

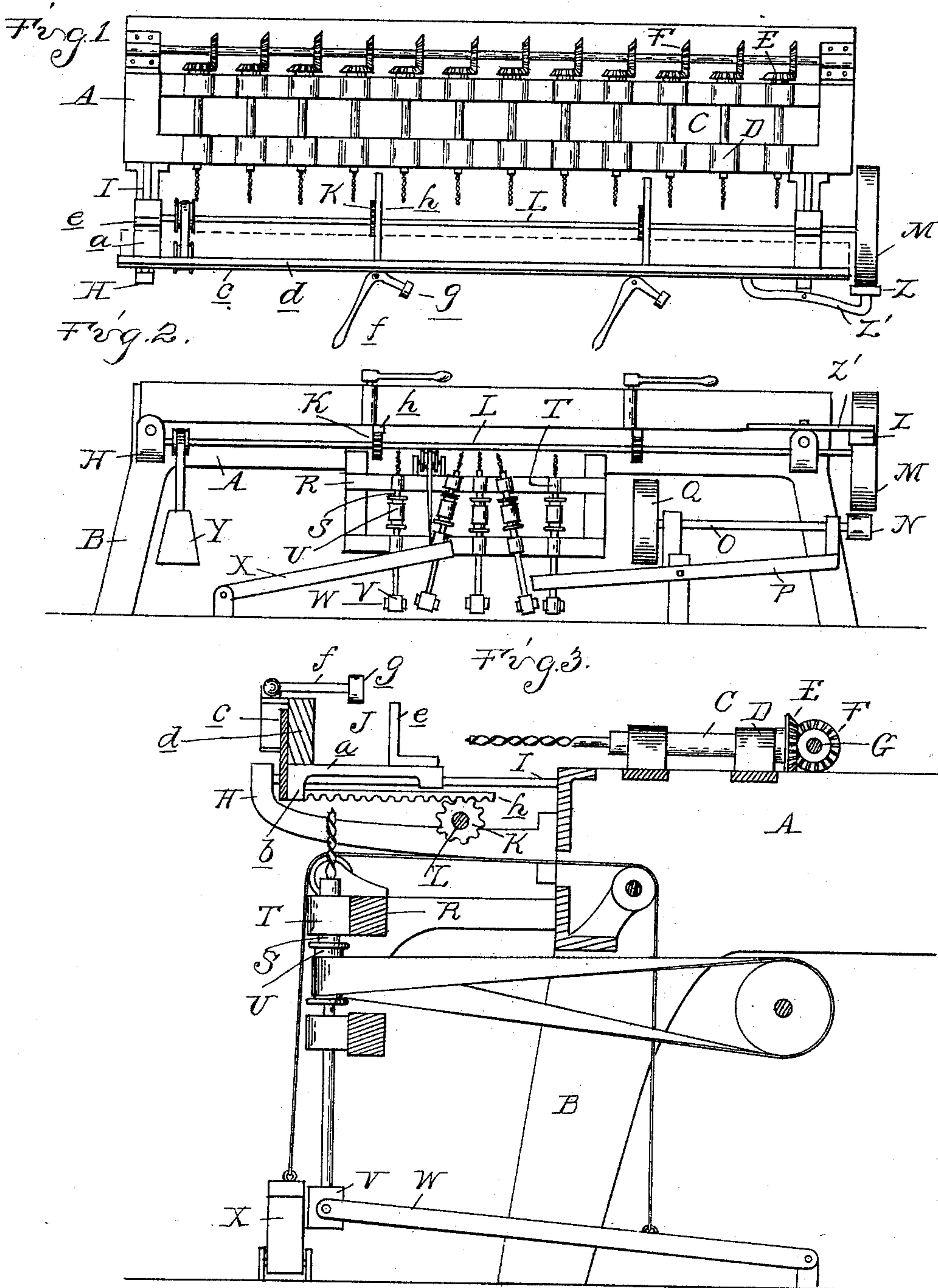
No. 619,333.

Patented Feb. 14, 1899.

J. C. NEVILLE.
MULTIPLE BORING MACHINE.

(Application filed July 16, 1898.)

(No Model.)



Witnesses

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UNITED STATES PATENT OFFICE.

JOSEPH C. NEVILLE, OF BAY CITY, MICHIGAN, ASSIGNOR TO THE WALWORTH & NEVILLE MANUFACTURING COMPANY, OF SAME PLACE.

MULTIPLE BORING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 619,333, dated February 14, 1899.

Application filed July 16, 1898. Serial No. 686,117. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH C. NEVILLE, a citizen of the United States, residing at Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Multiple Boring-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

It is the object of my invention to obtain a multiple boring-machine which is especially adapted for the boring of telegraph cross-arms; and the invention consists in the peculiar construction, arrangement, and combination of parts, as more fully hereinafter described and claimed.

In the drawings, Figure 1 is a plan view of my invention. Fig. 2 is a front elevation thereof, and Fig. 3 is a cross-section.

A is a bed or table mounted upon standards B.

C are a series of drill-spindles arranged parallel to each other transversely to the bed and journaled in suitable bearings D. These bearings are longitudinally adjustably secured to the bed, so that the distance between the spindles may be varied. Each spindle has secured thereto at its rear end a bevel gear-wheel E, which meshes with a corresponding beveled gear-wheel F, longitudinally adjustably secured to a common shaft G, journaled in bearings upon the bed.

H are brackets projecting forward from the frontside of the frame and carrying the guideway I, upon which is slidingly secured the work-holder J. This comprises the plates *a*, having the bearings *b*, engaging with the guideways, the perpendicular plate *c*, secured to the plates *a*, which are lined with the wooden strip *d*, the angle-plates *e*, secured to the plates *a*, and the bell-crank locking-levers *f*, pivoted to the plate *c* and having the rolls *g*, all so arranged that the cross-arm or other similar work may be placed in the space between the strip *d* and angle-plates *e*, resting on the plates *a*, and then locked in position by turning the locking-levers *f*, so that their locking-arms will project over the work with the rolls *g* bearing thereon.

h is a rack-bar secured to the under side

of the holder J. K is a pinion meshing with this rack and secured upon a shaft L, journaled in bearings upon the frame.

M is a pulley on one end of the shaft L.

N is a friction-pulley on a shaft O, which is adapted to be thrown by a foot-lever P in and out of contact with the pulley M. The shaft O is provided with a pulley Q, having a suitable drive-belt connection.

Below the holder J is secured to the bed a forwardly-projecting frame R, to which is secured a second gang of boring-spindles S, arranged in a substantially vertical plane, but at different angles to each other. These spindles are journaled in stationary bearings T, but are longitudinally movable therein and have a feathered engagement with pulleys U, sleeved thereon between the bearings. At their lower ends these spindles rest in sockets V, which are connected to levers W, adapted to be simultaneously lifted by a suitable connection with a foot-lever X. The pulleys U have suitable drive-belt connections, which I do not deem it necessary to describe.

In the operation of the machine motion is imparted to the shafts G and O and spindle-pulleys U. The operator then places one of the arms to be bored in the work-holder and locks it in position by turning the levers *f*. He then presses his foot upon the lever X, which lifts the levers W and causes the bit carried by the spindles S to bore the angular holes in the cross-arm intended for the securing-bolts and brace-rods. When these holes are bored and the spindles are again lowered, the operator presses the friction-pulley N against the pulley M, imparting motion to the latter and causing the pinion K to move the rack *h*, thereby sliding the holder J inward upon the guideways I and pressing the work against the bits of the spindles C. These spindles being rotated by the beveled gears E and F, connecting them to the shaft C, they will bore the holes for the insulator-pins in the cross-arm as the latter is fed forward, the wooden strip *d* allowing the bits to pass completely through said cross-arm without coming into contact with the metal plate *c*.

When the holes are bored, the operator re-

leases the pressure on the lever P, which dis-
engages the friction-pulley N from the pul-
ley M, upon which a counterweight Y, se-
cured by a flexible connection to a drum on
5 the shaft L, will cause said shaft to revolve
in the opposite direction and return the
holder J to its initial position. To prevent
the pulley M from gaining too great a mo-
mentum in this return movement, and thus
10 injuring the machine when brought to a sud-
den stop, I preferably provide a brake-shoe
Z for said pulley upon a lever Z', which the
returning holder J presses against and brings
the pulley to a gradual stop. The operator
15 next removes the bored cross-arm after first
turning back the locking-levers and may then
repeat the operation on another arm.

What I claim as my invention is--

1. A multiple boring-machine comprising
20 a stationary gang of parallel boring-spindles
arranged in a horizontal plane, a gang of up-
right angularly-arranged spindles, a series of
levers connected to the lower ends of said up-
right spindles respectively, each adapted to
25 swing in the plane of its spindle, a traveling
work-holder adapted in its initial position to
hold the work directly above said upright

spindles, a foot-lever and a flexible connec-
tion between said lever and each of the levers
for simultaneously raising said upright spin- 30
dles to operate upon the work, and a friction
feed mechanism for subsequently moving said
holder laterally to carry the work against said
stationary spindles.

2. In a multiple boring-machine, the com- 35
bination of a work-holder, laterally slidingly
secured on guideways, a rack-bar on said
holder, the shaft L and pinion K thereon
meshing with said rack, the pulley M on said
shaft, the friction drive-pulley N adapted to 40
be moved into contact with said pulley M to
rotate said shaft and feed the holder forward,
a counterweight for rotating said shaft in the
opposite direction to return said holder and
a brake adapted to be engaged with the pul- 45
ley M by the return of said holder for the
purpose described.

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

JOSEPH C. NEVILLE.

Witnesses:

A. W. TIBBETTS,
G. A. MEYER.