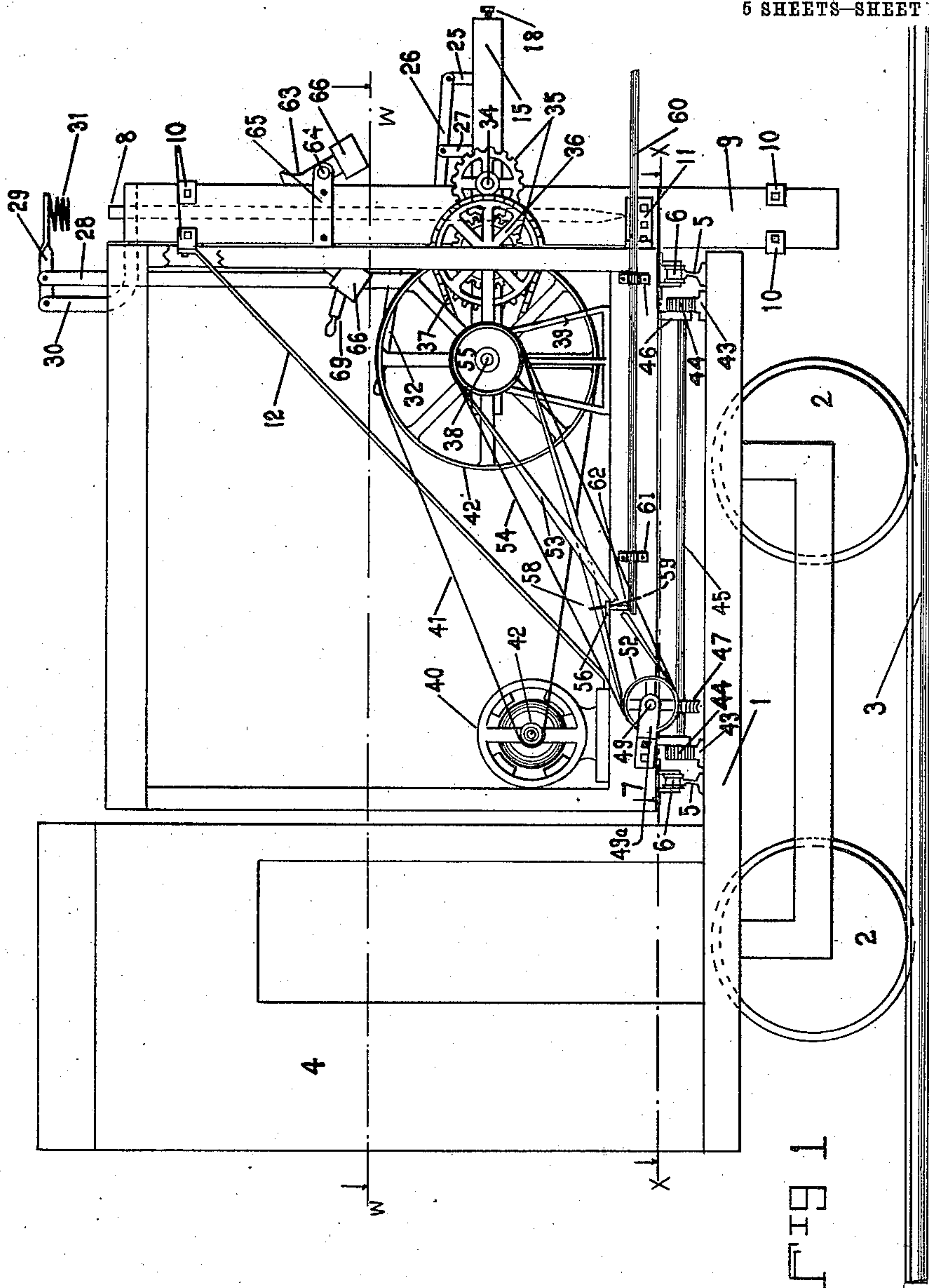


E. RYNEARSON.
PAVEMENT BREAKING MACHINE.
APPLICATION FILED AUG. 13, 1910.

997,638.

Patented July 11, 1911.

5 SHEETS—SHEET 1.



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5 SHEETS-SHEET 2.

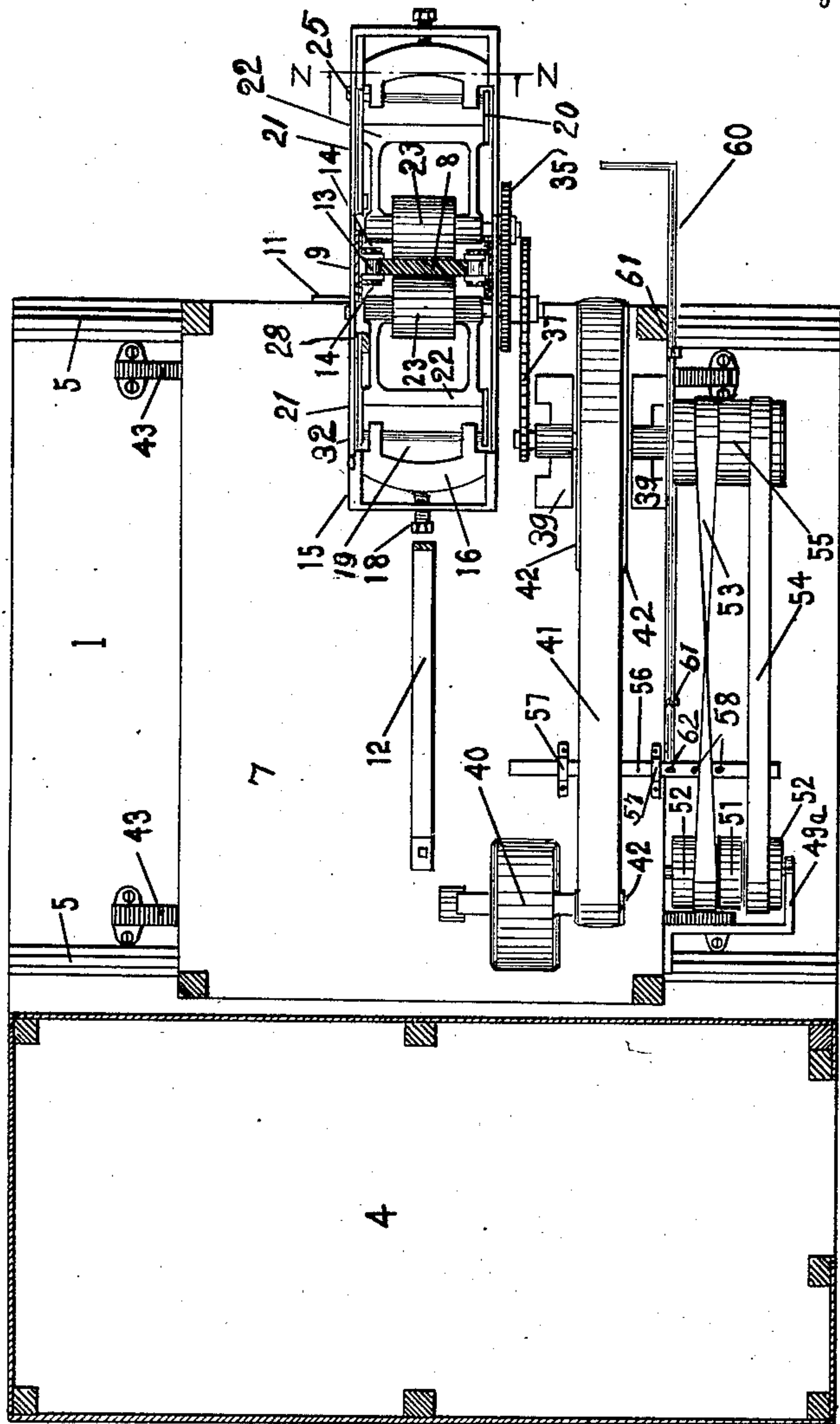


Fig. 2

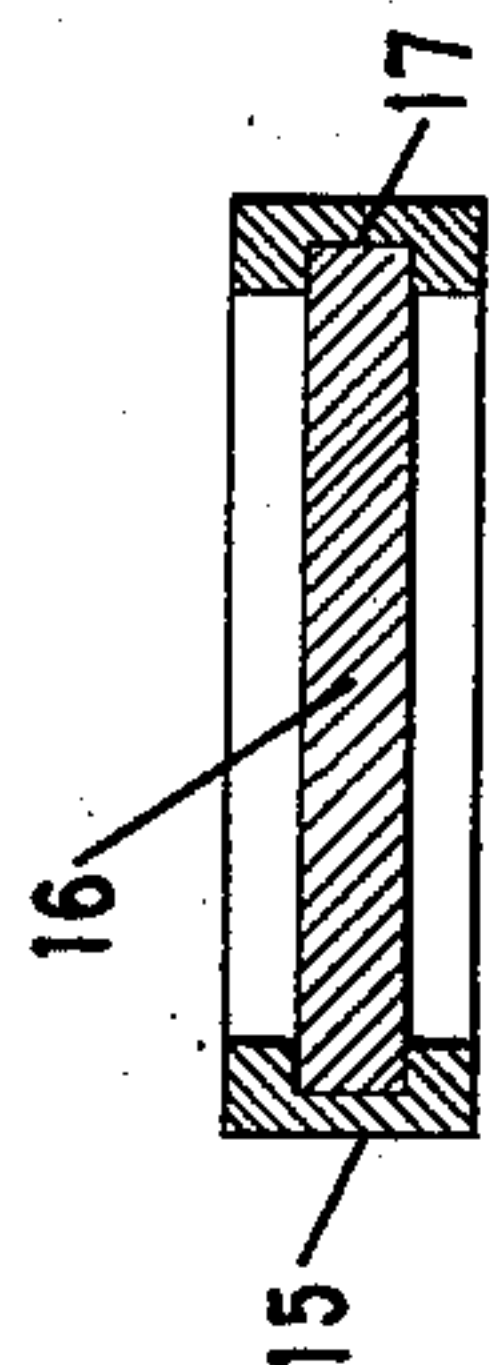


Fig. 7

WITNESSES:
W. M. Parkam
J. Murray

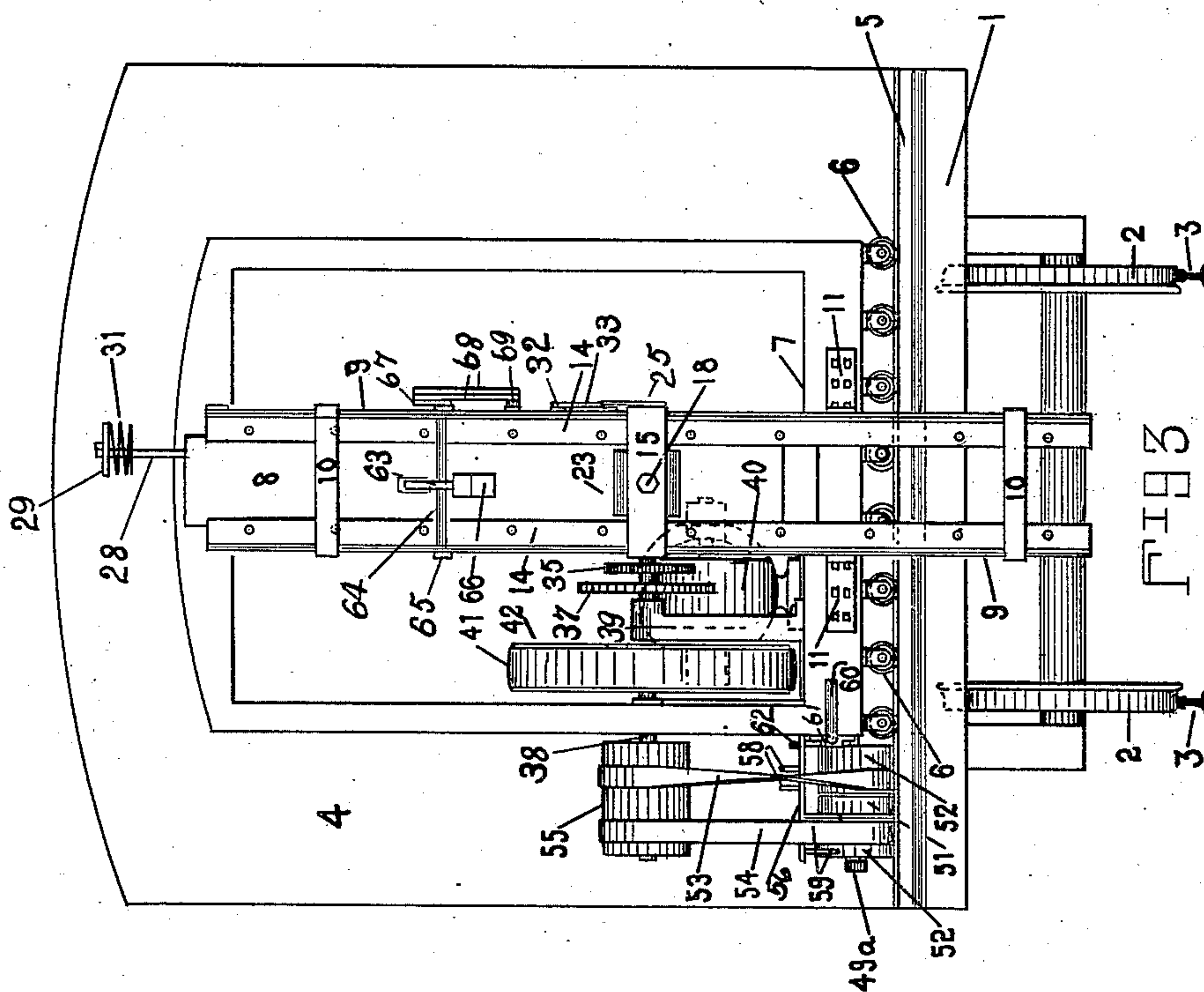
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6 SHEETS—SHEET 3.



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5 SHEETS—SHEET 4.

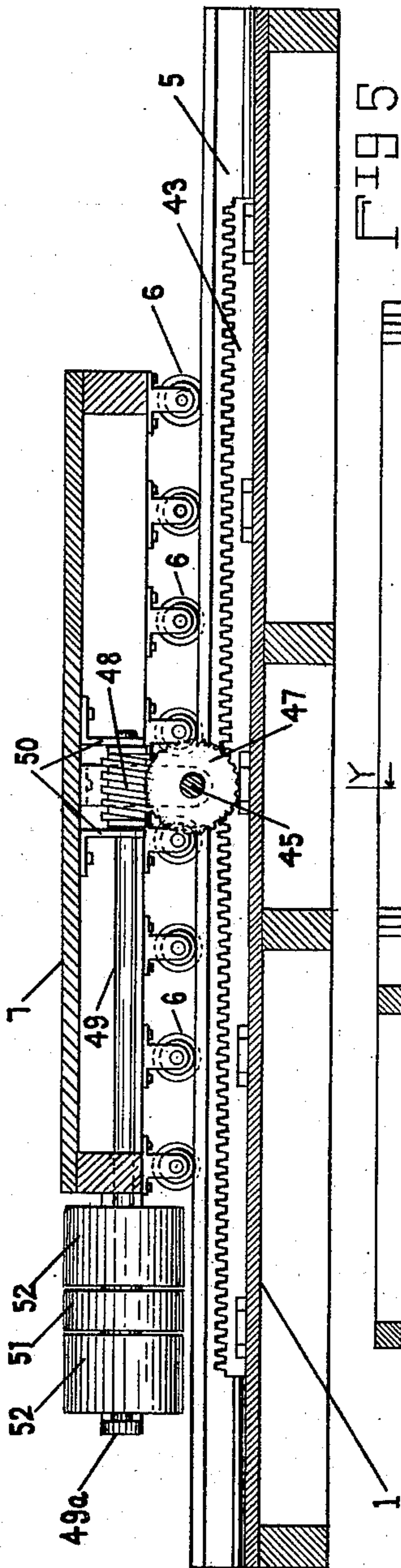


FIG 5

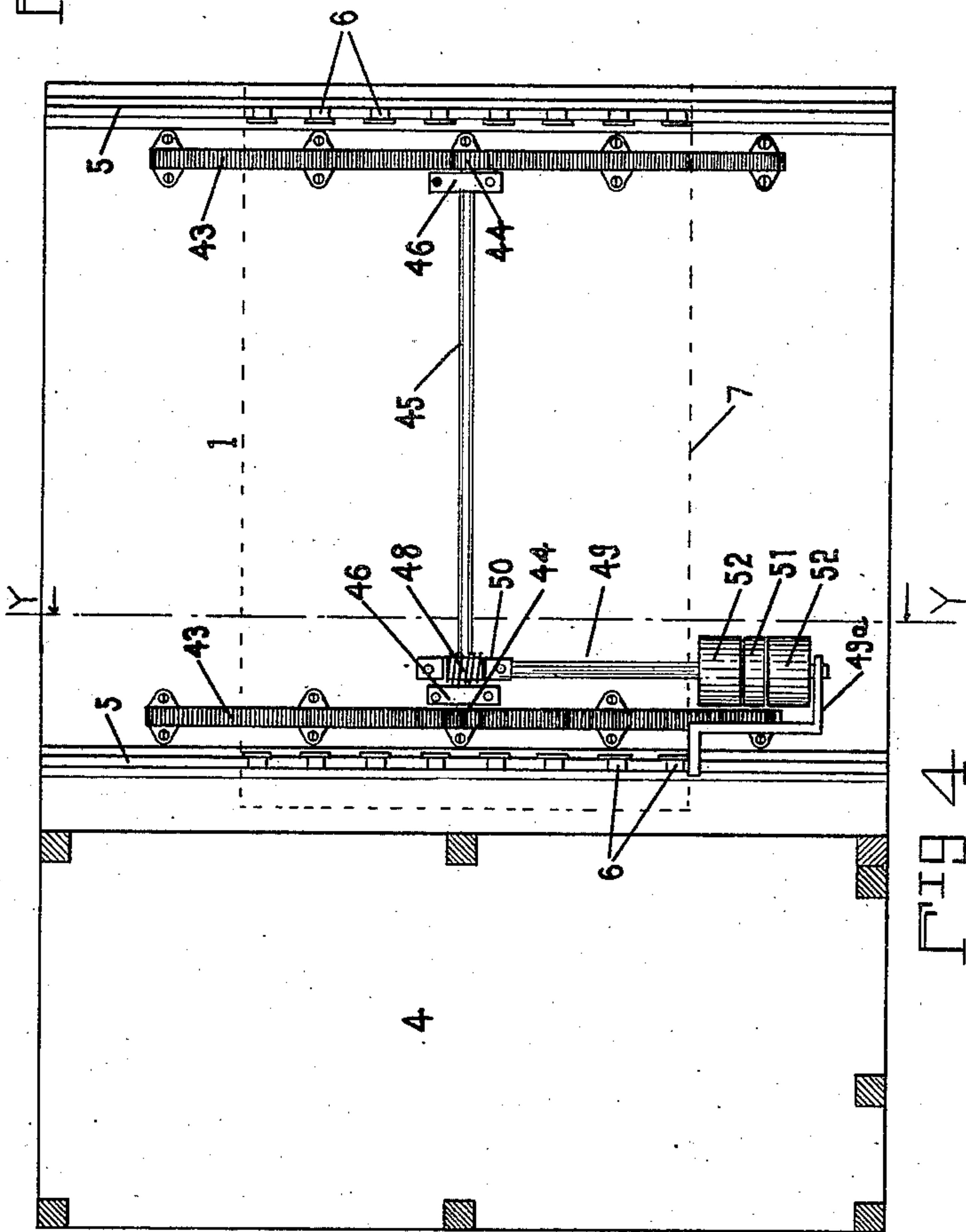


FIG 4

WITNESSES:
W. M. Parham
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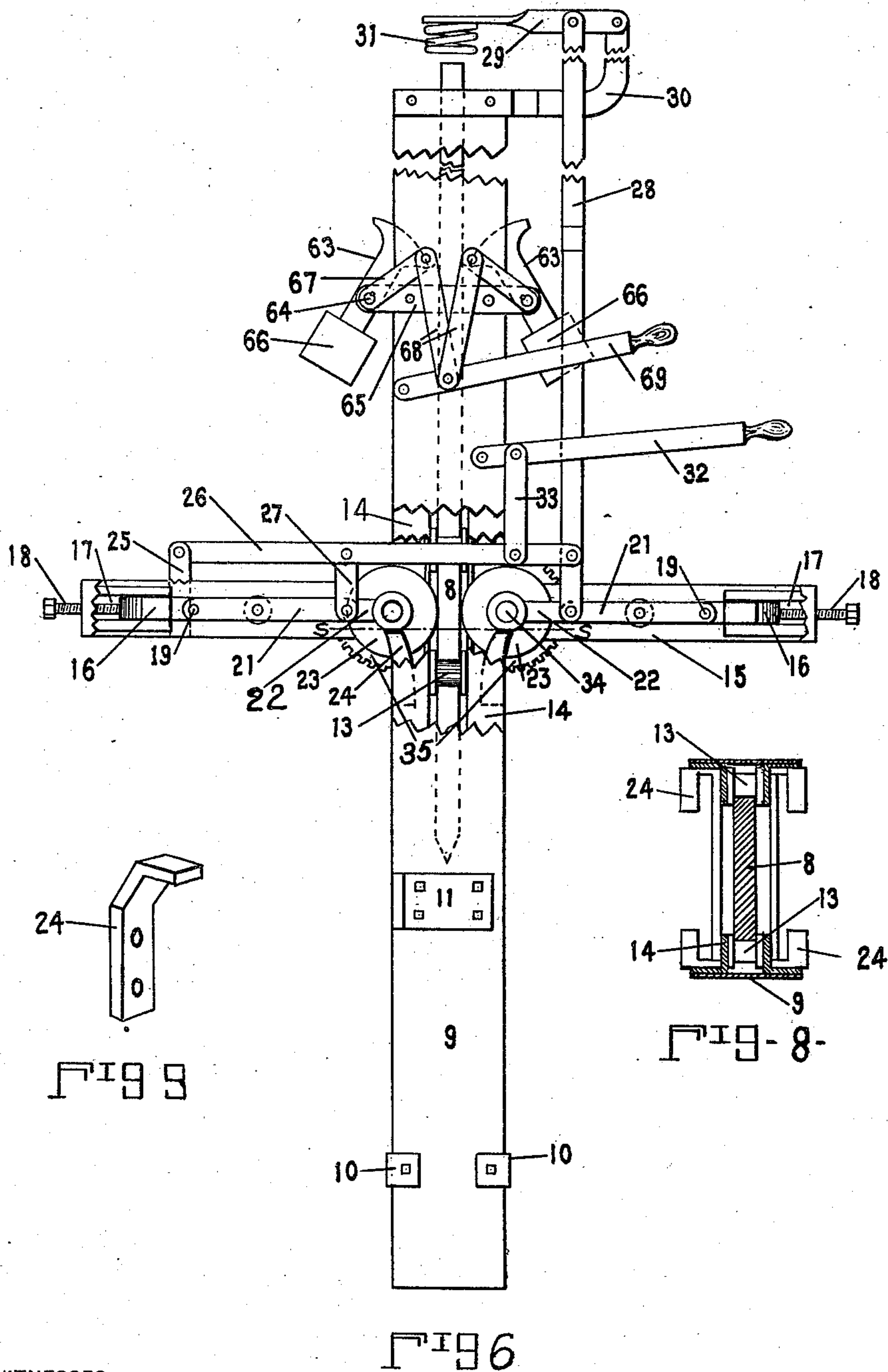
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E. RYNEARSON.
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5 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

EUGENE RYNEARSON, OF DALLAS, TEXAS.

PAVEMENT-BREAKING MACHINE.

997,638.

Specification of Letters Patent.

Patented July 11, 1911.

Application filed August 13, 1910. Serial No. 577,005.

To all whom it may concern:

Be it known that I, EUGENE RYNEARSON, citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented certain new and useful Improvements in Pavement-Breaking Machines, of which the following is a specification.

My invention relates to new and useful improvements in pavement breaking machines. Its object is to provide a portably mounted machine which by means of a weighted chisel will be adapted to break up pavement of concrete or other material with a considerable economy in time and expense over the manual performance of this operation.

A further object is to provide a novel means for raising the aforesaid weighted chisel, means for holding the same raised in any position, and means for shifting the same laterally upon its portable support.

Finally the object of the invention is to provide a device of the character described that will be strong, durable, simple and efficient, and comparatively easy to construct, and also one the various parts of which will not be likely to get out of working order.

With these and various other objects in view, my invention has relation to certain novel features of construction and operation, an example of which is described in the following specification and illustrated in the accompanying drawing, wherein:

Figure 1 is a side elevation of the machine showing it mounted upon a wheeled truck for which a track is provided. Fig. 2 is a sectional view taken on the line *w-w* of Fig. 1. Fig. 3 is a front view of the machine. Fig. 4 is a section taken on the line *x-x* of Fig. 1, the traveling platform being shown in dash lines. Fig. 5 is a vertical sectional view taken on the line *y-y* of Fig. 4. Fig. 6 is a detail side view of the frame in which the weighted chisel is mounted for vertical travel, showing the mechanism upon this frame for clutching the chisel at any elevation, and for releasing the chisel from the means employed to raise the same. Fig. 7 is a cross section taken on the line *z-z* of Fig. 2. Fig. 8 is a horizontal cross section, taken on the line *s-s* of Fig. 6. Fig. 9 is a perspective detail of one of the brackets used to support the friction rollers by which the weighted chisel is elevated.

Referring now more particularly to the

drawings wherein like numerals of reference designate similar parts in all the figures, the numeral 1 denotes the truck upon which the herein described machine is portably mounted, such truck being provided with flanged wheels 2 traveling upon a track 3. Upon the forward portion of this truck is provided a cab or housing 4 to be occupied by the motorman. Upon the platform of the truck 1 is mounted a track consisting of a pair of transverse rails 5. A number of rollers 6 travel upon this track, said rollers being mounted upon the underside of a platform 7. From the rear of this platform is vertically supported an elongated frame to receive the weighted chisel 8, which frame consists of a pair of side plates 9, rigidly connected at their upper and lower portions by braces 10. This frame is secured to the platform 1 at its lower portion by angles 11, and its upper extremity is held rigid by a brace 12 extending from one of the braces 10 to the platform 7. The weighted chisel 8 is guided and restricted from transverse displacement by a number of flanged rollers 13 mounted at each side of the chisel between angle irons 14 attached to the inner surface of the plates 9.

Near the middle portion of the vertical guiding frame, which consists of the parts 9 and 10, there is mounted a horizontally elongated rectangular frame 15. In each extremity of this frame there are slidably mounted brackets 16, grooves 17 being provided in the extremities of the frame at each side thereof to receive said brackets. Adjusting screws 18 centrally mounted in each end of the frame 15 bear upon the brackets 16 and are adapted to adjust said brackets in a direction longitudinal with said frame 15. In each of the brackets 16 is mounted a rock shaft 19 extending transversely of the frame 15. One end of each rock shaft receives the extremities of a short link 20, and the other extremity of each rock shaft receives the extremity of a longer link 21. In the links 20 and 21 are pivotally mounted frames 22, each of which frames carries a rotatably mounted roller 23. The rollers 23 are adapted to contact with the chisel 8 and to raise the same by their rotation, means being described hereinafter for imparting rotation to said rollers. When the rollers 23 are in contact with the chisel 8, the frame 22 in which said rollers are mounted is supported from beneath by brackets 24 attached to the angle irons 14.

Upon the frame 15 is rigidly mounted a bracket 25, to which is pivotally attached one extremity of a horizontal bar 26. This bar is connected to one of the links 21 by a short link 27, and is connected at its extremity to the other link 21 by a vertical bar 28. This latter bar is extended upward to a point adjacent to the upper extremity of the guiding frame of the chisel, at which point it is pivotally attached to a horizontal bar 29. The bar 29 is pivoted at one extremity upon a bracket 30 supported from one of the plates 9. At the other extremity of this bar is provided a coiled spring 31, with which spring the upper extremity of the chisel 8 is adapted to contact when the chisel has reached the desired elevation. Such contact will produce an angular displacement of the bar 29 about its point of pivotal attachment to the bracket 30. This will produce a vertical displacement of the bar 28, causing the links 21 to be displaced upwardly at their point of connection with the frames 22. That portion of these frames in which the rollers 23 are mounted will thus be displaced outwardly from the chisel 8, causing the chisel to be released from the rollers 23 and permitting it to drop.

In order that the operation just described may be started manually at any height of the chisel as well as automatically at a certain height thereof, a lever 32 is pivotally mounted upon the plate 9 above the rod 26, and is attached to said rod by a link 33. When the lever 32 is raised, the same effect will result as if produced by the elevation of the rod 28; that is to say, the rollers 23 will be removed from contact with the chisel, permitting the latter to drop.

Upon the spindles 34 upon which the rollers 23 are rigidly mounted, there are also mounted a pair of pinions 35 whose teeth are in mesh. One of the spindles 34 also carries a sprocket wheel 36 to which rotation is communicated by a chain 37 from a counter shaft 38. This counter shaft is mounted in a pair of brackets 39, and receives rotation from a motor 40 through a belt 41 and pulleys 42. When the rollers 23 are shifted out of contact with the chisel 8, the amount of displacement need not be sufficient to cause the gears 35 to disengage from each other. The screws 18 will permit of adjustment to compensate for wear of either of the rollers 23 or the chisel 8, so that there will always be maintained the proper amount of friction between the rollers and the chisel to permit the former to elevate the latter.

Means are provided whereby the platform 7 and the machinery mounted thereupon may be transversely shifted upon the truck 1, in order that the chisel may be able to work upon a wider path. Adjacent to each of the rails 5 and parallel therewith a rack 43

is mounted upon the truck 1. Each of these racks is engaged by a pinion 44 mounted upon an extremity of the shaft 45. This shaft is mounted in brackets 46 attached to the bottom of the platform 7. The shaft 45 carries a worm wheel 47 which wheel is driven by a worm 48 rigid upon a transverse shaft 49. The shaft 49 is mounted in brackets 50 adjacent to the worm wheel and its other extremity is supported by a bracket 49^a mounted upon the platform 7. Upon the shafts 49 is mounted a fast pulley 51 and a pair of loose pulleys 52, the latter being placed at each side of the former, adjacent thereto. The pulleys 52 are connected by belts 53 and 54 with a pulley 55 mounted upon the counter shaft 38. The belt 53 is crossed in order that it may communicate a rotation to the shaft 49 opposite in direction to that which is communicated thereto by the belt 54. As shown in the drawings neither of the belts are adapted to impart rotation to the shaft 49 since they are both shown mounted upon the loose pulleys 52. In order to shift either of the belts upon the fast pulley 51, a bar 56 is transversely mounted upon the platform 7 in guides 57. From this bar a pair of belt guides 58 extend upwardly at each side of the belt 53 and belt guides 59 extend downwardly at each side of the belt 54. In order to shift the bar 56 a rockshaft 60 is mounted in bearings 61 upon the side of the platform 7. From the extremity of this bar a pin 62 extends upwardly engaging in a slot in the bar 56. It will thus be seen that if the rod 60 be rotated in one direction, the belt 53 will be thrown upon the fast pulley 51 causing the platform 7 to be transversely shifted. If the rod 60 be rotated in the opposite direction, the belt 54 will be thrown upon the fast pulley 51, resulting in the platform 7 being transversely shifted in a reverse direction.

Means are also provided unrelated to the raising means by which the chisel may be maintained at any elevation, or caught at any point of its fall. This means consists in a pair of circular segments 63 eccentrically mounted upon rock shafts 64 adjacent to the chisel at opposite sides thereof. The shafts 64 are pivoted in the extremities of brackets 65, one of which is secured to each of the plates 9. Weights 66 are provided upon the segments 63 in order to hold said segments normally out of contact with the chisel so that the latter may be free to operate under the action of the rollers 23. Upon one extremity of each shaft 64 a link 67 is rigidly mounted, said links extending upward and inward. The other extremity of each link 67 is connected by a link 68 with a lever 69 pivoted upon the plate 9. It is thus apparent that the downward angular displacement of the lever 69 will rock

the segments into contact with the chisel 8. Owing to the fact that the segments 63 are eccentric with their support, the friction between these segments and the chisel will rapidly increase from the instant of contact through a short period of rolling contact until the constantly increasing radius of the segments will cause them to act as a clutch to prevent the downward motion of the chisel.

If the chisel used in this machine have the proper weight, it can be made to strike a blow of considerable force such that one or two blows in one position will be sufficient to cut through the pavement. The operator will then apply the clutch consisting of the segments 63 and the shift rod 60 will be operated causing the chisel to be fed transversely preferably a distance equal to its own width. Thus the pavement may be cut through in a continuous line, not only between the rails of the track 3, but a considerable distance on the outside of these rails provided that the truck be extended laterally beyond the track. The truck will then be moved forward the distance of a few feet and another transverse line will be cut through the pavement. It is obvious that the pavement between the two cutting lines will be greatly broken up by this operation so that it may be easily removed by manual labor.

The truck upon which the above described pavement breaker is mounted is shown in the accompanying drawing mounted upon a track, but it is apparent that the machine may be mounted upon some other form of truck that will not require a track. Thus the machine is adapted to break pavement of any sort whether the street be provided with car tracks or not.

What I claim is:

1. In a device of the character described, the combination with a weighted chisel, of means for guiding the same vertically, means for raising the same, a pair of circular segments eccentrically pivoted at opposite sides of the chisel and adapted to contact therewith, means for simultaneously rocking said segments into or out of contact with the chisel, means for releasing the chisel from the raising means at any height, and a truck upon which the device is mounted.

2. In a device of the character described, the combination with a weighted chisel of means for guiding the same vertically, means for raising the same, means for automatically releasing the chisel from the raising means at a certain height of the chisel, a pair of circular segments eccentrically pivoted adjacent to the chisel at opposite sides thereof, means for simultaneously rocking such segments into or out of contact with the chisel, and a truck upon which the device is mounted.

3. In a device of the character described, the combination with a weighted chisel, of means for guiding the same vertically, means for raising the same, means for releasing the chisel at any height thereof, means for automatically releasing the chisel at some certain height thereof, a pair of circular segments eccentrically pivoted adjacent to the chisel at opposite sides thereof, means for rocking said segments into or out of contact with the chisel, and a truck upon which the device is mounted.

4. In a device of the character described, the combination with a weighted chisel, of means for guiding the same vertically, rollers contacting with the chisel and adapted to raise the same by their rotation, means for communicating rotation to the rollers, means for removing the rollers from contact with the chisel at any height of the latter, a pair of circular segments eccentrically pivoted adjacent to the chisel at opposite sides thereof, means for simultaneously rocking said segments into or out of contact with the chisel, and a truck upon which the device is mounted.

5. In a device of the character described, the combination with a weighted chisel, of means for guiding the same vertically, rollers contacting with the chisel and adapted to raise the same by their rotation, means for communicating rotation to the rollers, means for automatically removing the rollers from contact with the chisel at some certain height of the latter, a pair of circular segments eccentrically pivoted adjacent to the chisel at opposite sides thereof, means for simultaneously rocking said segments into and out of contact with the chisel, and a truck upon which the device is mounted.

6. In a device of the character described, the combination with a weighted chisel, of means for guiding the same vertically, rollers contacting with the chisel, adapted to raise the same by their rotation, means communicating rotation to the rollers, means for removing the rollers from contact with the chisel at any height thereof, a mechanism adapted to automatically operate the last named means at any height of the chisel, a pair of circular segments eccentrically pivoted adjacent to the chisel at opposite sides thereof, means for simultaneously rocking said segments into or out of contact with said chisel, and a truck upon which the device is mounted.

7. In a device of the character described, the combination with a weighted chisel, of means guiding the same vertically, means for raising the same, means for releasing the same at any height, a pair of circular segments eccentrically pivoted adjacent to the opposite sides thereof, means for rocking said segments into and out of contact with the chisel, a truck upon which the device is

mounted, and a mechanism for shifting the device laterally upon the truck.

8. In a device of the character described, the combination with a weighted chisel, of
5 means guiding the same vertically, means for raising the same, means adapted to automatically release the chisel at a certain height, a pair of circular segments eccentrically pivoted adjacent to the chisel at opposite sides thereof, means for rocking the
10 segments into and out of contact with the chisel, a truck upon which the device is mounted, and a mechanism for shifting the device laterally upon said truck.

9. In a device of the character described, the combination with a weighted chisel, of
15 means guiding the same vertically, means for raising the same, means for releasing the the same at any height, means adapted to automatically operate said releasing means at a certain height of the chisel, a pair of
20 circular segments eccentrically pivoted adjacent to the chisel at opposite sides thereof, means for rocking said segments into or out of contact with the chisel, a truck upon
25 which the device is mounted, and means for shifting the device laterally upon said truck.

10. In a device of the character described, the combination with a weighted chisel, of
30 means guiding the same vertically, rollers contacting with said chisel, adapted to raise the same by their rotation, means communicating rotation to said rollers, means for removing said rollers from contact with the
35 chisel at any height thereof, a pair of circular segments eccentrically pivoted adjacent to the chisel at opposite sides thereof, means for rocking said segments into or out of contact with the chisel, a truck upon
40 which the device is mounted, and means for shifting the device laterally upon said truck.

11. In a device of the character described, the combination with a weighted chisel, of
45 means guiding the same vertically, rollers contacting therewith adapted to raise the same by their rotation, means communicating rotation to said rollers, means adapted to automatically remove said rollers from contact with the chisel at a certain height
50 thereof, a pair of circular segments eccentrically pivoted adjacent to the chisel at opposite sides thereof, means for rocking said segments into or out of contact with the chisel, a truck upon which the device is
55 mounted, and means for shifting the device laterally upon said truck.

12. In a device of the character described, the combination with a weighted chisel, of
60 means guiding the same vertically, rollers contacting with said chisel, adapted to raise the same by their rotation, means communicating rotation to said rollers, means for removing the rollers from contact with the
65 chisel at any height thereof, means for automatically operating the last named means

at a certain height of the chisel, a pair of circular segments eccentrically pivoted adjacent to the chisel at opposite sides thereof, means for rocking said segments into or out of contact with the chisel, a truck upon
70 which the device is mounted, and a mechanism for shifting the device laterally upon said truck.

13. In a device of the character described, the combination with a weighted chisel, of
75 means for guiding the same vertically, friction rollers contacting with the same at opposite sides thereof and adapted to raise it by their rotation, a pivotally mounted frame in which each roller is mounted, and
80 a manually operated mechanism by which said frames may be simultaneously swung on their pivots to remove the rollers from contact with the chisel, and means for communicating rotation to the rollers.

14. In a device of the character described, the combination with a weighted chisel, of
means for guiding the same vertically, friction rollers contacting with the same at opposite sides thereof, and adapted to raise it
90 by their rotation, a pivoted frame in which each roller is mounted, a mechanism adapted to be manually operated by which said frames may be simultaneously swung about their pivotal points, throwing the rollers out
95 of contact with the chisel, means by which said mechanism may be automatically operated at some fixed height of the chisel, means for communicating rotation to the rollers, and a truck upon which the device is
100 mounted.

15. In a device of the character described, the combination with a weighted chisel, of
means for guiding the same vertically, friction reducing means interposed between the
105 chisel guides, rollers contacting with the chisel at opposite sides thereof and adapted to raise it by their rotation, a pivoted frame in which each roller is mounted, a mechanism adapted to be manually operated by
110 which said frames may be swung about their pivotal supports removing the rollers from contact with the chisel, means by which said mechanism may be automatically operated at some certain height of the chisel,
115 means for communicating rotation to the rollers, and a truck upon which the device is mounted.

16. In a device of the character described, the combination with a weighted chisel, of
120 means for guiding the same vertically, friction reducing means interposed between the chisel and guiding means, rollers contacting with the chisel at opposite sides thereof, adapted to raise the same by their rotation,
125 a pivoted frame in which each roller is mounted, a mechanism adapted to be manually operated by which the frames may be swung about their pivotal supports to withdraw the rollers from contact with the
130

chisel, means for communicating rotation to the rollers, a truck upon which the device is mounted, and a power driven mechanism for shifting the device laterally upon said truck.

5 17. In a device of the character described, the combination with a weighted chisel, of means for guiding the same vertically, friction reducing means interposed between the chisel and its guiding means, rollers contacting with the chisel at opposite sides thereof, and adapted to raise the same by their rotation, a pivoted frame in which each roller is mounted, an automatic mechanism by which said frames are simultaneously swung about their pivotal supports at some certain height of the chisel, means for communicating rotation to the rollers, a truck upon which the device is mounted, and a mechanism for shifting the device laterally upon the truck.

18. In a device of the character described, the combination with a weighted chisel, of means for guiding the same vertically, friction reducing means interposed between the chisel and its guiding means, rollers contacting with the chisel at opposite sides thereof and adapted to raise the same by their rotation, a pivoted frame in which each roller is rotatably mounted, a mechanism adapted to be manually operated by which said frames may be simultaneously swung about their pivotal supports to remove the rollers from contact with the chisel, means for automatically operating the last named mechanism at some fixed height of the chisel, means for communicating rotation to said rollers, a truck upon which the device is mounted, and means for shifting the device laterally upon the truck.

19. In a device of the character described, the combination with a truck, of a track transversely mounted thereupon, a platform traveling upon said track, vertical guides supported from said platform, a weighted chisel mounted in said guides, means mounted upon the platform for raising said chisel, means for releasing the chisel from the raising means at any height, a rack mounted upon the truck parallel to the track, a pinion mounted upon the platform engaging said rack, a worm and worm wheel mechanism through which rotation is communicated to said pinion, means for reversing the rotation communicated to the last named mechanism, and a motor carried by the platform by which the mechanism is operated.

20. In a device of the character described, the combination with a truck, of a track transversely mounted thereupon, a platform traveling upon said track, vertical guides supported from said platform, a weighted chisel mounted in said guides, means for raising said chisel carried by the platform, means automatically releasing the chisel from the raising means at a certain height

of the chisel, a rack mounted upon the truck parallel to the track, a pinion mounted upon the platform engaging the rack, a worm and worm wheel mechanism through which rotation is communicated to the pinion, a motor mounted upon the platform communicating rotation to the last named mechanism, and means by which such rotation may be reversed.

21. In a device of the character described, the combination with a truck, of a track transversely mounted thereupon, a platform traveling upon said track, vertical guides supported from said platform, a weighted chisel mounted in said guides, means carried by said platform for raising the chisel, means for releasing the chisel from the raising means at any height of the chisel, a mechanism adapted to automatically operate the last named means at a certain height of the chisel, a rack mounted upon the truck parallel to the track, a pinion mounted upon said platform, engaging the rack, a worm and worm wheel mechanism by which rotation is communicated to said pinion, a motor carried by the platform which communicates rotation to the last named mechanism, and means by which said rotation may be reversed.

22. In a device of the character described, the combination with a truck, of a track transversely mounted thereupon, a platform traveling upon said track, vertical guides supported from said platform, a weighted chisel mounted in said guides, rollers contacting with the chisel and adapted to raise the same by their rotation, means communicating rotation to said rollers, means for removing said rollers from contact with the chisel at any height thereof, a rack mounted upon the truck parallel to the track, a pinion mounted upon the platform engaging said rack, a worm and worm wheel mechanism through which rotation is communicated to said pinion, a motor carried by the platform which communicates rotation to the last named mechanism, and means by which such rotation may be reversed.

23. In a device of the character described, the combination with a truck, of a track transversely mounted thereupon, a platform traveling upon said track, vertical guides supported from said platform, a weighted chisel mounted in said guides, rollers contacting with the chisel adapted to raise the same by their rotation, means communicating rotation to the rollers, means for automatically withdrawing the rollers from contact with the chisel at some certain height of the same, a rack mounted upon the truck parallel to the track, a pinion mounted upon the platform engaging the rack, a worm and worm wheel mechanism through which rotation is communicated to said pinion, a motor carried by the platform which

communicates rotation to the last named mechanism, and means by which such rotation may be reversed.

24. In a device of the character described, the combination with a truck, of a track transversely mounted thereupon, a platform traveling upon said track, vertical guides supported from said platform, a weighted chisel mounted in said guides, rollers contacting with the chisel adapted to raise the same by their rotation, means communicating rotation to the rollers, means for removing the rollers from contact with the chisel at any height of the chisel, means for automatically operating the last named means at some certain height of the chisel, a rack mounted upon the truck, parallel to said track, a pinion mounted upon said platform, engaging the rack, a worm and worm wheel mechanism through which rotation is communicated to the pinion, a motor carried by the platform which communicates rotation to the last named mechanism, and means by which such rotation may be reversed.

25. In a device of the character described, the combination with a truck, of a track transversely mounted thereupon, a platform traveling upon said track, vertical guides supported from said platform, a weighted chisel mounted in said guides, means for raising the chisel, means for releasing the chisel at any height, means separate from the raising means for holding the chisel at any elevation, a rack mounted upon the truck parallel to the track, a pinion mounted upon the platform engaging the rack, a worm and worm wheel mechanism communicating rotation to the pinion, a motor mounted upon the platform which communicates rotation to the last named mechanism, and means by which such rotation may be reversed.

26. In a device of the character described, the combination with a truck, of a track transversely mounted thereupon, a platform traveling upon said track, vertical guides supported from the platform, a weighted chisel mounted in said guides, means for raising said chisel, means for automatically releasing said chisel at some certain height thereof, means separate from the raising means for holding the chisel at any elevation, a rack mounted upon the truck parallel to the track, a pinion mounted upon the platform engaging said rack, a worm and worm wheel mechanism by which rotation is communicated to said pinion, a motor carried by the platform by which rotation is communicated to the last named mechanism, and means by which such rotation may be reversed.

27. In a device of the character described, the combination with a truck, of a track transversely mounted thereupon, a platform

traveling upon said track, vertical guides supported from the platform, a weighted chisel mounted in said guides, means for raising said chisel, means for releasing the chisel at any height thereof, a mechanism for automatically operating the last named means at a certain elevation of the chisel, means separate from the raising means for holding the chisel at any elevation, a track mounted upon the truck parallel to the track, a pinion mounted upon the platform engaging the rack, a worm and worm wheel mechanism communicating rotation to the pinion, a motor carried by the platform by which rotation is communicated to said pinion, and means by which such rotation may be reversed.

28. In a device of the character described, the combination with a truck, of a track transversely mounted thereupon, a platform traveling upon said track, vertical guides supported from said platform, a weighted chisel mounted in said guides, rollers contacting with the chisel adapted to raise the same by their rotation, means communicating rotation to the rollers, means for removing the rollers from contact with the chisel at any height thereof, means separate from said rollers adapted to hold the chisel at any elevation, a rack mounted upon the truck parallel to the track, a pinion mounted upon the platform engaging the rack, a worm and worm wheel mechanism communicating rotation to the pinion, a motor carried by the platform by which rotation is communicated to the last named mechanism, and means by which such rotation may be reversed.

29. In a device of the character described, the combination with a truck, of a track transversely mounted thereupon, a platform traveling upon said track, vertical guides supported from the platform, a weighted chisel mounted in said guides, rollers contacting with the chisel adapted to raise the same by their rotation, means communicating rotation to the rollers, means for automatically removing the rollers from contact with the chisel at some certain height thereof, means separate from said rollers supporting the chisel at any elevation, a rack mounted upon the truck parallel to the track, a pinion mounted upon the platform engaging said rack, a worm and worm wheel mechanism by which rotation is communicated to said pinion, a motor carried by the platform which communicates rotation to the last named mechanism, and means by which said rotation may be reversed.

30. In a device of the character described, the combination with a truck, of a track transversely mounted thereupon, a platform traveling upon said track, vertical guides supported from the platform, a weighted chisel mounted in said guides,

rollers contacting with said chisel, adapted
to raise the same by their rotation, means
communicating rotation to said rollers,
means for removing the rollers from con-
5 tact with the chisel at any height thereof, a
mechanism for operating the last named
means at some certain height of the chisel,
means separate from said rollers for sup-
porting the chisel at any elevation, a rack
10 mounted upon said truck, parallel to the
track, a pinion mounted upon the platform
engaging the rack, a worm and worm wheel

mechanism communicating rotation to said
pinion, a motor carried by the platform by
which rotation is communicated to the last 15
named mechanism, and means by which
such rotation may be reversed.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

EUGENE RYNEARSON.

Witnesses:

S. R. HICKMAN,
J. S. MURRAY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
