

J. GUNN.

Improvement in Machines for Tapping Pipe-Fittings.

No. 130,577.

Patented Aug. 20, 1872.

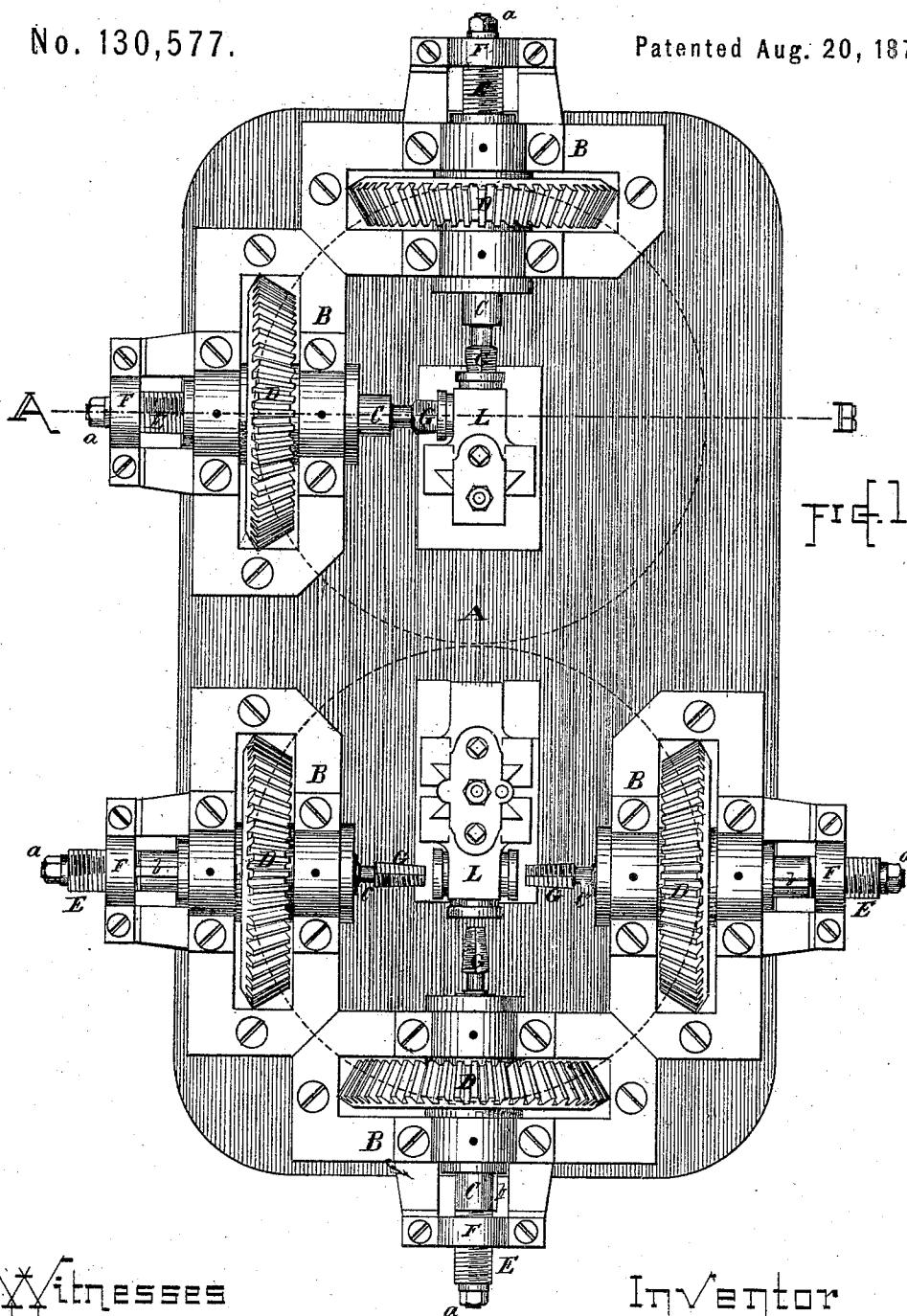


FIG. 1

Witnesses

*Chas. S. Burleigh*  
*Thos. H. Dodge*

Inventor

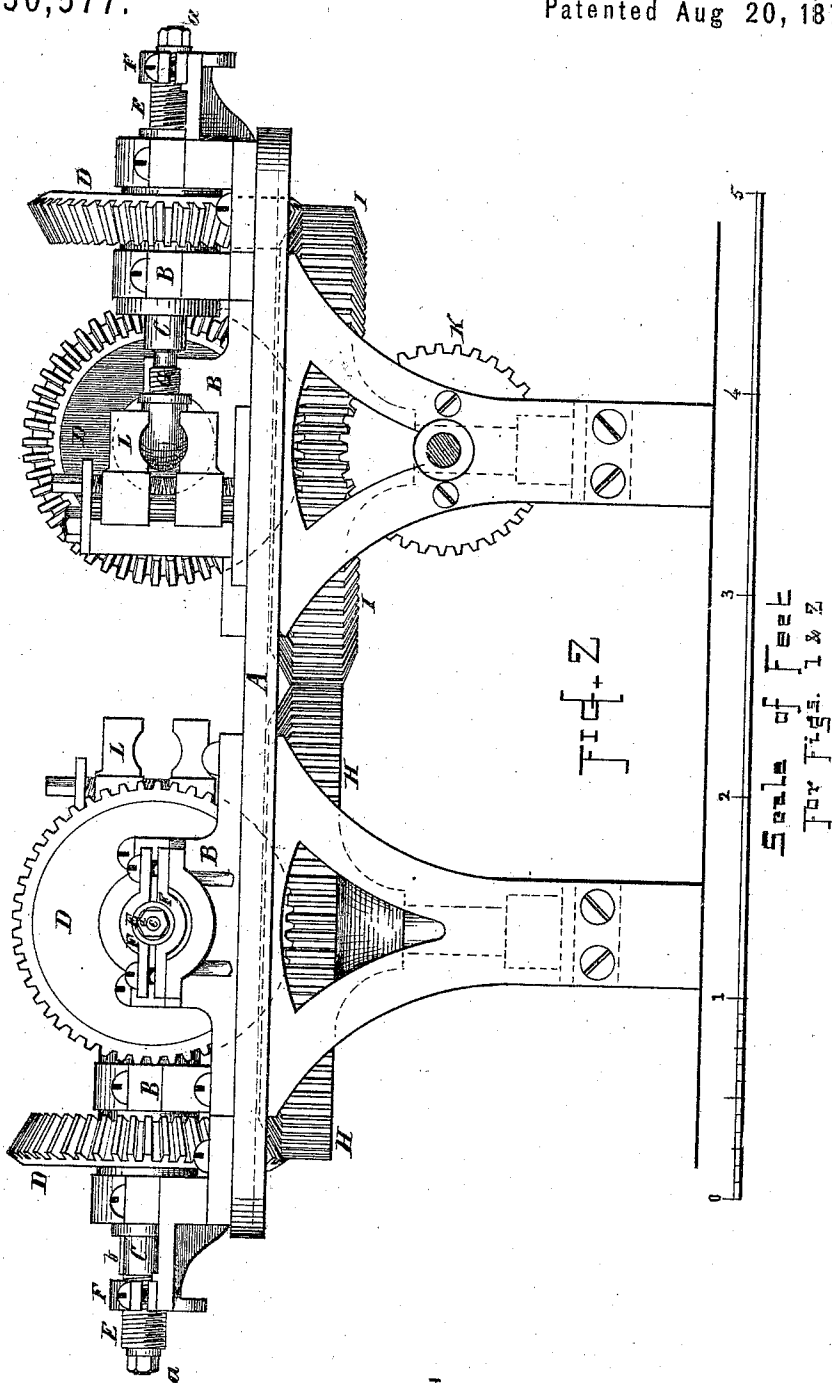
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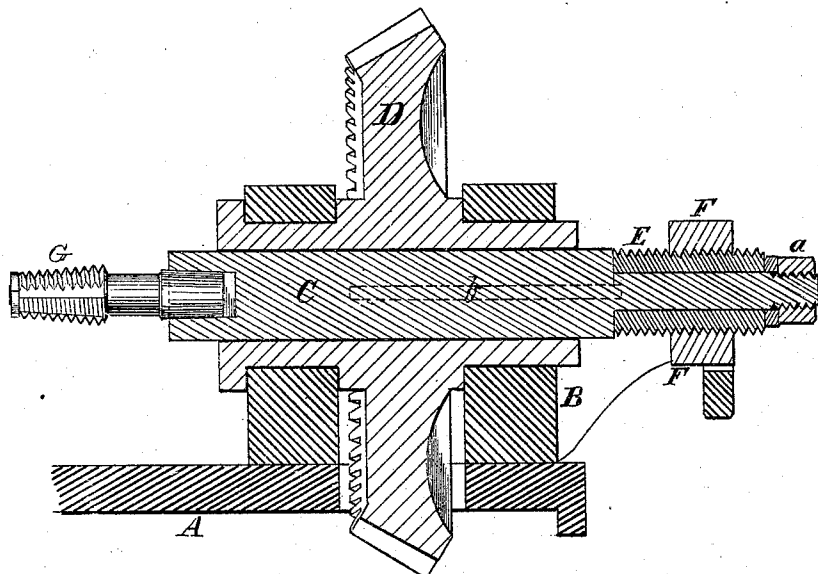


FIG. 2



SCALE for FIG. 2

Witnesses

*Charles Dunleigh*  
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# UNITED STATES PATENT OFFICE.

JOHN GUNN, OF WEBSTER, MASSACHUSETTS.

## IMPROVEMENT IN MACHINES FOR TAPPING PIPE-FITTINGS.

Specification forming part of Letters Patent No. 130,577, dated August 20, 1872.

*To all whom it may concern:*

Be it known that I, JOHN GUNN, of Webster, in the county of Worcester and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Machines for Tapping Steam, Gas, and Water Pipe Fittings; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing which forms a part of this specification, in which—

Figure 1 represents a plan view of my improved machine for tapping steam and gas pipe fittings. Fig. 2 represents a front view of the same, and Fig. 3 represents on a somewhat enlarged scale a central vertical section of one of the tapping-spindles and its operating gear.

My invention relates to certain improvements in machines for tapping steam and gas pipe fittings, whereby the operating mechanism is simplified and rendered more perfect and rapid in its operation, while the work performed is superior to that produced by machines heretofore in use for a similar purpose.

In the drawing, the parts marked A represent the bed-plate or table of the machine, upon which are secured the head-blocks B B B B that support the tapping-spindles C C C C and their operating mechanism. These head-blocks B and spindles C are arranged in the positions indicated in the drawing, three of them being at one end of the bed A, and two at the opposite end. Each of the tapping-spindles C is fitted with a spline, *b*, to the interior of the hub of their driving bevel-gears D, and the outer ends of said spindles C are each furnished with a screw-quill or feeding-screw E. The spindles C are turned off sufficiently for the reception of the quills E, and the latter are secured in position by nuts *a* on the end of the spindles, while they are held from revolving, independently of the spindles, by a suitable spline or lug; in this instance it is held by the end of the spline *b*. The quills or feed-screws run between threaded clamp-pieces F attached to the head-block B, as indicated, which pieces F serve as nuts upon the quills E for feeding forward or back the tap-spindles C. By removing the nuts *a* upon the ends of the spindles and the bolts which secure the clamp-pieces F to their sup-

port, the quills E and clamps F can be exchanged for others having screw-threads of different pitch to correspond with the pitch of the various taps used. The different quills E are of the same diameter, but are cut with threads having the same number to the inch as are required upon the various sizes of fittings and the quills and clamps are changed to suit a different size of fitting. The hubs of the gears D are supported in suitable bearings upon the head-blocks B, so that they remain in a fixed position while the spindles C move back and forth longitudinally through their centers, accordingly as the gears are revolved in one direction or the other, to run the taps G in or out of the fittings. Beneath the bed or table A two combined spur and bevel gears, H I, are arranged in horizontal positions (indicated in Fig. 1 by dotted lines) and supported upon suitable spindles that run in bearings on the lower part of the frame and table A. The spur-teeth of the gears H and I mesh with each other, while their bevel-teeth mesh with the gears D that operate the tap-spindles. The three tapping-spindle gears D at one end of the bed A mesh with one of the horizontal gears H and the two tapping-spindle gears D at the opposite end of the bed A mesh with the other horizontal gear, I, consequently when the machine is in operation the set of tapping-spindles at the opposite ends of the bed will be driven in opposite directions, one set being moved forward while the other is run back. A driving-gear, K, may be meshed with one of the horizontal gears I for transmitting motion to the machine, and with the shaft of the driving-gear K some suitable shipping or reversing mechanism should be combined, so that the motion of the machine would be alternately changed from one direction to the other. The tapping-spindles are thus run alternately forward and backward, and it will be observed that when the taps at one end of the machine would be running forward and cutting into the fittings, those at the other end of the machine would be running back to withdraw the taps, and vice versa; consequently the power required for operating the machine is thus equalized while the machine is kept constantly at work, so that no time is lost in waiting for the taps to perform their work and withdraw from the fittings. The fittings to

be operated upon are held in a vice or chuck, L, which, in the present instance, consists of a pair of movable jaws fitted upon dovetailed ways at the side of a supporting standard, and which jaws are operated by a screw-spindle having a right-hand thread at one end and a left-hand thread at the other, and by turning the screw-spindle with a wrench or handle the jaws are opened and closed. The vice or chuck may, however, be constructed in any other suitable manner, whereby it is enabled to hold the fittings firmly and securely in the proper position in front of the tapping-spindles. It will be observed that my tapping-machine is very simple, compact, and strong in its construction as well as very rapid in its operation. The gears D of each set of tap-spindles mesh direct with the horizontal gears without any intermediate gears or other mechanism, and the taps and their feeding-quills or screws E are rigidly connected with each other, so that there is no liability of injuring the thread of the fittings when withdrawing the taps, by the back-lash of the gearing or variation in the motion of the feeding-screws, when the mechanism is reversed. The machine being made with a set of tapping-spindles at each end enables a single operator to perform nearly double the amount of work that can be done upon other machines for the purpose, in a given time, and with the same amount of labor. The machine, as shown, is

arranged for tapping tee-fittings at one end and elbows at the other; but if desired both ends of the machine could be provided with an equal number of tap-spindles. The machine is adapted by simply changing the taps, feeding-quills, and clamps to all sizes of fittings, from three-eighths of an inch to several inches in diameter, and the time required for changing the taps, quills, and clamps, is but a few minutes; consequently a single machine will serve to manufacture all the varieties of fittings in ordinary use, whereas, with other machines, their capacity is limited to a certain extent, and several machines of different sizes are required to produce an equal variety of fittings.

My improved tapping-machines can be used for boring and tapping globe and other valves, when constructed with the modifications described in my application for Letters Patent of even date herewith.

Having described my improved machine for tapping steam and gas pipe fittings, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

The combination, with the two sets of tapping-spindles, feed-screws, bed A, and driving-gears, of the spur and bevel gears H I, substantially in the manner described.

JOHN GUNN.

Witnesses:

CHAS. H. BURLEIGH,  
THOS. H. DODGE.