

Nov. 26, 1935.

L. H. LATTA

2,022,047

FIGURE TOY

Filed June 13, 1933

4 Sheets-Sheet 1

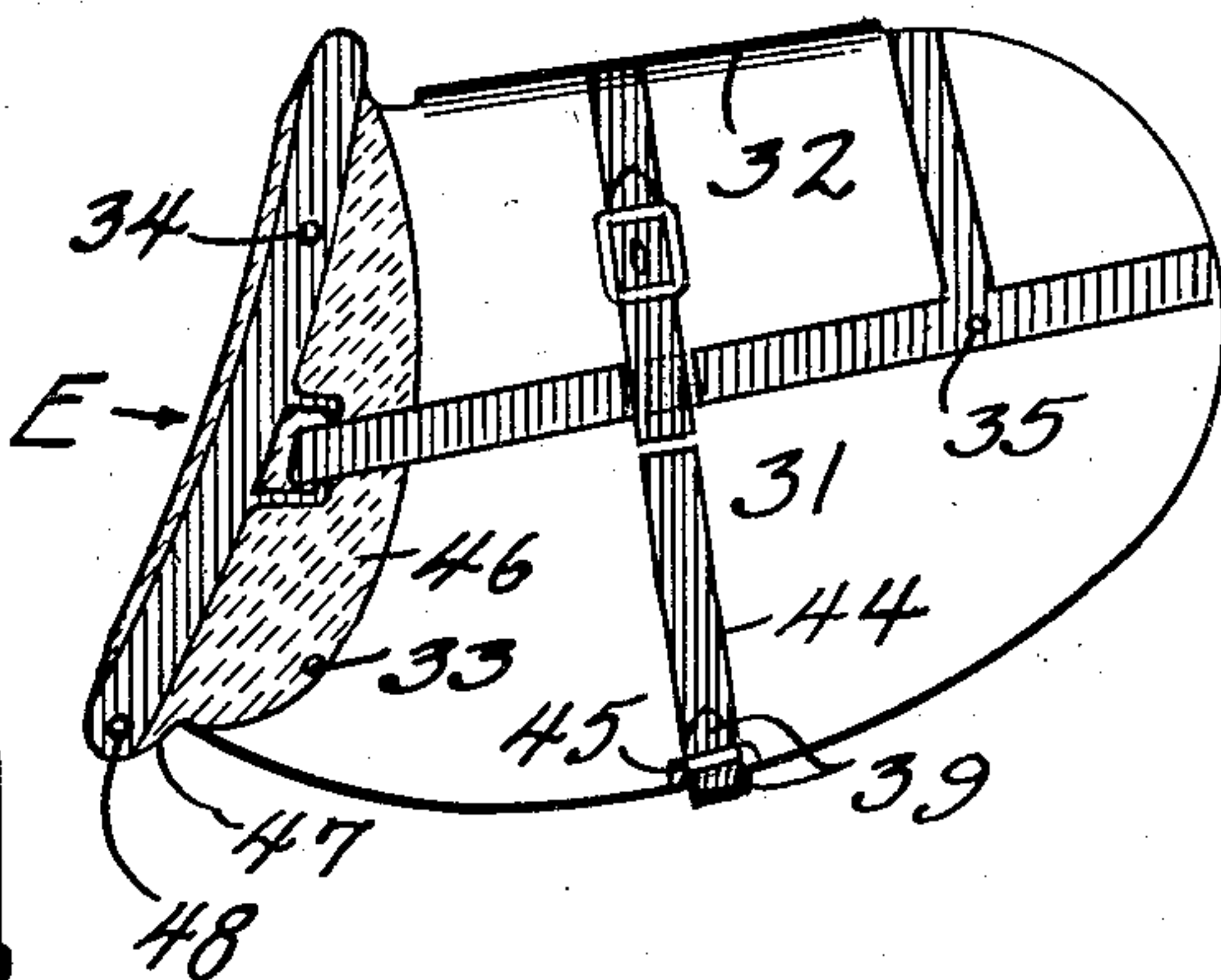
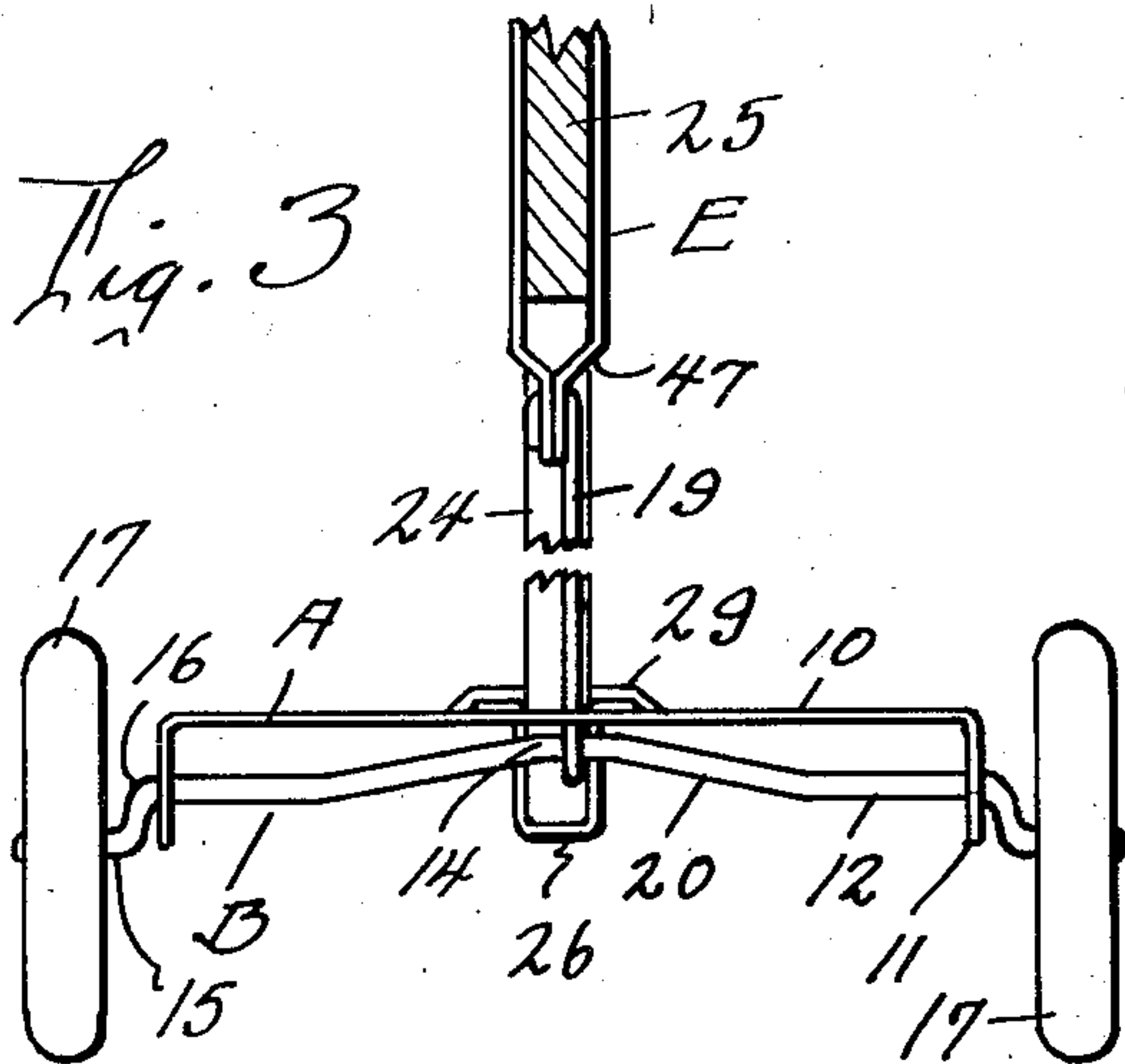


Fig. 2

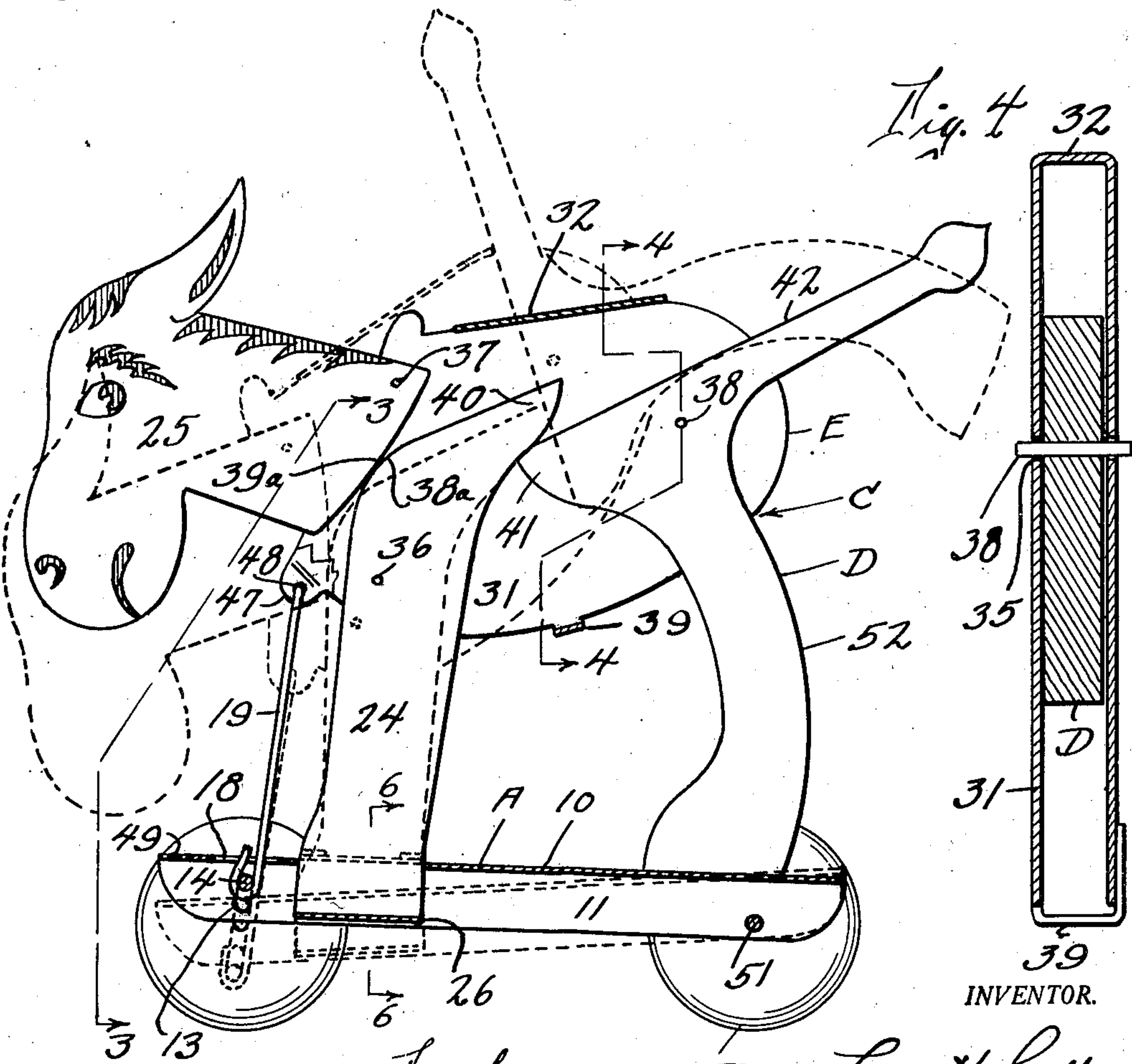


Fig. 1

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FIGURE TOY

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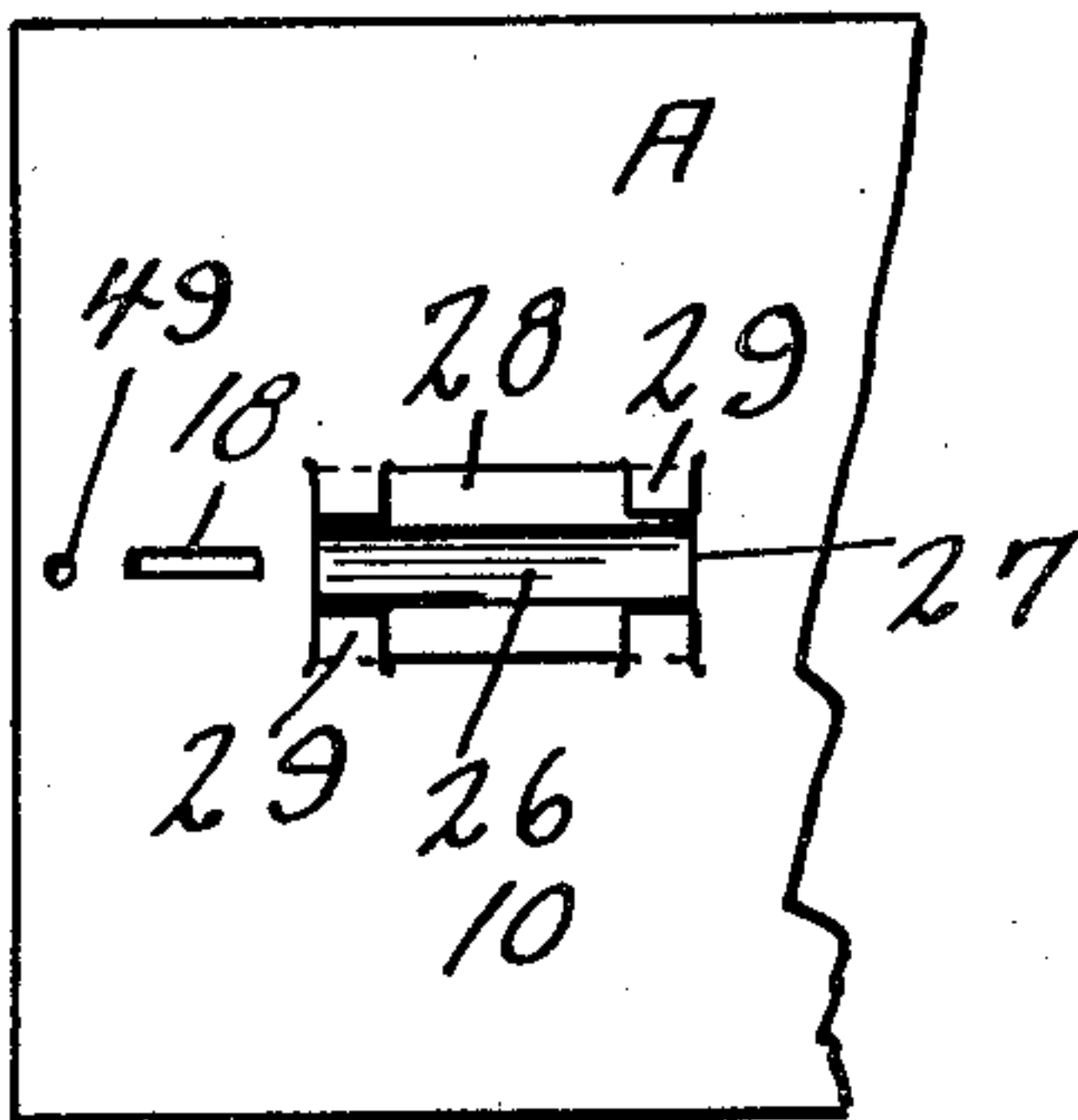


Fig. 5

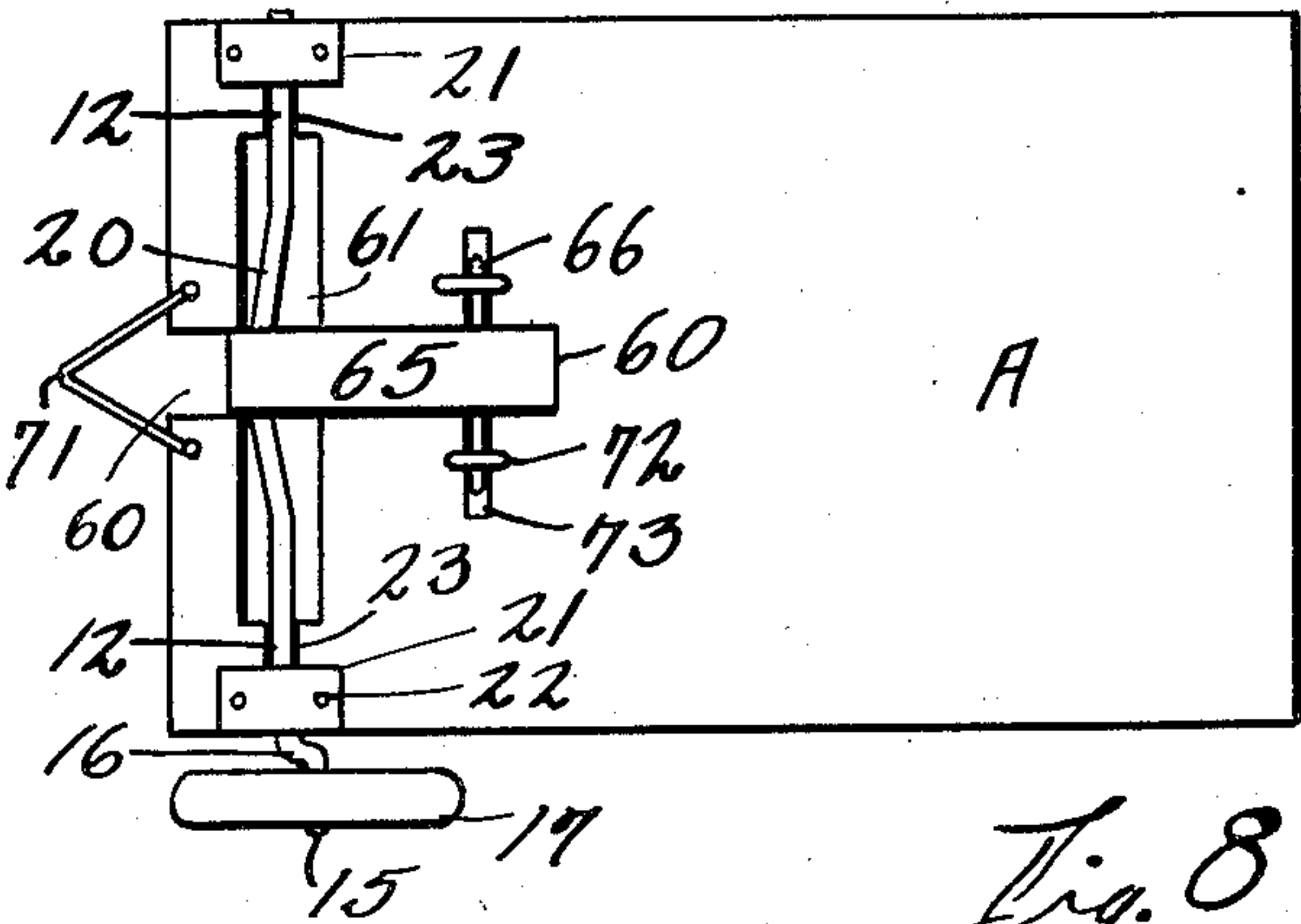


Fig. 8

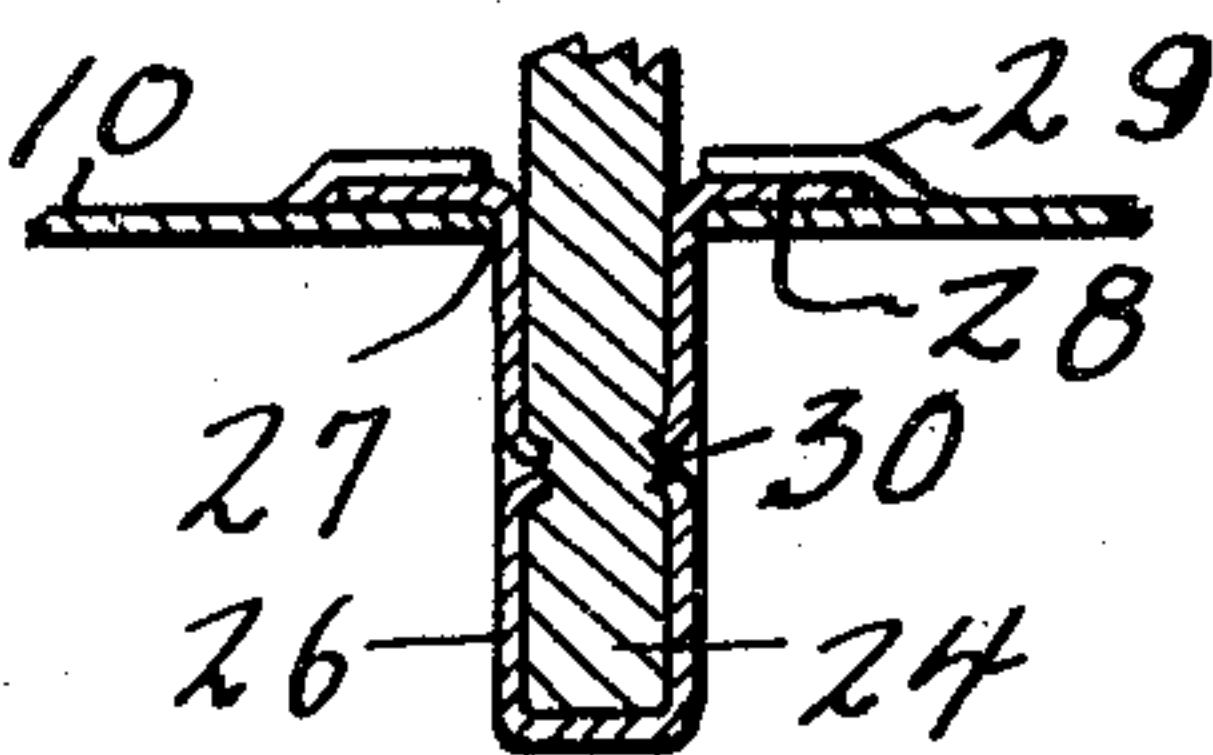


Fig. 6

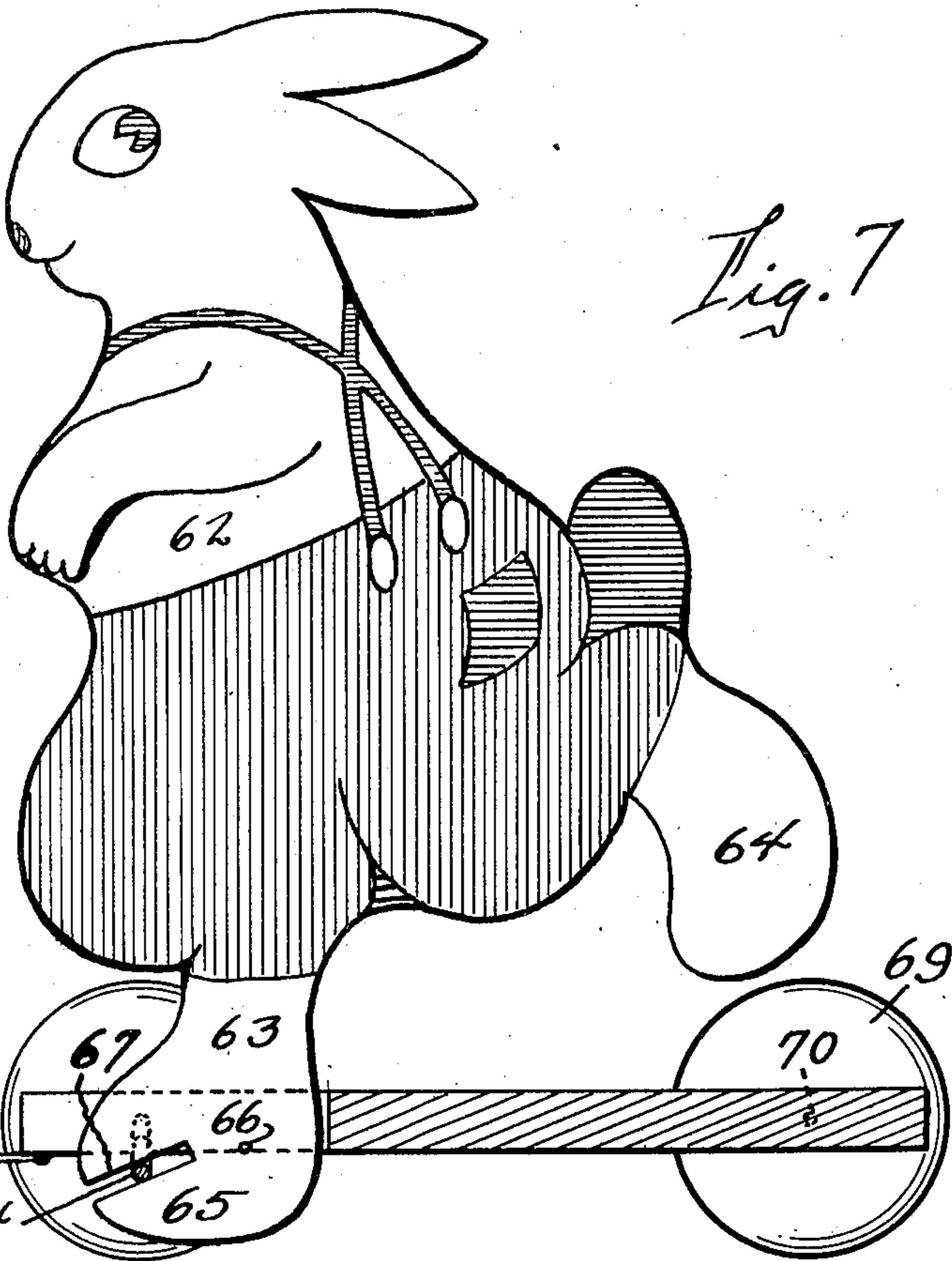


Fig. 7

Fig. 10

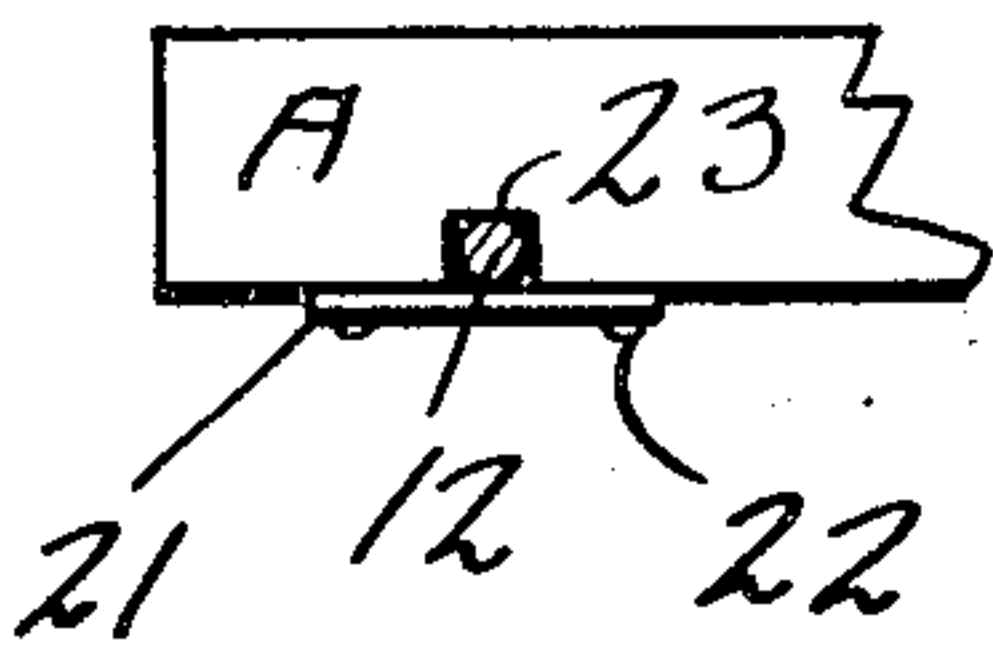
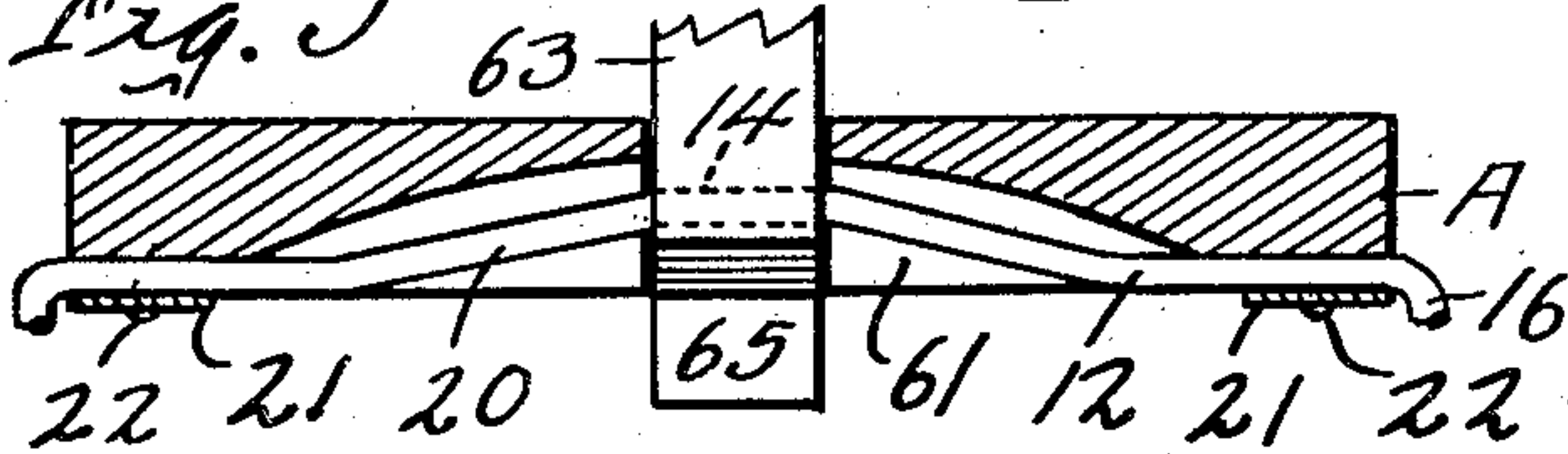


Fig. 9



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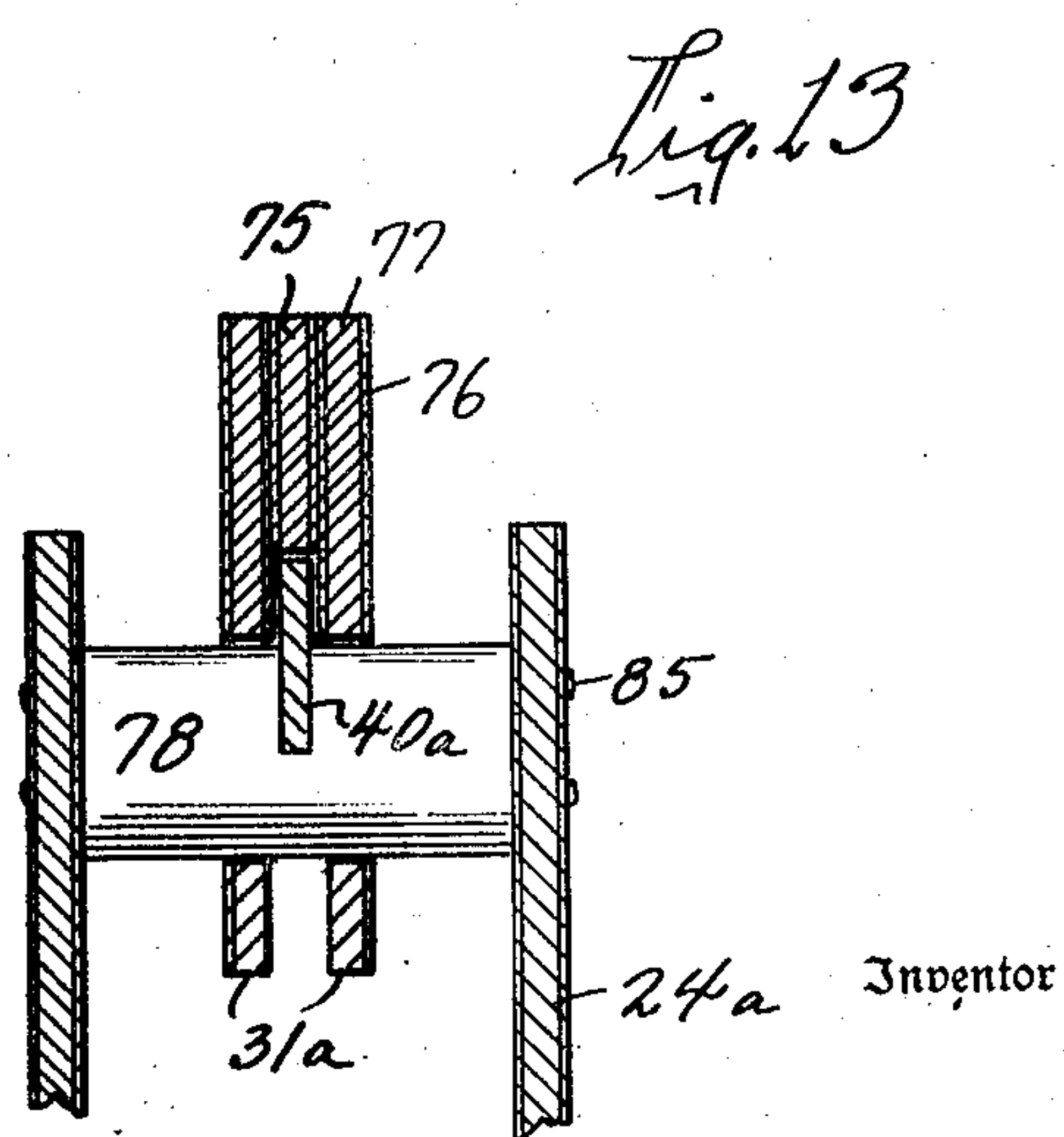
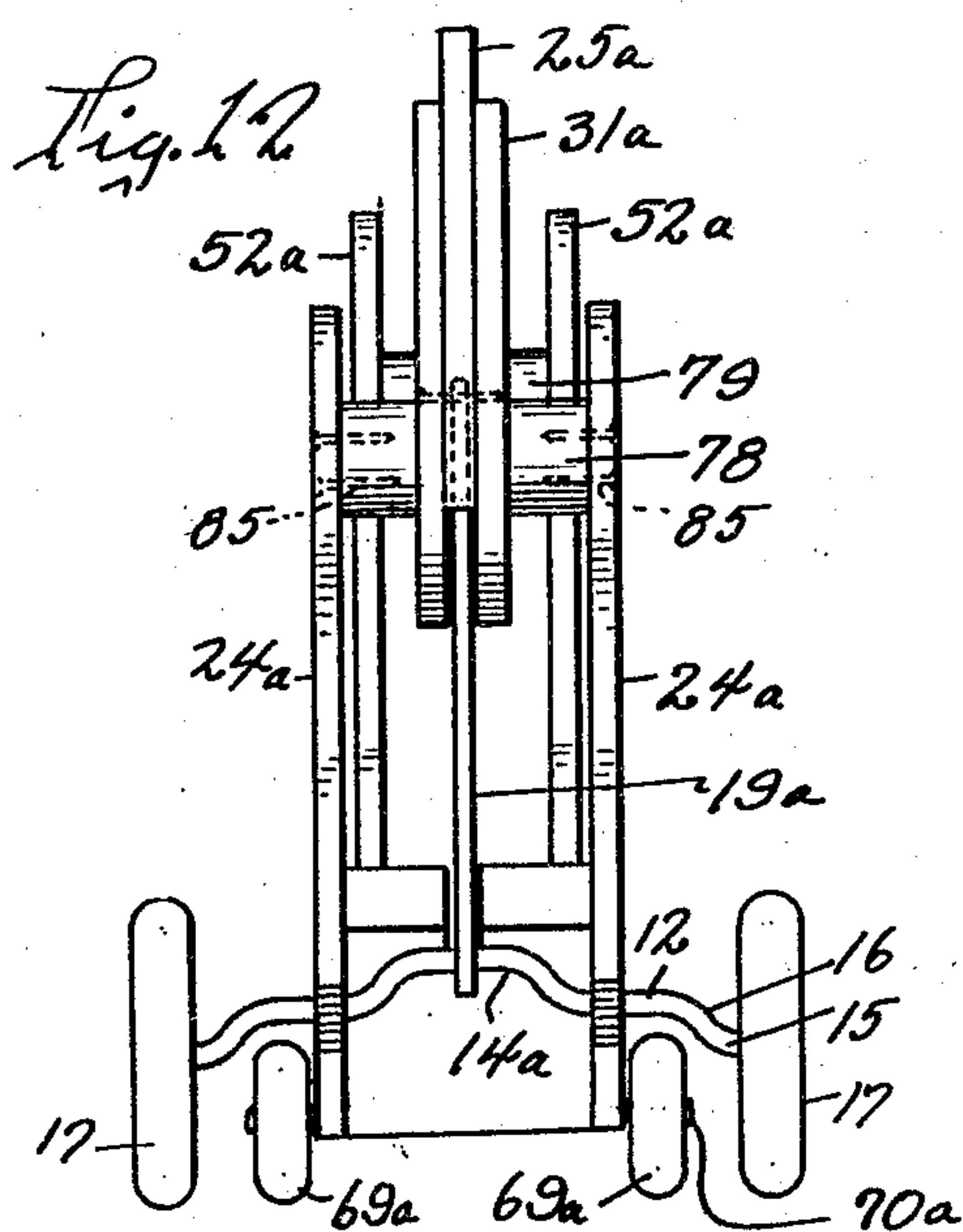
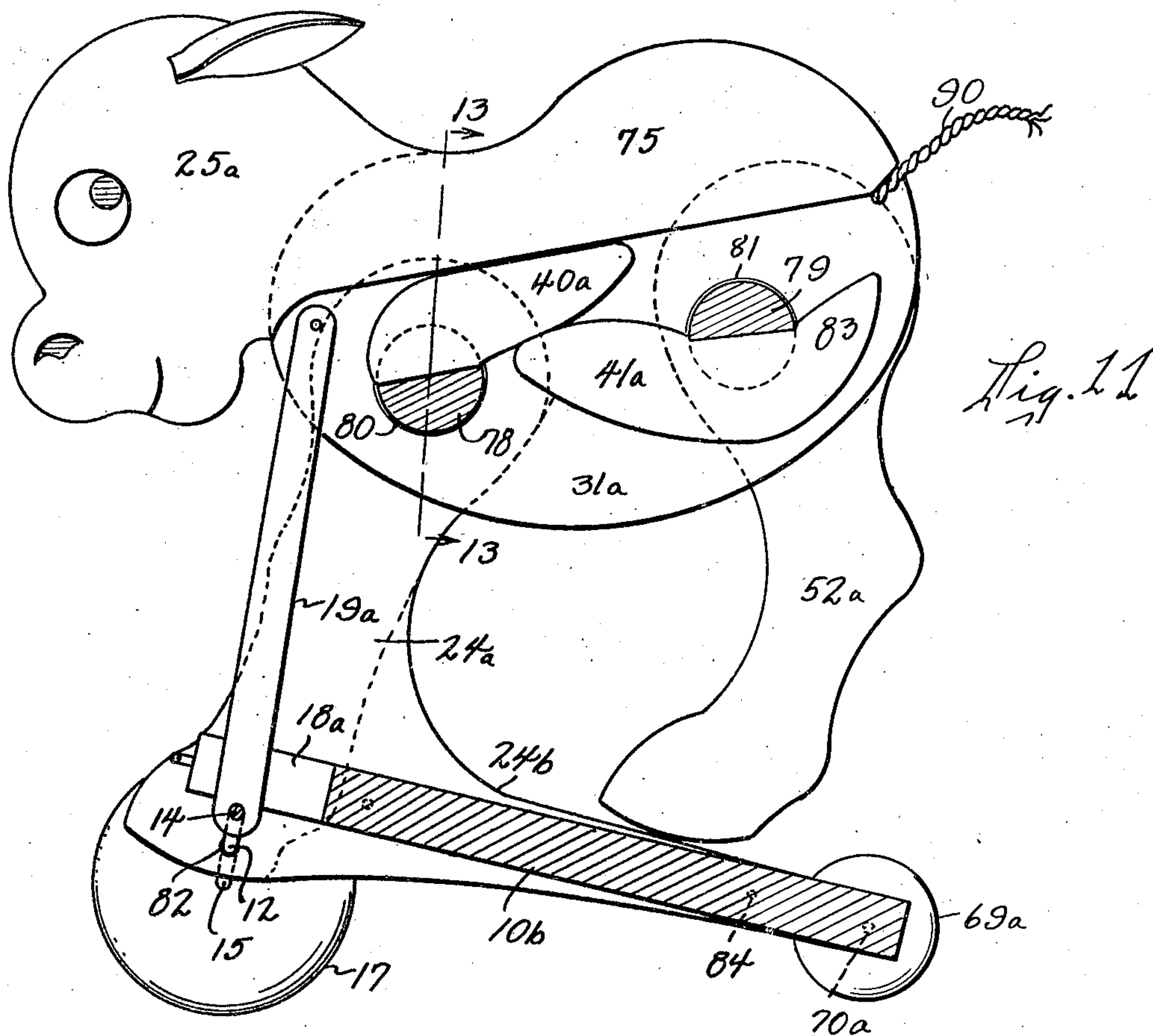
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FIGURE TOY

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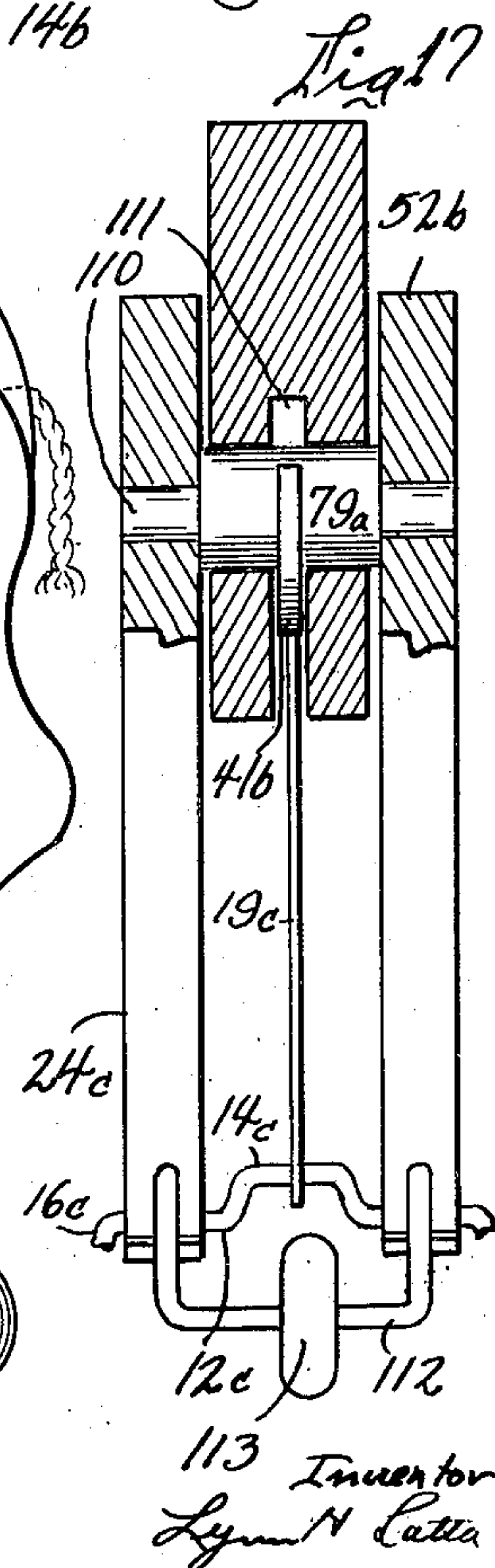
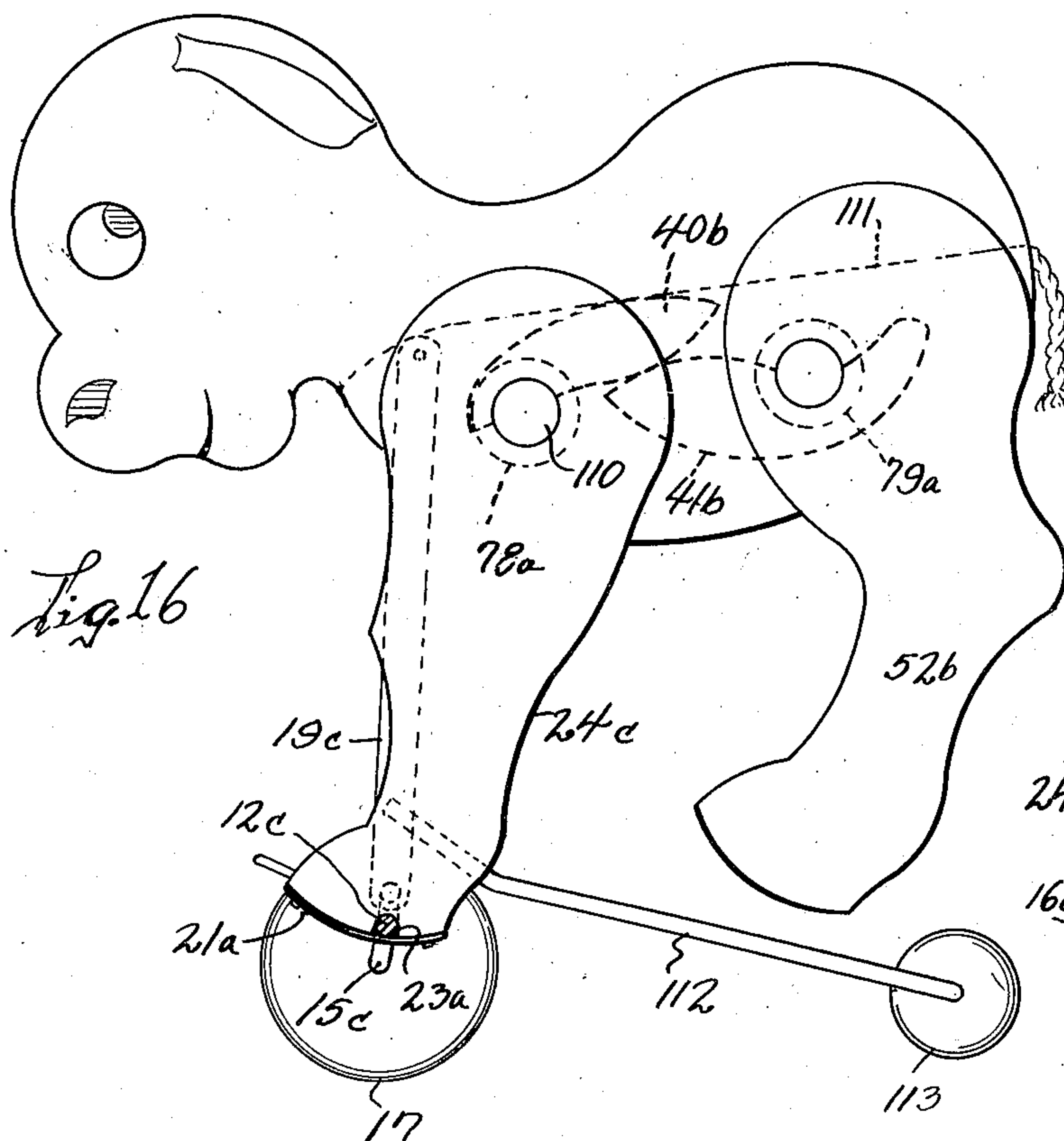
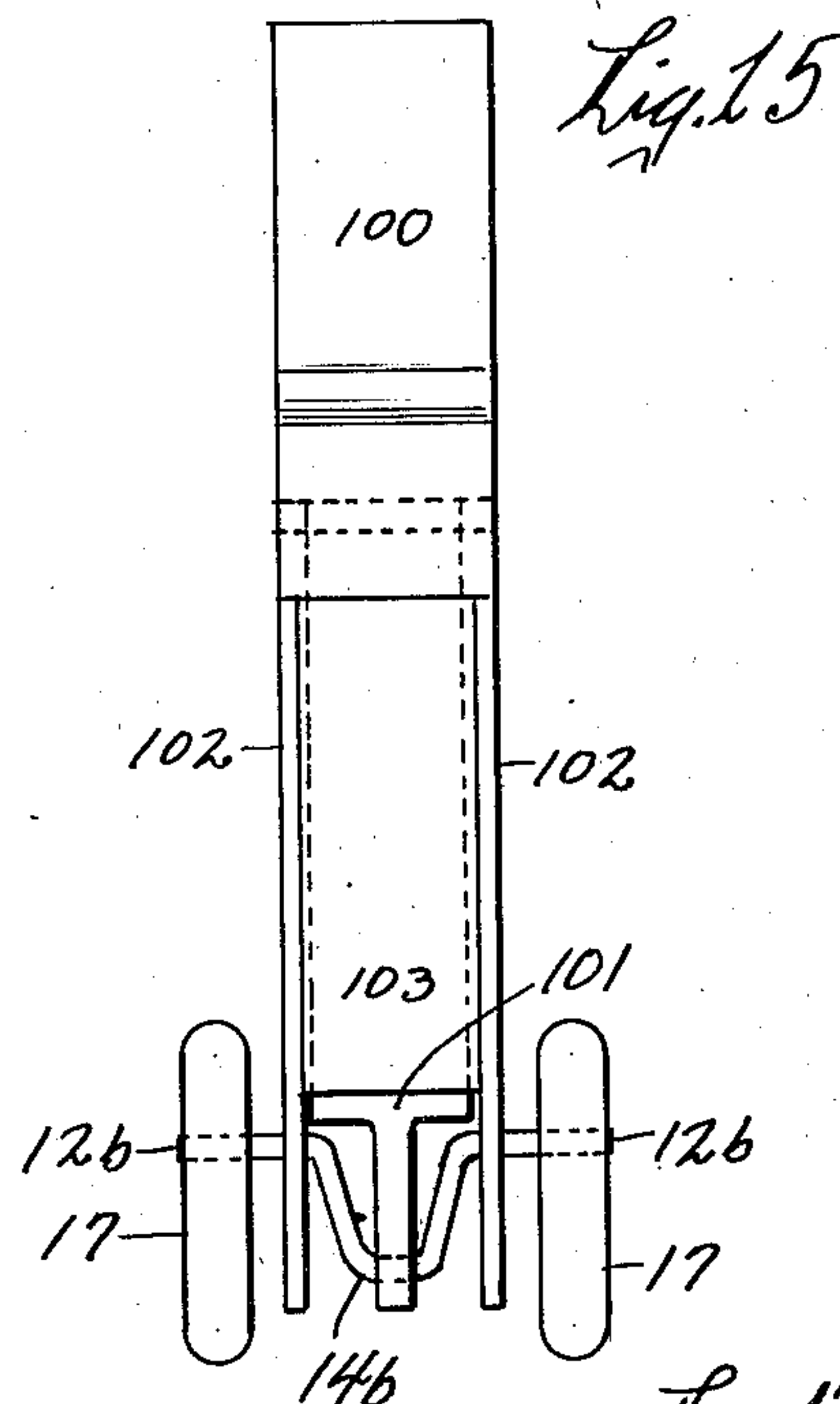
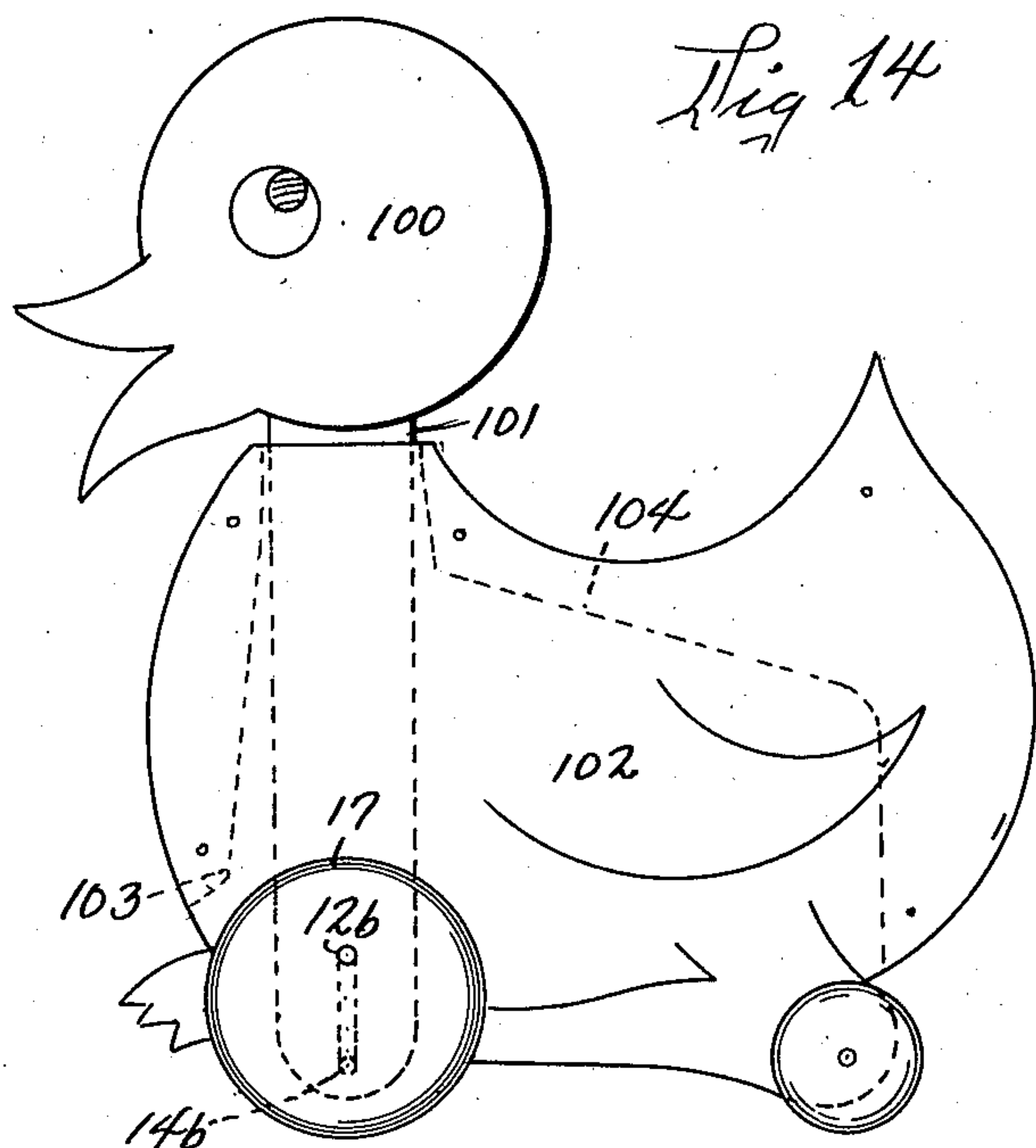
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FIGURE TOY

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UNITED STATES PATENT OFFICE

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FIGURE TOY

Lynn H. Latta, Toledo, Ohio

Application June 13, 1933, Serial No. 675,881

19 Claims. (Cl. 46—107)

The invention relates to that class of toys in which a crank in an axle connecting two of the travel wheels of the toy provides movement to actuate the figure of the toy. An object is to eliminate an objectionable feature that has characterized this type of toy wherein the figure is moved against the pull of gravity, namely, the skidding of the wheels under the pull against the crank caused by the weight of the portion lifted thereby. In solving this problem, I provide for balancing the weight of the figure or that portion thereof which is lifted, so that the center of gravity of the entire toy will move in substantially a straight line. This result is secured by the use of eccentrically mounted wheels, arranged so that the axis of eccentricity will move downwardly as the figure is lifted upwardly, the axis of eccentricity being that axis on which the axle is journaled relative to the base portion of the toy, whereby said base portion may lower as the lifted portion of the toy raises.

Another object is to provide a simple mechanism for transmitting movement from the front to the rear legs of a toy embodying front and rear legs swingingly attached to the body in a simulation of, for instance, a kicking donkey, whereby raising of the body relative to the front legs will cause the rear legs to kick upwardly.

Another object is to provide a novel inexpensive mode of construction of a figure toy simulating a donkey or the like, wherein the legs are securely mounted on relatively thick axles which may be constructed, for instance, of dowelling, sawed to shape, such pivots solving certain problems such as the transmission of movement from the front to the rear legs through the medium of interengaging fingers secured to the pivots and concealed between the sides of the body in which the pivots are journaled. The thick wooden pivots, squared at the ends, provide broad surfaces to which the legs may be securely glued and nailed, and the fingers, which may be made thus of thin flat material, may be securely glued in slots sawed into the pivots intermediate their ends.

The invention contemplates, as one of the preferred forms of construction, the use of cardboard, printed and die-cut, for the body and leg parts, and also for the fingers, thus attaining cheapness. I have found that such material is perfectly satisfactory if the legs are securely enough supported, and is easy to work with, taking glue readily, being easy to nail through, and being capable of being accurately shaped under die cutting, which is not true of wood, another alternative form of construction.

The invention provides for employing the lower ends of the front legs of the animal, in one form of structure, as bearings for the front axle. An advantage of this structure is the accurate spacing of the axle bearings from the front leg pivots which may be thereby obtained.

The invention contemplates that the fingers shall serve the additional function of supporting the body and legs in parallel planes and maintaining the pivots at right angles to the body, a function which becomes necessary where the pivot bearings comprise simply holes through the two closely spaced body sides of thin material such as cardboard. Without this feature there is a decided tendency for the legs to cant relative to the body.

Another function of the rear finger is to provide a stop to prevent the rear legs from elevating beyond a desirable limit. In this connection, it is to be noted that the preferred form of body structure is two sides spaced apart and secured together by a strip of material at the top of the body, inserted between the sides. The rear finger makes contact with this strip in acting as a stop.

Another object is to employ the fingers or equivalent means for spacing the legs laterally relative to the body, whereby the legs may be spaced a substantial distance apart and yet remain centered relative to the body, in a structure wherein the legs are secured to cylindrical pivots which pass freely through holes in the sides of the body.

In another form of the invention, only two legs, one front and one rear leg, are employed, and the fingers are formed integrally with such legs, the pivots serving in this instance, merely as pivots. In this form, the tail may be formed integrally with the rear leg.

Another object is to provide, in that form of the invention simulating a donkey, means for retaining the connecting rod which connects the axle crank to the body to transmit movement thereto. This is accomplished by passing the rod through a slot in the base to which the front legs of the figure are secured.

Other objects are to provide, in that form of the invention which simulates a kicking mule, an improved construction for securing the front leg of the two legged type to the base; an improved means for securing the front legs of the four legged type to the base, wherein such securing means is employed also to hide the edges of the base so that a rough sawed block of wood may be employed for a base if desired; an improved structure for allowing the head of the figure to

lower while the body raises; to provide a body structure involving a pair of sheet metal sides formed in a single sheet and connected by an integral web which forms the top or back of the figure when formed, which forms means for accurately positioning the two sides in spaced relation with their pivot holes registering with each other, and which serves as a stop to limit rear leg movement; and to provide a sheet metal body structure of this type in which a pair of ears at the lower extremity of the neck portions of the body serve to connect the body to the connecting rod, and form the terminations of a painted representation of a collar.

The present application is a continuation in part of abandoned application No. 509,725, filed January 19, 1931, abandoned June 15, 1933.

Practical features of the invention will be understood from the description hereinafter setting forth other objects and more definitely specifying the construction of the invention in its several forms in connection with the appended drawings, in which:

Figure 1 is a vertical longitudinal sectional view through one form of the invention, wherein only two legs are embodied, the raised position of the figure being shown in dotted lines.

Figure 2 is a side elevation of the body portion of this form of the toy,

Figure 3 is a sectional view taken on the line 3—3 of Figure 1,

Figure 4 is a detail sectional view taken on the line 4—4 of Figure 1,

Figure 5 is a plan view of the base,

Figure 6 is a detail sectional view taken on the line 6—6 of Figure 1,

Figure 7 is a longitudinal vertical sectional view of a modified form of the invention,

Figure 8 is an inverted plan view of the same,

Figure 9 is a sectional view taken on the line 9—9 of Figure 8,

Figure 10 is a detail sectional view taken on the line 10—10 of Figure 9,

Figure 11 is a longitudinal sectional view through a further modified form of the invention,

Figure 12 is a front elevation of the same,

Figure 13 is a detail sectional view taken on the line 13—13 of Figure 11.

Figure 14 is a view of a further modified form of the invention,

Figure 15 is a front elevation of the same,

Figure 16 is a view of another modified form of the invention, and

Figure 17 is a rear elevation, partly in section, of the same.

This application is a continuation in part of application Serial Number 509,725, filed January 19th, 1931, allowed December 13th, 1932.

In the form of the invention shown in Figures 1-6, the base A is formed of sheet metal including the central body portion 10 and the side flanges 11.

The crank axle B has the trunnion portions 12 which are journaled in holes 13 punched in the flanges 11 of the base, the central crank portion 14, and the end crank throws 15 which are connected to the trunnion portions 12 by short crank arms 16. Wheels 17, which are preferably formed of wood, axially drilled to receive the crank throws 15, are secured to the latter by wedging them over the same.

The throws 15 are disposed at about 180° to the crank 14, whereby as the latter moves downwardly, the trunnions 12 will also move downwardly, and the downward movement of the base 10 and

the forward portion of the figure C secured thereto will compensate for upward movement of the parts of the figure which are raised.

It will be seen that the important features of construction to secure balancing is that the axis of eccentricity shall move downwardly as the figure is raised. In speaking of the axis of eccentricity, reference is had to the axis of the trunnions 12.

It is not essential that the axis of eccentricity be intermediate the wheel axis and the axis of the central crank. For instance, instead of pulling, as the axle does in Figures 1-13, the crank may lift the weight of the movable part by pushing upwardly, as in Figures 14 and 15. In this form of the invention, the movable part may comprise a head 100, mounted on a neck 101 which is vertically slidable between the side walls 102 of a body representing, for instance, a duck, and the web members 103 and 104 to which the sides are secured. In this case the trunnions 12b are disposed on the opposite side of the wheel axis from the crank 14b which is journaled in the lower end of the neck 101. The trunnions 12b are journaled in the lower regions of the sides 102.

The top 10 of the base is provided with a slot 18 through which the connector 19 extends (Figure 1). Since the slot constrains the connecting rod to a centered position, the crank may be made with broadly sloping sides 20 as shown.

The flanges serve as end bearings for the crank arms 16.

The figure C has the front leg 24, the head 25, and the combined rear leg and tail member D. The members 24, 25, and D may be formed of 3-ply wood, outlined by a bandsaw, or of material which may be die cut, such as cardboard.

The front leg 24 at its lower end is secured in a saddle 26, formed of a strip of metal, received in a slot 27 in the base 10, and provided with flanges 28 which are secured against the upper surface of the base by tongues 29, struck up from the base and thence bent down against the flanges 28. The front leg may be secured between the walls of the saddle by punching the latter into the material of the leg as at 30.

The body member E comprises the flat side walls 31 connected by an integral web 32 which partially conceals the interior mechanism of the figure from above, forms the back of the figure, and serves to space the side walls the correct distance apart.

The side walls are provided with small openings punched therein, these openings being designated in Figure 2 by the reference numerals 33, 34, and 35. The members 24, 25, and D are provided with pins 36, 37, and 38, which may be simply driven through the material of these members and allowed to project on both sides thereof.

In assembling the figure, if the pins are secured in the members 24, 25, and D prior to assembly, the sides 31 are simply spread apart a trifle with the fingers and the members are inserted until the pins pass through the respective openings 33, 34, and 35. The sides are then brought together and the tongue 29, which is formed on one of the sides, is bent around the edge of the other side and upwardly thereagainst as shown in Figure 2. This will secure the sides against spreading.

The pivot 36 is positioned near the lower extremity of the body E, and the pivot 37 is positioned near the upper extremity of the neck por-

tion of the head 25. From the respective pivots, the leg 24 extends upwardly to provide a curved cam surface 38—*a* and the neck portion of the head extends downwardly to provide a cam surface 39—*a* which rides against the cam surface 38—*a*. The parts are arranged so that the point of contact between these cam surfaces remains close to the line connecting the pivots 36 and 37 as the figure moves from one extreme to another. This insures a maximum freedom of movement between the head and front leg.

As the body raises, the head will drop downwardly at a faster rate than the forward end of the body.

The front leg is provided with a finger 40 which projects rearwardly, and the member D is provided with a finger 41 which projects forwardly and engages the lower surface of the finger 40.

The engagement of these fingers is rather close to the line connecting the pivots 36 and 38, whereby the greatest ease of action is secured. The point of contact between the fingers moves rearwardly as the body moves upwardly, and consequently the speed with which the rear leg is raised will increase due to the ratio between the effective lengths of the fingers. This is desirable since the inertia of the rear leg must be overcome at the beginning of the lifting movement, and such inertia will gradually decrease as the leg moves upwardly.

The rear edge of the web 32 acts as a stop to contact the tail 42, limiting upward movement of the rear leg.

The representation of a harness is painted on the flat sides 31 as by stencilling, and includes a belly strap 44 which registers with the tongue 39 so that the latter will not be unsightly. If desired the representation of a buckle 45 may be added, to give the effect that the tongue forms the end of a strap inserted therein. A painted representation of a collar 46 terminates at its lower end in a pair of ears 47 bent together as illustrated in Figure 3, and perforated as at 48 to receive the upper end of the connector 19, which is hooked through the perforations as shown. The ears 47 also function to space the side walls 31 at their lower extremities.

An opening 49 in the base is provided to receive a pull cord.

Rear wheels 50 are mounted on a rear axle 51 journaled in the flanges 11.

The parts are arranged so that the rear leg may just contact the base at the bottom of its path of movement, thus constituting the device a sounding toy.

In the form of the invention shown in Figures 7-10 inclusive, the base A is provided with a slot 60 which opens into the forward end of the base. The cavity 61, which may be formed on a circular saw, accommodates the crank 14 as it rotates.

The figure 62 is band sawed of wood or the like and comprises a front leg 63 and rear leg 64. The front leg 63 is projected through the slot 60 and provided with a finger 65 resting against the lower side of the crank 14. The leg is pivoted by means of a pin 66 to the under side of the base at a position spaced rearwardly from the crank 14, whereby as the latter rotates, the finger 65 will be oscillated causing the figure to be lifted and moved forwardly and thence allowed to drop back until the rear leg 64 contacts the base.

The finger 65 is preferably formed by means of a slot 67 sawed into the front leg, the material above the slot 67 forming a front foot 68 which has a slight amount of raising and lowering movement.

The rear wheels 69 may be secured to the base by means of pins 70 driven into the base.

A pull element 71 provides for attachment of a cord.

The pin 66 is secured by staples 72 which hold it in a groove 73 sawed in the base.

In the form of the invention shown in Figures 11, 12 and 13, the construction is adapted to the use of cardboard for the figure. In this case, the body includes two separate side walls 31*a*, joined by gluing to a backbone strip 75 coinciding with the upper edges of said sides, and projecting to form the head 25*a*. These parts are die cut from stock which has been previously lithographed or color printed to provide the finish for the toy, on paper stock 76 glued to both sides of the cardboard stock 77 (Figure 13). All cardboard parts may be cut from the same sheet of board. The paper covering 76 does not extend, however, over those portions of the board from which are cut the fingers 40*a* and 41*a*, which are consequently provided with sufficient clearance to operate smoothly in the space defined by the thickness of the backbone 75 with its double thickness of covering paper.

The fingers 40*a*, 41*a*, are glued into slots sawed into the cylindrical wooden pivots 78, 79.

The pivots are journaled in round openings 80, 81 in the side walls 31*a*. They project considerably beyond the body, so as to give the legs 24*a*, 24*a* and 52*a*, natural spacing, and to provide room for the crank 14*a*, between the front legs 24*a*, in the lower projecting extremities of which it is journaled as at 82. In view of this wide spacing, the fingers 40*a*, 41*a* serve the additional function of preventing axial movement of the pivots 78, 79 relative to the body, and thus hold the body centered relative to the front legs, and the rear legs evenly spaced from the body.

The rear finger 41*a* has a rearwardly extending portion 83 which serves by contact with the backbone 75 to limit upward movement of the rear leg. The front finger 40*a* serves to support the body with the rear legs just slightly removed from contact with the base when at rest, but the resiliency of the parts is such that the legs may contact when returning downwardly from their elevated position. Wedging of the legs against the base is thus avoided.

The fingers 40*a*, 41*a* are sufficiently wide in height to prevent the body from canting sideways relative to the front pivot 78, and to prevent the rear legs from hanging askew relative to the body. This has been discovered to be an important problem in connection with the narrow body and the small amount of bearing space, in an axial direction, provided by the holes in the body.

The form of the front legs may be printed on the lower regions of the members 24*b* into which the legs merge, the latter serving to give secure attachment of the legs to the base 10*b*, to conceal the edges of the base, and to represent, by suitable printing, a field of grass in which the animal may be standing. Nails 84 serve to secure the members 24*b* to the wooden base.

The connecting rod 19*a* is formed of cardboard, and is centered in a slot 18*a* in the base.

The legs are secured by gluing and brads 85 to the flat ends of the pivots 79, thus giving se-

cure support to the rear legs, which rely entirely on their attachment to the pivots for support.

The tail 90 is secured to a bevelled corner of the back 75 by gluing. The rear wheels 69a are secured by nails 70a.

The axle may derive its eccentricity from the eccentric points of attachment of the trunnions 12b to the wheels, the end cranks being thus eliminated (Figure 15). The end cranks have the advantage, however, of making it impossible for the wheels to shift relative to the axis of eccentricity, since the end cranks are just sufficiently long to bring the points of attachment of the axle to the centers of the wheels.

In the form of the invention shown in Figures 7-10, the bearings are formed by setting the trunnions in grooves 23 cut in the wooden base 10a, and covering them with metal plates 21 the edges of which are flush with the edges of the base, thus preventing the crank arms from catching in the grooves 23. Brads 22, driven into the base, secure the bearing plates 21. Similar bearing plates 21a are secured to the lower ends of the front feet 24c of the form of the invention shown in Figures 16 and 17, and form bearings together with grooves 23a in the feet.

The toy shown in these figures may be made of wood, and the legs secured on the reduced ends 110 of the pivots 73a and 79a. The body is formed of a single block of wood, grooved as at 111 to allow operation of the fingers 41b and 40b. The base in this case is simply a rod 112, U-shaped, its ends inserted in holes in the legs 24c. A rear wheel 113 is journaled on the cross member of the U-shaped rod 112.

I claim as my invention:

1. In a wheeled figure toy, a base member, an axle, wheels attached to the ends thereof, a crank formed in said axle intermediate its ends, said axle being journaled relative to the base on an axis that is eccentric relative to the wheels and relative to said crank, and a figure including a member pivotally supported relative to the base and an element constituting an operative connection between said pivotally supported member and the crank, said element serving to transmit movement from the crank so as to raise the pivotally supported member as the axis of eccentricity moves downwardly.

2. In a wheeled figure toy, supporting means comprising a base element and a leg element attached thereto, an axle, wheels attached to the ends thereof, a crank formed in said axle intermediate its ends, said axle being journaled relative to the supporting means on an axis that is eccentric relative to the wheels and relative to the crank, a figure body pivotally attached to said leg, and an operative connection between said crank and the body, serving to transmit movement from the crank so as to raise the body as the axis of eccentricity moves downwardly.

3. A figure toy comprising wheel mounted supporting means, a figure part movably carried by said supporting means for movement against gravity, an axle, wheels attached to the ends thereof, a crank formed in said axle intermediate its ends, said axle being journaled relative to the supporting means on an axis that is eccentric relative to the wheels and relative to the crank, and an operative connection between said part and the crank, serving to transmit movement from the crank so as to raise said part as the axis of eccentricity moves downwardly.

4. In a figure toy, a figure including a body comprising spaced sides, front and rear legs

pivoted to the body, and fingers rigidly associated with the respective legs and projecting toward each other into overlapping relation between the sides, the rear finger contacting with the lower side of the forward finger to receive movement therefrom.

5. In a figure toy, a figure including a body comprising spaced sides, front and rear legs pivoted between said sides, and fingers integrally formed on the respective legs and projecting toward each other into overlapping relation between the sides, the rear finger contacting with the lower side of the forward finger to receive movement therefrom.

6. In a figure toy, a figure including a body comprising spaced sides, spaced leg pivots extending transversely through the sides and journaled therein, front and rear legs secured to the respective pivots outside the body, and fingers secured to the respective pivots between the sides, said fingers projecting toward each other into overlapping relation, the rear finger contacting with the lower side of the forward finger to receive movement therefrom.

7. In a figure toy, a figure including a body comprising closely spaced sides of relatively thin material, spaced leg pivots extending transversely therethrough and journaled therein, front and rear legs secured to the respective pivots outside the body, and relatively wide flat fingers secured to the respective pivots between the sides, said fingers projecting toward each other in overlapping relation, the rear finger contacting with the lower edge of the forward finger to receive movement therefrom, and holding said pivot in a position centered and perpendicular to the sides.

8. In a figure toy, a figure comprising a front leg, a body member including a pair of sides between which the front leg is pivoted, a hind leg and tail formed integrally and pivoted between the sides, a finger projecting rearwardly from the upper end of the front leg, a finger projecting forwardly from the hind leg and tail member and contacting with the lower side of the front leg finger.

9. In a figure toy, a figure comprising a front leg, a body member including a pair of sides between which said leg is pivoted, a rear leg pivoted between said sides, fingers formed on the front and rear legs, the finger on the rear leg being engaged beneath the finger on the front leg, a head including a neck portion pivoted near its upper rear extremity between the sides and depending into contact with the forward upper portion of the leg, the latter projecting above the front leg pivot.

10. In a figure toy, a body including closely spaced sides of relatively thin material, a leg pivot projecting transversely therethrough and journaled therein, legs secured to said pivot outside the body and spaced from said sides, and a flat, relatively wide element secured to the pivot between said sides and holding the pivot in a position centered and perpendicular to the sides, whereby said legs are retained in properly spaced positions and parallel to the sides.

11. In a figure toy, a body including closely spaced sides of relatively thin material, a leg pivot of relatively large diameter projecting transversely therethrough, legs secured to the ends of said pivot, the pivot having a transverse slot intermediate its ends, and a flat element secured in said slot between the sides and holding the pivot in a position centered and per-

pendicular to the sides whereby the legs are retained in positions properly spaced from and parallel to said sides.

5 12. In a figure toy, a base, a figure including spaced parts secured to the sides of the base and a movable part associated movably with said parts above the base, said spaced parts having portions projecting below the base, an axle journaled in said portions and formed with a crank between
10 said portions, and an operative connection between said crank and the movable part, to transmit movement thereto.

13. In a figure toy, a base, a figure including spaced legs secured to the sides of said base and
15 a body pivoted between said legs above the base, an axle journaled in said legs and formed with a crank between said legs, and an operative connection between said crank and the body for transmitting movement therebetween.

20 14. In a figure toy, a base formed of sheet metal and provided with a longitudinal slot, a saddle comprising a channel shaped member having depending side walls received between the side edges of said slot and terminating in flanges resting
25 against the upper surface of the base adjacent the slot on either side thereof, means for securing said flanges in contact with the base, and a figure including a leg member received between the side walls of said saddle and secured thereto.

30 15. In a figure toy, a figure including a body comprising spaced sides and a back member connecting said sides, front and rear legs pivoted to the body, fingers rigidly associated with the legs and projecting toward and overlapping each
35 other between the sides, the rear finger contacting the forward finger from below said forward finger to receive movement therefrom, and a stop member rigidly associated with said rear leg and adapted to engage said back member to limit upward movement of the rear leg.

40 16. In a figure toy, a figure including a body

comprising spaced sides and a back member connecting said sides, front and rear legs pivoted to the body, fingers rigidly associated with said legs and projecting toward and overlapping each other
5 between the sides, the rear finger contacting the underside of the forward finger to receive movement therefrom, and the forward finger contacting the underside of the back member to hold the body in a position wherein the rear leg will
10 be suspended relative to the front leg.

17. In a figure toy, a figure including a body comprising spaced sides, front and rear legs pivoted to the body, and fingers rigidly associated with the respective legs and projecting toward
15 each other into overlapping relationship for transmitting movement from one leg to the other, said fingers being embraced between said sides and thereby retained in operative engagement with each other.

18. In a figure toy, a figure including a body
20 comprising spaced sides, spaced leg pivots extending transversely through the sides and journaled therein, front and rear legs secured to the respective pivots outside the body, and fingers secured to the respective pivots between the sides
25 and projecting toward each other into overlapping relationship for transmitting movement from one leg to the other, said fingers being retained in operative engagement with each other by the embracing contact of the sides.

30 19. In a figure toy, a figure including a fixed leg, a body pivoted thereto on a horizontal axis, a movable leg pivoted to the body, fingers rigidly associated with said legs and projecting toward each other into overlapping relationship so as to
35 cause the movable leg to swing upwardly relative to the body when the latter swings upwardly relative to the fixed leg, and means for raising the body relative to the fixed leg.

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