

No. 652,978

Patented July 3, 1900.

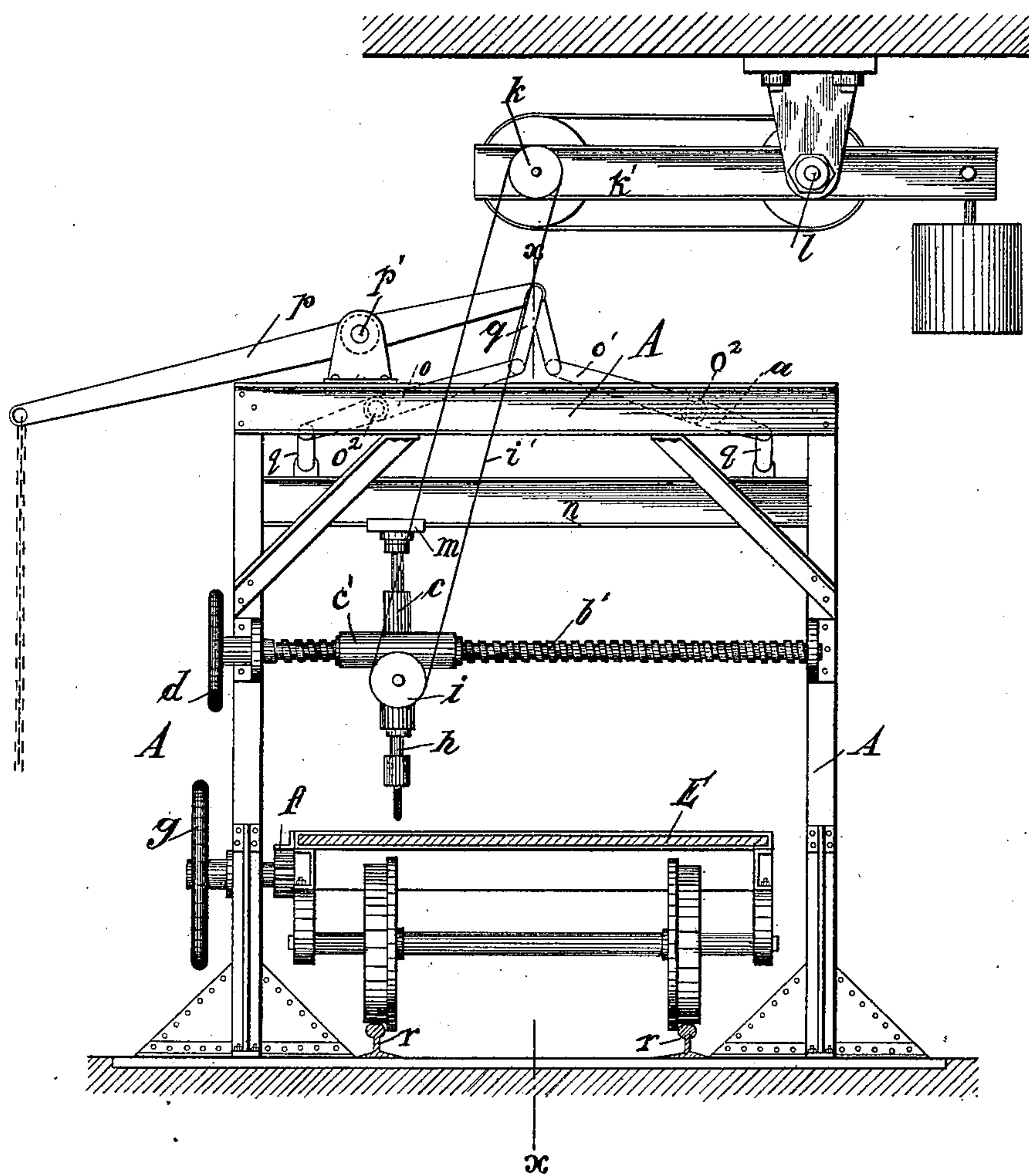
J. POHL, JR.
BORING AND DRILLING MACHINE.

(Application filed Feb. 2, 1899.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



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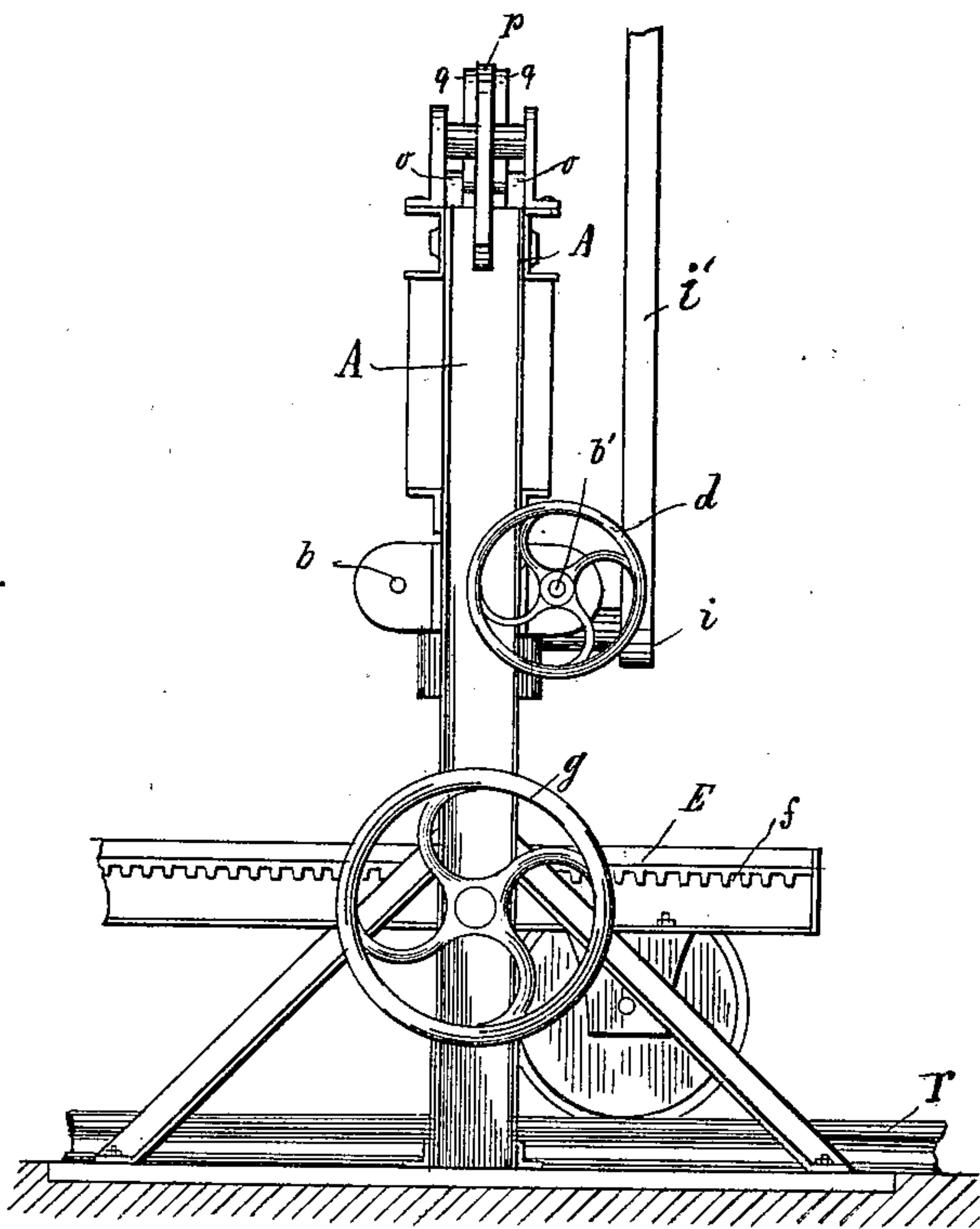
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Fig. 2.



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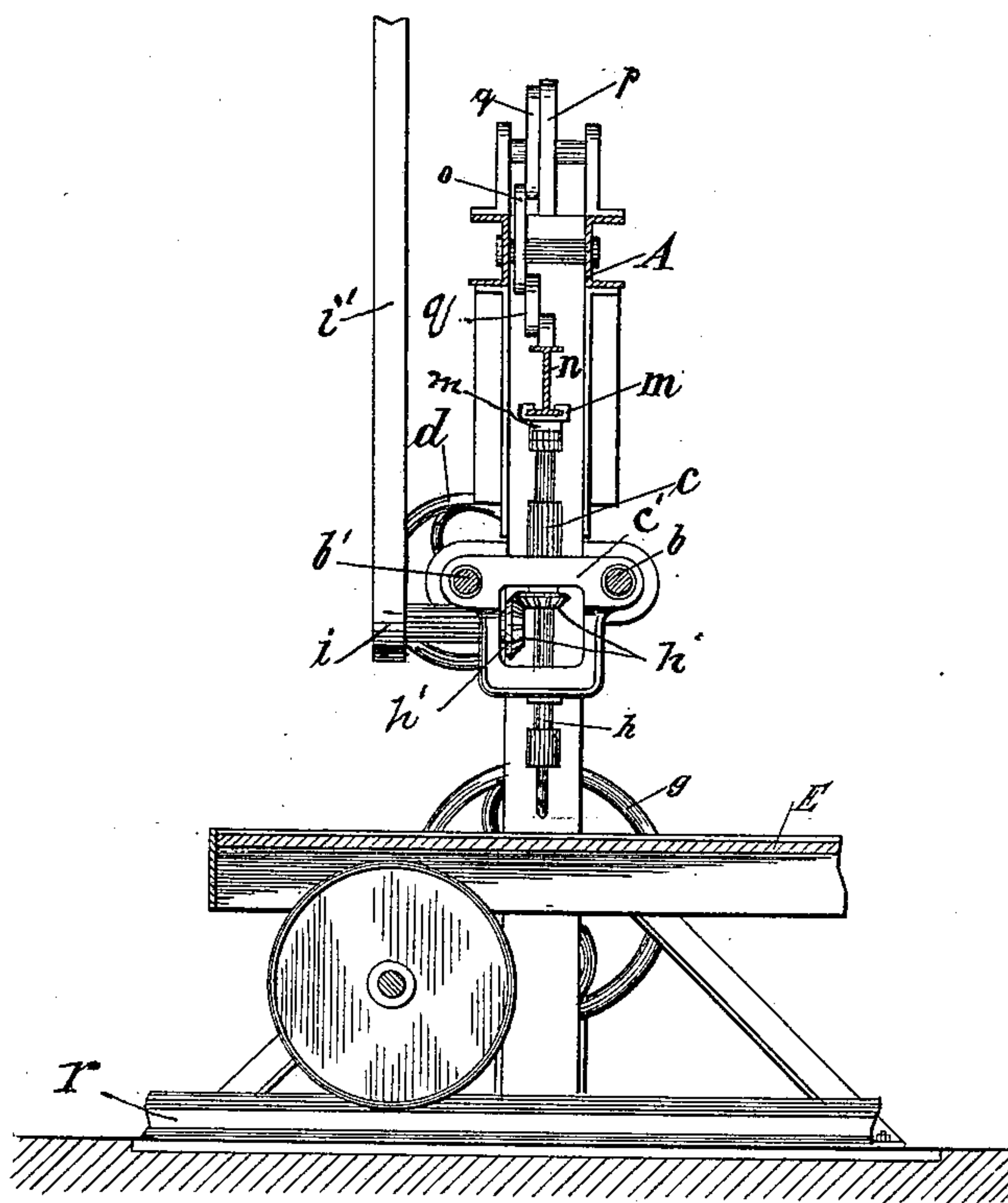
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3 Sheets—Sheet 3.

Fig. 3.



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UNITED STATES PATENT OFFICE.

JOSEF POHL, JR., OF DEUTZ, GERMANY.

BORING AND DRILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 652,978, dated July 3, 1900.

Application filed February 2, 1899. Serial No. 704,215. (No model.)

To all whom it may concern:

Be it known that I, JOSEF POHL, Jr., engineer, a subject of the Emperor of Germany, residing at Mathildenstrasse 58, Deutz, near Cologne, in the Kingdom of Prussia, Empire of Germany, have invented certain new and useful Improvements in Boring and Drilling Machines, of which the following is a full, clear, and exact description.

My invention relates to boring and drilling machines, and has for its object to provide a machine for use on large pieces of work in which a number of holes are to be bored or drilled. In boring and drilling machines of this kind at present in use the tool is generally carried by a plate or part sliding in suitable guides in the form of a bracket extending over the work and the tool is adjusted by hand feed mechanism also carried by the sliding part. In these machines when operating upon large pieces of work the feed mechanism is very difficult of access and the tool being carried by the bracket is very liable to inaccuracy in work, owing to the weight of the parts and their distance from the supporting-frame of the machine. The wear and tear of the parts is also considerably increased from the same cause. To overcome these defects, I construct and arrange the machine in such manner that the pressure or feed is communicated to the tool from a slide or support carried upon an adjustable guide-bar which is independent of the adjustable support controlling the position of the tool.

In further description I will refer to the accompanying drawings, in which—

Figure 1 is an elevation, Fig. 2 an end view, and Fig. 3 a transverse section, of a machine constructed in accordance with my invention.

A is a supporting-frame formed of suitable uprights and cross-bars, in which are mounted guide rods or bars $b\ b'$, one of which, b' , is helically threaded and provided on one end with a hand-wheel d . Mounted upon the rods $b\ b'$ is a tool-support c' , internally threaded and adapted to be moved along the same by rotating the rod b' , so as to adjust the position of the tool-carrier in a longitudinal direction.

I may in some cases substitute a plain bar

for the rods $b\ b'$, the tool-support c' being adjusted thereon by clamps or otherwise suitably. The tool-socket c and spindle h are adapted to move vertically in and independently of the support c' and are raised or lowered by bar n , adjustable vertically in suitable guides on the side posts of the frame A. In the drawings levers, such as $o\ o'$, are shown suitably mounted in the frame, as at $o^2\ o^2$, and connected at their lower ends by links, such as q , to the bar n and at their upper ends to an operating-lever p . The latter is fulcrumed at p' and may be operated by hand or arranged for operation by a depending chain, as shown. The tool-socket c is connected to the bar n by a yoke m sliding thereon in suitable flanges or guides, such as m' , so as to move longitudinally with the support c' .

The tool-spindle h is driven by bevel-wheels $h'\ h'$ from a pulley i , the latter being driven from a pulley k , to which power is transmitted from the counter-shaft l . The pulley k is arranged, as shown, upon a weighted beam k' , pivoted upon the shaft l , so that the tension upon the band i' may not vary as the pulley i moves with the part c' .

The work to be bored or drilled is carried upon a table E, which is mounted upon a carriage moving on rails, such as $r\ r$, and adapted to be adjusted transversely by a rack f , a toothed pinion f' meshing therewith and hand-wheel g . When for use with work of considerable height, the upper part of the frame A and table E may be constructed so as to be adjustable vertically.

It will be seen that by the use of a boring and drilling machine constructed as above the position of the tool is adjustable both transversely and longitudinally and equally well with both large and small work, and the tool being supported independently of the sliding part c the inaccuracies in work and wear and tear referred to are obviated.

What I claim, and desire to secure by Letters Patent, is—

In a boring and drilling machine, the combination of a supporting-frame, a threaded bar mounted in said frame, a tool-support longitudinally adjustable on said bar, a tool-

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spindle and socket vertically movable in and
rotatably mounted in said tool-support, a bar
vertically movable in the machine-frame and
having a slidable connection with the tool-
5 spindle, and means for vertically moving said
bar, consisting of levers and links as shown
and described.

In witness whereof I subscribe my signature in presence of two witnesses.

JOS. POHL, JR.

Witnesses:

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