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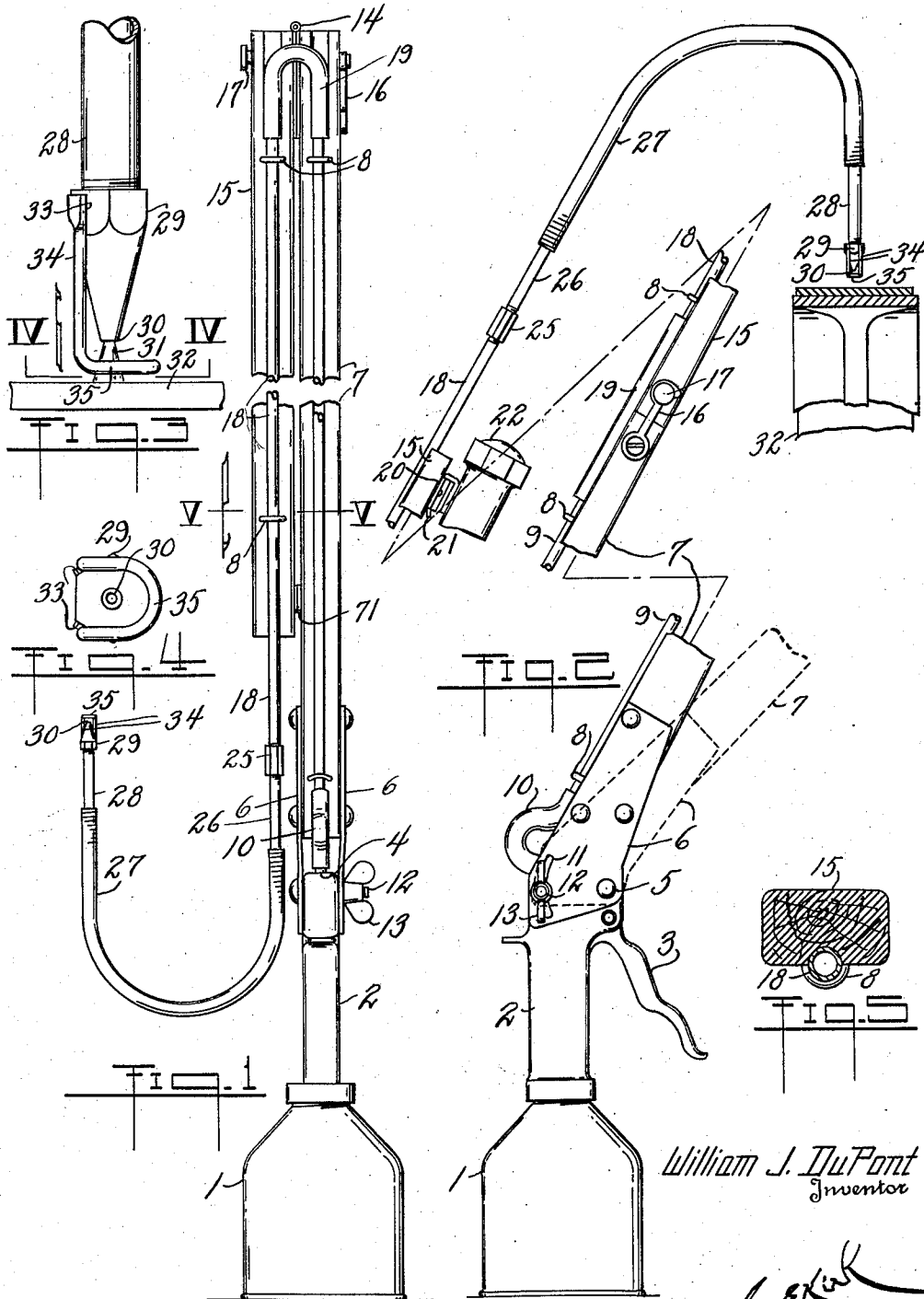
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PORTABLE DUCT-PROJECTING TOOL

Filed May 13, 1940

2 Sheets-Sheet 1



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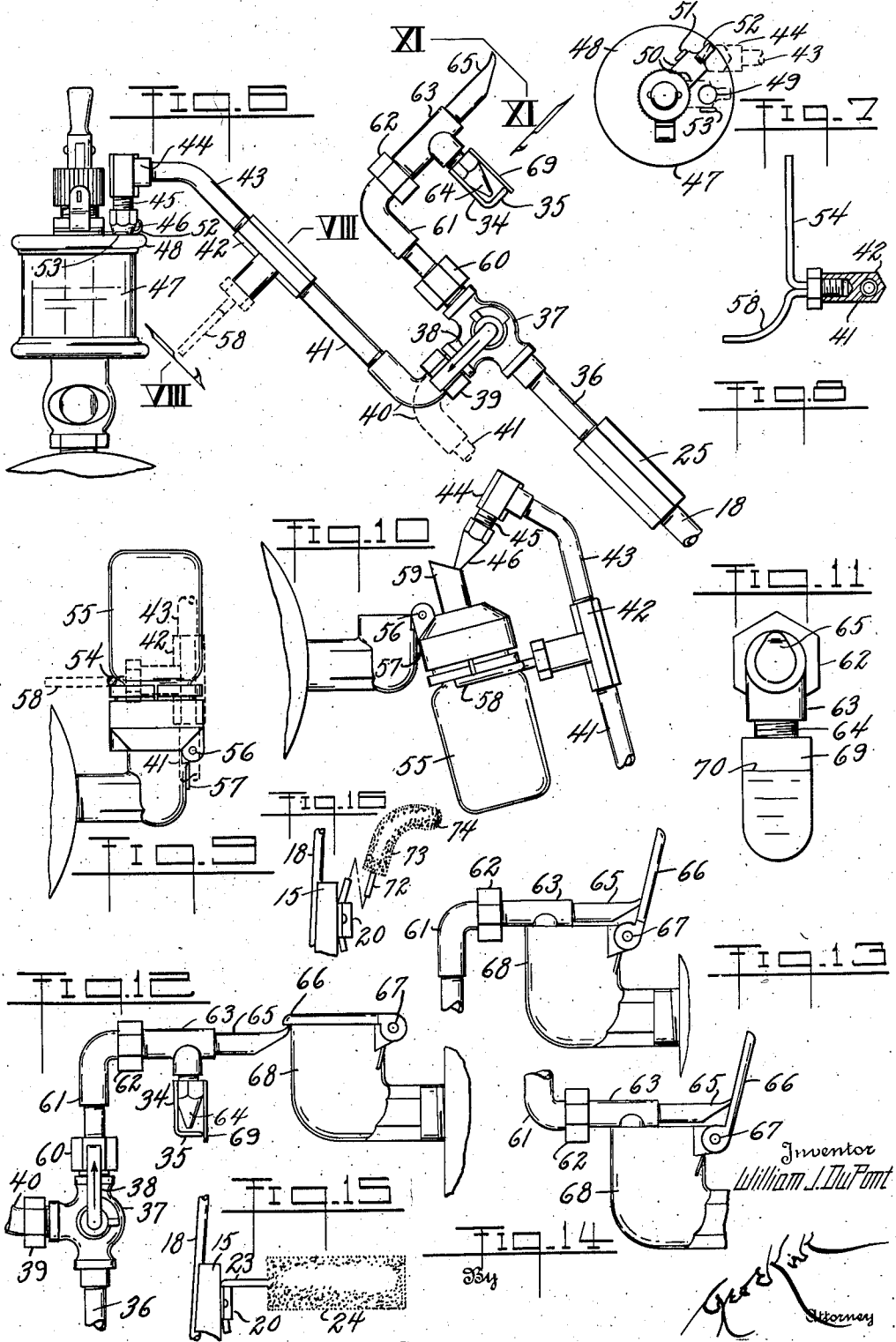
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UNITED STATES PATENT OFFICE

2,273,400

PORTABLE DUCT-PROJECTING TOOL

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3 Claims. (Cl. 221—51)

This invention relates to facilitating range and access of supply and replenishing medium in normal plant and machine tool operations, more particularly for upkeep.

This invention has utility when incorporated in direct special delivery of more or less hard oil, lubricating or dressing for running belts or conveyors, and to oil and grease cups or receptacles.

Referring to the drawings:

Fig. 1 is a front view, with parts broken away, of an embodiment of the invention in collapsed position with a terminal fixture adapted for spray delivery;

Fig. 2 is a side elevation from the right of Fig. 1 as to the pump and handle, showing the distensible position for the jointed arms, parts being broken away, and the nozzle in position for effecting delivery or spraying to a belt of a belt dressing;

Fig. 3 is a side view on an enlarged scale of the spray nozzle and its shield in delivery position adjacent a belt;

Fig. 4 is a bottom plan view of the shield looking toward the nozzle on the line IV—IV, Fig. 3;

Fig. 5 is a section on the line V—V, Fig. 1, showing the duct shield rigid member or wood bar of an arm section;

Fig. 6 is a view of a substitute nozzle or accessory device for the duct discharge, the operative position being for delivery to a drop type lubricator cup;

Fig. 7 is a plan view of the cup of Fig. 6 having stops for the closure;

Fig. 8 is a view on the line VIII—VIII, Fig. 6, showing features of the control arm attachment for the accessory;

Fig. 9 is a detail view of a lubricant cup of the type which is of closed upper portion and is side tilted for charging;

Fig. 10 is a view of this cup of Fig. 9 as side tilted through the operation of this arm and engaged by the cooperating parts of this accessory for delivering of a medium as lubricant to the tilted chamber or oil reservoir;

Fig. 11 is a view on the line XI—XI, Fig. 6, showing the fitting adapting finger feature as adjacent the nozzle bearing a shield and a gage or marker plate;

Fig. 12 shows this portion of the terminal accessory as in position to have the finger engage the lid of a grease cup;

Fig. 13 is a view of this grease cup of Fig. 12 in which the finger has been shifted to so position the lid that the nozzle may enter the cup for a charged delivery and in such operation the

shield being therein to show the extent of submergence in the medium supply;

Fig. 14 is a view of the lift lid type of grease cup in which the access to the nozzle is downward theretoward instead of upward thereto as in Fig. 13;

Fig. 15 is a detail view of an attaching fixture near the free end of the extension arm or approaching the region of the nozzle mounting, and as herein shown involves a brush, a use for which may be to remove dirt or surplus say from the top of the grease cup of Fig. 6 before the lid or closure is shifted to permit charging thereof; and

Fig. 16 is a detail view, with parts broken away, of an additional type of wiping device or brush than that shown in Fig. 15.

Reservoir 1 is shown with grip 2 and pump handle 3, combining as a directing handle, with discharge duct 4 from the pump. In carrying out the invention herein, mounted on the grid 2 at pivot pin 5 is fitting 6 carrying reinforcing bar 7, herein shown as wood, with U-portions 8 holding duct 9 in a seat therealong. There is accordingly a light weight reinforcement for the duct 9 precluding jamming or injury to this duct. This duct 9 has flexible or hose connection 10 with the duct 4 in completing passage from the pump in the grip 2. The fitting 6 has slot 11, through which extends bolt 12 with wing nut 13 as an adjustable clamp for giving desired degrees of angularity for the arm section 7 as to the handle or grip 2, 3. Advantage arises from this adjustment in that for upward reach a maximum height may be approached as toward a vertical. For downward reaching, say into a way below a deck to get to moving or other parts, this deflecting may permit so positioning the pump that there may not be tendency to run off as possibly effected through the pumping operation.

Hinge 14 connects with this arm section 7 arm section 15. As so swung into aligned position, hook 16 may engage button 17 as a positive holding. At this position the duct 9 is connected with duct 18 by intermediate insulation or oil-proof flexible hose section 19. There is thus an electrical "Neoprene" insulation between the duct 18 and the duct 9 and accordingly as to the grip or handle 2, 3. This may be a safeguard for the operator of this handle 2 against electric discharge in the event the duct portion 18 be in proximity to or receive electric charge or static disturbance develops.

This wood portion 15 for the duct section 18 is a protector and stiffener for this duct portion 18,

Adjacent the free end of this wood stiffener or reinforcement 15 clip 20 (Figs. 2, 15) is provided. Into this clip 20 there may be seat portion 21 for flashlight device 22 in the event the one operating the tool desires illumination adjacent the nozzle region. This clip 20 is a device permitting ready adaptation for range of functioning hereunder and may receive angular portion 23 (Fig. 15) for brush 24. The duct 18 as protruding beyond the wood brace or stiffening portion 15 has fitting 25 connect thereto duct section 26 (Fig. 2) with flexible duct extension 27 to rigid duct terminal portion 28. This portion 28 has terminal fitting 29 (Fig. 3) with discharge spray nozzle 30. In the use of this nozzle, say for delivering dressing 31 to belt 32, there is purpose that the delicacy of such nozzle 30 be not jammed in the remote control from the pump. To this end, welds 33 may mount arms 34 to return bend U 35, thus providing a shield clear of the discharge for this nozzle 30 but in a protective region against jamming of this nozzle.

In lieu of the connection 25 mounting the duct 26, special multiple purpose fixture for other than belt dressing may be adopted as by duct 36 (Fig. 6) with three-way valve 37, which by handle 38 may direct flow through friction coupling 39 to L 40 having duct 41 therefrom past fitting 42 and duct 43 to angle terminal fitting 44. This angle terminal fitting 44 has nipple 45 to discharge nozzle 46. In the operation hereunder, say as to grease cup 47 with top 48 having opening 49, there may be closure 50 to be shifted against stop 51 by thrusting the nozzle 46 against eye portion 52 and thus shifting this closure 51 away from stop 53. As so shifted the nozzle 46 may enter the opening 49 and the pump adjacent the grip 2, 3, be operated to effect the delivery of lubricant into the sight feed oil receiver 47. As this sight feed oil cup 47 is charged and the nozzle 46 cleared of the opening 49, such may be brought against the eye portion 52 to swing this closure 50 away from the stop 51 and against the stop 53, thereby to close this opening 49. In practice, before exposing the opening 49 or attempting to shift the closure 50, it may be desirable to have the brush 24 (Fig. 15) as carried by the arm section 15 wipe the top 48 to clear such of dirt or objectionable matter which might otherwise contaminate the lubricant charge into the sight feed oil cup 47.

The fixture 42 (Figs. 6, 8) may have removable finger 54 which the operator from the handle 2, 3, may locate adjacent the reduced portion of tiltable oil cup 55 (Fig. 9). This cup 55 is mounted on hinge 56 with torsion spring 57 normally holding such in the inverted or upright position. Accordingly, with this finger 54 pulling to tilt this handle 55 on the hinge 56, this vessel is oriented and the operator, as the vessel is oriented, may shove the tool along from the finger 54 to have bend 58 (Figs. 8, 10) engage this inverted oil cup 55. As thus engaged, the nozzle 46 is in proximity to drip opening 59 for lubricant charge into this oil receiver 55. As the pump has been operated from the handle 2, 3, sufficiently to charge this vessel 55, the fingers 58, 54, may be cleared of this vessel 55 and the spring 57 thus acts to swing this vessel to the initial bottom up position for the drip portion 59 to serve in the continuation of the lubrication operation.

This multiple purpose nozzle accessory provided might have been complete as a direct unit

without the three-way valve 37. However, with this three-way valve 37, there is connection through coupling 60 of angle device 61 having frictional coupling 62 to T-fitting 63 mounting nozzle 64 and terminal guide finger 65. Accordingly, with the handle 38 turned to cut off the nozzle 46 there may be cutting in of this nozzle 64. This remote device as so functioning may have the finger 65 (Fig. 12) engage under free edge of lid 66 mounted on hinge 67 to swing such upward and thereby open grease cup 68. At this position of opening the nozzle 64 may be moved down into this cup 68 (Fig. 13) and the desired extent of charge effected. Adjacent this nozzle 64 is the shield 34, 35, and additionally a flat plate 69 serving, as exposed from the immersion in the oil cup 68, to disclose immersion extent 70 and thereby provide (Fig. 11) an indication to the operator of the extent of filling effected for the lubricant or grease into the cup 68. These friction fittings 39, 62, are such as will respond to forcible angular shifting but are sufficient to retain the parts in the desired functioning position. Accordingly, there may be the descent angular relation (Fig. 14) instead of the ascent position (Figs. 12, 13).

The hand tool herein as disclosed primarily involves a source for supply of a medium, whether belt dressing, lubricant, or more or less hard oil. It is contemplated the position of the grip is such that there may be definite control of the delivery instead of a free running therefrom. To such end, the receiver 1 desirably is not normally in position to have flow by gravity away therefrom into the duct portion 10. With these arms 7, 15, of five to seven feet in length respectively, there may be a quite wide range of access to desired locations for effecting upkeep attention to equipment, and this upkeep attention may be with accuracy not only in the delivery of the desired medium but in the location for such delivery say on a belt without the necessity of ladder or climbing. Likewise, as to lubrication fitting of a range of types in the drip oil cups and to the more or less hard oil containers or pressure cups, the accessory is readily adaptable to the particular functioning required at the remote location. The light 22 permits special illumination to aid the operator. The brush will permit clearing of any undesirable matter away from any particular point to which attention is directed. As the functioning of the tool in its distended region is completed, the hook 16 may be disconnected and the arm portion 15 swung into parallelism with the arm portion 7, and snap 71 (Fig. 1) serves to hold in such position as the tool may be one to function for close-in operation or be set aside for subsequent reuse.

In the extent of range for carrying out activity hereunder, the preparation at the remote place for the work to be performed may extend even to use of the brush of a selected type or a type appropriate to clear the belt 32 from foreign matter or dirt thereon even during the running of the belt. When it comes to the treating operation, such may be more efficiently conducted than merely spraying thereon through the nozzle 30. This more efficient handling is effected by the introduction at the clip 20 of extension stem 72 for brush having portions 73, 74 (Fig. 16). The location of this supplemental brush as to the spray 30 is desirably such that in the direction of the travel of the belt 32, this wiping or dispersing action for the belt dressing

may occur as immediately following the spraying operation. Accordingly, this would mean the extension 72 and particularly brush 73, 74, should be adapted whether or not the portion of the belt which is accessible runs toward the arm 15 from the nozzle, at which time the brush 73, 74, should be therebetween. While if the direction of belt travel were away, then the brush 73, 74, should be beyond the nozzle 30, thus to effect the wiping and spreading at once the treating material is applied to the belt.

This convenient access to remote location is conveniently accomplished even in the realm of moving machinery with avoidance of hazard to the operator. This permits ready upkeep attention at wide ranges of time, even during factory operations.

What is claimed and it is desired to secure by United States Letters Patent is:

1. A portable tool embodying a reservoir, a reservoir directing grip, a pump operating handle on the grip, an arm extending from the grip and provided with a duct in communication with the reservoir, an additional arm with a duct there-

along, a coupling between the arms, and an electrical insulation duct connection between the duct of the arm from the grip and the duct of the additional arm, whereby the latter arm may be definitely positioned from the grip.

2. A portable tool embodying a reservoir, a handle extending from the reservoir, a jointed arm extending from the handle provided with a duct having a section movable relatively to the reservoir, a terminal discharge nozzle for the movable section duct, fitting-engaging means adjacent the nozzle movable with the movable section for positioning the nozzle to a fitting, and holding means for rendering the arm rigid.

3. A portable tool embodying a reservoir, a handle having a grip portion, an arm extending from the handle having a duct along the arm, a terminal discharge nozzle for the duct sustained by the arm remote from the grip portion, and nozzle-discharge-clearance-providing means mounted adjacent the nozzle and adjustable relatively to the handle and reservoir.

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