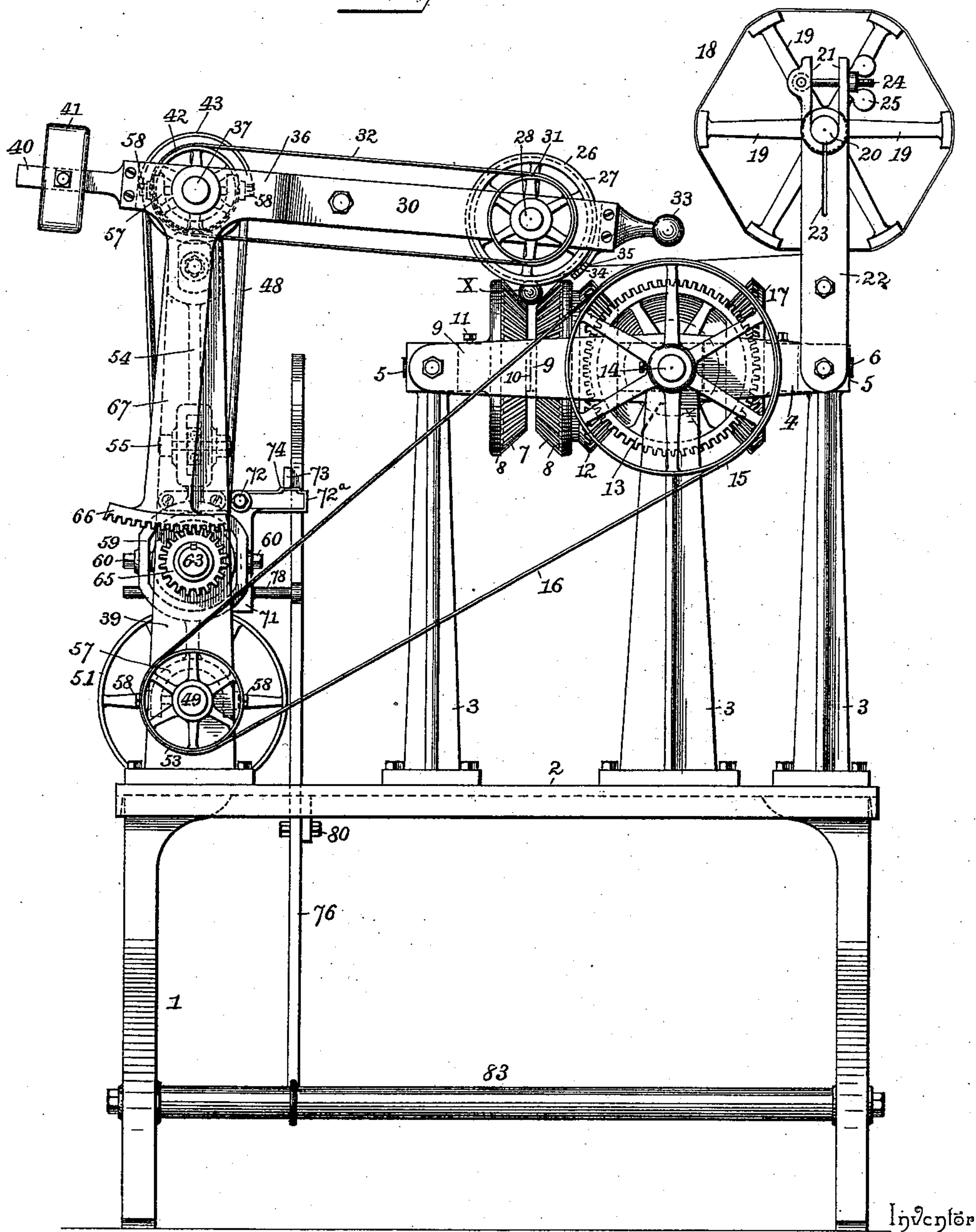


4 Sheets.—Sheet 1.

No. 539,503.

Patented May 21, 1895.

EE-1.



Witnesses

Chas. H. Ourand  
S. R. Volkhaupt.

By *his* Attorneys.

Samuel Brown

Chas. Snow & Co.

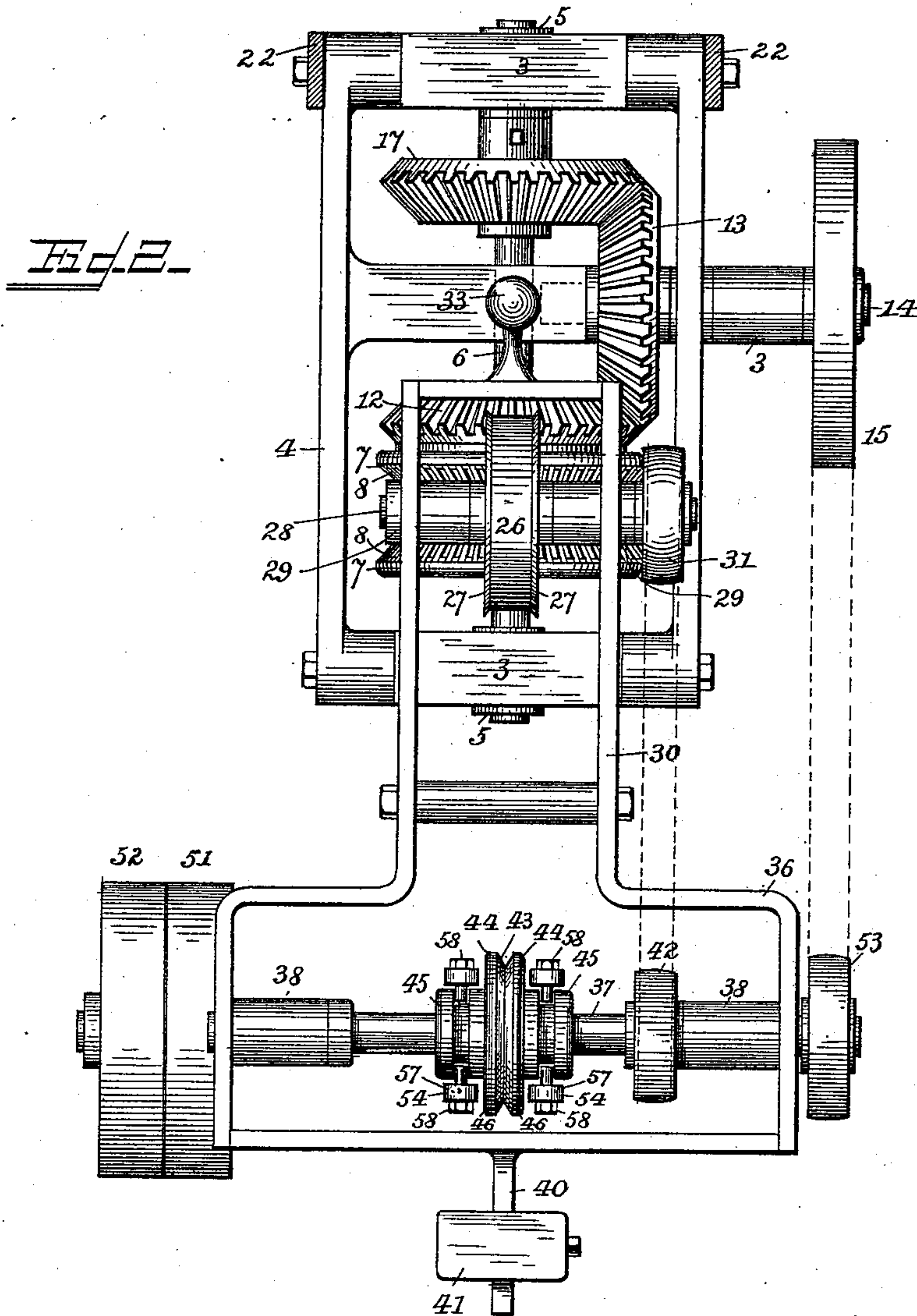
(No Model.)

4 Sheets—Sheet 2.

S. BROWN.  
BALLING MACHINE.

No. 539,503.

Patented May 21, 1895.



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(No Model.)

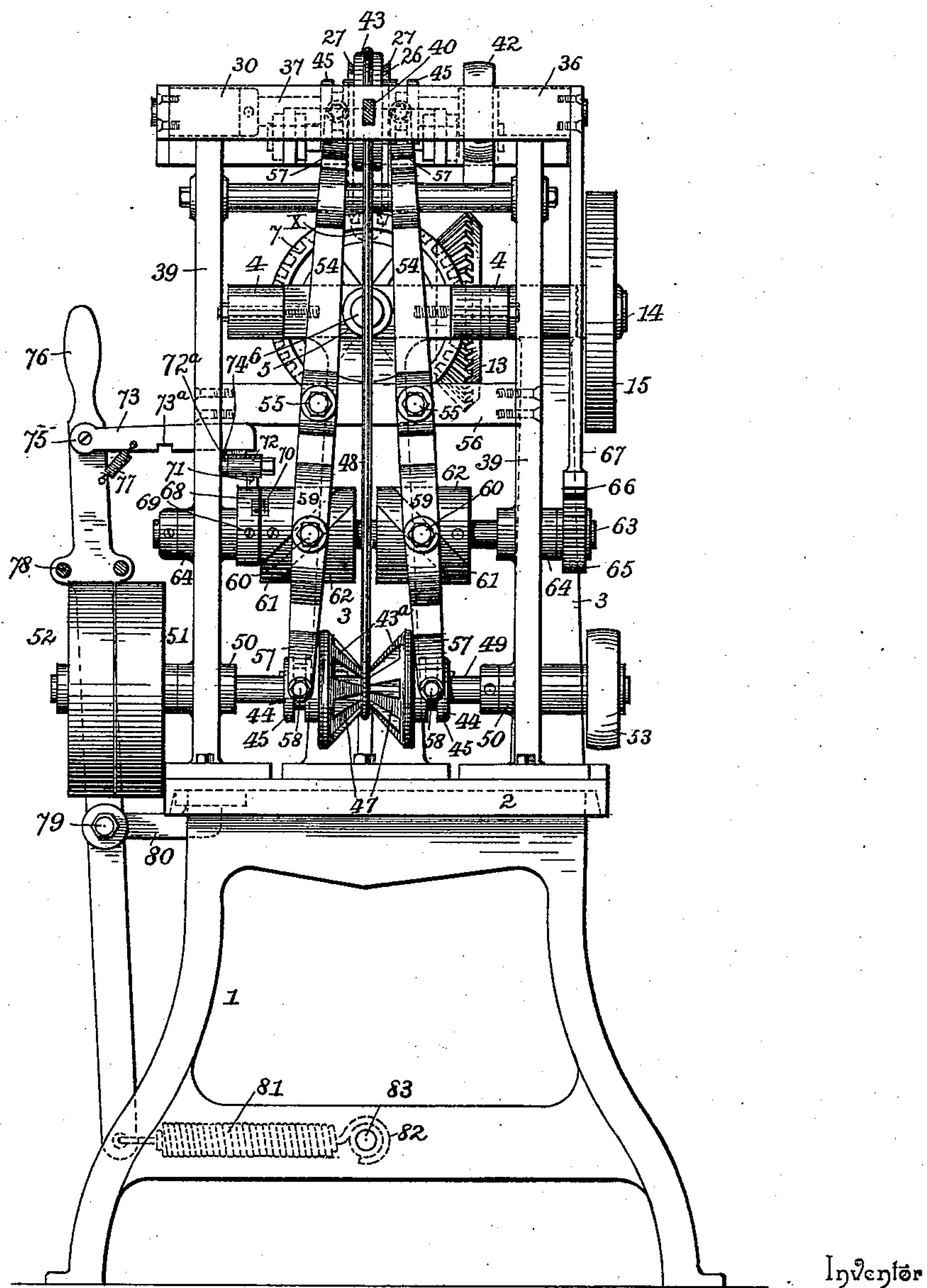
4 Sheets—Sheet 3.

S. BROWN.  
BALLING MACHINE.

No. 539,503.

Patented May 21, 1895.

Ed. 3.



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(No Model.)

4 Sheets—Sheet 4.

S. BROWN.  
BALLING MACHINE.

No. 539,503.

Patented May 21, 1895.

Fig. 4.

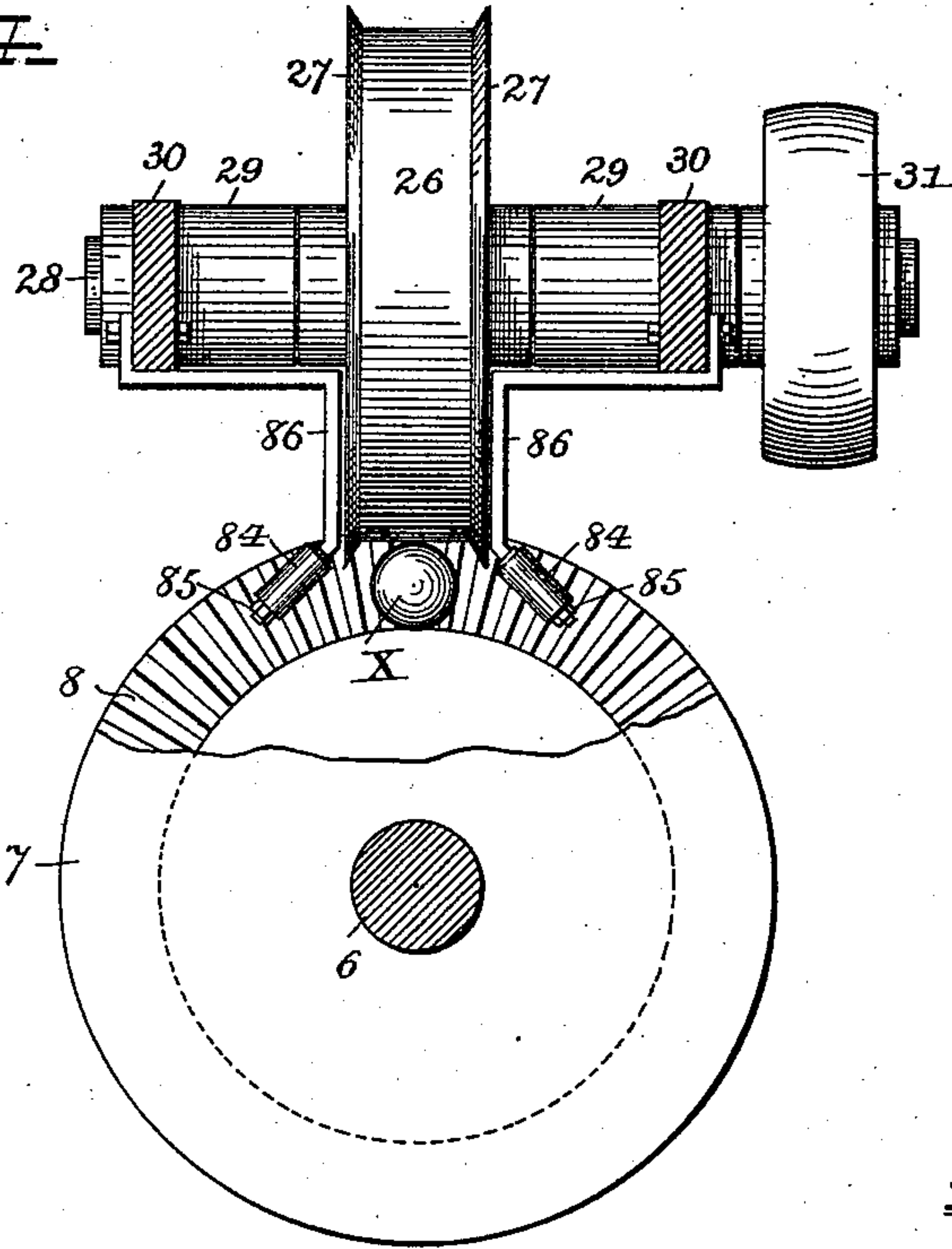


Fig. 5.

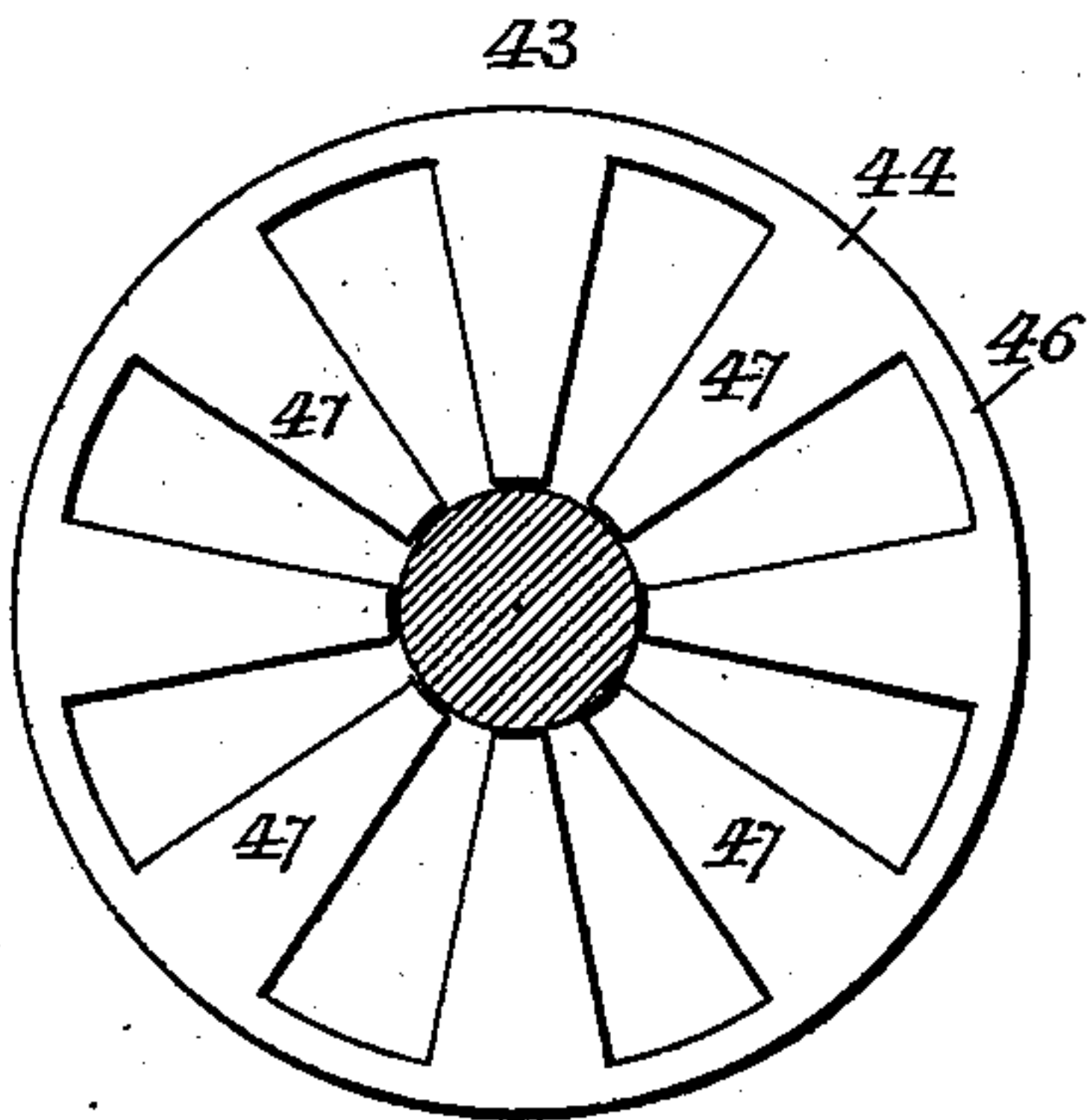


Fig. 6.

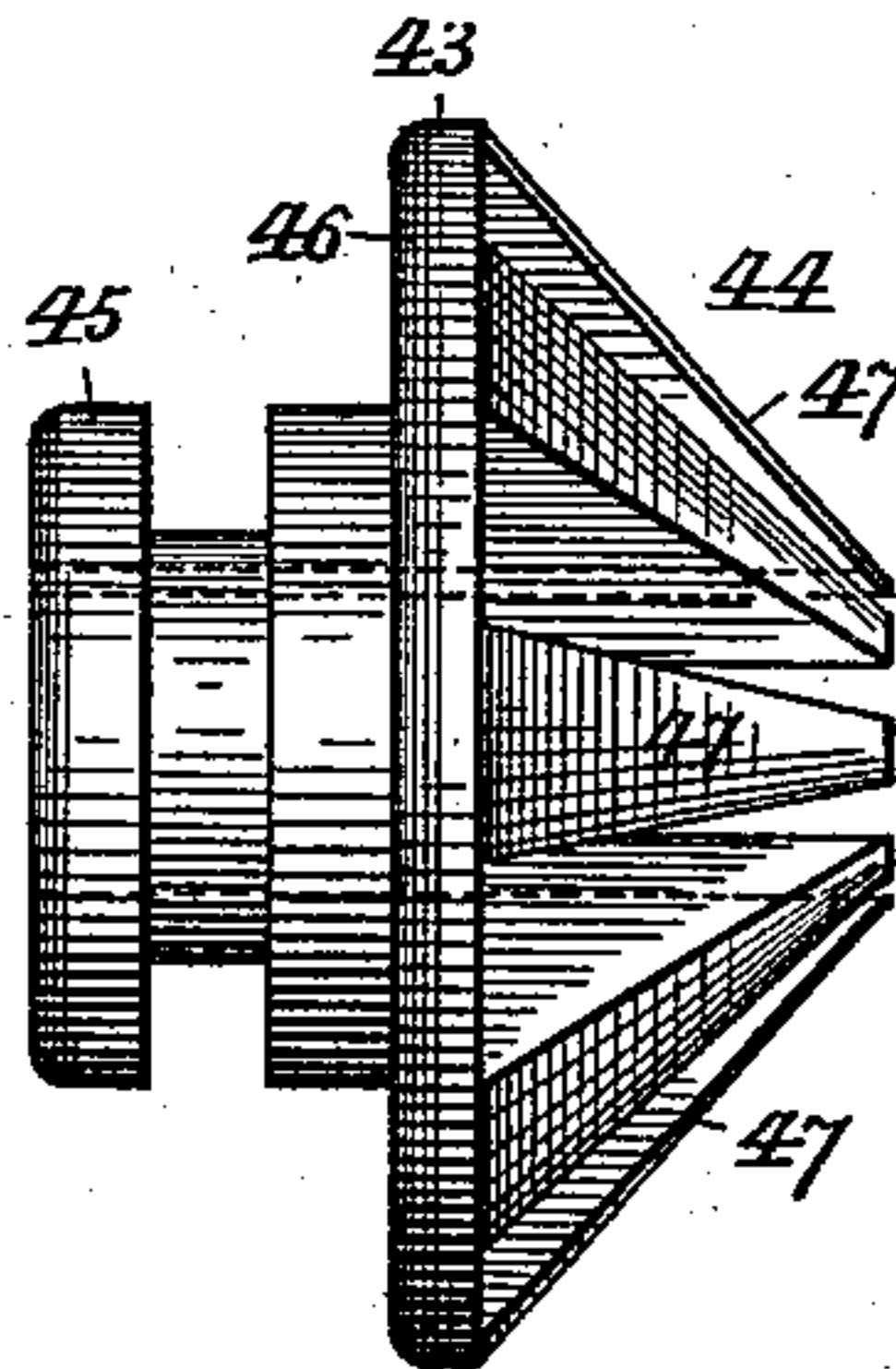
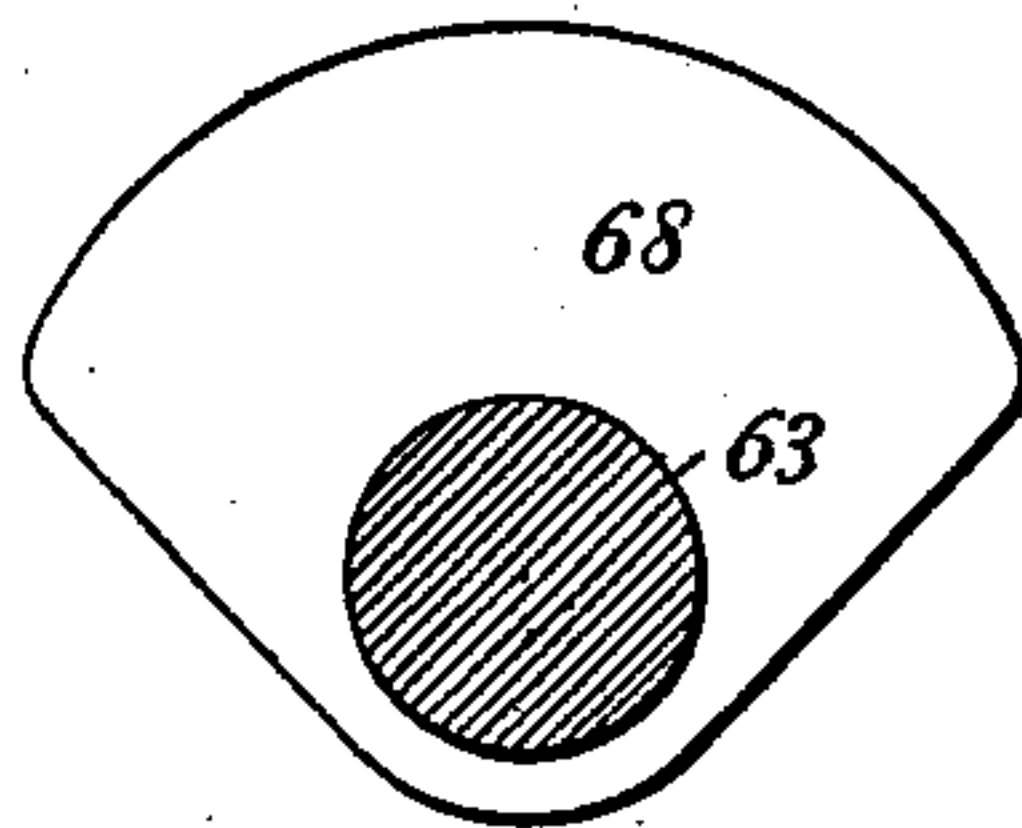


Fig. 7.



Witnesses

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# UNITED STATES PATENT OFFICE.

SAMUEL BROWN, OF SEAFORD, DELAWARE.

## BALLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 539,503, dated May 21, 1895.

Application filed November 2, 1894. Serial No. 527,755. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL BROWN, a citizen of the United States, residing at Seaford, in the county of Sussex and State of Delaware, have invented a new and useful Balling-Machine, of which the following is a specification.

This invention relates to balling machines; and it has for its object to provide a new and useful machine of this character for balling cord or yarn into true spherical balls.

To this end the main and primary object of the present invention is to construct a machine for balling cord or yarn, and particularly to provide for the manufacture of baseballs, and the like, which require a perfect spherical formation and are manufactured in certain sizes. In the accomplishment of these objects, the present machine contemplates improvements whereby the ball will be automatically wound perfectly true into the proper size, will be given the necessary twist or rotation to insure perfect winding, and when the same reaches a predetermined size, the operation of the machine will be automatically stopped.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the drawings, Figure 1 is a side elevation of a balling-machine constructed in accordance with this invention. Fig. 2 is a top plan view of the same with parts broken away. Fig. 3 is an end elevation with parts broken away. Fig. 4 is an enlarged detail sectional view at one side of the upper ball-holder wheel and the beveled ball-supporting wheels, showing a guard attachment to prevent a displacement of the ball as it enlarges. Fig. 5 is an enlarged detail elevation of one of the sectional adjustable speed-pulleys. Fig. 6 is a detail side view of one of the sections of one of said speed-pulleys. Fig. 7 is a detail elevation of the stopping-cam for the machine.

Referring to the accompanying drawings, 1 designates a machine frame or stand supporting on the upper end thereof a horizontal table 2, that serves to support the working parts of the machine. The said supporting

table 2, has mounted thereon a series of upright supporting standards 3, on the upper ends of which is supported a horizontal rectangular bearing frame 4.

The rectangular bearing frame 4, is provided at its opposite ends with the aligned bearings 5, in which are mounted the opposite ends of a horizontal shaft 6. The horizontal shaft 6, is arranged longitudinally within the horizontal bearing frame 4, and has mounted thereon near one end a pair of vertically disposed beveled ball supporting wheels 7. The ball supporting wheels 7, are arranged adjacent to each other with their beveled peripheries reversely disposed.

The reversely disposed beveled peripheries of the vertical ball supporting wheels 7, are provided with a regular series of smooth corrugations 8, that provide a gripping contact for the ball X, that is being wound between the said wheels. Although the beveled peripheries of the wheel 7, are preferably provided with regular smooth corrugations, it will of course be understood that the said wheels may be roughened, serrated, or similarly constructed in order to provide for gripping and turning the ball X, as the same rests between the two wheels.

The reversely arranged pair of vertically disposed beveled ball supporting wheels 7, are arranged sufficiently close together to provide for the support thereon and between the same of the small rubber ball or other nucleus-ball that is always employed to give shape to the complete ball and to start the windings on when making a base ball or other ball, and while the machine is in operation the ball being wound rests between the two wheels 7, on the beveled corrugated peripheries at the top of said wheels, as clearly illustrated in Fig. 1 of the drawings.

The vertically disposed beveled ball supporting wheels 7, are provided with sleeve hubs 9, that fit on the horizontal shaft 6, and the adjacent ends of the sleeve hubs 9 of the two wheels abut together at a point 10, between the wheels to provide for maintaining the same properly spaced apart, and the sleeve hub 9, of one of said wheels receives a set screw 11, for binding such wheel fast on the shaft so as to turn therewith, but the sleeve hub of the other ball supporting wheel is mounted loose



on the shaft so that such wheel has a rotation independent of and in a reverse direction to the shaft 6. The loose wheel 7, forms a part of the same casting with a beveled gear wheel 12, at one side of the same, and the said beveled gear wheel 12, meshes with the similar gear wheel 13, mounted on the inner end of a stub shaft 14, journaled in one side of the horizontal bearing frame 4, and carrying on its outer end a belt wheel 15, over which passes a drive belt 16, for communicating motion thereto in the manner to be presently described. The beveled gear wheel 13, that meshes with the loose gear wheel 12, carrying the loose wheel 7, also meshes with a beveled gear wheel 17, arranged opposite and reversely to the wheel 12, and mounted fast on the shaft 6, so as to turn therewith.

When motion is communicated to the stub shaft 14, a reverse rotation is simultaneously imparted to the beveled gear wheels 12 and 17, thereby causing one of the wheels 7, to be rotated in a reverse direction to the other adjacent wheel. With the ball X, supported between the two wheels 7 at the top thereof, the reverse rotation of said wheels will necessarily impart to the ball X, a twist or rotation on its vertical axis to secure a winding of the yarn or thread in one direction on the ball, and the yarn or thread that feeds onto the ball unwinds from a spider yarn reel 18. The spider yarn reel 18, essentially comprises a radial series of connected arms 19, mounted on a reel shaft 20, journaled in the bearing bifurcations 21, at the upper ends of the upright bearing arms 22, secured to and rising from one end of the horizontal bearing frame 4. The said bearing uprights 22, for the reel, are also provided with the longitudinally disposed slits 23, leading into the bearing bifurcations 21, and the opposite sides of the bifurcations 21, are adjustably connected together by means of the hinged bolts 24, that provide for allowing the reel to be placed in and out of position, and also for binding the reel shaft 20, more or less tightly within the bearing bifurcations according to the tension at which it is desired to keep the yarn or thread that is being wound onto the ball X. The slits 23, allow the bifurcated ends of the arms 22, to be contracted or loosened by simply manipulating the thumb nuts 25, mounted on the threaded ends of the hinged bolts 24, as will be readily understood.

Arranged to work directly above and at right angles to the ball supporting wheels 7, is an upper vertically disposed ball holder-wheel 26. The vertically disposed ball holder-wheel is of a width sufficient to provide for a firm contact with the top side of the ball from its smallest to its largest size, as it increases in growth during the operation of winding, and the said holder-wheel 26, is provided with a roughened or other suitable gripping periphery that will maintain a hold on the ball X, and will not only serve to hold the same down in place between the wheels 7, but will

provide for imparting to the ball a rotation on its horizontal axis, or in a direction at right angles to the rotation imparted thereto by the wheels 7, and these two motions imparted to the ball will be sufficient to give the same the requisite twist or turn to provide for evenly and regularly winding the yarn or thread, so that the ball will be shaped into a truly spherical form.

The upper vertically disposed ball holder-wheel 26, is further provided at its edges with the inwardly beveled peripheral side flanges 27, that assist in holding the ball properly in place between the several wheels grasping the same and preventing the ball from working out from under the said holder-wheel 26. The said holder-wheel 26, is mounted centrally on a short counter shaft 28, that is journaled in suitable bearings 29 at opposite sides and near one end of a self adjusting swinging wheel frame 30, and said shaft 28, has mounted on one end thereof at one side of the frame 30, a belt wheel or pulley 31, over which passes an operating belt 32.

The self-adjusting swinging wheel frame 30, is provided at the end within which the wheel 26, is mounted, with an offstanding hand knob or grasp 33, whereby the said frame may be adjusted by hand when necessary, and attached to the frame 30, adjacent to one side of the wheel 26, is a thread guide plate 34, provided therein near its lower end with a guide opening 35, to receive the yarn or thread that passes to the ball winding or twisting between the three wheels that impart motion thereto. The self-adjusting swinging wheel frame is substantially rectangular in shape and works up and down at one end over the wheels 7, and is automatically adjusted in an upward direction as the ball grows or increases in size, and the said frame 30, is provided at the end opposite the wheel 26, with an enlarged widened bearing portion 36, that is pivotally supported on the opposite ends of an upper horizontal shaft 37, that is mounted to turn in suitable bearings 38, at the upper ends of an upright end frame 39, that is supported on one end of the supporting table 2. At one side of its pivotal support on the shaft 37, the enlarged bearing end 36, of the frame 30, is provided with an offstanding weight arm 40, on which is adjustably mounted to slide the counterbalancing weight 41, and by adjusting the said weight 41, on the arm 40, the ball X, will be relieved of any undue weight thereon by reason of the weight of the frame 30, and its connections, and the proper pressure that it is desired to have placed on the ball while being wound can therefore be accurately regulated, so that the pressure of the wheel 26, bearing on top of the ball will not interfere with the formation of the ball into a true spherical shape.

The upper horizontal shaft 37, that is mounted at the upper end of the upright end frame 39, has mounted thereon at a point adjacent to one end, a belt wheel or pulley



42, over which passes the operating belt 32, that provides for transmitting motion to the wheel 26, and the said shaft 37, also has mounted thereon intermediate of its ends a sectional adjustable speed pulley 43.

The sectional adjustable speed pulley 43, comprises separate reversely disposed conical sections 44, provided with annularly grooved collars or hubs 45, projected from one side thereof and feathered on the shaft 37, to have a sliding movement thereon to provide for the contraction and opening of the pulley. The said reversely disposed conical pulley sections 44, essentially consist of disks 46, having projected from one side and at their peripheries a series of convergent spaced belt arms or plates 47, and the convergent spaced belt arms or plates 47, of one pulley section alternate with the corresponding arms or plates of the opposing pulley section, so that the said belt arms or plates are adapted to work within the spaces or slots between the belt arms or plates of the opposing pulley section. By this construction of pulley, it will be apparent that as the pulley sections are adjusted to and away from each other, the belt circumference of said pulley will be enlarged and diminished.

The pulley sections 44, of the sectional adjustable speed pulley 43, are adapted to receive therebetween the upper portion of a drive belt 48, the lower portion of which passes around a sectional adjustable speed pulley 43<sup>a</sup>, a duplicate in construction of the upper speed pulley just described. The lower speed pulley 43<sup>a</sup>, is feathered or splined centrally on the lower main drive shaft 49, mounted in suitable bearings 50, at opposite sides and the lower end of the upright end frame 39. The said main drive shaft 49, carries upon one end a fast and loose belt wheel 51 and 52, respectively, and on the end opposite the said wheels 51 and 52, a belt pulley 53, over which passes the belt 16, that provides for communicating motion, through the medium of the gearing described to the pair of the beveled ball supporting wheels 7.

The upper and lower speed pulleys 43 and 43<sup>a</sup>, respectively, are adapted to be simultaneously and reversely adjusted by means of a pair of adjusting levers 54. The adjusting levers 54, are pivotally bolted as at 55, intermediate of their upper and lower ends to a transverse supporting frame bar 56, connecting the opposite side bars of the frame 39, at an intermediate point, and the said levers 54, are provided at their upper and lower ends with the U-shaped collar yokes 57, that loosely embrace the annularly grooved collars or hubs 45, of the pulley sections 44 of both the upper and lower speed pulleys. The opposite extremities of the collar yokes 57, receive the bolt studs 58, that engage in the grooves of the collars or hubs of the pulley sections so that as said levers are oscillated on their pivots the pulley sections will be spread apart or contracted together as the

case may be, and by reason of the disposition of the speed pulleys and the pivoting of the levers at a central point it will be obvious as clearly illustrated in Fig. 3 of the drawings, that when one speed pulley is closed the other will be opened, thereby insuring a simultaneous reverse adjustment of said speed pulleys.

The adjusting levers 54, are provided below their pivotal supports 55, with the enlarged collar portions 59, in diametrically opposite sides of which are mounted the bolt studs 60, adapted to project into the spiral cam slots 61, of the cam blocks 62, that are loosely encircled by the enlarged collar portions 59, of the said levers. The said cam blocks 62, are both mounted on a horizontal cam shaft 63, journaled in suitable bearings 64, at opposite sides of the upright end frame 39, and said cam shaft 63, has mounted upon one end outside of the frame 39, a pinion 65, with which meshes a segmental rack 66, formed on the lower end of a swinging lever arm 67, connected at its upper end to one side of the self-adjusting swinging wheel frame 30, and at one side of the upright end frame 39, and by reason of this connection with the self-adjusting swinging wheel frame 30, it will be obvious that the movement of this frame will be communicated to the cam blocks 62, and therefore to the levers 54, that adjust the speed pulleys, thereby making provision for automatically regulating the speed of rotation for the ball X. As the ball increases in size the speed of its rotation on its vertical axis is regularly and proportionately increased by reason of the bevel of the peripheries of the wheels 7, and the same proportionate increase in the speed of the rotation of the ball on its horizontal axis is imparted to the ball from the holder wheel 26, the increase in speed being given to the wheel 26, by the self-adjustment of the frame 30. As the end of the frame 30, carrying the wheel, rises in response to the enlargement of the ball X, the lever arms 67, will be swung in a direction to rotate the cam blocks 62, so that the levers 54, will be oscillated in a direction that will open up the upper speed pulley 43, and close the lower speed pulley 43<sup>a</sup>. This adjustment of the speed pulleys reduces the belt circumference of the upper pulley and increases the belt circumference of the lower pulley so that the speed of the upper pulley will be increased and thereby make provision for increasing the speed of the wheel 26, as will be readily understood.

When the ball reaches its full growth, it is necessary that the machine be automatically stopped, and to make provision for this a cam sector 68, is adjustably mounted on the shaft 63, at one side of one of the cam blocks 62. The said cam 68, is adjustably mounted on the shaft 63, by means of a set screw 69, and is provided with a portion of a scale 70, the other portion of which is formed on the adjacent cam block 62, whereby the cam 68,



may be properly adjusted to stop the machine for any size of ball, when the ball has reached its full growth. The said cam 68, is arranged to work against one arm of a bell crank lever 71, pivotally supported at its angle as at 72, at one end of a bracket arm 72<sup>a</sup>, projected from one side of the upright end frame 39. The other horizontal arm of said bell crank lever 71, is adapted to work under a latch bar 73, provided in its under edge with a catch notch 73<sup>a</sup>, adapted to engage a catch lug or projection 74, on the upper edge of the offstanding bracket arm 72<sup>a</sup>. The said latch bar 73, is pivotally connected at its outer end as at 75, to one side of a shifting lever 76, at the upper handle end thereof, and a retractile spring 77, is connected at one end to said shifting lever and at its other end to the lower side of the latch bar 73, to provide for normally holding said latch bar down on the catch lug or projection 74. The said shifting lever 76, is provided with a pair of spaced belt shifting pins 78, that work above the pulleys 51 and 52, to provide for shifting the belt from one of said pulleys to the other, and the said shifting lever is pivotally supported intermediate of its ends as at 79, on the outer end of a bracket arm 80, projected from under the table 2, and at one side thereof. The said lever 76 has connected to the lower end thereof below its point of pivot, one end of a retractile spring 81, the other end of which is provided with a hook 82, connected to the tie-rod 83, connecting the opposite side portions of the machine frame or stand 1. The tension of said spring 81, provides for normally moving the lever 76, in a direction which carries the belt onto the loose pulley 52. Now, at the very moment the ball reaches its full growth the widest part of the cam 68, will bear against the vertical arm of the bell crank 71, and cause the notch 73<sup>a</sup>, to be lifted up out of engagement with the catch lug or projection 74, thereby releasing the latch bar and allowing the spring 81, to move the lever 76, so as to throw the belt onto the loose pulley and immediately stop the machine. Before starting the machine again, after the nucleus ball has been placed between and on the wheels 7, the hand knob 33, of the frame 30, is grasped, and the long end of said frame depressed. This movement readjusts the speed pulleys, by closing the upper pulley and opening the lower pulley as illustrated in Fig. 3 of the drawings, and it is then simply necessary to move the shifting lever 76, to shift the belt onto the fast pulley 51, and start up the machine again, the latch bar 73, automatically engaging again the catch lug or projection 74, to hold the shifting lever locked in this position until released again by the cam 68.

While ordinarily the flanges of the wheel 26, will serve to hold or retain the ball X, properly in position, between the three wheels, this retention of the ball may be positively insured by employing a pair of oppositely disposed guard rollers 84. The guard rollers 84,

are mounted on the angularly disposed spindle portions 85, at the lower ends of the L-shaped brackets 86, that are arranged at opposite sides of the wheel 26, and are attached to opposite sides of the frame 30, as clearly illustrated in Fig. 4 of the drawings. It will be observed that the guard rollers 84, are disposed at an outward angle from the sides of the wheel 26, and are projected below the same into the space between the wheels 7, so as to positively prevent the ball from working out from under the wheel 26, as it increases in size, and while this supplemental guard attachment may not be necessary, still, the use of the same positively insures the results sought for.

Changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a balling machine, a pair of reversely disposed beveled ball supporting wheels mounted to rotate in fixed planes, means for imparting a reverse rotation and a uniform speed to said wheels, and separate means for holding a ball between said supporting wheels and at the same time for positively imparting a motion thereto on its horizontal axis at right angles to and entirely independent of the motion imparted by the supporting wheels, substantially as set forth.

2. In a balling machine, a pair of reversely disposed vertical beveled ball supporting wheels, means for reversely rotating said supporting wheels, an upper vertically disposed ball holder-wheel supported at right angles to and above said supporting wheels and means for rotating said holder wheel, substantially as set forth.

3. In a balling machine, the combination of a pair of reversely arranged vertical ball supporting wheels having roughened beveled peripheries, means for reversely rotating said supporting wheels, a vertically disposed ball holder-wheel supported above and at right angles to said ball supporting wheels, and means for rotating said holder wheel, substantially as set forth.

4. In a balling machine, a pair of reversely disposed ball supporting wheels having corrugated beveled peripheries, means for reversely rotating said supporting wheels, and a self-adjusting ball holder-wheel supported above and at right angles to the supporting wheels and provided with inwardly beveled peripheral side flanges to confine therebetween the winding ball, substantially as set forth.

5. In a balling machine, the combination of a horizontal bearing frame, a shaft mounted longitudinally within said horizontal bearing frame, a pair of reversely disposed beveled ball supporting wheels mounted on said shaft,



one of said wheels being mounted fast on the shaft and the other loose thereon, said loose beveled supporting wheels being provided at one side with a beveled gear wheel, means for reversely rotating said supporting wheels, another beveled gear wheel fast on said shaft opposite the beveled gear wheel carried by the ball supporting wheel, a stub shaft mounted at one side of said horizontal bearing frame and carrying upon its inner end a beveled gear wheel meshing with the oppositely disposed fast and loose beveled gear wheels on the longitudinal shaft, means for communicating motion to said stub shaft, and a self-adjusting ball holder-wheel supported above and at right angles to the supporting wheels, substantially as set forth.

6. In a balling machine, the combination with the ball winding devices; of bearing arms supported in an upright position and provided at their upper ends with bearing bifurcations and longitudinally disposed slits leading into said bifurcations, a spider yarn reel arranged between said bearing arms and having its shaft mounted in said bearing bifurcations, and hinged bolts adjustably connecting the opposite sides of said bearing bifurcations above the ends of the reel shaft turning therein, substantially as set forth.

7. In a balling machine, the combination of a pair of reversely disposed vertical ball supporting wheels, means for reversely rotating said supporting wheels a self-adjusting swinging wheel frame supported to move at one end above said ball supporting wheels, a ball holder-wheel mounted within the end of said swinging frame above and at right angles to the supporting wheels, a thread guide plate attached to one end of said swinging frame adjacent to the holder wheel, a yarn reel supported adjacent to the wheels carrying the ball, and means for adjusting the tension of the yarn or thread as it unwinds from said reel, substantially as set forth.

8. In a balling machine, the combination of a pair of reversely disposed beveled ball supporting wheels, means for reversely rotating said supporting wheels a self-adjusting wheel frame pivotally supported at one end and provided at its pivoted end with an off-standing weight arm, a counterbalancing weight adjustably mounted on said weight arm, and a ball holder wheel mounted within one end of said wheel frame and disposed above and at right angles to the ball supporting wheel, substantially as set forth.

9. In a balling machine, the combination of a pair of reversely disposed beveled ball supporting wheels, means for imparting a constant rotation to said supporting wheels in opposite directions, a self-adjusting ball holder-wheel supported above and at right angles to the ball supporting wheels, and means for automatically varying the speed of said holder wheel proportionately to the variable speeds imparted to the ball by the

beveled peripheries of said ball supporting wheels, substantially as set forth.

10. In a balling machine, the combination with the ball supporting wheels and the ball holder-wheel arranged thereabove; of oppositely arranged sectional adjustable speed pulleys 43 and 43<sup>a</sup> having variable belt circumferences, a belt connection between said pulleys means for communicating motion from one of the pulleys to said holder wheel, and means for automatically and reversely adjusting said speed pulleys, substantially as set forth.

11. In a balling machine, the combination with the ball supporting wheels and means for reversely rotating them and the ball holder-wheel arranged thereabove; of oppositely arranged sectional adjustable speed pulleys comprising separate reversely disposed conical sections mounted to slide to and away from each other and consisting of disks having projected from one side and at their peripheries a series of convergent spaced belt arms or plates alternating with the corresponding arms or plates of the opposing pulley section, a belt passing over the belt circumferences of said speed pulleys, a driving connection between one of said pulleys and said holder wheel, and means for automatically and reversely adjusting said speed pulleys, substantially as set forth.

12. In a balling machine, the combination with a suitably arranged pair of ball supporting wheels and means for reversely rotating them; of an upright frame, an upper horizontal shaft journaled at the top of said frame, an oppositely located drive shaft journaled at the lower end of said frame, a self-adjusting swinging wheel frame pivotally supported on said upper horizontal shaft and carrying at one side a depending swinging lever arm having at its lower end a segmental rack, a short counter-shaft mounted within one end of said wheel frame and carrying at one end a belt wheel or pulley, a ball holder wheel mounted on said counter-shaft within said wheel frame, a belt connection between said belt wheel or pulley and said upper horizontal shaft, sectional adjustable speed pulleys feathered on said upper horizontal and said drive shaft, the opposite sections of said speed pulleys being provided with annularly grooved collars or hubs, a horizontal cam shaft journaled in said upright frame and carrying upon one end a pinion meshing with said segmental rack, cam blocks mounted on said cam shaft and provided with spiral cam slots, a belt connecting said adjustable speed pulleys, and a pair of adjusting levers pivotally supported intermediate of their ends on said upright frame and having at their upper and lower ends collar yokes embracing and connected to the collars or hubs of the pulley sections to provide for simultaneously and reversely adjusting the opposite adjustable speed pulleys, said adjusting levers being further pro-



vided at one side of their pivots with enlarged collar portions embracing the cam blocks and carrying bolt studs engaging in the slots of said cam blocks, substantially as set forth.

- 5 13. In a balling machine, the combination of an upright frame, a pair of reversely arranged ball supporting wheels and means for reversely rotating them a self-adjusting wheel frame supported on top of said upright frame  
10 and adapted to be automatically adjusted by the growth of the ball, a drive shaft journaled in said upright frame and carrying upon one end fast and loose belt wheels, a cam shaft  
15 journaled in said upright frame and having an operating connection with said self-adjusting wheel frame, a cam adjustably fitted on said cam shaft, a shifting lever pivotally supported intermediate of its ends at one side of  
20 said belt wheels and carrying spaced belt shifting pins working adjacent to said belt wheels to provide for shifting the belt from one to the other of the same, a retractile spring connected to the lower end of said shifting lever,  
25 a normally spring depressed latch bar pivotally connected to the shifting lever near its upper end and provided in its under edge with a catch notch, a suitably arranged bracket arm attached to said upright frame

and having a catch lug or projection adapted to be engaged by the notch of said latch bar, 30 and a bell crank lever pivotally supported on said bracket arm and arranged to have one of its arms work under said latch bar and the other of its arms disposed at one side of said cam, substantially as set forth. 35

14. In a balling machine, the combination of a pair of reversely disposed vertical ball supporting wheels, means for reversely rotating said supporting wheels a self-adjusting wheel frame arranged above the supporting 40 wheels, a ball holder wheel mounted within said wheel frame above and at right angles to the supporting wheels, and a pair of brackets attached to the wheel frame at both sides of the holder-wheel, said brackets being 45 provided at their lower ends with angularly disposed spindle portions, and guard rollers mounted on said spindle portions of the brackets, substantially as set forth.

In testimony that I claim the foregoing as 50 my own I have hereto affixed my signature in the presence of two witnesses.

SAMUEL BROWN.

Witnesses:

JOHN H. SIGGERS,  
E. G. SIGGERS.