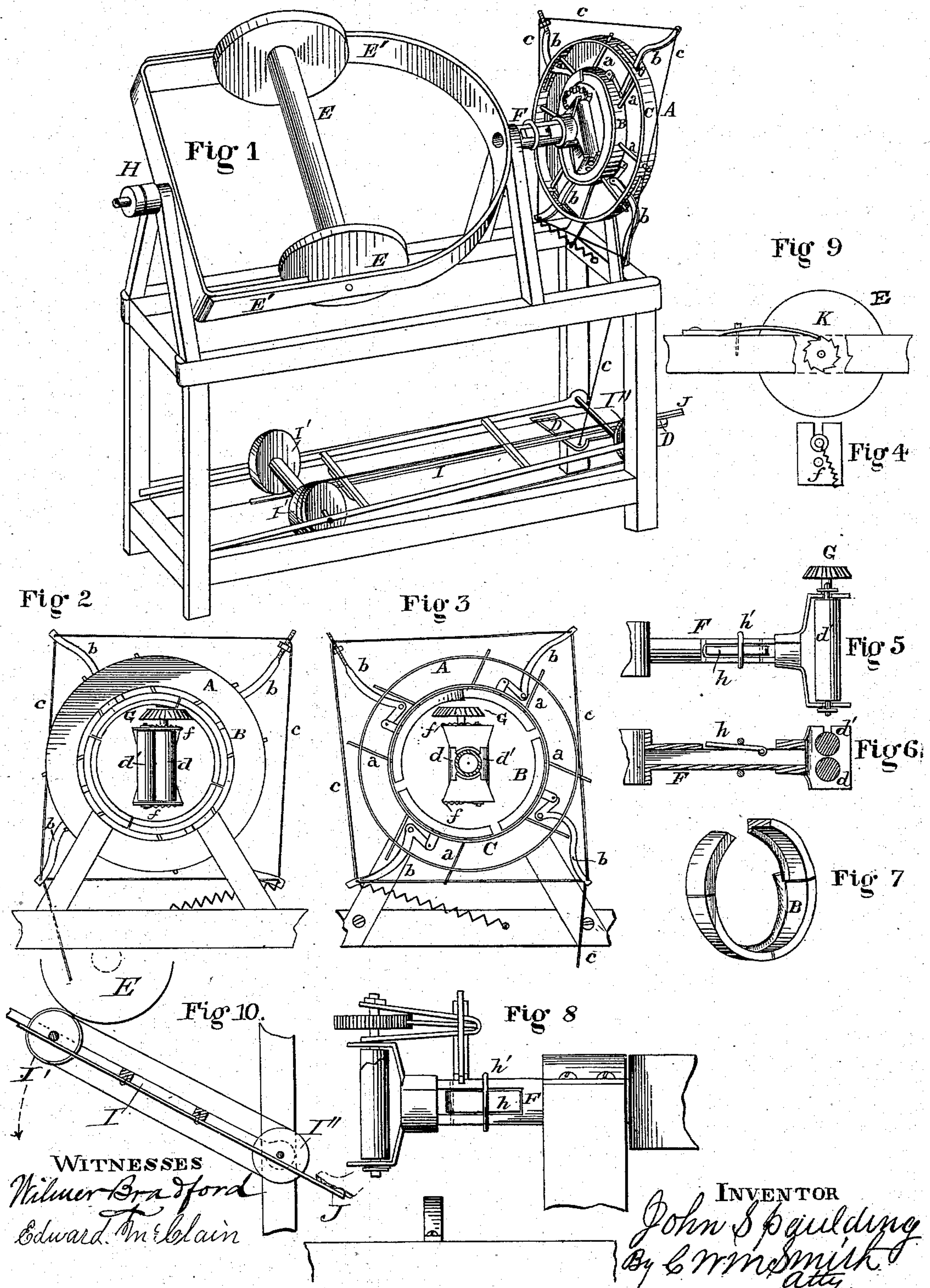


J. SPAULDING.

MACHINE FOR UNTWISTING AND SPINNING HAIR FROM AND INTO ROPE.

No. 276,492.

Patented Apr. 24, 1883.



UNITED STATES PATENT OFFICE.

JOHN SPAULDING, OF SAN FRANCISCO, CALIFORNIA.

MACHINE FOR UNTWISTING AND SPINNING HAIR FROM AND INTO ROPE.

SPECIFICATION forming part of Letters Patent No. 276,492, dated April 24, 1883.

Application filed October 25, 1879.

To all whom it may concern:

Be it known that I, JOHN SPAULDING, of San Francisco, in the county of San Francisco and State of California, have invented a certain new and useful Invention or Improvement in Machines for Untwisting and Spinning Hair from and into Rope, which invention is fully described in the following specification, reference being had to the accompanying drawings.

My invention has for its object to untwist hair from the rope and to twist and spin the hair again, as well as to apply the same treatment to other fibrous material, into ropes of sufficient length for curling, transportation, and storage.

In the drawings, Figure 1 is a perspective view of my machine. Fig. 2 is a front view of the stationary head with feed-rollers. Fig. 3 is a back view of the same with cap removed. Figs. 4, 5, 6, and 7 are detail views. In Fig. 8 is shown another device—a pawl and ratchet—for keeping the feed-rollers in position in untwisting hair, in place of beveled gear and expansible screw. Fig. 9 is an end view of reel. Fig. 10 is a detail sectional view of the tilting frame.

A represents the stationary head in which the expansible screw B and its actuating mechanism are placed, surrounded by a slotted stationary collar or head C. The actuating-screw is made in four sections, so as to be expansible, the parts moving on pins *a a a* in the collar C. The parts are expanded by means of crank-arms *b b b b*, working in slots in the stationary collar C, by means of cords or wires *c c c*, which connect with a treadle, D, on the frame beneath.

The revolving spool or reel E operates in a flier, E', in suitable bearings, and to the inner end of the flier is fixed the slotted tube F. The tube carries at its outer end the feed-rollers *d d'*, that represented by *d'* being stationary. These feed-rollers rotate in the circle of the expansible screw simultaneously with the tube, reel, and flier, and one of the feed-rollers is provided with a bevel-wheel, G, the teeth of which engage at each revolution the tongue or rim of the screw B, which moves the feed-rollers forward one notch at a time, Fig. 2. The feed-rolls *d d'* are provided

with spiral springs *f f*, serving to impart a proper friction bearing surface to them to draw the rope of hair from the reel.

The operation of my machine for untwisting hair will be as follows: A coil of hair rope is wound upon the reel and the end passed through the slotted tube and between the feed-rollers, and power is applied through the medium of a belt-connection to the pulley H, which causes the flier, reel-tube, and feed-rollers to be rapidly revolved. The rope of hair coming gradually from between the feed-rollers is lightly held by the hand of the operator, and as it is untwisted falls in front of the machine as fast as the feeding mechanism presents it.

As hair in the rope or coil is almost always twisted with more or less irregularity—that is to say, some portions will have two twists to the inch and other portions six twists to the inch—to meet this difficulty in untwisting is one of the prime objects of my invention. Should the feed-rollers pay out the coil too rapidly, so that it will not be untwisted fully, the operator places his foot on the treadle D, which expands the sectional screw and throws the flange or tongue away from the teeth of the beveled wheel until the slack of the rope is taken up and that portion which is presented is fully untwisted.

In spinning or twisting hair into ropes or coils the feed-rollers are removed from the end of tube and the hair is drawn through the slotted tube by means of a short hook from the forward end of the tube.

For the purpose of keeping the hair in the tube in a more compact mass in spinning, I employ a compression lever or arm, *h*, which is pivoted to the tube, and is kept in place by a ring, *h'*, which locks it down within the tube. The hair to be spun, being placed in the tube beneath this lever, is fed outwardly in the usual manner, and when a sufficient length is obtained the inner end of the coil is carried to the reel, upon which it is wound.

For winding the spun hair upon the reel, I employ a tilting frame, I, having friction-rollers I', operated by a pulley, I'', and by placing the foot of the operator on the extensible step J the frame is caused to tilt up (see Fig. 10)

and the friction-rollers to come in contact with the fixed ends or rolls of the reel and cause it to rotate, and to wind upon it the rope of hair at intervals, as demanded. A pawl and ratchet, 5 K, at one end of the reel E prevents it from rotating in a contrary direction.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

10 1. In a hair-picker, the combination, with the feed-rolls $d d'$, the roll d being provided with the toothed wheel G, of the expansible flanged or tongued screw B, adapted to give a progressive movement to the roll d by the 15 teeth of the wheel G coming in contact with the tongue of the screw B, as set forth.

2. The combination of the feed-rolls $d d'$, provided with springs $f f$, with the expansible

screw B, pins $a a$, and crank-arms $b b$, substantially as specified. 20

3. The combination of the feed-rolls $d d'$, expansible screw B, pins $a a$, slotted stationary head or collar C, crank-arms $b b$, cords $c c$, and treadle D, substantially as and for the purpose 25 specified.

4. The combination, with the flier E' and reel E, of the pawl and ratchet K, friction-brake I I', and foot-lever J, substantially as shown and described. 30

In testimony that I claim the foregoing I have hereunto set my hand and seal this 15th day of October, 1879.

JOHN SPAULDING. [L. S.]

Witnesses:

HOLLAND SMITH,
WILMER BRADFORD.