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Patented Sept. 3, 1901.

T. DAWSON.
LEATHER STAKING MACHINE.

(Application filed Jan. 2, 1901.)

(No Model.)

2 Sheets—Sheet 1.

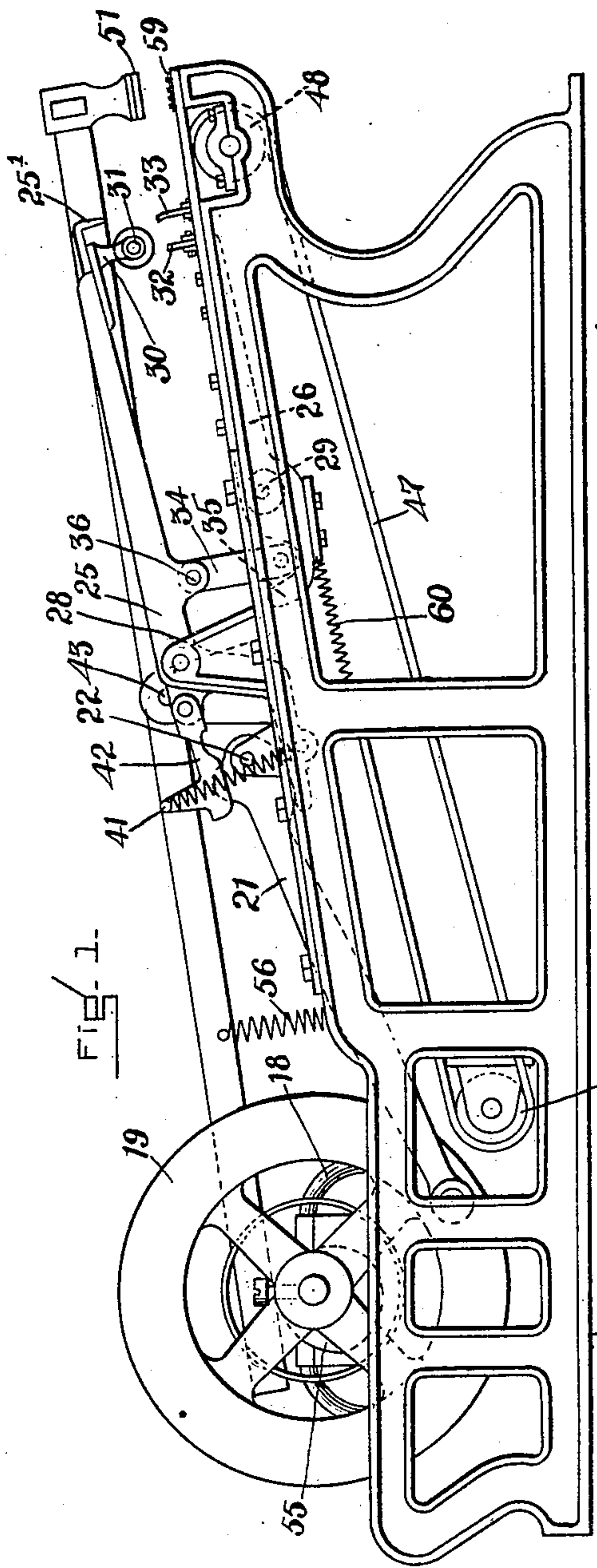


FIG. 1.

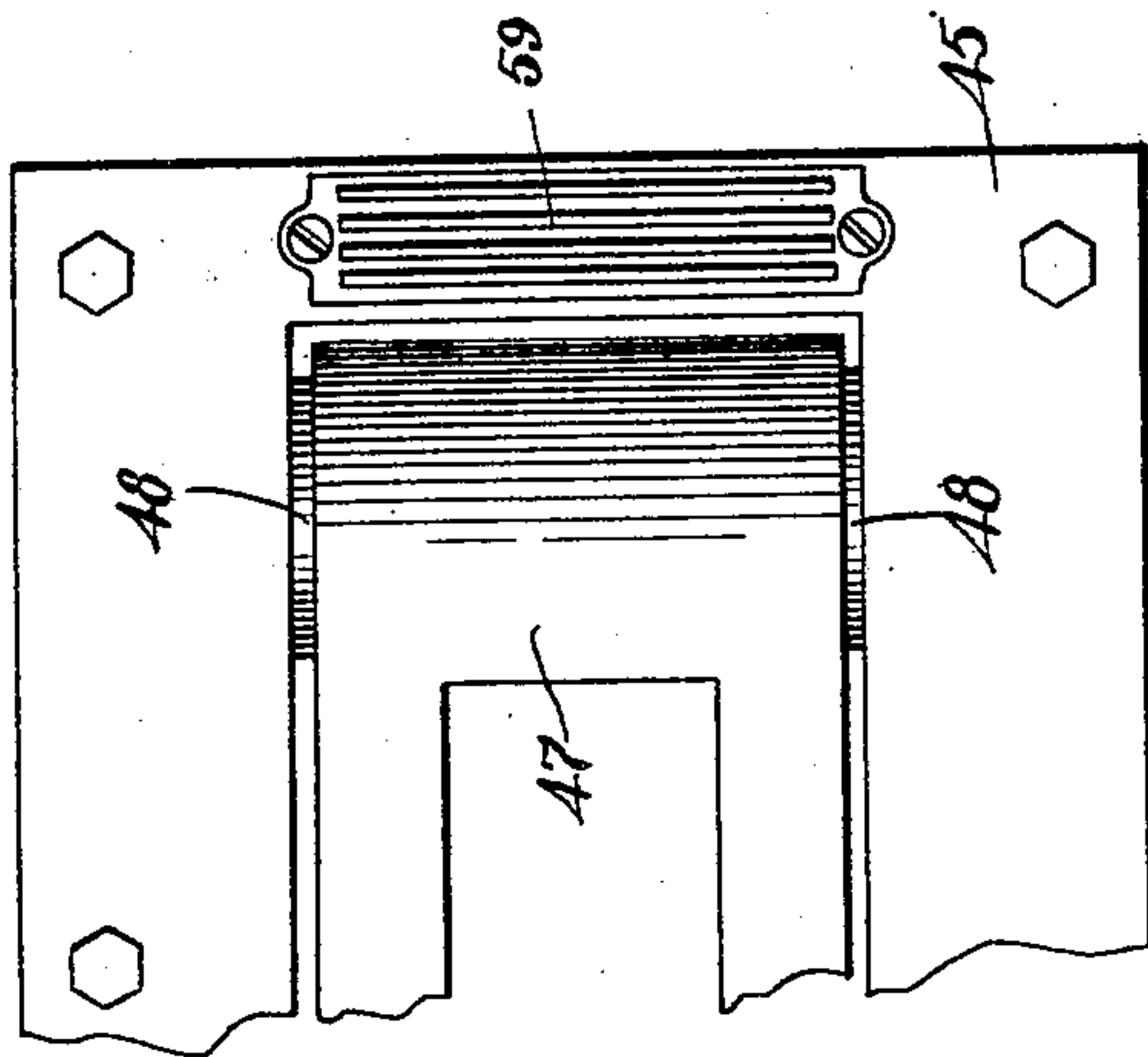


FIG. 5.

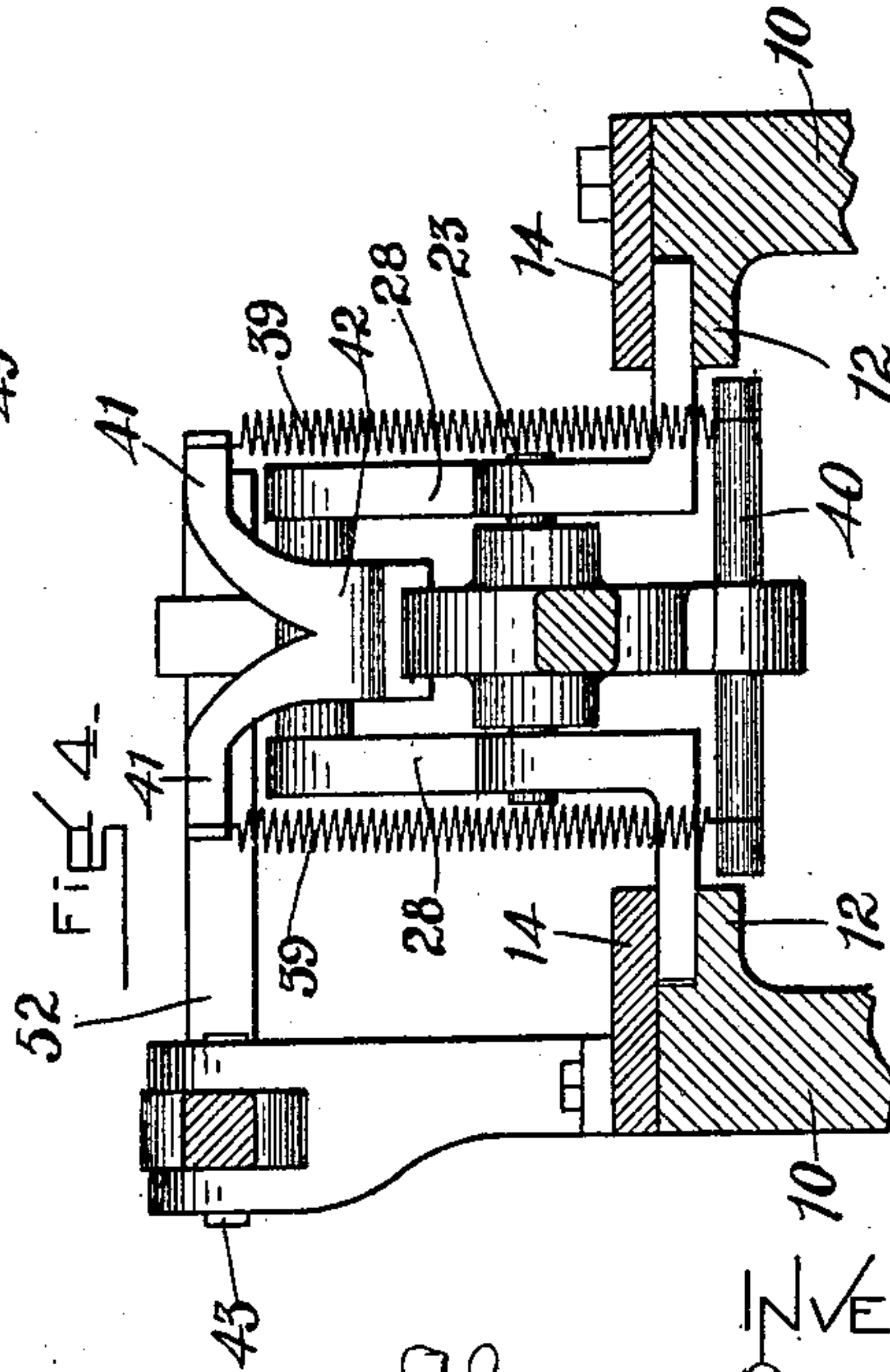


FIG. 4.

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No. 681,909.

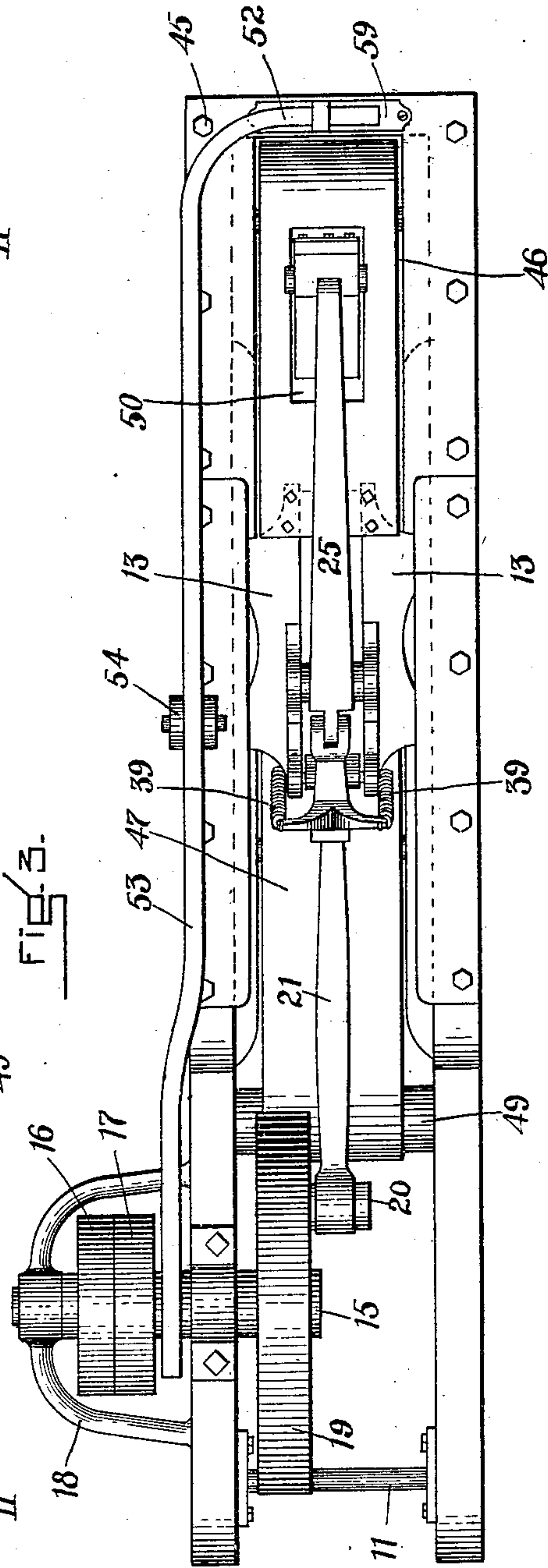
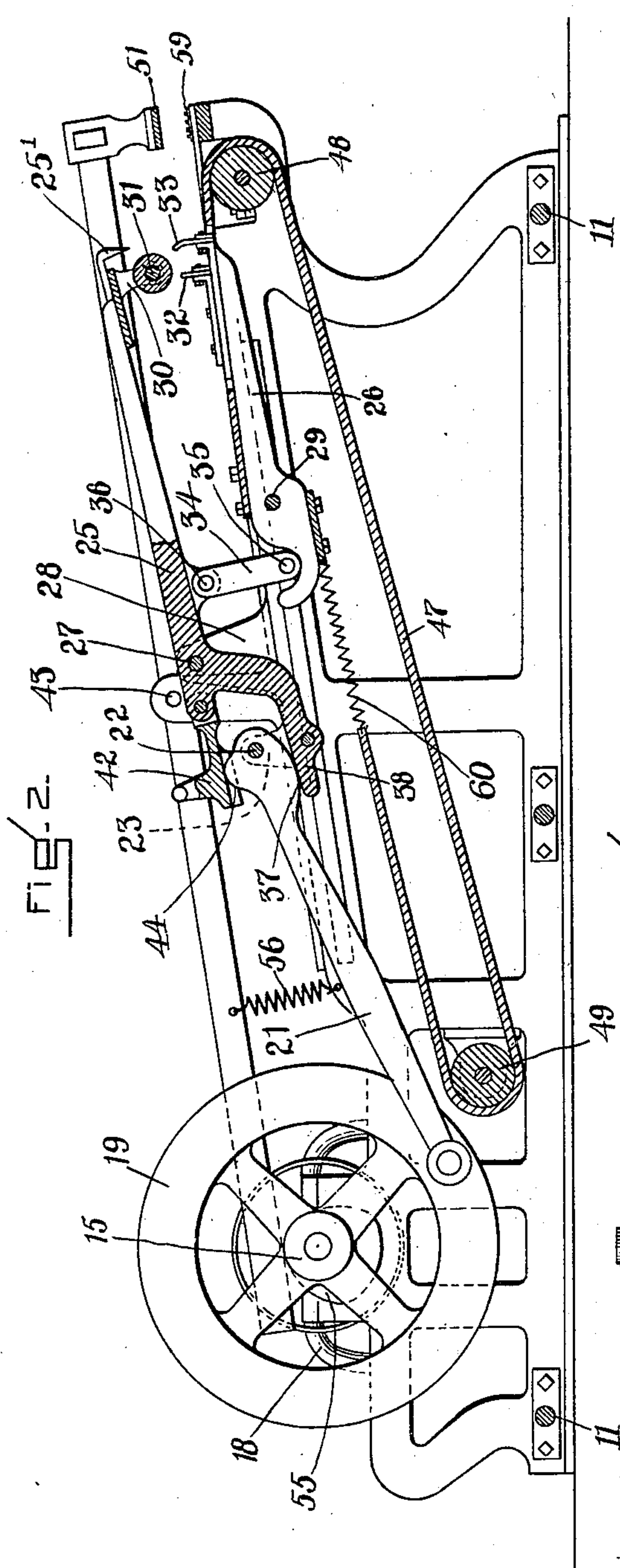
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

THOMAS DAWSON, OF SALEM, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO DENNIS W. MURPHY, OF BEVERLY, MASSACHUSETTS.

LEATHER-STAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 681,909, dated September 3, 1901.

Application filed January 2, 1901. Serial No. 41,883. (No model.)

To all whom it may concern:

Be it known that I, THOMAS DAWSON, of Salem, in the county of Essex and State of Massachusetts, have invented certain new and
5 useful Improvements in Leather-Staking Machines, of which the following is a specification.

This invention has relation to machines for treating or working upon hides, skins, and
10 leather, and it has more particular relation to that class of machines which are employed for softening the materials mentioned. Such machines usually comprise two cooperating
15 members, one of which carries a roll and the other of which carries one or more staking or softening knives or blades, the members being arranged and operated whereby when the hide or skin is placed between the roll and the blades and the members are reciprocated said
20 members are alternately opened and closed, being opened during their forward movement and closed during their rearward movement, so that the knives and rolls serve to engage and soften the leather as they are moved rear-
25 ward.

One object of the present invention is to provide a leather-staking machine with improved means for providing a constant support to the skin or hide undergoing treatment,
30 this being a feature that has hitherto usually been lacking in such machines wherein the members travel back and forth through an open passage-way or slot in the machine.

Another object of the invention is to improve the mechanism for operating the members, and to thereby increase the working efficiency of the machine, it being desirable that the knives and roll should be engaged with the opposite faces of the skin or hide
40 under great, but yielding, pressure.

Still another object of the invention is to provide an improved mechanism for clamping or locking the end of the hide against movement during the drawing action of the
45 coacting members, said clamping devices being so constructed and arranged as to intermittently release the hide or skin, whereby it may be shifted laterally to permit the members to engage a fresh portion thereof.

50 Upon the drawings, to which reference may

now be had, I have illustrated one embodiment of my invention.

Figure 1 represents a machine in side elevation. Fig. 2 represents a longitudinal section of the same. Fig. 3 represents a plan
55 view of the machine. Fig. 4 represents a section on the line 4 4 of Fig. 2 looking in the direction of the arrow. Fig. 5 represents a plan view of the end portion of the frame of
60 the machine.

The machine is provided with the usual main frame, which consists of side standards 10 10, connected by tie-rods 11. The side standards are elongated and their top surfaces are at a slight inclination, as shown,
65 although this is not essential to the operation of the machine. Each of the standards is provided with an inwardly-extending web 12 to receive a slide or carriage consisting of the two plates 13 13. The edges of the plates rest
70 upon the webs or guides 12, upon which they are adapted to slide, being held in place by gibs 14, as shown. In the rear there is journaled a shaft 15, equipped with the usual belt-pulleys 16 17, one of which is fast upon
75 the shaft and the other of which is loose. The shaft is mounted in journals afforded by the side standards and by a bracket 18, secured to said standards, and the pulleys thereon receive power from a belt in the usual way.
80 On the end of the shaft there is attached a heavy momentum-wheel 19, which is located between the side standards, as shown in Fig. 3, said wheel being provided with a crank-pin 20. This pin is connected to the slide
85 or carriage by a pitman 21, the latter being connected by a pintle 22 with ears or lugs 23 on the plates 13. The rotation of the crank-pin causes the reciprocation of the carriage in the main frame. Upon this carriage are
90 mounted two coacting members, which are open during the forward movement of the carriage and which are closed during the rearward movement, said members, however, being yieldingly mounted, so as not to injure
95 the hide or skin which is placed between them. The two members are indicated at 25 and 26, respectively. Each of the two members is in the form of a lever, that at 25 being fulcrumed by a pintle 27 in the upwardly-
100

projecting ears 28 of the carriage and that at 26 being fulcrumed by the pintle 29 in the carriage, as shown in Fig. 2. The forward extremity of the member 25 is provided with downwardly-projecting ears or lugs 30, in which is journaled a roll 31, the corresponding extremity of the member 26 being provided with the blades 32 33, adapted to lie on either side of the roll 31, so that when the members are brought together at their outer end the hide or skin will be depressed between the edges of the blade by the roll. The member 25 likewise carries a polishing-blade 25'. To the shorter rear end of the member 26 there is pivoted a link 34, which is in turn pivoted to a lug projecting downwardly from the front or longer end of the member 25, the pintles 35 36 being located at substantially an equal distance from the pintles 29 and 27, respectively. According to this construction when the longer end of the member 25 is depressed it depresses the shorter end of the lever 26 and correspondingly forces the longer end thereof upward. The pitman 21 not only performs the function of reciprocating the carriage and the members thereon, but also serves to actuate said members. It will be observed that the member 25 is bent downward from the pintle 27 and then rearward, so that its end 38 projects well under the end of the pitman. The under side of the pitman is formed as a cam 37, which as the pitman oscillates about the pin 22 serves to oscillate the member 25, and thereby the member 26. The shape of the cam is such as to raise the front end of the member 26 when the carriage reaches its limit of rearward movement and to depress the same when the carriage reaches the extreme of its forward movement. The cam is shown conventionally; but I do not limit myself to the exact shape which has been illustrated. The cam positively actuates the members to open them, the closing movement of the members being effected by spring-pressure, which pressure is augmented or increased automatically. Very powerful springs are employed for this purpose, and they are indicated at 39. The lower ends of the spring are attached to a pin 40, passed transversely through the end 38 of the member 25, the upper ends of the spring being attached to lugs or projections 41 41, extending laterally from a lever 42, pivoted by a pintle 43 on the member 25 in the rear of the pintle 27. The springs serve to hold the end 38 of the member 25 yieldingly against the cam 37. In order to increase the pressure of the spring when the staking members are together, the pitman 21 is formed with another cam 44, which engages the under side of the lever 42 and which raises said lever during the rearward movement of the carriage and permits it to be depressed during the forward movement of the same. From this description it will be observed that the roll 31 and the blades 32 33 engage the skin with great though yielding

pressure. The skin or hide is placed upon the machine and rests upon a table 45, secured upon the side standards, and in order to fill the space afforded by the slot 46 in said table and also the space between the side standards of the frame I employ a traveling flexible support 47. This may be in the form of a leather belt which is passed around loose pulleys 48 49, journaled in bearings properly located upon the side standards. One end of the traveling support is connected yieldingly by springs 60 with the shorter end of the member 26, said springs thus constituting an elastic section of the support, while the other end is connected with the longer end of the said member, as indicated at 61. In any event the fastenings screws or bolts are located as near as possible to the pintle 29, so that vibrations of the member 26 will not vary the tension of the traveling support to an appreciable extent. As shown in Figs. 2 and 3, the traveling support is provided with an aperture 50, through which the blades 32 33 may project into engagement with the hide or skin. During the entire movement of the carriage the traveling belt affords a support for the skin or hide and prevents it from sagging or dropping. To assist the operator in clamping the work firmly during the rearward movement of the carriage and the operating members, I employ a jaw 51, which may or may not be corrugated on its under surface, as desired. This jaw is placed upon the laterally-curved end 52 of a lever 53, fulcrumed in a bracket 54, projecting upwardly from one of the side standards at a point substantially midway of the machine. The rear end of the lever rests upon a cam 55, which is so formed as to depress the jaw 51 while the carriage is moving rearwardly and permit it to move upward when the carriage is moving forward. The upward movement of the jaw is effected by a spring 56, attached to the lever and to the side standards, respectively. To cooperate with the jaw 51 there is a stationary plate 59, which is secured upon the plate 45.

A machine constructed in accordance with the foregoing description is simple in construction and highly efficient in operation.

The arm 42 and the cam 44 perform an important function in that they increase the power of the springs when the members are closed and tend to reduce the power necessary to open or separate said members, so that although the springs may be very strong and powerful but little power may be required to operate the machine. Again, the formation of the cam upon the pitman provides a simple construction of the member-actuating mechanism. Thus the pitman not only reciprocates said members, but likewise actuates them.

Having thus explained the nature of the invention and described a way of constructing and using the same, although without attempting to set forth all of the forms in

which it may be made or all of the modes of its use, I declare that what I claim is—

1. A leather-staking machine having an operative member, mechanism including a spring for yieldingly operating said member and means for automatically and intermittently increasing the pressure of said spring when said member is in operative position for staking.
2. A leather-staking machine having an operative member, means for positively moving said member in one direction, means for yieldingly moving the said member in the opposite direction, and automatic mechanism for intermittently varying the power of the said yielding means when said member is in operative position for staking.
3. A leather-staking machine having coacting members, means for positively separating said members, means for yieldingly closing said members, and automatic mechanism for intermittently increasing the power of the said closing means when said members are together.
4. A leather-staking machine having movable coacting members, connected together whereby one imparts movement to the other, a revoluble crank, a pitman connecting said crank with said members to reciprocate them, said pitman having a cam to actuate one member and through it actuate the other member.
5. A leather-staking machine having movable coacting members, connected together whereby one imparts movement to the other, a carriage to which said members are pivotally connected, an operatively-driven pitman pivotally connected to said carriage, and having a cam bearing against one of said members to actuate it and through it actuate the other member.
6. A leather-staking machine having movable coacting members, a reciprocatory carriage to which said members are both pivoted, intermediate of their ends, an operative connection between the front portion of one member and the rear portion of the other member, and means for oscillating one of said members whereby the other is oscillated thereby in the opposite direction.
7. A leather-staking machine having movable coacting members, a carriage to which said members are both pivoted intermediate of their ends, a connection between the front portion of one member and the rear portion of the other member, and an operatively-

driven pitman pivotally connected to the carriage and having a cam portion to act upon one of said members.

8. A leather-staking machine having movable coacting connected members, one of said members being pivoted between its ends, a carriage on which said members are operatively supported, a wheel having a crank-pin, a pitman connecting the crank-pin with the carriage, and a cam on said pitman which engages the rear end of the pivoted member.

9. A leather-staking machine comprising a staking member, an actuator bearing against said member to operate it, an arm pivoted to said member, and one or more springs connecting the arm and the member to hold the member against the actuator.

10. A leather-staking machine comprising a staking member, an actuator bearing against said member to operate it, a spring for holding said member against said actuator, and means operated by said actuator for controlling the tension of said spring.

11. A leather-staking machine comprising a staking member, an actuator for actuating it, an arm pivotally connected to said member and lying on the opposite side of said actuator, a spring or springs connecting the arm and the member, and a cam on said actuator for moving said arm.

12. A leather-staking machine comprising vibratory and reciprocatory staking members and a flexible support for the work directly connected with one of said members and adapted to reciprocate with said members and having a flexible yielding section to prevent the support from interfering with the vibrations of the staking members.

13. A leather-staking machine comprising vibratory and reciprocatory staking members, a flexible support fixed at one end to one of said members, loose pulleys, the said support extending around said pulleys and connected at its other end by a yielding tension device to the same member, the said tension device enabling the member to which it is attached to vibrate without interference by the said flexible support.

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

THOMAS ^{his} X DAWSON.
mark

Witnesses:

EDWARD S. WEBBER,
WILLIAM L. WARD.