

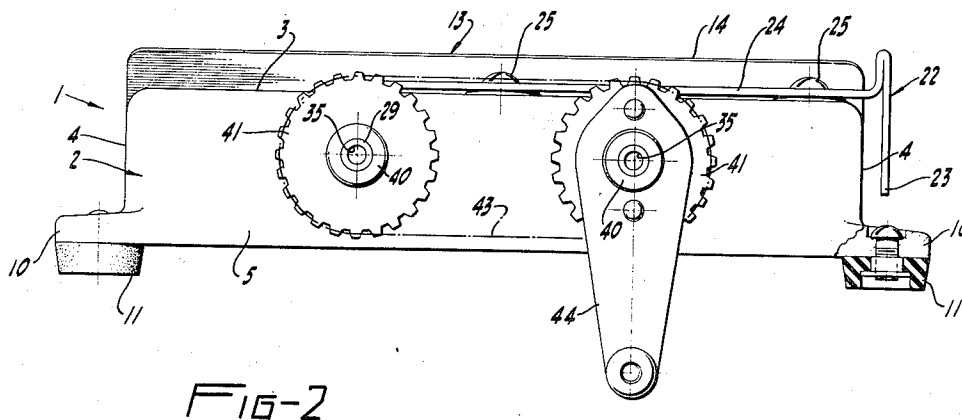
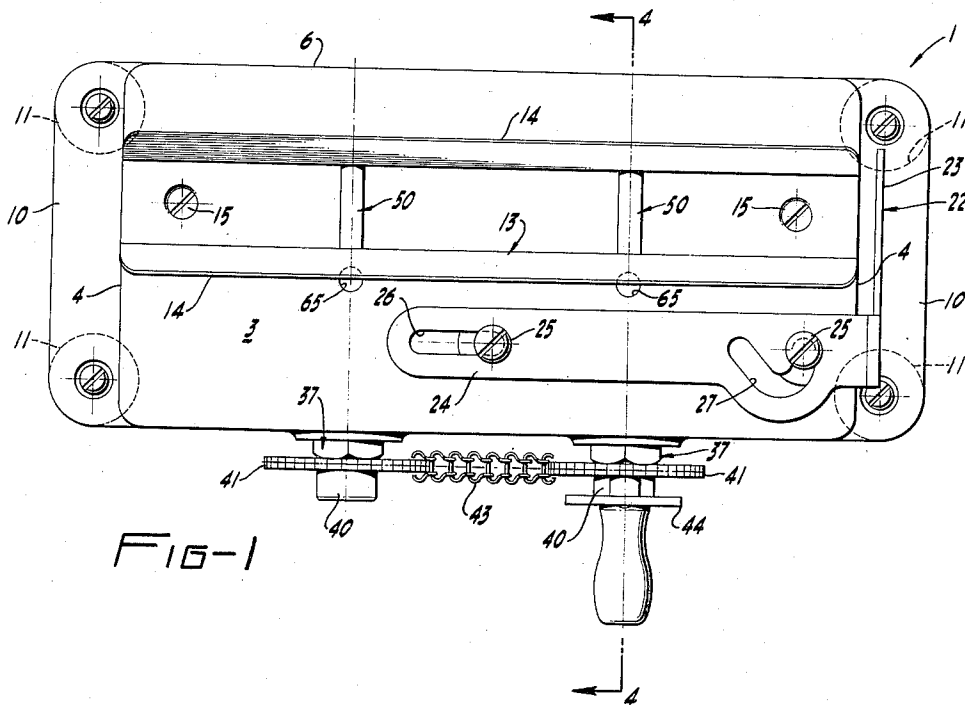
Sept. 25, 1951

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TARIFF DRILL

2,569,210

Filed April 19, 1948

2 Sheets-Sheet 1



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Filed April 19, 1948

TARIFF DRILL

2 Sheets-Sheet 2

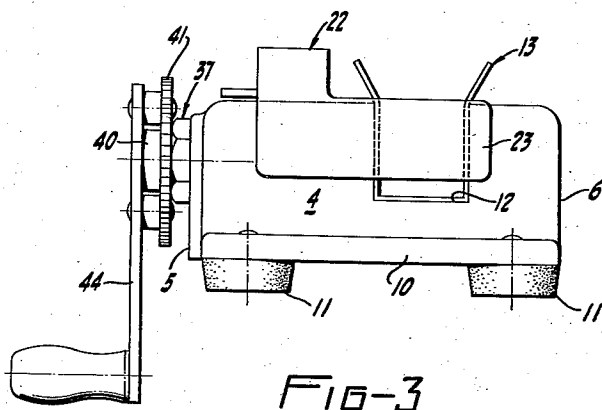


Fig-3

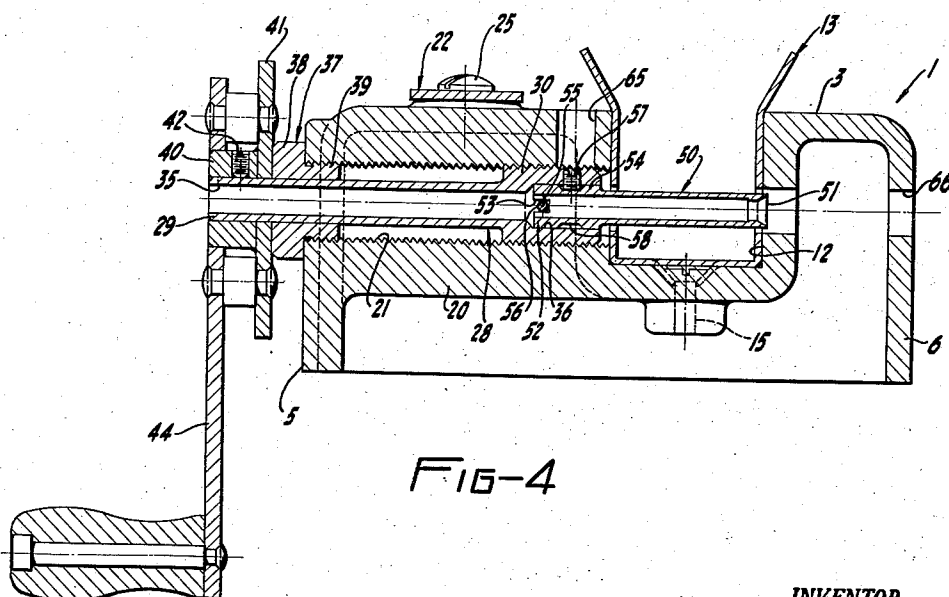


FIG-4

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UNITED STATES PATENT OFFICE

2,569,210

TARIFF DRILL

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Application April 19, 1948, Serial No. 21,820

4 Claims. (Cl. 164—86)

1

This invention relates to a tariff drill or the like adapted to bore holes in a sheaf or bundle of papers, such as used in a looseleaf ledger or tariff schedule.

One method of providing perforations in papers intended to be held in a looseleaf binder or the like, is to punch the sheets with a punch of suitable diameter. This method is not entirely satisfactory because of the difficulty or impossibility of punching a thick bundle or sheaf of papers. Thus, it may be necessary to separate the bundle into smaller bundles of paper and to punch each smaller bundle individually. This, of course, is time consuming and also presents a difficulty in obtaining proper alignment of the holes.

Drills have been used for the purpose of providing holes or perforations in bundles of tariff sheets and the like, but where a single drill has been used, it must be used repeatedly, once for each hole to be drilled, thus involving a loss of time and difficulty in alignment of the holes. Gang drills adapted to bore two or more holes simultaneously and in proper alignment have been unsatisfactory for one or more of several reasons, such as expensiveness of the drills, inaccurate alignment of the holes drilled, and difficulty in assembly and disassembly for the purposes of repair and adjustment.

It is an object of the present invention to provide a gang drill adapted to bore holes in a large bundle of tariff sheets or the like, while accurately aligning the holes, and which is capable of performing the drilling job in a relatively short time.

It is a further object of the invention to provide a gang drill for drilling a plurality of aligned holes in a bundle of tariff sheets or the like, such drill being characterized by compactness, by simplicity of design and by ease of disassembly and reassembly for purposes of repair, adjustment or replacement of parts.

These and other objects of the invention will be apparent from the ensuing description and the appended claims.

The invention will be better understood by reference to the accompanying drawings, in which one embodiment which the invention may assume is shown.

Referring now to the drawings:

Fig. 1 is a top plan view of this embodiment of the invention.

Fig. 2 is a front elevation of the same.

Fig. 3 is an end elevation of the same.

Fig. 4 is a transverse cross section along the line 4—4 of Fig. 1.

A main frame 1 is provided for mounting the working parts of the device and for holding a sheaf or bundle of papers in proper alignment with each other and with the drill. The frame 1 is a generally rectangular, box-like casting comprising a cover portion 3, end portions 4 and front

2

and rear portions 5 and 6, respectively. The frame is provided with flanges 10 at each end thereof, and at the ends of these flanges are provided legs 11, formed of rubber or any other suitable resilient material and bolted to the flanges, as shown. The frame is recessed at 12, longitudinally of the frame, to provide a space for receiving a guide member 13. This guide member is of generally square transverse cross-section and it is provided with outwardly and upwardly slanting ears 14. The guide member 13 is secured to the frame by screws 15 passing through the bottom thereof and threaded into the frame, as shown.

Depending from and integral with the underside of the cover, forwardly of the recess 12 are two spaced spindle guides 20, one of which is shown in Fig. 4. Each guide 20 is provided with a threaded bore 21 to receive a spindle as described more fully hereinafter. A slidable gauging member 22 is also provided. This member is of generally L-shape, and it has a vertically and transversely disposed leg 23, the outer end of which is positioned opposite one end of the guide member 13, and a horizontally and longitudinally disposed leg 24, which is slidably secured to the cover 3 by means of shoulder screws 25 engaging slots 26 and 27 and threaded into the cover 3. It will be seen that the gauging member, by reason of the straight slot 26 and the curved slot 27, is capable of assuming two definite positions corresponding to two definite or standard sizes of tariff sheet. One such position is shown in Fig. 1 and the other position is assumed by swinging the right-hand end of the gauging member rearwardly and then forwardly and at the same time urging it to the right, so as to engage the left end of the curved slot with its screw 25.

Each of the threaded bores 21 receives and retains a spindle 28 having a shaft portion 29 and an enlarged, threaded head portion 30 which is in threaded engagement with the bore 21. Each spindle 28 is hollow, having a bore 35 running completely therethrough from end to end, this bore being somewhat widened at 36 for a purpose described hereinafter. At its outer or forward end, the spindle passes through a bearing 37 having a head 38 and a threaded shank 39 in threaded engagement with the bore 21. The spindle shaft 29 extends forwardly through the bearing 37 and is received within the hub 40 of a sprocket 41, being secured thereto by means of a set screw 42. Trained about the sprockets 41 is a chain 43, and one of the sprockets is provided with a crank 44.

It will be seen that, as the crank 44 is turned, the spindles 28 will be rotated and will advance or retract within the threaded bores 21 according to the direction of rotation of the crank. The bores 21 are preferably threaded with a right hand thread such that clockwise rotation of the

3

crank will advance the spindles from their extreme retracted position to their extreme forward position as shown in the drawings.

Each spindle 28 is provided with and is secured to a drill bit 50 having a flared cutting edge 51 at one end thereof, a beveled head portion 52 at the opposite end provided with aligned slots 53, and a beveled collar 54. The drill bit 50 is received within and secured to the head 30 of the spindle by means of pins 55 press fitted in the holes 56 formed in the spindle head and engaging the slots 53, and by means of a set screw 57 threaded through an opening in the spindle head and engaging the annular recess 58 defined by the collar 54 and head 52. The drill bit 50 is thus easily mounted and demounted, yet it is held firmly in place against twisting and sliding movements.

In operation, the crank is rotated to retract the spindles and drill bits until the latter clear the guide member 13, and a sheaf or bundle of tariff schedule sheets or the like are inserted in the guide member. The sheets are inserted and aligned with their edges which are to be marginally punched lying on the bottom of the guide member, and with one end of the bundle abutting the gauging member 22, which will have been previously located in the appropriate position. With the bundle of sheets thus aligned and wedged tightly in the guide member 13, so as to require no further attention until the drilling operation has been completed, the crank 44 is rotated in the opposite direction to cause the drill bits 50 to drill through the bundle of sheets. After holes have been thus drilled, the crank will be rotated oppositely to retract the bits so as to clear the papers and the guide member. Cuttings are automatically pushed through the drill bits and spindles and drop out of the front end of the machine into a suitable receptacle (not shown).

The bits are easily demounted from the spindles by provision of a hole 65 formed in the cover 3 above each bit and so located as to overlie the annular recess 58 when the bits are in their most advanced position. This allows easy access to the set screws 57. After loosening the set screws sufficiently, the bits may be withdrawn through openings 66 formed in the rear portion 6 of the frame, for purposes of reaming, sharpening or replacement.

It is thus apparent that a gang drill has been provided which may embody two or any other number of individual drilling elements, which is efficient in drilling holes in bundles of paper or the like, and which is simple and compact in design, easily operated and easily assembled, disassembled and repaired.

While I have shown the preferred form of my invention, it is to be understood that various changes may be made in its construction by those skilled in the art without departing from the spirit of the invention as defined in the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A drilling device of the character described comprising a frame, a paper guide mounted on the frame for receiving a stack of papers, said guide being formed with a drill hole adjacent a face of said stack of papers, a threaded spindle guide fixed to the frame in alignment with said drill hole, a spindle in threaded engagement with the spindle guide, means at one end of said spindle opposite said drill hole for rotating

4

the spindle, and a drill bit detachably mounted on the other end of said spindle adjacent said drill hole and in axial alignment with the spindle.

2. A drilling device of the character described comprising a frame, a longitudinally extended U-shaped paper guide mounted on the frame for receiving a stack of papers, said guide being formed with a plurality of drill holes adjacent a face of said stack of papers, a spindle guide and a spindle for each drill hole, said spindle guide and spindle being in threaded engagement with one another, a drill bit for each spindle detachably mounted thereon in axial alignment therewith and received within one of said drill holes, and means for driving said spindles in unison and in the same direction.

3. A drilling device of the character described comprising a frame, a longitudinally extended U-shaped paper guide mounted on the frame for receiving a stack of papers, said guide being formed with a plurality of drill holes adjacent a face of said stack of papers, a spindle guide and a spindle for each drill hole, said spindle guide and spindle being in threaded engagement with one another, a drill bit for each spindle detachably mounted thereon in axial alignment therewith and received within one of said drill holes, and means for driving said spindles in unison and in the same direction, said driving means comprising a sprocket fixed to each spindle and chain means providing a driving connection between said sprockets.

4. A tariff drill comprising a housing adapted to be placed on a desk or table, a longitudinally extended U-shaped paper guide mounted on the housing with its base portion lowermost and horizontal, said paper guide being formed on both sides with a plurality of pairs of holes, each pair of holes being arranged in alignment, a gauge member having a vertical end portion disposed in alignment with the paper guide and at one end thereof, pin and slot means mounting said gauge member, said pin and slot means including a curved slot and a co-operable pin so arranged that when the pin is located in either end of the slot the curvature of the slot will operate to retain the gauge member in the selected position, a spindle guide tube and a hollow spindle aligned with each pair of holes, each spindle being in threaded engagement with the interior of its spindle guide tube, a hollow bit for each spindle detachably mounted at one end of each spindle, a sprocket fixed to the other end of each spindle, a crank fixed to one of the sprockets and chain means led over the sprockets to drive the same in unison and in the same direction.

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