

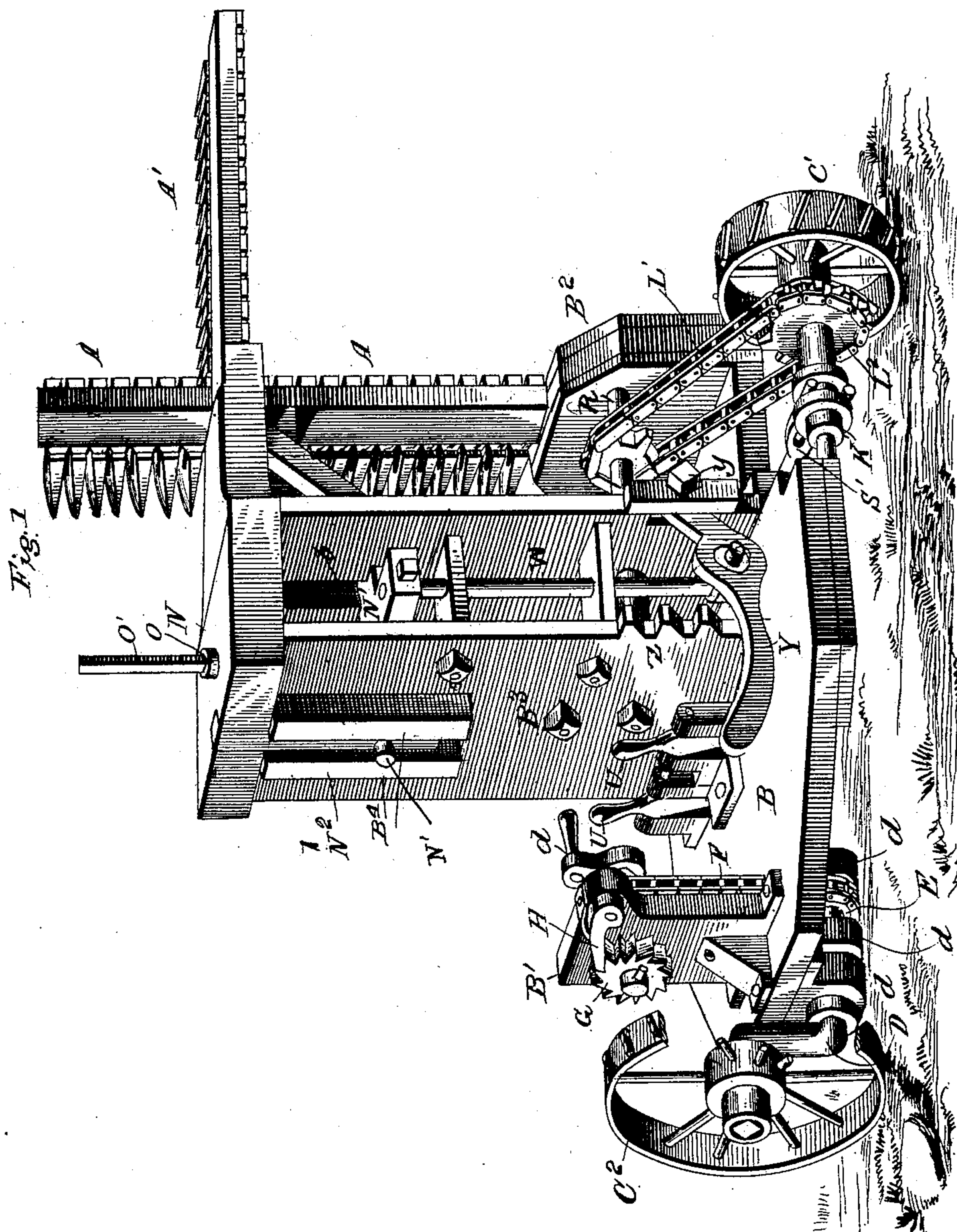
No. 814,483.

PATENTED MAR. 6, 1906.

R. SMITHERS.
HEDGE TRIMMING MACHINE.

APPLICATION FILED APR. 3, 1905.

4 SHEETS—SHEET 1.



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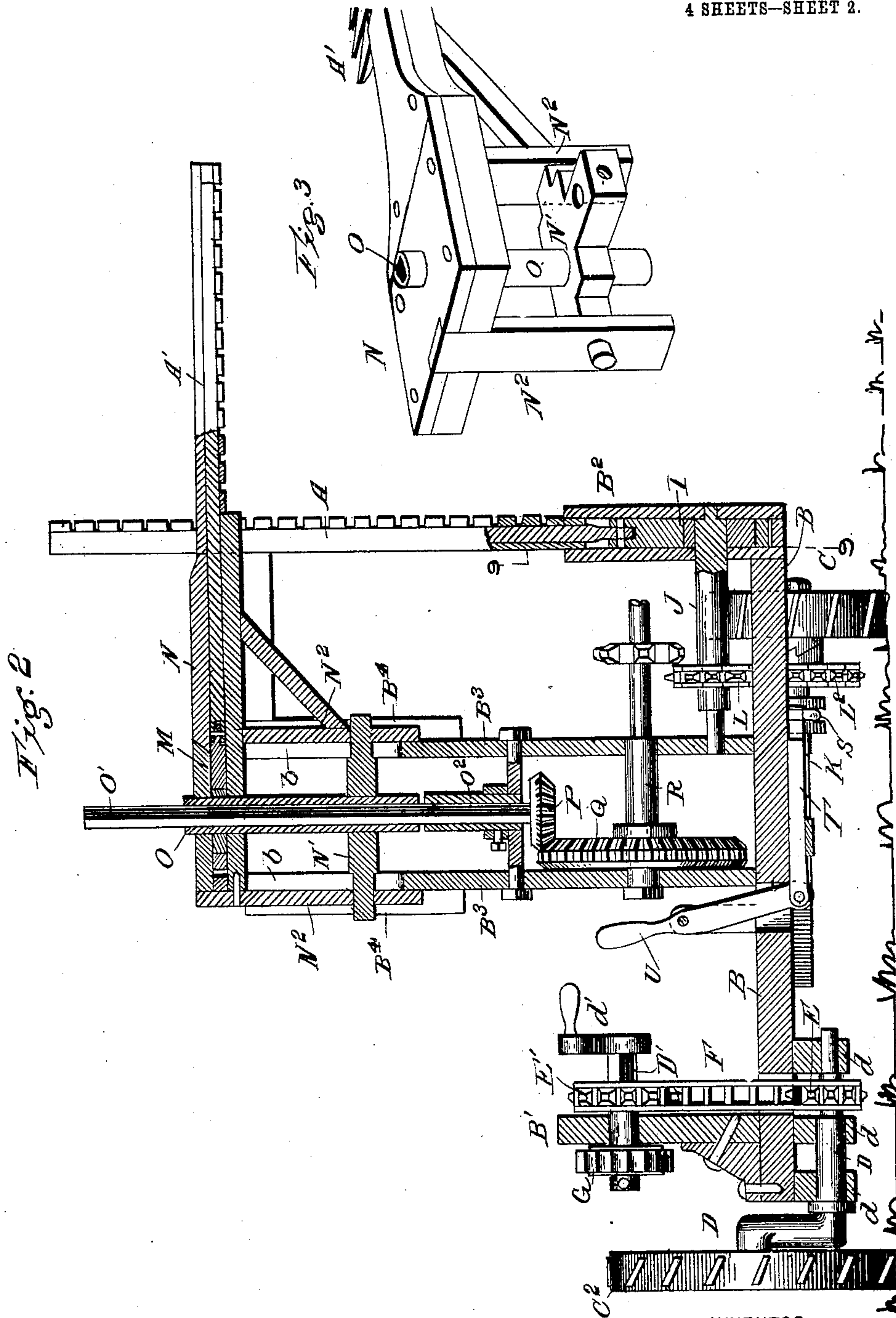
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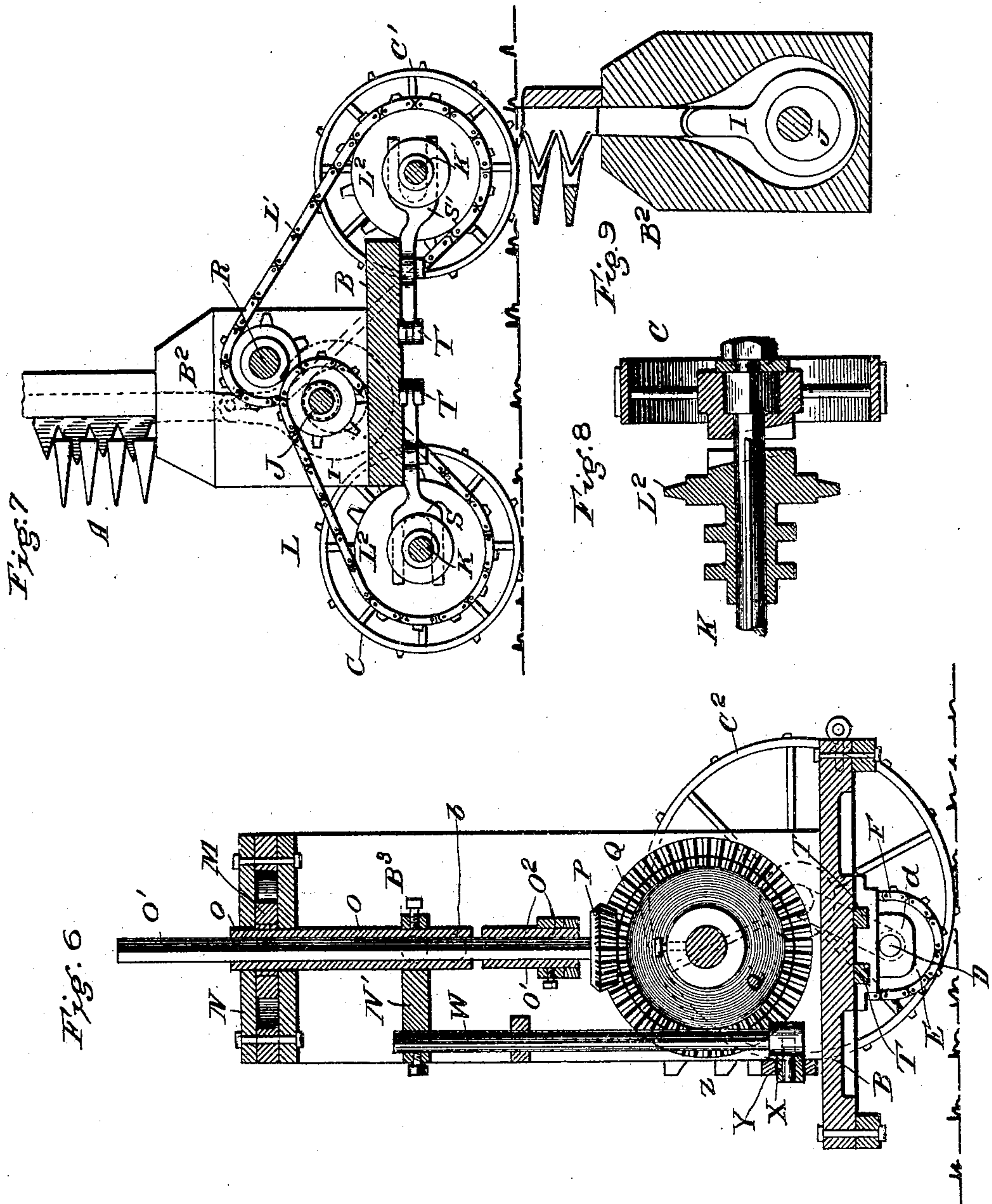
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UNITED STATES PATENT OFFICE.

RICHARD SMITHERS, OF NORTONVILLE, KANSAS.

HEDGE-TRIMMING MACHINE.

No. 814,483.

Specification of Letters Patent.

Patented March 6, 1906.

Application filed April 3, 1905. Serial No. 253,727.

To all whom it may concern:

Be it known that I, RICHARD SMITHERS, a citizen of the United States, residing at Nortonville, in the county of Jefferson and State of Kansas, have invented a new and Improved Hedge-Trimming Machine, of which the following is a specification.

My invention relates to improvements in hedge-trimming machines with vertical and horizontal sickles; and the objects of my improvements are to provide improved mechanism, first, to cut the top and side of hedge at the same time; second, for the proper adjustments of the sickles to cut either the top or the side separate; third, to raise or lower the horizontal sickle so that it can be adjusted to cut any height hedge while in motion; fourth, to facilitate vertical adjustment or the removal of the horizontal sickle; fifth, for adjusting the one end of the platform as may be required on inclined or uneven surfaces.

My invention is shown in the accompanying drawings, in which—

Figure 1 is a perspective view of my improved machine. Fig. 2 is a vertical section of the same. Fig. 3 is a perspective view of the upper sickle and its guides or bearings detached. Fig. 4 is an inverted plan view of the machine. Fig. 5 is a sectional view illustrating the construction and arrangement of the horizontal sickle and its actuating means. Fig. 6 is a vertical transverse section of the machine. Fig. 7 is a vertical section illustrating the arrangement of the sprocket mechanism for actuating the sickle-bars. Fig. 8 is a detail section illustrating the application of the sliding clutch. Fig. 9 is a view illustrating the arrangement of the eccentric in connection with the shank of the vertical sickle-bar, the same being taken on line 9 9 of Fig. 2.

Referring in the first instance to Fig. 1, A indicates a vertical sickle-bar, and A' a horizontal sickle-bar, the latter being arranged in rear of the former, so that two are adapted to cut the side and top of a hedge simultaneously. As illustrated in Fig. 5, the sickle-bars are constructed in a well-known manner, being composed of triangular cutters attached to the reciprocating bar and working in the slots of guide-fingers, between which the twigs and branches of the hedge are received as the machine advances. The two sickle-bars and means for operating them and other mechanism to be hereinafter described are supported and carried by a hori-

zontal platform B, which is supported and travels upon three wheels—to wit, C C' C². (See Fig. 4.) The wheels C C' are mounted upon axles arranged at one side or end of the platform B, at opposite corners thereof, while the wheel C² is arranged at the opposite truncated end of the platform and mounted upon a crank-axle D, having its bearings in keepers d, attached to the under side of the platform. A sprocket-wheel E is keyed on this crank-shaft D, and a chain F passes therefrom (see Figs. 1 and 2) around a corresponding sprocket E', which is mounted upon a stub-shaft D', having a crank-handle d' and supported and journaled in a short vertical standard B'. It is obvious that by rotating the crank d' the crank-shaft D may be rotated, and thus adjusted with its crank at any desired inclination, whereby the adjacent end of the platform B will be adjusted higher or lower, as conditions may require—that is to say, to enable the machine to be worked on an inclined or uneven surface. For locking the upper shaft D', so as to hold the crank-shaft D at any desired inclination, a ratchet G (see Fig. 1) is keyed on the shaft D' and engaged by a pivot-pawl H. The respective sickle-bars A and A' are reciprocated by means of eccentrics—that is to say, the vertical sickle-bar A is connected (see Figs. 1, 2, 9) with an eccentric I, which is keyed upon a horizontal shaft J and arranged in a housing or hollow vertical standard B², fixed at one end of the platform B. The shaft J derives rotation from the axle K of the running-wheel C through the medium of a chain L and sprocket-wheels mounted on the respective shafts. The horizontal sickle-bar A' is similarly connected with an eccentric M, (see Fig. 2,) which, together with the shank of the sickle-bar, is arranged in a horizontal frame N, forming an attachment of two parallel vertical standards B³. The eccentric M is keyed upon a hollow shaft O, which is held rotatably in the frame N and a cross-bar N', forming an attachment of and connection between pendent arms N². (See Figs. 2 and 3.) A polygonal shaft O' passes through the hollow shaft O and through a sleeve O², which is attached to the parallel standards B³. A bevel-pinion P is attached to the lower end of the polygonal shaft O' and meshes with a large driving-gear Q, which is keyed on a horizontal shaft R and having its bearings in the standards B³ and operatively connected with the shaft K' of running-wheel C' (see Figs. 4 and 7) through the medium

of chain-and-sprocket mechanism L'. The sprocket-wheels L², mounted on the axles K K', are provided with half-clutches (see Fig. 8) adapted to engage corresponding half-clutches on the hubs of the wheels C C'. The
 5 slidable clutches are shifted by levers S S', arranged as indicated in Figs. 2 and 4. These levers are pivoted to the under side of the platform B and connected by links T with
 10 vertical levers U, that project above the platform B and are pivoted to standards, as shown in Figs. 1 and 2.

It will be understood that the machine may be hauled by a team or driven by a mo-
 15 tor, as may be preferred or convenient. As the machine advances alongside a hedge the vertical sickle-bar will cut the latter on the side and the horizontal sickle-bar A' will cut the top, so that the hedge will be, so to speak,
 20 "squared" in the required manner. It is apparent that by means of the hand-levers U either or both of the clutches may be shifted so that either or both of the sickle-bars may be brought into action. Thus the machine
 25 is adapted for cutting the side of a hedge without cutting the top or for cutting the top without cutting the side. Further, the horizontal sickle-bar, together with its supporting-frame N, may be entirely detached from
 30 the vertical standards B³ or it may be adjusted higher or lower thereon, according to the height of the hedge. As shown in Figs. 1 and 2, the pendent portions N² of the frame slide between vertical guide-strips B⁴,
 35 which are attached to the outer sides of standards B³.

It will be seen that the transverse bar N', which passes through and connects the pendent arms N² of the sickle-frame, is adapted to
 40 be adjusted in slots b, formed in the upper ends of the standards B³. The said slots extend out through the ends of the standards, so that the entire frame N, together with the sickle A', may be removed at will. It is
 45 shown detached in Fig. 3. The hollow and polygonal shafts O and O' provide for vertical adjustment of the sickle-bar frame N, or, in other words, since the hollow shaft O is slidable on the polygonal shaft O' the sickle-
 50 bar A' will be operated whatever be its vertical adjustment or height above the platform B.

For convenience of adjustment—that is, for raising and lowering the horizontal sickle-
 55 bar and its frame N—I utilize a vertical shaft W, (see Figs. 1 and 6,) the upper end of the same being connected with the hollow shaft

O and the frame N and the lower end connected with a hand-lever Y, pivoted at y in one of the vertical standards B³. (See Fig. 1.)
 60 By adjusting the lever Y up or down it is obvious that a corresponding adjustment of the sickle-bar A' and its frame N will be effected also. The portion of the standard B³ to which the free end of the lever Y is adjacent
 65 is provided (see Fig. 1) with projections or teeth with which the lever may be engaged for holding it in any desired vertical adjustment.

What I claim is—

1. In a hedge-trimmer, the combination with a platform and running-wheels, two of which are located in front and rear respectively, of a vertical sickle-bar and a horizontal sickle-bar, and means for reciprocating
 75 the same, such means comprising in part gearing connected with the axles of the two running-wheels specified, and including shiftable clutches, and lever mechanisms connected with the respective clutches of the two shafts,
 80 whereby either or both of the clutches may be thrown into or out of action, so that the two sickle-bars may be reciprocated or thrown out of action simultaneously or separately as conditions require.

2. In a hedge-trimmer, the combination with a horizontal platform, vertical standards fixed on said platform, and running-wheels supporting the latter, of a horizontal sickle-bar and means operatively connect-
 90 ing it with one of the axles of the running-wheels, the frame carrying such sickle-bar mounted adjustably on the platform-standards, and means for adjusting it vertically, the same comprising a vertical shaft and a
 95 pivoted lever connected with the lower end of such shaft, substantially as described.

3. In a hedge-trimmer, the combination with a platform, and running-wheels supporting the same, of a horizontal sickle-bar, a
 100 guide-frame in which the same is held and reciprocated, a hollow vertical shaft with which the sickle-bar is operatively connected, a polygonal shaft extending through such hollow shaft, and means operatively connect-
 105 ing the polygonal shaft with one of the axles of the running-wheels, the guide-frame of the sickle-bar being vertically adjustable, substantially as described.

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Witnesses:

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 WILLIAM McNAMARA.