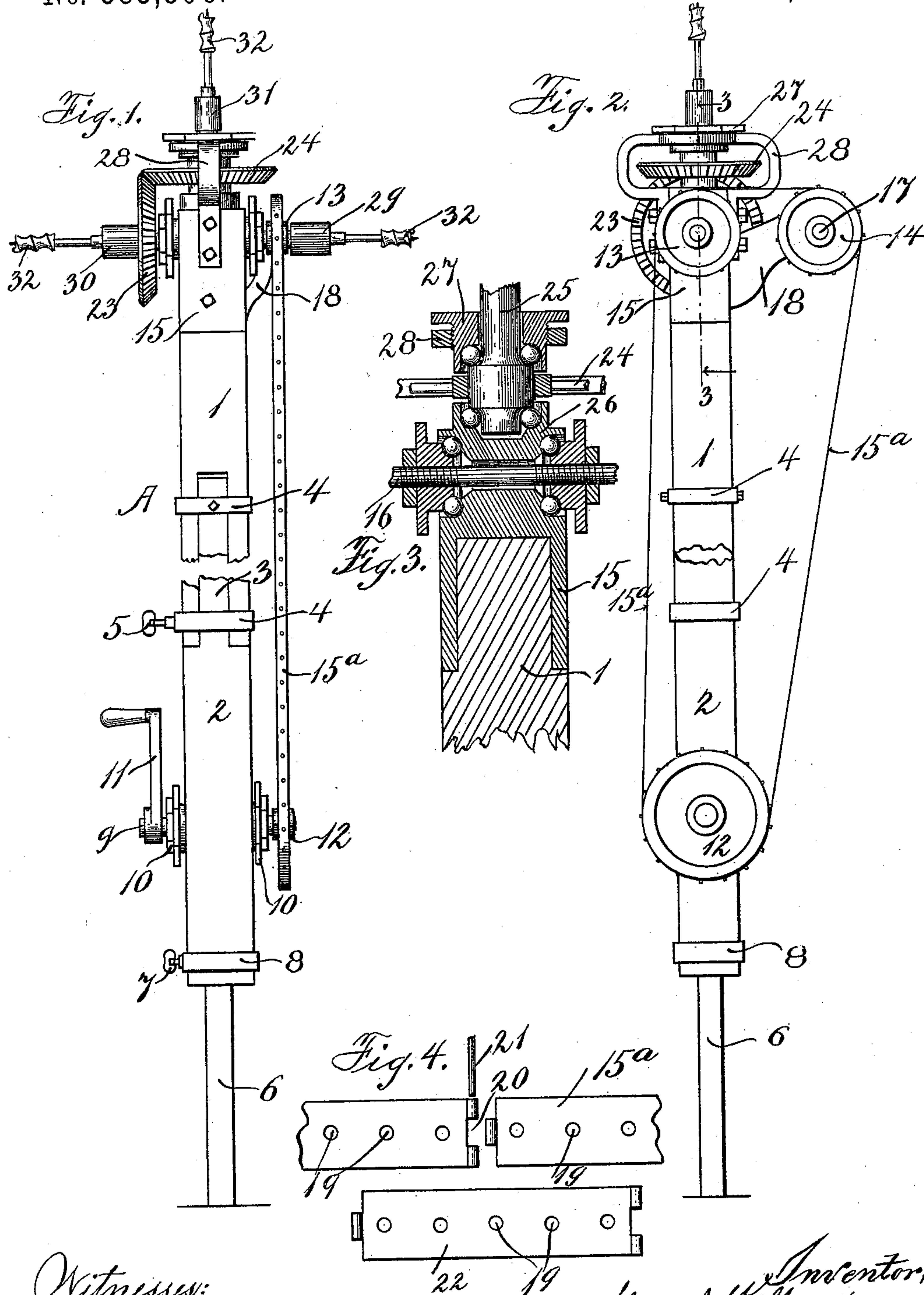


(No Model.)

S. KELLY & F. J. MONAHAN.
BORING MACHINE.

No. 583,806.

Patented June 1, 1897.



Witnesses:
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UNITED STATES PATENT OFFICE.

SAMUEL KELLY AND FRANCIS J. MONAHAN, OF CHICAGO, ILLINOIS.

BORING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 583,806, dated June 1, 1897.

Application filed August 3, 1896. Serial No. 601,432. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL KELLY and FRANCIS J. MONAHAN, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Boring-Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to a novel construction in a boring-machine, the object being to provide a device of this character which is adapted for boring holes in ceiling-joists for electric wiring without the use of a ladder; and it consists in the features of construction and combinations of parts hereinafter fully described and claimed.

In the accompanying drawings, illustrating our invention, Figure 1 is a side elevation of a boring-machine constructed in accordance with our invention. Fig. 2 is a side elevation at an angle of ninety degrees from the elevation shown in Fig. 1. Fig. 3 is a partial longitudinal section on the line 3 3 of Fig. 2. Fig. 4 is a detail view of the sprocket-chain we employ and the manner of joining the ends of the same.

The main object of our invention is to produce a boring-machine for the purposes above specified which will be as light as may be consistent with strength and which will enable the operator to work quickly and with greater ease than with any device of this kind heretofore existing.

One of the many advantages which our device has over others for the same purpose is that the operator is enabled not only to bore holes either horizontally or vertically, but without changing his bits to bore either one horizontal hole or two parallel horizontal holes at one operation.

As before stated, we desire to produce as light a device as is possible, consistent with strength, and to this end we make the standard A of wood. Said standard A comprises two pieces—an upper piece 1, bifurcated at its lower end, and a lower piece 2, provided at its upper end with a tongue 3, adapted to fit said bifurcated portion of said piece 1. Said pieces 1 and 2 are clamped together by means of

straps 4, fitting over said bifurcated portion of said piece 1 and provided with thumb-screws 5, adapted to clamp said tongue 3 therein. The lower end of said piece 2 is hollow and is adapted to receive a rod 6, which is clamped therein by means of the thumb-screw 7 in the strap 8, fitted around the lower end of said piece 2. A crank-shaft 9 is mounted in bearings 10 in the piece 2, preferably about three and one-half feet above the lower end thereof or about the height of the waist of an average man. A crank-handle 11 is mounted upon said shaft 9 on one side of said standard, and on the other end thereof a sprocket-wheel 12 is rigidly mounted. Said sprocket-wheel 12 is geared to sprocket-wheels 13 and 14, revolubly mounted in the head 15 at the upper end of the piece 1, by means of a sprocket-chain 15^a, said sprocket-wheel 13 being mounted upon a shaft 16 passing through said head, and said sprocket-wheel 14 being mounted upon a shaft 17 running in a bearing in the end of an outwardly-extending arm 18 on said head 15. Said sprocket-chain 15^a consists, preferably, of a steel tape provided with perforations 19 at regular intervals, which are adapted to receive the teeth of the sprocket-wheels. The said tape is joined at its ends by means of a hinge-joint 20, in which a pin 21 is removably mounted to enable the ends of said tape to be disconnected and additional sections 22 set therein when it is desired to extend said standard A. As we do not claim this manner of connecting the ends of the sprocket-chain as a part of our invention, it will be unnecessary to describe it more specifically. Said shaft 16 carries a bevel-gear 23 at its other end, which intermeshes with a bevel-gear 24 on the vertical shaft 25, mounted in a bearing 26 at the upper end of said head 15, and in a bearing 27 in a frame or loop 28, secured to said head 15 and extending above said bevel-gear 24. Said shaft 25 is enlarged near its lower end portion and is turned adjacent the same to accommodate the balls of the bearings, as we propose to use ball-bearings throughout our device. Said enlarged portions of said shaft 25 also acts as a collar to limit the longitudinal movement of said shaft. Chucks 29 and 30 are rigidly mounted upon both ends of said shaft 16. A chuck is

mounted upon the end of said shaft 17 in front of said sprocket-wheel 14, and a chuck 31 is mounted upon the upper end of the shaft 25. Bits 32 may be secured in all of said 5 chucks, and in this manner it will be seen that the bits mounted in the chucks in adjacent ends of said shafts 16 and 17 will drill parallel horizontal holes at one operation. The bit in the chuck 30 will drill a single 10 horizontal hole when it is desired to drill only one such, while the bit in chuck 32 will drill vertical holes when desired. Said bits are preferably made as short as possible, so that it will be unnecessary to remove any of the 15 same, except when working in a small space.

By means of the sprocket-chain we employ we are enabled to make our device very much lighter than with any other positive transmission. In the drawings our device appears 20 clumsy and heavy, but this is owing to the fact that we have shown the construction of the device clearly and have broken the standard through to indicate that it is of greater length. The entire weight of our device is 25 about six pounds, while those at present on the market weigh more than double as much. Besides the reduction in weight we are enabled to work faster and with greater accuracy, owing to the fact that we can drill 30 two holes at one operation where space permits, or one hole, when desired, without taking the time and trouble to change the bits.

The rod 6 enables an adjustment of the standard to a height so that the crank-arm 35 11 is a little above the shoulder, where it may still be operated with ease. This adjustment is generally sufficient, but when it is desired greater adjustment may be obtained by extending the pieces 1 and 2, though this is very 40 seldom necessary.

We claim as our invention—

1. In a boring - machine, an adjustable standard comprising an upper portion bifurcated at its lower end, a hollow lower portion 45 provided at its upper end with a tongue adapted to enter said bifurcated lower end of said upper portion, a rod adjustably mounted in said lower end, and straps adapted to fit around said bifurcated end of said upper portion and provided with set-screws adapted to 50 clamp said tongue therein, a head on said upper portion provided with an upwardly-extending loop, a vertical shaft mounted in bearings in said head and said loop and provided with a bevel-gear, a horizontal shaft 55 vided with a bevel-gear, a horizontal shaft

mounted in bearings in said head and provided with a bevel-gear adapted to intermesh with said bevel-gear on said vertical shaft, chucks on the ends of said vertical and horizontal shafts, a sprocket-wheel on one end of 60 said horizontal shaft and gearing between said sprocket-wheel and a crank-shaft on said lower portion of said standard.

2. In a boring - machine, an adjustable standard comprising an upper portion bifurcated at its lower end, a hollow lower portion 65 provided at its upper end with a tongue adapted to enter said bifurcated lower end of said upper portion, a rod adjustably mounted in said lower end, and straps adapted to fit 70 around said bifurcated end of said upper portion and provided with set-screws adapted to clamp said tongue therein, a head on said upper portion provided with an upwardly-extending loop, a vertical shaft mounted in 75 bearings in said head and said loop and provided with a bevel-gear, a horizontal shaft mounted in bearings in said head and provided with a bevel-gear adapted to intermesh with said bevel-gear on said vertical shaft, an 80 arm on said head, a horizontal shaft revolvably mounted in said arm and parallel with said horizontal shaft in said head, chucks on the ends of said vertical and horizontal shafts, sprocket-wheels on said horizontal shafts, a 85 crank-shaft mounted in bearings in the lower portion of said standard, a sprocket-wheel on said crank-shaft, and a sprocket-chain trained around said sprocket-wheels on said crank-shafts and said horizontal shafts. 90

3. In a boring-machine, a head mounted upon a standard, a horizontal shaft mounted in bearings in said head, a vertical shaft mounted in bearings in said head, a bevel-gear on said vertical shaft adapted to intermesh with a bevel-gear on said horizontal 95 shaft, a shaft parallel with said horizontal shaft mounted in bearings in an arm on said head, a crank-shaft mounted in bearings in the lower end portion of said standard, and 100 gearing between said crank-shaft and said parallel horizontal shafts.

In testimony whereof we affix our signatures in presence of two witnesses.

SAMUEL KELLY.

FRANCIS J. MONAHAN.

Witnesses:

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