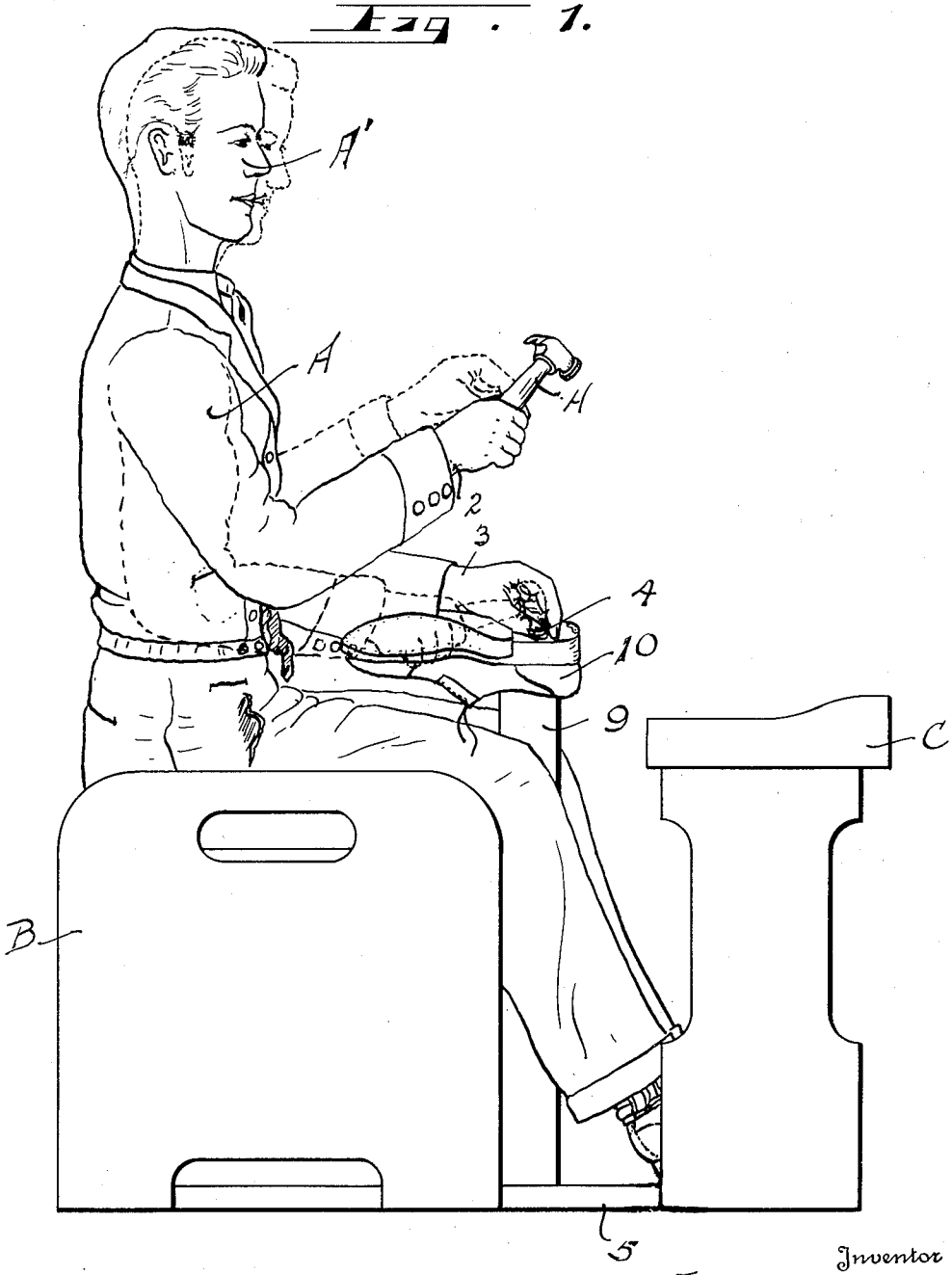
Nov. 7, 1950 I. NELSON ET AL 2,528,968

AUTOMATON

Filed Oct. 25, 1948 5 Sheets-Sheet 1

Fig. 1.



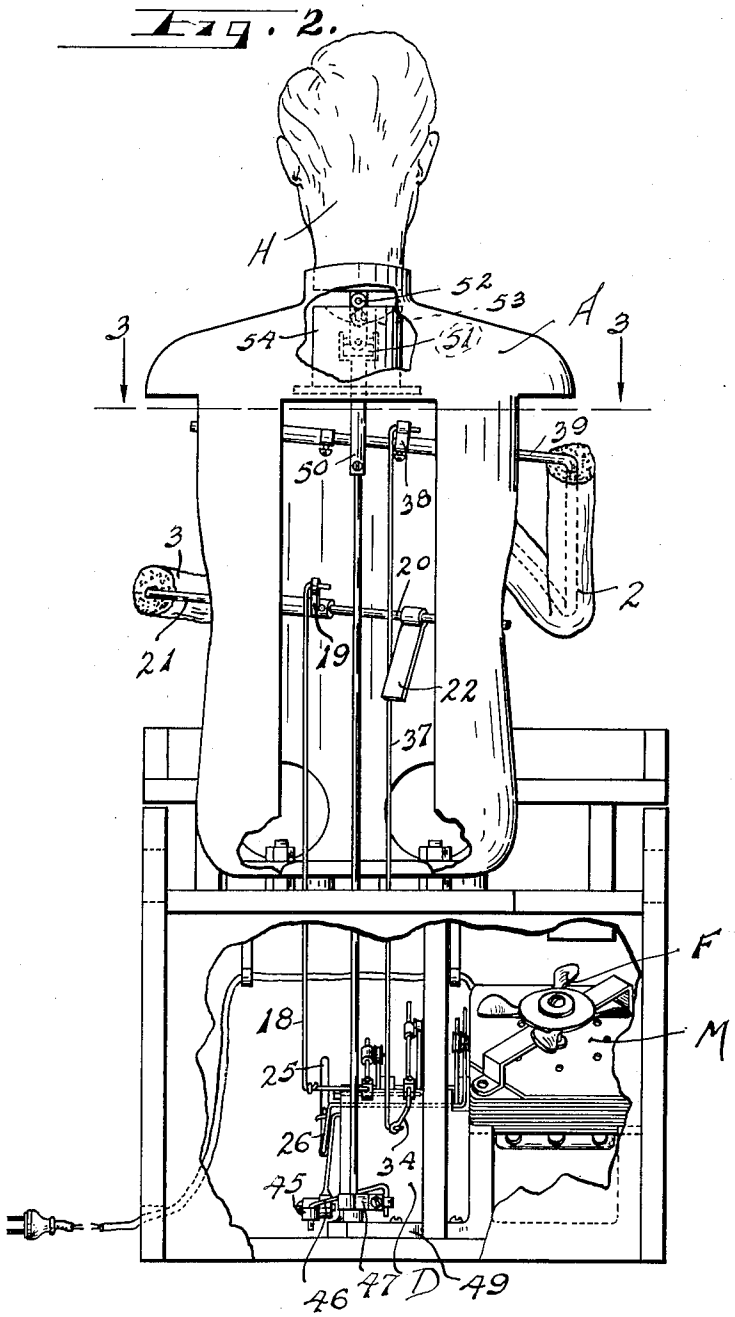
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Filed Oct. 25, 1948 5 Sheets-Sheet 2

Fig. 2.



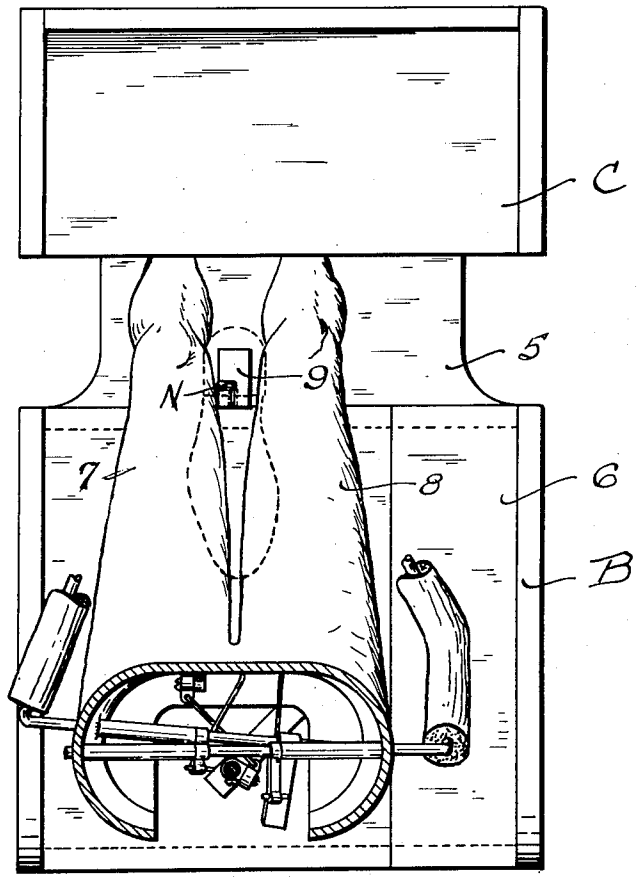
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Filed Oct. 25, 1948 5 Sheets-Sheet 3

Fig. 3.



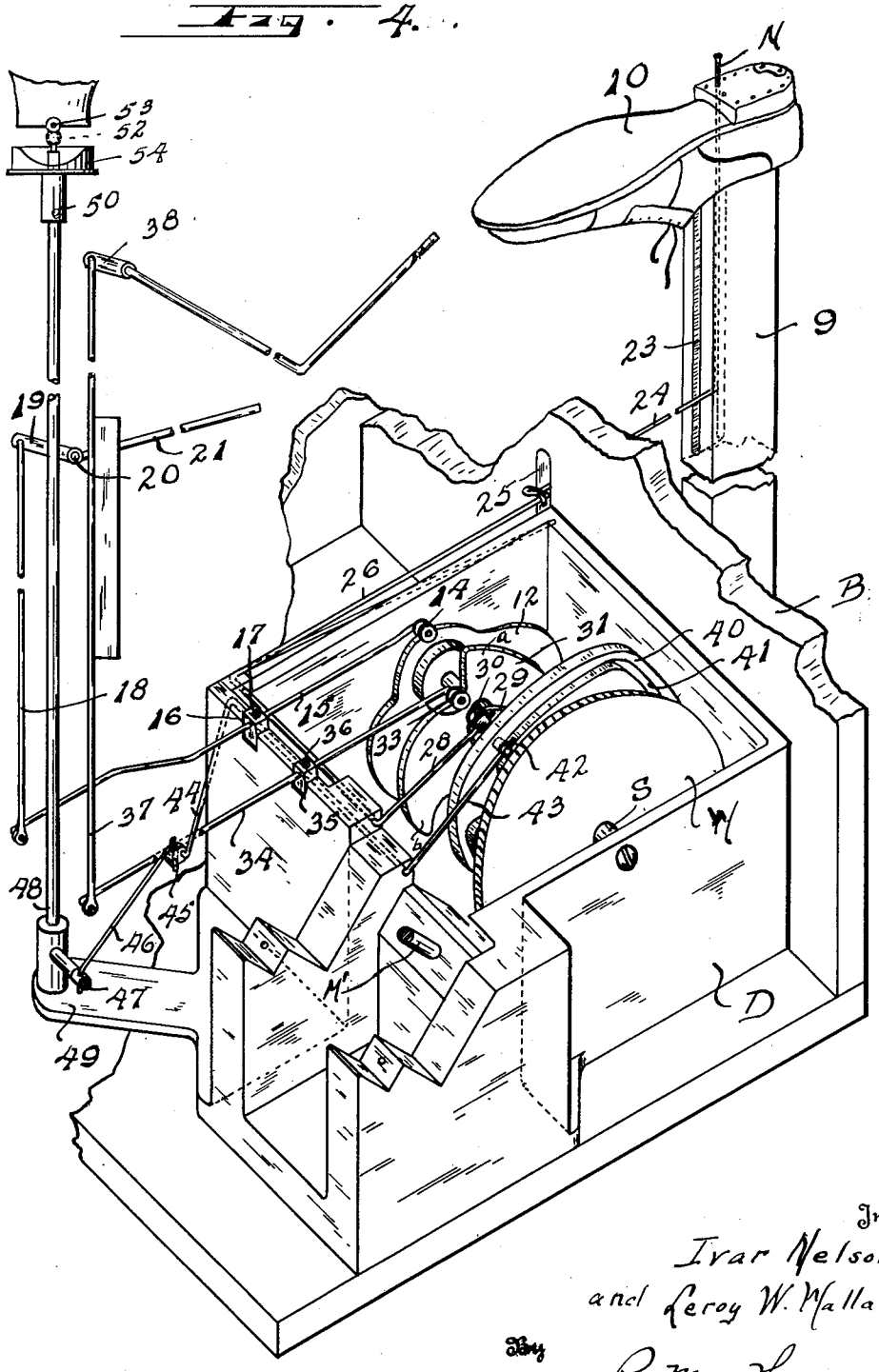
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Nov. 7, 1950 I. NELSON ET AL 2,528,968

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Filed Oct. 25, 1948 5 Sheets-Sheet 4

Fig. 4.



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Nov. 7, 1950 I. NELSON ET AL 2,528,968

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Filed Oct. 25, 1948 5 Sheets-Sheet 5

Fig. 5.

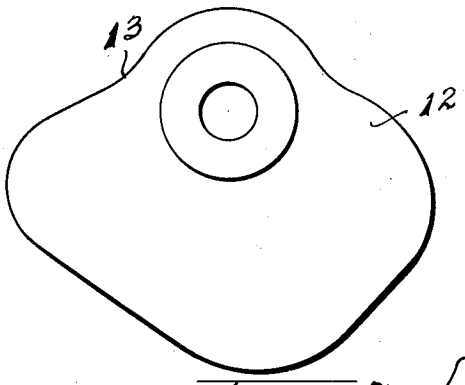


Fig. 6.

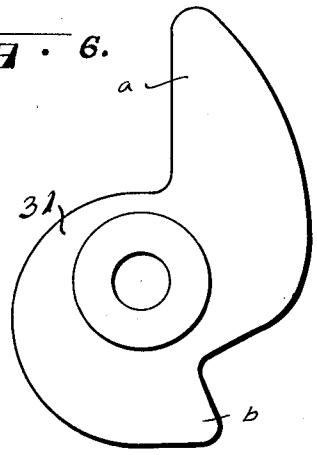


Fig. 7.

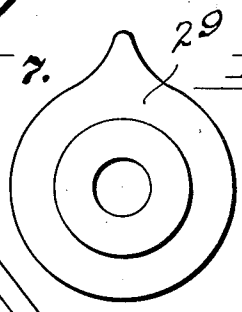


Fig. 9.

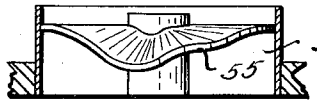


Fig. 8.

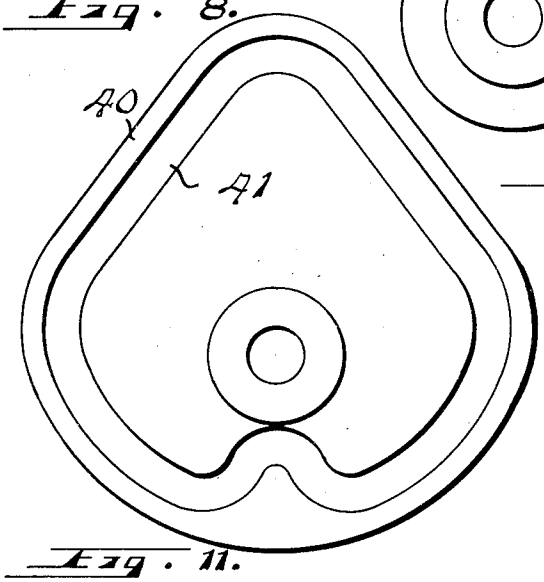


Fig. 10

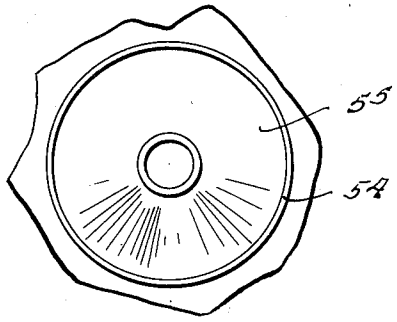
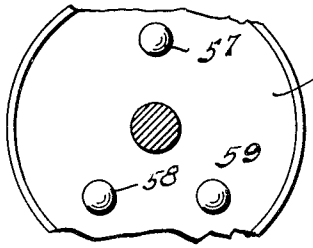


Fig. 11.



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Patented Nov. 7, 1950 2,528,968

UNITED STATES PATENT OFFICE

2,528,968

AUTOMATON

Ivar Nelson and Le Roy W. Wallace,
Los Angeles, Calif.

Application October 25, 1948, Serial No. 56,422

6 Claims. (Cl. 40—126)

1

The invention relates to an automaton or manikin, namely a self-moving machine which imitates life like motions.

An object of the invention is to provide an automaton having a movable head, with means for turning the head from one side to the other and for tilting the same in a life like manner.

Another object of the present invention is to provide an automaton having a movable head and movable arms which are operated in timed relation with each other in a life like manner, particularly to simulate the act of cobbling a shoe.

Our invention relates to advertising mediums and has for its object to provide a new and highly efficient means for and method of attracting attention of traffic passing down a busy street to the fact that cobbling or shoe rebuilding is being done.

A further object is to provide an automaton which simulates the act of nailing a work piece.

A further object is to provide a puppet shoemaker working on a shoe with all appearances of driving a nail into the heel of the shoe.

The invention provides a miniature man giving all the movements of hands and arms and head of a shoemaker driving nails into a shoe, the hammer driving the nail, the hand traveling to the mouth as though getting another nail and then down to the heel of the shoe where, when the hand again leaves the shoe a nail is visible sticking up from the heel of the shoe and which nail is then struck by the hammer and driven down into the shoe.

The claims in this case are being limited to the nailing feature, while claims generic to this case and to co-pending application Serial No. 101,522 filed June 27, 1949, for AUTOMATON are being made in the latter case, particularly with regard to the head cam, the cam assembly and to cams for elevating an arm or arms supported to drop by gravity.

These objects we accomplish with the device illustrated in the accompanying drawings, in which similar numerals and letters of reference indicate like parts throughout the several views and as described in the specification forming a part of this application and pointed out in the appended claims.

In the drawings Figure 1 is a side elevation of the puppet, showing how the finished model appears and giving the positions of the hands at two different positions of the operation.

Figure 2 is a rear elevation of Figure 1, parts cut away to show the operating parts of the device.

Figure 3 is a section on line 3—3 of Figure 2.

Figure 4 is a perspective diagrammatic illustration of the various cams, shafts, and operating parts of the invention.

Figure 5 is a plan view of the cam for operating the left arm.

2

Figure 6 is a plan view of the cam for operating the hammer-operating arm.

Figure 7 is a view of the cam for operating the nail simulating wire.

Figure 8 is a view of the cam race for operating the head.

Figure 9 is a cut away view of the neck collar of the figure showing the ramp for causing the head to tilt and move the chin up and down.

Figure 10 is a plan view of Figure 9.

Figure 11 is a view of the base of the neck which rests on the ramp shown in Figure 9.

In the drawings we have shown our mechanism as a model of a man A, seated on a cobbler's bench B, to which the cobbler's tray C is attached by mounting the entire device on a base 5. One arm 2 of the body is provided with a hammer H and the other arm 3 is provided with the hand 4 showing the fingers as though they were grasping a shoe nail. The hands are operated to simulate the work of a cobbler. The left hand 4 is raised to the mouth as though taking a tack or nail from the mouth and then lowered to the heel of the shoe 10, while simultaneously the right arm is raised and driven down quickly as though driving a nail or tack with the hammer H. When the hand 4 is raised from the heel of the shoe a nail N is shown ready to be driven by the hammer. This nail N is the top end of a rod which extends down through the heel and is raised and held by friction until the hammer strikes it, being raised to the elevated position while the fingers of the hand 4 are in contact with the heel, as shown in Figure 1. The head A' is slightly raised and lowered while it is being partially rotated from side to side in such a manner that it gives all the appearances of a natural person working on a cobbler's bench repairing shoes. Each time the hammer drives down it forces the nail down into the shoe heel and each time the right hand is raised and the left hand lowered to simulate placing a nail the nail N is elevated to the raised position so that when the hand leaves the shoe heel it gives all the appearances of having left a nail sticking in the heel ready for the hammer.

The operating mechanism for the device consists of a casing D in which the worm gear for driving the device is mounted and in which the operating cams and races are all mounted and operated, the casing being adapted to be completely enclosed and filled with oil to prevent wear on the cams and their coacting rollers and arms. Transversely through the case D there is a shaft S which carries all of the cam races and the driving worm wheel W. The worm wheel W is driven by a worm driven directly by the motor M, the shaft M' extending down from the motor to the worm inside the gear boxing. The motor M is mounted on a bracket extension on the back side of the casing D and the motor is mounted on an angle and provided with a cooling fan F to

direct air currents over the motor to keep it from overheating from constant running.

On the shaft S there is a cam 12, the perimeter 13 of which is formed to actuate the left arm in its desired motions by the connecting or contacting roller 14, shaft 15 and pivot block 16. The pivot block 16 is provided to enable the builder to get the shaft perfectly placed by use of the set screw 17 in the block 16. The end of the shaft 15 is pivotally attached to the vertical rod 18 which is connected to the lever 19 mounted on the transverse shaft 20 across the body A of the man. An extended arm 21 connects the shaft 20 with the arm 3 and supports and operates the arm. A counter weight 22 is attached to the shaft 20 to aid in raising the arm.

The nail N is mounted through the heel of the shoe 10 and is the upturned end of a rod 24 which operates in the slot 23 of the last support 9 which supports the shoemaker's shoe 10. The rod 24 extends through the slot 25 in the seat B and is attached to the rod 26 which is pivoted through the back of the case D with the other end bent forward at 28 carrying a roller 30 operating on the cam 29, which cam is also mounted on the shaft S.

A cam 31 is mounted between the cams 12 and 29 and actuates the right arm by a roller 33 operating over the two ramp or cam surfaces *a* and *b*. The longer surface *a* is to simulate the full hammer stroke, while the shorter surface *b* is to simulate the short stroke of the hammer when just setting the nail. This stroke is when the hand 4 is resting on the heel and appears or simulates the setting of the nail after which the hand is removed and the hammer strikes the nail N, driving it down into the heel hole. The roller 33 is on the end of a rod 34 which is pivotally mounted in the block 35 by the set screw 36. The end of the rod 34 is attached to the shaft 37 which extends up into the body of the man and the top end of the shaft 37 is attached to the lever 38 which is mounted on the transverse shaft 39 mounted across the body of the man. The end of the shaft 39 is bent forward and the arm 2 is formed thereon.

The head A' is operated by a cam race plate 40 carrying a cam groove or race 41 in one face thereof in which cam 42 is operated. This cam 42 is mounted on the rod 43 which is passed through the rear face of the case D using the case as a bearing therefor and the other end is turned down at the rod 44 which rod is attached to a block 45. The block 45 is then attached to a rod 46 which is mounted through an arm 47 on a vertical shaft 48. The top end of the shaft 48 is carried in an operating sleeve 50 and the top end of the sleeve 50 is formed as a universal 51 to allow for the nodding motion imparted to the head. A T coupling is attached to the universal with rollers 52 and 53 thereon to operate the head. A collar 54 is provided in which a curved irregular race 55 is secured and on this race 55 the spaced contact knobs 57, 58, and 59 engage. These knobs are semi-spherical in form and ride the race 55 to give the head the nodding movement, and partial movement which makes it so lifelike.

Interrupted motion is more lifelike and attractive than continuous motion. An advantage of the radial type of cams, see Figs. 5, 6 and 7, is that a period of dwell is provided by the concentric portion of the cam. Also this type of cam provides a cam assembly which is compact.

Having thus described our invention; we claim:

1. An automaton comprising a replica of a shoe maker seated on a stool; a shoe placed between his knees; a movable right arm holding a hammer, a movable left arm holding the fingers in a position simulating holding a nail; said shoe slidably holding said nail in the path of said hammer and in the path of said fingers of the left arm, a movable neck and head simulating looking down and then around; and a multiplicity of cams, and connecting arms to cause the movable parts of the body to be actuated by the rotation of the cams, one of said cams and connecting arms being operative to raise said nail to a position projecting above said shoe, and another of said cams and connecting arms being operative to lower said hammer into driving relation with said nail.

2. An automaton comprising a body having a movable arm carrying a hammer, a work piece for simulated nailing, a rod projecting upwardly through said work piece and slidable to one position with a free end of the rod in the path of said hammer and projecting above said work piece and simulating a nail, said rod being slidable to a lower position with said free end within said work piece, cam means for raising said rod to said first position, and other cam means for operating said arm.

3. An automaton according to claim 2, said work piece having an aperture therethrough for frictionally holding said rod in said first position, said other cam means being adapted to drop said arm with its hammer and cause said hammer to drive said free end of said rod to its said lower position.

4. An automaton according to claim 2, a shaft, each of said cam means comprising a radial type cam having a dwell and mounted on said shaft.

5. An automaton for simulating nailing a work piece, said automaton comprising a rod projecting upwardly through said work piece and movable to one position with a free end of the rod projecting thereabove and simulating a nail, said rod being movable to another position within said work piece, a body having an arm having fingers movable into and out of the path of said free end, said body having another arm carrying a hammer movable to strike said free end, and a separate cam means for each of said arms and for said rod, said cam means being operable in timed relation with each other to simulate nailing said work piece.

6. An automaton according to claim 5, each of said three cam means comprising a radial type cam having a dwell, and a shaft supporting said radial type cams.

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LE ROY W. WALLACE.

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