

A. WENZEL.
COPYING MACHINE.

(Application filed Dec. 16, 1898.)

(No Model.)

5 Sheets—Sheet 1.

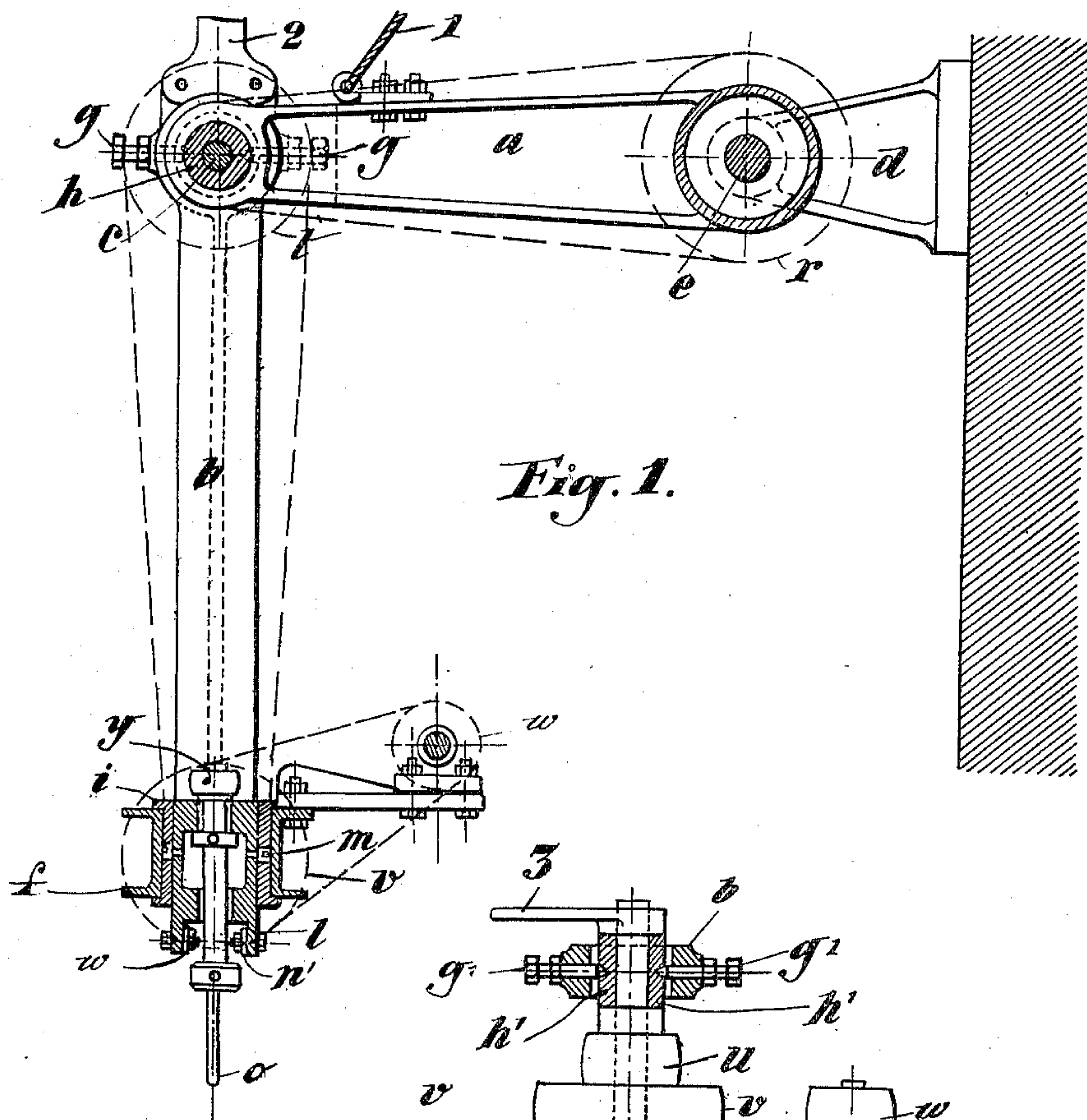
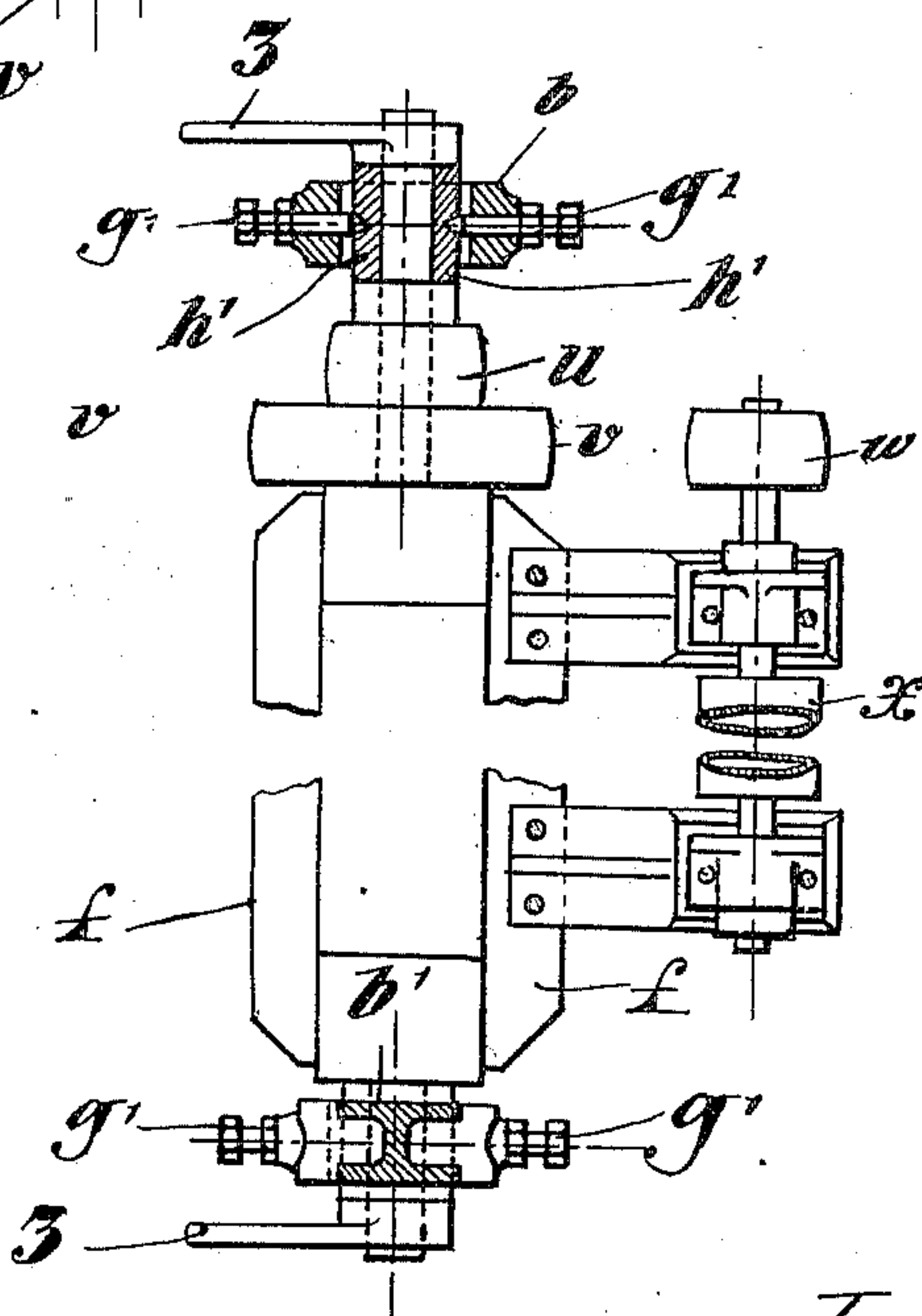


Fig. 1.

Fig. 2.



Witnesses:
Lucius Chase,
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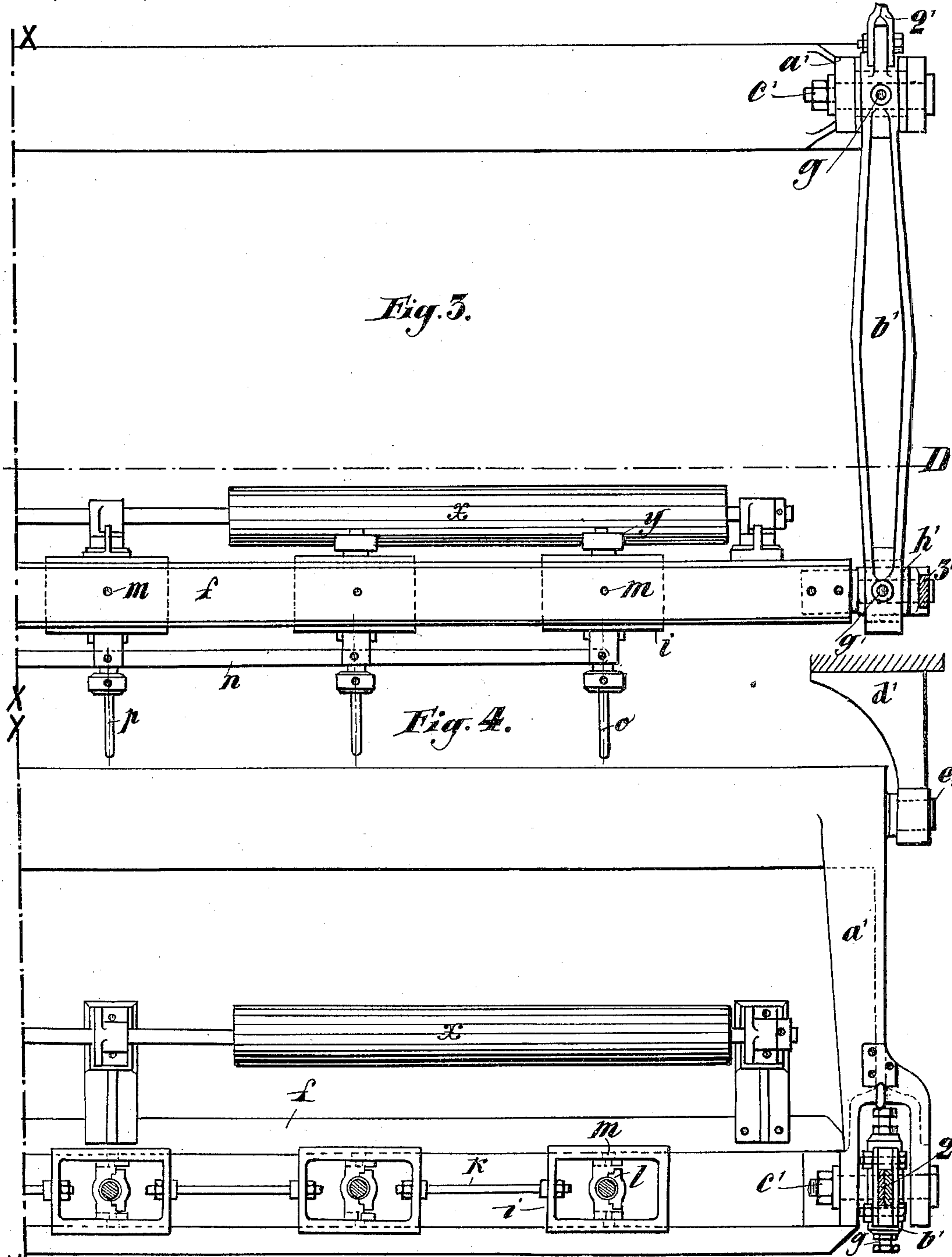
Inventor:
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5 Sheets—Sheet 2.



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No. 652,341.

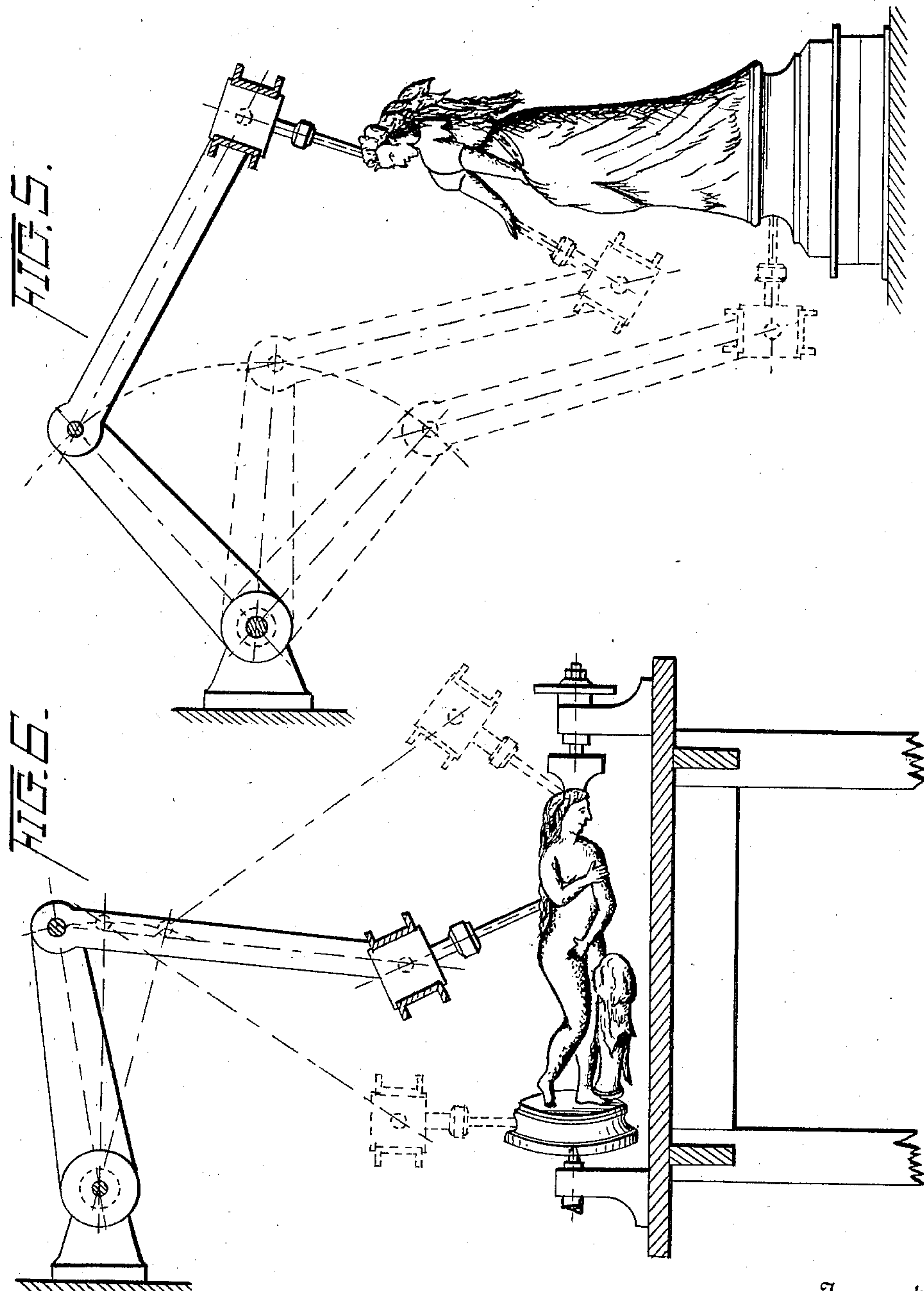
Patented June 26, 1900.

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(Application filed Dec. 16, 1898.)

(No Model.)

5 Sheets—Sheet 3.



Witnesses
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No. 652,341.

Patented June 26, 1900.

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FIG. 7.

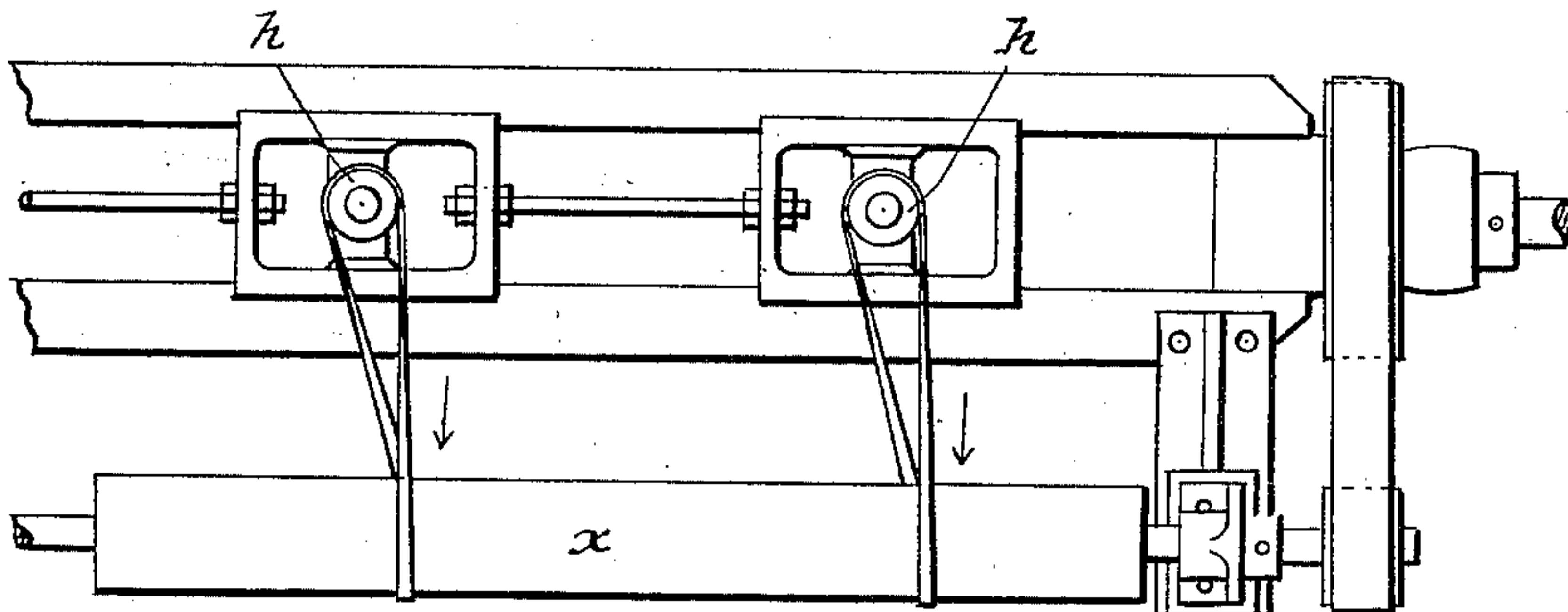
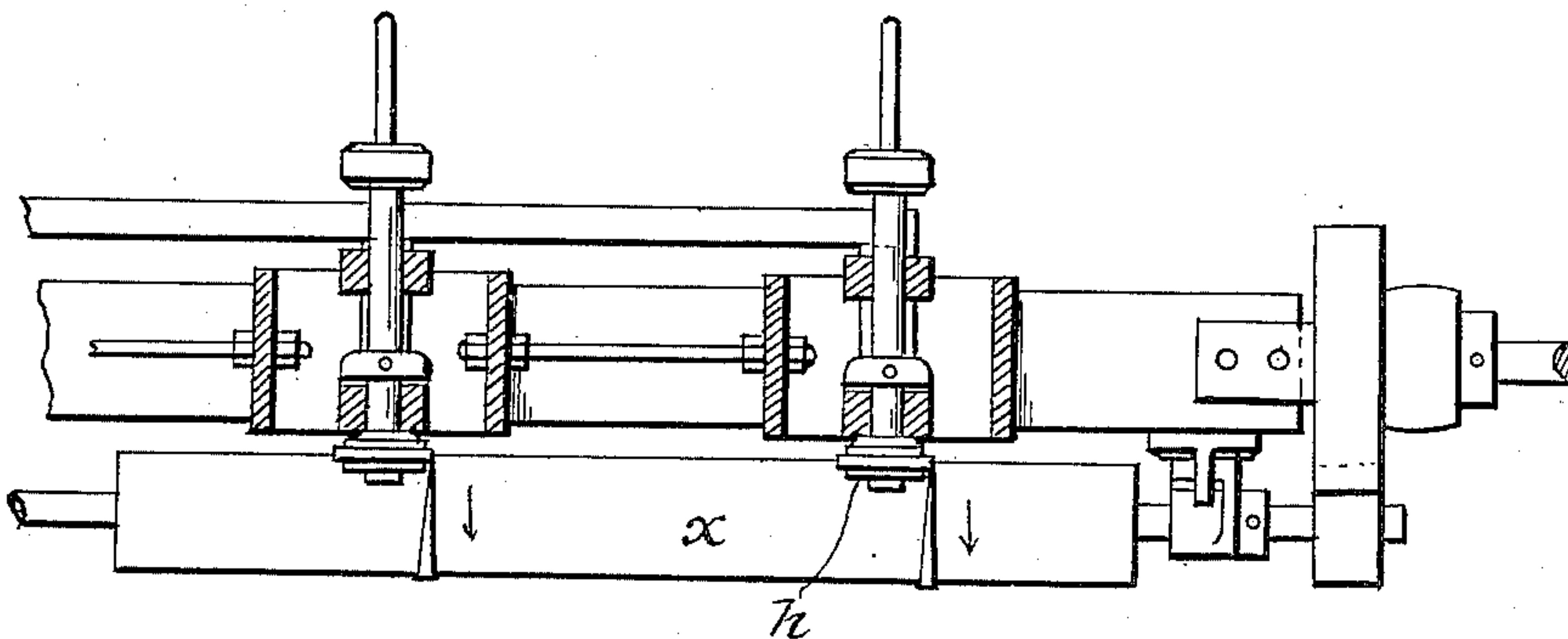


FIG. 8.



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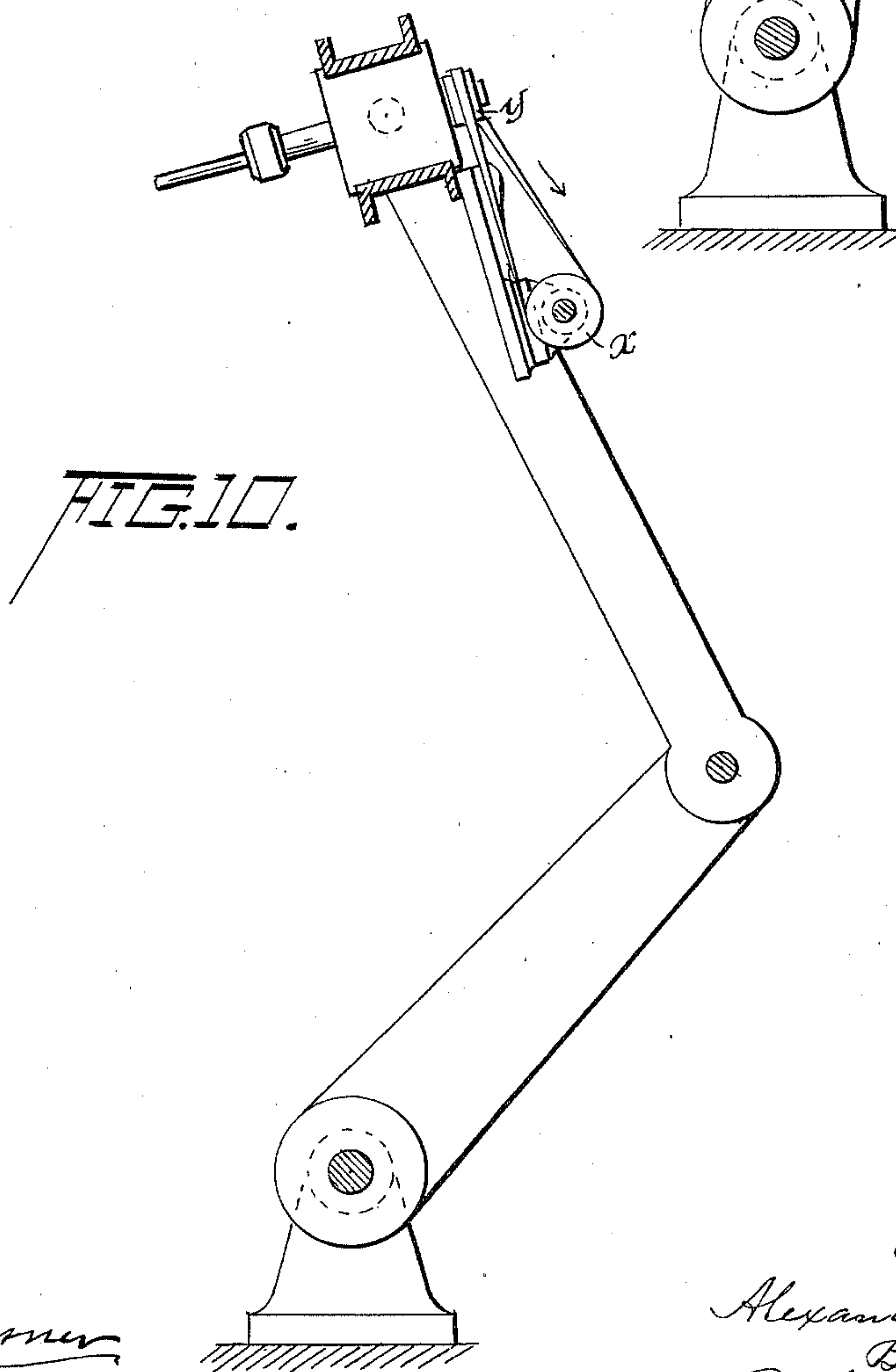
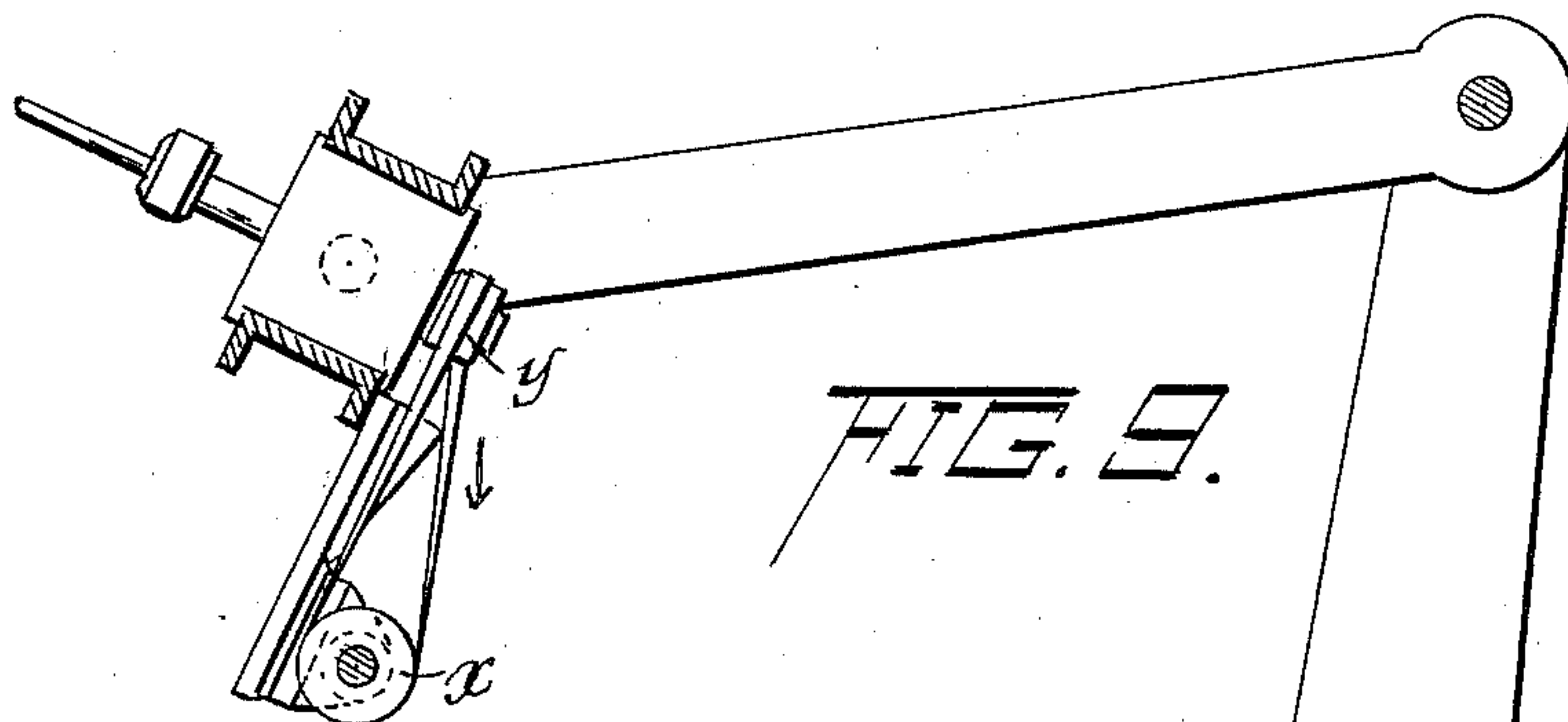
Patented June 26, 1900.

A. WENZEL.
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(Application filed Dec. 18, 1898.)

(No Model.)

5 Sheets—Sheet 5.



Witnesses
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UNITED STATES PATENT OFFICE.

ALEXANDER WENZEL, OF BERLIN, GERMANY, ASSIGNOR TO GOTTLIEB WENZEL, OF SAME PLACE.

COPYING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 652,341, dated June 26, 1900.

Application filed December 16, 1898. Serial No. 699,500. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER WENZEL, a subject of the Emperor of Germany, residing at Berlin, Germany, have invented certain new and useful Improvements in Carving and Cutting Machines, of which the following is a specification.

This invention relates to a novel construction in machines for carving or cutting statuary from stone or other material, the object being to provide an apparatus of this kind especially adapted to be employed in the construction of the fronts of buildings, for large-sized figures and groups of figures, and for the production, ornamentation, and finish of any irregularly-shaped body of any material.

The invention consists in providing levers pivoted together and adapted to swing on a horizontal shaft and carrying rotatably-mounted tool-holders, the tool-shaft casings of which being adapted to be easily and readily interchanged, so as to enable the operator to work with different tools in accordance with the size and character of the article to be produced, and said tool-shaft casings being held in proper relative positions by means of suitable stay-bolts, as more clearly and fully pointed out and claimed hereinafter.

In order that the invention may be the more readily understood, I have illustrated one form of the same in the accompanying explanatory drawings, wherein—

Figure 1 is a side elevation of the improved machine. Fig. 2 is a broken sectional view substantially on line A B C D of Fig. 3. Fig. 3 is a front view of the machine with parts shown in section. Fig. 4 is a plan view with parts shown in section. Figs. 5 and 6 show diagrammatical views of different positions of the parts in operation. Figs. 7 and 8 are details of portions of the machine shown in Figs. 3 and 4, and Figs. 9 and 10 are details of the parts shown in Figs. 5 and 6.

In the drawings like letters refer to like parts throughout all the figures.

In carrying out my invention I employ two pairs of levers $a a'$ $b b'$, each pair pivotally attached together by means of pins $c c'$, respectively. The inner ends of levers $a a'$ are rotatably mounted on studs $e e'$, journaled in stationary brackets $d d'$, and the outer ends

of levers $b b'$ carry the tool-holder f , rotatably mounted thereon. The inner ends of levers $b b'$ are provided with set-screws $g g' g' g'$, engaging sleeves $h h' h' h'$ around studs $e e'$, allowing said levers, and therefore the tool-holder, to be moved sidewise and serving to maintain the same in adjusted position.

The tool-holder f , of any suitable form, carries a plurality of laterally-movable tool-shaft casings i , held in proper relative position by means of stay-bolts k , as shown in Fig. 4. The bearings l of the tool-shaft are rotatably mounted on screw-pins m and joined by connecting-rails $n n'$, whereby the same may be moved sidewise all together. The latter movements of the tool-shaft bearings l and the movement of the tool-holder f about its own axis enable the operator to give the rotating tools o and the guide-pin p any desired position and to perform the most difficult intersections. The side movement of tool-shaft casings i on tool-holder f , in combination with the swinging of levers $b b'$, allows of laterally moving the tools into any position, and the side movement of levers $b b'$, in combination with the axial rotation of levers $a a'$ on studs $e e'$, enables the operator to move tools o and guide-pin p to any point of a very large space with even a small-sized machine.

The tools o may be driven in any convenient manner; but I preferably arrange the power-transmission parts as follows: The pulley q on stud e is driven from any suitable power, which motion is transmitted by pulley r and a suitable belt (see dotted lines in Fig. 1) to pulley s on stud c and therefrom by pulley t on stud c to pulley u , opposite pulley v , which transmits the movement to pulley w , integral with rollers x , actuating pulleys y on the tool-shafts, Fig. 3.

The levers $a a'$ may be counterbalanced by means of a suitable weight (not shown) attached to one end of cable 1, extending over an idler (not shown) located above the bracket d , the other end of said cable 1 being attached to the end of said levers $a a'$. For balancing levers $b b'$ and tool-holder f I have provided bars 2 2' and 3 3', respectively.

If it is desired to employ the machine in the construction of large-sized figures, this may be done as indicated in Fig. 5 of the ac-

comparing drawings. If the work is to be performed in a horizontal direction, the operator will place a table under the machine, Fig. 6, and if it is desired to reproduce figures in this position the table is to be provided with suitable centering-stocks, between which the model will be held in position and turned as required.

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

1. In a machine of the character described, the combination with pivoted levers, of the rotatably-mounted tool-holder, a plurality of removable tool-shaft casings adapted to be shifted along said tool-holder and held in proper relative position, means for holding them in position and tool-shaft bearings ro-

tatably mounted in said casings, substantially as set forth.

2. In a machine of the class described, the combination of suitably-supported levers pivoted together, a rotatably-mounted tool-holder pivotally secured to said levers, a plurality of tool-shaft casings slidably supported on said tool-holder, tool-shaft bearings rotatably mounted in said casing and means for rotating tools held in said bearings, substantially as set forth.

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

ALEXANDER WENZEL.

Witnesses:

EDWIN L. GOLDSCHMIDT,
HENRY HASPER.