(No Model.) 2 Sheets—Sheet 1.

I. BEST.

CONDUCTOR OR FUNNEL FOR GILL BOXES.

No. 512,793. Patented Jan. 16, 1894.

Fig. 1.

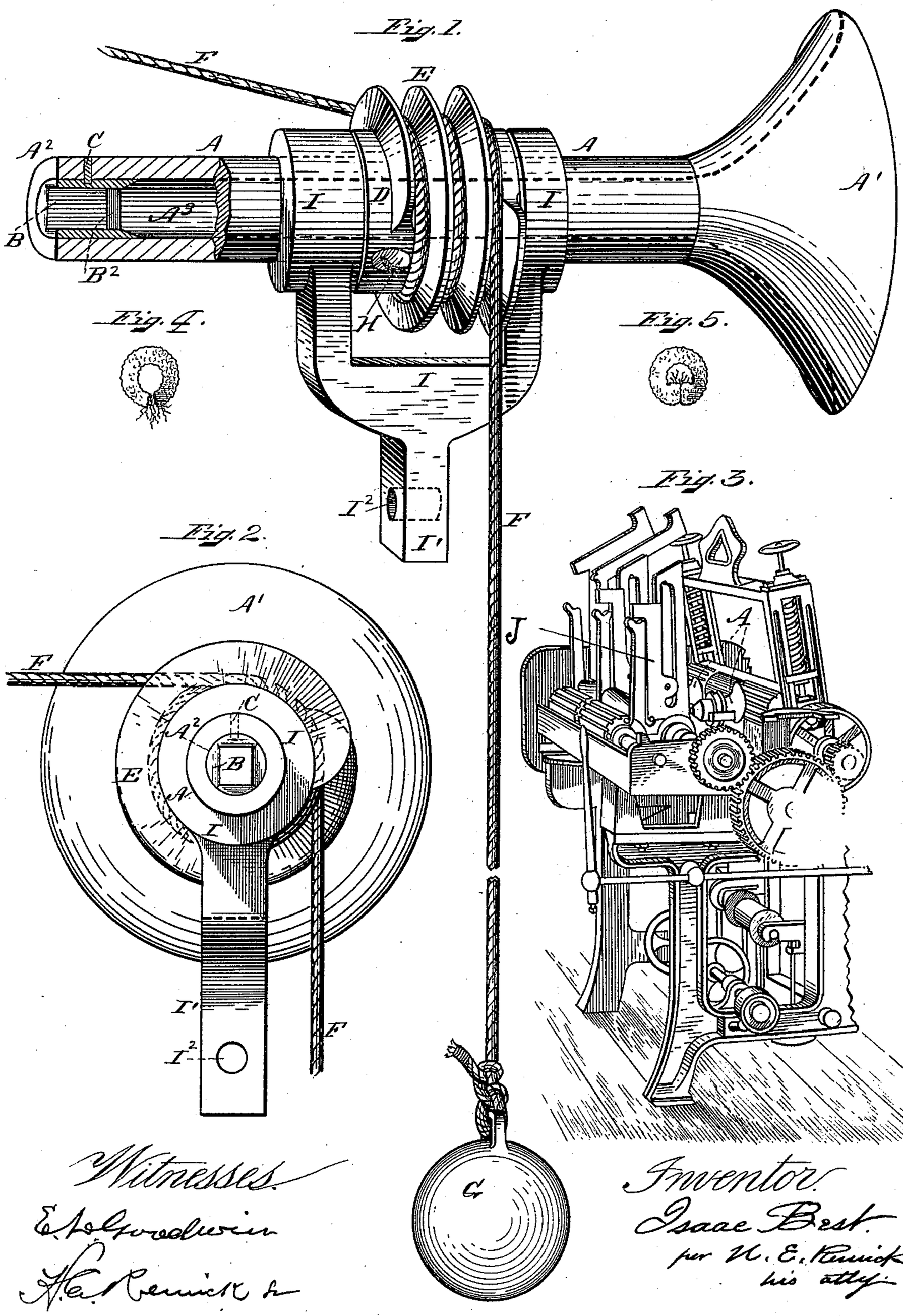

Fig. 4.

Fig. 5.

Fig. 2.

Fig. 3.

Witnesses.
E. L. Goodwin
H. E. Renwick Jr.

Inventor.
Isaac Best.
per H. E. Renwick
his atty.

THE NATIONAL LITHOGRAPHING COMPANY,
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(No Model.) 2 Sheets—Sheet 2.

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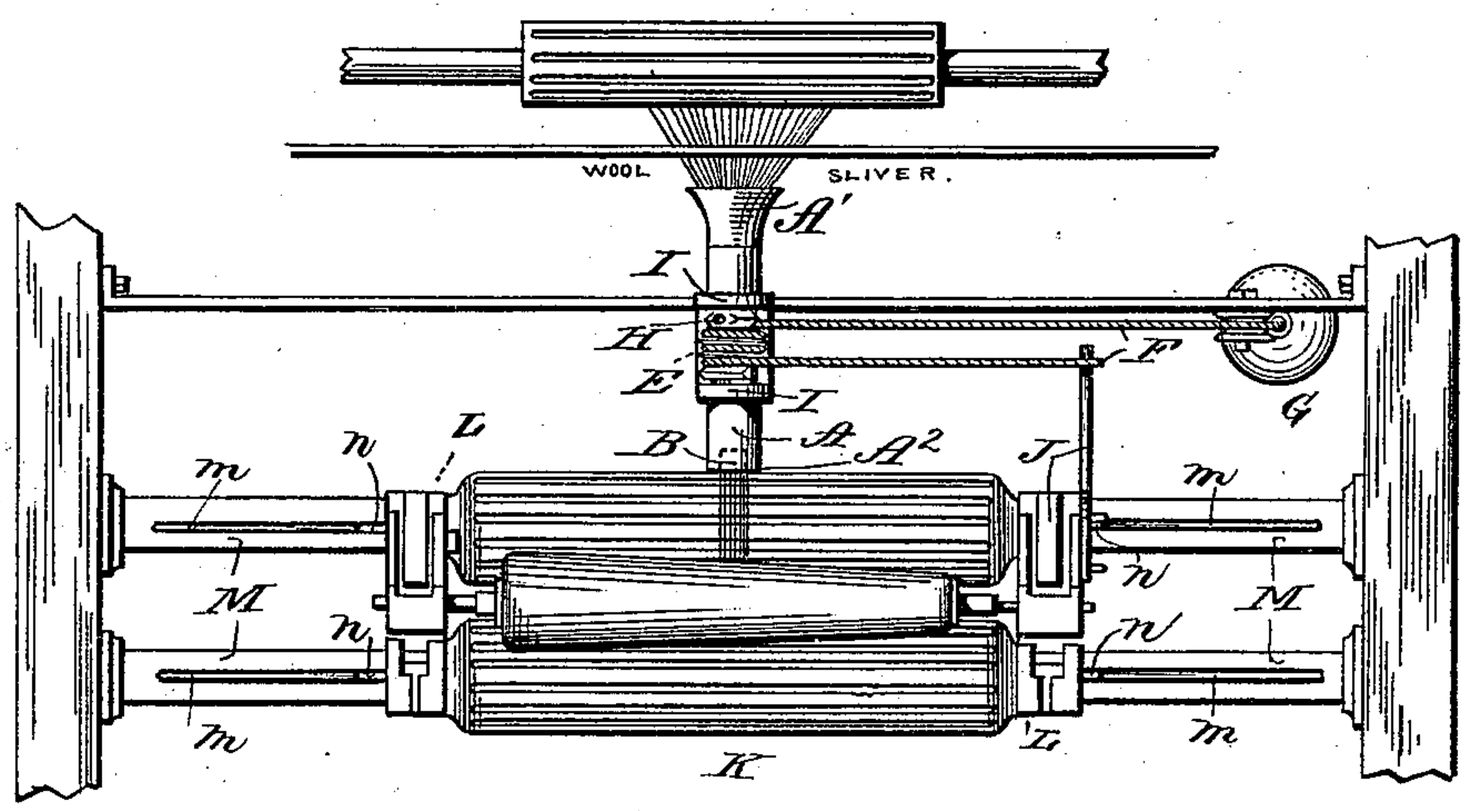

Fig. 6.

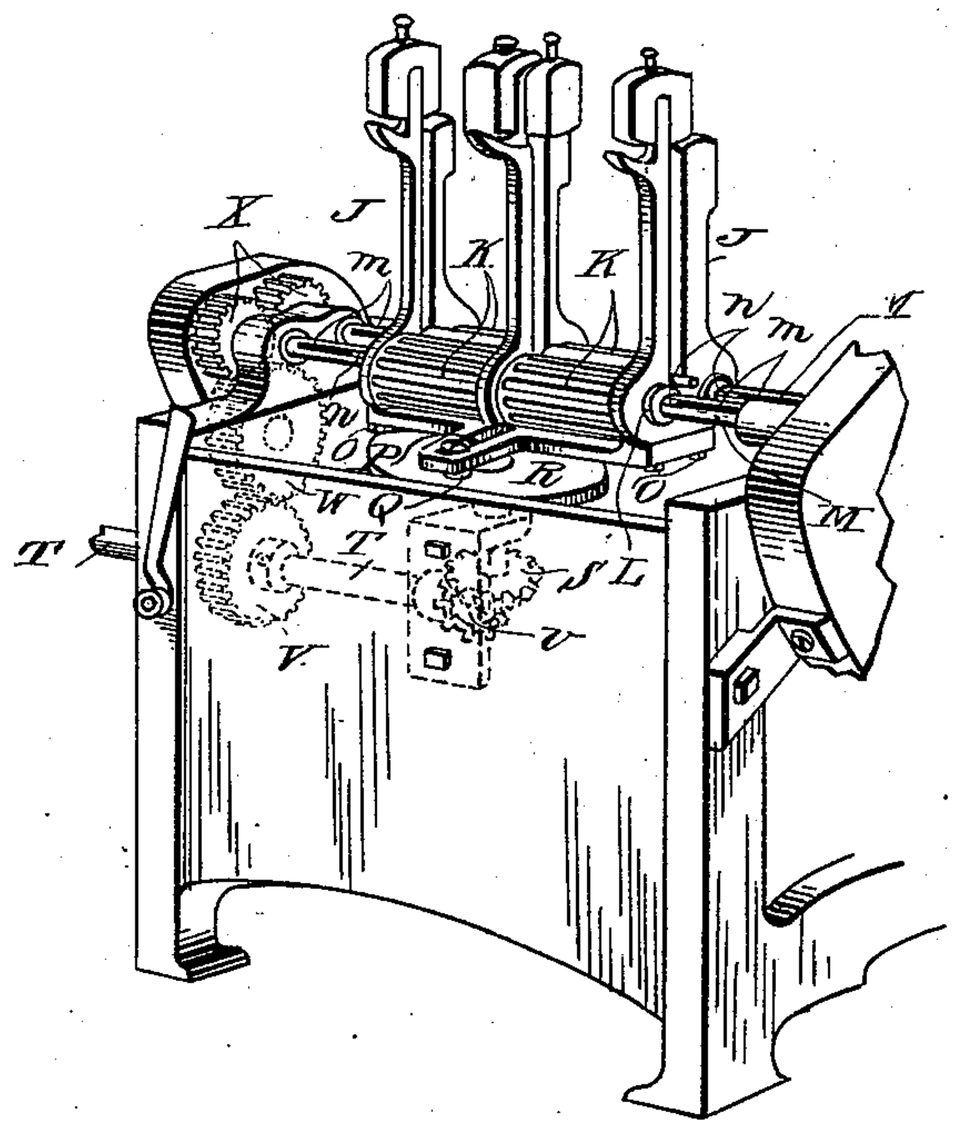

Fig. 7.

Witnesses:
Smith Tulley
H. E. Renick Jr

Inventor.
Isaac Best;
per H. E. Renick
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THE NATIONAL LITHOGRAPHING COMPANY.
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UNITED STATES PATENT OFFICE.

ISAAC BEST, OF LAWRENCE, MASSACHUSETTS.

CONDUCTOR OR FUNNEL FOR GILL-BOXES.

SPECIFICATION forming part of Letters Patent No. 512,793, dated January 16, 1894.

Application filed January 19, 1893. Serial No. 458,952. (No model.)

To all whom it may concern:

Be it known that I, ISAAC BEST, a citizen of the United States, and a resident of Lawrence, in the county of Essex and State of Massachusetts, have invented a certain new and useful Improvement in Conductors or Funnels for Gill-Boxes, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention pertains to that class of apparatus known as gill-boxes, used in the combing or drawing department of worsted mills, whereon are employed conductors or funnels whose office is to convey the sliver of wool or other material away from the drawing rolls of said apparatus, and which is adapted to all fibers.

The object of my invention is to produce a funnel or conductor of improved construction having an alternate rotatory motion and adapted through its internal structure to bind the fibers more closely than heretofore and conceal the edges, thus preventing "slubs" or producing bunches during its progress through its various stages, and in such a manner, also, that no fibers from such products may protrude outwardly from the sliver after it emerges from the said conductor as well that it may offer no obstruction in the free handling of the material.

The result of my improved method is manifest in the smooth and even texture of the fibers, which have no tendency to catch with their companion fibers, as, for instance, when unwinding "tops." I accomplish this result by introducing within the delivery end of the conductor or funnel a metal bushing whose exterior form is suited to the orifice of said conductor, and whose interior is preferably rectangular, or it may be square, the inner shape of which combined with the alternate rotating motion imparted to the conductor produces a sliver having the form illustrated in Fig. 5 in the drawings. I therefore consider that this figure (*i. e.* the square bushing) co-operates with the conductor to accomplish a new result which cannot be effected with the funnel or conductor of ordinary construction.

The utility of my invention is further exemplified in the drawings forming a part of this specification, and in the claims, wherein—

Figure 1, is a perspective of a drawing off funnel or conductor used on gill boxes, provided with my improved invention. Fig. 2, is an end elevation thereof to particularly exhibit the bushing in the orifice of the conductor. Fig. 3, designates a part of one form of a machine, to show merely the position of the conductors. Fig. 4, denotes the old form of the sliver of wool or other material to show the outwardly projecting fibers. Fig. 5, indicates the new form of the sliver with its fibers turned inwardly, the result of my invention. Fig. 6 is a plan of the conductor, with the grooved traveling rolls of a gill box to exhibit the arm J. traveling with said rolls, and to which the weighted belt is attached. Fig. 7 determines a part of one form of a double balling or gill-box machine to show the position of the reciprocating mechanism actuating the traversing rolls and arm.

The function of the several parts, their construction and relation, will be fully comprehended by referring to the drawings, in which—

A, designates the conductor of usual form receiving the sliver at A′ and delivering at A^2, the circular interior being seen at A^3. Occupying a portion of this interior will be observed the bushing B, which is fitted rigidly and securely within the orifice of the conductor, converting the otherwise circular orifice into a rectangular or square delivery through which the sliver is conveyed, said sliver meeting in its passage with the projecting sides of the bushing which immediately changes the hitherto circular form of said sliver into a square (or rectangular) form, but particularly does it diminish the circumference of the material as shown in the reduced orifice through which it makes its exit, the resilient or expansive properties of the material adjusting itself to its contracted compass, causes the edges of the sliver to curl inward until they face the core or inner section of the body of wool—which position and condition are facilitated and secured permanently by the alternate-rotating motion of the conductor. To facilitate the passage

of wool or other material, I diverge the inner end B^2 of the bushing in the manner substantially as illustrated, so as to offer no impediment. Said bushing may be tightly fitted and swaged in or may be secured to the conductor as at C, or in any other convenient way.

To impart an alternate rotatory motion to the conductor, I form the collar D, integrally with the worm E, which receives the cord or belt F, supplied at one end with the weight G, and whose opposite end is secured to a traveling arm J illustrated in Fig. 6 forming a perpendicular or horizontal part of any gill box apparatus, and which I utilize to communicate this motion. Said collar I secure to the conductor by the screw H, while the bearing upholding said conductor and its appurtenances is designated as I, having its standard I' pierced as at I^2, to provide means for its attachment to any machine.

The rotating mechanism is illustrated in Fig. 7, wherein K, K, designate the outwardly grooved traversing rolls, the hubs L of which support the arms J, which together with the rolls K, travel upon their shafts M, M, from side to side of the machine. These shafts are provided with key-seats *m*, which receive the splines *n* of the rolls. The bed-plate N, is secured to the base of said arms, by means of the bolts O, said bed-plate being provided centrally with a slot P, transversely of its length as illustrated, within which slot plays a vertical roll Q, which is fixed near the periphery of the rotating disk R, rotated by means of its shaft and bevel gear S, which in turn receives its motion from the power shaft T, similarly geared as at U. This latter shaft also carries the spur gear V, which, through the idler W, transmits motion to the pinions X, X, upon the shafts M, M, of the grooved rolls K, K, before mentioned.

Having thus described my invention, I do not desire to be confined to the exact construction herein illustrated, as the various forms of gill box machines might necessitate a slight modification of my design to be applicable thereto, without departing from the essence of my invention.

What I desire to secure by Letters Patent of the United States, and claim, is—

1. A conductor or funnel for gill box apparatus provided within its delivery end with a set square bushing, having its inner edge diverging or chamfered to avoid impediment to the passage of the sliver, and further adapted to contract the body of the same in a manner to curl the edges of said sliver inwardly toward the core or center, and to outwardly conceal them, for the purpose substantially as specified.

2. In a gill box apparatus a rotatable funnel provided internally with a rectangular or square bushing, a worm attached to said funnel, a rope or belt wound about said worm, a weight attached to one end of said belt, and reciprocating means to which the other end of said belt is attached whereby the funnel is given alternate rotary motion to the right and left, substantially as specified.

3. A conductor or funnel for gill-boxes provided externally with a worm, a weighted belt wound thereupon and reciprocating means hereinbefore described to which one end of the belt is attached to impart alternate rotatory motion from right to left, the said funnel provided internally with a bushing having a square opening and divergent mouth adapted to permanently reduce the circumference of the sliver for the purpose substantially as described.

4. In combination with the traveling rolls and arm J, of any gill box apparatus, a rotatory conductor or funnel provided with an external worm and an internal chambered bushing, a bearing adapted to support said conductor, and means substantially as described to impart to the funnel an alternate rotary motion to the right and left.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 3d day of December, A. D. 1892.

ISAAC BEST.

Witnesses:
E. L. GOODWIN,
H. E. REMICK, Sr.