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PATENTED JUNE 2, 1908.

F. JAMES.
SHOCK GATHERER.
APPLICATION FILED DEC. 28, 1907.

3 SHEETS—SHEET 1.

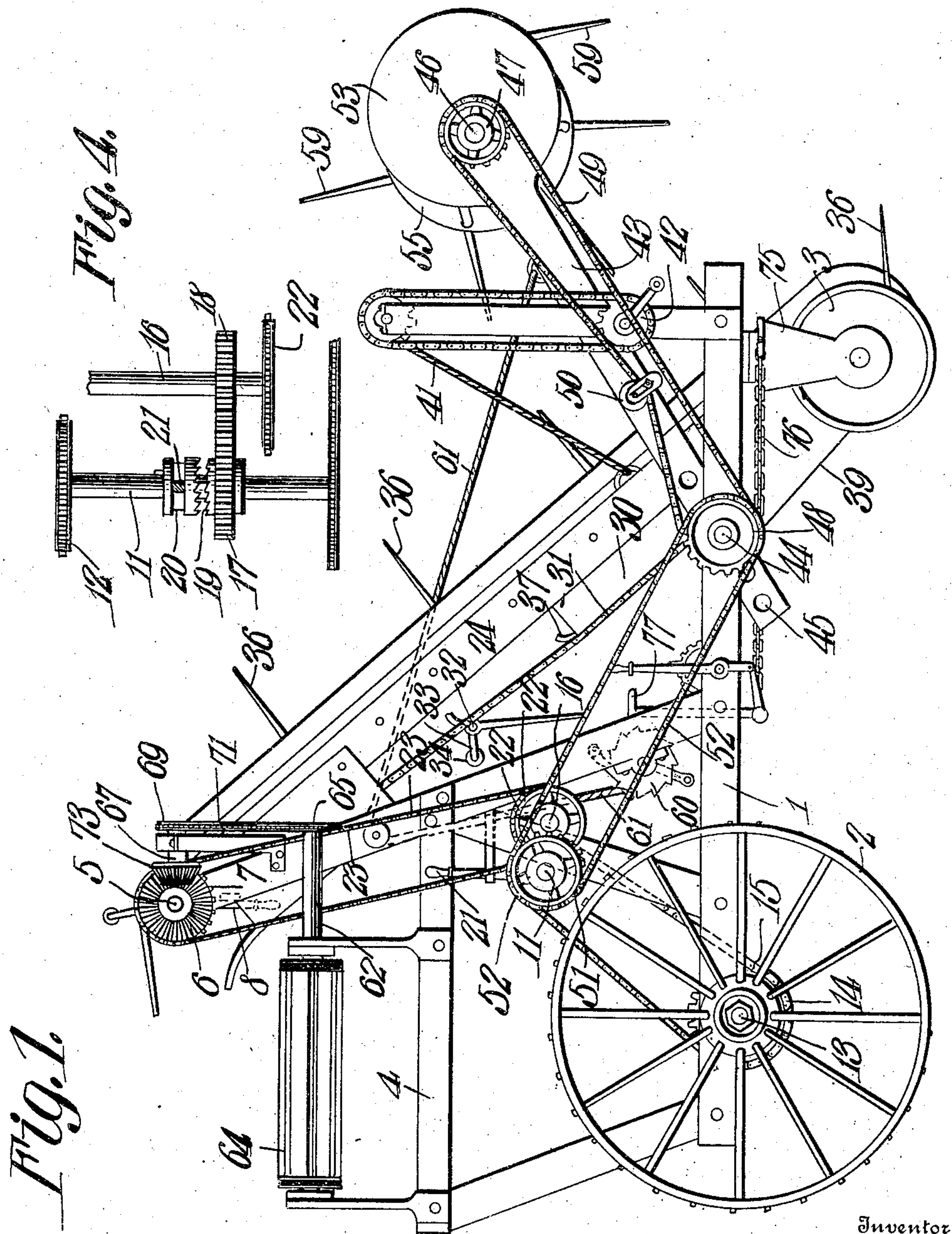


Fig. 1.

Fig. 4.

Witnesses

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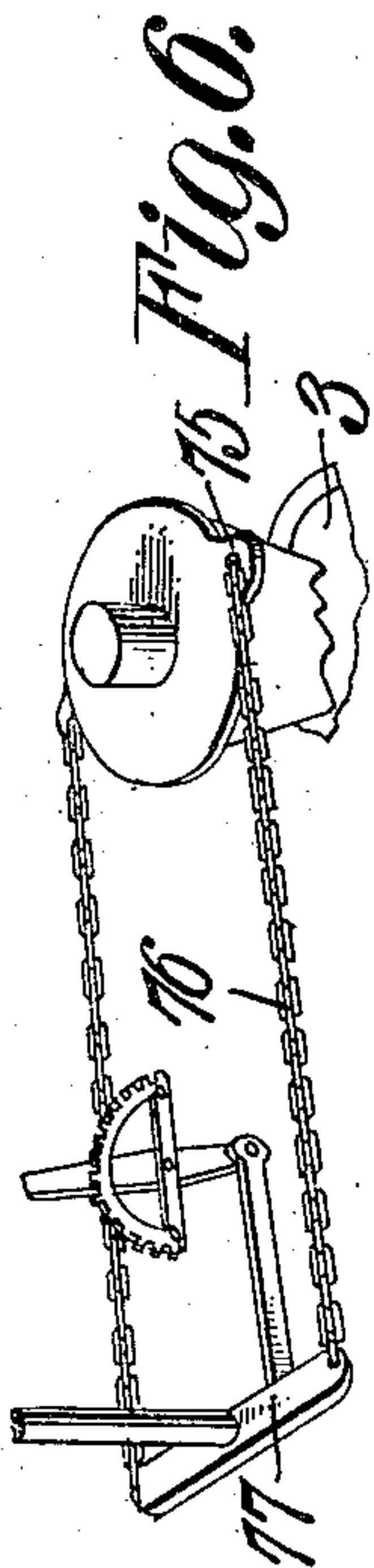
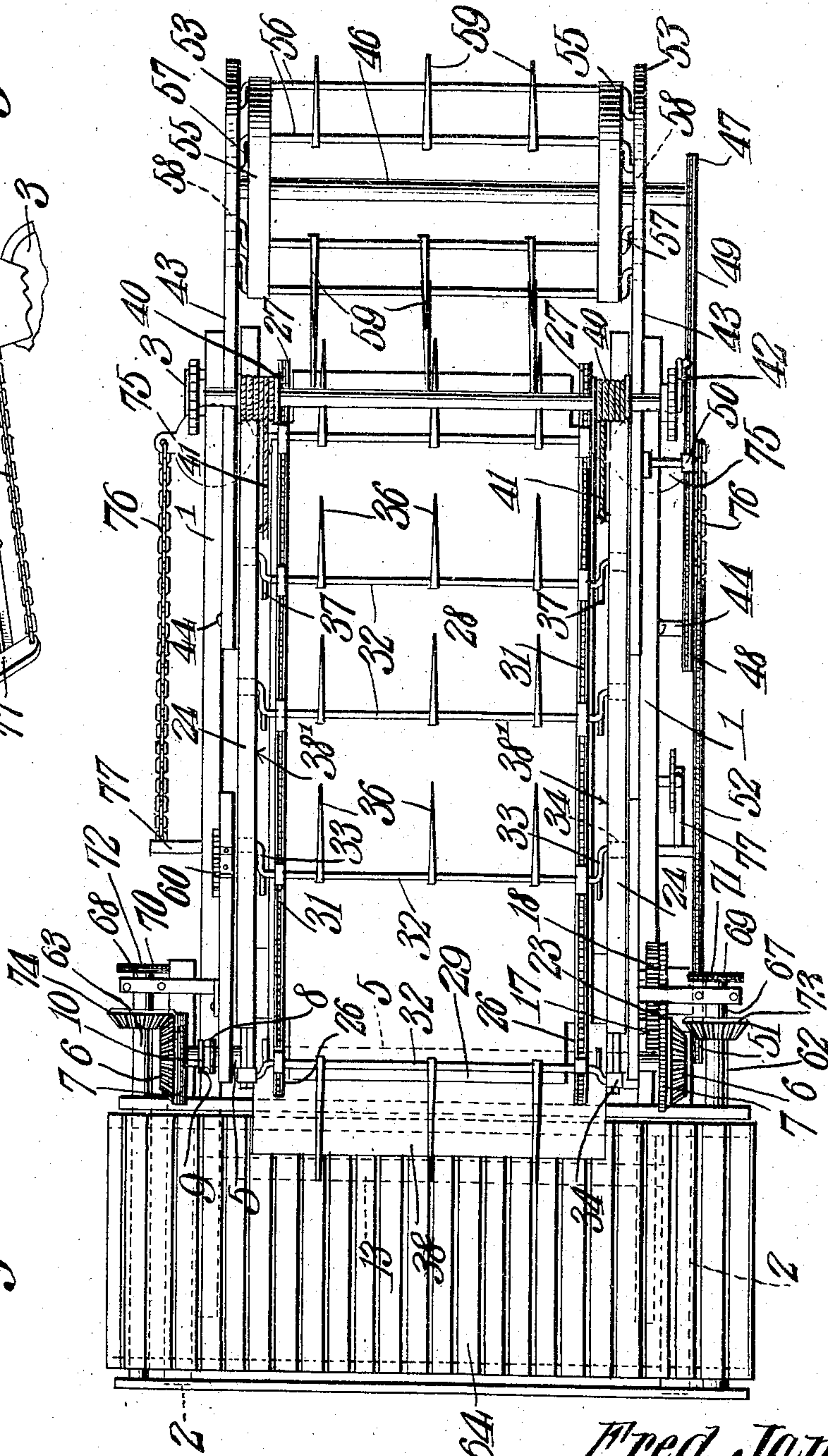


Fig. 2.



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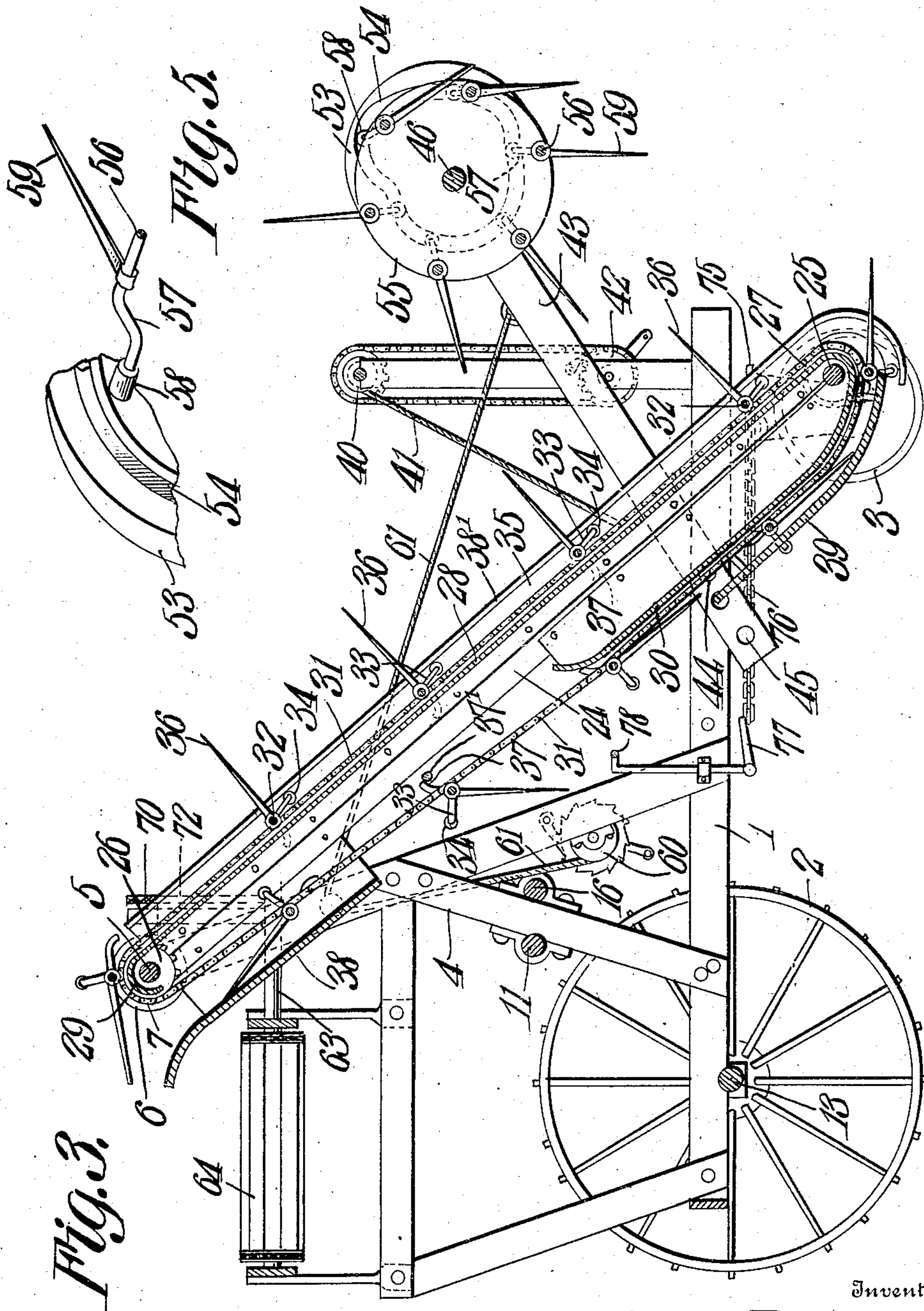
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

FRED JAMES, OF MITCHELL, SOUTH DAKOTA.

SHOCK-GATHERER.

No. 889,527.

Specification of Letters Patent.

Patented June 2, 1908.

Application filed December 28, 1907. Serial No. 408,412.

To all whom it may concern:

Be it known that I, FRED JAMES, a citizen of the United States, residing at Mitchell, in the county of Davison and State of South Dakota, have invented a new and useful Shock-Gatherer, of which the following is a specification.

This invention has relation to shock gatherers and it consists in the novel construction and arrangement of its parts as hereinafter shown and described.

The object of the invention is to provide a gatherer of the character indicated which is adapted to engage the shocks as they stand in upright position and deposit the same upon an upwardly and rearwardly inclined conveyer. The last said conveyer is adapted to deposit the shock upon a laterally moving conveyer which may be caused to move in either direction, whereby the shock is carried to the side of the gatherer and may be deposited in a wagon body or other suitable receptacle. Means is provided for adjusting the various parts as conditions may require.

In the accompanying drawings: Figure 1 is a side elevation of the gatherer. Fig. 2 is a top plan view of the same, Fig. 3 is a vertical sectional view of the same. Fig. 4 is a plan view of portions of shafts used in the gatherer, Fig. 5 is a perspective view showing in detail a portion of one of the shock engaging bars and means for operating the same. Fig. 6 is a perspective view of a form of steering mechanism which may be used upon the gatherer.

The gatherer consists of the frame 1 which is mounted upon the traction wheels 2 and the dirigible front wheels 3. The superstructure 4 is mounted upon the platform 1. The shaft 5 is journaled for rotation in the upper portion of the superstructure 4 and is adapted to move longitudinally in its bearings. The beveled gear wheels 6 are mounted upon the ends of the shaft 5. The wheels 6 are provided upon their rim with sprocket teeth 7. A lever 8 is fulcrumed to the superstructure of the gatherer and is provided with a bifurcated end 9 which engages collars 10 upon the shaft 5. As the said lever is swung laterally the said shaft 5 is moved longitudinally in its bearings. The shaft 11 is journaled for rotation at an intermediate point upon the superstructure 4 and the sprocket wheel 12 is mounted upon said shaft. The axle 13 upon which the traction wheels 2 are mounted is provided with a sprocket

wheel 14 and the sprocket chain 15 passes around the sprocket wheels 12 and 14. The stub shaft 16 is journaled upon the superstructure 4 in the vicinity of the shaft 11. The gear wheels 17 and 18 are mounted upon the shafts 11 and 16 respectively and are in mesh with each other. The wheel 17 is provided with a clutch hub 19 and a clutch member 20 is slidably mounted upon the shaft 11 and is adapted to engage and disengage the clutch hub 19 as the lever 21 is swung laterally. The sprocket wheels 22 are mounted upon the shaft 16 and the sprocket chains 23 pass around the wheels 22 and the sprocket rims 7 of the wheels 6.

From the foregoing description it is obvious that when the clutch 20 is in engagement with the hub 19 that the shaft 5 will be rotated in the opposite direction from that in which the wheels 2 rotate in passing over the ground.

The side rails 24 are attached at their upper ends to the shaft 5 and are inclined downwardly and forwardly toward the front of the gatherer. The shaft 25 is journaled for rotation at the lower ends of the rails 24. The shafts 5 and 25 are provided with sprocket wheels 26 and 27 respectively. The plate 28 is attached at its edges to the rails 24 and is provided at its upper end with a curved portion 29 which lies over the intermediate portion of the shaft 5 between the sprocket wheels 26. At its lower end the plate 28 is bent around the shaft 25 and extended up as at 30 under the intermediate portion of the plate, the end portion 30 being substantially parallel with the intermediate portion of the said plate. The chain belts 31 pass around the sprocket wheels 26 and 27 and are adapted to move orbitally about the plate 28 as the shaft 5 rotates. The cross bars 32 are journaled upon the chain belts 31 and are provided with lugs 33 which in turn are provided with friction rollers 34 which are adapted to operate against the under sides of the intumed flanges 35 provided at the upper edges of the rails 24. The said grooves 35 are arcuately curved at their lower ends around the shaft 25. The impaling tines 36 are mounted upon the bars 32. The bars 32 are also provided at their ends with lugs 37 which are adapted to enter channels 38 provided at the edges of the intermediate portion of the plate 28 and which are adapted to engage the end portion 30 of the said plate for the purpose of turning the bars 32 axi-

ally. The shield 38 is mounted under the upper portion of the rails 24 and the shield 39 is mounted under the lower portion thereof. The drum 40 is journaled for rotation upon the forward portion of the superstructure 4 and the cable 41 winds around said drum and is attached at its other end to the lower portion of one of the side rails 24. A means 42 is provided and is operatively connected with the drum 40 for rotating the same. By rotating the drum 40 it will be observed that the lower end of the side rails 24 may be raised or lowered using the shaft 5 as a pivot.

As the shaft 5 rotates the chain belts 31 are moved longitudinally around the plate 28 by the sprocket wheels 26. As the impaling tines 36 pass over the upper surfaces of the plate 28 they stand substantially at right angles to the same being held in such position by means of the friction rollers 34 mounted upon the lugs 33 which operate against the flanges 35 of the side rails 24. When the bars 32 arrive at the upper end of the plate 28 the friction rollers 34 pass beyond the end of the guides 35 and the bars 32 may turn axially whereby the impaling tines 36 will swing in a downward direction at their free ends and may slide along the upper surface of the guard 38. When the said tines pass beyond the lower end of the guard 38 they swing down by gravity and assume vertical positions and are assisted in this movement by the lug 37 set in the path of the lugs 37. As the lower portions of the chain belts 31 pass down the lugs 37 engage the end of the portion 30 of the plate 28 and the bars 32 are turned axially so that the tines 36 are swung up against the portion 30 of the plate 28 and pass points foremost over the guard 39. When the bars 32 arrive at the lower end of the guard 39 the friction rollers 34 engage the lower ends of the flanges 35 and the tines 36 are brought into the positions first above described.

From the above description it will be observed that the tines 36 move in orbits about the shafts 5 and 25 and that they are swung about an axis while passing around the shaft 5 and are withdrawn butt ends foremost away from the same. The said tines approach the shaft 5 in planes at right angles to the plane occupied by a line connecting the centers of the shafts 5 and 25 together. At points between the shafts 5 and 25 the tines 36 are again turned about an axis so that their pointed ends are forwardly disposed and are carried under the shaft 25 in such forward disposition, also while the tines are passing under the shaft 25 they are given a forward thrust which movement projects the tines into the shock to be gathered. The arms 43 are pivotally and longitudinally adjustably mounted upon the frame 1 and are connected thereto by means of the wrist pins 44 which are adapted to pass through any

one of the perforations 45 provided in the said arms. The shaft 46 is journaled for rotation at the outer ends of the arms 43 and is provided at one end with a sprocket wheel 47. The sprocket wheel 48 is journaled upon the wrist pin 44 and is provided with two sets of sprocket teeth. A sprocket chain 49 passes around the sprocket wheel 47 and one set of teeth upon the sprocket wheel 48. The yielding belt tightener 50 is mounted upon one of the arms 43 and engages the chain 49 and is adapted to take up the slack in the same. A sprocket wheel 51 is mounted upon the shaft 11 and the sprocket chain 52 passes around the wheel 51 and the other set of sprocket teeth upon the wheel 48. Thus, as the shaft 11 rotates as has been above described rotary movement is transmitted to the shaft 46 through the parts last above mentioned. The heads 53 are mounted upon the ends of the arms 43 and are provided in their inner side with cam grooves 54. The disks 55 are fixed to the shaft 46 and the bars 56 are journaled in the peripheries of the said disks 55. The said bars are provided with angularly disposed ends 57 which carry friction rollers 58 which operate in the grooves 54. The impaling tines 59 are carried by the bars 56. By reason of the arrangement of the parts last above described a set of shock engaging tines is provided which move orbitally and which descend vertically in engaging the shock and move laterally away from the same when becoming disengaged. The movement of the tines is accomplished by means of the configuration of the cam groove 54 and its engagement with the friction rollers 58 carried by the ends 57 of the bars 56. The winding drum 60 is journaled upon the superstructure 4 and one end of the cable 61 passes around said drum and the other end of said cable is attached to one of the arms 43. Or said cables may be duplicated and one connected with each of the arms 43. It will be observed that by turning the drum 60 that the forward ends of the arms 43 may be raised or lowered as desired. Also by adjusting the wrist pin 44 in any one of the perforations 45 the arms 43 may be adjusted longitudinally. As the said arms are adjustable longitudinally the belt tightener 50 will take up any slack which might occur in the chain 49.

The shafts 62 and 63 are journaled at the opposite sides of the superstructure 4 and are located under the shaft 5. The conveyer 64 is mounted upon the said shafts 62 and 63 and is adapted to move orbitally about the same. The shafts 62 and 63 are each provided with a sprocket wheel 65. The stub shafts 67 and 68 are journaled for rotation above the shafts 62 and 63 and are provided with sprocket wheels 69 and 70. The sprocket chain 71 passes around the sprocket wheels 65 and 69 and the sprocket chain 72

passes around the sprocket wheels 66 and 70. The shafts 67 and 68 are provided with the bevel gear wheels 73 and 74 respectively which are adapted to engage one of the bevel gear wheels 6 upon the shaft 5 as the same is moved longitudinally. By reason of the duplication of means at the opposite ends of the shaft 5 for transmitting rotary movement from the said shaft to the conveyer 64 the said conveyer may be caused to move in either direction according to which means for transmitting movement the said shaft 5 is geared up with. That is to say, by shifting the shaft 5 longitudinally the conveyer 64 may be caused to move toward one side or the other of the gatherer as desired.

The dirigible wheels 3 are journaled for rotation in the caster brackets 75 which are pivoted under the forward portion of the frame 1 and which are connected by means of the links or chains 76 with the rock shafts 77. Said shafts are connected together by means of a connecting rod 78 and consequently as one shaft 77 turns the other shaft will turn correspondingly. By such connecting means between the wheels 3 they are always retained in parallel relation.

From the foregoing description it will be seen that as the gatherer approaches a shock the tines 36 will be projected horizontally into the base of the shock while the tines 59 will be projected downwardly into the top of the shock. The parts are so geared that the tines 59 will move faster than the tines 36 so that the shock will be tilted from a vertical position into an inclined position upon the plate 28. When so disposed the tines 59 are withdrawn from the shock which is carried up by the tines 36 to the upper end of the plate 28 at which point the said tines 36 are withdrawn from the shock which falls upon the conveyer 34.

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

1. A shock gatherer comprising orbitally moving base impaling tines and orbitally moving head impaling tines.
2. A shock gatherer comprising orbitally moving base impaling tines, orbitally moving head impaling tines, said tines moving at different rates of speed.
3. A shock gatherer comprising orbitally moving base impaling tines and orbitally moving head impaling tines, said tines being so arranged as to simultaneously impale the shock and the head impaling tines withdraw from the shock prior to the withdrawal of the base impaling tines therefrom.
4. A shock gatherer comprising orbitally

moving base impaling tines and orbitally moving head impaling tines, each set of said tines being so mounted as to rotate about an axis when in the act of impaling or withdrawing from the shock.

5. A shock gatherer comprising orbitally moving base impaling tines, orbitally moving head impaling tines and means for adjusting the head impaling tines with relation to the base impaling tines.

6. A shock gatherer comprising orbitally moving base engaging tines, and orbitally moving head engaging tines and means for adjusting the head impaling tines in an arc with relation to the base impaling tines.

7. A shock gatherer comprising orbitally moving base impaling tines, orbitally moving head impaling tines and means for adjusting the head impaling tines toward or away from the base impaling tines and means for adjusting the head impaling tines in an arc with relation to the base impaling tines.

8. A shock gatherer comprising a frame, orbitally moving base impaling tines mounted thereon, arms mounted on the frame, heads carried by the arms and being provided with cam grooves, a shaft journaled for rotation in said arms, disks mounted upon the shaft, bars journaled in said disks and having angularly disposed ends which engage the cam grooves and impaling tines mounted upon said bars.

9. A shock gatherer comprising orbitally moving base impaling tines, means for moving the shock from an upright position into an inclined position upon the base impaling tines, a conveyer located under the upper portion of the orbit described by the base impaling tines and means operatively connecting the conveyer with the means for operating the base impaling tines whereby the said conveyer may be caused to move in either of two directions.

10. A shock gatherer comprising a frame, orbitally moving base impaling tines mounted thereon, arms adjustably pivoted to the frame, means for swinging said arms, heads carried by the arms and having cam grooves, a shaft journaled in said heads, disks mounted upon the shafts, bars journaled in the disks and having angularly disposed ends which engage the cam grooves and head impaling tines mounted upon the bars.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

FRED JAMES.

Witnesses:

A. E. HITCHCOCK,
INEZ DOANE.