No. 828,734. PATENTED AUG. 14, 1906.

J. GAMMIE.

MEANS FOR REMOVING ASPHALT PAVING.

APPLICATION FILED NOV. 23, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

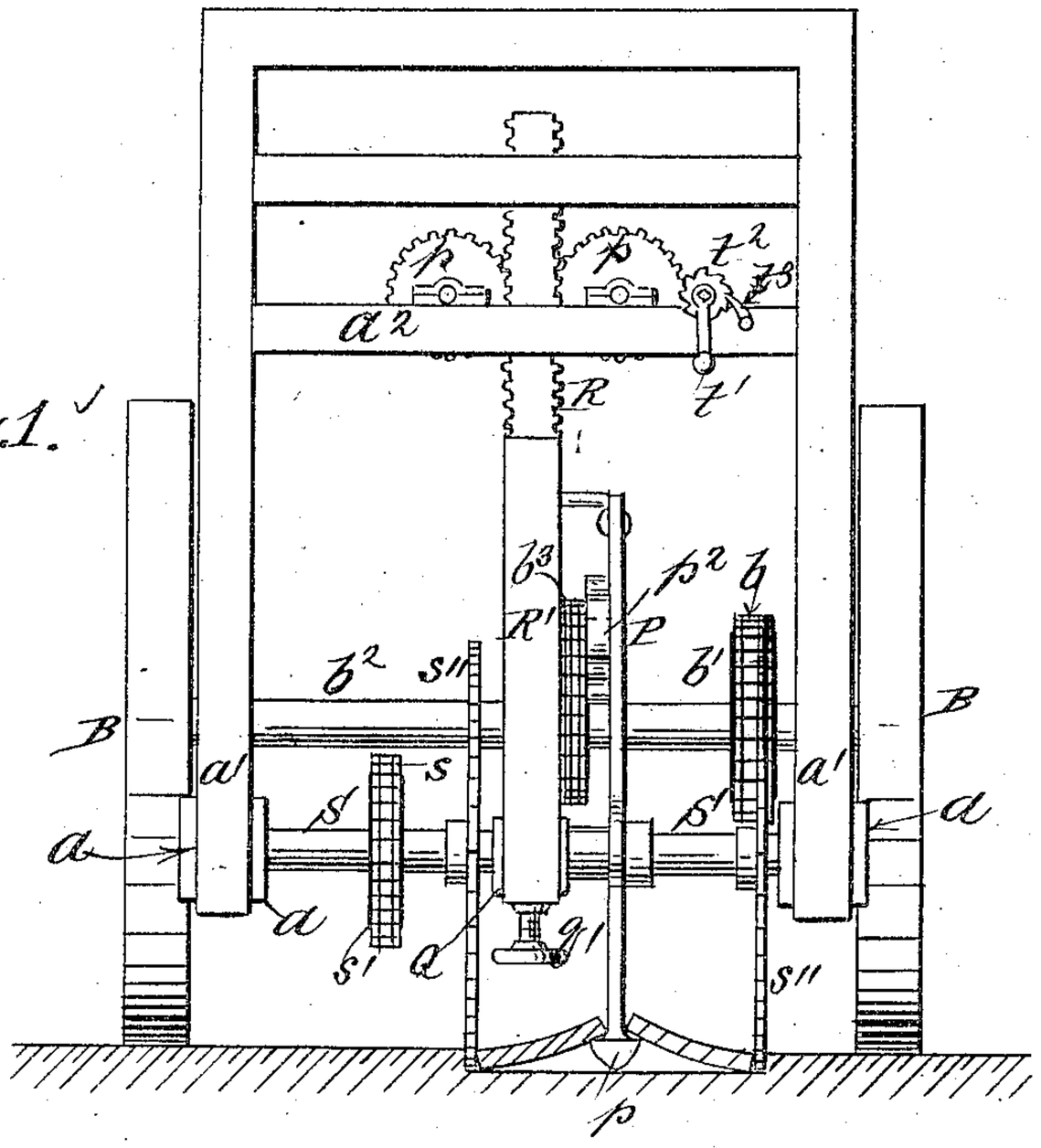


Fig. 3.

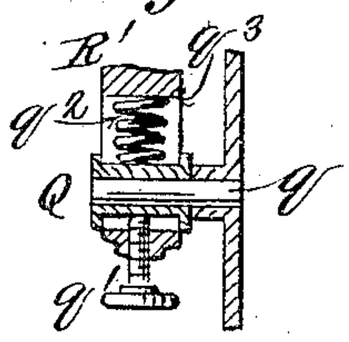
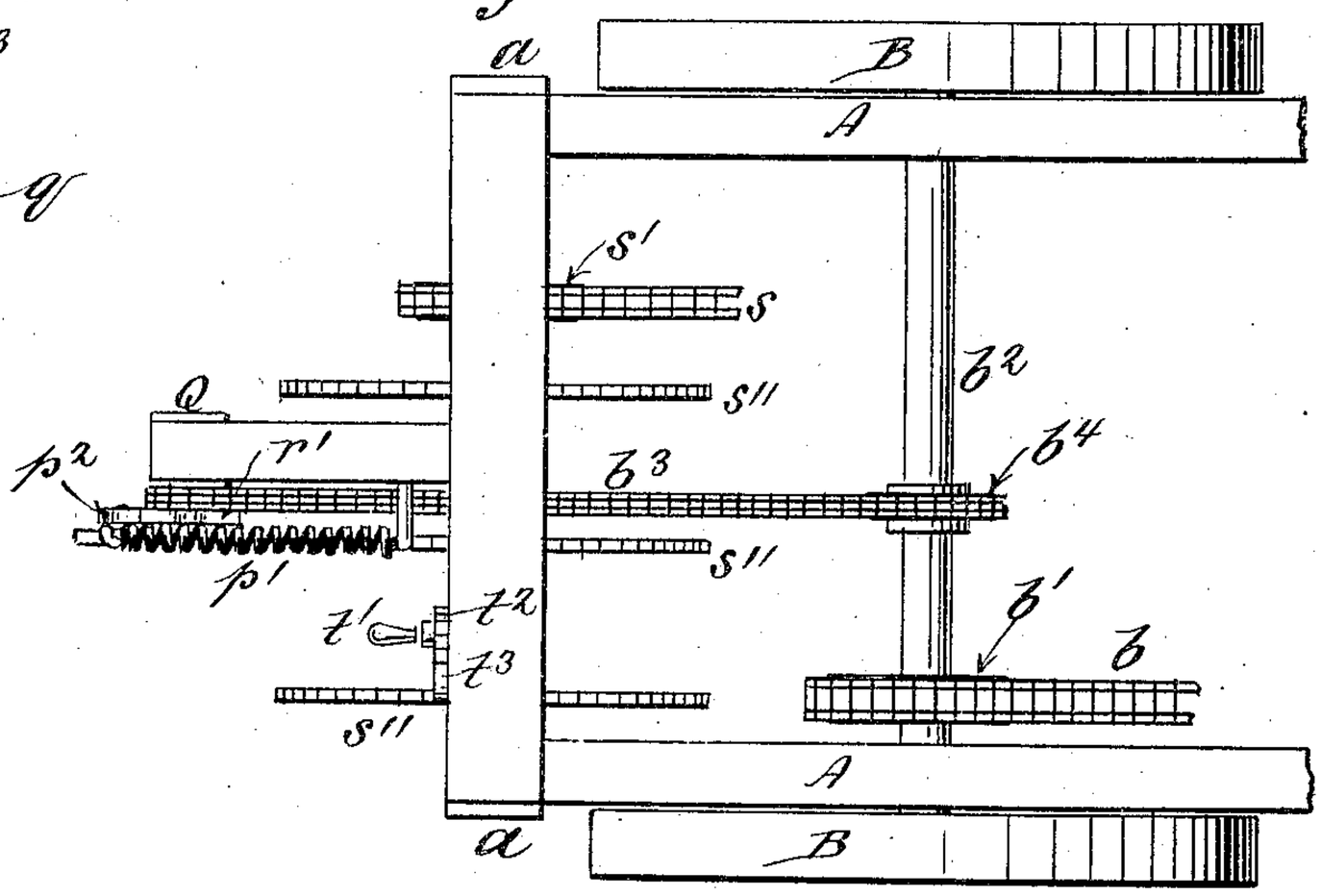


Fig. 2.



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2 SHEETS—SHEET 2

Fig. 6.

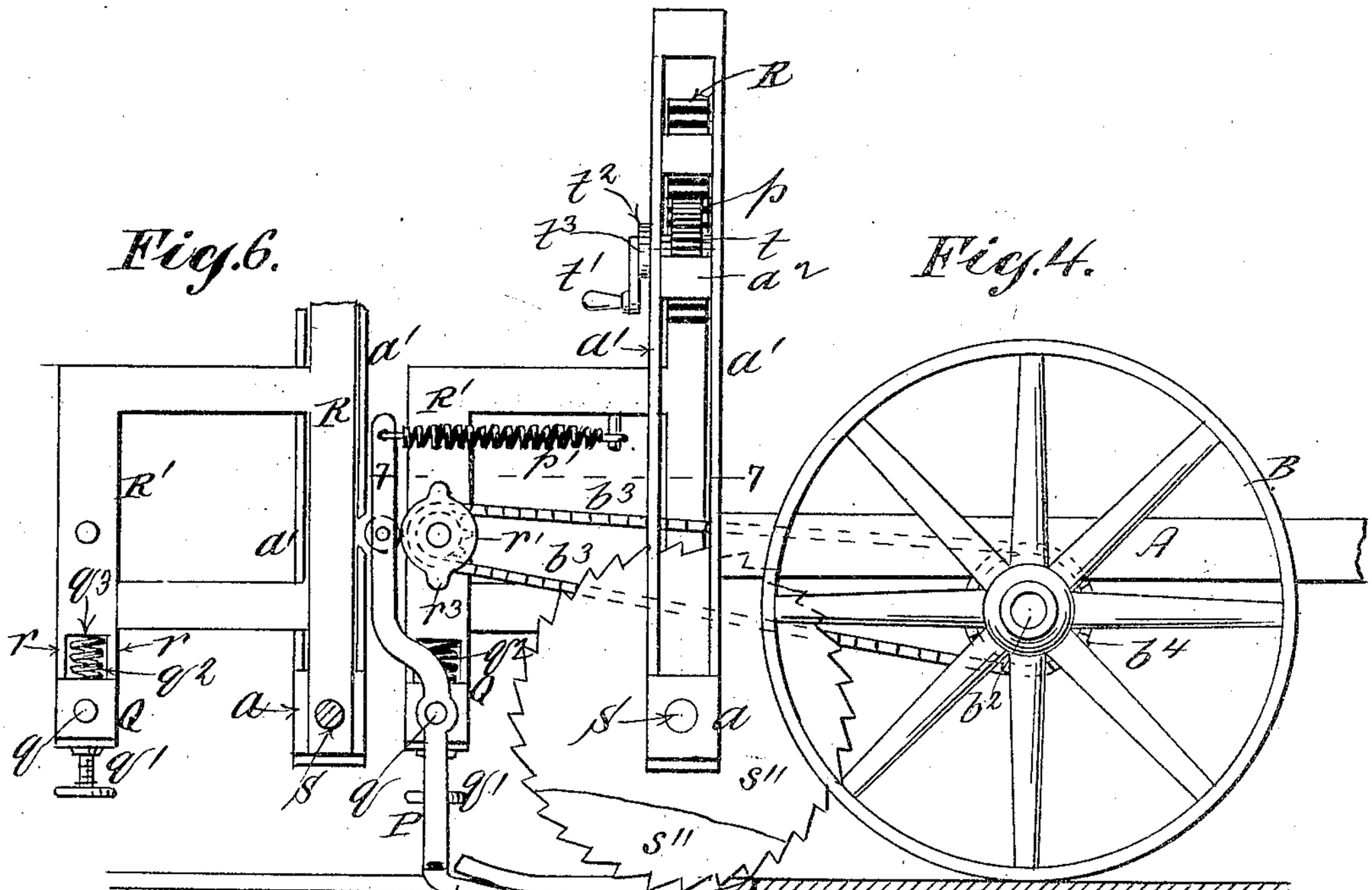

Fig. 4.

Fig. 5.

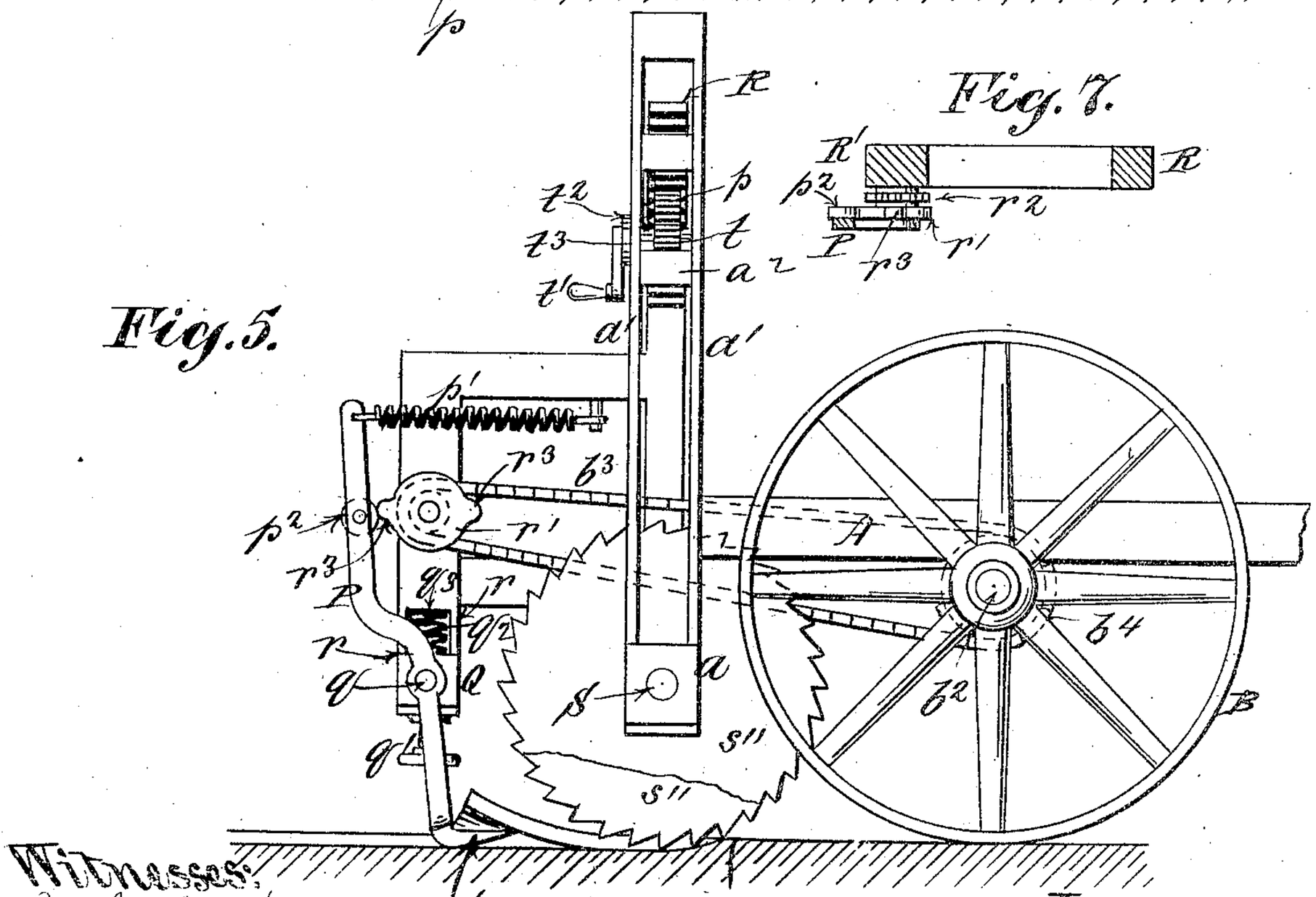

Fig. 7.

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UNITED STATES PATENT OFFICE.

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MEANS FOR REMOVING ASPHALT PAVING.

No. 828,734. Specification of Letters Patent. Patented Aug. 14, 1906.

Application filed November 23, 1905. Serial No. 288,700.

To all whom it may concern:

Be it known that I, JOHN GAMMIE, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Means for Removing Asphalt Paving, of which the following is a specification.

My invention is designed to facilitate the opening up and removal of asphalt paving when it is desired to make an excavation for any purpose, as set forth in Letters Patent issued to me August 1, 1905, No. 795,905.

The invention consists, primarily, in arranging, in conjunction with the saws therein set forth, means for raising and detaching the asphalt within the lines prescribed by the saws substantially as hereinafter set forth; and, secondarily, the invention consists in the specific construction and arrangement of parts, as herein described and claimed.

In the accompanying drawings, Figure 1 is a rear elevation of a vehicle upon which my improved mechanism is mounted. Fig. 2 is a plan of the same. Fig. 3 is a vertical sectional detail of the lower end of the rack-bar bracket or extension R′, taken in a transverse plane or at right angles to Figs. 4, 5, and 6. Fig. 4 is an elevation of the rear end of the vehicle, one of the saws being broken away and the pavement being also broken away and shown in section in the plane coinciding with the central saw and plow for the purpose of more clearly illustrating the action of the latter. Fig. 5 is a similar view illustrating the rocking of the plow. Fig. 6 is a detail view showing the support for the plow rock-lever. Fig. 7 is a horizontal section upon plane of line 7 7, Fig. 4.

A represents the rear portion of the frame of the vehicle, such as that designated in my Letters Patent hereinbefore referred to, said vehicle being supplied with a motor and connections for driving the saw-shaft S, the driving-chain *s* being shown as broken away in the drawings, as is also the chain *b*, which engages with the pulley *b′* upon the shaft b^2, which forms the axle for the rear wheels B, the said pulley *b′* and driving-chain *b* being shown in Figs. 1 and 2, but omitted in Figs. 4 and 5 for sake of clearness.

The saw-shaft S is mounted and adjusted upon the frame A substantially as set forth in my patent hereinbefore referred to. Thus in the drawings the journals of the shaft S are shown as mounted in journal-boxes *a*, which rest between vertical ways *a′* in the frame A, the shaft journal-boxes *a a*, &c., being raised and lowered by means of a vertical rack-bar R, the lower end of which clasps the shaft S centrally and the upper end of which is supported by and between gears *p p*, mounted in bearings on the cross-bar a^2 of the frame A, said gears being actuated and controlled by the pinion *t* engaging with one of them, the shaft of the pinion being provided with a crank *t′* and with a ratchet-wheel t^2 for engagement with a sustaining-pawl t^3. By this or equivalent means the shaft S and saws may be conveniently raised, lowered, or adjusted to effect any desired degree of cut. By this arrangement while the downward movement of the shaft S and saws *s″ s″* is prescribed and limited by the pawl t^3 and ratchet t^2 their upward movement is unrestricted, so that in case of exceptional resistance to the action of the saws they are enabled to yield vertically, and thereby obviate damage.

Rigidly secured to the rack-bar R is a rear extension or bracket R′, the lower portion of which is formed with guideways *r r*, upon and between which rests a flanged block Q, carrying a stud or trunnion *q*, upon which is pivotally supported a rock-lever P. The block Q rests upon an adjustable stop q' at the bottom of the arm or bracket R′ and is held against said stop q' normally by a spring q^2, interposed between the block Q and the shoulder q^3 upon the bracket R′. As shown in the accompanying drawings, the adjustable stop q^2 consists of a set-screw, although it is obvious that any other mechanical expedient may be substituted with like result.

The lower end of the rock-lever P is formed with a plowshare *p*, and the upper end of the rock-lever is connected with a spring *p′*, which tends constantly to hold the roller p^2 on said lever in contact with the cam *r′*, which is mounted upon a stud projecting from the side of the bracket R′ and is formed with a pinion r^2 for engagement with a sprocket-chain b^3, passing over the sprocket-wheel b^4 on the shaft b^2, as shown by way of illustration in the drawings, since it is obvious that the cam *r′* and pinion r^2 may be driven in any other suitable or convenient manner as may be found most expedient. The cam *r′* is formed with one or more eccentric portions r^3, which tilt the upper end of the rock-lever P backward, and hence raise

the point of the plowshare in the furrow, thereby loosening and raising the furrow-slices, as indicated approximately in Fig. 5.

A preferable combination of parts is to arrange one such plow behind a saw s'' intermediate between two adjoining saws s'' s'', as shown, so that the plow will follow the line of severance created by said preceding intermediate saw s'', creating a double furrow, or, in other words, raising a furrow-slice on either side, the width of each slice being governed by the prescribed lines of severance formed by the adjacent saws, as indicated in Fig. 1. This arrangement may be duplicated as often as may be found expedient in practice, the combination in the drawings showing the essential features of the invention, and for that matter, if desired, a plow may obviously be arranged in conjunction with and to follow each saw.

It will be noted that the plow while partaking of the general adjustment of the frame A and saws s'' s'' is also independently adjustable by means of the adjustable stop or rest q', so that its depth of penetration may be regulated with accuracy according to work to be accomplished. Furthermore, while it is sustained at a prescribed level by the adjustable stop q' the spring q^2 allows it to yield vertically and accommodate itself to irregularities in the foundation on which the asphalt is laid, thereby obviating the danger of breakage to which the parts would be subjected if the rock-lever were mounted on a rigid bearing.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In asphalt-cutting apparatus, the combination of a rotatable saw-shaft carrying a plurality of saws and mounted for free movement vertically upward but restricted as to downward movement, and a plow arranged to detach and raise the asphalt between the lines prescribed by the saws for the purpose described.

2. In asphalt-cutting apparatus, the combination of a rotatable saw-shaft carrying a plurality of saws and mounted for free movement vertically upward but restricted as to downward movement, a plow arranged to detach and raise the asphalt between the lines prescribed by the saws, and means for adjusting said plow vertically and independent of the saws for the purpose described.

3. In asphalt-cutting apparatus, the combination of a rotatable saw-shaft carrying a plurality of saws and mounted for free movement vertically upward but restricted as to downward movement, a plow arranged to detach and raise the asphalt between the lines prescribed by the saws, a rock-lever integral with said plow, and means for rocking said lever, for the purpose described.

4. In asphalt-cutting apparatus, the combination of a rotatable saw-shaft carrying a plurality of saws and mounted for free movement vertically upward but restricted as to downward movement, a plow arranged to detach and raise the asphalt between the lines prescribed by the saws, a rock-lever integral with said plow, and means for automatically rocking said lever, for the purpose described.

5. In asphalt-cutting apparatus, the combination of a rotatable saw-shaft carrying a plurality of saws and mounted for free movement vertically upward but restricted as to downward movement, and a plow arranged to detach and raise the asphalt, between the lines prescribed by the saws, a rock-lever integral with said plow and pivotally supported upon a bearing which is vertically adjustable for the purpose described.

6. In asphalt-cutting apparatus, the combination of a rotatable saw-shaft carrying a plurality of saws and mounted for free movement vertically upward but restricted as to downward movement, and a plow arranged to detach and raise the asphalt between the lines prescribed by the saws, a rock-lever integral with said plow and pivotally supported upon a bearing which rests between vertical ways, and a spring interposed between the top of said bearing and a stationary part for the purpose set forth.

7. In asphalt-cutting apparatus, the combination of a rotatable saw-shaft carrying a plurality of saws and mounted for free movement vertically upward but restricted as to downward movement, and a plow arranged to detach and raise the asphalt between the lines prescribed by the saws, a rock-lever integral with said plow and pivotally supported upon a bearing which rests between vertical ways, an adjustable rest underneath said bearing and a spring interposed between the top of said bearing and a stationary part for the purpose described.

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