No. 688,524. Patented Dec. 10, 1901.

E. W. JEWETT.

MACHINE FOR REPAIRING ASPHALT.

(Application filed Feb. 19, 1901.)

(No Model.) 5 Sheets—Sheet 1.

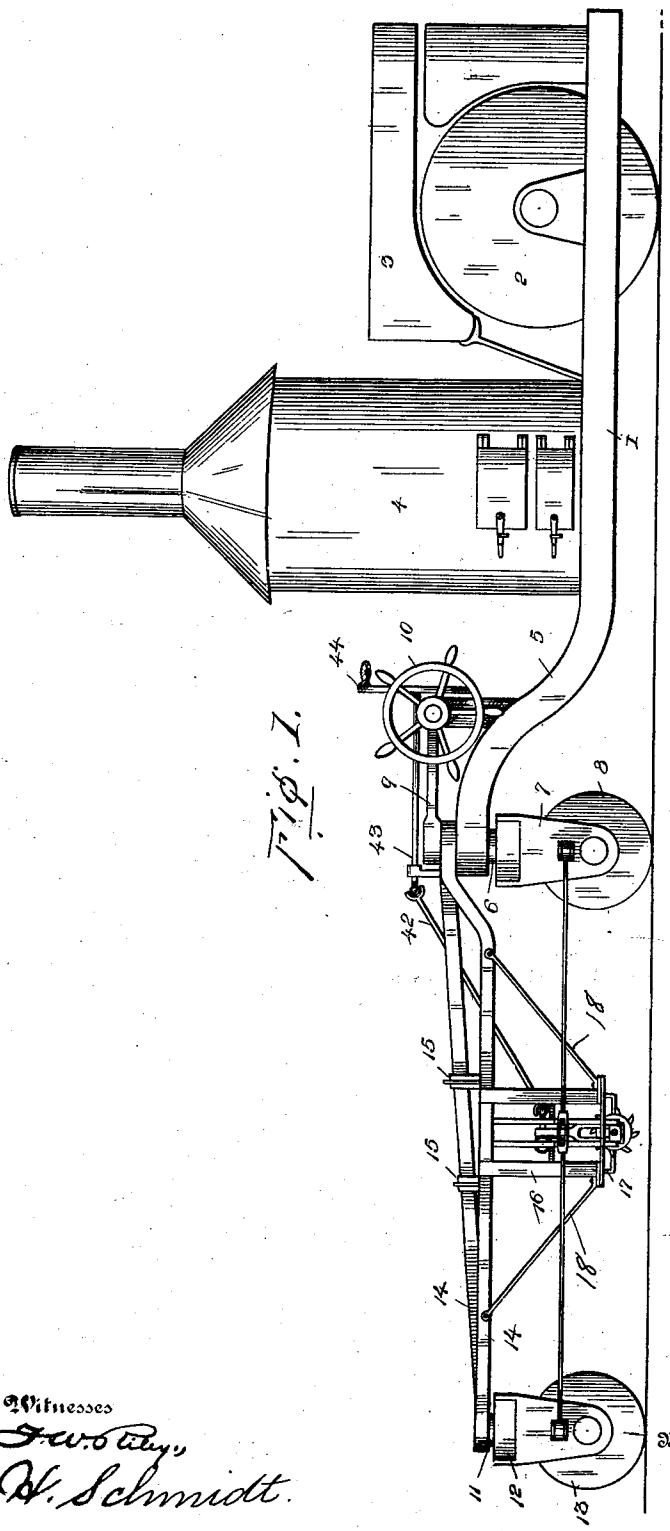


Fig. 1.

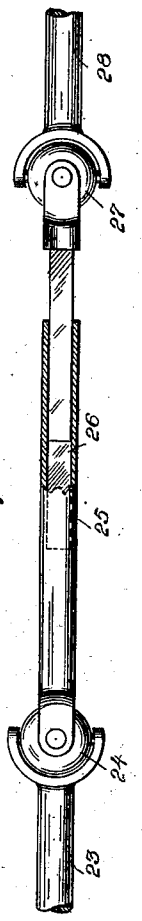


Fig. 2.

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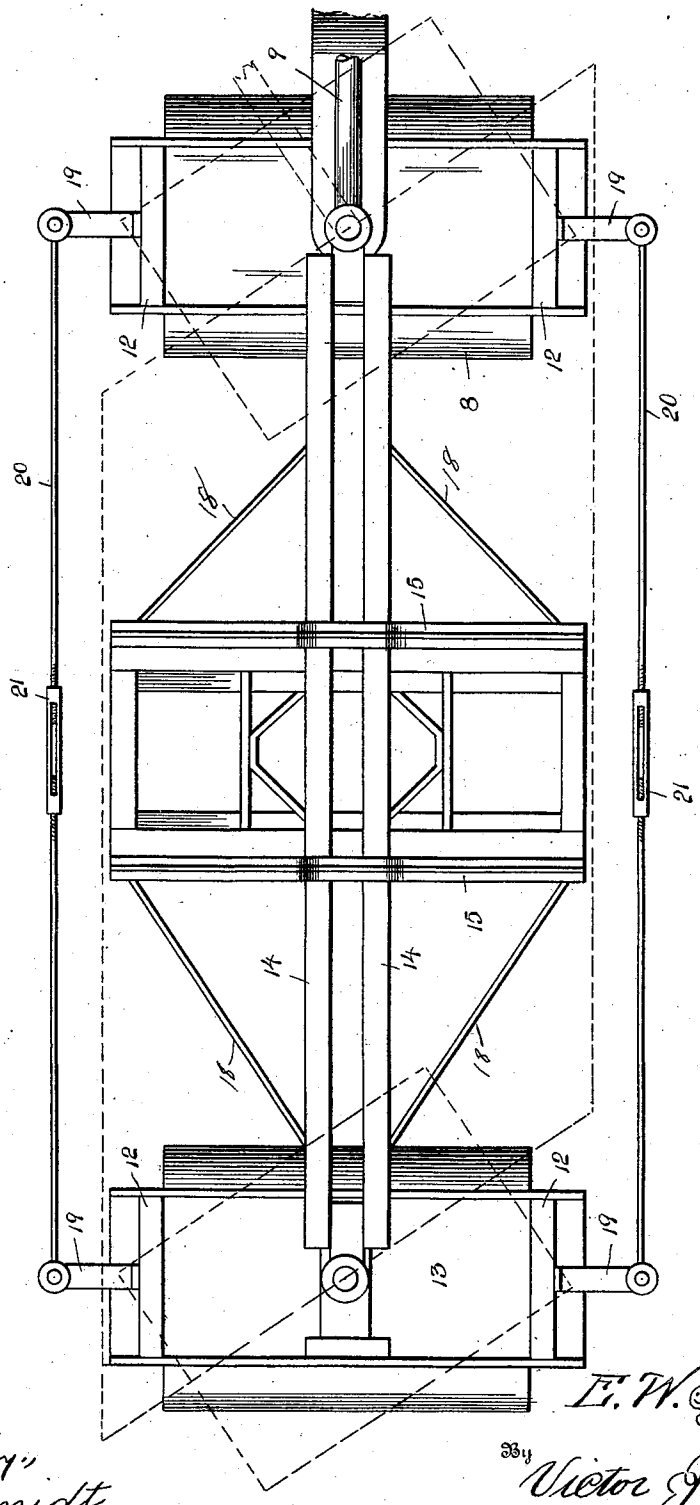
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MACHINE FOR REPAIRING ASPHALT.

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(No Model.) 5 Sheets—Sheet 2.

Fig. 2.



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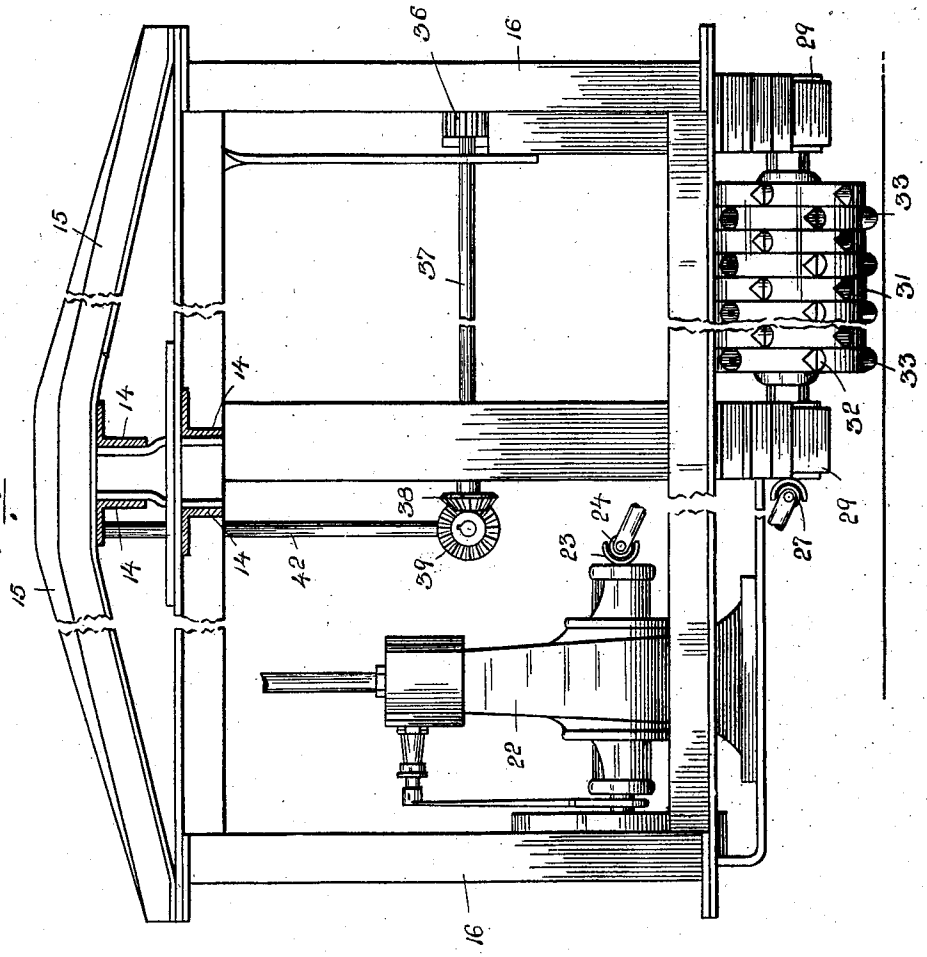
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MACHINE FOR REPAIRING ASPHALT.

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(No Model.) 5 Sheets—Sheet 3.

Fig. 3.



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MACHINE FOR REPAIRING ASPHALT.

(Application filed Feb. 19, 1901.)

(No Model.) 5 Sheets—Sheet 4.

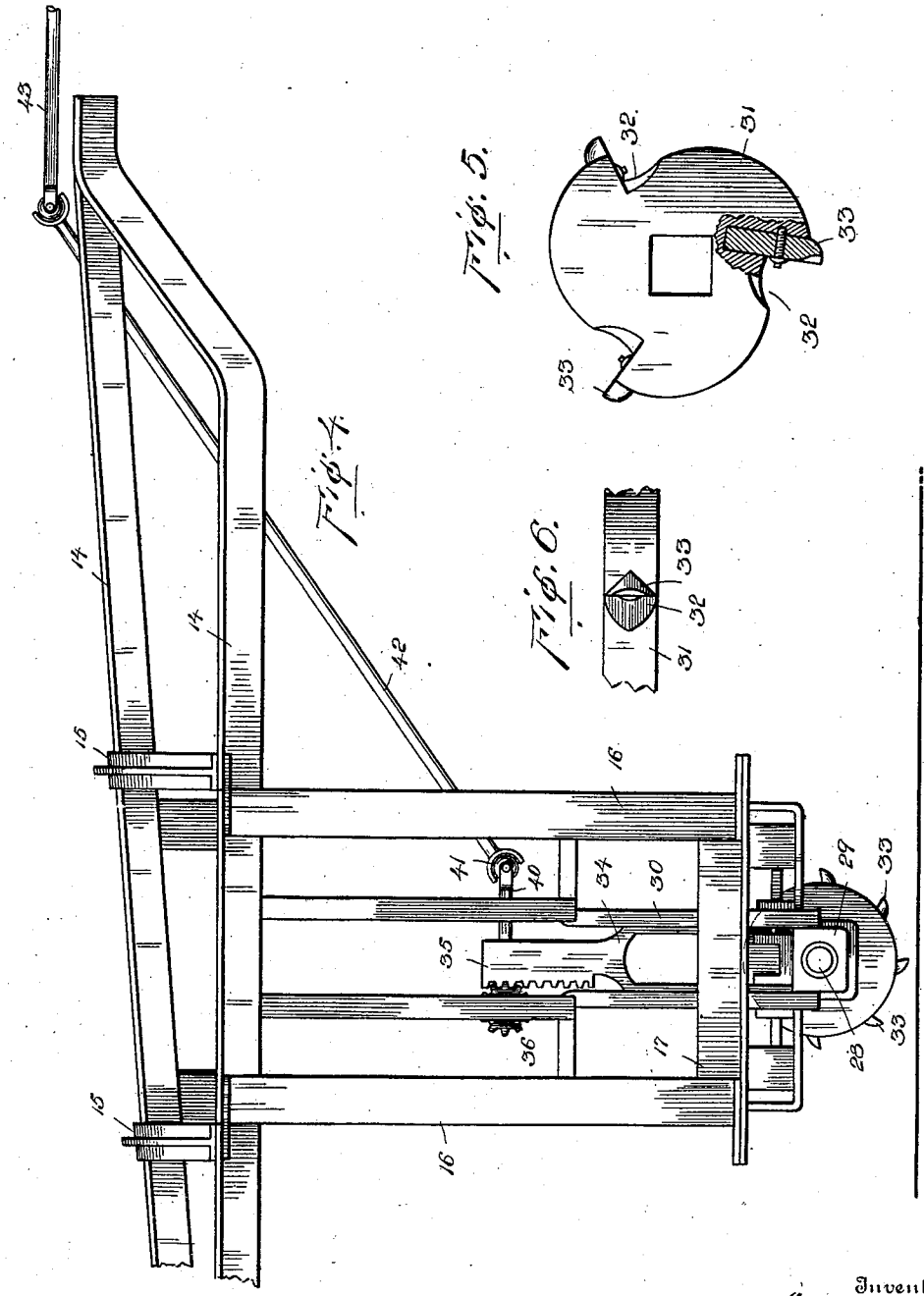


Fig. 5.

Fig. 4.

Fig. 6.

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No. 688,524. Patented Dec. 10, 1901.

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MACHINE FOR REPAIRING ASPHALT.

(Application filed Feb. 19, 1901.)

(No Model.) 5 Sheets—Sheet 5.

Fig. 8.

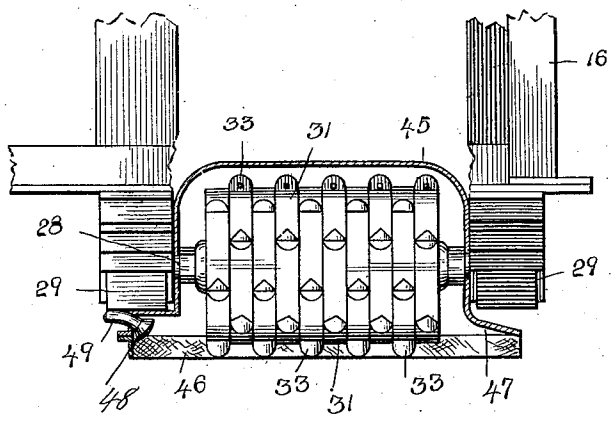
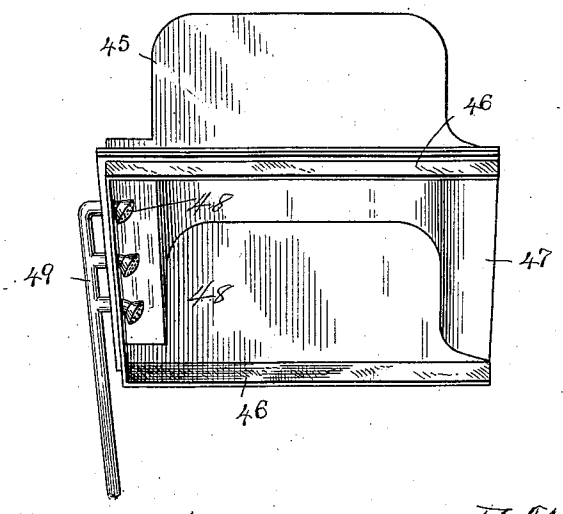


Fig. 9.



Witnesses
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UNITED STATES PATENT OFFICE.

EDWARD W. JEWETT, OF LOWELL, MASSACHUSETTS, ASSIGNOR OF TWO-THIRDS TO SUMNER P. SMITH AND ROBERT E. MAGEE, OF LOWELL, MASSACHUSETTS.

MACHINE FOR REPAIRING ASPHALT.

SPECIFICATION forming part of Letters Patent No. 688,524, dated December 10, 1901.

Application filed February 19, 1901. Serial No. 47,956. (No model.)

To all whom it may concern:

Be it known that I, EDWARD W. JEWETT, a citizen of the United States, residing at Lowell, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Machines for Repairing Asphalt, of which the following is a specification.

This invention relates to new and useful improvements in machines for repairing asphalt pavements; and its primary object is to provide apparatus of this character which may be operated in connection with a steam-roller of ordinary construction and whereby manual labor may be materially reduced and the cost of repairs diminished.

A further object is to provide means of simple and compact construction whereby asphalt may be torn up for a desired depth, the operation of the mechanism employed therefor being under the direct control of the person in charge of the steam-roller.

Another object is to employ a device having means of peculiar construction for cutting the asphalt and which at the same time corrugates the bottoms of the recesses formed, said corrugations serving to anchor the new asphalt placed within the recesses.

A further object is to provide means for preventing chips of asphalt from flying from the apparatus, means being employed for gathering the chips and discharging the same, leaving the recess clean and ready to receive new material.

With these and other objects in view the invention consists in the novel construction and combination of the parts hereinafter more fully described and claimed, and illustrated in the accompanying drawings, showing the preferred form of my invention, and in which—

Figure 1 is an elevation of the apparatus connected to a steam-roller of ordinary construction. Fig. 2 is a plan view of the truss of the attachment and the rollers to which it is secured. Fig. 3 is a transverse section through the truss, showing the cutter-head and its operating mechanism, the frame being broken away. Fig. 4 is an enlarged elevation of a portion of the truss, showing the shifting mechanism of the cutter-head. Fig. 5 is a detail view of one of the sections of the cutter-head. Fig. 6 is an edge view of a portion of said section and showing a knife in end elevation. Fig. 7 is a detail view of the slip-shaft employed in connection with this device. Fig. 8 is a section through the hood of the cutter-head, and Fig. 9 is a bottom perspective view thereof.

Referring to the figures by numerals of reference, 1 is an engine-carriage of a steam-roller of ordinary construction and is provided with a large roller 2, tanks 3, and an engine 4. Journaled within the neck 5 of the carriage is a short shaft or pivot-pin 6, having a yoke 7 secured to the lower end thereof and within which is mounted the small rear roller 8 of the steam-roller. A steering-arm 9 is secured to the shaft 6, and this may be operated in any suitable manner, as by means of a hand-wheel 10, to turn the shaft 6, and thus turn the rollers 8 and 13 bodily to control the course of the machine. A horizontally-extending truss is secured at one end upon the shaft 6, and its opposite end is pivoted upon the king-pin 11 of a yoke 12, within which is mounted a roller 13 similar to the roller 8 before referred to. Arms 19 extend laterally from the yokes 7 and 12, and these are connected by rods 20, which are pivoted thereto. Turnbuckles 21 are arranged within the rods, so as to take up wear upon the joints and permit the rollers 8 and 13 to swing together. The truss preferably comprises two pair of parallel angle-irons 14, connecting the pivot-pins 6 and 11. Transversely-extending beams 15 are secured upon these irons, at the center thereof, and hangers 16 depend therefrom and support a platform 17 of suitable construction. Brace-rods, as 18, connect the platform with the irons 14 and serve to strengthen the truss and hold the platform rigid.

A small high-speed engine 22 of desired type is mounted upon the platform 17, at one side thereof, and its driving-shaft 23 is connected by means of a universal joint 24 to an extensible or slip shaft 25. This shaft is formed, preferably, of two sections, one of which has an angular longitudinally-extending passage 26 therein adapted to receive the remaining section, which is angular in cross-section. This last-mentioned section is connected by means of a universal joint 27 to

a shaft 28, which is journaled within boxes 29, slidably mounted between guides 30, secured to and extending below the platform 17.

The shaft 28 is square in section except where it bears within the boxes 29, and mounted upon the squared portion thereof are a series of disks 31, which revolve therewith and together form the cutter-head of the device. Each disk is recessed at regular intervals, as at 32, and detachably secured within each recess is a knife 33, preferably triangular in cross-section and having a concavo-convex cutting edge. The knives of the disks are arranged alternately, as shown in Fig. 3, so as to produce a "wind" or spiral cut within the asphalt.

Secured to each box 29 is a slide 34, which is mounted between the guides 30 and is provided at its upper end with a rack 35. Cogs 36 mesh with the teeth of these racks, and these cogs are secured to a shaft 37, journaled above the platform 17.

Secured to the inner end of the shaft 37 is a beveled pinion 38, which meshes with a similar pinion 39, arranged at one end of a longitudinally-extending shaft 40. This shaft 40 is connected by a universal joint 41 to an inclined shaft 42, the opposite end of which is connected in a similar manner to a horizontal shaft 43, journaled above the neck 5 of the steam-roller. This shaft 43 is provided with a hand-wheel 44, whereby motion may be readily imparted to the sliding boxes.

A hood 45, preferably formed of sheet metal, is secured to the boxes of the cutter-head and extends down over said head. The lower edges of the hood may be provided with strips of leather 46 or similar material, whereby the hood when lowered with the cutter-head will fit snugly upon the pavement. An outlet 47 is arranged along one edge of the hood and a series of nozzles 48 are located at the opposite side of the hood and are adapted to direct steam downward toward the outlet. These nozzles are connected to a steam supply-pipe 49.

It is thought that the operation of the device will be fully understood from the foregoing description, taken in connection with the accompanying drawings. It will be seen that the cutter-head and its hood can be raised and lowered as desired by turning the hand-wheel 44. Motion is imparted to the cutter-head from the engine 22, the sections of the shaft 25 moving from or toward each other as the cutter-head is adjusted. The alternately-arranged knives 33 tear up the asphalt as the cutter-head revolves, and the chips are promptly discharged from the hood by the steam escaping from the nozzles 48, thereby leaving the recess clean and ready to receive the new asphalt. The knives, moreover, corrugate the bottoms of the recesses, said corrugations serving to anchor the material placed thereover.

In the foregoing description I have shown the preferred form of my invention; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or sacrificing any of the advantages thereof, and I therefore reserve the right to make all such modifications as fairly fall within the scope of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an attachment of the character described, the combination with a truss; of yokes pivoted at opposite ends thereof, rollers journaled within the yokes, arms to the yokes, adjustable rods connecting and pivoted to the arms, a platform depending from the truss, a motor thereon, guides, a cutter-head within the guides and adapted to be revolved by said motor, and means for imparting vertical movement to the cutter-head.

2. In an attachment of the character described, the combination with a truss; of a platform suspended therefrom, guides thereabove, a cutter-head mounted within the guides, a motor upon the platform, a shaft thereto, an extensible shaft, universal joints at the ends of said shaft and connecting the same to the shaft of the motor and the cutter-head, and means for reciprocating the cutter-head in its guides.

3. In an attachment of the character described, the combination with a truss; of a platform suspended therefrom, guides thereabove, boxes slidably mounted in the guides, a cutter-head journaled in the boxes, means for rotating the cutter-head, a rack to each box, gears meshing therewith, and means for revolving the gears and reciprocating the boxes.

4. In an attachment of the character described, the combination with a platform; of vertical guides thereabove, boxes slidably mounted in the guides, a rotary cutter-head journaled in the boxes, a motor upon the platform, a shaft thereto, an extensible shaft, universal joints at the ends thereof connecting the extensible shaft to the shaft of the motor and to the cutter-head, racks extending from the boxes, gears meshing therewith, and means for revolving the gears and reciprocating the boxes.

5. In a device of the character described, the combination with a platform; of a motor thereon, guides thereabove, boxes slidably mounted in the guides, a rotary cutter-head journaled in the boxes, an extensible shaft for imparting motion from the motor to the cutter-head, a hood secured to the boxes and extending over the cutter-head, an outlet therefrom, nozzles within the hood, and means for directing steam thereinto.

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

EDWARD W. JEWETT.

Witnesses:
JOHN H. PARKER,
JOHN A. ROBINSON.