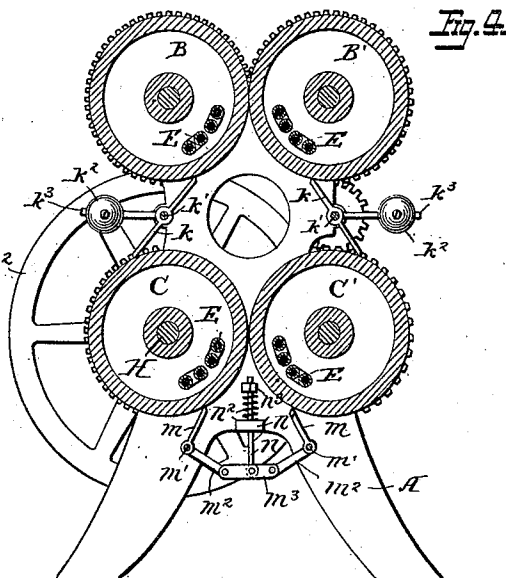
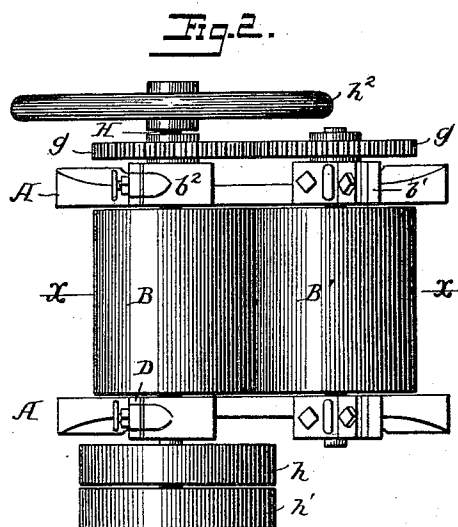
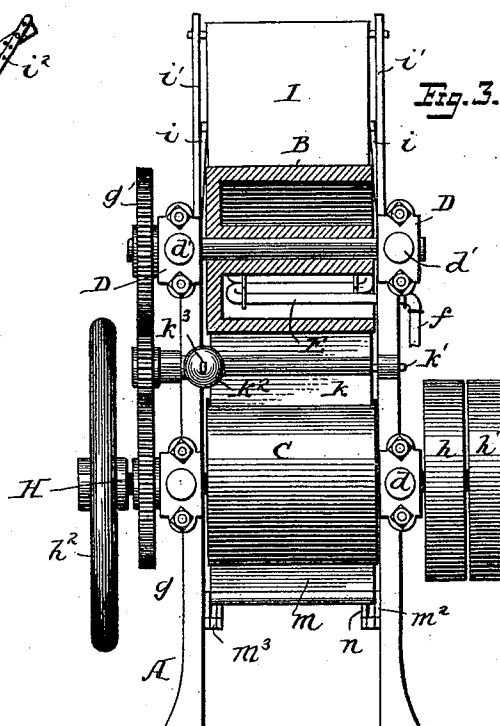
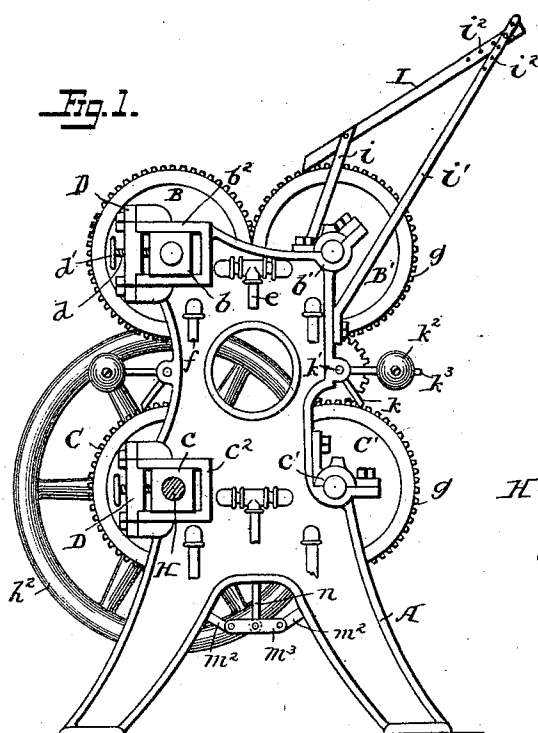


(No Model.)

I. W. G. WIERMAN.  
MACHINE FOR FLATTENING TOBACCO STEMS.

No. 497,437.

Patented May 16, 1893.



Witnesses  
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# UNITED STATES PATENT OFFICE.

ISAAC W. G. WIERMAN, OF LITTLE ROCK, ARKANSAS.

## MACHINE FOR FLATTENING TOBACCO-STEMS.

SPECIFICATION forming part of Letters Patent No. 497,437, dated May 16, 1893.

Application filed May 20, 1892. Serial No. 433,754. (No model.)

*To all whom it may concern:*

Be it known that I, ISAAC W. G. WIERMAN, a citizen of the United States, residing at Little Rock, in the county of Pulaski and State of Arkansas, have invented certain new and useful Improvements in Machines for Flattening Tobacco-Stems, of which the following is a specification.

My invention relates to machines for flattening tobacco stems, either in the leaf or separated therefrom, to prepare the stems for use as fillers for cigars and cigarettes, or for other purposes.

I have found that the stems may be prepared without injuring the fiber of the tobacco by subjecting them to several successive pressing operations between rolls. I preferably provide means for heating the rolls. The tobacco stems contain more or less moisture which when heated by the rolls renders the stems more pliable and less likely to be injured in flattening.

To this end my invention consists in improvements in a machine provided with two or more sets of rolls and with means for conveying the tobacco to the rolls and heating them, all of which will be hereinafter described in detail.

In the accompanying drawings in which like reference signs indicate similar parts throughout the several views, Figure 1 is a side view of a machine embodying my invention. Fig. 2 is a plan view of the same. Fig. 3 is a rear elevation, one of the rolls being shown in central section. Fig. 4 is a sectional view taken on the line X—X of Fig. 2.

Journaled in the frame A are two pairs of pressure rolls B, B', and C, C'. The rolls B', C', have their journals set in fixed bearings b', c', in the frame; and the rolls B, C, are journaled in movable bearings or boxes b, c, which slide in guides b<sup>2</sup>, c<sup>2</sup>, formed on the frame.

Means are provided for adjusting the rolls B, C, to bear upon the rolls B', C', with any desired pressure. Thus cap pieces D which bridge the spaces between the guides b<sup>2</sup> and c<sup>2</sup> are bolted or otherwise suitably fastened to the main frame, and through these cap pieces are threaded perforations in which are adjusting screws d' provided with hand wheels d'. The lower ends of the adjusting screws bear

upon the boxes b, c, of the upper rolls and by turning the screws any desired pressure of the rolls may be attained.

The rolls may be of any suitable material such as metal, porcelain or soap stone. The latter material is sometimes desirable for the reason that it is readily kept at a uniform temperature and the tobacco or other material to be rolled does not readily adhere to it. In the drawings I have shown hollow rolls which are open at one end, between their axes and their peripheries permitting steam induction and education pipes e, f, to supply the stationary heating coils E within the rolls.

The rolls may be driven in any suitable manner such as by sprocket wheels and chains or by ordinary gearing. As shown they are driven by a train of gears g from a power shaft H provided with fast and loose pulleys h, h' and a fly-wheel h<sup>2</sup>. For small machines a hand-crank may be substituted for the pulleys h, h'. The two pairs of pressure rolls are arranged one above the other and the tobacco is fed to the upper pair of rolls by an inclined chute I. The angle of inclination of the chute I is adjustable, the lower end being pivotally connected to a pair of supports i and the upper end adjustably connected to a pair of supports i'. A series of holes i<sup>2</sup> in the edges of the chute and in the supports i' permits of the angular adjustment of the chute.

Between the corresponding rolls of the upper and lower sets I arrange scrapers k consisting of plates centrally connected to shafts k' and having their upper and lower edges bearing respectively upon the upper and lower rolls. Weights k<sup>2</sup> are adjustably attached to arms k<sup>3</sup> which are fixed upon the pivoted shafts k'. These weights serve to keep the edges of the scrapers pressed with a yielding pressure against the faces of the rolls. A second pair of scrapers m are located below the lower rolls. The pivotal shafts m' of these scrapers are provided with arms m<sup>2</sup> extending toward each other and connected by a link m<sup>3</sup>. A rod n is connected to the middle of the link m and extends upwardly through a lug n'. The rod n is continually pressed upward by a coiled spring n<sup>2</sup> which is confined between the lug and an adjustable nut n<sup>3</sup> upon the upper end of the rod n. As the rod n is drawn upward by the spring the scrapers m are pressed with

a yielding pressure against the surfaces of the rolls.

The operation of the machine is quite simple and will be obvious from the foregoing description. The tobacco to be pressed is placed by the operator upon the inclined chute from which it slides down and passes between the rolls of the upper set. These rolls partly flatten or compress it. After passing the first pair of rolls the tobacco drops endwise between the second pair of rolls which are adjusted closer together and complete the pressing operation. Should any of the tobacco adhere to the upper rolls it will be scraped off by the upper edges of the scrapers *k* and fall upon the surfaces of the lower rolls, the scrapers *k* which extend from the upper to the lower rolls thus preventing any of the tobacco from falling outside of the lower rolls. The scrapers *m* and the lower edges of the scrapers *k* will effectually separate all of the tobacco from the rolls and cause it to fall into a suitable receptacle placed beneath the machine.

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

1. In a machine for flattening tobacco stems, the combination of two pairs of rolls, one pair being arranged directly above the other, and scrapers *k* centrally pivoted and each arranged to bear upon an upper and lower roll, substantially as described.

2. In a machine for flattening tobacco stems the combination of pressure rolls having journals and bearings at both ends, said rollers being hollow and open at one end between their axes and their peripheries, and stationary heating coils within the rolls having connecting pipes extending through the open ends thereof, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ISAAC W. G. WIERMAN.

Witnesses:

W. W. GIBBS,  
ALBERT COHEN.