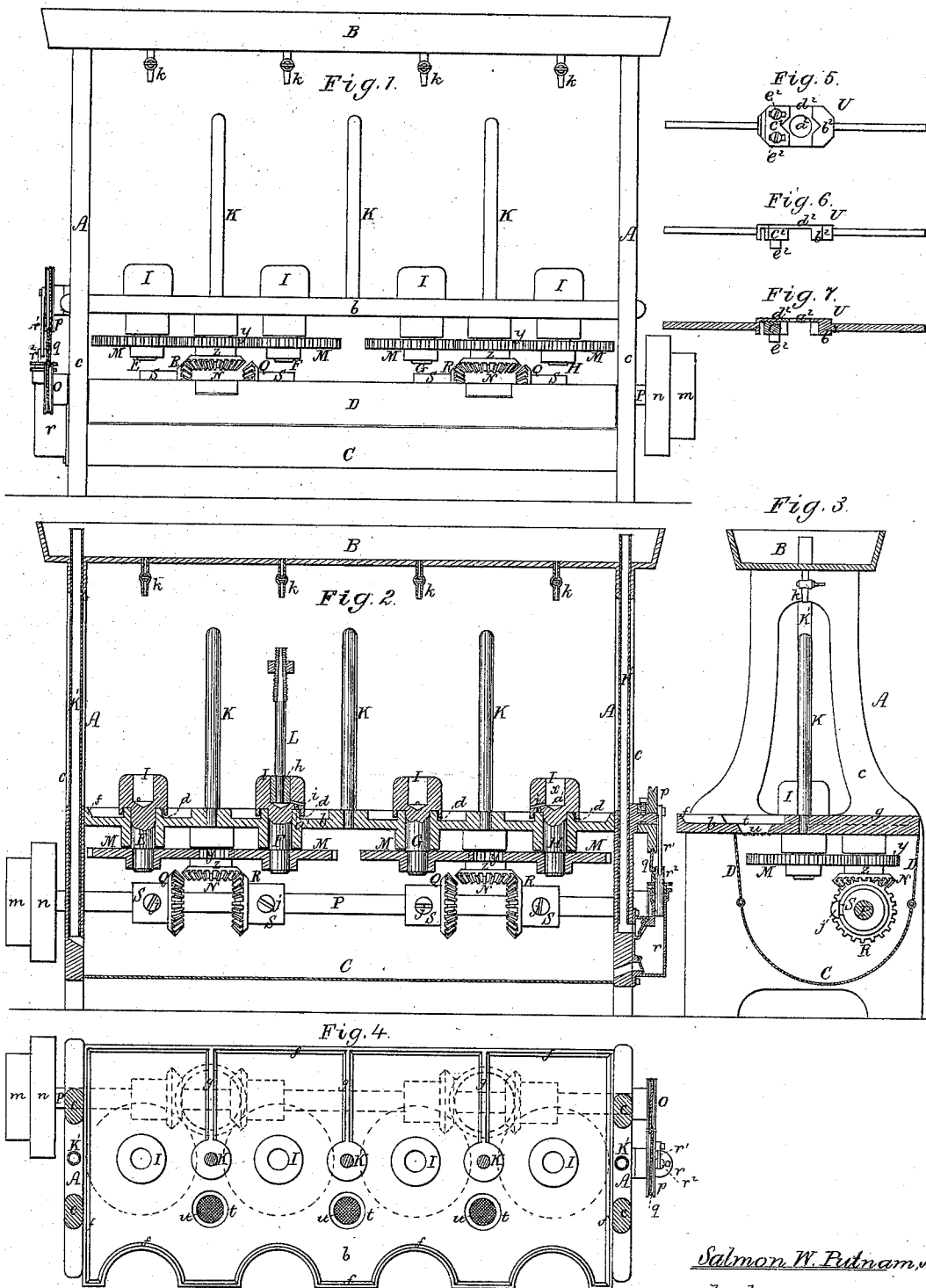


S. W. PUTNAM, Jr.
Machines for Tapping Nuts.

No. 142,511.

Patented September 2, 1873.



Witnesses
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SALMON W. PUTNAM, JR., OF FITCHBURG, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR TAPPING NUTS.

Specification forming part of Letters Patent No. 142,511, dated September 2, 1873; application filed July 5, 1873.

To all whom it may concern:

Be it known that I, SALMON W. PUTNAM, Jr., of Fitchburg, of the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Machines for Tapping Screw-Nut Blanks; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is an elevation with the front door of the lower oil-trough turned downward. Fig. 2 is a longitudinal section, Fig. 3 a transverse section, and Fig. 4 a horizontal section, of a machine embodying my invention, the nature of which I will now proceed to describe.

The machine or combination as improved by me is one where the nut-tapping devices have an upper and lower oil-receiving reservoir and a forcing-pump to elevate the oil from the lower to the upper of such reservoirs, the oil being discharged from the upper one upon the nut-tapping mechanism for the purpose of lubricating it, machines of such character being represented in Patents Nos. 70,862 and 115,451, to which reference is hereinafter made. The nature of my invention consists in certain tubular standards in combination with a series of intermediate standards, a force-pump, upper and lower reservoirs, and socketed heads, arranged as hereinafter specified and as represented. Also, in a special arrangement of an oiling educt with reference to and for oiling certain parts, as hereinafter described.

In the said drawings, A denotes the frame of the machine composed mainly of the bed-plate or table *b* and two standards, *c c*, arranged as shown, there being on the top of the said standards an oil-receiver or trough, B. Furthermore, there is between the two standards *c c*, and underneath the bed-plate *b*, another oil-trough, C, provided at its front and rear with two doors, D D, hinged to its upper edge, all being as shown. Extending up through the bed-plate, and having bearings on it, is a series of arbors, E F G H, each having a socketed head, I, fixed to it above the bed-plate *b*, and also above one of a series of cylindrical projections or rests, *d d d d*, erected thereon, and arranged as shown. These rests

d are to protect the arbors from oil and chips which may drop upon the table while the machine may be in operation. Midway between the arbors are standards or posts K K K, there being similar ones arranged in the frame, as shown at K' K', which, in this case, are tubes leading up into the upper oil-reservoir. One of such tubes extends from the force-pump *r*, (to be hereinafter described,) or is the eduction-tube thereof, the other pipe being the overflow-pipe of the upper reservoir, and serving to conduct oil down into the lower reservoir. Thus it will be seen that the pipes K' K' answer two purposes—viz., as conduits for the oil to run out of the upper reservoir and into the lower one, and also to support the arms of the nut-holder. The base *b* is surrounded by a ledge, *f*, which projects a short distance above it; and it is also provided with transverse ledges or partitions *g g g* that extend from each of the inner posts to the ledge *f*, in manner as shown, the same being to separate the space in front of each arbor-head from the next contiguous space or spaces, in order that nut-blanks, when in one space, may be kept separate from, and not accidentally get into, the other space, the machine being intended to tap, at one and the same time, nut-blanks of different sizes. Thus it will be seen that the partitions preserve the nut-blanks of each size from becoming intermixed with those of another size, and also in due contiguity to their taps. Each arbor-head is bored vertically to receive the foot *h* of a screw-tap, L; and, furthermore, the bore *x*, at its foot, is provided with a lateral passage, *i*, to allow the escape from it of any surplus oil that may work into it. On each of the arbors, and underneath the base-plate *b*, there is fixed a spur-gear, M. Each pair of said spur-gears engages with a spur-pinion, *y*, fixed upon a vertical arbor or sleeve, *z*, carrying a bevel-pinion, N, to engage with one of two bevel-gears, Q R, all being as shown. There extends downward from such lateral passage *i*, and to open upon the projection or rest *d*, on which the arbor-head bears, a hole, *a*¹, which may be stuffed with leather or wicking, or some material which will allow the oil to pass through it and run upon the rest *d*. The oil will thence flow down through the spindle-bearing and

drop upon the gear M beneath. Running over the upper surface of the gear it will pass therefrom upon that of the engaged spur-pinion *y*, and between the teeth of the gear and pinion. It will find its way into the bearing of the lesser gear *y*, whose upper surface, if necessary, may be channeled or provided with grooves to facilitate the passage of the oil to the bearing. The said bevel-gears Q R are fixed to sleeves S S, which are arranged upon a horizontal shaft, P, and provided with set-screws *j j* to enable either of their gears to be moved into and out of engagement with the intermediate bevel-gear, and the sleeves to be secured to the shaft, as occasion may require. Directly over each of the arbor-heads there is a stop-cock or faucet, *k*, leading out of the upper oil-reservoir. Furthermore, on one end of the shaft P are one or more driving-pulleys, *m n*, to receive a belt for putting said shaft in revolution. On the opposite end of such shaft is a grooved pulley, *o*, around which and a crank-wheel, *p*, a cross-belt, *q*, runs. Such crank-wheel has a connecting-rod, *r*¹, extending from its wrist to and pivoted to the piston *r*² of a force-pump, *r*, communicating with the lower reservoir and serving, by means of a pipe, K', to throw oil therefrom into the upper reservoir. In advance of each of the partitions of the base-plate, there is a tapering hole, *t*, made through the base-plate and provided with a strainer, *u*, the same being to discharge oil from the base into the lower reservoir. These holes and strainers are also arranged or may be disposed so as to drop oil upon the next adjacent gear M or conduits leading thereto, by which it will be transmitted to their driving-pinion, and from them will be dropped upon the bevel-gears, in consequence of which all the said gears will be lubricated automatically. Each nut-blank, while being tapped, is supported in a carrier, U, shaped and provided with arms, as shown in Figs. 5, 6, 7, which represent a bottom view, a front elevation, and a longitudinal section of said carrier, the arms of the carrier being supported against the posts while the tap may

be in operation on the nut. The carrier U has a round hole, *a*², through the middle of its body; and it also has a stationary notched jaw, *b*², and an adjustable notched jaw, *c*², the latter being held to the body *a*² by clamp-screws *e*² *e*² going through slots in the jaw. By this construction of the carrier, it may be adapted to receive and support nut-blanks of different sizes—that is, it may be adapted to a blank of one size or to another, larger or smaller, as occasion may require.

With the machine as above described, each of the tap-arbors may be revolved at any time in either of two opposite directions, in order to effect the performance of tapping "right" or "left" nut-blanks, as occasion may require.

In this machine the operative gears and their driving-shaft, being incased or arranged beneath the table or bed-plate, are completely protected from the chips or dirt made during the tapping of the nut-blanks, and the gears are kept lubricated to great advantage by the means employed for supplying oil to the taps. After each of the taps may have become filled with the nuts, the tap may be removed from its arbor-head and a fresh tap may be substituted, or the nuts may be discharged from the tap and it be replaced.

I disclaim a nut-blank tapping-machine constructed as represented in either of the United States Patents Nos. 70,862, 115,451.

I claim—

1. The tubes K' K', the force-pump *r*, the upper and lower reservoirs B C, the series of intermediate standards K, and the socketed heads I, (provided with operative mechanism, as specified,) arranged as explained, the said tubes K' K', under the arrangement, performing the functions as set forth.

2. The oil-educt *a*¹, arranged and combined with the escape-passage *i*, so as to discharge oil upon the rest *d*, in manner and for the lubricating certain of the parts, as explained.

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Witnesses:

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