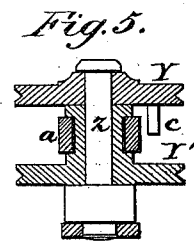
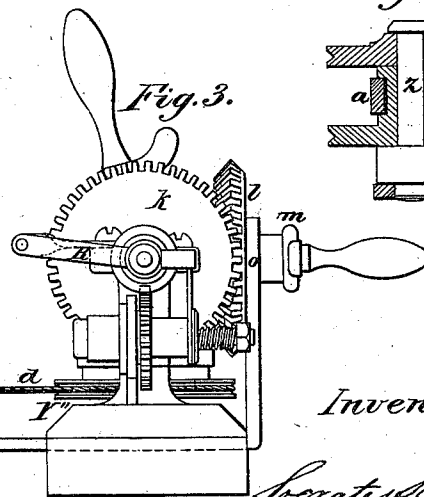
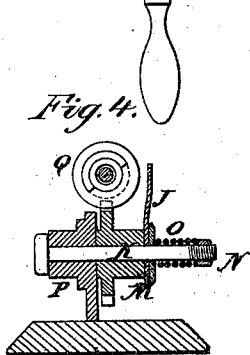
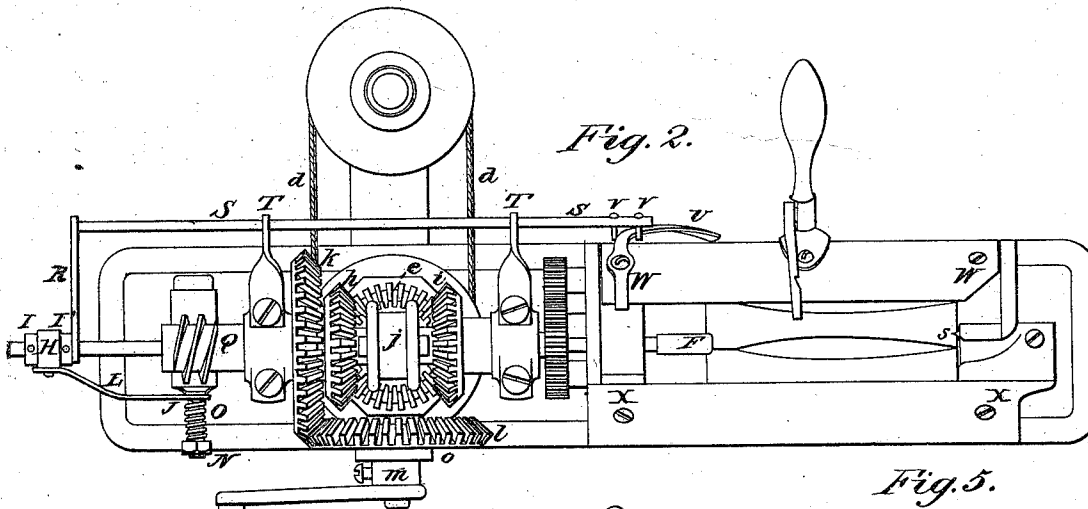
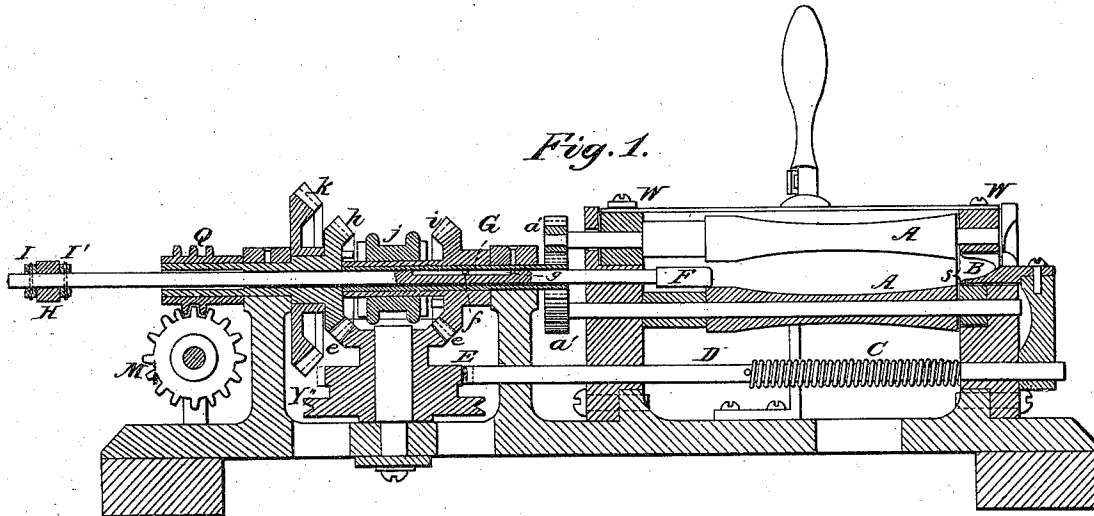


S. SCHOLFIELD.
Cigar-Wrapping Machines.

No. 140,849.

Patented July 15, 1873.



Witnesses.

George Rogers.
Alba R. Abbott.

Inventor.

S. Scholfield.

UNITED STATES PATENT OFFICE.

SOCRATES SCHOLFIELD, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN CIGAR-WRAPPING MACHINES.

Specification forming part of Letters Patent No. 140,849, dated July 15, 1873; application filed November 29, 1872.

To all whom it may concern:

Be it known that I, SOCRATES SCHOLFIELD, of Providence, in the county of Providence, and State of Rhode Island, have invented an Improvement in Cigar-Wrapping Machines, of which the following is a specification:

My invention relates in one of its features to that class of machines in which the head of the cigar is formed or shaped by a die, placed at one end of a cluster of revolving rolls; and it consists in imparting a rapid vibrating movement to such a die, in order to allow the wrapper to be wound upon the head of the cigar with less friction or injurious rubbing action than has heretofore been attained in such cigar-machines. My invention also consists in an improved method of operating the plunger which is employed to force the cigar into the head of the machine, the required forward movement of the plunger being derived from the operative movement of the machine, as modified by the interposition of a friction-joint or device. It also consists in an improved mode of driving the machine, whereby it is rendered easy to operate, and is placed under perfect control; and in carrying out this feature of my invention, I use a friction-strap interposed between the driving-pulley and the cluster of rolls, and likewise arranged in combination with a hand-crank to furnish a yielding auxiliary power, for the purpose of assisting the operator whenever it is desired to control the movement of the machine by hand.

Figure 1 is a longitudinal vertical section of a cigar-wrapping machine embodying my improvements. Fig. 2 is a plan view of the machine, showing also my improved mode of driving the same. Fig. 3 is an end elevation. Figs. 4 and 5 are detail sectional views. Fig. 6 shows a face view of the heading-die.

In the drawing, A A represents the ordinary hollowed rolls of a cigar-machine, driven by the gears *a' a'*; and B, a heading-die, to which a vibrating movement is imparted in the direction of the axis of the rolls by means of the spring C, bar D, and cam E.

When the heading-die B is made stationary, as in certain machines heretofore constructed, the friction between the tapering-head of the cigar and the inner surface of the die operates

to prevent the wrapper from running in at the point properly; and in order to avoid this difficulty, machines have been so arranged that the operator could withdraw the heading-die at the proper moment by means of a treadle or otherwise, the die to be subsequently brought back in timely relation to the forward progress of the wrapper, in order to smooth down the head of the cigar.

The foregoing operation being peculiarly dependent upon the acquired skill of the operator for its success in the production of a nicely finished head, has caused machines of this class to go out of use. But in my invention, by giving to the heading-die a vibrating motion, so as to cause it to move back and forth a number of times during a single revolution of the cigar, I am enabled to accomplish the desired object in a practical manner.

The extent of the vibrations of the die and their number may be varied in practice, as deemed most advantageous. In the drawing, Fig. 1, the amount of vibration is indicated by the dotted lines of the cam E, the heading-die B being there represented at its extreme inner position; whereas, in Fig. 2, it is represented in its extreme outer position, the cam E in this case being arranged to impart to the die eight vibrations during one revolution of the rolls A A.

When the die B is arranged to remain stationary at the time the wrapper is being wound onto the head of the cigar, the frictional-rubbing action is often sufficient to draw the wrapper to an injurious degree. But by my invention the amount of frictional action produced is governed by the number and extent of the vibrations of the heading-die, and is therefore capable of being regulated to such a degree that the proper and necessary amount of rubbing-action will not be exceeded.

After milling out the die B in the proper form to shape the head of a cigar, the inner corner of its face, shown in Fig. 6, is to be cut away and beveled toward the cavity *r*, except at *s*, at which point the longitudinal curve necessary to give the required shape to the head of the cigar should be still preserved; and I also prefer to extend the point *s*, so as to project into the space between the rolls A A, as shown in Fig. 2. By this means the corner of

the die is prevented from checking the forward progress of the wrapper as it enters the same, and the extension of the face of the die at the point *s* prevents the possibility of the formation of a ridge or wrinkle upon the surface of the cigar, caused by an imperfection of the joint between the ends of the rolls and the face of the heading-die.

The plunger *F*, which serves to force the cigar up to the heading-die, passes through the hollow shaft *G*, to which it is connected, so as to revolve therewith by means of the pin *f*, which enters the slot *g*. The plunger *F* is connected to the operating-arm *J* upon the shaft *K*, by means of the bar *L* and loose thimble *H*, which is held between the stationary collars *I I'*. The arm *J* is pressed against the hub of the gear *M* by means of the nut *N* and spring *O*, shown in section in Fig. 4. The shaft *K* turns in the bearing *P*, and the gear *M* is caused to revolve by means of the worm *Q*, which in the drawing is represented as secured to a prolongation of the hub of the gear *h*. When the worm *Q* is turned in the proper direction motion will be imparted to the gear *M*, and thence, by frictional contact, to the arm *J*, bar *L*, and plunger *F*. This device will therefore serve to move the cigar forward in the machine until the resistance offered by the heading-die exceeds the amount of power transmitted through the friction-joint between the gear *M* and arm *J*. The plunger *F* will then cease its forward movement, and thereafter preserve a constant uniform pressure upon the inclosed cigar, the gear *M* continuing to revolve without imparting further movement to the arm *J*. The amount of friction between the gear *M* and arm *J*, and consequently the amount of force exerted by the plunger *F* upon a cigar placed between the rolls *A A* may be adjusted with great nicety by means of the nut *N* and spring *O*. The collar *I* upon the rear of the plunger *F* is operated against by the forked arm *R* attached to the rod *S*, sliding in the guides *T T*, and which is to be moved back and forth by means of the cam *U* operating between the pins *V V*.

When the heads *W W*, which carry the opening-rolls of the machine, are thrown back, as represented in Fig. 2, for the purpose of removing the finished cigar and inserting another bunch in its place, the operation of the cam *U* will cause the plunger *F* to be thrown back out of the way with a fixed positive movement; but when the movable heads *W W* are again brought up to the stationary heads *X X*, the plunger *F* will be left behind, and will afterward be moved up gradually with a yielding pressure upon the inclosed bunch by means of the proper action of the friction-joint above described.

The driving-pulley *Y* turns loosely upon the shaft *Z*, and imparts motion to the friction-strap *a* (shown in section in Fig. 5) by means of the pin *c*. The pulley *Y'* is fastened to the shaft *Z*, and upon a groove in its hub is placed the friction-strap *a*. Motion is transmitted from the pulley *Y'* to the pulley *Y''* by means of the band *d* and the bevel-gear *e*, to the hub of which the pulley *Y''* is secured, operates to drive the gears *h* and *i* in reverse directions. Between the gears *h* and *i* is placed the sliding clutch-collar *j*, in feather connection with the shaft *G*, and upon the hub of the gear *h* is placed the gear *k*, meshing with the gear *l*, which is placed, with a crank, *m*, upon a shaft arranged to turn in the bearing *o*.

By means of the friction-strap *a* and crank-handle *m* the movement of the rolls *A A* may be placed under the complete control of the operator, for when the machine is arranged to receive, through the friction-strap, just sufficient power from the driving-pulley *Y* to run it properly, then, by simply holding back upon the handle *m*, the machine may be brought to a stop, or allowed to run at any speed desired. The operator may be thus so materially assisted, while controlling the movement of the rolls by hand, that the ordinary fatigue attending such work will be avoided.

By means of bevel-gears, as *e*, *h*, and *i*, and the clutch-collar *j*, the motion of the rolls may be reversed, and at the same time allow the driving-power, whether applied by pulley or hand-crank, to act in the same direction.

I claim as my invention—

1. A cluster of rolls, *A A*, in combination with a vibrating heading, *B*, arranged to operate upon the head of a cigar, substantially as described.
2. A plunger, *F*, arranged substantially as described, receiving an automatic movement through suitable mechanism, including a yielding friction-joint, thereby operating upon the cigar with a uniform pressure.
3. In combination with the opening and closing rolls of a cigar-machine, a cam, *U*, and sliding-bar *S*, operating to move the plunger back in timely relation to the opening of the rolls, substantially as described.
4. In a cigar-wrapping machine, a friction-clamp, *a*, or its equivalent, when interposed between the driving-pulley *Y* and the rolls *A A*, and also combined with a hand-crank, *m*, substantially as described.

SOCRATES SCHOLFIELD.

Witnesses:

GEORGE H. ROGERS,
ALBA R. ABBOTT.