May 28, 1929. W. HADDOW 1,714,869

DIE LAPPING MACHINE

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Fig. 1.

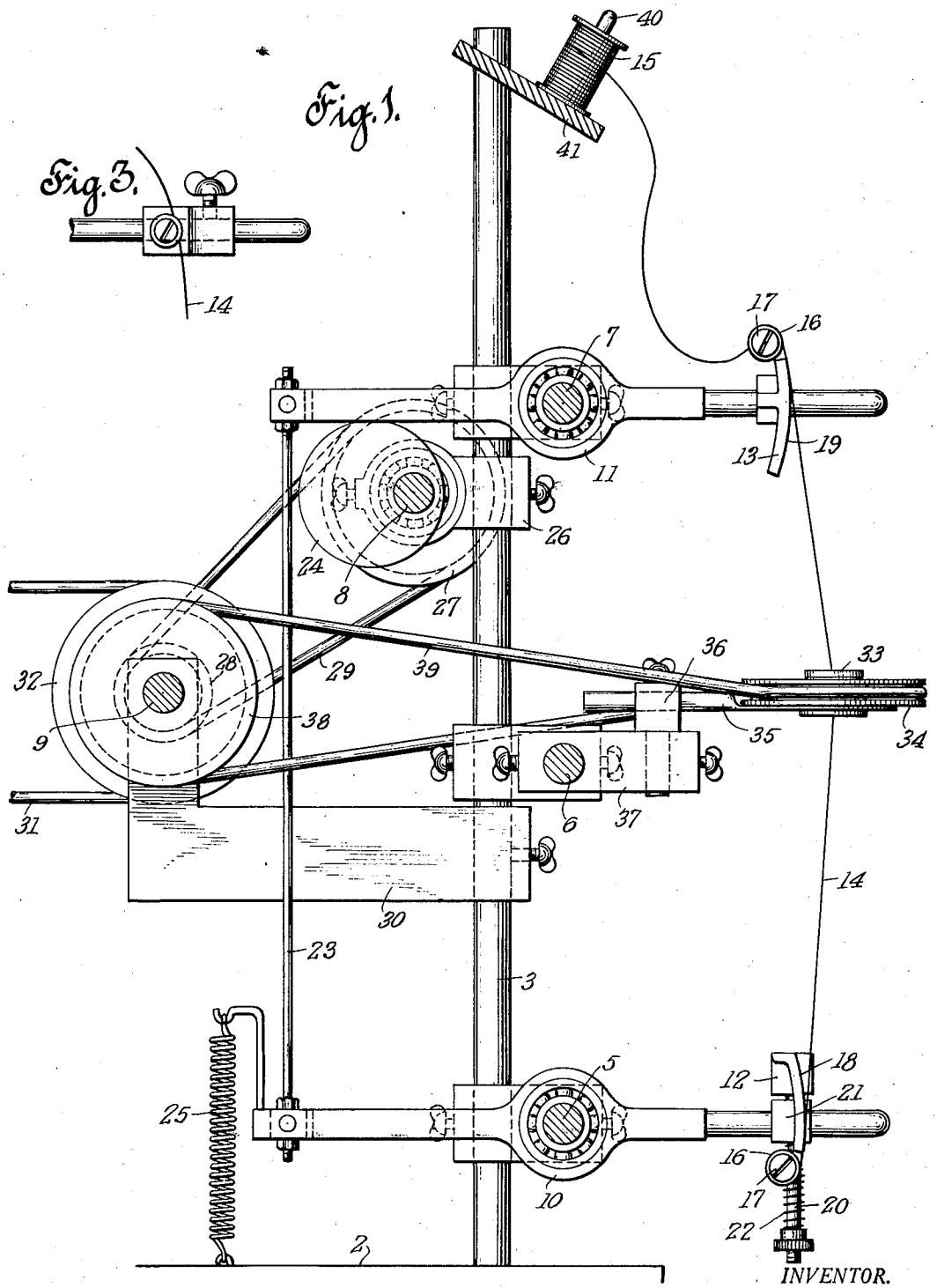


Fig. 3.

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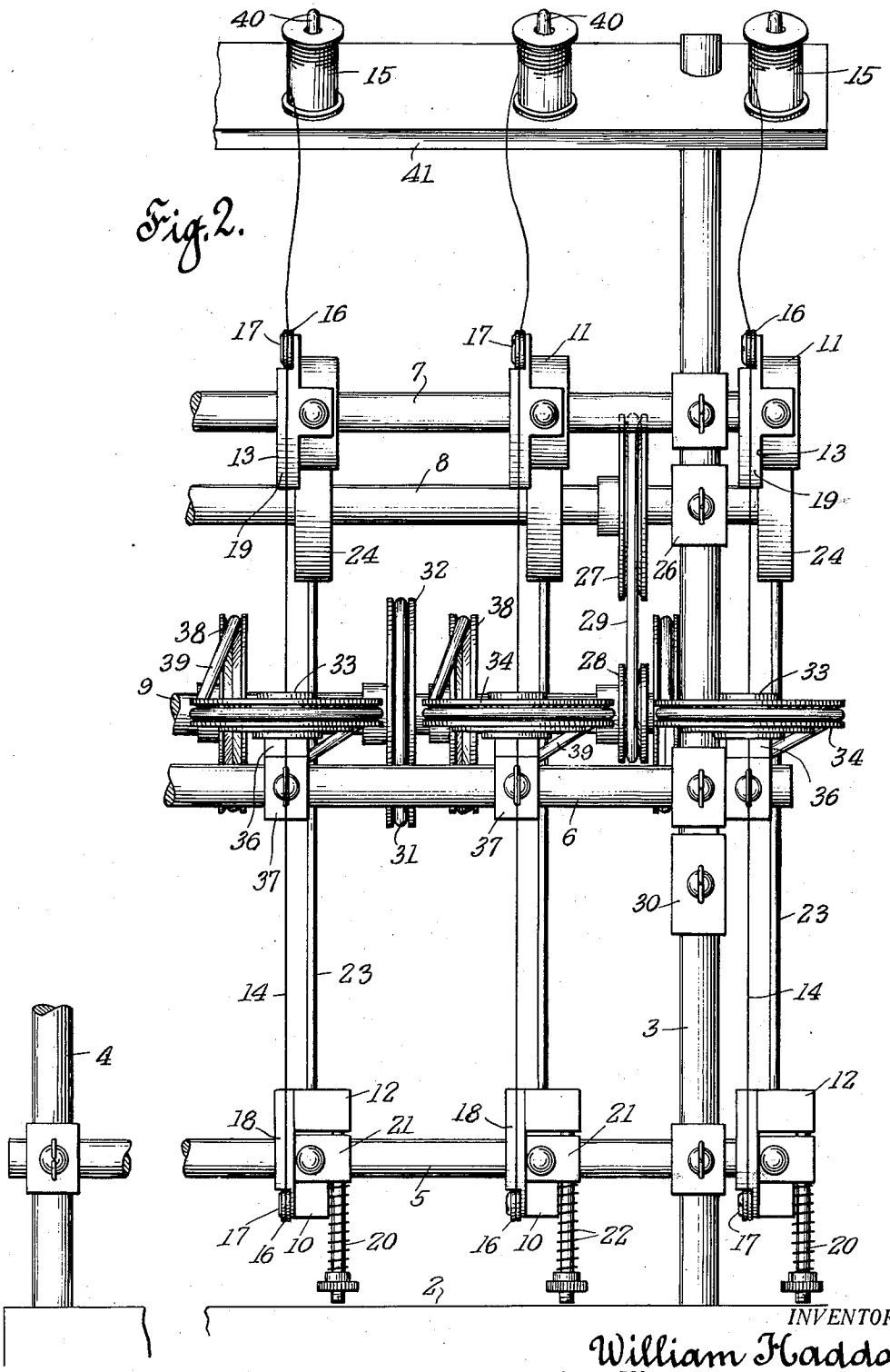
his ATTORNEY

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Fig. 2.



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Patented May 28, 1929. 1,714,869

UNITED STATES PATENT OFFICE.

WILLIAM HADDOW, OF OSSINING, NEW YORK.

DIE-LAPPING MACHINE.

Application filed May 10, 1927. Serial No. 190,370.

This invention relates to die lapping machines and has for its object to provide a machine of the character specified, simple in construction, efficient in operation and easily adjustable for various requirements.

To these ends and others which will appear later herein my improvements comprise features illustrated in their preferred embodiment in the drawings accompanying this specification, wherein:—

Figure 1 is a side elevation of one unit of my improved machine. Fig. 2 is a front elevation of a plurality of units, corresponding with the showing of Fig. 1. Fig. 3 is a side elevation of a modification of a detail of my improvements. The scale of all the figures is the same.

While each unit of my improved machine includes features of novelty and economy of construction, said units are particularly adapted for assembly in gangs, in which several elements of the device are common to all the units.

My improved machine may be erected upon some convenient base or table 2 and supported by one or more posts as 3, 4. If a single unit is employed, one post 3 is efficient to support all parts of said unit, but where a plurality of units are assembled in a gang it is preferable to employ posts 3, 4 respectively at either end of the gang.

Directing attention now particularly to Fig. 1, adjustably supported by said post 3 are a plurality of horizontal rods 5, 6, 7 and bearings for shafts 8 and 9. On rods 5 and 7 are mounted, preferably on anti-friction bearings, levers 10 and 11 respectively and to the right hand portions of said levers are adjustably fixed lapping wire clamps 12, 13 respectively. Lapping wire 14 may be supplied from a spool 15 and secured in side clamps between washers 16 by clamp screws 17 and from time to time as needed, a fresh length of wire may be drawn through after loosening screws 17, thereby saving time in the operation of the machine. Said spool 15 may be supported for rotation on pin 40 of shelf 41 fixed to post 3.

In some cases, when it is desirable to have wire 14 reciprocate without horizontal back and forth movement where held by levers 10, 11, the face 19 of clamp 13 is arcuate relatively to the axis of rod 7 as a center and face 18 of clamp 12 is similarly curved. Also to provide a working tension on wire 14, one of said clamps as 12, is provided with shank 20 slidably mounted in block 21 of lever 10 and spring 22 is efficient to provide the desired downward pull on clamp 12.

In some cases it is desirable to give to wire 14 a back and forth movement relatively to rods 5 and 7. Then clamps such as shown in Fig. 3 may be used and which will be readily understood without further description.

The left hand ends of levers 10, 11 are adjustably connected by rod 23 and said levers are oscillated by some suitable means such as cam or eccentric 24 fixed to shaft 8, bearing upon the under side of lever 11 and held to engagement therewith by pull spring 25 between lever 10 and table 2. By blocking up the left hand end of lever 10 any individual lapping unit may be rendered inoperative without affecting the operation of any of the other units.

Said shaft 8 turns in bearings as 26, adjustably fixed to upright rod 3 and is driven from countershaft 9 by the usual belt 29 over pulleys 27, 28. Countershaft 9 turns in bearings in arms as 30, adjustably fixed to rod 3. Countershaft 9 may be driven from some known source of power, not shown, by belt 31 on pulley 32.

The die to be lapped by wire 14 may be supported centrally within die carrying hub 33 of pulley 34 according to known practice and said pulley is supported for rotation in arm 35 adjustable universally relatively to rod 6. The shank of arm 35 is adjustably secured in dog 36 which in turn is adjustably clamped in arm 37 adjustably located on rod 6. Pulley 34 is driven from pulley 38 fixed to countershaft 9 by belt 39.

There is thus provided a die lapping machine of large capacity in small space, comprising a plurality of units which may be started and stopped independently of each other and which may be assembled in small or large gangs as desired.

I claim:

In a machine of the character described the combination of a pair of posts, two parallel shafts at right angles to said posts, bearings adjustably mounted on said posts, in which said shafts are rotatably mounted, a plurality of pairs of opposite levers oscillatably mounted on said parallel shafts respectively, each lever having a wire clamp mounted thereon, a cam shaft supported by said posts, a plurality of cams on said shaft each in operable engagement with one of each of said pairs of levers respectively,

means connecting each pair of levers for causing said pair of levers to oscillate in unison, a countershaft revolubly supported from said posts, means for rotating said countershaft, means for rotating said cam shaft from said countershaft, a rod parallel with and between said parallel shafts, adjustably supported from said posts, a die carrier revolubly supported on said rod between each pair of levers and means for rotating said die carriers from said countershaft.

In witness whereof, I hereby affix my signature this 7th day of May, 1927.

WILLIAM HADDOW.