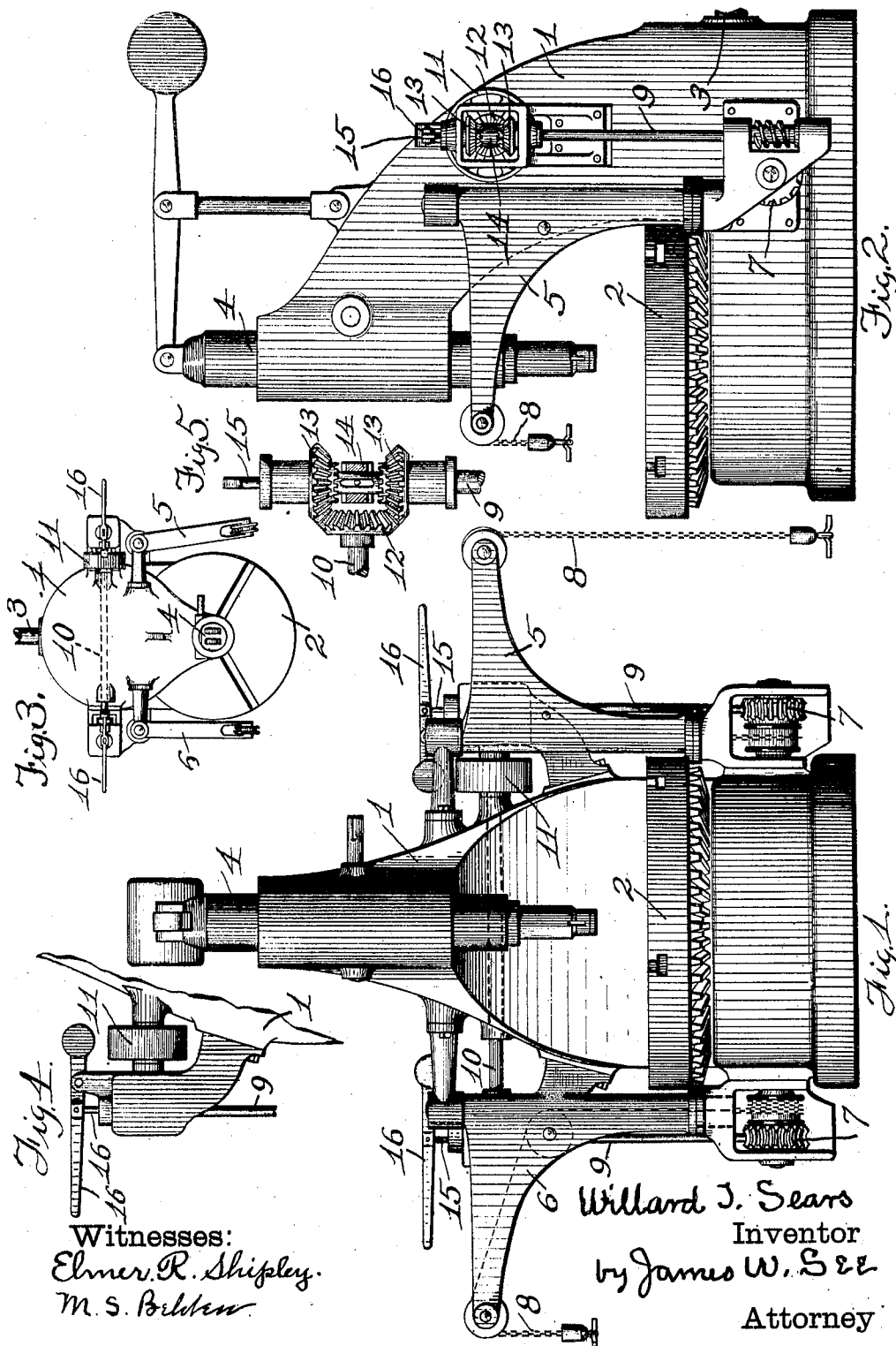


W. T. SEARS.
BORING MACHINE.
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933,124.

Patented Sept. 7, 1909.



Witnesses:
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BORING-MACHINE.

933,124.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLARD T. SEARS, a citizen of the United States, residing at Philadelphia, Philadelphia county, Pennsylvania, have invented certain new and useful Improvements in Boring-Machines, of which the following is a specification.

This invention, pertaining to improvements in boring machines devised with special reference to the expeditious boring of car wheels, will be readily understood from the following description taken in connection with the accompanying drawing in which:—

Figure 1 is a front elevation of a machine exemplifying my invention: Fig. 2 a side elevation of the same: Fig. 3 a plan of the same: Fig. 4 a rear elevation at a side portion of the body: and Fig. 5 a rear elevation of one of the reversing clutch devices. Fig. 3 is upon a reduced scale and Fig. 5 upon an enlarged scale as compared with the other figures.

In the drawing:—1, indicates the body of a car wheel boring machine of well known type: 2, the rotary chuck of the machine, mounted to turn on a vertical axis: 3, the driving shaft: 4, the tool spindle mounted for vertical feeding motion in the body and having its axis in line with the axis of the chuck, all of the parts thus far considered being as usual in machines of this class and subject to the usual modifications: 5, a jib crane having its mast pivoted in brackets projecting from one side of the body of the machine, its jib being adapted to swing from a point well to one side of the machine to a point well within the margin of the chuck: 6, a crane similarly mounted upon the other side of the machine: 7, a worm-gear mounted in the lower bracket of each crane, each worm-wheel carrying a winding barrel: 8, a hoisting chain, one for each crane, the chain passing from its winding barrel up the mast of the crane and over suitable sheaves and down from the jib sheave, the outer extremity of the chain being provided with the usual toggle to engage the bore of the car wheel to be handled by the crane: 9, a vertical shaft journaled in brackets carried by the body of the machine, one shaft to the rear of each crane, each of these shafts having a worm engaging its appropriate one of the worm wheels: 10, a cross-shaft journaled in the body of the machine

near the upper ends of the worm-shafts: 11, a driving pulley fast on this cross-shaft: 12, bevel gears, one on each outer end of the cross-shaft: 13, a pair of bevel gears, one pair for each worm-shaft, these bevel gears engaging the bevel gears 12 of the cross-shaft and being mounted loosely on their worm shafts, each of these bevel gears being provided with a clutch hub: 14, sliding clutches, one being mounted on each of the worm shafts and arranged to lock its shaft alternatively to either of the bevel gears 13 with which it coöperates: 15, a clutch-rod sliding in the upper end of each of the worm shafts and serving as means for shifting the sliding clutches: and 16, handles for operating these clutch-rods.

With the sliding clutches 14 in neutral position, the cross-shaft 10 will turn idly and the winding barrels will be at rest but locked by their worm gearing. By properly adjusting one of the handles 16 the winding barrel of the given crane will be driven in the hoisting direction, and by adjusting the same handle to an opposite position, the winding barrel will be turned in the lowering direction. Either crane may therefore raise or lower its load by power and hold that load in any desired position. By appropriately manipulating both of the handles, both cranes may simultaneously lower their loads or simultaneously hoist their loads, or one crane may be hoisting its load while the other one is lowering its load.

In practice, while the machine is boring one wheel one of the cranes will be connected with a new wheel and hoist that wheel to upper position, while the other crane is swung inward ready to deal with the wheel being bored. As soon as the boring of the wheel is completed, and the chuck released, the empty crane is engaged with it and the crane and bored wheel are swung aside, the other crane being immediately swung inward so as to deliver its wheel upon the chuck, the boring of this new wheel being begun as soon as the crane can be released from it and the chuck tightened. While the boring of the new wheel is in progress, the old bored wheel may be lowered and disposed of and either of the cranes may receive and hoist a new wheel load for a repetition of the process. When it is considered that in the rapid boring of a car wheel the handling of the work requires about as much time as the boring,

appreciation will be given to the possibilities of the improved machine which requires no extended hoisting or lowering to be done while the machine is waiting to receive or discharge a wheel.

Again, as representing perhaps the preferable practice, during the boring of a wheel one of the cranes may be connected with the new wheel on the floor at the side of the machine and the other crane be swung inward ready to deal with the wheel being bored. When the wheel is completely bored and released from the chuck then the empty crane may be engaged with it and swung outward with its wheel, whereupon both cranes may be set in motion, one crane lowering the old wheel while the other crane hoists the new wheel. A third wheel may be immediately swung into place and chucked and its boring started and its crane left in position ready to deal with that wheel when its boring is done. In the meantime the other crane, which has lowered the previously bored wheel, may be disengaged from that wheel and engaged with the new wheel, which is still to remain on the floor ready for hoisting as soon as the wheel in the machine is ready for lowering.

The particular type of cranes employed is immaterial, the chain and winder type illustrated being merely exemplifying, and the same remarks apply to the specific mechanism illustrated for controlling the hoisting and lowering action of the cranes. I have simply explained the principle of my machine and the best mode in which I have contemplated applying that principle.

I claim:—

1. A boring machine comprising, a body,

a chuck mounted thereon for rotation on a vertical axis, a tool-bar mounted in the body and fitted for sliding motion in the line of the axis of the chuck, a first jib crane having its mast vertically pivoted on a vertical axis at one side of the chuck, a second jib crane having its mast pivoted on a vertical axis at the opposite side of the chuck, hoisting and lowering mechanism at each of said cranes, a power device for the actuation of said hoisting and lowering mechanism, and coupling devices for connecting said power device with the hoisting and lowering mechanism of the two cranes alternatively or simultaneously, combined substantially as set forth.

2. A boring machine comprising, a body, a chuck mounted thereon for rotation on a vertical axis, a tool-bar mounted in the body and fitted for sliding motion in the line of the axis of the chuck, a first jib crane having its mast vertically pivoted on a vertical axis at one side of the chuck, a second jib crane having its mast pivoted on a vertical axis at the opposite side of the chuck, hoisting and lowering mechanism at each of said cranes, a power device for the actuation of said hoisting and lowering mechanism, and coupling devices for connecting said power device with the hoisting and lowering mechanism of the two cranes and adapted to hoist a load on one crane while lowering a load on the other crane, combined substantially as set forth.

WILLARD T. SEARS.

Witnesses:

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