

No. 638,852.

Patented Dec. 12, 1899.

W. C. SCHAEFER.
BASKET MAKING MACHINE.

(Application filed Aug. 1, 1899.)

(No Model.)

3 Sheets—Sheet 1.

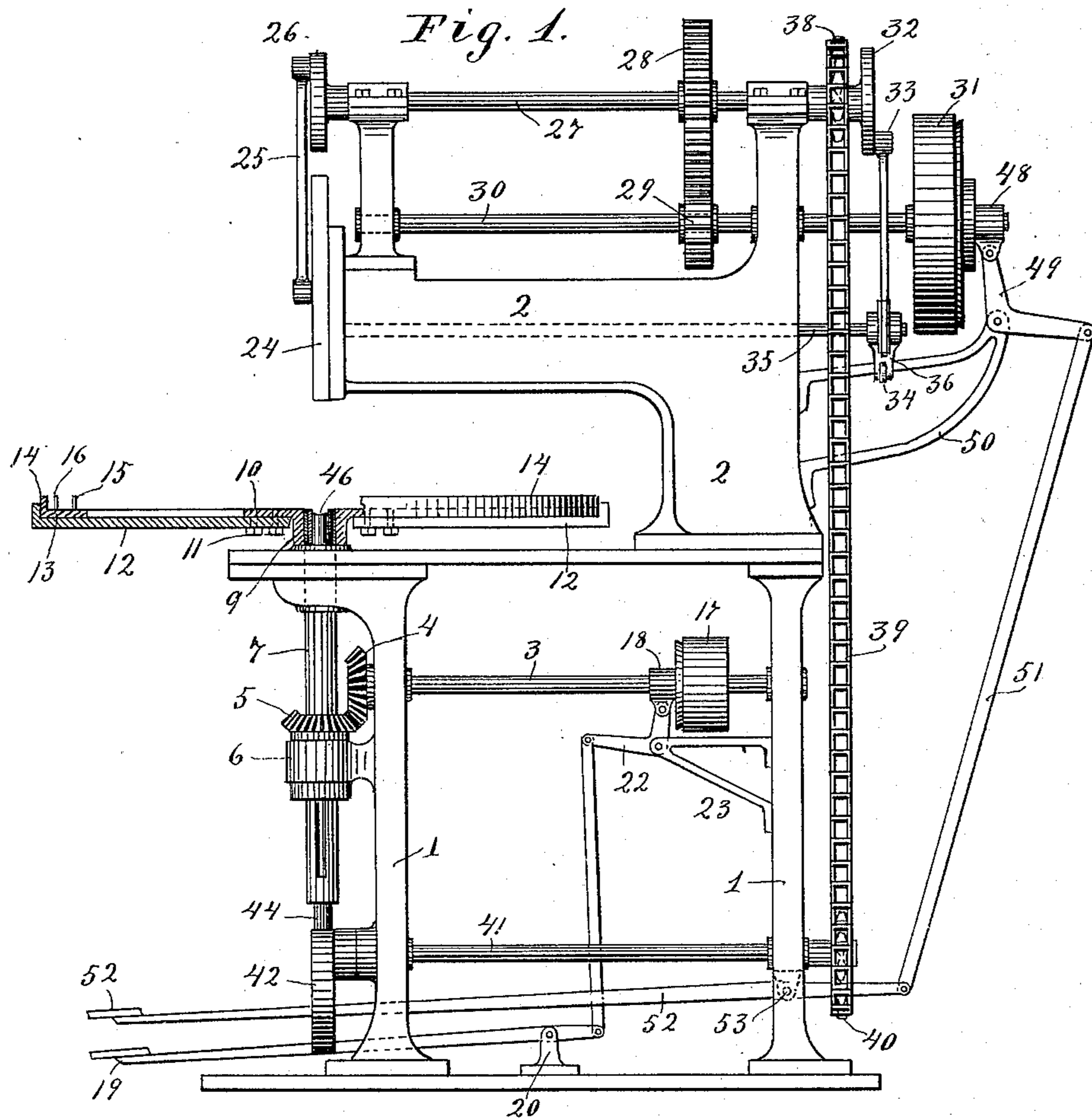
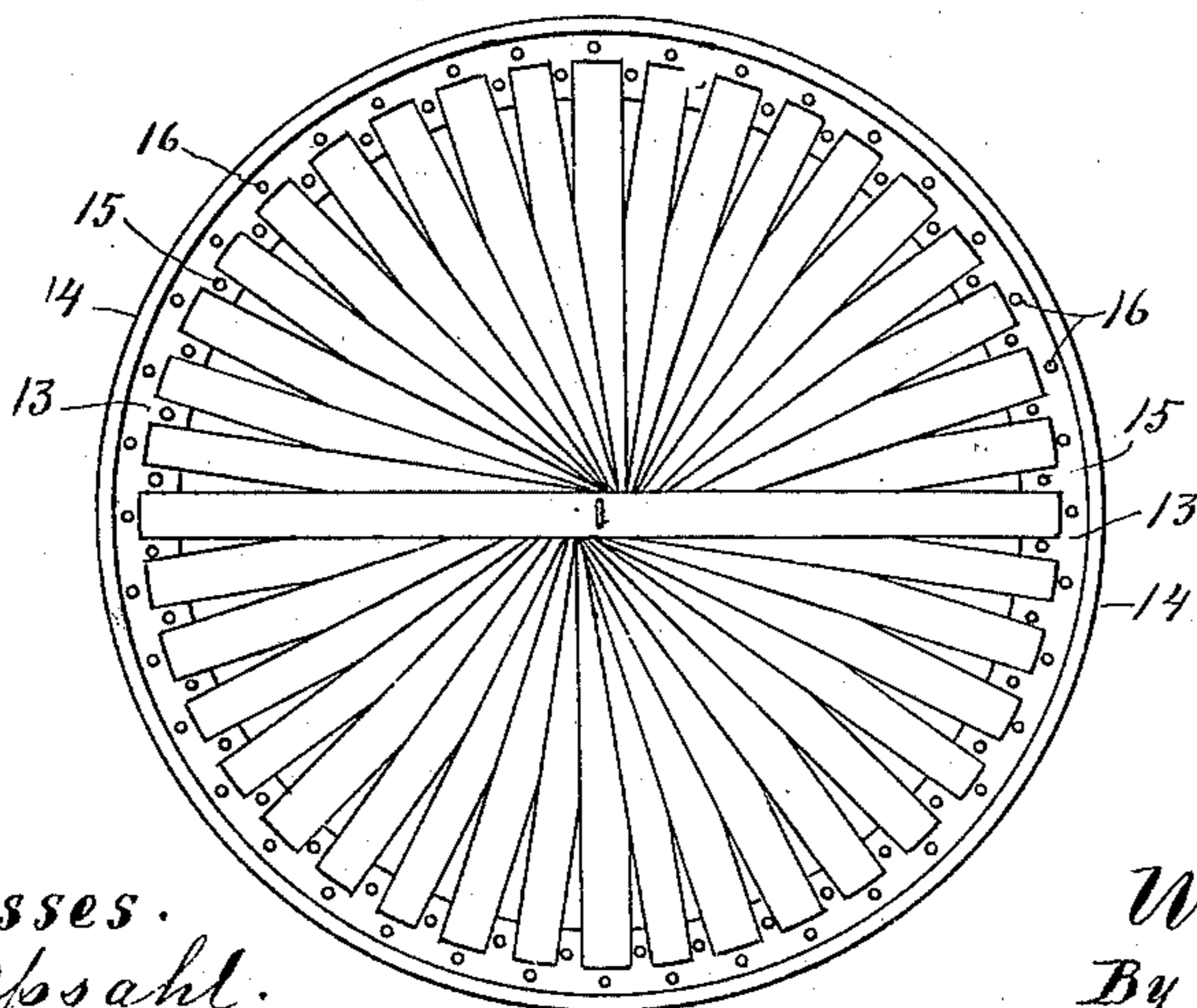


Fig. 4.



Witnesses.
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Fig. 2.

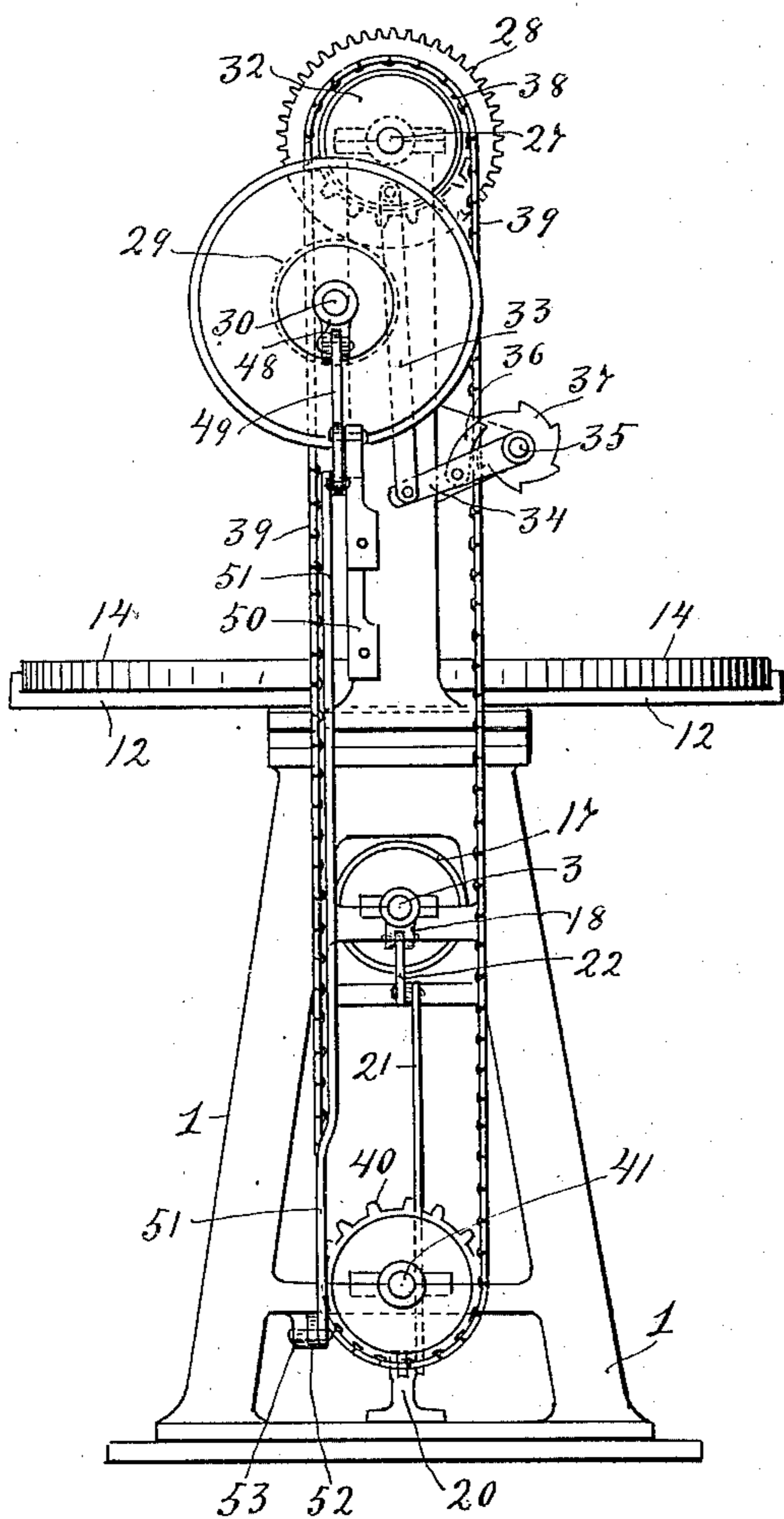


Fig. 6.

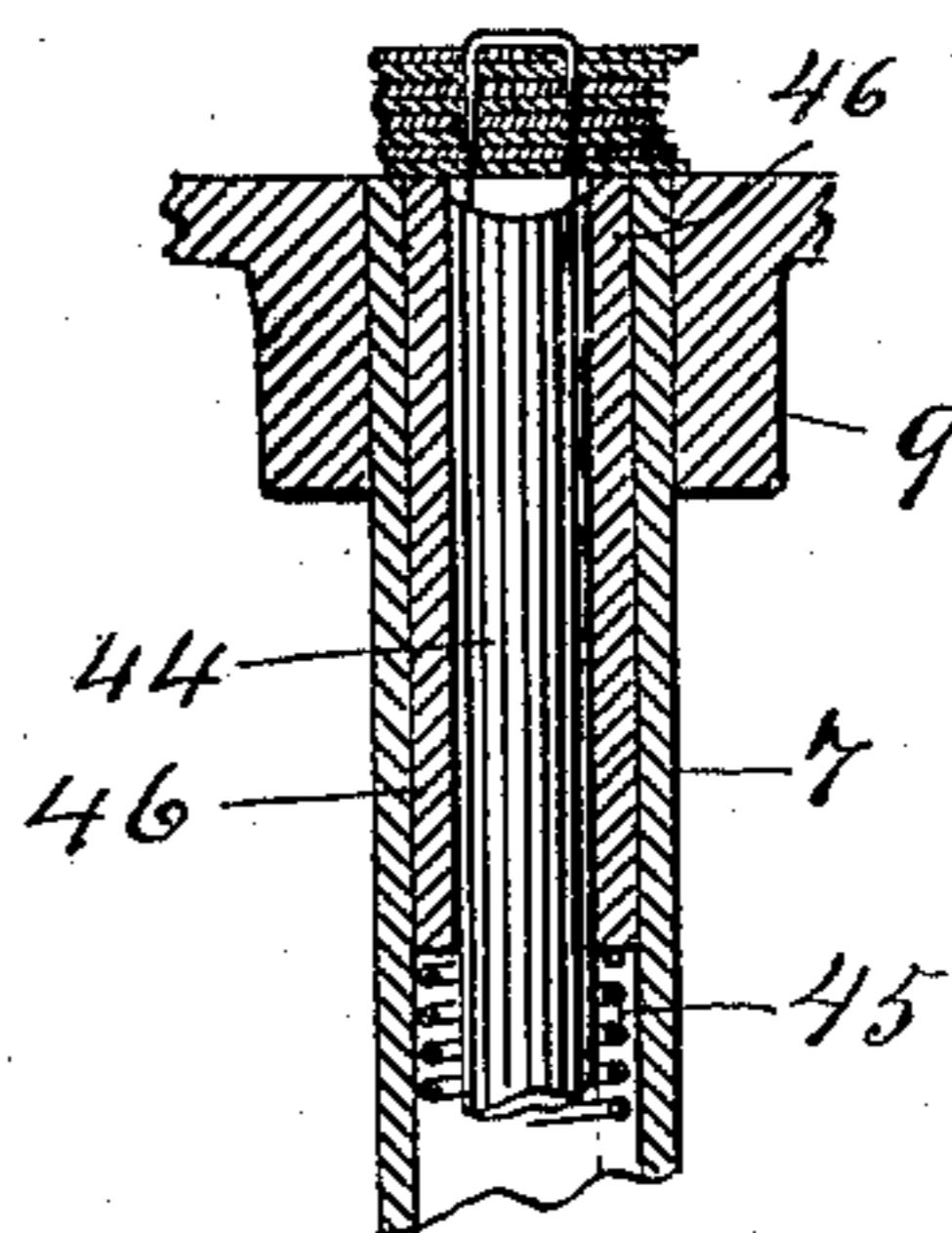
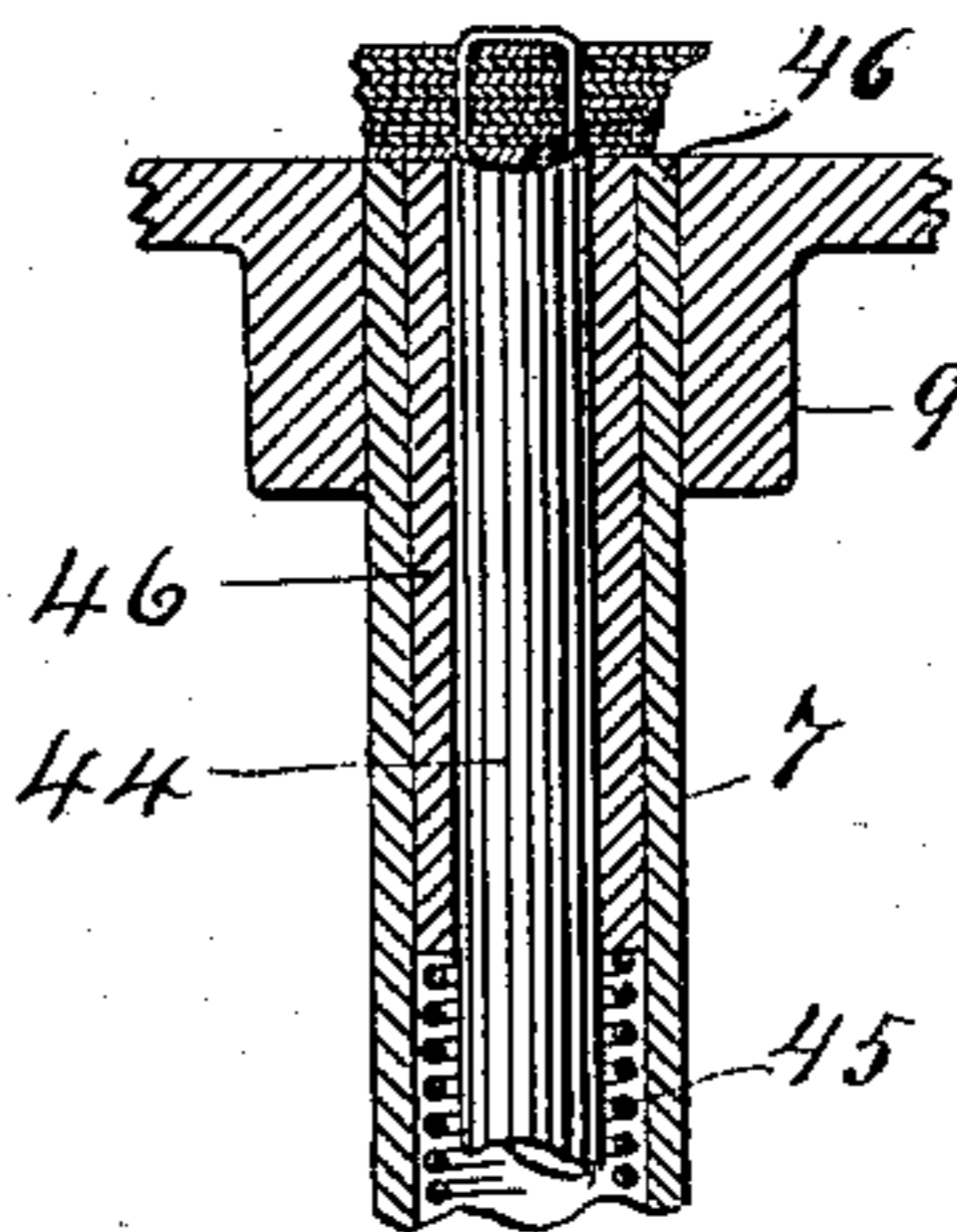


Fig. 7.



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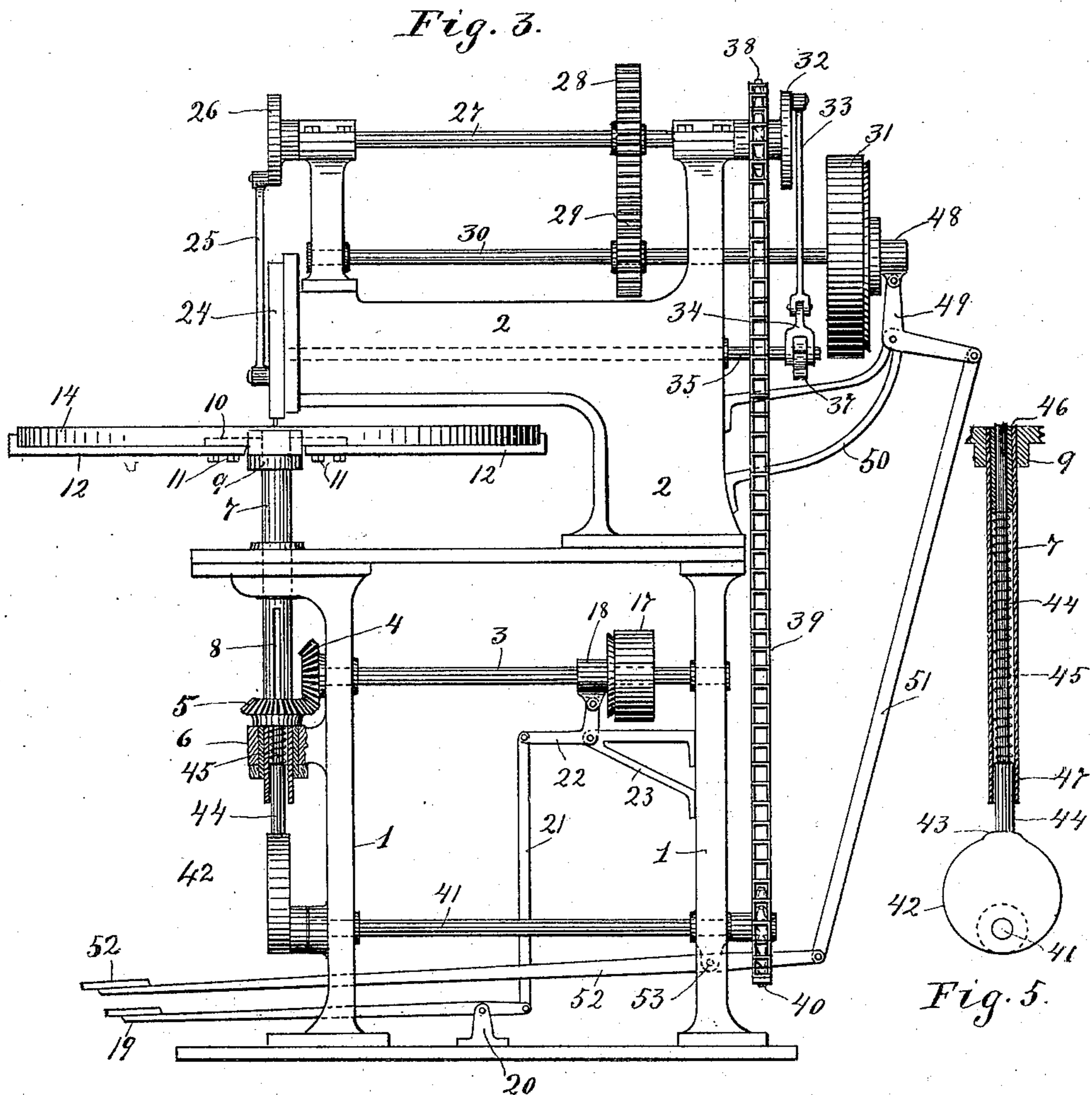
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

WILLIAM C. SCHAEFER, OF MENOMONIE, WISCONSIN, ASSIGNOR TO THE
COFFIN'S BOX AND LUMBER COMPANY, OF MINNESOTA.

BASKET-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 638,852, dated December 12, 1899.

Application filed August 1, 1899. Serial No. 725,760. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. SCHAEFER, a citizen of the United States, residing at Menomonie, in the county of Dunn and State of Wisconsin, have invented a certain new and useful Improvement in Basket-Making Machines, of which the following is a specification.

My invention relates to machines for making baskets, and particularly to the making of baskets formed of staves or splints; and the object of my invention is chiefly to improve the means for assembling the staves and securing them in proper radial positions preparatory to bending them to the ultimate form of the basket and fastening them together by a staple while so held; and the improvements, generally stated, comprise devices for receiving the staves and holding them in their proper positions and devices for driving the staple through the assembled staves to hold them permanently in place. Such devices will be hereinafter more particularly described and their features of novelty specified in the annexed claims.

My improvements are illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a basket-making machine embodying my improvements, the operative portion being shown in position for the assembling of the staves. Fig. 2 is an end elevation of the same. Fig. 3 is a side elevation similar to Fig. 1, but showing the stave-holding devices in their elevated position for the driving of the staple. Fig. 4 is a plan view of the stave-assembling devices, showing a set of staves assembled and fastened together by a staple; and Figs. 5, 6, and 7 are detail views of the devices for supporting the stave-holder to raise and lower it for clenching the staples.

In such drawings, 1 designates a framework for supporting the stave-assembling mechanisms, and on this framework is mounted a suitable supporting-frame 2 for the staple forming and driving devices. A horizontal shaft 3, mounted in suitable bearings on the frame 1, carries at its front end a beveled gear 4, that meshes with a corresponding beveled gear 5, that is revolvably mounted on a bracket 6, projecting from the frame 1. A

vertical shaft 7 passes through the bracket 6 and upper portion of the frame 1, by which means it is guided and held in vertical position and adapted to be reciprocated vertically. The shaft is provided with a longitudinal groove 8, in which is fitted a key secured within the beveled gear 5, and by these means the shaft may be rotated by the rotation of the gear-wheel 5 and be capable of vertical movement when desired. On the upper end of the shaft 7 is secured a hub 9, the upper portion of which is formed into a disk-shaped flange 10, and to the hub-flange are secured, by bolts 11 or otherwise, radial arms 12, having upturned outer ends, which form a spider for supporting the stave-assembling devices. On the spider is seated a ring or disk composed of horizontal and vertical flanges 13 and 14, respectively. In the base of the ring are secured at suitable intervals pins 15 for spacing the staves and holding them from lateral movement, and other pins 16, nearer the vertical flange 14, for limiting the endwise movement of the staves. In the arrangement of these devices illustrated in Fig. 4 a suitable number of pins is shown for receiving twenty basket-staves. It would be obvious that if a greater or less number of staves is to be used the arrangement of the pins should be correspondingly changed, which could be done by having the pins adjustable or providing different rings with different arrangements of pins. It would be obvious, also, that some of the pins may be dispensed with without affecting the utility of the device and that the upward flange of the ring may be utilized to prevent endwise movement of the staves. It would be obvious, also, that for baskets of different sizes radial arms of different lengths and rings of suitable diameters may be substituted for such as are shown.

The hub being secured to the shaft 7, the stave-holding devices are adapted to be rotated, and this is done by the operation of the beveled gears by means of the driving-shaft 3. On the driving-shaft is a loose pulley 17, connected by a belt (not shown) with a source of power, and on the shaft is a friction-clutch 18 for connecting the shaft and pulley at will, which is done by means of a foot-lever 19.

The foot-lever is fulcrumed on a standard 20 and is pivoted to a vertical bar 21, which in turn is pivoted to an angular lever 22, fulcrumed on a bracket 23 and connected to the
 5 sliding clutch 18 for operating it. The clutch may have a spring for releasing it. All of these devices may be of any suitable construction and arrangement for operating a sliding clutch member in the usual way for rotating
 10 a shaft at will.

The stave-holding devices being in their lowest position, as shown in Fig. 3, a workman may conveniently arrange the staves in their proper radial order by standing in front
 15 of the machine and placing the outer ends of the staves of a bundle containing the requisite number upon the opposite edge of the ring 14, then by depressing the foot-lever cause the ring to revolve slowly, and during such
 20 movement he may slide off from the bundle one after another of the staves to positions between the sets of pins until all are in place, as indicated in Fig. 4. Thus the labor of carrying the bundle and walking around the
 25 assembling devices, which is the common method of operation, is avoided, the work expedited, and labor saved. To secure the staves together when thus assembled, there is mounted on the upper frame portion 2 a suitable
 30 staple forming and driving mechanism of ordinary construction. It is not deemed necessary to show or describe such devices in detail, and they will be described only with sufficient
 35 particularity to make plain their arrangement and cooperation with the other operative features of the machine. The staple is formed in the ordinary way, and the plunger for driving it home is indicated at 24, and the means for operating it is a pitman 25, which is con-
 40 nected to a disk 26, carried by a shaft 27, mounted on the top of the frame 2. A gear-wheel 28 on this shaft meshes with a pinion 29 on a shaft 30, that is driven when desired by a pulley 31, the latter being belted to a
 45 driving-shaft and loose on the shaft 30. The shaft 27 carries on its end, opposite the disk 26, another disk 32, to which is connected a pitman 33 for operating the wire-feed for the stapling mechanism. This pitman is con-
 50 nected to one end of an arm 34, the other end of which is pivoted on the shaft 35 and carries pawls 36, that engage a ratchet-wheel 37 on the shaft 35 for rotating it to operate the staple-forming devices.

55 On the shaft 27 is a sprocket-wheel 38, which is connected by a chain 39 with a sprocket-wheel 40, carried by a horizontal shaft 41, mounted in suitable bearings near the base of the main frame. On the end of the latter
 60 shaft, at the front of the machine, is a cam-wheel 42, having a projection 43 on the portion of its periphery farthest from the shaft. On this cam-wheel rests the lower end of a rod 44, that extends upward through the shaft
 65 7, which is hollow. A spiral spring 45 surrounds the rod 44 within the hollow shaft 7,

and these parts being suitably connected the shaft and the devices mounted thereon are supported by the spring, and the latter is supported by the rod. In the arrangement of
 70 these devices shown in the drawings a hollow plug 46, secured in the upper end of the shaft, rests on the upper end of the spring, and the lower end of the latter rests on the shoulder of an enlarged portion 47 of the supporting-
 75 rod; but any other suitable means for supporting the stave-assembler on the carrying-rod by means of a spring may be employed. Thus the rotation of the shaft 30 will by means of the gears 28 and 29 cause the rota-
 80 tion of the shaft 27, and the latter by the sprocket wheel and chain connection with the lower shaft 41 will cause the rotation of the latter shaft and the consequent vertical reciprocation of the rod 44 and shaft 7, which
 85 carries the stave-assembling devices. The pulley 31, being loose on its shaft, is caused to rotate the shaft when desired by means of a clutch 48. This clutch is operated by an angular lever 49, mounted on and pivoted to
 90 a bracket 50 and connected to a bar 51, which in turn is connected to a foot-lever 52, that is fulcrumed to a lug 53 near the base of the rear portion of the frame. The depression of the front end of the foot-lever 52 will throw
 95 the clutch 48 in engagement with the pulley 31, and a releasing-spring may be provided for disconnecting the clutch when the foot-lever is relieved of pressure.

In use when the staves have been assembled in the manner above referred to and it is desired to fasten them together the clutch 18 is released from the pulley 17, whereby the rotation of the shaft 7 is stopped, and the foot-lever 52 is then depressed, causing the rota-
 105 tion of the shafts 30, 27, and 41 and the consequent lifting of the stave-assembling devices (from the position shown in Fig. 1 to that shown in Fig. 3) to receive a staple and the downward thrust of the plunger for driving the staple home. The head of the rod 44
 110 is made slightly concave to receive the points of the staple and turn them inward to clench them. This clenching of the staple is accomplished by the upward thrust of the rod 44
 115 caused by the engagement of the cam projection 43 with its lower end after the staple has been driven through the set of staves by the staple-plunger. When the staple-driving and stave-assembling devices are thus made to ap-
 120 proach and the staple has been driven and clenched, the further rotation of their respective operating-shafts causes their return to the opposite extremes of movement, where-
 125 upon pressure on the foot-lever 52 is withdrawn and the further movement of the devices ceases.

By the means shown and described the operation of assembling the staves of a basket is simplified and cheapened, and the manual
 130 labor of driving and clenching a nail or staple through the staves is avoided, and at the same

time the central portions of the staves are pressed more closely and firmly together by reason of the coöperation of the staple-plunger and head of the shaft 7 and rod 44 than 5 when the work is manually done.

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

1. In a basket-making machine, devices for 10 holding a set of staves in horizontal radial arrangement, and a superposed staple-driver mechanism; in combination with operating mechanisms arranged to simultaneously move the stave-holder and staple-driver axi- 15 ally toward each other from their normal positions to drive a staple, and thereupon move them back to normal position, substantially as set forth.

2. In a basket-making machine, devices for 20 holding a set of staves in horizontal radial arrangement, and a superposed staple-driver mechanism; in combination with connected operating mechanisms for simultaneously moving the stave-holder upward and the staple-driver downward and driving a staple 25 centrally through a set of staves on the holder, substantially as set forth.

3. In a basket-making machine, a stave-assembler for holding a set of staves in radial 30 order, means for rotating it on a horizontal plane while the staves of a set are successively placed, and for stopping the rotation at will; in combination with a superposed staple-driver mechanism, and means for reciprocating the stave-assembler to position to 35 receive the thrust of the staple-plunger and cause a staple to be driven centrally through the set of staves on the assembler, substantially as set forth.

4. In a basket-making machine, devices for 40 holding a set of staves in radial arrangement and provided with a central anvil for clenching staple-points, and means for reciprocating such devices in vertical direction; in combination with a superposed staple-driving 45 mechanism, and connected driving mechanisms for synchronously moving the stave-holder upward and the staple-plunger down-

ward and thereby driving a staple centrally through the assembled staves, and means for 50 raising the anvil independently of the stave-holder to clench the staple, substantially as set forth.

5. In a basket-making machine, devices for holding a set of staves in horizontal radial 55 arrangement and providing a central anvil for clenching staple-points, and a superposed staple-driver mechanism arranged to thrust staples downward toward the anvil; in combination with a coöperating mechanism for 60 causing upward movement of the stave-holder to proper position relative to the staple-driver and the timely actuation of the staple-plunger to drive a staple centrally through the set of staves and clench it, by thrusting the an- 65 vil against its points, substantially as set forth.

6. In a basket-making machine, a stave-assembler and holder, comprising a rotatable 70 vertical shaft and means for rotating and stopping it at will, a ring or disk mounted thereon for supporting the staves, and a series of pins for suitably spacing and holding the staves from lateral movement, and another series of pins for preventing endwise 75 movement of the staves, substantially as set forth.

7. In a basket-making machine, a stave-holder, an anvil for clenching staple-points and a spring for supporting the stave-holder 80 on the anvil-carrier; in combination with a superposed staple-driver, a cam-wheel for lifting the anvil-carrier to present the stave-holder to the staple-driver to enable a staple to be driven through the staves, a projection 85 on said cam-wheel for subsequently thrusting the anvil against the staple-points to clench them, and coöperating mechanism for timely operation of said devices, substantially as set 90 forth.

In testimony whereof I have hereunto set my hand this 21st day of July, 1899.

W. C. SCHAEFER.

In presence of—

ALBERT QUILLING,
OLE KAUSRUD.