(No Model.)

E. D. WEYBURN.

POWER TRANSMITTING DEVICE.

No. 481,988. Patented Sept. 6, 1892.

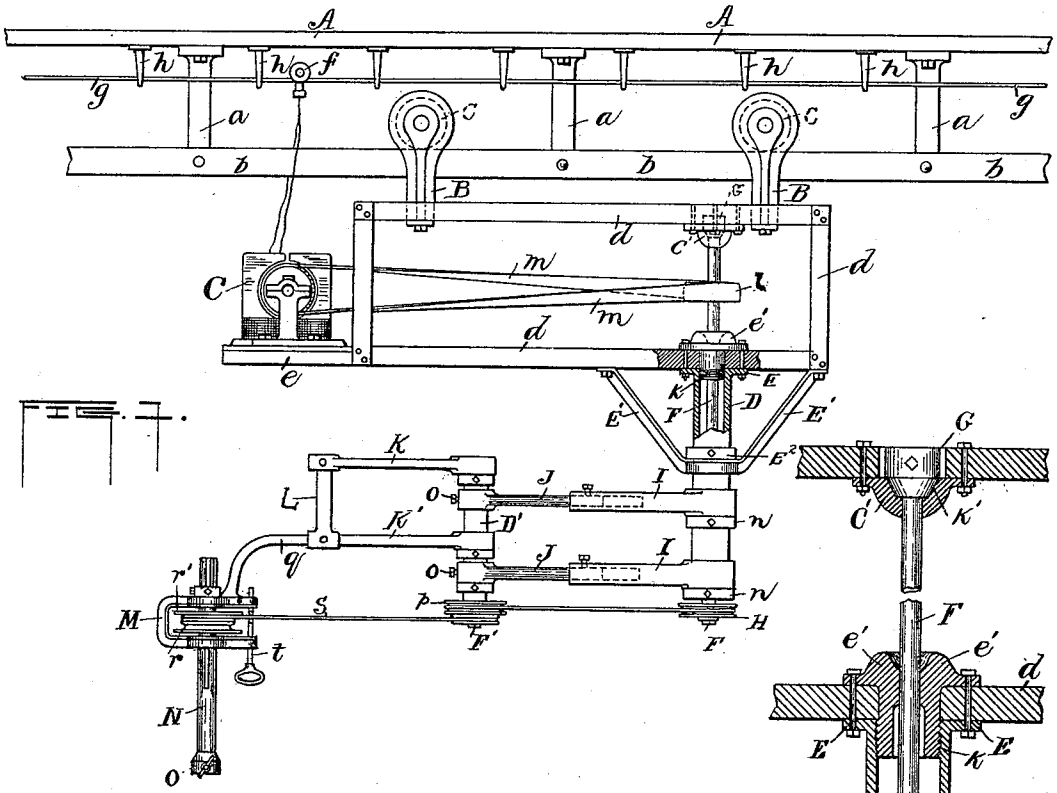


FIG. 1.

FIG. 2.

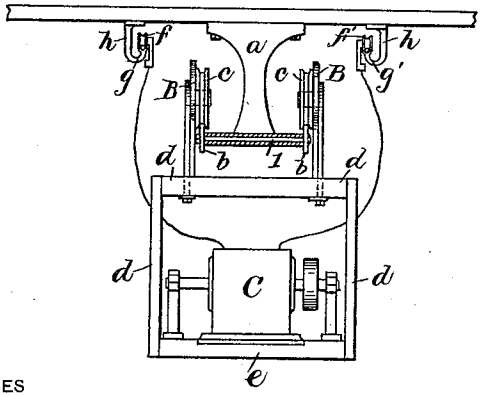


FIG. 3.

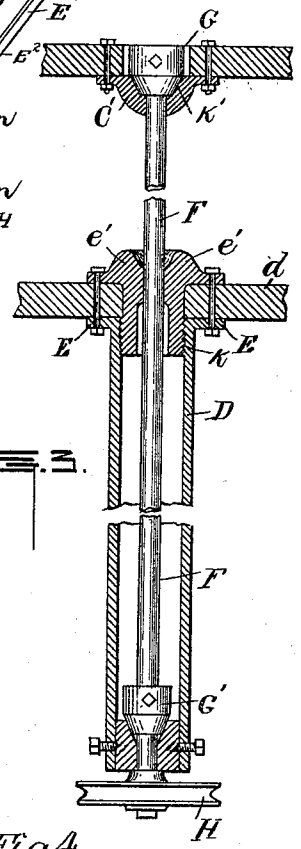
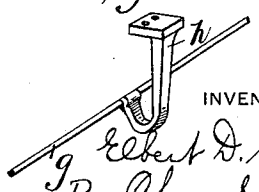


FIG. 4.



WITNESSES

E. R. Conner

Jas. Garthwait.

INVENTOR

Elbert D. Weyburn

By Chas. S. Sturtevant.

his Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ELBERT D. WEYBURN, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WEYBURN SPECIAL MACHINE COMPANY, OF SAME PLACE.

POWER-TRANSMITTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 481,988, dated September 6, 1892.

Application filed April 16, 1891. Serial No. 389,211. (No model.)

To all whom it may concern:

Be it known that I, ELBERT D. WEYBURN, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Portable Power-Transmitting Devices, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to an improvement in portable electric motors and devices for transmitting power adapted to be moved from place to place in a shop or factory and be applied to the desired work in any portion of the room.

The object of my invention is to improve the machine described in Letters Patent numbered 442,654, and to apply the portable motor to a system of power-transmission where I can use a system of portable shafts and pulleys, together with a system of overhanging swinging arms, which I attach to my traveling carriage, and by this means I obtain a driving power which I can use at any place within the length of the track.

It will be understood that should I wish to use my traveling motor and carriage to transmit a driving power from any point in the room within the length of the track I could do so. This will be found useful in factories, where it is necessary to move the machine from one position to any place. This is especially desirable in drill, engraving, or wood-carving machines, and especially handy for cutting-machines for any purpose.

My invention consists, primarily, of a carriage traveling on a suitable track, an electric motor carried thereby, and a series of arms pivoted to swing horizontally and carrying the cutting-tool, said arms being supported from the carriage, and driving connections carried by the jointed arms and operated from the motor for operating the cutting-tool.

It also consists of a frame or carriage traveling on a suitable track and an electric motor carried thereby, a hollow shaft or tube depending from the carriage, a driving-shaft passing through the same in operative connection with the motor, and a series of arms pivoted to swing horizontally and supporting at their outer ends the cutting-tool and driving connections between the driving-shaft and the cutting-tool carried by the horizontal arms.

The invention consists, finally, in the various details for supporting the hollow and solid shafts, for pivoting the horizontal arms, and in various other matters hereinafter described, and referred to in the appended claims.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation illustrating my invention. Fig. 2 is an end view of the traveling carriage and motor, together with the tracks. Fig. 3 is a detail sectional view of the hollow shaft and the means for supporting the same and the solid driving-shaft, certain of the parts being shown in detached views. Fig. 4 is a detail view of the conductor-supporting bracket.

As herein illustrated, A represents the ceiling or overhead beam supporting my improved apparatus. Brackets *a a* are suspended from said support, and upon these brackets are secured the track-rail *b b*. These rails may be arranged either in a straight line throughout the length of or arranged around the room in any desirable shape. While I have shown in Fig. 2 the brackets *a a* made in such form as to support both tracks, the track-rails being secured thereto by a bolt 1, passed through both rail and bracket, yet I may prefer to support the apparatus in the manner illustrated in connection with the patent above mentioned.

Suspended from the tracks *b b* by means of trolleys or friction-rolls *c* upon the upper ends of suitable uprights B is a frame or carriage *d* of substantially the construction illustrated in my prior patent, the uprights B, which carry the wheels *c*, being passed through the upper part of said carriage or frame and secured thereto. Carried, preferably, upon one end of this carriage, upon an elongated portion *e* of the frame, is an electric motor C, adapted to furnish the driving power for the cutting-machine. This motor is supplied with the necessary electric current from a suitable generator, the current being collected by trolleys *f f'*, herein shown as making overrunning contact with electric cables *g g'*, supported upon J-shaped brackets *h*, depend-

ing from the ceiling. The curved shape of brackets at the lower end enables me to use overrunning trolleys *f f'*. Any desired form of cut-out for starting or stopping the motor may be used, that shown in my above-mentioned patent being found to work well in practice.

D is a hollow shaft or tube depending from the traveling carriage *d*. This shaft D is provided with a collar E, fitting around it and adapted to be secured to the under side of the frame *d*. The shaft D is provided with a screw-threaded interior upper end and is kept from vertical displacement by means of a nut *e'*, having a central opening and having a downwardly-extended externally-threaded portion *k*, adapted to be screwed through the bottom of the carriage *d* and take into the threads upon the interior of the hollow shaft D. This hollow shaft D is further steadied by means of a brace or support E', attached at either end of the carriage *d* and acting as a truss for the shaft, being held in place by means of a collar E^2 on said shaft. Passing up entirely through this hollow shaft D is a second shaft F, preferably solid, extending through the upper part of the frame, having upon its upper end a collar G, beveled on its under side and fitting the cup-shaped socket *k'*, formed in the upper side of the hollow nut C', secured to the upper part of the frame *d*. Thus is formed a conical bearing for the upper end of the shaft F. The lower end of the hollow shaft D is also formed upon its interior with a cup-shaped socket similar to that described, in which fits the tapering part of a second collar G' upon the lower portion of the shaft F. The shaft F is provided at its upper portion near the end with a suitable pulley *l*, connected by a bolt *m* with the armature-shaft of the motor. Upon the lower end of said shaft is a second pulley H, connected by suitable intermediate belts with the cutting-tool.

Loosely journaled at one end upon the hollow shaft D and prevented from vertical displacement by collars *n* are two horizontally-extending arms I I. These arms are preferably hollow at their outer ends for the reception of the ends of similar arms J J, rigidly attached at one end to a hollow shaft D', similar to shaft D, by means of set-screws *o o*. The ends of said shafts J J are adjustable in the sockets of the arm I I, into which they pass, by means of a pin and a series of holes or in any other desirable way, thereby rendering it possible for the operator to make said arms longer or shorter at will to vary the amount of swing.

The hollow shaft D' is provided with cup-shaped bearing-sockets at its upper and lower portion for receiving the tapering collars on the shaft F', passing through said hollow shaft, these tapering collars and sockets being precisely similar in construction to those heretofore described in connection with the shafts D and F. This shaft F' carries on its lower end a double pulley *p*, over one portion of which is trained the belt from the pulley on the end of the driving-shaft F and over the other portion of which is trained the belt transmitting the power to the cutting-tool.

K K' are two horizontal arms loosely bearing at one end around the hollow shaft D' and connected at their outer ends by the rod or tube L, to which they are firmly secured by set screws or pins, as shown. These arms I J K K' may be arranged close to the surface of the tables; but it is preferred to locate them above the head of the operator for obvious reasons. The lower arm K' is provided with a curved downward extension *q*, supporting a bent bracket M, through which passes an adjustable shaft N. This shaft has keyed to it two conical-shaped collars, which afford bearings for it on the upper and lower sides of the bracket M, and said shaft is slotted for the purpose of enabling the operator to raise or lower it at will to accommodate any thickness of material it is desired to cut. O is a tool-chuck supported at the lower end of said shaft N, in which may be fitted a drill, engraving-tool, or any other cutting apparatus, and it will of course be understood that a cloth-cutting or other machine may be driven by the shaft N by being connected to the lower end.

Carried by the shaft are two pulleys *r r'*, the pulley *r* being loose thereon and the pulley *r'* being fixed to the shaft. These pulleys are adapted to be connected by a suitable belt *s* with the pulley on the lower end of the shaft F', thus affording the last of the chain of driving connections between the motor and the tool-shaft N. I provide a belt-shifter *t* of suitable construction for shifting the belt *s* from the fixed to the loose pulley in order to transmit power or not to the tool.

I am aware that it has been heretofore proposed to use a series of jointed arms attached to a standard upon the floor or table for use in connection with a cloth-cutting machine; but never before, so far as I am aware, has a series of arms pivoted to swing horizontally over a table or number of tables been combined with and attached to a traveling carriage upon which the motor for driving the tool is carried.

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

1. An apparatus for the purpose described, comprising a suspended traveling carriage, a power-transmitting device, a hollow shaft or tube depending from said carriage, a driving-shaft passing through said tube, arms pivoted to swing horizontally loosely attached at one end to said shaft or tube, a second hollow shaft or tube to which the other ends of said arms are rigidly attached, a second driving-shaft passing therethrough and additional arms loosely attached at one end to said second hollow shaft and carrying the cutting-tool, and connections between the power-trans-

mitting device and first driving-shaft, the latter and second driving-shaft, and between the second driving-shaft and the cutting-tool, substantially as described.

2. An apparatus for the purpose described, comprising a suspended traveling carriage, a power-transmitting device, a hollow shaft or tube depending from said carriage, arms I I, having sockets in one end, loosely embracing said shaft or tube, arms J J, fitting within said sockets, a second hollow shaft or tube to which said arms J J are rigidly attached, arms K K′, loosely journaled on said second shaft, a cutting-tool carried by said arms K K′, and suitable driving connections between the power-transmitting device and the cutting-tool, substantially as described.

3. In an apparatus for the transmission of power, a suspended traveling carriage, an electric motor carried thereby, a hollow shaft or tube depending therefrom, arms I I, loosely journaled at one end on said shaft or tube, arms J J, adjustably secured at one end to the arms I I, a second hollow shaft or tube D′, to which the opposite ends of said arms J J are rigidly attached, and arms K K′, loosely journaled on said shaft D′, the arm K′ having a downwardly-curved extension upon which the cutting-tool is supported, substantially as described.

4. In an apparatus for the transmission of power, a suspended traveling carriage, an electric motor carried thereby, a hollow shaft or tube D, depending therefrom, a second hollow shaft or tube D′, arms I I J J, adjustably connected together, the former being loosely journaled on the shaft D, and the latter rigidly attached to said shaft D′, arms K K′, loosely journaled on said shaft D′, the arms K′ having a downwardly-curved extension, a bracket upon the lower end of said extension, and an adjustable shaft for operating the cutting-tool, journaled in said bracket, substantially as described.

5. In an apparatus for the transmission of power, a suspended traveling carriage, an electric motor carried thereby, a hollow shaft or tube D, screw-threaded upon its internal upper surface, a collar upon the upper portion of said shaft, secured to the under side of the traveling carriage, a nut having a screw-threaded extension adapted to pass down through the bottom of the traveling carriage and take into the threads in the shaft or tube D, and a series of horizontally-swinging arms supporting at the other end of the series the cutting-tool, and means for driving said tool, substantially as described.

6. In an apparatus for the purpose described, in combination with the traveling carriage and electric motor mounted therein, the hollow shaft D, secured to the under side of the traveling carriage, a driving-shaft passing upward therethrough, a collar upon the upper part of said shaft, having a tapering lower side, a hollow nut having an upwardly-extending screw-threaded part secured to the upper part of the carriage and having a cup-shaped socket for the reception of the tapering lower part of the collar, and connections between the motor and the driving-shaft and the latter and the cutting-tool, substantially as described.

7. In the described apparatus, in combination with the traveling carriage and an electric motor mounted thereon, a hollow shaft or tube D, screw-threaded internally at its upper end, a collar attached thereto and secured to the under side of the traveling carriage, a hollow nut having a downwardly-extending screw-threaded portion passing through the under part of the carriage and taking into the threads in the shaft or tube B, a driving-shaft F, passing through said shaft D, a collar upon the upper end thereof, having a tapering under side, a hollow nut secured to the upper part of the traveling carriage and having a cup-shaped socket in which the tapering collar rests, a second cup-shaped bearing formed upon the interior of the shaft D near its lower portion, and a second tapering collar secured to the shaft F and resting therein, a second shaft or tube D′, a driving-shaft F′, having bearings similar to those above described, arms pivoted to said hollow shafts to swing horizontally and supporting the cutting-tool, a driving connection between the motor and the shaft F, and driving connections between the shafts F and F′ and between the shaft F′ and the cutting-tool, substantially as described.

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

ELBERT D. WEYBURN.

Witnesses:
CHAS. L. STURTEVANT,
S. G. HOPKINS.