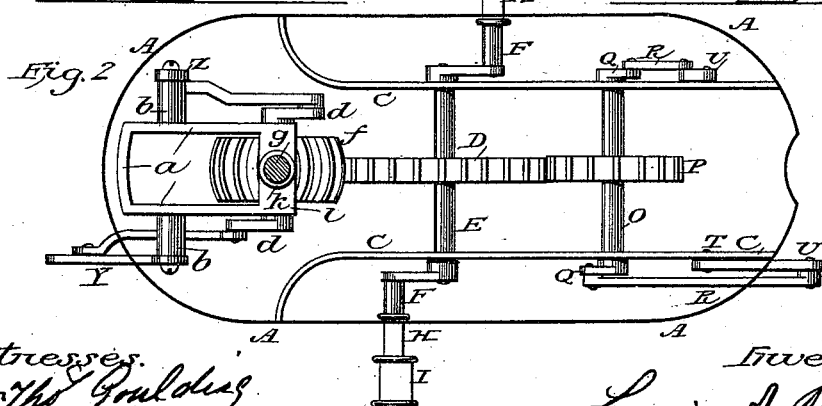
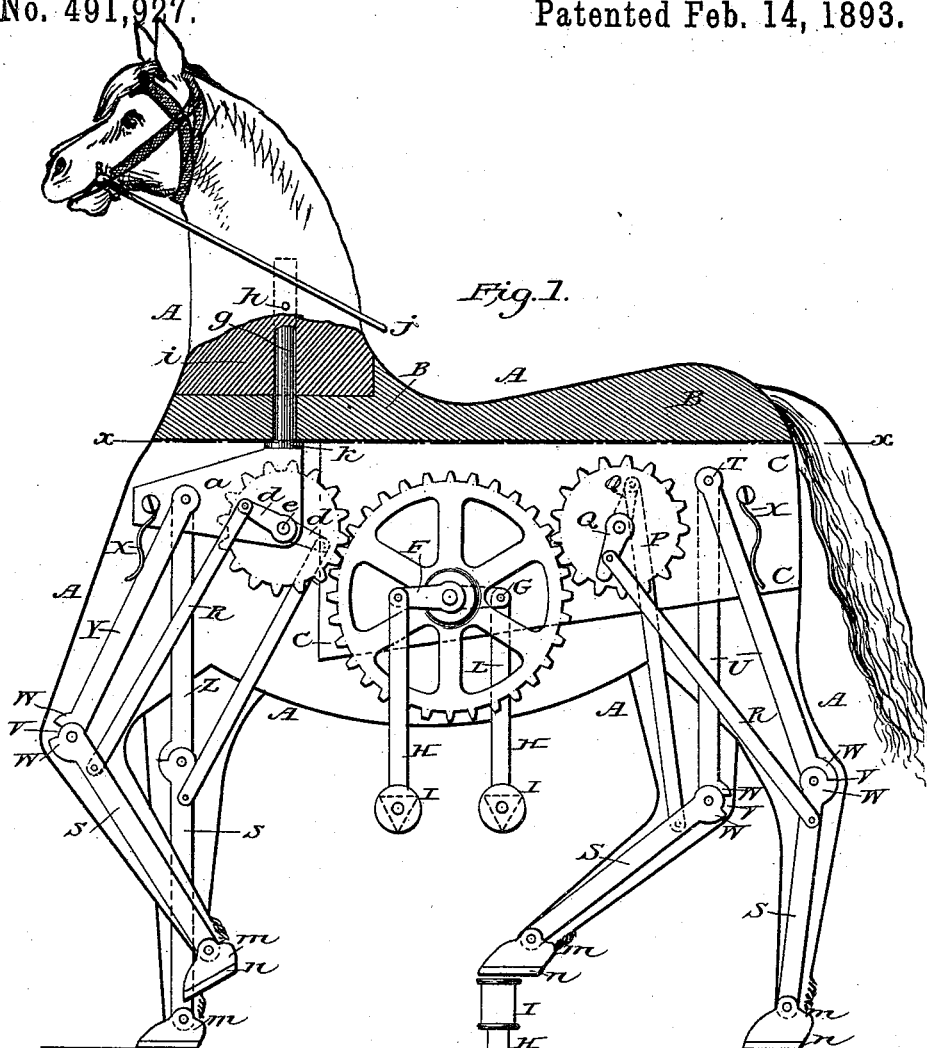


(No Model.)

L. A. RYGG.  
MECHANICAL HORSE.

No. 491,927.

Patented Feb. 14, 1893.



Witnesses:  
*The Building*  
*Emil Ellingsen*

*Inventor:*  
*Lewis A. Rygg*  
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*Attorney*

# UNITED STATES PATENT OFFICE.

LEWIS A. RYGG, OF ST. PAUL, MINNESOTA.

## MECHANICAL HORSE.

SPECIFICATION forming part of Letters Patent No. 491,927, dated February 14, 1893.

Application filed April 8, 1892. Serial No. 423,412. (No model.)

*To all whom it may concern.*

Be it known that I, LEWIS A. RYGG, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Mechanical Horses; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

15 This invention relates to mechanical animals.

The object of the invention is to provide a mechanical horse of convenient size for a person to ride on, and of such construction that the rider may operate the horse with his feet, causing it to walk, guiding it, &c. I attain this object by the novel construction and arrangement of parts illustrated in the accompanying drawings, in which—

25 Figure 1, is a side view of my mechanical horse with its left side covering and frame C, removed so as to facilitate examination of the interior of the horse. Fig. 2, is a top plan view of the horse with the top part of the body above the line *x, x*, of Fig. 1, removed. Also the hoofs and legs below the knees are not shown in Fig. 2.

35 Referring to the drawings by letters, A, A, represent the outlines, surface or covering of the body of the horse. Such covering may be made of sheet metal, leather, rubber or canvas held in shape by any suitable frame work of wire or other materials.

40 B, B, is a plank or block forming the back and main frame of the horse. To this block B, are secured the two dependent frames C, C, between which are located the gear wheel D, secured upon the shaft E, journaled in the frames C, C, and carrying at its two ends outside the frames C, the cranks F, and G, adapted to be operated by the feet of the rider in the manner usual for riding bicycles by stepping on the crank pin or a block provided thereon. I prefer however to operate the 50 cranks indirectly by means of a pitman H, and stirrup I, as shown at the crank F, upon the left side of the horse. In the frames C, C,

is further journaled the shaft O, carrying secured to it the small gear wheel P, that engages with and is driven by the main wheel D. At each end of the shaft O, is secured a crank Q, to which is pivotally connected a pitman R, the lower end of which is pivoted to the hind legs S, of the horse, a little below the knee. To the frame C, C, are further pivoted at T, the thigh-bars U, the lower ends of which are pivoted to the upper ends of the leg bars S, in such a way as to form a stop joint V, that may be bent forward as far as the stroke of the crank Q, provides for, but backward it can only be bent until the stopping lips W, meet after which the joint becomes stiff and the entire leg above and below the knee must swing on the pivot T, until the body of the horse has moved enough forward to permit the cranks Q, to turn past their lower centers. The springs X, and studs or screws by which they are secured to the frames C, serve to keep the hind legs from swinging too far back.

75 The front legs Y, and Z, are so nearly of the same construction as the hind legs that a repetition of the description is unnecessary. It will be observed, however, that the knee joints V, have their stopping lips W, and springs X, in front of the legs. The front legs are pivoted to a separate frame or hood *a*, or in the present instance to studs *b, b*, provided upon said hood, and are operated by the cranks *d, d*, fixed upon the ends of the shaft *e*, that is journaled in the said hood and at its middle has a gear wheel *f*, secured to it which meshes with and is operated by the main gear wheel D. The hood *a*, is provided with a round stem *g*, that extends upward through and is journaled in the block B. The upper end of said stem *g*, is secured by a pin *h*, in the neck piece *i*, which is otherwise loosely mounted upon the front part of the horse so that the operator by taking hold 95 of the reins *j*, or other suitable hand hold (not shown) may turn the head of the horse and thereby the hood *a*, and front legs Y, Z, to the right or left as may be desired, to direct the motion of the horse. *k*, is a collar provided at the top cross bar *l*, of the hood *a*, around the stem *g*, to make a proper swivel joint against the under side of the block B. The gear wheel *f*, is made thick enough to 100

prevent its disengagement with the gear wheel D, when it is swung to either side together with the hood and in order to make its swinging more easy, the face of the said wheel *f*, is crowned to a circle having its center in the center line of the stem *g*.

All four of the horse's feet are provided with hoofs *m*, pivoted to the lower ends of the bars S, S. The bottom portions *n*, of said hoofs are made of rubber in order to prevent the horse from slipping; said rubber also prevents jars and jerks to the rider, caused by the steps of the horse; for the latter purpose I also provide upon the back of the horse a suitable spring saddle (not shown) for the rider to sit on.

In operation the rider takes his seat on the back of the horse or on a saddle placed thereon, places his feet in the stirrups or treadles and operates the main wheel D, whereby the wheels P and *f*, and all four of the horse's feet are operated. In the meantime he guides the horse by turning its head and front legs to either side as described.

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

1. In a mechanical horse the combination with the block B, and dependent frames C, the driving gear D, shaft E, cranks F, and G, having stirrups like I, suspended from the

pins of said cranks, the gears P, and *f*, meshing with said driving gear and having shaft and cranks for operating the legs of the horse, of the pitmen R, operated by said cranks, the leg bars S, and thigh-bars U, operated thereby, said thigh-bars being pivoted to the frame of the horse and joined to the leg bar S, by a stop joint and having the stop springs X, substantially as and for the purpose described.

2. In a mechanical horse the combination with the body-block B, and frames C, of the driving wheel D, driven wheels P, and *f*, cranks Q, pitmen R, and hind legs U, S, S, of the front legs, having stop joints at the knees. The hood *a*, to which the front legs are pivotally secured, the shaft *e*, secured in the wheel *f*, and having cranks *d*, and pitmen R, for operating the legs, said hood being secured to the swiveling neck and head piece *i*, of the horse by a round stem forming a swivel joint in the plank or block B, and having a collar *k*, for the block B, to rest upon, substantially as and for the purpose set forth.

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

LEWIS A. RYGG.

Witnesses:

THOS. P. BRENNAN,  
A. M. CARLSEN.