

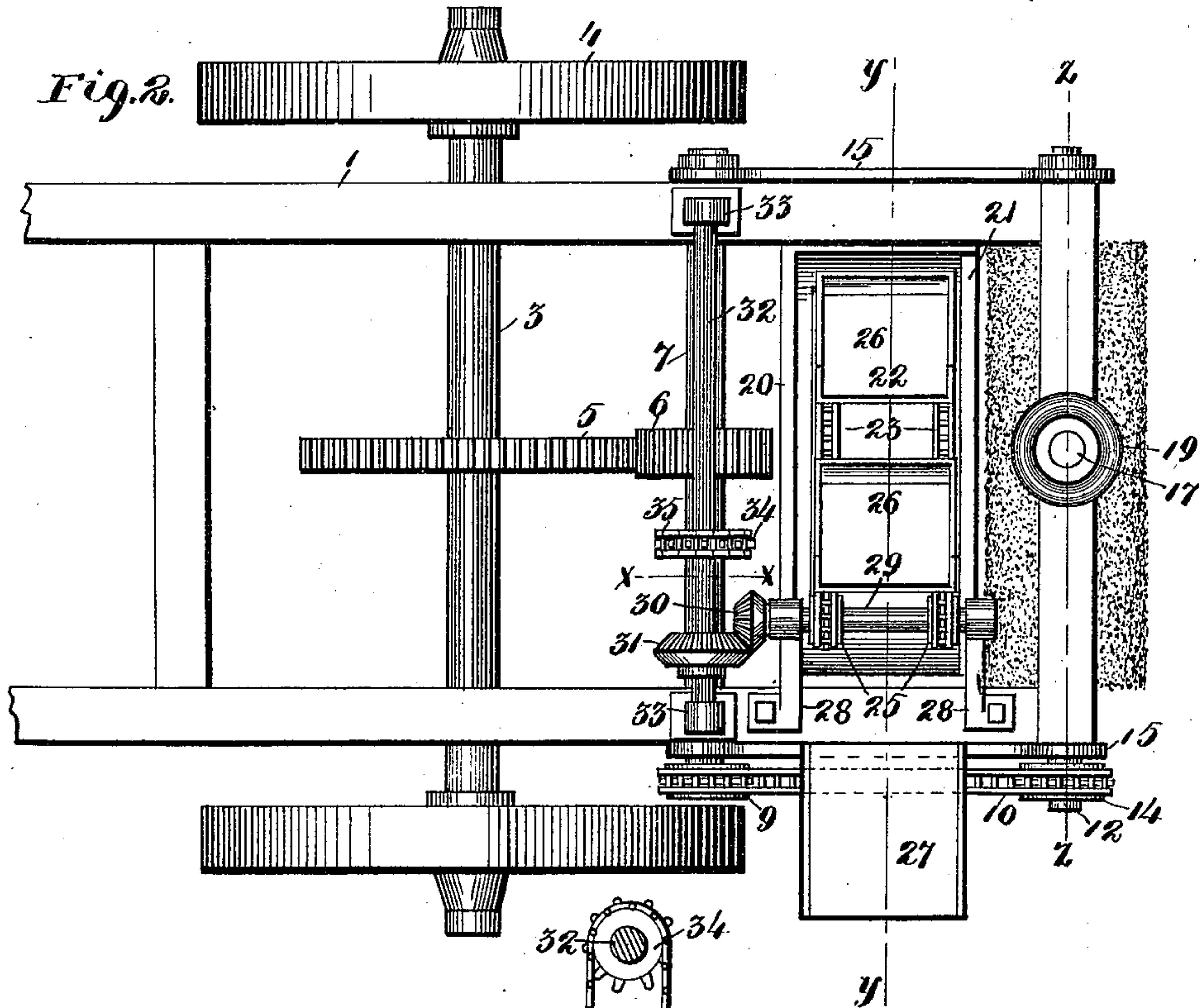
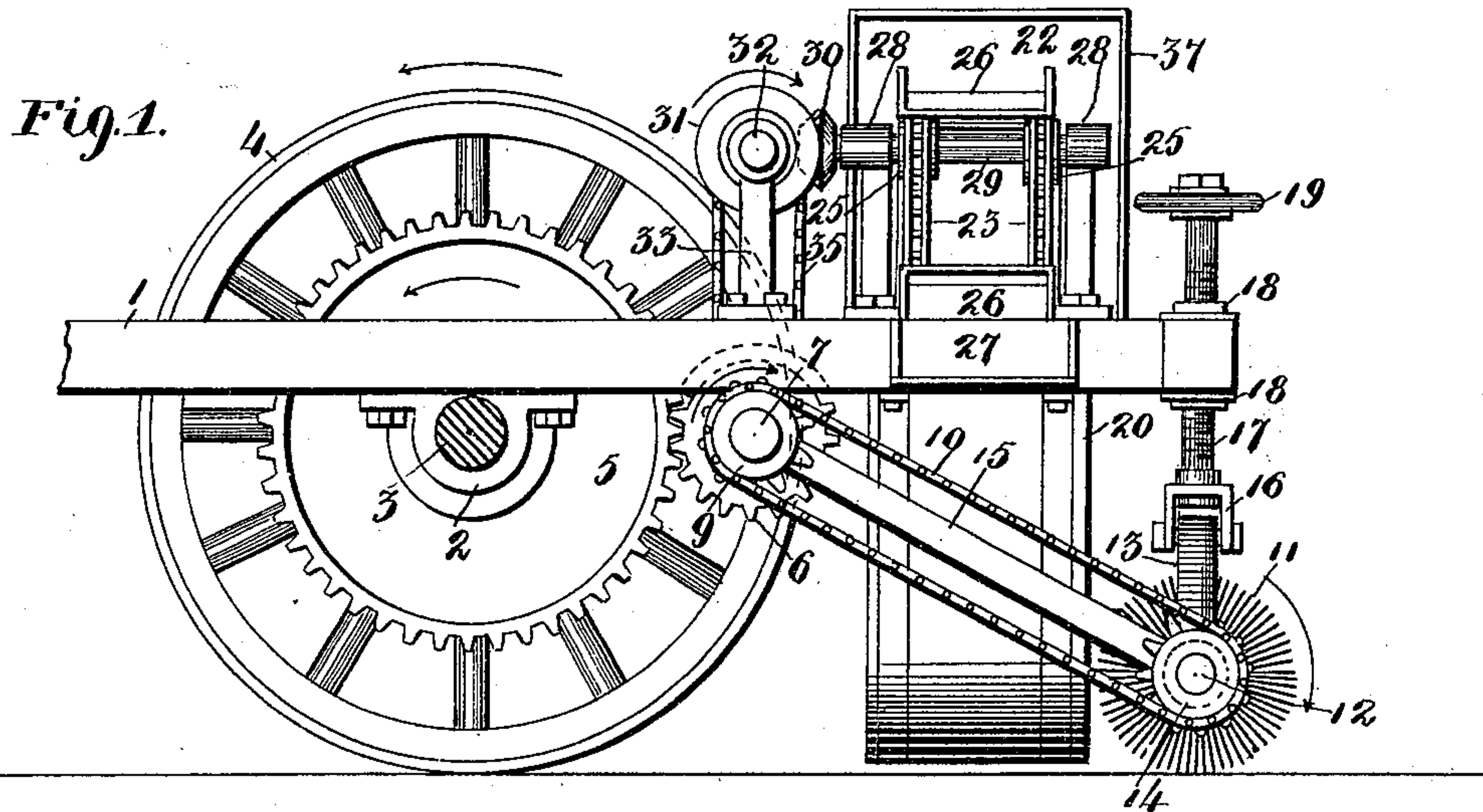
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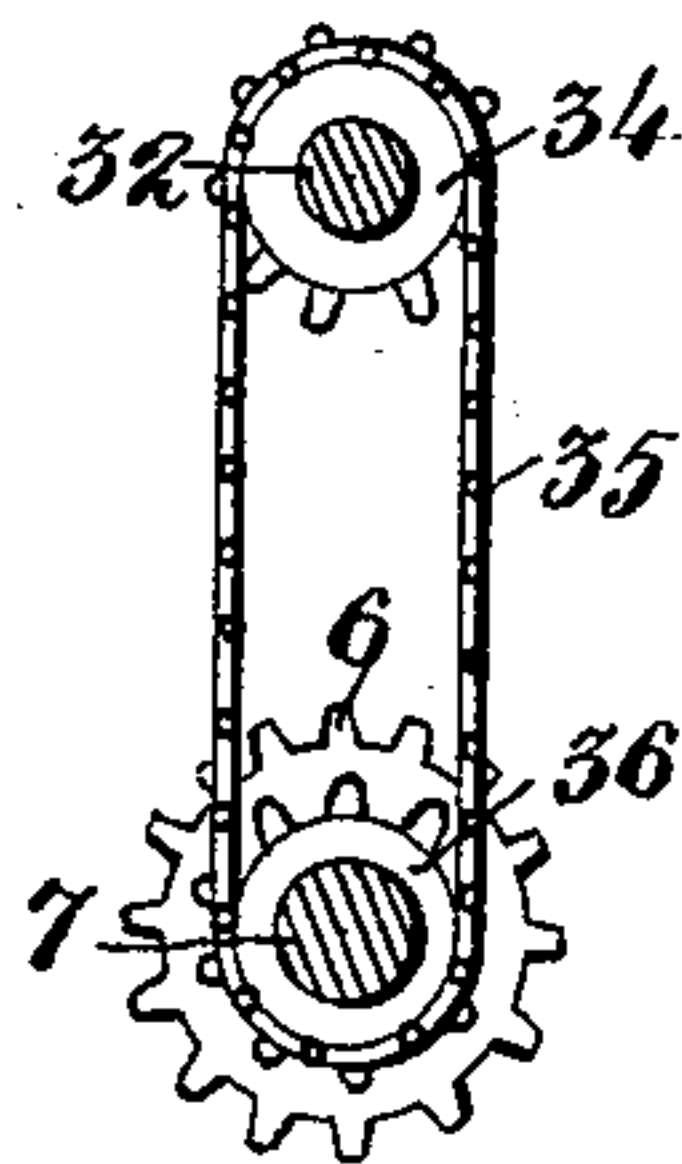
T. W. DOWNS.  
STREET SWEEPER.

No. 506,423.

Patented Oct. 10, 1893.



*Fig. 3.*



Witnesses  
*Edw. Beckmann Jr.*  
*James J. O'Donoghue*

Inventor  
*T. W. Downs,*  
By his Attorneys  
*Keller & Starek*

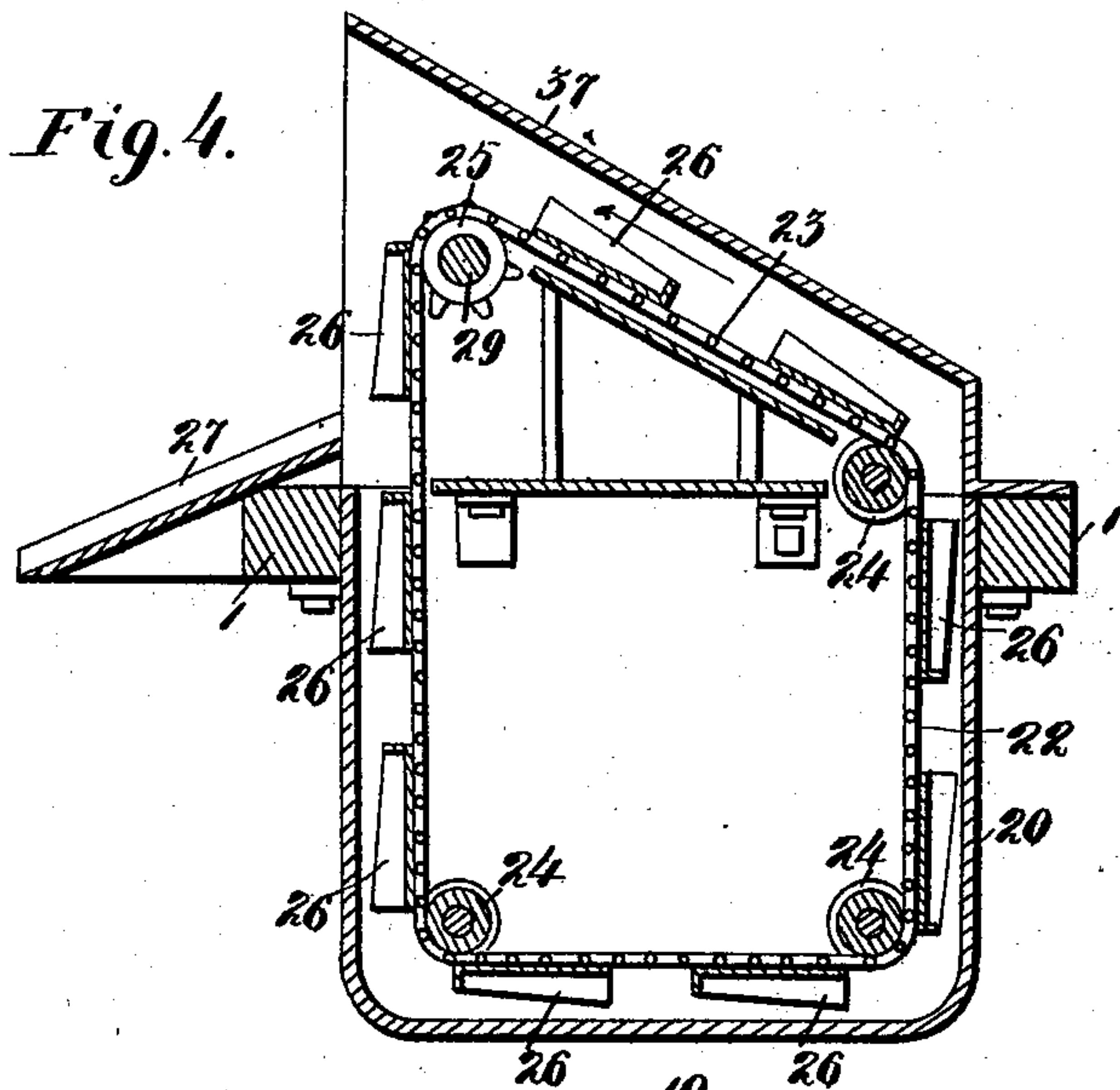
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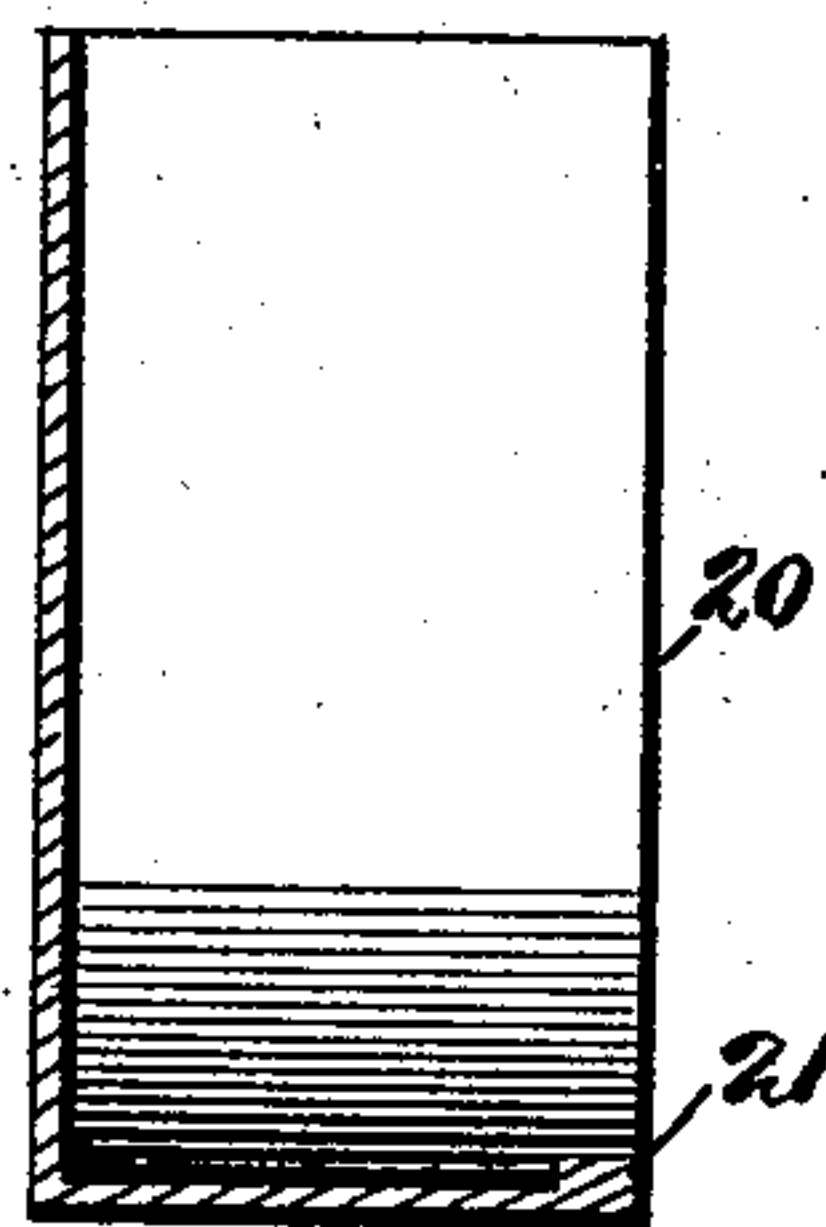
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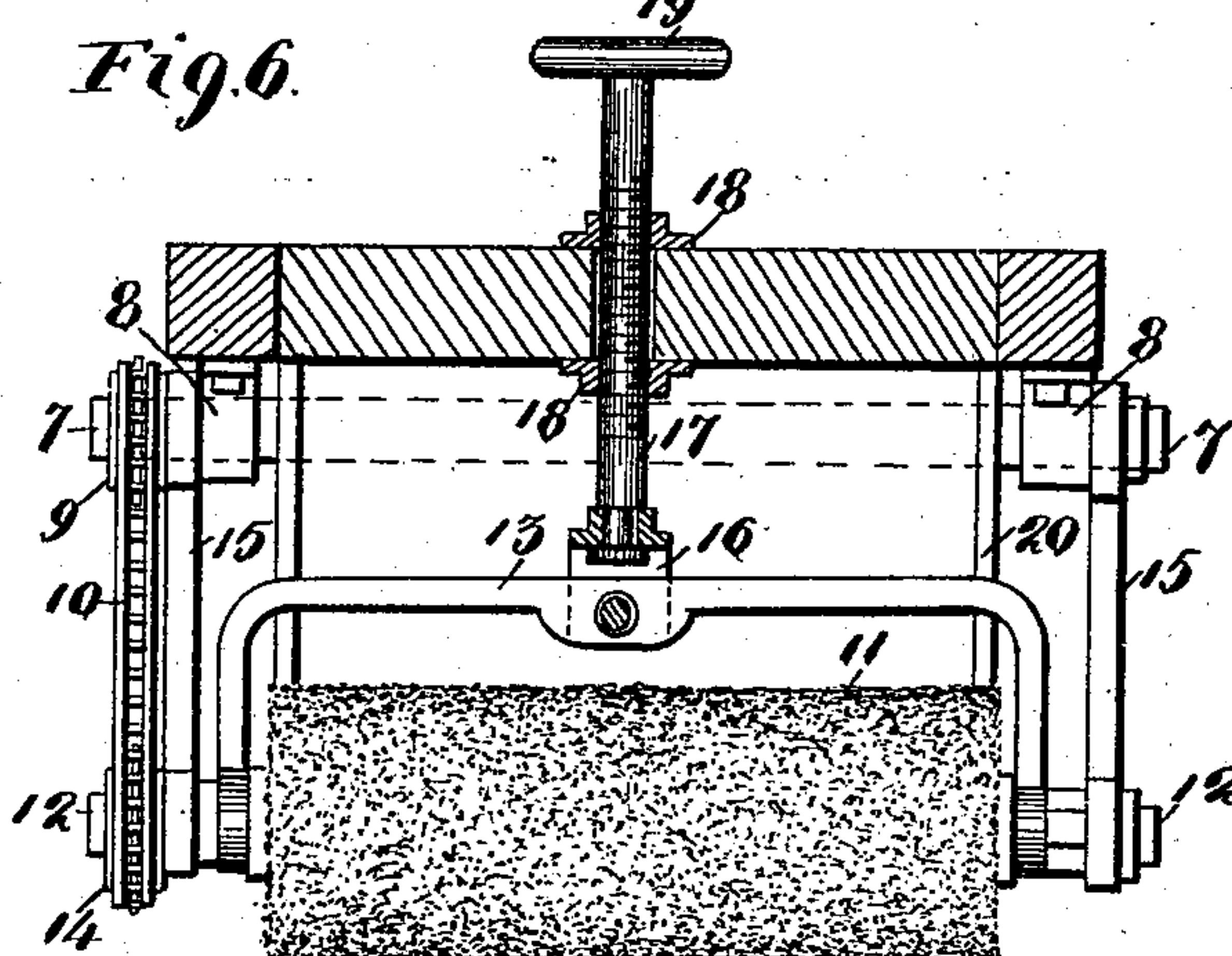
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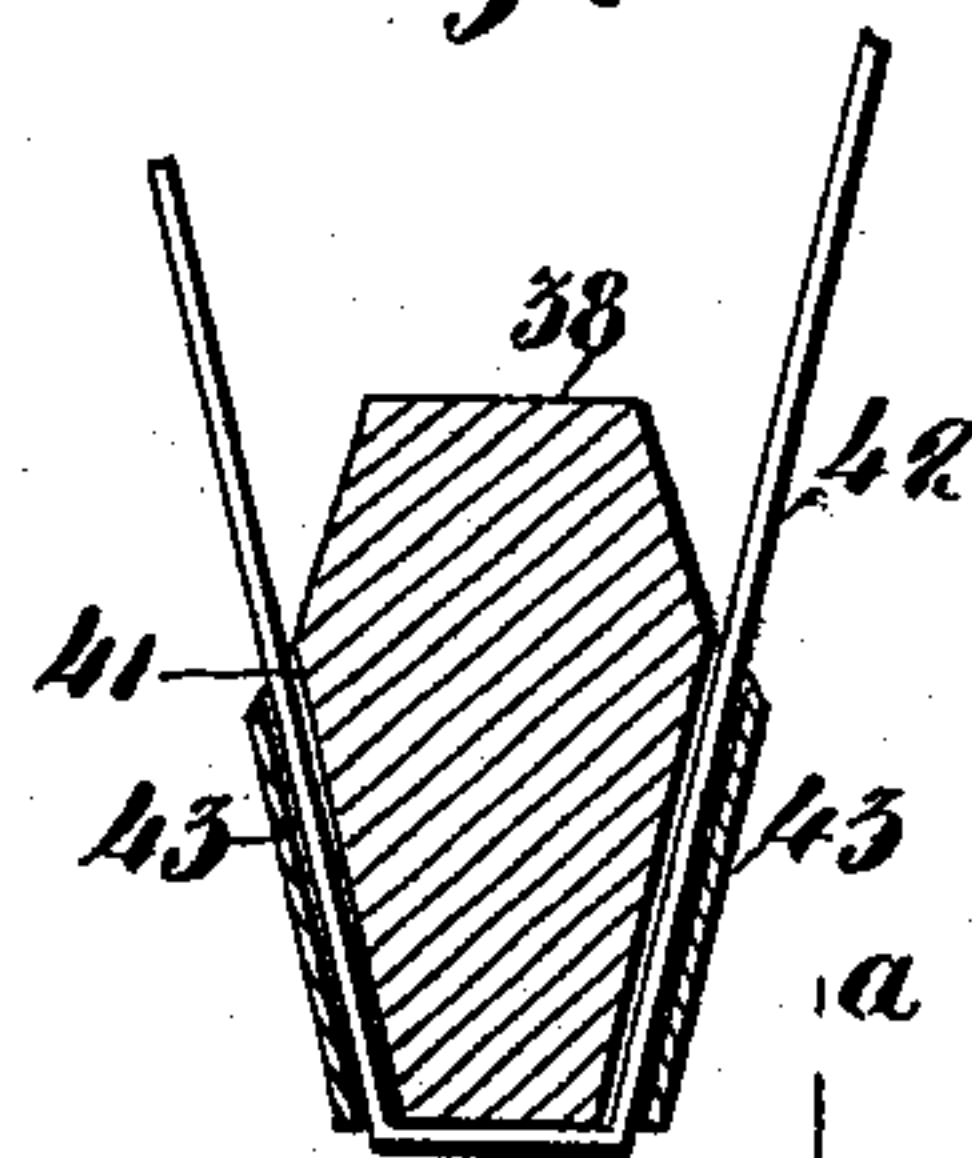
*Fig. 5.*



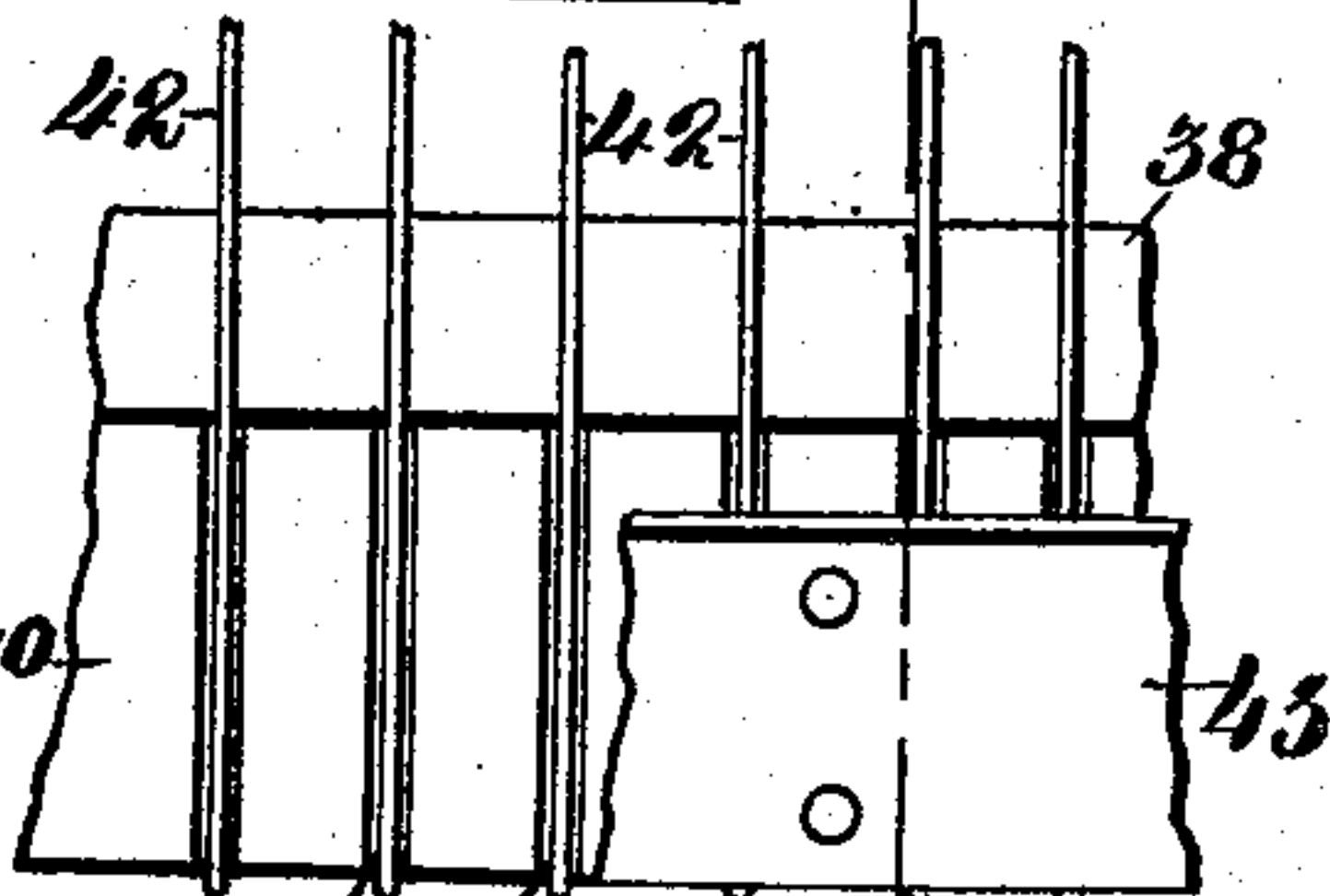
*Fig. 6.*



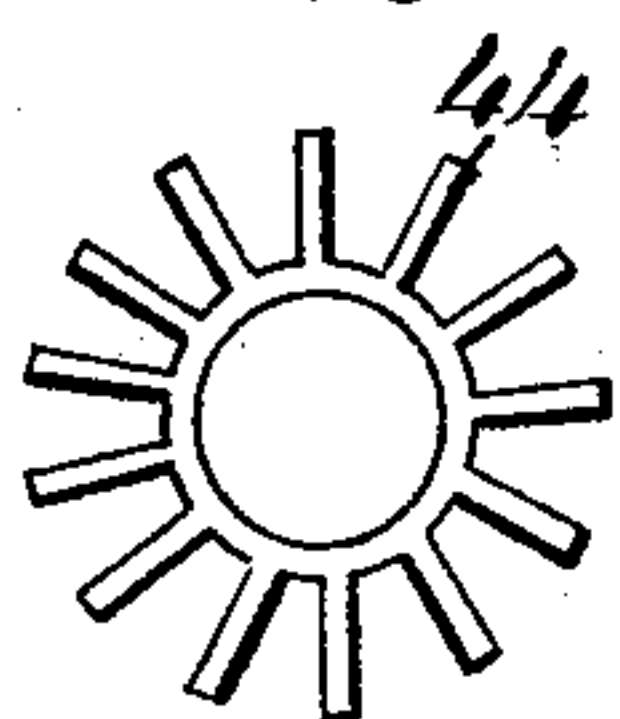
*Fig. 7.*



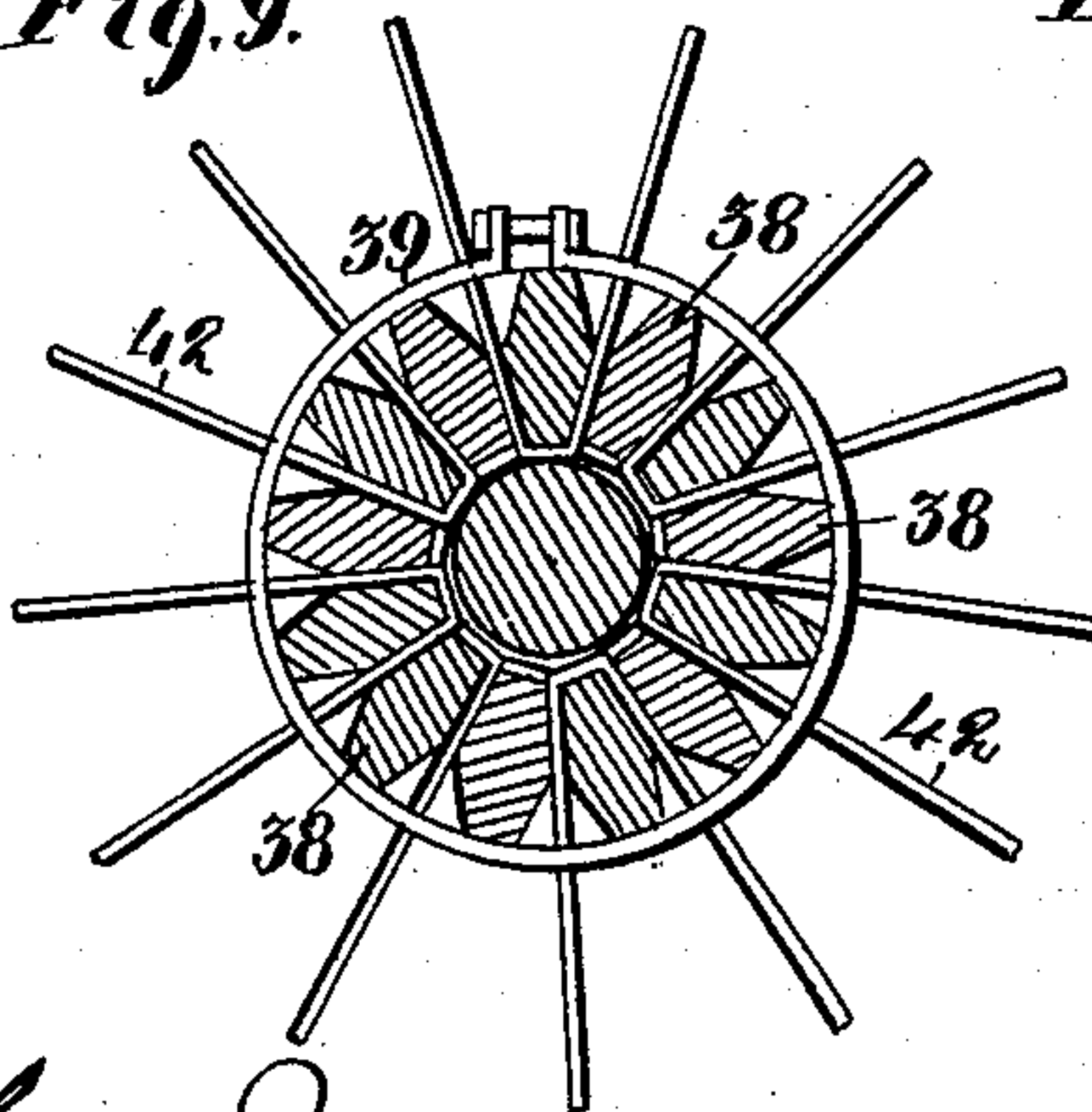
*Fig. 8.*



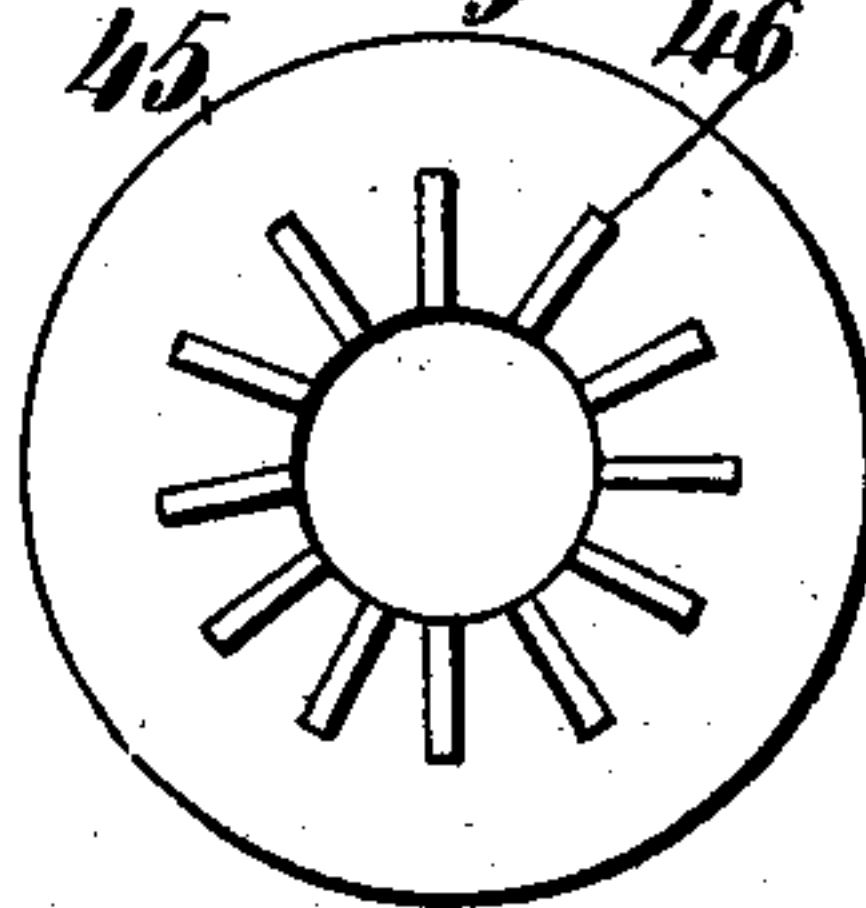
*Fig. 10.*



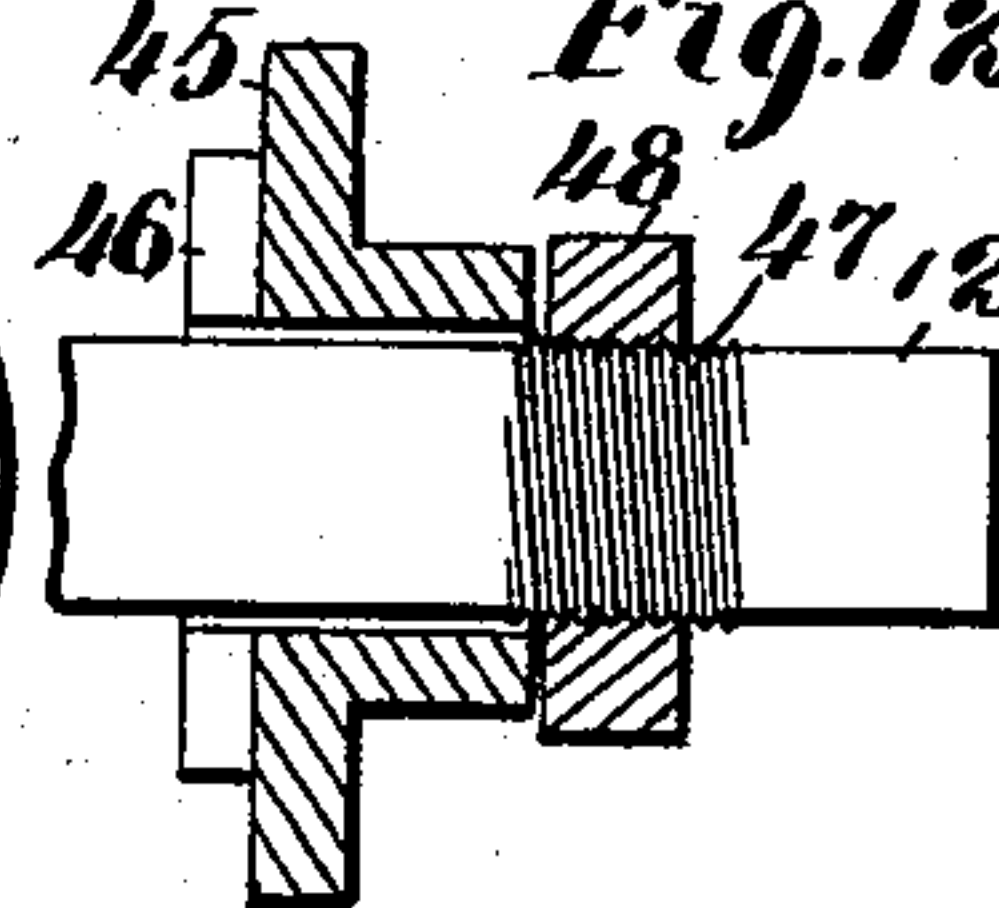
*Fig. 9.*



*Fig. 11.*



*Fig. 12.*



Witnesses  
*Edw. Beckman Jr.*  
*James J. McDonough*

Inventor  
*T. W. Downs,*  
By *his* Attorneys  
*Keller & Starek*



# UNITED STATES PATENT OFFICE.

TAYLOR W. DOWNS, OF ST. LOUIS, MISSOURI.

## STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 506,423, dated October 10, 1893.

Application filed June 5, 1893. Serial No. 476,563. (No model.)

*To all whom it may concern:*

Be it known that I, TAYLOR W. DOWNS, of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Street-Sweeping Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in street sweeping devices and consists in the novel arrangement and combination of parts more particularly set forth in the specification and pointed out in the claim.

In the drawings, Figure 1 is a side elevation of my complete invention with one of the wheels thereof removed. Fig. 2 is a top plan view of the same. Fig. 3 is a transverse section taken on the line  $x-x$  of Fig. 2. Fig. 4 is a transverse section of the machine taken on the line  $y-y$  of Fig. 2. Fig. 5 is a transverse section of the receptacle for receiving the dirt. Fig. 6 is a transverse section taken on the line  $z-z$  of Fig. 2. Fig. 7 is an enlarged transverse section taken on the line  $a-a$  of Fig. 8 showing the construction of the strips forming a part of the brush. Fig. 8 is a side elevation of one of the strips with parts broken away. Fig. 9 is a transverse section of the brush. Fig. 10 is a side elevation of the toothed collar which encircles the shaft for the brush. Fig. 11 is a plan view of the plate which receives the end of the brush and encircles the shaft for the same; and Fig. 12 is that end of the shaft upon which one end of the said plate is attached.

The object of my invention is to construct a sweeping machine which will automatically sweep the dirt into a receptacle for the purpose as the machine is drawn, and further one which will convey the dirt located in the receptacle to a suitable elevation and deposit it into a wagon or cart driven along the side of the machine.

The invention therefore consists of a suitable frame work mounted upon wheels, a receptacle depending from said frame, the bottom of which is adjacent to the ground, a brush also depending from the frame adjustable to and from the ground and located in close proximity to said receptacle, an endless conveyer movable within said receptacle, and suitable gearing for operating the brush and

conveyer simultaneously, the power being imparted to said gearing by the wheels of the machine.

My invention also consists in the construction of the brush the details of which will be hereinafter described.

Referring to the drawings, 1 represents the frame of the machine the forward portion of which is broken away, to which frame the several parts are attached. To the under surface of the frame 1 and at a suitable distance from the rear end thereof, are secured suitable bearings 2 through which a shaft 3 is free to rotate. Fixed to the projecting ends of said shaft are the hind wheels 4 of the machine whereby the said shaft is rotated when the machine is drawn. Keyed to the said shaft is a large gear wheel 5 which meshes with a pinion 6 keyed to a second shaft 7. The said shaft 7 is journaled in bearings 8 fixed to the frame 1 and keyed to one end of said shaft is a sprocket wheel 9 over which a sprocket chain 10 passes for imparting motion to the brush as hereinafter described.

11 represents the brush and 12 the shaft for the same, the ends of which shaft project a suitable distance from the brush and are received loosely by the ends of the U-shaped support 13 which with the adjusting mechanism hereinafter described operates to hold the brush upon the ground.

Fixed to one end of the shaft 12 is a sprocket wheel 14 over which the sprocket chain 10 also passes, and leading from the projecting ends of the shaft 7 and connecting the ends of the shaft 12 are two supporting arms 15 which hold the brush in a rigid position after the same has been properly adjusted. To the center of the U-shaped support 13 is movably attached a forked connection 16, and to the said forked connection is movably attached one end of an adjustable shaft 17 which shaft is screw-threaded and is turned within the plates 18 by the hand wheel 19, whereby the brush may be moved or adjusted to and from the ground, or caused to press upon the same in sweeping.

20 represents a receptacle for receiving the dirt delivered from the brush which receptacle depends from the frame of the machine and the bottom of which is in close proximity to the ground. By referring to Fig. 5 it will



be seen that the bottom of the receptacle adjacent to the entrance of the same is provided with a raised portion 21 which prevents water from passing out of the receptacle if any is swept thereinto.

22 represents the conveyer which consists of two endless sprocket chains 23 passing over idlers 24 and also over two sprocket wheels 25 which latter impart motion to the said chains. To the said chains are attached buckets 26 arranged at suitable distances apart and designed to convey the dirt located within the receptacle 20 to a suitable elevation where it is dumped upon the inclined platform 27.

Attached to the frame 1 of the machine are two bearings 28 which support a shaft 29 to which are fixed the sprocket wheels 25; and keyed to one end of the said shaft 29 is a bevel pinion 30 which meshes with the bevel gear wheel 31 keyed to a transverse shaft 32 which extends entirely across the machine. The ends of the shaft 32 are journaled in bearings 33, and fixed to the said shaft is a sprocket wheel 34 over which a sprocket chain 35 passes for imparting motion to the conveyer. To the shaft 7 is also keyed a sprocket wheel 36 over which the sprocket chain 35 passes, motion being imparted to the said shaft by the pinion 6 and the gear wheel 5.

37 represents a cover for the conveyer which is secured to the frame 1 of the machine and is open adjacent to the platform 27.

The brush which I employ is especially constructed for the purpose and consists of a series of strips 38 all of which are similarly constructed and secured to the shaft 12 by any number of bands 39 which strips secure the wires forming the brush in a manner hereinafter described. The strips 38 are of suitable length, the cross section of which can be better seen from Fig. 7, in the present instance being hexagonal. The opposite sides 40 of said strips are provided with grooves 41 within which the wires 42 are located, the said wires being held in their proper position by metallic strips 43 secured to the flat surfaces or sides 40. By referring to the drawings it will be seen that a single length of wire passed around each of the strips 38 constitutes an element of the brush, the two ends of each wire projecting from the body of the brush and forming the sweeping terminals of each wire. The entire brush is built up in this manner. Secured to the shaft 12 and at a suitable distance from either end thereof is a toothed collar 44 which receives the strips 38 and prevents the said

strips from turning upon the shaft. The construction of this is shown best in Fig. 10.

45 represents a cap plate which encircles the shaft 12 and is provided with a series of radially arranged projections 46, the spaces formed by the same receiving the ends of the strips 38 and operating to additionally support the strips and hold the same in proper relation to one another. One end of the shaft 12 is provided with screw threads 47 upon which a nut 48 is screwed against the plate 45 for holding the same in position against the ends of the strips 38.

When the machine is drawn in the direction as shown by the arrow in Fig. 1 the gear wheel 5 will impart motion to the pinion 6 and in turn rotate the shaft 7, the sprocket wheel 9 attached to one end of the said shaft operating the sprocket chain 10 and sprocket wheel 14 and turning the brush in the direction as shown by the arrow, whereby the dirt will be swept into the receptacle 20. The shafts 7 and 32 are connected by sprocket chain and sprocket wheels and consequently motion is imparted to the gear wheel 31 which turns pinion 30 rotating the shaft 29 and moving the conveyer in the direction as shown by the arrow in Fig. 4, thus conveying the dirt located within the receiver 20 to the inclined platform 27.

Having described my invention, what I claim is—

A street sweeping machine comprising a frame mounted upon wheels, a receptacle depending from and secured to said frame and opening in the rear of the machine, a brush located adjacent to the receptacle, and provided with a shaft, arms attached to the frame the lower ends of which receive the ends of the shaft, a U-shaped support also embracing the ends of said shaft, a fork attached to the center of said support, a screw-threaded shaft movably attached to said fork, plates attached to the frame of the machine through which the said screw passes for adjusting the brush to and from the ground, a conveyer within the receptacle movable transverse to the brush and adapted to deliver the contents of the receptacle from the side of the machine, and suitable gearing for operating the brush and conveyer simultaneously, substantially as set forth.

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

TAYLOR W. DOWNS.

Witnesses:

JOHN L. DUFFY,

JAMES J. O'DONOHUE.