(No Model.) 4 Sheets—Sheet 1.

H. BOHLS.

MACHINE FOR DRESSING AND FEEDING TOBACCO.

No. 493,148. Patented Mar. 7, 1893.

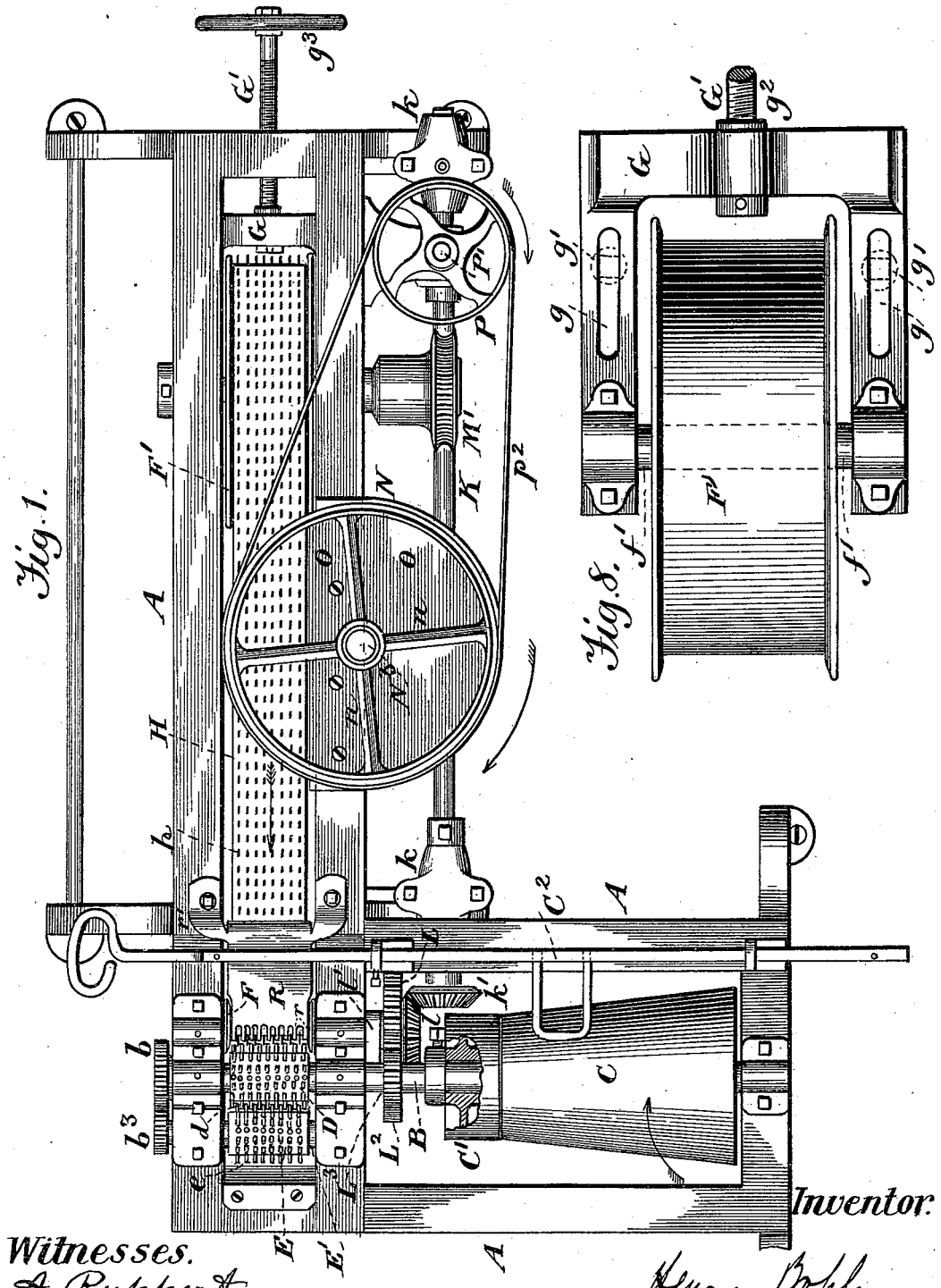

Fig. 1.

Fig. 8.

Witnesses.
A. Ruppert.
E. Cruse.

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H. BOHLS.

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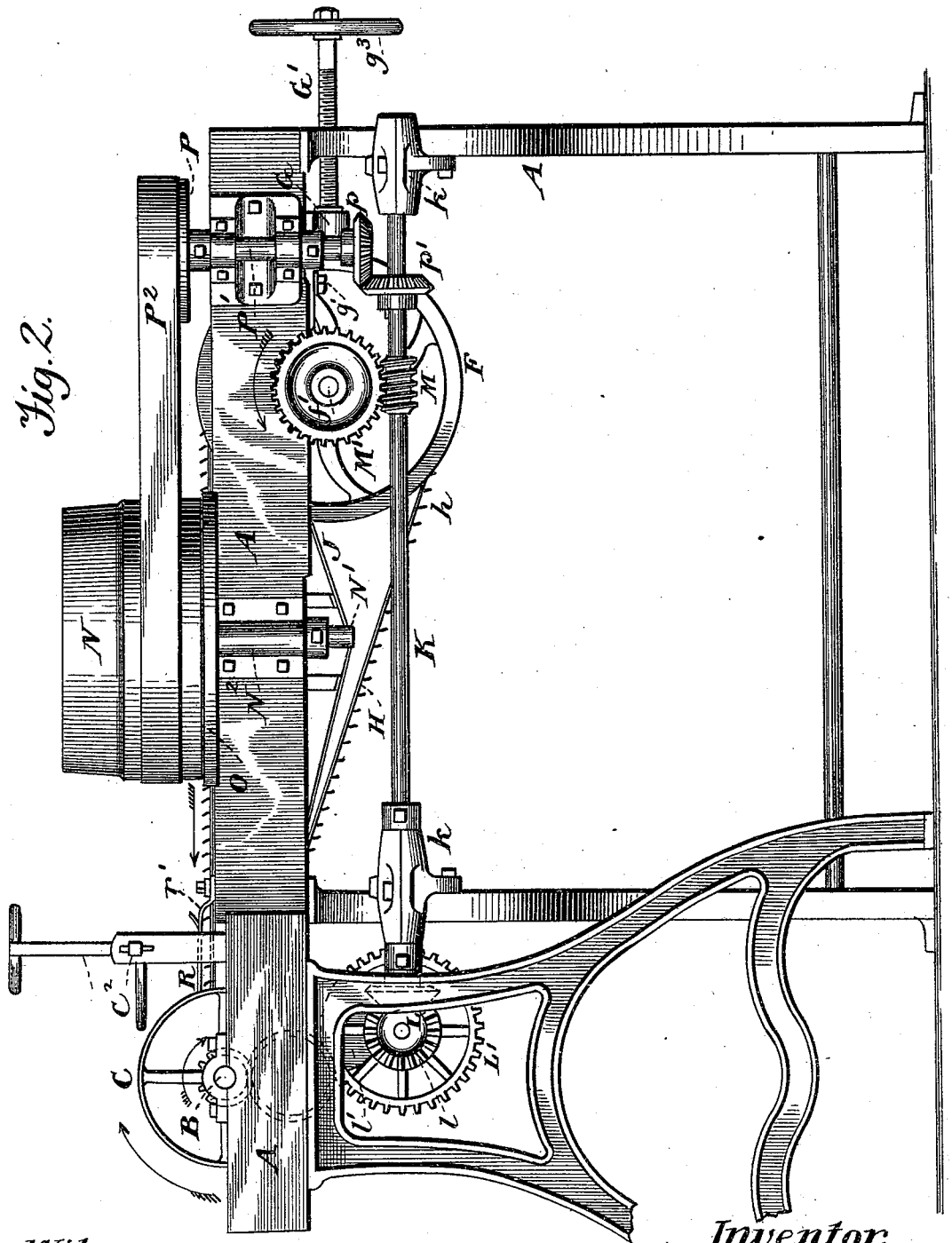
Fig. 2.



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H. BOHLS.

MACHINE FOR DRESSING AND FEEDING TOBACCO.

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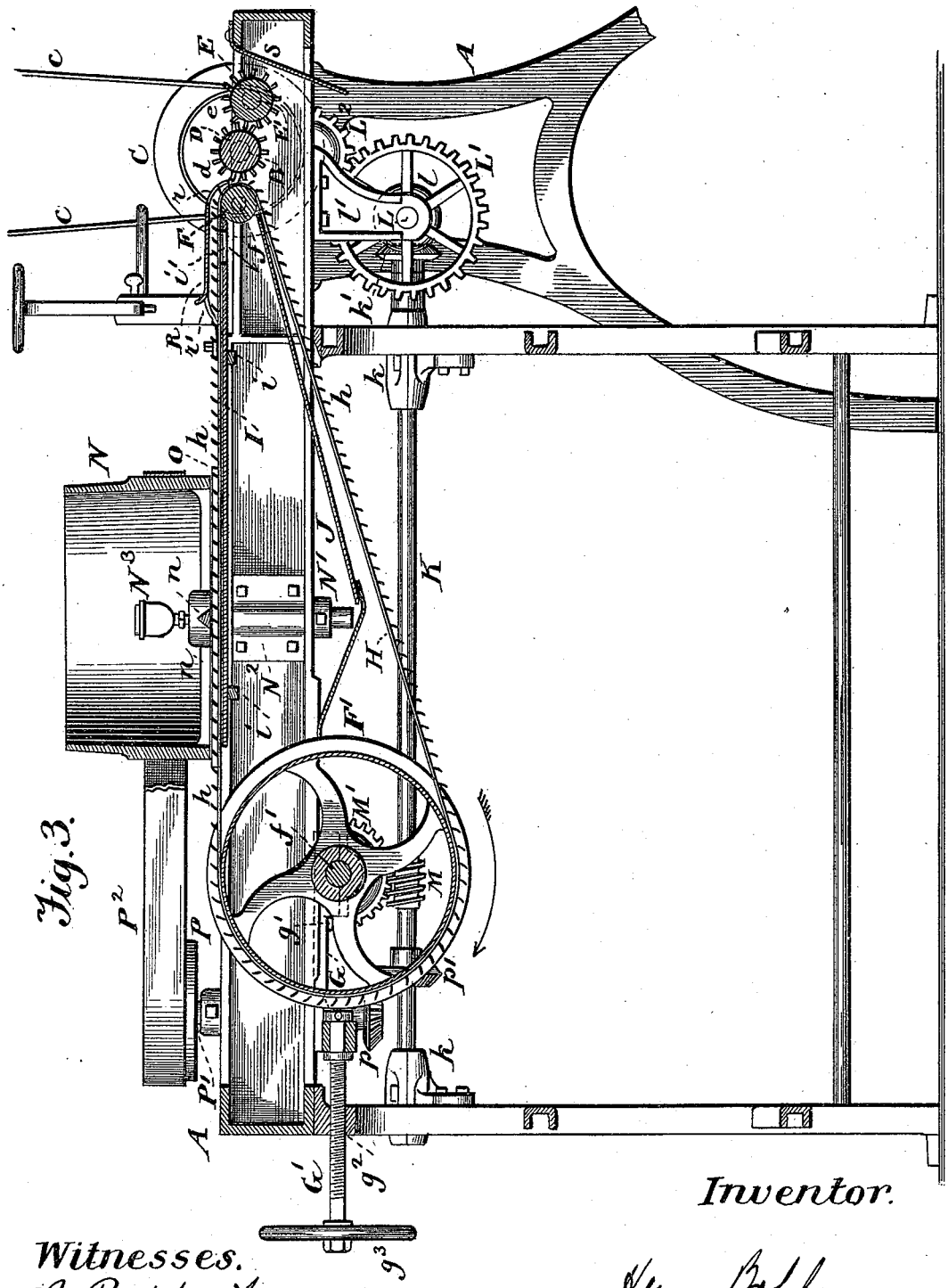

Fig. 3.

Witnesses.
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(No Model.) 4 Sheets—Sheet 4.

H. BOHLS.

MACHINE FOR DRESSING AND FEEDING TOBACCO.

No. 493,148. Patented Mar. 7, 1893.

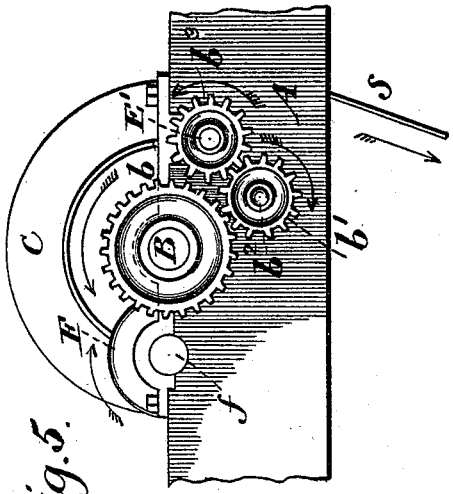

Fig. 5.

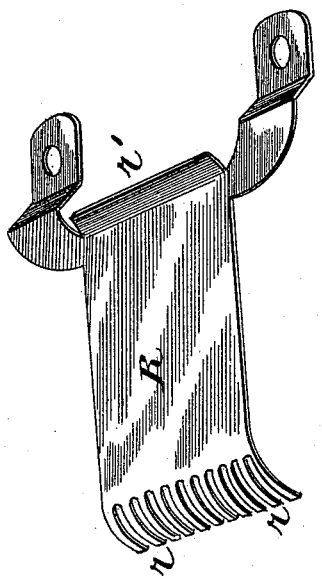

Fig. 7.

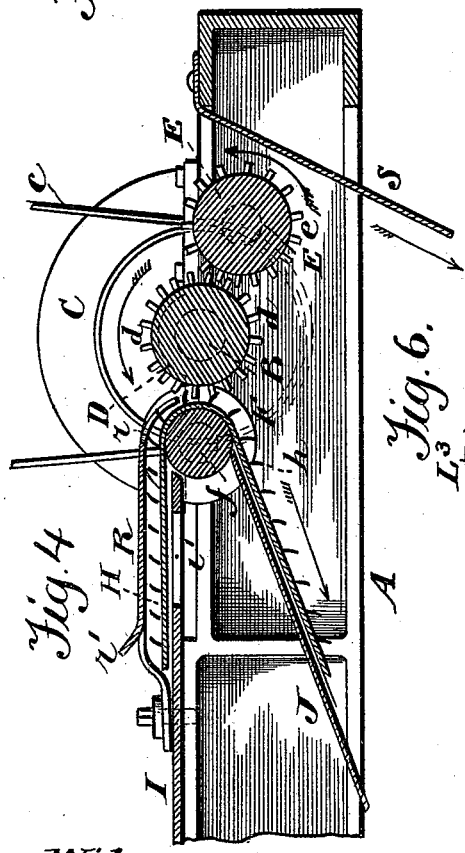

Fig. 4.

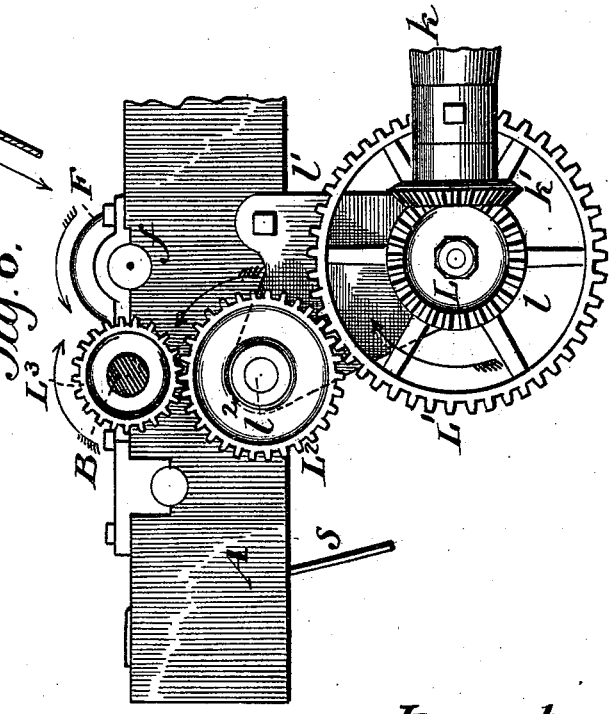

Fig. 6.

Witnesses.
A. Ruppert.
E. Kruse

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UNITED STATES PATENT OFFICE.

HENRY BOHLS, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO THE BOHLS CIGARETTE MACHINE COMPANY, OF RICHMOND, VIRGINIA.

MACHINE FOR DRESSING AND FEEDING TOBACCO.

SPECIFICATION forming part of Letters Patent No. 493,148, dated March 7, 1893.

Application filed September 1, 1892. Serial No. 444,817. (No model.)

To all whom it may concern:

Be it known that I, HENRY BOHLS, of San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Machines for Dressing and Feeding Tobacco, of which the following is a specification, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The invention relates, more particularly to a machine for hackling, disentangling or dressing tobacco so as to prepare it for introduction to a suitable machine for the manufacture of cigarettes.

In the accompanying drawings, Figure 1 is a plan of the machine; Fig. 2 a side elevation; Fig. 3 a vertical longitudinal section; Fig. 4 a sectional view, on enlarged scale, of a portion of the picker belt and the picker rolls. Figs. 5 and 6 are enlarged views of the gearing. Fig. 7 is a perspective view of a guard for the picker belt, detached; and Fig. 8 a plan of a belt tightening device.

Similar letters of reference indicate similar parts in the several figures.

A designates the frame of the machine and B the main driving shaft journaled in suitable bearings on the main frame.

C is a cone-shaped pulley secured to the shaft B to drive the latter, the pulley being driven by a suitable belt *c*.

C′ is a loose pulley on the shaft B, and C^2 a belt shipper. By the use of a cone-shaped pulley the speed of the driving shaft B may be varied.

The shaft B carries a roller D (hereinafter referred to as the first picker roller) having teeth *d* on its periphery. Another roller E, provided with peripheral teeth, *e*, is carried by the shaft E′ journaled in suitable bearings on the frame A, just in advance of the shaft B. The roller E will hereinafter be referred to as the second picker roller. The teeth of the picker rollers D and E mesh with each other. The shaft B carries at its end, outside the frame A, a pinion *b* which engages a smaller pinion *b′* running as an idler on the end of a shaft b^2 supported in suitable bearings in the frame A. The pinion *b′* engages with a similar pinion b^3 carried by the shaft E′. The pinions *b′* and b^3 being smaller than that of *b*, the second picker roller E revolves at a greater speed than does the first picker roller D; but both will move in the same direction by reason of the intervention of the idler *b′* between pinions *b* and b^3.

F is a pulley whose shaft *f* is mounted to revolve in suitable fixed bearings on the frame A immediately in the rear of the first picker roller D; and F′ is a pulley whose shaft *f′* is journaled in bearings on a sub-frame G, provided with elongated openings *g g*, through which bolts *g′ g′* pass into the main frame A. A screw G′ loosely connected at its inner end with the sub-frame G passes through a threaded hole g^2 in the main frame A and is provided at its outer end with a hand wheel g^3. The screw G′ is used as a means for adjusting the sub-frame relative to the main frame and thereby regulating the tension of the picker belt H which travels around the pulleys F and F′. This belt H is provided on its outer surface with teeth *h* which mesh with the similar teeth *d* of the first picker roller D.

The pulleys F and F′ are so mounted as to bring the upper half of the endless belt H in a horizontal plane, which half of the belt is supported by a plate I carried by the cross pieces *i i*, secured to the main frame. The plate I is provided with an opening *i′* in close proximity to the pulley F through which any dirt or other matter that may find its way between the belt and plate I will drop onto the inclined plate J from which it may be removed at the convenience of the operator, thereby preventing such dirt or other matter from being carried by the belt to the pulleys and thus clog them.

K is a shaft extending longitudinally of the machine and journaled in suitable bearings *k k* on the main frame A. On the end of the shaft K, adjacent to the driving shaft B, is mounted a bevel gear *k′* which engages a similar gear *l* on the shaft L, journaled in a bracket *l′* secured to the main frame. The shaft L also carries a wheel L′ which gears with a smaller wheel L^2, the latter also engaging a pinion L^3 carried by the driving shaft B. The gear wheel L^2 is mounted upon a shaft l^2, journaled in suitable bearings on the main frame, and runs as an idler between the pinion L^3

and the gear L′ thereby causing the latter to revolve in the same direction as that given to the pinion L^3. The shaft K carries a worm pinion M which gears with a worm M′ secured to the shaft f' of the pulley F′. Motion is thus transmitted from the driving shaft B to the pulley F′ through the medium of the pinion L^3, idler L^2, gear wheel L′, bevel gears l and k', shaft K, worm M and worm gear M′; and this train of gearing is so arranged and proportioned as to drive the pulley F′, and consequently the picker belt H, in a direction opposite to that of the first picker roller D, and at a reduced speed.

N is a feed hopper or drum provided with radial arms n n extending from the lower inside edge of its periphery to the central vertical shaft N′. The latter revolves in the journal N^2 secured to the main frame, and is provided with a lubricating device N^3. The drum has no bottom attached to it but a plate O, in the form of a segment of a circle is secured to the main frame below the hopper, the chord of the segmental plate abutting against the edge of the picker belt H, across which the drum extends. The belt H and the segmental plate O together form a bottom for the drum N, the belt constituting a movable and the segmental plate a fixed portion of said bottom. In order to rotate the drum N, a pulley P is secured to a vertical shaft P′, the lower end of which carries a bevel gear p engaging a similar gear p^2 on the shaft K. A belt P^2 runs around the drum N and the pulley P to transmit motion from the latter to the former. The drum is geared to run at a speed suited to the movement of the picker belt, and in such direction that the movement of the radial arms n n shall be opposite to that of the belt H. The radial arms n are preferably triangular in cross section, with the base of the triangle parallel to the belt H, in order that the tobacco may more readily slide or be pressed down between the arms on to the belt.

R represents a guard plate secured to the frame A above the picker belt H in such manner that the teeth of the latter shall just clear it. The forward end of the plate R is provided with teeth r r curved downwardly to a degree sufficient to enable the teeth of the belt H to pass between and extend slightly beyond them as the belt passes around the pulley F. See Figs. 4 and 7. The rear end of the plate is curved upwardly as shown at r', Figs. 4 and 7, to permit the tobacco to feed freely under the plate. The function of this plate is to force the tobacco down between the teeth of the belt H and to aid in combing or disentangling it at the point where it is taken from the belt by the first picker roller D.

S represents a chute or plate to convey the dressed tobacco to a cigarette machine, not shown.

The operation of my improved device is as follows, the direction of travel of the several operative parts of the machine being indicated by arrows: Tobacco is placed in the hopper and the machine started. As the belt H moves, its teeth will take the tobacco from the hopper, and as the radial arms n move in a direction opposite to that of the belt H, the tobacco will at this point be partially combed or disentangled. The belt conveys the tobacco onward until it passes beneath the guard plate R, which forces it down between the teeth of the belt, from which it is taken by the teeth of the first picker roller D. As this roller moves at a higher speed than the belt, the teeth of the latter somewhat retard the tobacco and a further combing or disentangling takes place which is further assisted by the curved teeth of the guard plate R. From the first picker roller D the tobacco is taken by the second picker roller E, which latter moves at a greater speed than the former, the material thereby still further combed or disentangled, and afterward discharged onto the chute or plate S in a condition suitable for use in the manufacture of cigarettes.

During the operation, the tobacco must be kept constantly pressed down to the bottom of the hopper to insure a uniform feed.

Having described my invention, I claim—

1. In a machine for dressing tobacco, the combination with a rotating feed drum and a picker belt forming a movable portion of the bottom for said drum, of a picker roller whose teeth mesh with those of the picker belt, substantially as described.

2. In a machine for dressing tobacco, a rotating feed drum, combined with a bottom, one portion of which is fixed and the other movable to convey tobacco from the drum, substantially as described.

3. In a machine for dressing tobacco, a movable picker belt, and a fixed plate abutting against the edge of the belt, combined with a feed drum mounted to revolve immediately above the feed belt and fixed plate, substantially as described.

4. In a machine for dressing tobacco, a movable picker belt, combined with a feed drum having inner radial arms at its lower end, said drum being mounted to revolve immediately above the feed belt in a direction opposite to that of the travel of said feed belt, and suitable means to impart movement to the several parts, substantially as described.

5. In a machine for dressing tobacco, a feed drum, and a picker belt movable beneath said drum to take tobacco therefrom, combined with a picker roller whose teeth mesh with those of the picker belt, and a guard plate supported immediately over the picker belt and having curved teeth at its end between which those of the picker belt pass, at or near the point where the teeth of the picker belt and picker roller mesh with each other, substantially as described.

6. In a machine for dressing tobacco, a movable picker belt and a guard plate supported immediately above said belt, and having its rear end curved upward for the purpose speci-

fied, combined with a feed hopper revolving over said belt, and a picker roller whose teeth mesh with those of the belt, substantially as described.

7. In a machine for dressing tobacco, a movable picker belt and a fixed segmental plate whose chord abuts against the edge of the picker belt, combined with a feed drum mounted to revolve above the belt and fixed plate, a guard plate supported immediately above the picker belt in advance of the drum, a first picker roller whose teeth mesh with those of the picker belt, a second picker roller whose teeth mesh with those of the first picker roller, and suitable gearing to impart varying rates of speed to the drum, the picker belt and first and second picker rollers, substantially as and for the purpose specified.

8. In a machine for dressing tobacco, the combination with a picker belt and the pulleys over which said belt travels, of a supporting plate for the upper half of said belt between the pulleys, said plate having a discharge opening immediately in the rear of the forward pulley, through which extraneous matter is carried by the movement of the belt, and an inclined plate below said supporting plate on which said extraneous matter is received, substantially as described.

In testimony whereof I have hereunto set my hand and seal.

HENRY BOHLS. [L. S.]

Witnesses:
LINCOLN SONNTAG,
JOHN BAUMGARTNER.