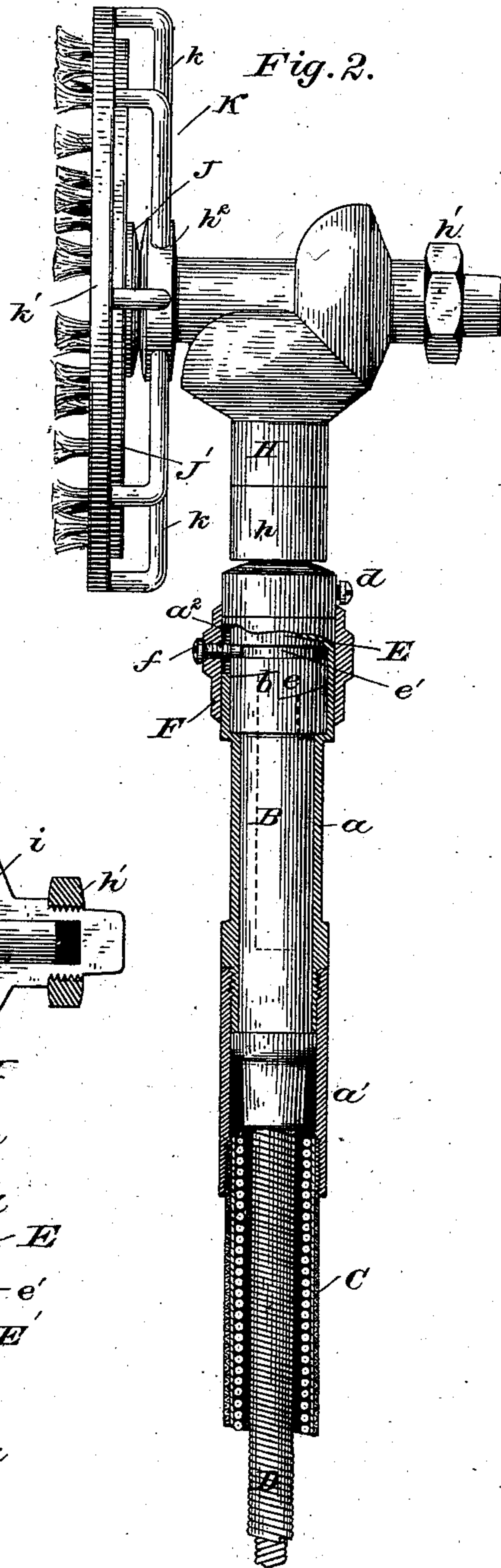


Fig. 2.

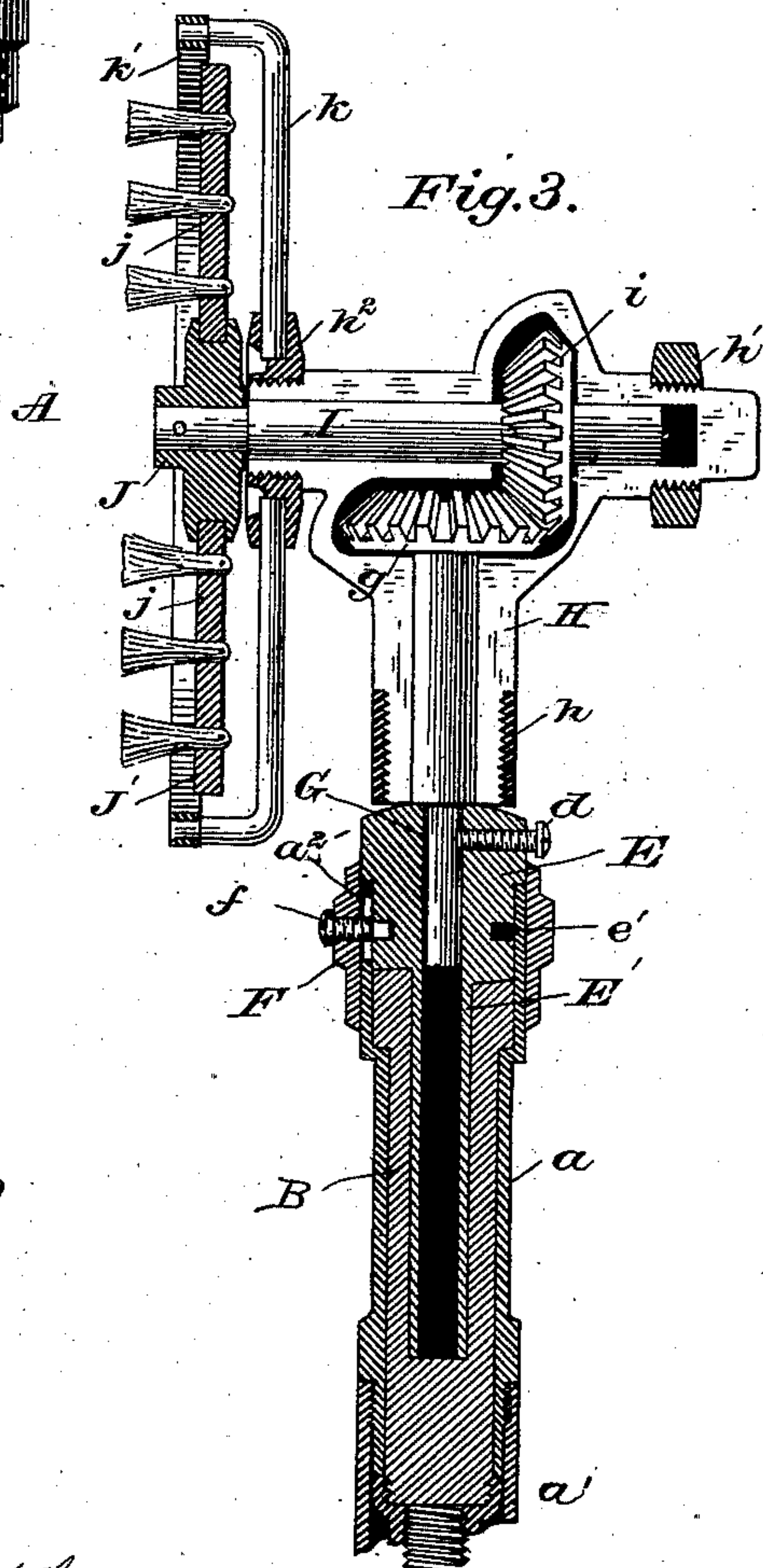


Fig. 3.

WITNESSES:

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UNITED STATES PATENT OFFICE.

NELSON STOW, OF BINGHAMTON, NEW YORK, ASSIGNOR TO WILLIAM L. GRISWOLD, OF SAME PLACE.

MACHINE FOR BRUSHING ANIMALS.

SPECIFICATION forming part of Letters Patent No. 227,857, dated May 18, 1880.

Application filed July 7, 1879.

To all whom it may concern :

Be it known that I, NELSON STOW, of Binghamton, in the county of Broome and State of New York, have invented certain new and useful Improvements in Machines for Brushing Animals and for other purposes, of which the following is a specification.

My invention relates more especially to the class of machines for brushing animals and for similar purposes which embody in their organization a rotary brush, a handle or hand-piece for guiding and holding the brush while in operation, and a flexible power-conveyer or flexible shaft to give said brush a rapid revolving motion, while enabling it to be freely moved about in various directions to operate at different points.

The object of the first part of my invention is to provide a power-driven brush for cleaning animals, &c., which permits free escape of the dirt, dust, or loosened matter, while avoiding all danger of entanglement of the animal's tail, mane, or hair with the brush while in motion; to which end my invention consists in combining a skeleton-brush capable of a revolving motion with a non-rotating skeleton or open guard or shield.

The object of the next part of my invention is to readily stop or start the brush in operation without necessarily stopping the rotation of the flexible power-conveyer; to which ends my invention consists in combining with the brush and hand-piece of the machine a clutch arrangement of the character particularly hereinafter described, whereby I am enabled to start and stop the brush at will by coupling and uncoupling it with the driving-shaft, so as to use the brush with the hand independently of its revolving motion derived from the driving-connections when desired.

My present invention also consists of certain other new combinations of devices, which are pointed out at the close of the specification.

In the accompanying drawings, which represent my improvements as embodied in the best way now known to me, Figure 1 is a front elevation of so much of my improved apparatus as is necessary to illustrate the subject-matter herein claimed. Fig. 2 is a side elevation

thereof, partly in section, to show the clutch arrangement; and Fig. 3 is a longitudinal central section therethrough.

The hand-piece casing A is shown in the present example as composed of two tubular sections, *a a'*, in the section *a* of which is mounted a journal or spindle, B, while the section *a'* of said hand-piece constitutes a socket for the reception of one end of a flexible tube or sheath, C, which envelops and protects a flexible power conveyer or shaft, D, such as is in common use, the said shaft being shown as composed of coiled wire with its layers wound in different directions. The inner ends of the sheath C and of the flexible power-conveyer D are connected with a suitable prime mover, engine, or power, the sheath being preferably incapable of rotating, while the shaft is given a rapid revolving motion, which is communicated to the journal or spindle B, to the butt-end of which the outer or free end of the flexible shaft is connected in well-known ways.

The construction and organization of the flexible power-conveyer, its enveloping-sheath, and the driving power may be similar to that shown in reissued Letters Patent No. 8,607, granted March 4, 1879, to Samuel S. White, of Philadelphia, Pennsylvania, as my assignee.

The front end of the journal or spindle B is socketed, as clearly shown in Fig. 3, and its said front end is provided with a shoulder or tooth, *b*, as shown in Fig. 2, with which a corresponding tooth or projection, *c*, on an end-wise-movable chuck, E, engages when said chuck is moved inwardly to bring its tooth into contact with that of the journal B. The said chuck is provided with a tubular stem, E', which fits snugly in the socket of the journal B.

In order to govern the movements of the chuck E and bring it into and throw it out of actuating contact with the journal B, with which it revolves, when the teeth *c* and *b* are in mesh, or, in other words, when the chuck and journal are clutched together, I mount a thimble, F, on the outer end of the non-rotating hand-piece casing A and permit it to be moved backward and forward thereon within certain limits, while rendering it incapable of

turning by a longitudinal slot, a^2 , in said casing, into which a pin or screw, f , passing through an opening in the thimble, projects and engages with an annular groove, e' , formed in the head of the chuck E, whereby said chuck may be moved endwise at will to connect it with or disconnect it from the spindle B by means of the pin or screw f , while its free rotation when connected with the spindle is unimpeded.

Inserted in the socket of the chuck E is the stem or shank of a shaft, G, which is rigidly fastened in the chuck, in this example, by a set-screw, d , passing through the head of the chuck E, the inner end of said screw bearing against a flattened or plane surface of the shank of the shaft, so as to lock it firmly both as against endwise and turning movements independent of the chuck. (See Fig. 3.)

The shaft G is fitted to turn freely in a bearing in a frame-piece or head, H, and is provided at its outer end with a bevel-pinion, g , meshing with a corresponding pinion, i , fixed upon a counter-shaft, I, fitted in bearings in said head H, so as to turn freely, when driven by the shaft G, at right angles to said shaft.

The frame-piece or head H is preferably constructed so as to incase the gear-wheels g i and exclude dust and other extraneous matter therefrom. This frame-piece is composed, in the present example, of two pieces, cast with suitable bearings and in proper form, which are secured together, so as to constitute the inclosing-case, by three screw-nuts, h h' h^2 .

The counter-shaft I, at one end, projects beyond the head H, and has fixed thereto a hub, J, from which radiate arms j , connected by a circular rim or ring, J' , as clearly shown, particularly in Fig. 3, the said skeleton-frame so formed having the appearance somewhat of a wheel having a hub, spokes, and tire.

The bristles or other material which is to form the working parts of the brush are secured, preferably, in bunches along the face of the arms j and rim J' , so as to constitute a skeleton-brush, the object of which is to afford free escape of the dust or loosened matter from and through the brush, so as to avoid clogging it.

A rapid revolving motion will be imparted to the brush when its shaft I is driven, as will be obvious. Said brush may, of course, be made of different shapes from that shown. The circular or wheel like form, however, is preferred.

To avoid all danger of the brush catching the tail, mane, or hair of the animal being cleaned while said brush is in motion, I provide a skeleton non-rotating shield or guard, K, which envelops or protects the brush, while permitting free escape of clogging matter therefrom. This shield is composed, in this example, of arms k , radiating from the screw-nut or hub h^2 , the outer ends of the arms being bent down and connected together by a rim or ring, k' .

It will be noticed that the head H and the shield or guard K, while not rotating with

the brush and driving-connections, is still permitted to turn relatively to the hand-piece casing around the shaft G, in order to accommodate the guard to the surface over which the brush is working.

The operation of the machine is as follows: Motion is imparted to the flexible power-conveyer, and through it a rapid revolving motion is given to the journal or spindle B, which is communicated to the brush by its gearing, if the said journal and the chuck E are clutched together, the hand-piece A of the machine being grasped by the hand of the operator and moved about in various directions (or over the body of the animal being brushed) to hold the brush to its work. If it is desired to stop the rotation of the brush, the thimble on which the fingers of the hand holding the instrument may rest is moved outward, which uncouples the chuck from the revolving journal, and the rotation of the brush ceases without stopping the rotation of the flexible power-conveyer, and the brush may then be used as a non-rotating one. The brush is again started at will by a reverse movement of the thimble, or a movement inwardly, which couples the driving parts together.

It may be well to here state that in some instances I intend to dispense with the driving-gearing intermediate of the brush and the driven chuck of my machine and drive the brush directly by said chuck, the brush and chuck being connected together by any suitable connections.

I have described my improvements with reference more particularly to its animal-brushing capacity; but it will be obvious that my said improvements may be used for various other purposes to which they are applicable.

I do not wish to be understood as claiming herein, broadly, the combination of an instrument with a clutch and flexible shaft, whereby the instrument may be stopped or started at the will of the operator without interference with the driving power or rotation of the flexible shaft, as such a claim, thus broadly construed, would be invalid.

I claim as my invention—

1. The combination, substantially as hereinbefore set forth, of the skeleton-brush with the skeleton guard or shield, whereby free escape of dust or matter loosened by the brush is permitted, while outside interference or entanglement of the animal's hair with the brush is prevented.

2. The combination, substantially as hereinbefore set forth, of the hand-piece casing, the brush, the driving-connections carried by the hand-piece to impart a turning movement to the brush, and the head or frame piece to which a shield or guard for said brush is connected, the head-piece being free to turn to accommodate itself and shield to the surface over which the brush moves.

3. The combination, substantially as hereinbefore set forth, of the hand-piece casing, the journal or spindle having a socket at its

front end, the chuck having an extension or
portion fitting the socket of the said journal,
the brush driven by said chuck, the clutching
devices or teeth of the said journal and chuck,
5 and the thimble which controls said clutching
device mounted upon the hand-piece casing.
in said casing, connected at its butt-end with
the flexible power-conveyer, the brush, the
chuck by which said brush is driven, the clutch
arrangement between said journal and said 15
chuck, and the non-rotating guard or shield of
said brush.

4. The combination, substantially as here-
inbefore set forth, of the flexible power-con-
veyer, the flexible sheath enveloping said con-
10 veyer, the hand-piece casing connected with
said sheath, the journal or spindle mounted

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Witnesses:

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