(No Model.)

W. H. H. SISUM.

SPOOL OR BOBBIN WINDING MACHINE.

No. 557,620. Patented Apr. 7, 1896.

Fig. 1.

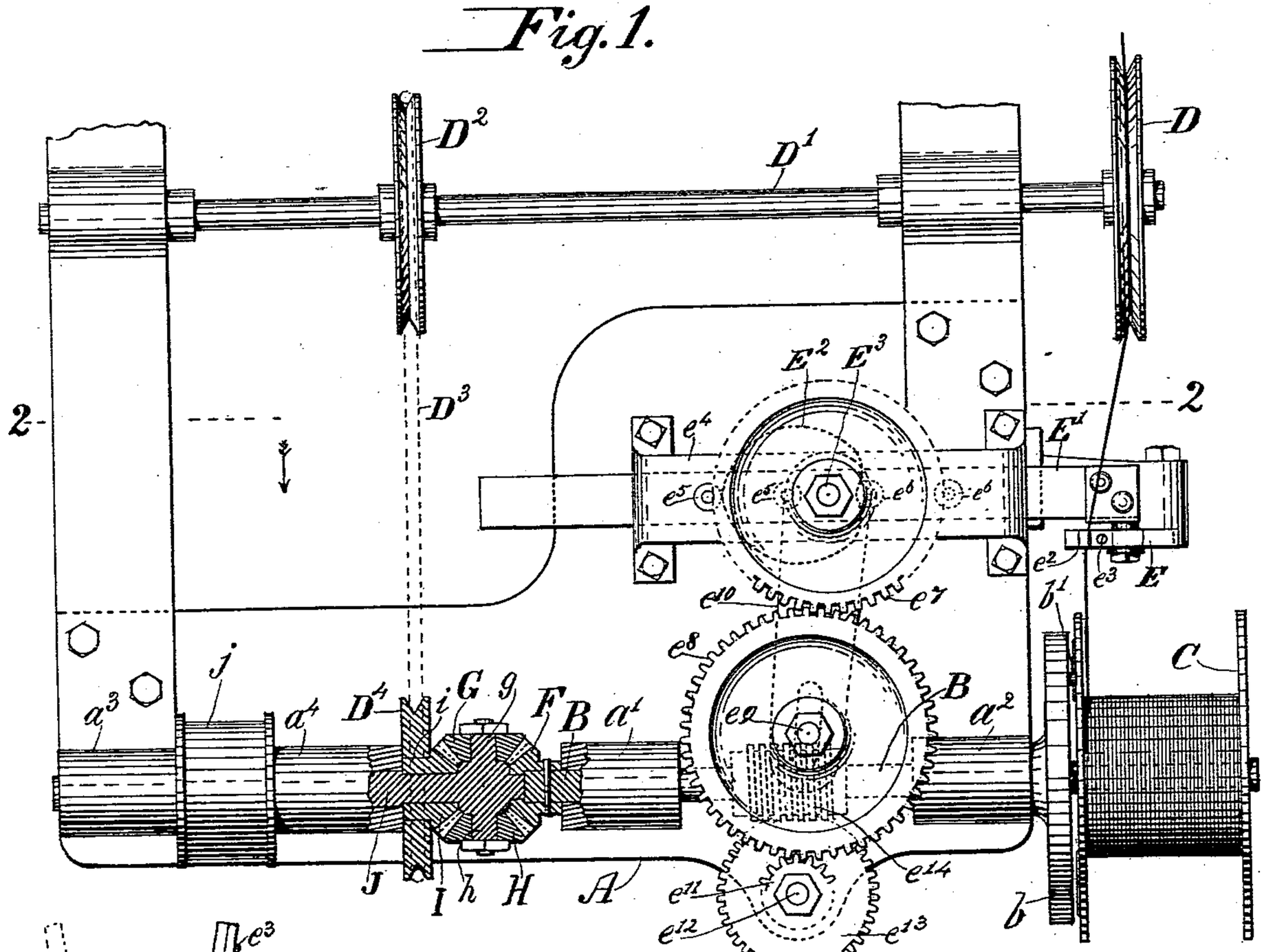

Fig. 2.

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WILLIAM H. H. SISUM, OF BELLEVILLE, NEW JERSEY.

SPOOL OR BOBBIN WINDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 557,620, dated April 7, 1896.

Application filed November 6, 1894. Serial No. 528,072. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. H. SISUM, of Belleville, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Spool or Bobbin Winding Machines, of which the following is a specification.

I will describe a machine embodying my improvement, and then point out the novel features in a claim.

In the accompanying drawings, Figure 1 is a plan of the principal parts of a machine embodying my improvement, certain of the parts being shown in section. Fig. 2 is a sectional elevation of the same at the plane of the dotted line 2 in Fig. 1, the view being taken in the direction indicated by the arrow which is marked adjacent to said dotted line.

Similar letters of reference designate corresponding parts in both figures.

The framework A of the machine may be of any suitable form and materials.

B designates a shaft journaled in bearings a' a^2, comprised in the framework A. Near one end of this shaft is a head b, which, as here shown, is made in the form of a disk. The extremity of the shaft, projecting beyond the head b, is adapted to receive a spool or bobbin C to be wound. One of the flanges of the spool or bobbin is provided with a recess or with a projection suitable to be engaged by a pin b', arranged upon the head b, so that rotary motion may be imparted by the head b to the spool or bobbin. The spool or bobbin may be retained upon the shaft by any suitable detent—as, for instance, by a spring.

Wire or other material to be wound upon the spool or bobbin passes from any suitable source of supply to a circumferentially-grooved wheel D, around which it may pass one or more times, as may be deemed best. Leaving this wheel D it passes through an eye in a traverse E of any approved form. In the present instance this traverse consists of a lever fulcrumed to a pin or bolt e, fitted in a bracket e', which is fastened to the framework A. The eye e^2 of the traverse is formed by splitting or slotting the lever and clamping the extremities or portions on opposite sides of the slots by means of a screw e^3. The advantage of making the eye in the form of a slot is that the wire or thread may be at different times passed through different parts, according as the diameter of the wound portion of the spool or bobbin increases.

Intermediate of its ends the lever E is pivotally connected to a traverse-bar E′, that is fitted to slide in bearings formed in a frame e^4, which is mounted upon the framework A, said bar being free to slide lengthwise in the direction of the length of the shaft B.

On the top of the bar E′ are antifriction bowls or rollers e^5 e^6. Between these rollers works a cam E^2, which is affixed to a shaft E^3, that is journaled in the frame e^4. The rotation of this cam reciprocates the bar E′, and the latter vibrates the lever E, so as to properly lay the wire or thread around the spool or bobbin, it being understood, of course, that the spool or bobbin is rotated to take up the wire or thread.

The shaft E^3 has affixed to it a gear-wheel e^7, which engages with the gear-wheel e^8, mounted upon a shaft e^9. This shaft is journaled in an arm e^{10}, extending from the frame e^4. The gear-wheel e^8 engages with a gear-wheel e^{11}, affixed to a shaft e^{12}, which is journaled in the framework A. Affixed to the shaft e^{12} is a worm-wheel e^{13}, which engages with a worm affixed to the shaft B. The shaft B therefore imparts motion through the worm, the worm-wheel, and the gearing to the traverse-bar E′ and traverse E.

The wheel D is affixed to the shaft D′, which is also provided with a pulley D^2. A belt D^3, which passes around the pulley D^2 and also around a pulley D^4, transmits motion from the wheel D, through the pulley D^2, to the pulley D^4.

The shaft B has affixed to it a bevel gear-wheel F, which engages with two bevel gear-wheels G and H. With these bevel gear-wheels G and H engages a bevel gear-wheel I, which is provided with a sleeve i, upon which the pulley D^4 is affixed.

The gear-wheels G H are mounted loosely upon arms g h, affixed to a shaft J, that is journaled in bearings a^3 a^4, comprised in the framework A. This shaft is rotated by a belt applied to a pulley j, which is affixed to the shaft J. The shaft B therefore derives motion from two sources, one being the shaft J and the other being the wheel D, which receives

motion from the wire or thread being spooled, the motion from this wheel D being transmitted through the bevel gear-wheel I and intermediate connections. To illustrate the effect of the motion from these two sources, I will say that if the bevel gear-wheel I were held stationary and motion were imparted only from the shaft J the revolving of the bevel gear-wheels G and H would cause them to derive rotary motion around their own axes from traveling over the face of the bevel gear-wheel I, as over the face of a fixed rack, and this rotary motion of the gear-wheels G H would be their maximum possible rotary motion and would all be transmitted to the gear-wheel F, and hence to the shaft B and spool C. Of course the bevel gear-wheel I will not be stationary, but will derive motion from the wheel D, and thus will modify the rotary motion of the gear-wheels G H, and hence will modify the rotary motion of the spool. As the wire or thread wound upon the spool increases the effective diameter of the latter, it will tend to vary the motion of the wheel D, and this will be compensated for by the motion of the bevel gear-wheel I. In short, the bevel gear-wheel I will vary in speed as the effective diameter of the spool increases.

It is to be understood that under the term "spool and bobbin winding" I wish to cover all forms of winding, including balling.

What I claim as my invention, and desire to secure by Letters Patent, is—

In a winding-machine the combination of a shaft for rotating a spool or bobbin, a bevel gear-wheel affixed to said shaft, a second shaft, arms projecting radially from the second shaft, bevel gear-wheels mounted loosely on these arms, and engaging with the first-mentioned bevel gear-wheel, a sleeve surrounding the second shaft and deriving motion from wire or thread to be wound, and a bevel gear-wheel on this sleeve, engaging with the bevel gear-wheels carried by arms of the second shaft, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM H. H. SISUM.

Witnesses:

ANTHONY GREF,

WILLIAM A. POLLOCK.