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PATENTED APR. 16, 1907.

J. E. SNEVELY.

MACHINE FOR MAKING FEATHER DUSTERS AND BRUSHES.

APPLICATION FILED JAN. 11, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

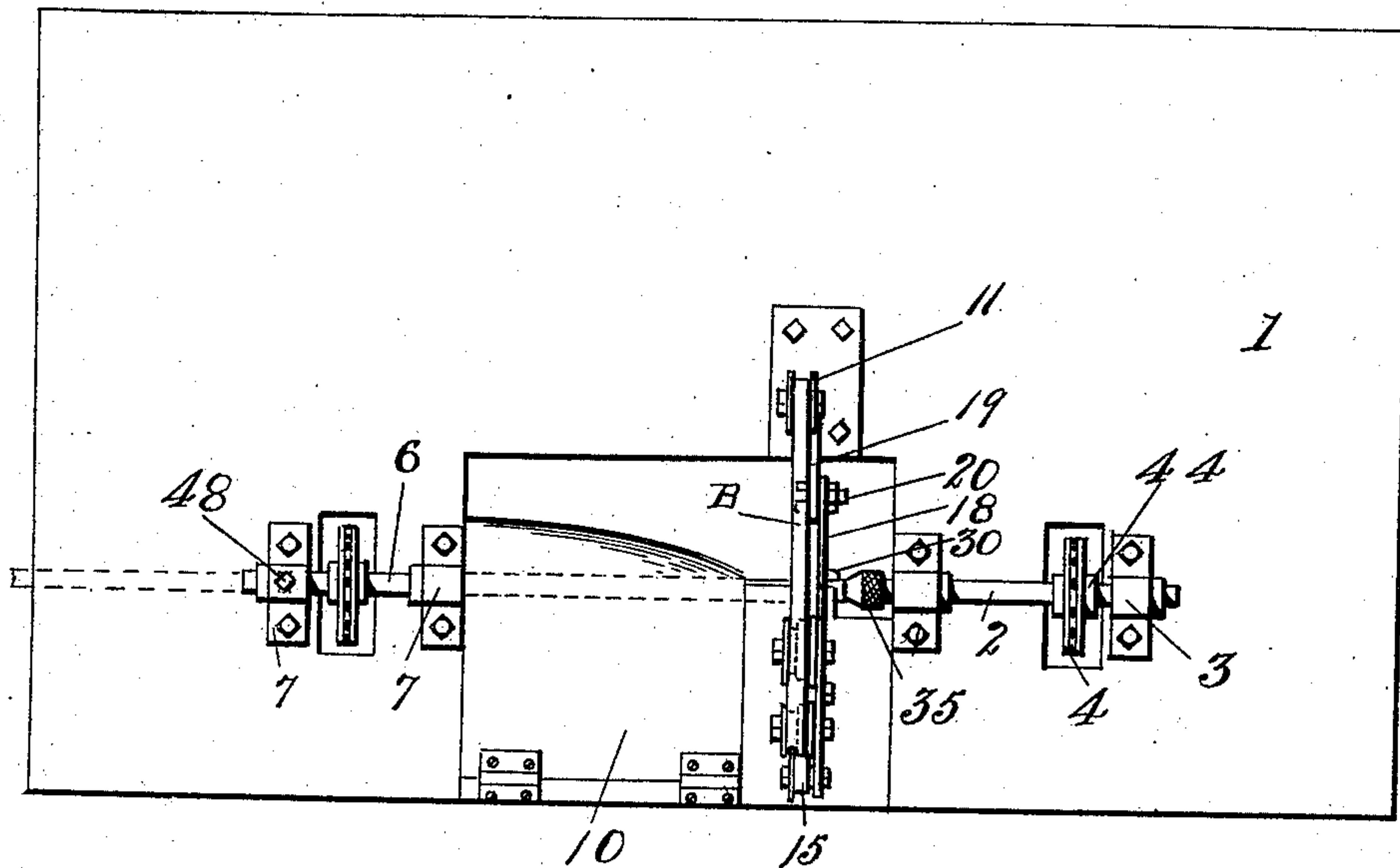
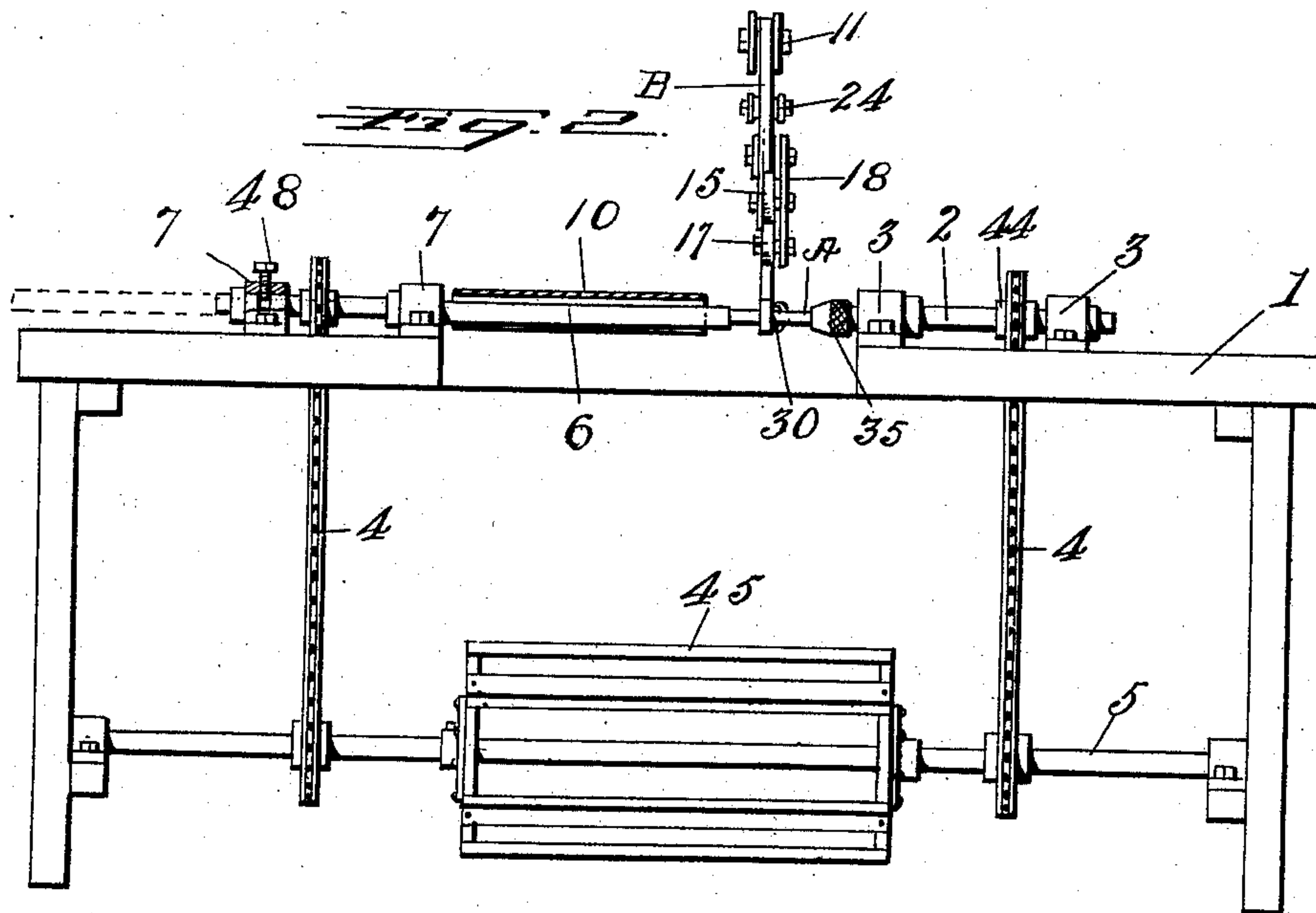


Fig. 2.



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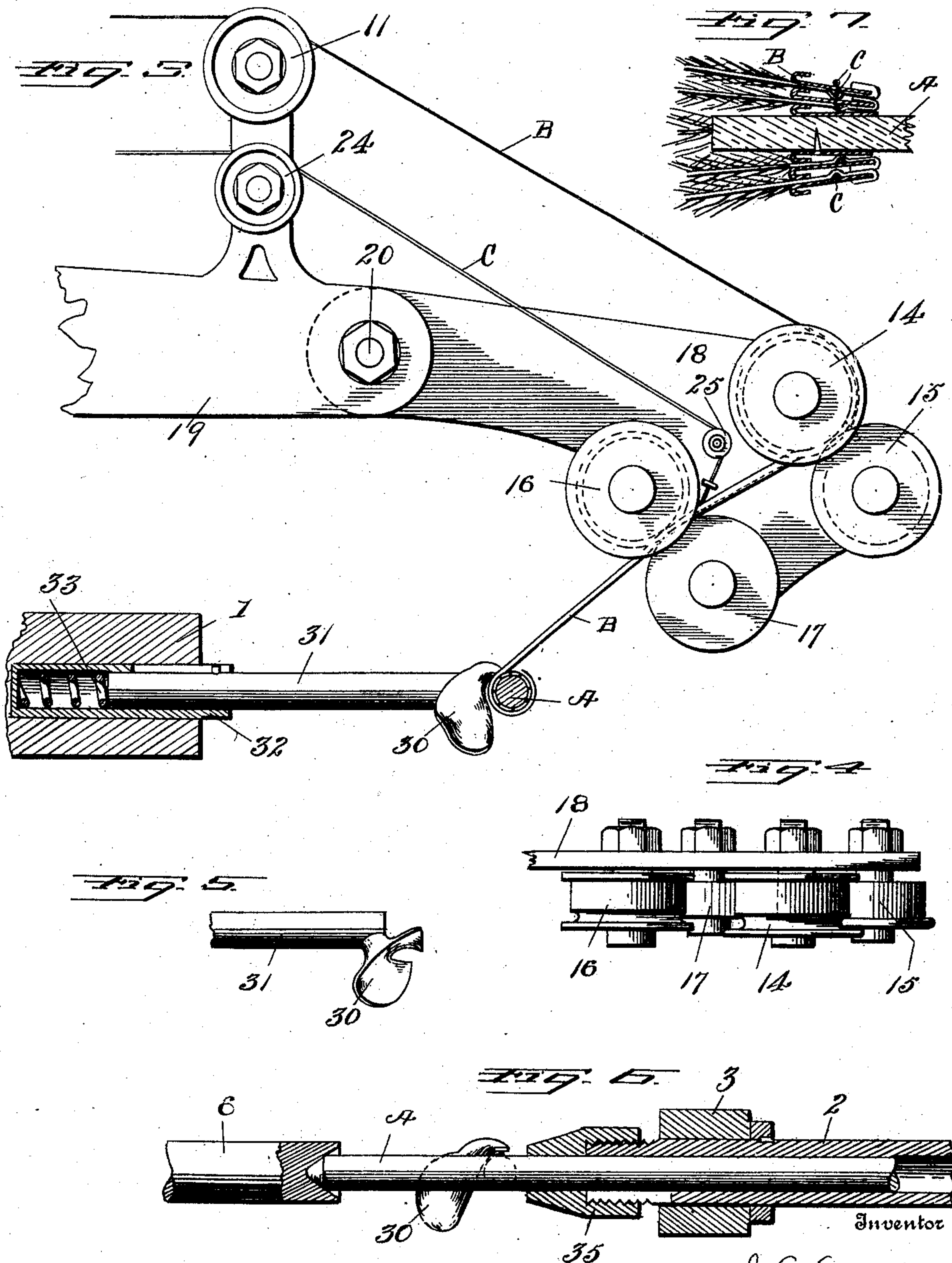
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JAMES E. SNEVELY, OF SAN FRANCISCO, CALIFORNIA.

MACHINE FOR MAKING FEATHER DUSTERS AND BRUSHES.

No. 850,685.

Specification of Letters Patent.

Patented April 16, 1907.

Application filed January 11, 1906. Serial No. 295,599.

To all whom it may concern:

Be it known that I, JAMES E. SNEVELY, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Machines for Making Feather Dusters and Brushes, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to machines for making feather dusters, brushes, and the like.

The object of the invention is to produce a machine which shall form and coil a band or ribbon of metal about a core and secure the feathers or other stock of the brush or duster to said core by means of said band or ribbon and such other securing devices as may be necessary.

The invention consists of mechanism for forming the metallic ribbon and for coiling it; also, of mechanism for turning over the ends of feathers and of securing them to the core; also, of means for guiding the feathers to the core; also, of various constructions and combinations, substantially as hereinafter described.

Figure 1 is a top plan of my machine for making feather dusters and brushes. Fig. 2 is a front elevation of the same. Fig. 3 is an enlarged vertical section of the core, the quill-bending device, and the mechanism for crimping the metallic ribbon and coiling the wire about the core. Fig. 4 is an enlarged top plan of the ribbon-crimping rolls. Fig. 5 is an elevation of the quill-bending attachment. Fig. 6 is a section of the core-clamping spindle with core therein, showing the relation of the quill-bending attachment to the core. Fig. 7 is a broken longitudinal section of part of a feather duster as constructed by this machine, showing the manner of coiling the ribbon and wire and the bends of the quills.

I form the feather dusters by coiling a metallic ribbon about a core and cause this ribbon, with or without a supplementary wire, to hold the quill ends of feathers to the core. The metal ribbon may be further secured by tacks or other means, as will be explained.

The same machine is applicable to the construction of paint-brushes. I will describe the machine, however, as applied to the construction of feather dusters.

Let 1 indicate a table and 2 denote a spin-

dle or head-stock supported in suitable bearings 3 3. The spindle is caused to rotate by means of a sprocket-chain 4, operating on pulley 44, and is driven from a power-shaft 5 in the example shown; but the spindle may be driven, preferably intermittingly, by any suitable power.

In the example, 45 is a trundle which rotates shaft 5, and the other mechanism can be driven therefrom. This, however, is a matter of convenience, as other driving mechanisms will serve as well.

The spindle 2 is hollow, so as to embrace and clamp the core A, which core becomes the central part of the duster and is itself the handle of said duster or has a separate handle attached. A nut 35 on the spindle may serve as a clamping means, such being common.

The machine has a tail-stock 6, which supports the end of the core not in the clamp. The tail-stock 6 may be driven by power, or the core may revolve in a socket in the end of this tail-stock. The tail-stock may be moved back to permit the release of the completed duster-head. (See dotted lines, Fig. 2.) A set-screw 48 in one of the bearings will hold the tail-stock against moving back until desired. A guide 10 is hinged near the front of the machine and extends over the core A and the tail-stock when the machine is in operation. Feathers are gathered by hand on this guide and fed between the ribbon and core as the core revolves. A thin metallic ribbon B is guided over pulley 11 near the rear of the table 1. This ribbon is conducted between crimping-rolls 14 15 16 17, which rolls are supported on a bracket 18 nearly over the core when the core is clamped in spindle 2. The bracket 18 extends from a support 19, attached to the table, and is adjustable about the clamping-bolt 20, which forms the pintle of the hinge connection of said bracket. The crimping-rolls 14 15 16 17 are of common construction. Their purpose is to turn over one edge of the metallic ribbon B, so that the ribbon shall be thickened at one edge and wind up in conical form instead of lying flat. It is desirable that the outer layers of feathers shall flare outward. A like result would be attained were the ribbon crimped in a separate machine. I prefer, however, that the ribbon be crimped in the same machine which makes the feather duster. A wire C is coiled on a spool or otherwise supported under the ribbon B, and the wire passes over pulleys 24

and 25 and is guided alongside the crimp in the ribbon, and so winds on the feathers or quills as they are applied to the core.

The feathers are fed by the operator 5 against the core, and as the core revolves the ribbon is coiled around outside the core and feathers, thus confining the feathers to the core on the first round and confining them between the coils of the ribbon on each succeeding 10 round. When the wire is used, it coils in substantially the plane of the crimp of the ribbon, as shown in Fig. 7, and the feathers are confined between the wire of one coil and the ribbon of the next coil. When the feathers 15 are thus confined to the core and between the turns of the coils, such feathers are in such position that the quill ends come against the quill-turner 30. This quill-turner is a bent plate which causes the quills to turn 20 back toward the point of the duster, and as the coiling progresses the next turn of the ribbon comes over the inturned ends of the quills of the preceding coil or stratum of quills and the wire coiled in like manner as 25 the ribbon comes over the body of the feathers. (See Fig. 7.) As the coiling progresses the duster grows in diameter. The quill-turner 30 is on a shank 31, which rests in socket 32 and is pressed out by a spring 33. 30 As the duster grows the shank 31 is pressed back thereby, and its shank retires into the socket, the spring thus retaining the turner in the same relation to the coil as at the beginning. The ribbon is cut off and tacked 35 or otherwise secured in place when a duster is completed, and the end of the ribbon is tacked to the next core, when another duster is started and the process repeated.

I have shown a clamping-socket 35 attached by a screw-thread to the spindle 2 as a means for clamping the core A in the spindle. This is a common mode of attachment. Any other suitable means for holding the core in the spindle may be used.

45 The ribbon-crimping device is made adjustable toward or away from the core for the reason that it causes the duster to be made to better advantage when at the proper distance from the core, which distance is soon 50 determined in practical use.

The hinged guide-plate 10 swings upward as the brush grows under it and can be turned to the front of the machine to remove the completed duster-head and insert a core. 55 The feathers are fed backward to the edge of this shield and pass under it as the coil revolves.

Any additional securing means, such as a coating of glue, can be applied to the quills as 60 they are fed over the shield 10 or after the feathers are held in the coils of the ribbon, before or after removal from the machine, as the quill end of the duster is at all times visible while the duster is in the machine.

What I claim is—

1. A machine for making feather dusters 65 and the like, having means for rotating the core, means for guiding a metallic ribbon so that it will coil about the core as the core rotates, and a guide-shield on which the stock 70 may be guided to position in the coils of the ribbon, all combined.
2. In a machine for coiling feather dusters, the combination of mechanism for rotating the brush-core, means for directing feathers 75 toward the core, and means for crimping the ribbon and guiding it to the core.
3. In a machine for forming feather dusters, the combination of means for rotating the core, and means for crimping a metallic 80 ribbon and guiding it to said core.
4. In a machine for forming feather dusters, the combination of means for holding and rotating the core, means for crimping a metallic ribbon and guiding it to the core, 85 and a guide-plate over which the stock is fed to the coils.
5. In a machine for making feather dusters, a clamping-spindle for holding the core, means for rotating the same, means for guiding 90 a metallic ribbon to said core, and means for guiding a wire to said core.
6. In a machine for making brushes, means for rotating the core of the brush and thereby coiling the binding device thereon, 95 means for directing brush stock to the core, and means for bending over the ends of the stock while the core is in rotation, all combined.
7. In a machine for making feather dusters, the combination of core-rotating mechanism, a feather-guide, and adjustable means 100 for guiding a metallic ribbon to the core when rotated by said mechanism.
8. In a machine for making feather dusters and the like, the combination of core-rotating mechanism, means for guiding the binding means to the core as the same rotates 105 so as to coil around said core, and a quill-turner supported on the machine so as to move back as the coil increases in size.
9. In a feather-duster machine, a rotating spindle and means for clamping a core therein, a tail-stock in line with the core when so 110 clamped and means for retiring said tail-stock, and a movable guide-shield covering said tail-stock.
10. In a feather-duster machine, a rotating spindle and means for holding a core therein, a tail-stock in line with said spindle, and a 115 feed-plate movably connected to the frame so as to retire as the coil increases.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES E. SNEVELY.

Witnesses:

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A. J. HENRY.