

McFarland & Pack.

Spinning Machine Spindle.

Nº 93,633.

Patented Aug. 10, 1869.

Fig. 1.

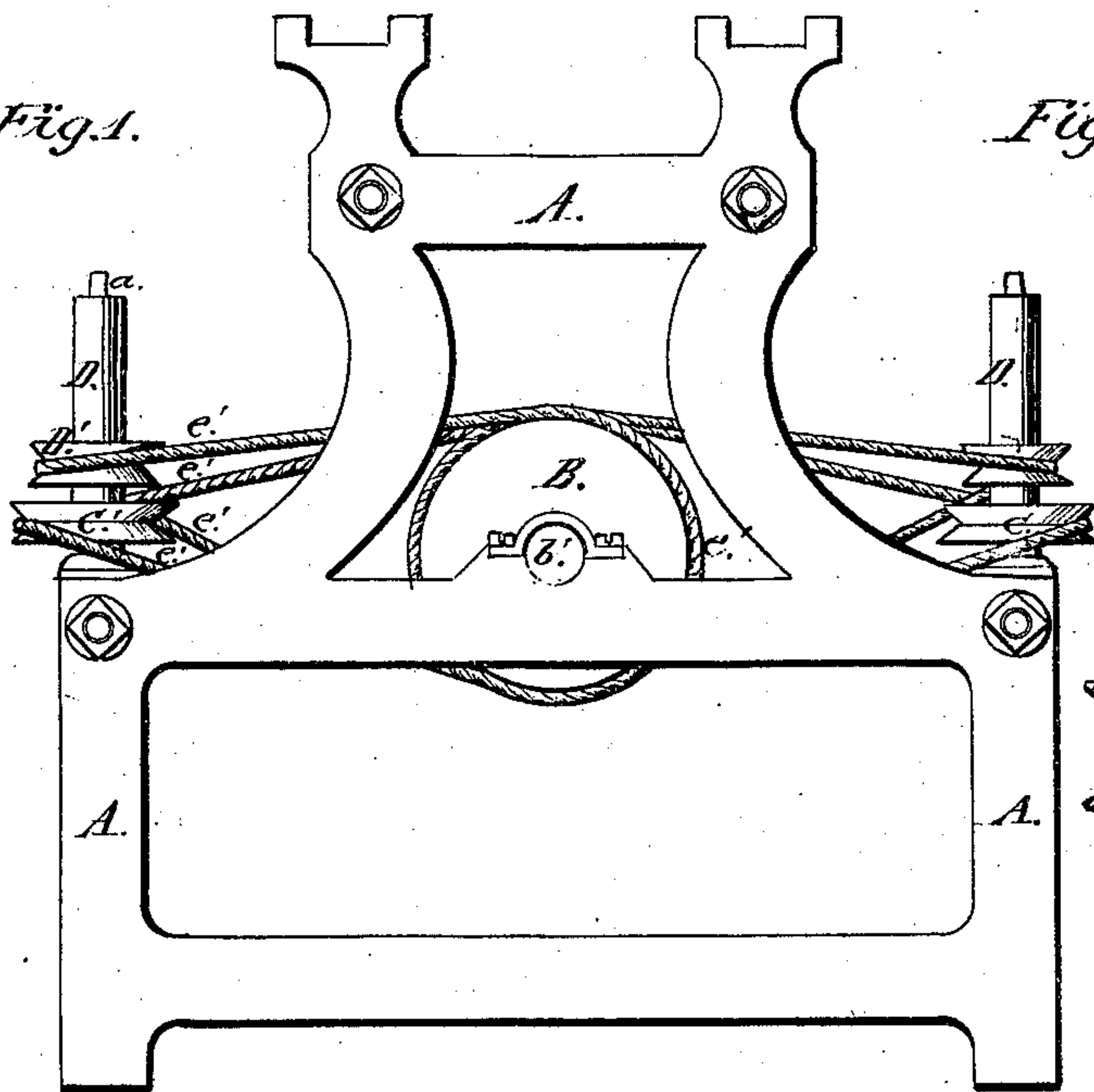


Fig. 3.

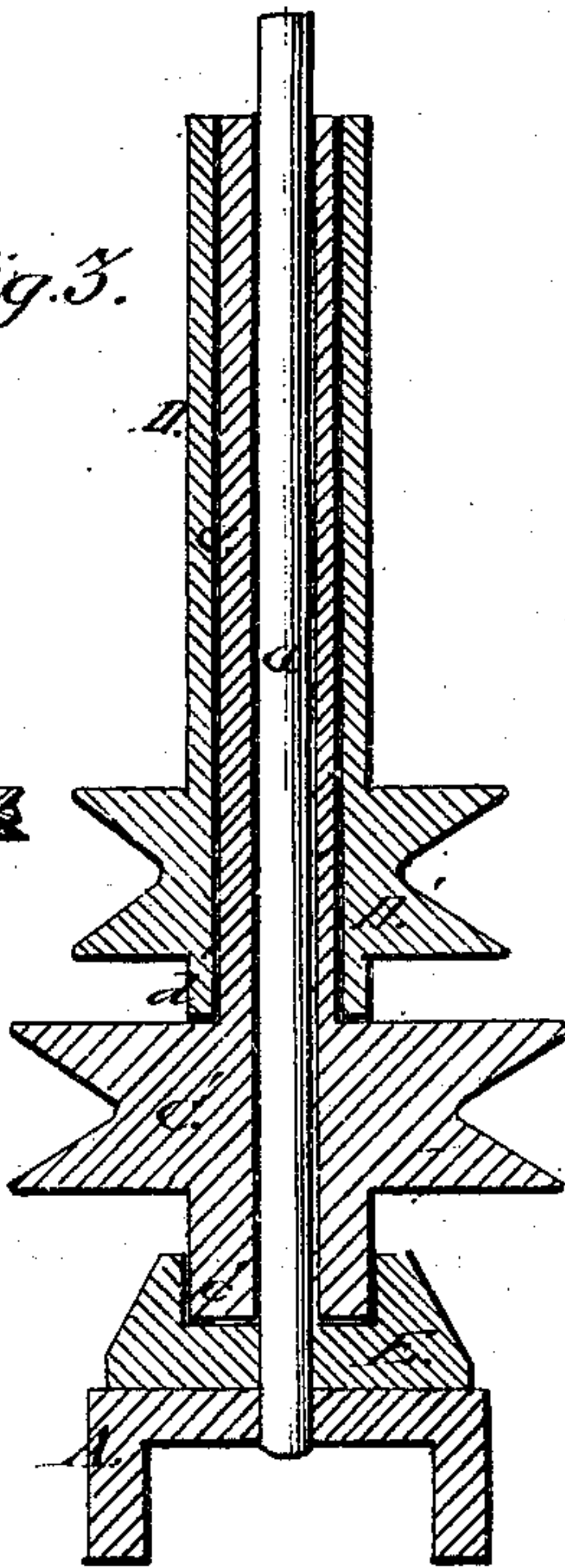


Fig. 2.

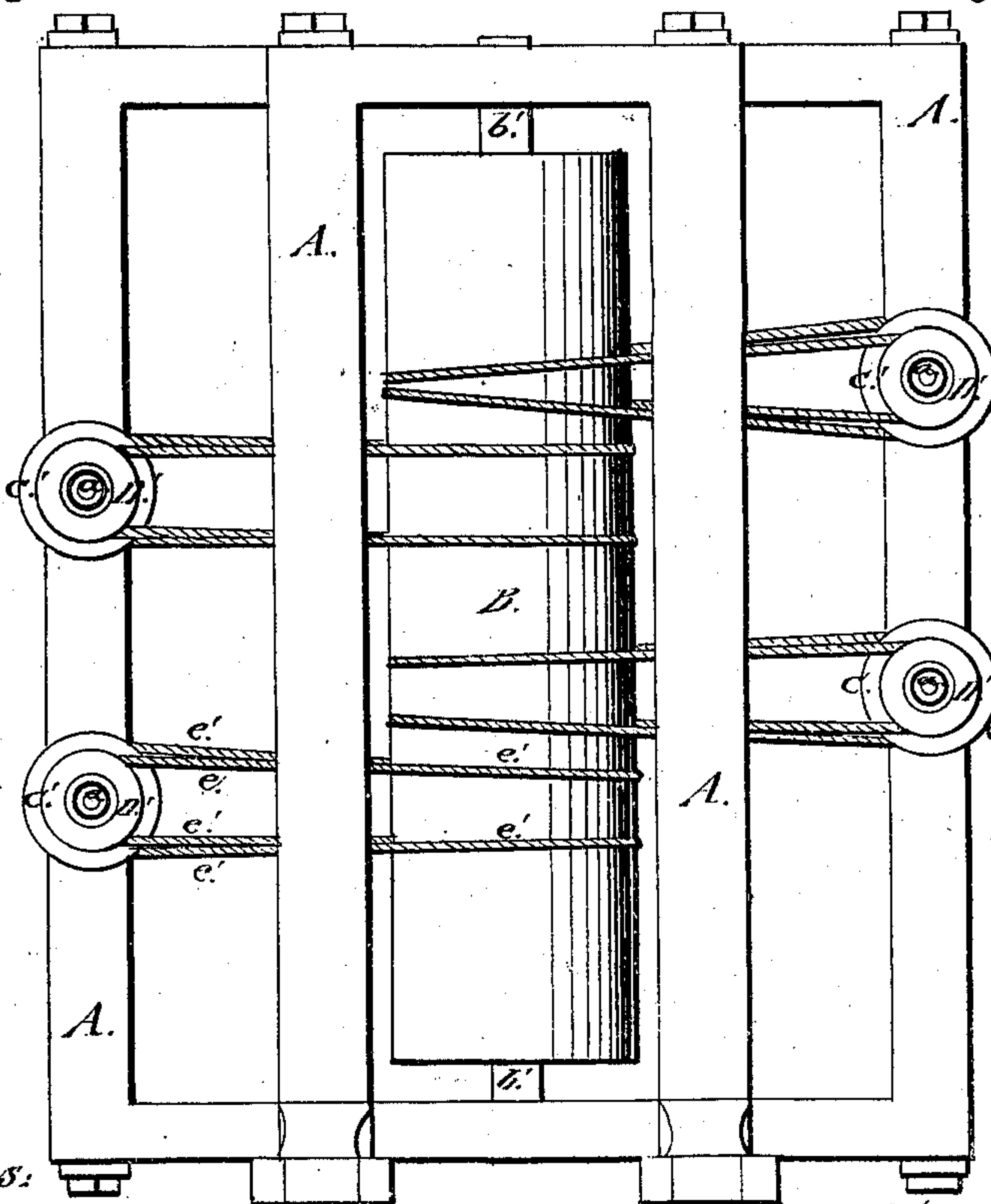
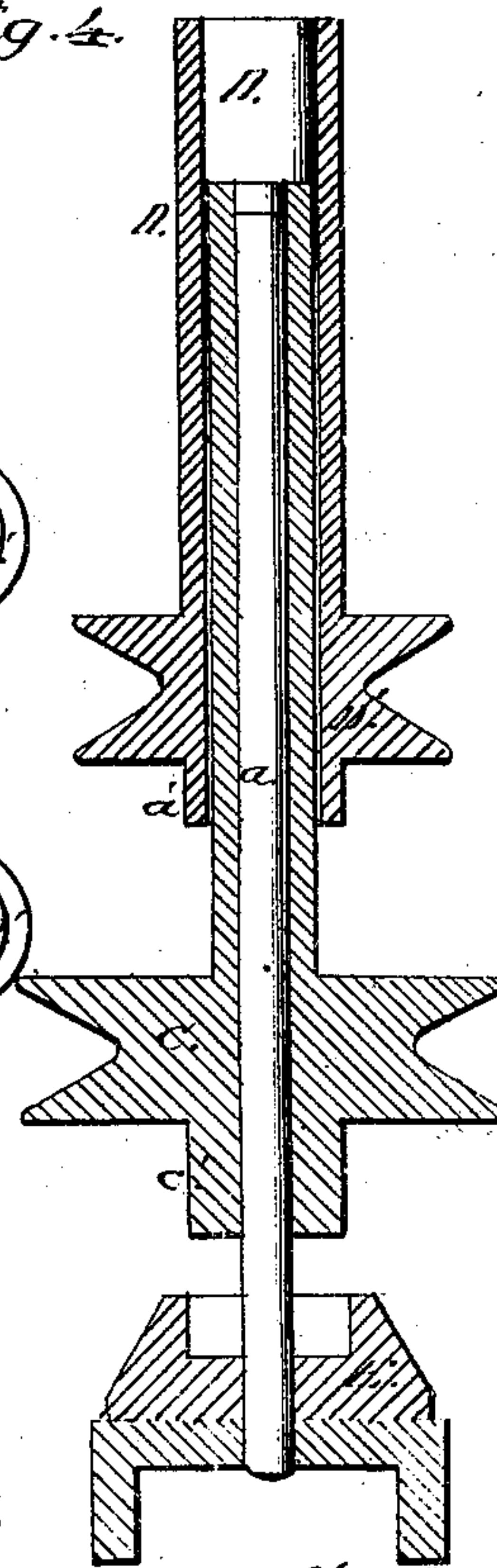


Fig. 4.



Witnesses:
E. W. Anderson
J. D. Kane

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UNITED STATES PATENT OFFICE.

ALEXANDER MCFARLAND AND CHARLES W. PACK, OF PATERSON, N. J.

IMPROVEMENT IN SPINDLE AND BOBBIN TUBES FOR SPINNING-MACHINES.

Specification forming part of Letters Patent No. **93,633**, dated August 10, 1869.

To all whom it may concern:

Be it known that we, ALEXANDER MCFARLAND and CHARLES W. PACK, of Paterson, in the county of Passaic and State of New Jersey, have invented a new and valuable Improvement in Means for Accelerating the Motion of Spindle-Tubes; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a side view of our invention attached to a spinning-frame. Fig. 2 is a plan view of the same. Fig. 3 is a vertical central section of double spindle-tube. Fig. 4 represents the same with the parts separated slightly.

Our invention relates to the rotating motion of the spindle-tubes of spinning-frames; and it consists, mainly, in a novel arrangement of means whereby, with equal or less friction, use of oil, and wear of parts, the number of revolutions per minute of the spindle-tubes may be largely increased over what is practicable in the use of the single spindle-tube.

The letter A of the drawings designates the frame of a spinning-machine; B, a drum whereby the spindle-tubes are driven; *b'*, its shaft; C, an inner spindle-tube, with pulley C' and foot *c'*; D, an outer spindle-tube, with pulley D' and foot *d'*; E, an oil-cup firmly attached to the frame, in the cavity of which the foot *c'* of the inner and lower spindle-tube rotates; *a*, the rod or pin, secured firmly to the frame, about which the spindle-tube C rotates; *e'*, a band or cord passing around the pulley of the upper and outer spindle-tube, thence around the drum B, thence around the pulley of the lower and inner spindle-tube, and thence around the drum B, again back to the upper pulley.

Our invention is operated in the following manner: Rotary motion, by any suitable means, being given to the drum B, is communicated to the spindle-tubes C D by the cords *e' e'*. The spindle-tube C revolves about the pin or rod *a*, and its foot *c'* revolves in the cavity of the cup E. The spindle-tube D re-

volves about the spindle-tube C in the same direction, and its foot *d'* is stepped and revolves upon the top of the pulley C'. The diameter of the pulley D' is regulated by that of the drum, and may be taken so as to give any required number of revolutions per minute—say fifteen thousand, which is a greater rate of speed than in practice can be employed with a single spinning-tube. The same cord, *e' e'*, passing over the larger pulley C', causes the spindle-tube, about which the tube D is revolving, to rotate also in the same direction, thereby decreasing the friction between the outer and inner tubes, and between the foot of the outer tube and its step. The number of revolutions per minute of the inner spindle-tube depends upon the difference between its diameter and that of the drum, which may be taken so as to give any number of revolutions required—say seven thousand five hundred per minute. Now, the single tube cannot be revolved faster than nine thousand per minute in practice, and even this speed causes much friction, wear of parts, and use of oil. In using the double tube there is only the friction due, in the example taken for illustration, to a speed of seven thousand five hundred revolutions per minute in case of an inner spindle-tube, C, with a corresponding decrease in the wear of machinery and use of oil, and in case of an outer spindle-tube, D, the friction due to the difference between seven thousand five hundred revolutions per minute and fifteen thousand per minute—the standard taken for illustration—with corresponding decrease in the wear of parts and use of oil. In this manner the speed of the outer tube may be increased to eighteen thousand revolutions per minute, if so desired. The friction of the cord *e' e'* about the lesser pulley D' is as great as when only one tube is used; but the effect on the cord is materially lessened by the method adopted of using the same cord to communicate motion to both pulleys C' and D', whereby on account of its length the different portions are not brought into contact with the pulley D' so frequently.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. An inner spindle-tube, C, with pulleys C' and foot *c'*, in combination with an outer

spindle-tube, D, pulley D' and foot *d'*, spindle *a*, and oil-cup E, substantially as shown and described.

2. In combination with an inner spindle-tube, D, outer spindle-tube, C, spindle *a*, and drum B, the cord *e' e'*, arranged as shown and described.

In testimony that we claim the above we

have hereunto subscribed our names in the presence of two witnesses.

ALEXANDER MCFARLAND.
CHARLES W. PACK.

Witnesses:

WILLIAM H. WALKER,
JAMES W. POST.