(No Model.) 4 Sheets—Sheet 1.

J. DELAMAR.

MACHINE FOR STRIPPING AND BOOKING TOBACCO LEAVES.

No. 435,135. Patented Aug. 26, 1890.

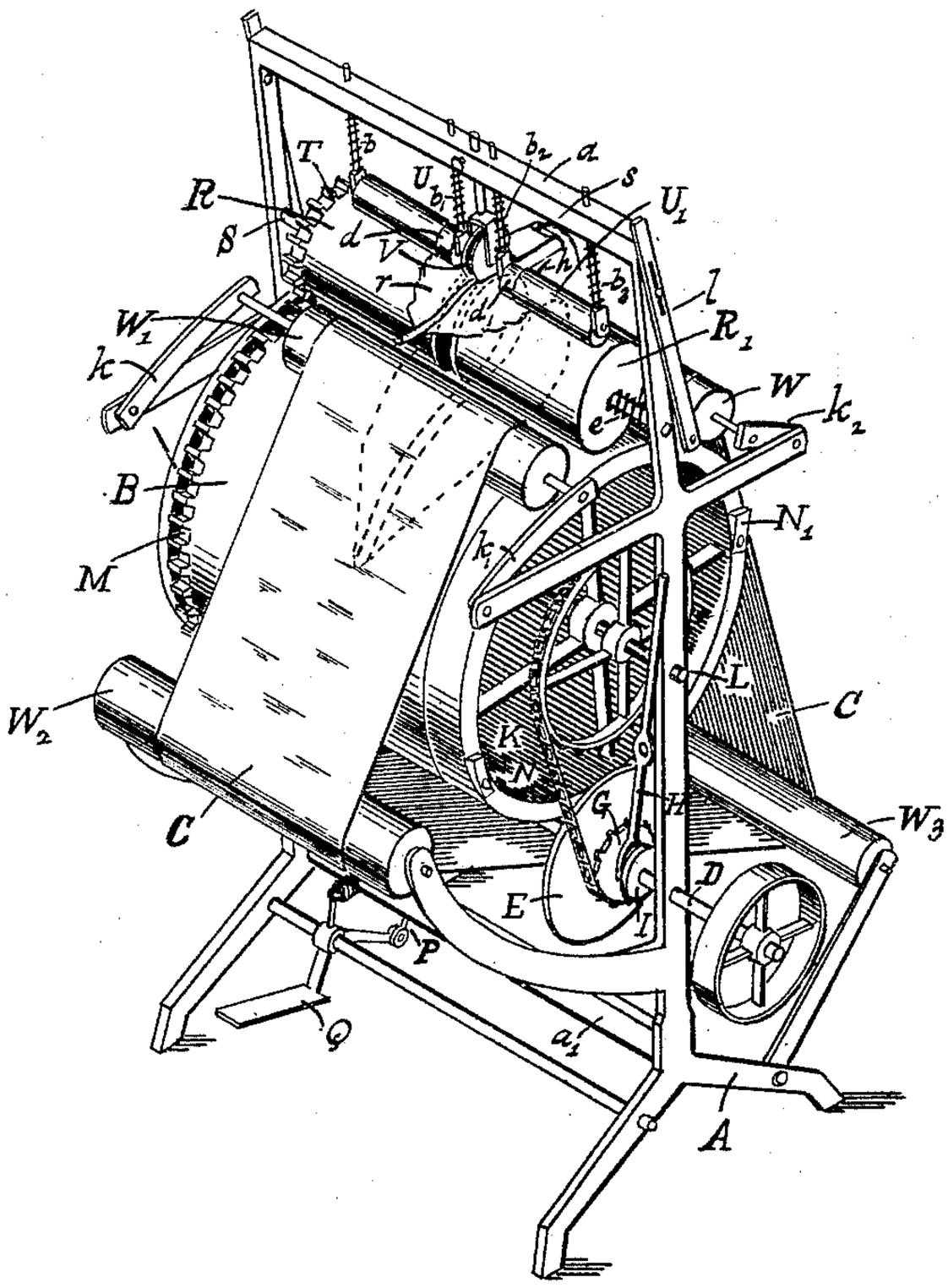


Fig. 1

WITNESSES:

Albert A. Simpson

Silas Woodell

INVENTOR

Joseph Delamar

BY Munn & Co

ATTORNEY

(No Model.) 4 Sheets—Sheet 2.

J. DELAMAR.

MACHINE FOR STRIPPING AND BOOKING TOBACCO LEAVES.

No. 435,135. Patented Aug. 26, 1890.

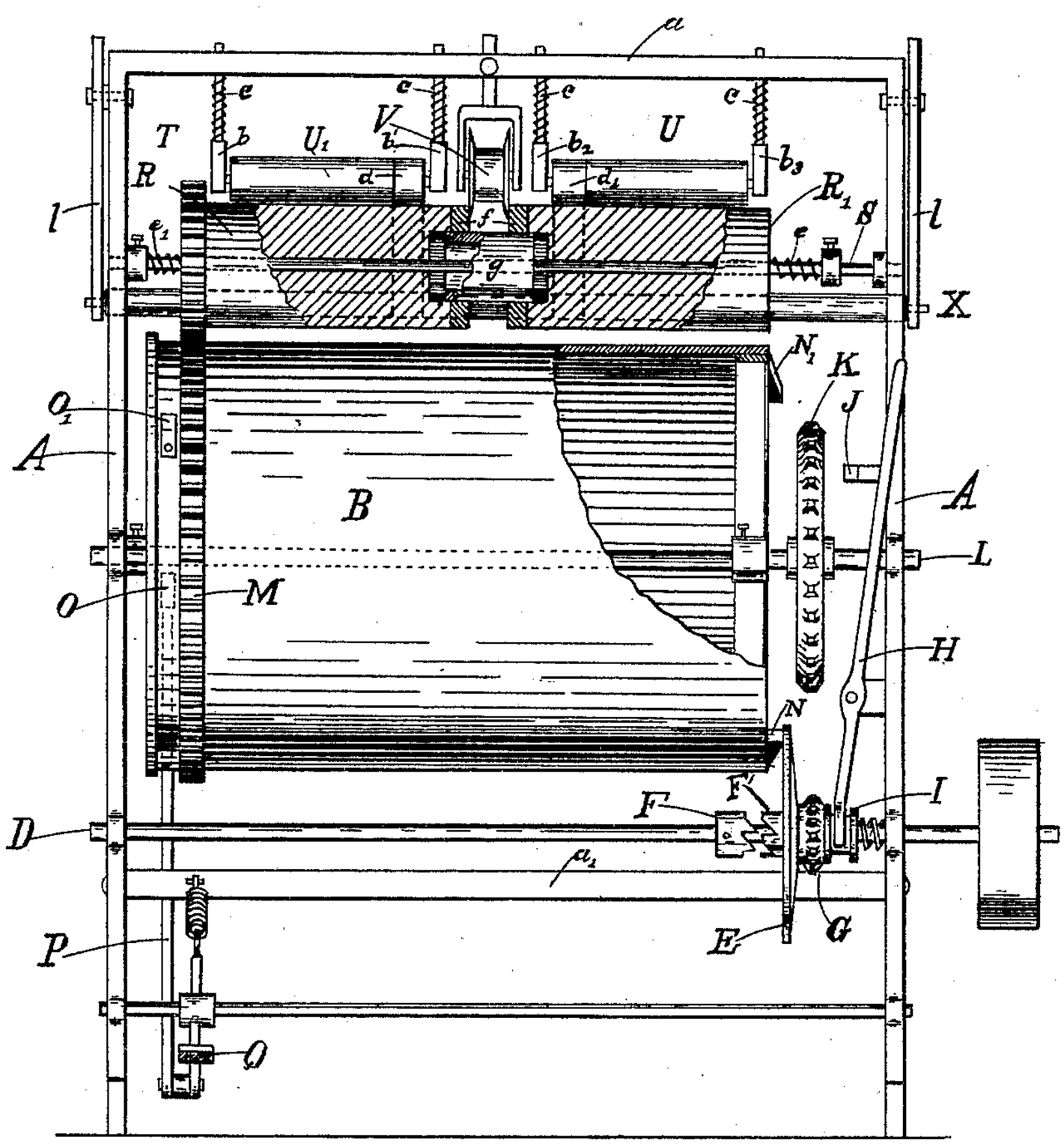


Fig. 2

WITNESSES:
Albert A. Simpson
Silas Wolcott

INVENTOR
Joseph Delamar
BY Munn & Co
ATTORNEY

(No Model.) 4 Sheets—Sheet 3.

J. DELAMAR.

MACHINE FOR STRIPPING AND BOOKING TOBACCO LEAVES.

No. 435,135. Patented Aug. 26, 1890.

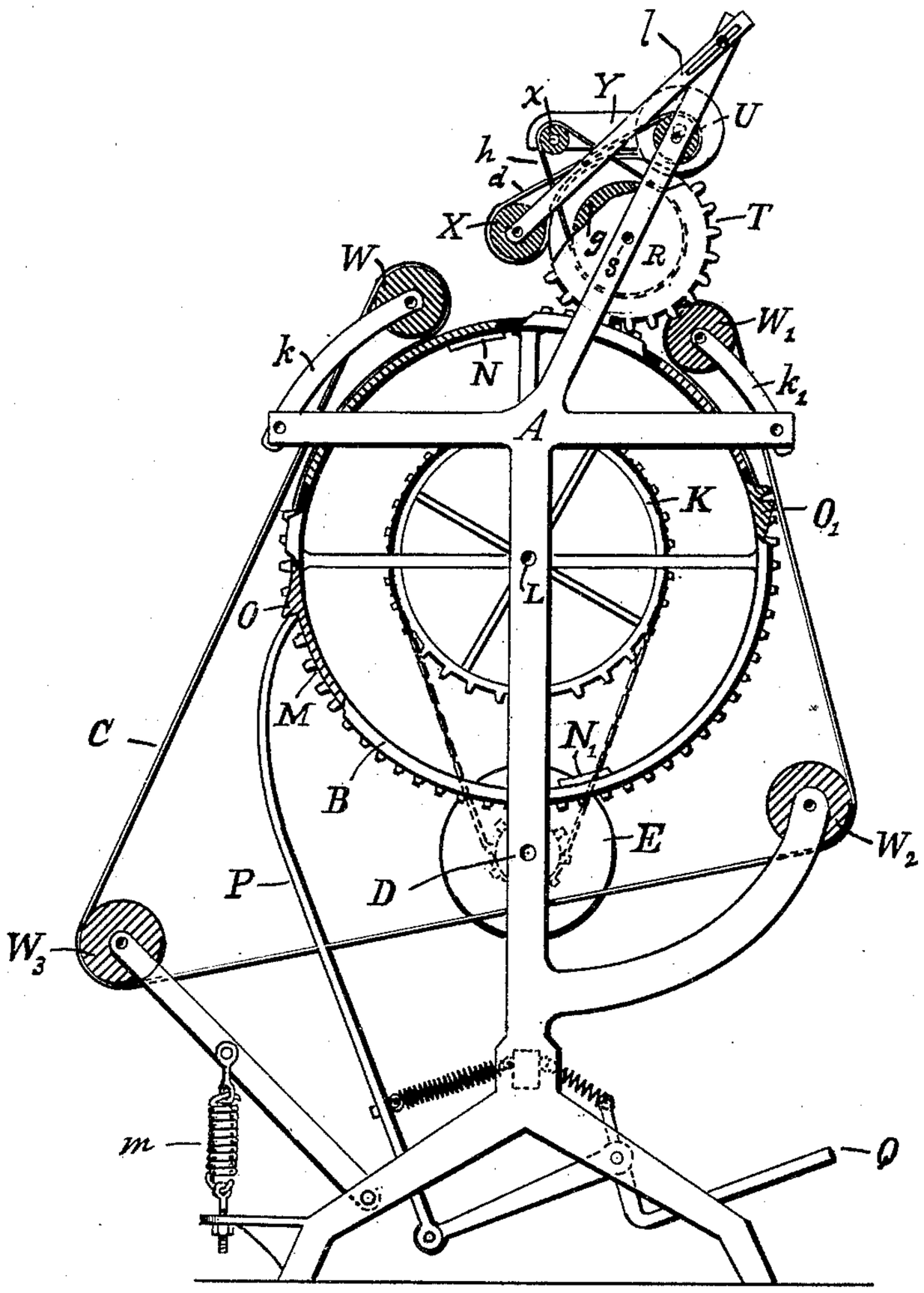


Fig. 3

WITNESSES:
Albert A. Simpson
Silas Wodell

INVENTOR
Joseph Delamar
BY Munn & Co
ATTORNEY

(No Model.) 4 Sheets—Sheet 4.

J. DELAMAR.

MACHINE FOR STRIPPING AND BOOKING TOBACCO LEAVES.

No. 435,135. Patented Aug. 26, 1890.

Fig. 4

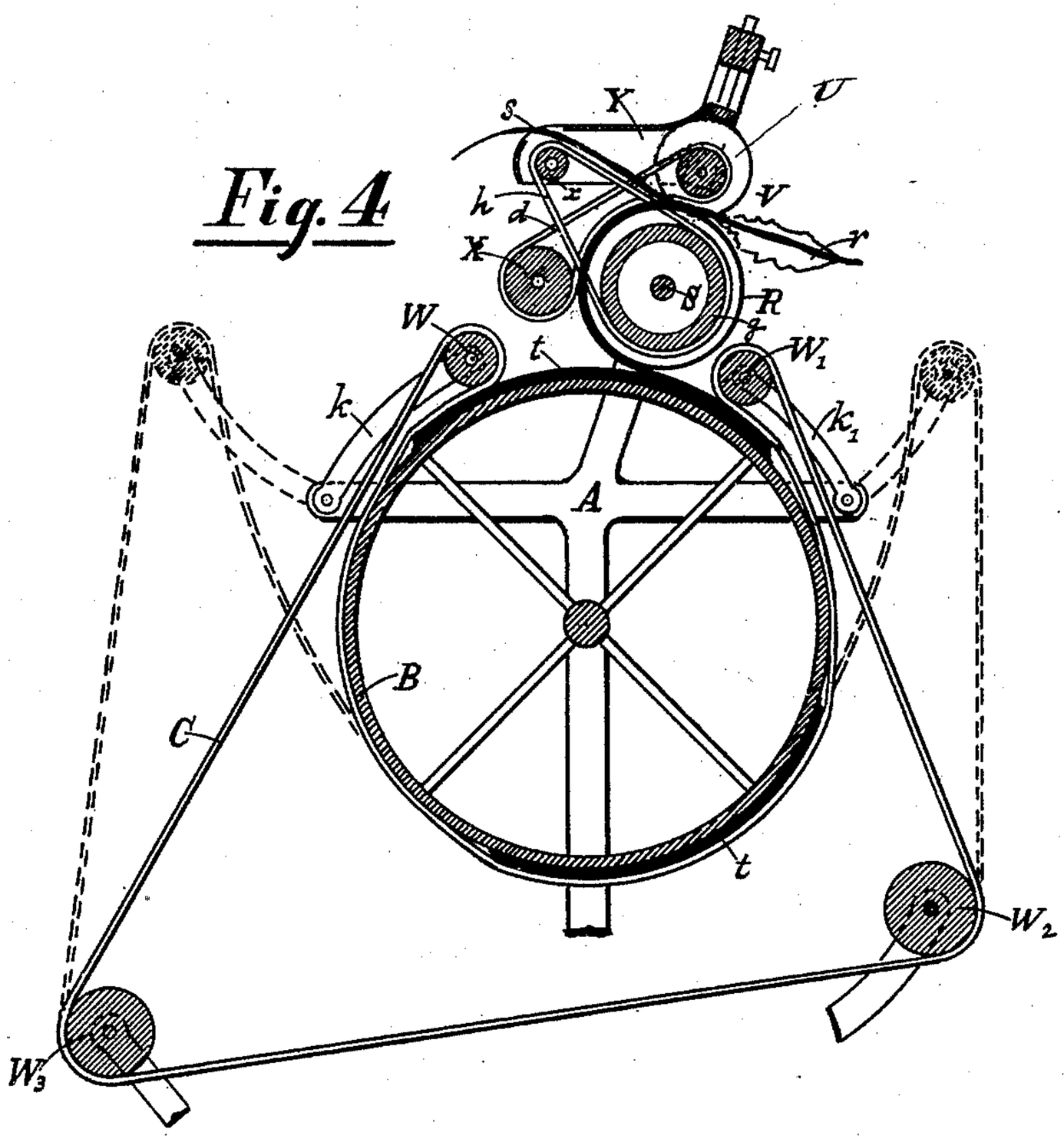


Fig. 5

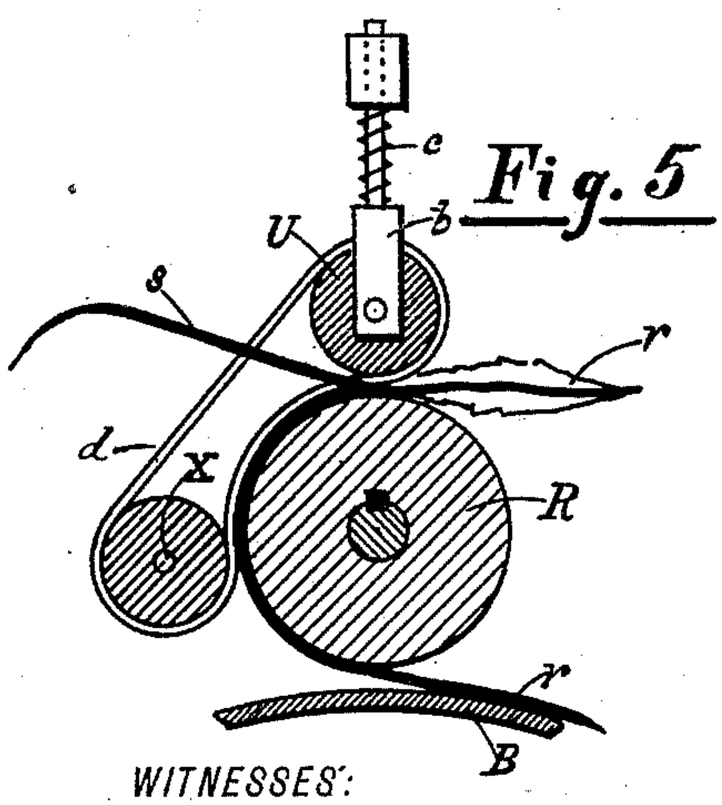
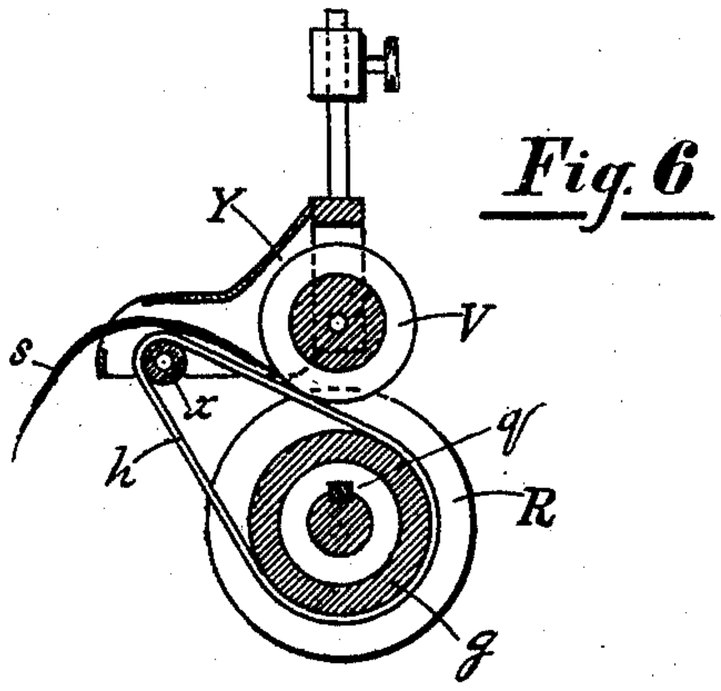


Fig. 6



WITNESSES:

Albert A. Simpson

Silas Wodell

INVENTOR:

Joseph Delamar

BY Munn & Co

ATTORNEY

UNITED STATES PATENT OFFICE.

JOSEPH DELAMAR, OF POUGHKEEPSIE, NEW YORK.

MACHINE FOR STRIPPING AND BOOKING TOBACCO-LEAVES.

SPECIFICATION forming part of Letters Patent No. 435,135, dated August 26, 1890.

Application filed February 7, 1888. Serial No. 263,261. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH DELAMAR, a citizen of the United States, residing at Poughkeepsie, in the county of Dutchess and State of New York, have invented certain new and useful Improvements in Machines for Stripping and Booking Tobacco-Leaves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in tobacco stripping and booking machines, in which a combination of feed-rollers, cutting-knife, and smoothing-rollers operate, in connection with a revolving drum covered by an endless apron and controlled by the mechanism hereinafter described, in such a way as to separate the stem neatly from the leaf, to direct the stripped portions of the leaf smoothly to the surface of the drum, and to there book them in uniform pads for removal ready for the cigar-maker's use; and the objects of my improvements are, first, to give the operator, by means of a starting-lever, all the time he needs to smooth the leaf as he feeds it and before he allows the power to take up the work of operating the machine; second, to convey by elastic guide-belts the stripped leaves smoothly to their place for booking on the periphery of the drum under the apron; third, to discharge the stem entirely outside of and free from the machine; fourth, to stop the rotation of the drum automatically at given points required for uniform booking; fifth, to stop the machine at any point by a hand or foot lever, and, sixth, to enable the operator to loosen readily the tension of the apron for removing the books of leaves when the booking operation is complete. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of my machine, showing the leaf inserted and in its progress through the machine. Fig. 2 is a front elevation of my machine, some of its parts being cut away and omitted in order to better show other parts. Fig. 3 is a side elevation of my machine partly cut away to better show the mechanism. Fig. 4 is a sectional view of the upper part of the machine, showing the progress of the stem and leaf, and also showing by the dotted lines the lever-arms of the two upper tension-rollers thrown back for the purpose of loosening the apron to permit the removal of the booked leaves from the surface of the rotary drum. Fig. 5 is a sectional view showing the use of the guide-belt in connection with the feed-roller, the smoothing-roller, and the stationary guide-belt roller, for the purpose of directing the stripped leaf smoothly to the surface of the drum; and Fig. 6 is a sectional view showing the stem carrying and discharging belt, which runs about a tube attached to one feed-roller and over a small roller in the brass jacket near the point of discharge for the stem.

Similar letters refer to similar parts throughout the views.

The following general description of my invention will indicate the lettering in the drawings of all the separate parts of the machine, and also their interdependence and mode of operation.

A represents the frame of the machine, and *a a* are the two cross-bars to hold the frame together—one at the top and one near the bottom—as shown in Fig. 2, this frame being provided in suitable places with the necessary bearings to support the working parts of the machine.

B is the drum, which is mounted on a loose shaft L, the drum being fastened to the shaft by a set-screw at each end, as shown in Fig. 2, and having its bearings in frame A.

C is an endless belt or apron, which covers the greater portion of the periphery of the drum, being under the hinged tension-roller W, going thence underneath the drum on its surface to the other hinged tension-roller W, over the latter downward to the stationary roller W^2, under that across to the adjustable tension-roller W^3, which may be made to take up any slack in the apron by gravity or spring tension, the latter being shown in Fig. 3 by M, and so up and over the first roller W again, constituting thus an easily-traveling apron, but yet having sufficient yielding tension to allow for the proper booking of the leaves under it on the surface of the drum.

D represents the driving-shaft, to which power may be applied in the ordinary way.

E is a sliding disk on the driving-shaft large enough to engage with lugs on the side of the drum, as hereinafter explained.

F is a clutch stationary on the driving-shaft and fitted so as to engage with a similar clutch-projection F′ on the inner side of the disk E.

G is a sprocket-wheel on the outer side of disk E, for the purpose of imparting the power to the drum by a similar sprocket-wheel K.

H is a shifting-lever which has its fulcrum on a lug on the frame A, and terminates in a forked end fitting over the grooved collar I, on a hub of the sliding disk E, so as to enable the operator to stop the machine at any time while feeding the leaves, or for the purpose of removing the books of tobacco, when desired. This is accomplished by the upper part of the lever being brought inward until it engages in the catch J, thereby disengaging the movable clutch F from the stationary clutch F, and so from the power used to drive the machine. The lever H may be so arranged as to be operated by the foot instead of by hand, if preferred.

K is a sprocket-wheel of larger diameter than G and fastened to the drum-shaft L, a chain connecting it with G, as shown in Figs. 1 and 3, and thereby giving the required speed upon the application of the power through the stationary clutch F.

To transmit the necessary positive motion to the feed-rollers R R′, I have a gear-wheel M on the periphery of the drum adjusted to engage with a smaller gear-wheel T on the feed-roller R, and in order to obtain an equal motion of both drum and feed-rollers such as is essential for booking the leaves properly both gear-wheels have the same proportionate diameters as the cylinders to which they are each attached.

To enable the operator to feed the leaves properly, irrespective of the shifting-lever H, I have arranged lugs N N′ at desired intervals on the outer edge of the drum B to engage with the disk E, as hereinafter more particularly described, for stopping the rotation of the drum automatically, and the lugs O O′ on the periphery of the drum for starting the machine by means of the starting-lever P and pedal Q, as shown in Fig. 3. The lugs N N′ for stopping the machine are set at a distance apart sufficient to accommodate a tobacco-leaf of a certain length and no more, thereby saving lost motion and enabling the operator to pile up two or more pads or books of leaves on the surface of the drum B, according to the size of the drum and the lengths of the leaves which are fed. The lugs O O′ for starting the machine are set to correspond with the others and work in connection with them, as follows: The operator, by placing his left foot upon the pedal Q, raises the lever P against the starting-lug O and forces the drum to move toward him. This moves the lug N away from him along the disk E, as shown in Fig. 2, but upon slight foot-pressure does not force it beyond the disk, so avoiding for a time the action of the power and leaving the operator entire control of the movement of the drum while he is feeding the leaf to the machine. He may thus after he has caught the leaf in the feed-rollers have what time he needs to properly stretch the leaves of tobacco which he is about to strip and book. When he has the leaf properly adjusted for smooth booking, he presses the pedal until the rotation of the drum carries the lug N past the disk E, which, being movable on the shaft D, is instantly pressed outward from the frame toward the drum by a special spring and engages the clutch F on the driving-shaft. This imparts the motive power to the machine and the drum is moved toward him until it has gone far enough to give place to the leaf on the surface of the drum. Then the next lug N′ engages with the disk E, forces it back again free from the clutch F, and so stops the drum automatically at the point where the operator may begin to feed the next leaf by the action of the starting-lever, as before.

To compel the starting-lever P to engage with one of the lugs O O′ when desired, I have the lugs placed in a groove of the drum just outside the gear-wheel M, as shown in Fig. 2, and the lever brought constantly in contact with them by means of a spiral spring, as shown in Fig. 3.

Coming now to the mechanism of the upper portion of my stripping and booking machine, R R′ are two feed-rollers keyed to the loose shaft S, but having free lateral movement on the shaft to permit any desired pressure against the cutting-knife V by means of the spiral springs *e e′*, adjusted by set-screws on the shaft S, as shown in Fig. 2. The inner sides of these feed-rollers have annular cutters *f f* of steel, the outer edges of which are sharp where they press against the revolving knife V for cutting the leaves from the stems as they are fed to the machine. It will be seen that as the operator starts the drum toward him by pressing on the pedal Q the gear between the drum and rollers will cause the upper part of the feed-rollers to turn away from him, so as to carry the leaf between the rotary cutter V and the sharp edges of the feed-rollers R R′ for the purpose of stripping it from the stem, as shown in Fig. 1. The spiral springs *e e′* give sufficient pressure of the rollers against the knife V to do the necessary cutting and yet permit an elasticity which prevents injury to the cutting-edges. The left-hand roller R is moved by the gear from the revolving drum and the other feed-roller R′ is moved by the key *q* on the shaft S, along which the rollers are both pressed against the knife V by the spiral spring with sufficient force to turn the knife and do the cutting. Both may be covered with felt or some similar substance.

In order to better smooth the leaves as they are being fed and to carry them smooth to the surface of the drum for booking, I em-

ploy two small smoothing-rollers U U′ above the feed-rollers and working friction-tight evenly against them. These smoothing-rollers are hung so as to have their bearings in the supports *b b′ b*² *b*³, which are attached to the upper cross-bar *a* of the frame. The ends of these supports are movable and are pressed down by spiral springs *c*, so as to keep rollers U U′ constantly tight upon rollers R R′ for smoothing the leaves of tobacco.

Passing over rollers U U′ near their inner ends, and set in so as to be level with the surface of the rollers, are two elastic guide-belts *d d′*. They pass over the back of the feed-rollers R R′ and around a single roller X, revolving in a stationary but adjustable pair of arms *l*, as shown in Figs. 3, 4, and 5. These elastic guide-belts serve to separate the leaves from the stem as the cutters do their work, and to carry the leaves stretched and smoothed over the feed-rollers toward the surface of the drum. A slot in each arm *l* makes it possible to adjust the stationary roller X so as to tighten the guide-belts when necessary, as shown in Fig. 3.

The circular-grooved knife V, in which the stem of the leaf enters, is held in position by a forked stem in which it revolves, and the stem is in turn fastened through the top cross-bar *a* of the frame, where a thumb-screw enables the operator to adjust the knife in relation to the annular cutters *f f* on the feed-rollers R R′. Back of this knife V extends a gutter-shaped jacket or tube Y, of brass or other suitable metal, which supports a stem-guide-belt roller *x*. The stem-guide belt *h* which runs over it passes over the metal tube *g*, within the annular cutters *f f*, and fastened to one of the feed-rollers and telescoping into the other, as shown in Fig. 2, so as to carry the stem-guide belt (as the rollers revolve) directly under the knife V, thereby taking the stem *s*, as it is cut from the leaf *r*, drawing it up out of the opening in the jacket, and discharging it free of the machine upon the apron C, as shown in Figs. 4, 5, and 6. These figures show clearly how, when the leaf *r* is fed to the machine and the cutters separate the stem from the leaf, the stem is drawn upward and out by the stem-guide belt just described, and the two portions of the leaf are carried smoothly downward by the guide-belts *d d′* toward the surface of the drum, to form the pads or books *t*. When these books become as thick as is desirable, the operator can readily stop the machine by the lever H, throw back the rollers W W′ on their hinged arms *k k′*, in the position shown by the dotted lines in Fig. 4, which loosens the apron sufficiently to permit him to remove the books *t t* easily and quickly.

I am aware that stripping and booking machines having rotary drums are in use; but none of those machines have so convenient a method for loosening the endless belt or apron, so effective an arrangement of feed-rollers and smoothing-rollers for taking the leaves to the surface of the drum, so prompt a discharge of the stem, so complete control of the movement of the drum when the leaf is being fed, and so perfect an adjustment of lugs for automatically arresting the motion of the drum as have been set forth in this description of my invention.

What I claim, therefore, and desire to secure by Letters Patent, is—

1. In a tobacco stripping and booking machine, feed-rollers having sharp adjacent faces, an intermediate two-edged cutting-wheel against which said faces bear, and smoothing-rollers having spring-pressure on the top of said feed-rollers, substantially as and for the purpose described.

2. In a tobacco stripping and booking machine, the combination of a pair of feed-rollers having sharp adjacent faces, a cutting-wheel interposed between said rollers, said sharp adjacent faces having bearing against said cutting-wheel, smoothing-rollers having pressure on the top of said feed-rollers, and guide-belts passing around said smoothing-rollers and over a portion of said feed-rollers, in the manner and for the purpose substantially as described.

3. In a tobacco stripping and booking machine, the combination of feed-rollers having sharp adjacent faces, and means for urging them toward each other, a cutting-wheel interposed between said rollers, smoothing-rollers mounted above said feed-rollers and pressed against them, guide-belts running over said smoothing-rollers and partially over said feed-rollers, a tube connecting said feed-rollers, a stem-guide belt running over said tube, and a loose roller and a jacket or its equivalent in which said roller is mounted and through which the stem is fed, in the manner and for the purpose described.

4. In a tobacco stripping and booking machine, the combination of a revolving drum, rollers fitting against said drum, a stationary roller and a tension-roller located off said drum, an endless apron passing around the greater part of the peripheral surface of the drum and over all said rollers, feed-rollers located above said drum and on a common shaft and normally urged toward each other, and a two-edged cutting-wheel interposed between said feed-rollers, in the manner and for the purpose described.

5. In a tobacco stripping and booking machine, the combination of a revolving drum, an endless apron passing over the greater portion of said drum and over a series of rollers journaled in the framing of the machine, feed-rollers mounted on a common axle above said drum and urged toward each other, a two-edged cutting-wheel interposed between said feed-rollers, and smoothing-rollers hung above said feed-rollers and having frictional bearing thereon, substantially as described.

6. In a tobacco stripping and booking machine, the combination of a revolving drum, an endless apron passing around the greater

part of said drum and over rollers journaled in the framing of the machine, feed-rollers journaled on a common axle above said drum, a two-edged cutting-wheel interposed between said feed-rollers, smoothing-rollers hung above said feed-rollers and having frictional bearing thereon, and guide-belts running over said smoothing-rollers and a roller located behind said feed-rollers, and also running over a portion of the peripheral surface of said feed-rollers, all arranged and adapted to operate substantially as described.

7. In a tobacco stripping and booking machine, the combination of a rotary drum, an endless apron passing around the greater part of said drum and over a series of tension-rollers, feed-rollers mounted on a common shaft journaled above said drum and normally urged toward each other, a two-edged cutting-wheel interposed between said feed-rollers, smoothing-rollers having frictional bearing on said feed-rollers, guide-belts running over said smoothing-rollers, partially over the surface of said feed-rollers and around a loose roller, a tube connecting the feed-rollers beneath the cutting-wheel, and a stem-guide belt running over said tube, and a roller mounted in bearings located off the feed-rollers, all arranged and adapted to operate substantially as and for the purpose described.

8. In a tobacco stripping and booking machine, a cutting-wheel, in combination with a pair of feed-rollers mounted on a common shaft and bearing against the opposite faces of the cutting-wheel, a tube situated between the feed-rollers, a jacket supporting a pulley, a guide-belt passing over said pulley and said tube, smoothing-rollers bearing upon the feed-rollers, and guide-belts passing around said smoothing-rollers and a loose roller, substantially as described.

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

JOSEPH DELAMAR.

Witnesses:
HENRY W. GILBERT,
HOWARD W. WELLES.