

No. 775,912.

PATENTED NOV. 29, 1904.

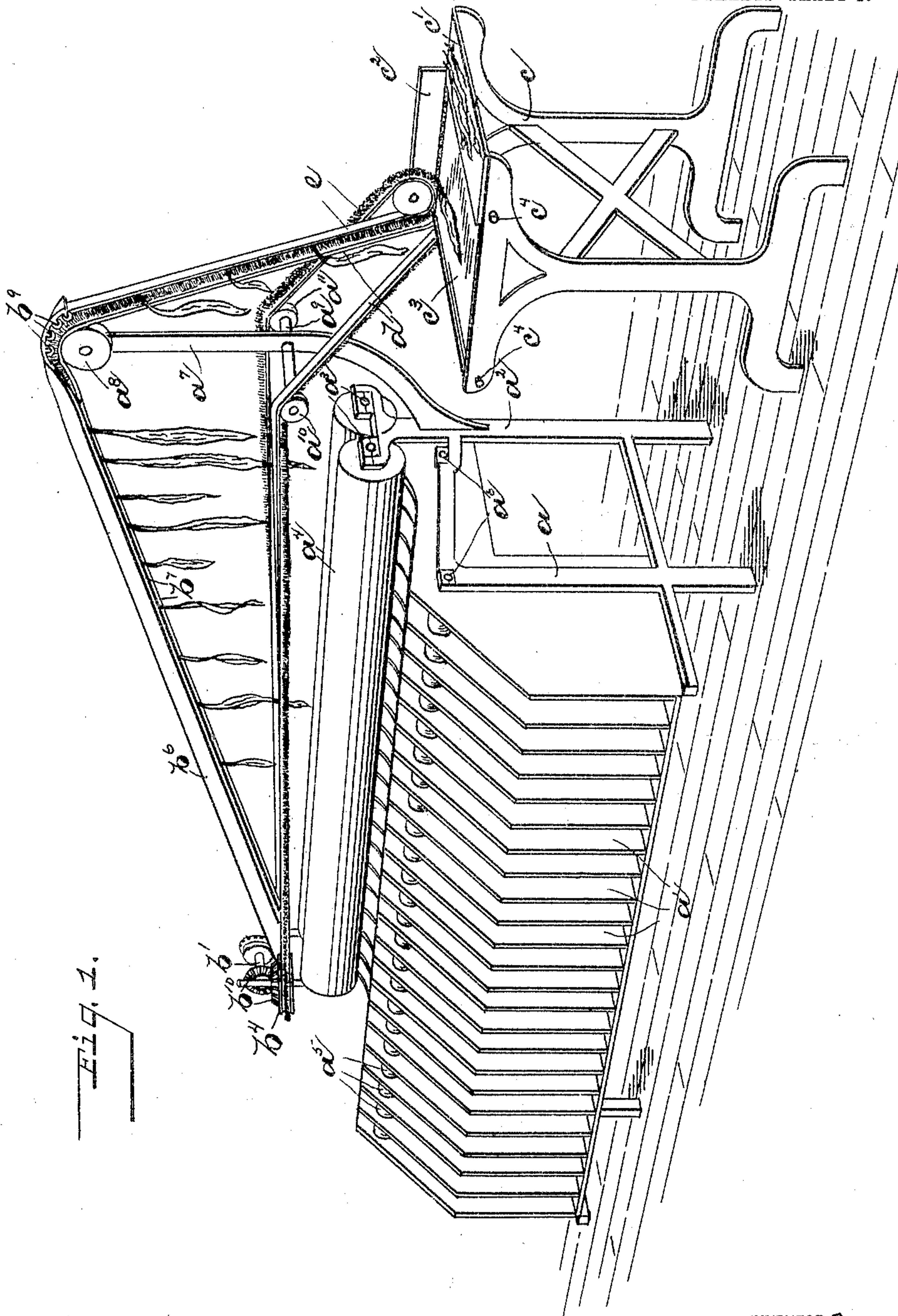
H. G. DAVIS & M. E. PUGH.

SIZING MACHINE.

APPLICATION FILED MAR. 19, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



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No. 775,912.

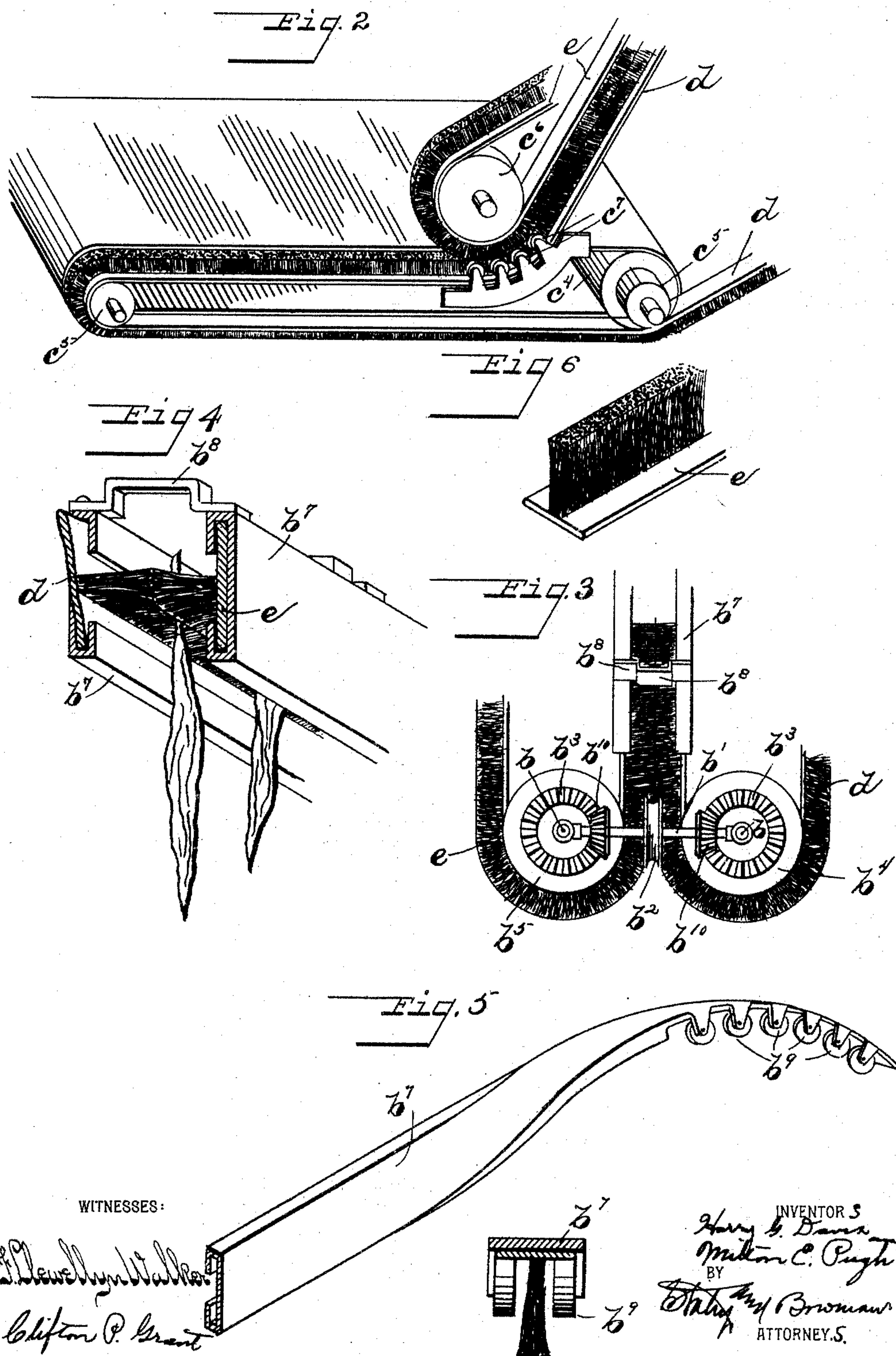
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UNITED STATES PATENT OFFICE.

HARRY G. DAVIS AND MILTON E. PUGH, OF DAYTON, OHIO, ASSIGNORS
TO EDWARD RETTICH, OF GERMANTOWN, OHIO, AND GEORGE BERGER,
OF CINCINNATI, OHIO.

SIZING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 775,912, dated November 29, 1904.

Application filed March 19, 1903. Serial No. 148,517. (No model.)

To all whom it may concern:

Be it known that we, HARRY G. DAVIS and MILTON E. PUGH, citizens of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Sizing-Machines, of which the following is a specification.

Our invention relates to sorting means for separating articles of different lengths into classes according to their length, and more particularly relates to apparatus for sorting tobacco-leaves, but may be used in separating like articles according to their size.

The object of our invention is to provide an improved construction, efficient, accurate, and automatic in its operation, that will separate and deliver the articles to be sorted.

With these and other objects in view our invention consists of the constructions and combinations of parts hereinafter described, and set forth in the claims.

In the accompanying drawings, which form a part of this specification, Figure 1 is a perspective view of a machine embodying our invention. Fig. 2 is a detail in perspective of the feed-conveyer, showing the feeding end of the belt carrier. Fig. 3 is a plan view of the drive for the belt carrier. Fig. 4 is a detail of the overhead belt-carrying frame. Fig. 5 shows a detail of a portion of said frame with rollers thereon and a transverse view, partly in section, of same; and Fig. 6 is a detail of the carrier-belt.

Like parts are represented by similar letters of reference in the several views.

It is desirable to handle the leaves or other articles in a manner that will be of the least possible damage to them, and for this purpose we employ belts traveling in parallel lines and adapted to contact with each other and engage the stems of the leaves between them. In this manner the leaves are held by their least-desirable part and the main portions are carried free of contact with the machine until they reach the sizing-rolls. The inner or contacting portions of the belts we preferably provide with a resilient material, and for this

purpose we have found that bristles, preferably of a soft and pliable nature, formed into a brush and attached to the belts are well adapted for the purpose, and we have shown a construction embodying the use of belts with brushes; but we do not limit ourselves to their use, and desire it to be understood that any resilient substance attached to the belts for the purpose named is within the spirit of our invention.

In the drawings the main frame a of the machine is provided with partitions a' , forming a series of bins into which the sorted articles are delivered according to their length. Standards a^2 at the respective ends of the frame are extended and provided with bearing-boxes a^3 , in which the respective ends of a pair of sizing-rolls a^4 are journaled. Within each of said bins there is an endless-belt conveyor a^5 , the shafts at the respective ends of said conveyor being journaled in boxes a^6 of the frame. For a more particular description of said conveyers reference is had to the patent to E. Rettich and M. E. Pugh, No. 740,180, issued September 29, 1903.

Two upright shafts b and a horizontal shaft b' are suitably journaled in the main frame. A pulley b^2 , rigid on the shaft b' , is driven from any suitable source of power, and pinions b^{10} on said shaft are adapted to mesh with gears b^3 on the shafts b , and grooved pulleys b^4 and b^5 , on which the gears b^3 are preferably formed, are also rigidly attached to the shafts b . A carrier-frame b^6 , attached to one end of said frame and rigidly supported over and in a vertical plane intermediate of the rolls a^4 at an inclination to said rolls, consists of parallel sides b^7 , having oppositely-disposed guideways adapted to carry and guide the carrying-belts, said sides being joined by cross-pieces b^8 . One side of the carrier-frame projects beyond the other and is given a quarter-twist, the guiding-recess for the belt ending with the turn and the side projecting beyond, the respective sides of said projection being provided with rollers b^9 to carry the belt, as shown in Fig. 5. An upwardly-projecting arm a^7 , attached to the standard a^2 , has a roller

a^8 journaled in its upper end, and intermediate of its ends is a cross rod or shaft a^9 , on one end of which there is a grooved roller a^{10} and on the other end a roller a^{11} .

5 A table c is shown separate from but can be rigidly attached to the main frame. It is provided with a feed-board c' and a guide c^2 . An endless-belt feed-conveyer c^3 has its carrying-rollers c^4 journaled in the respective sides
10 of the table, and said rollers are adapted at c^5 to carry the carrying-belts, hereinafter described, and a roller c^6 is journaled in the table-frame above and at one side of the conveyer c^3 .

15 An endless carrying-belt d , having a brush on the central portion of one side thereof, is adapted to travel over and be driven by the grooved pulley b^4 , from which it passes over the grooved roller a^{10} and the parts c^5 of the rollers c^4 , after which the portions of said belt
20 on the respective sides of its brush engage under rollers c^7 , journaled in a bracket on the table-frame, and thence it passes over the roller a^8 and through the guide of one of the
25 sides of the carrying-frame to the driving-pulley b^4 .

Another endless carrying-belt e , having a brush on the central portion of one side thereof, travels over and is driven by the grooved
30 pulley b^5 , from which it passes over the rollers a^{11} and c^6 , after which the portions of the belt on the respective sides of its brush engage over the rollers b^9 , by which it is carried into the quarter-turn of the projecting side
35 of the carrying-frame, through which it is carried to the driving-pulley b^5 .

The leaves are fed from the feed-board with the butt-ends of their stems against the guide-board and resting on the brush of the belt-
40 carrier d and said brush traveling in the same direction with the conveyer. The leaves are carried along until the stems pass between and are engaged by the brushes of both the belts d and e and are carried upwardly until
45 the belts pass the rollers a^8 and b^9 , when said belts upon entering the carrying-frame are given a quarter-turn, and thereby hold the leaves in a suspended position over the rolls a^4 , and the carrier-frame being fixed in an
50 inclined position to said rolls the space between them gradually narrows, so that the leaves as they are carried along will contact with said rolls sooner or later, according to the length of the leaves, and be drawn from the
55 brushes and passed to the delivering-conveyers, that drop them into the bins. It will be seen that the longest leaves will be delivered into the bin at the right of the machine and the shortest leaves into the bin at the left of
60 the machine, the leaves of varying length between the two extremes being delivered according to their length into the intermediate bins to which they belong.

Any suitable means may be employed to
65 drive the rolls a^4 and the delivering-conveyer

a^5 , so as to catch and deliver the leaves in the manner described.

The portions c^5 of the rolls c^4 being of less diameter than the rolls c^4 , it will be seen that the feed-carrier is driven at a slightly-in-
70 creased speed over the endless-belt carriers, which causes the carriers to take hold of the stems of the leaves in such position that after they pass the rolls a^8 and b^9 the stems are held in a vertical position over the sizing-rolls. 75

Having thus described our invention, we claim—

1. The combination with a pair of sizing-rolls, of a carrier adapted to carry the articles to be sized pendent over said rolls, said carrier traveling at an inclination to said rolls,
80 substantially as specified.

2. The combination with a pair of sizing-rolls, of a carrier arranged at an angle thereto and in a vertical plane intermediate of said
85 rolls, substantially as specified.

3. The combination with a pair of sizing-rolls arranged in a horizontal plane, of a carrier arranged in the same vertical plane with and over the impinging portions of said rolls
90 and at an inclination thereto, substantially as specified.

4. The combination with a pair of sizing-rolls, of a pair of endless belts arranged at an angle thereto and adapted to travel in contact
95 with each other to engage and carry the articles to be sorted, pendent over said rolls, substantially as specified.

5. The combination with a pair of sizing-rolls, of a pair of endless belts adapted to
100 travel in contact with each other and means on the contacting portions of said belts to releasably hold the articles to be sorted suspended over said rolls while said belts travel at an inclination thereto, substantially as
105 specified.

6. The combination with a pair of sizing-rolls, of a pair of endless belts adapted to travel in contact with each other, a resilient material on the contacting portions of said
110 belts to releasably hold the articles to be sorted suspended over said rolls while said belts travel at an inclination thereto, substantially as specified.

7. The combination with a pair of sizing-rolls, of a pair of endless belts, each having a brush on one side thereof, said belts being adapted to travel over and at an inclination to
115 said rolls with said brushes in contact with each other, substantially as and for the purpose specified. 120

8. In a machine such as described, the combination with a pair of sizing-rolls and a feed-conveyer, of a pair of endless-belt carriers above said sizing-rolls to receive the articles
125 to be sized from said conveyer and carry the same to said rolls, said carriers being adapted to travel at a less speed than said conveyer, substantially as specified.

9. In a machine such as described, the com- 130

5 bination with a feed-conveyer, of a pair of
endless-belt carriers, one belt of which is
adapted to travel adjacent to and in the same
plane with said conveyer, and means to drive
said conveyer at a greater speed than said
belts, substantially as specified.

10 10. In a machine such as described, the
combination with a pair of sizing-rolls and a
pair of endless-belt carriers, of a carrier-
frame for said belts extending over said rolls
and at an inclination thereto, a guide to give

a quarter-turn to one of said belts beyond the
sizing-rolls and rolls on said guide adapted
to carry said belt, substantially as specified.

In testimony whereof we have hereunto set 15
our hands this 13th day of March, A. D. 1903.

HARRY G. DAVIS.
MILTON E. PUGH.

Witnesses:

JOHN M. NUTT,
IRWIN NUTT.