

(No Model.)

J. H. MICKLER.
THREE SPINDLE BORING MACHINE.

No. 421,417.

Patented Feb. 18, 1890.

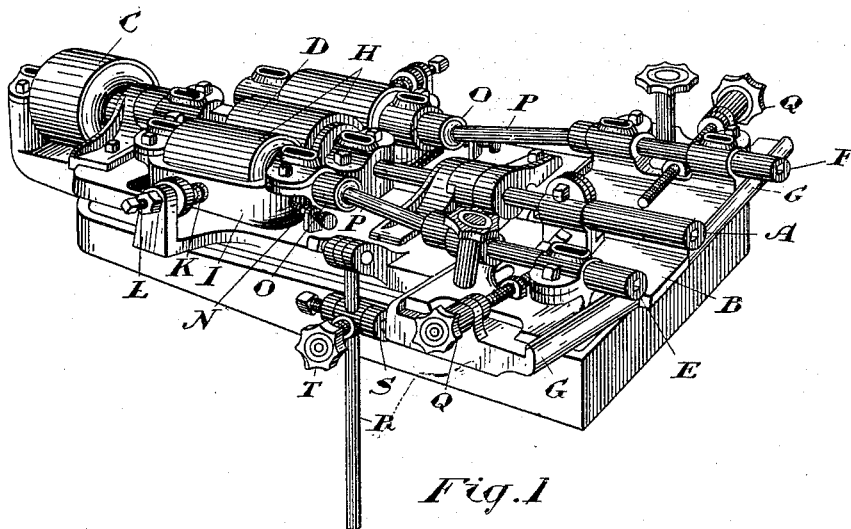


Fig. 1

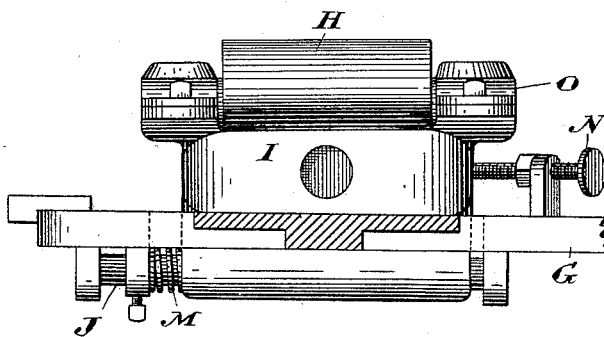


Fig. 2

Witnesses

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Inventor

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UNITED STATES PATENT OFFICE.

JACOB H. MICKLER, OF PRESTON, ONTARIO, CANADA, ASSIGNOR OF TWO-THIRDS TO WILLIAM STAHLSCHMIDT AND JACOB EMIL KLOTZ, OF SAME PLACE.

THREE-SPINDLE BORING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 421,417, dated February 18, 1890.

Application filed August 8, 1889. Serial No. 320,130. (No model.)

To all whom it may concern:

Be it known that I, JACOB HERBERT MICKLER, mechanic, of the village of Preston, in the county of Waterloo, in the Province of Ontario, Canada, have invented a certain new and Improved Three-Spindle Boring-Machine, of which the following is a specification.

The object of the invention is to design a three-spindle boring-machine, the spindles of the boring-machine being made adjustable to each other, so that the holes to be bored may be closer to or farther from each other or at different angles to each other to suit different classes of work; and it consists, essentially, of a central spindle journaled in a stationary frame and provided with a suitable driving-pulley, through which the necessary motion is imparted to it, a spindle having a friction-roller fixed to it being journaled in adjustable boxes on each side of the said central spindle, each friction-roller being held in contact with a friction-roller fixed to the central spindle, the end of each side spindle being connected by means of an adjustable ball-and-socket joint to a spindle carried in suitable bearings supported by a hinged plate, the whole being otherwise constructed in detail, substantially as hereinafter more particularly explained.

Figure 1 is a perspective view of my improved machine, showing one of the boring-spindles set at an angle to the other spindles. Fig. 2 is a detail of a friction-pulley and its bearing.

In the drawings, A is a boring-spindle suitably journaled in bearing-boxes attached to a stationary plate B.

C is a driving-pulley fixed to the spindle A, and D is a friction-pulley fixed to the same spindle.

E and F are two boring-spindles located one on each side of the spindle A. These spindles are carried in suitable bearing-boxes attached to one or other of the plates G, which are hinged to the plate B, as indicated.

On each side of the friction-pulley D, I locate a friction-pulley H, which is connected to a spindle O, journaled in a box I, pivoted on a spindle J, connected to the hinged plate

G, which plate, I should have mentioned, is hinged on the central boring-spindle A. Each box I is acted upon by a spring K and set-screw L, so that the pressure of its friction-pulley H against the friction-pulley D may be readily regulated. A spring M is placed on each of the spindles J to impart an elastic longitudinal pressure against the box I, and a set-screw N is provided for each box I to adjust it longitudinally. The boring-spindles E and F are connected, respectively, to one of the spindles O by a link P, arranged to form a double ball-and-socket joint between their respective spindles. Owing to this ball-and-socket connection the spindles E and F may be moved independently of each other without affecting their driving-spindles O, or in any way interfering with the satisfactory working of the machine.

I should have mentioned that the bearing-boxes of the spindles E and F, which rest upon the hinged plate G, are made adjustable on the said plate and are operated by a spindle Q, so that each spindle E or F may be adjusted independently of the other nearer to or farther from the boring-spindle A to suit the position of the hole it is desired to bore.

With the view of enabling the hinged plate G to be held at any desired angle I pivot on the said plate a bar R, which bar passes through a stationary sleeve S and is held at any desired point by the pinch-screw T.

From this description it will be seen that I have produced a boring-machine in which the spindles, although driven from a common power, are independently adjustable and may be set at any desired distance apart or at any desired angle to each other.

What I claim as my invention is—

1. A spindle A, having a friction-pulley D fixed to it and engaging with friction-pulleys H, fixed, respectively, to a spindle O, in combination with the boring-spindles E and F, each of which is connected to one of the spindles O by means of a flexible joint, substantially as and for the purpose specified.

2. A spindle A, having a friction-pulley D fixed to it and engaging with friction-pulleys H, fixed, respectively, to a spindle O, the boring-spindles E and F, each of which is con-

ected to one of the spindles O by means of
a flexible joint, in combination with the ad-
justable spindle Q, arranged to operate the
bearing-boxes of the spindles E and F, sub-
stantially as and for the purpose specified.

3. A spindle A, having a friction-pulley D
fixed to it and engaging with friction-pulleys
H, fixed, respectively, to a spindle O, the bor-
ing-spindles E and F, each of which is con-
nected to one of the spindles O by means of
a flexible joint, in combination with the
hinged plate G, supporting the driving and
boring spindles, and the adjusting-spindle Q
for independently operating the bearing-
boxes of the spindles E and F, substantially
as and for the purpose specified.

4. A spindle A, having a friction-pulley D
fixed to it and engaging with friction-pulleys
H, fixed, respectively, to a spindle O, the bor-

ing-spindles E and F, each of which is con-
nected to one of the spindles O by means of
a flexible joint, in combination with the
hinged plate G, bar R, sleeve S, and pinch-
screw T, substantially as and for the purpose
specified.

5. A spindle A, having a friction-pulley D
fixed to it and engaging with the friction-pul-
leys H, fixed, respectively, to a spindle O,
which spindles are carried in elastically-ad-
justable boxes I, in combination with the bor-
ing-spindles E and F, flexibly connected to
their respective spindles O, substantially as
and for the purpose specified.

Preston, July 24, 1889.

JACOB H. MICKLER.

In presence of—

D. E. TURNER,
GEO. FINK.