Nov. 27, 1951 J. A. PAASCHE 2,576,534

MOISTENING GUN

Filed Jan. 12, 1945 2 SHEETS--SHEET 1

Fig. 2.

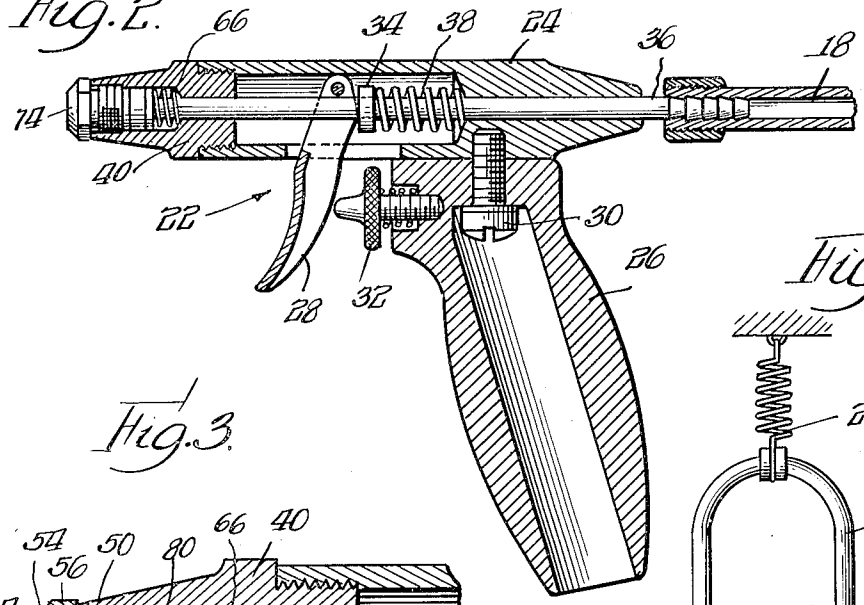


Fig. 1.

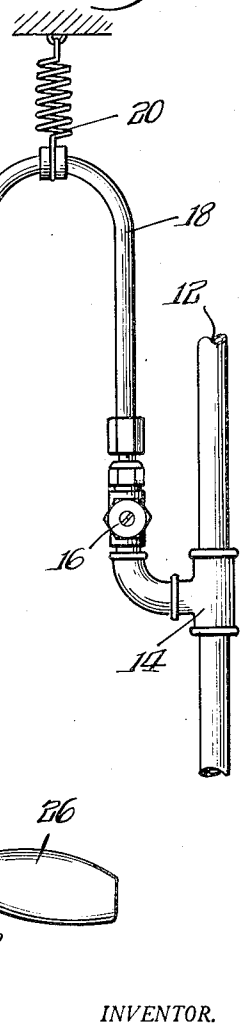


Fig. 3.

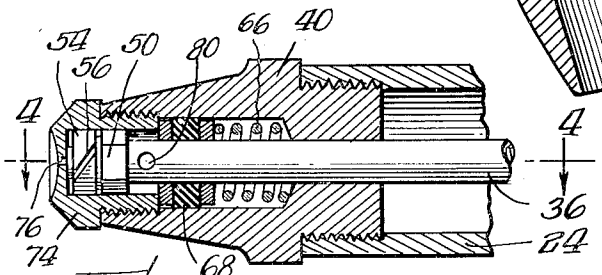
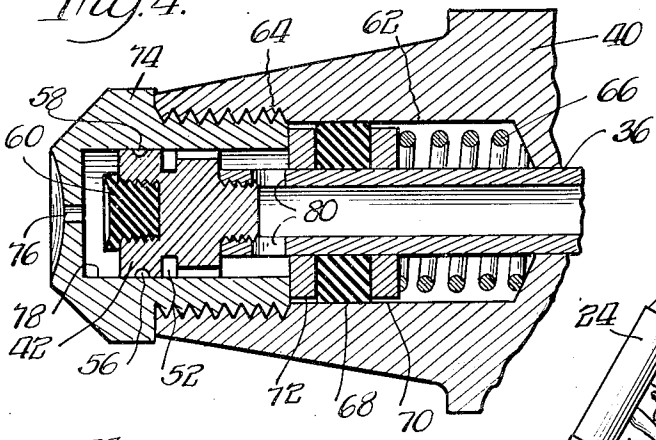


Fig. 4.



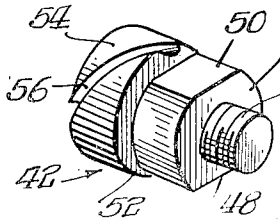


Fig. 5.

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Fig. 6.

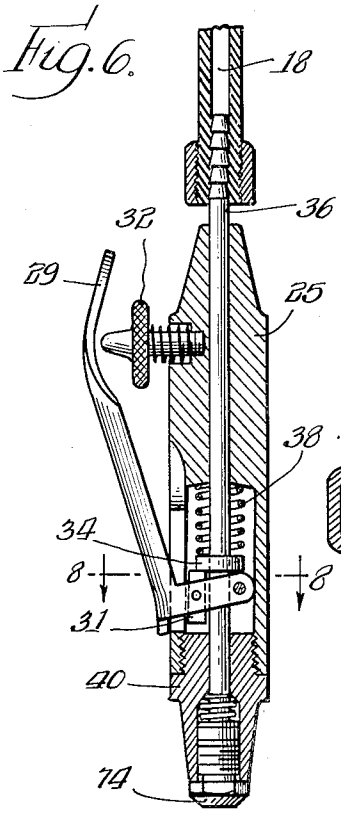


Fig. 7.

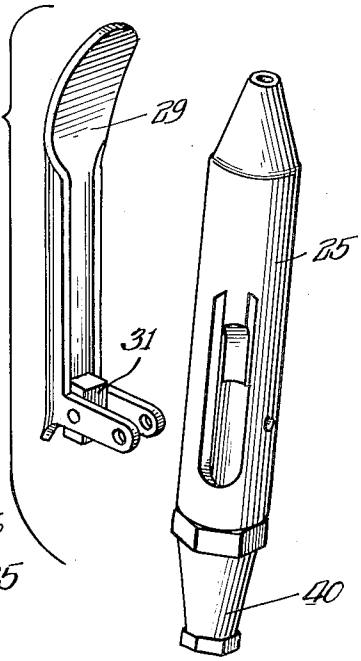


Fig. 8.

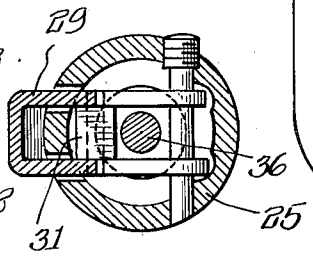


Fig. 10.

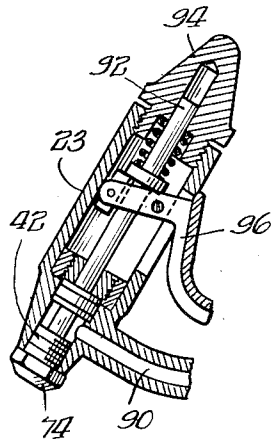
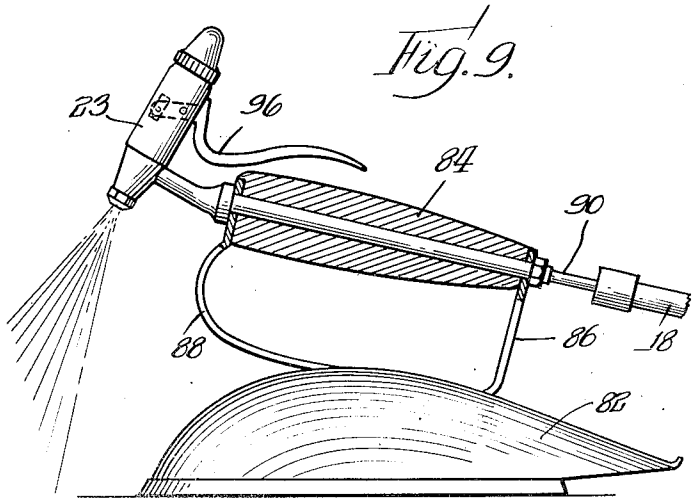


Fig. 9.



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MOISTENING GUN

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Application January 12, 1945, Serial No. 572,517

4 Claims. (Cl. 299—118)

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The present invention relates to a spraying apparatus, and more particularly to a moistening gun for a spraying device particularly adapted for moistening fabric.

In the ironing of clothes and the pressing of fabrics it is necessary to have the clothes or fabric slightly damp. Generally the necessary amount of dampness is applied to clothes which have been dried, by a sprinkling, spraying or moistening device. Where clothes and fabrics are to be ironed or pressed shortly after the moistening or dampening process, it is extremely important to have the moisture applied in an extremely finely divided form so that no appreciable drops of moisture produce excessively wet areas. Particularly in the case of laundries, pressing establishments, and wherever large amounts of material are to be handled, it would be desirable to provide a relatively simple to operate and inexpensive to manufacture spraying device or moistening gun.

In accordance with the present invention a relatively simple device is obtained having a minimum of movable parts and which nevertheless projects a spray substantially in vapor form. Numerous embodiments may be added including a moistening device rigidly secured to an iron, goose, or the like.

It, therefore, is an object of the present invention to provide an improved relatively simple moistening gun.

It is still another object of the present invention to provide a convenient to use light-weight spraying device for use in moistening fabrics which are to be ironed or pressed.

Still another object of the present invention is to provide an improved combination of an iron or pressing means with a selectively operable moistening device.

Other and further objects of the present invention subsequently will become apparent by reference to the following description taken in connection with the accompanying drawings wherein:

Figure 1 in a general perspective view illustrates one form of the present invention;

Figure 2 is a cross sectional view of the device shown in Figure 1;

Figure 3 is an enlarged view of a portion of the device of Figure 2;

Figure 4 is a further enlarged cross sectional view of the device shown in Figure 3 as seen in the direction of the arrows along the line 4—4;

Figure 5 is a perspective view of one element shown in Figures 3 and 4;

Figure 6 shows another embodiment of the present invention;

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Figure 7 is an exploded or disassembled view in perspective of two of the principal portions of the present invention;

Figure 8 is a cross sectional view as seen in the direction of the arrows along the line 8—8 of Figure 6;

Figure 9 is another embodiment of the present invention;

Figure 10 is a cross sectional view of a portion of the device shown in Figure 9.

Referring more particularly to Figures 1 to 5 it will be seen that there has been shown a pipe 12 which is connected to a suitabe source of fluid under pressure such as water, and which pipe is provided with a T-connection 14 which in turn through suitable coupling means is connected to a shut-off valve 16. The shut-off valve 16 is connected to a flexible conduit or tube 18 connected at an intermediate point to one end of a spring 20, the other end of which is connected to a suitable overhead support. The other end of the flexible conduit 18 is connected to a moistening gun 22 having a body 24, a handle 26 and an operating trigger or control member 28.

The handle 26 is secured to the body 24 by suitable fastening means such as a screw 30. At the forward side of the handle 26 there is provided an adjustable stop member 32 which is arranged to act as a limit for the movement of the trigger member 28. The trigger member adjacent its upper end bears against a shaft collar 34 mounted at an intermediate point on a reciprocable conduit 36 which is in fluid communication with the flexible conduit 18. The body 24 adjacent the trigger 28 is provided with a suitable recess to accommodate the trigger and the collar 34. In addition a spring 38 is arranged between the collar 34 and a portion of the body 24 so as to bias the reciprocable fluid conduit 36 toward the forward portion of the body 24. At the front end of the body 24, as may more readily be seen in Figures 3 and 4, there is a forward body member 40 which threadedly engages the main body 24. Adjacent the forward end of the reciprocable tube 36 there is threadedly mounted a whirling spray unit 42 which is shown in perspective in Figure 5. The spray unit 42 has a threaded portion 44 of relatively small diameter so as to engage the inner threaded surface of the end of the conduit 36. Adjacent the threaded portion there is a cylindrical portion 46 having oppositely arranged flattened areas 48 and 50. Separated from the portion 46 by a recess 52 is a spray head 54 of similar diameter. The spray head 54 is provided with two slots 56 and 58 arranged at opposite sides so as to be

at angles to each other. The spray head 54 of the spray unit 42 has a recessed portion which carries a resilient sealing member 60.

The body portion 40 is provided with a coaxial recess 62 having interior threads adjacent one end thereof as at 64. At the bottom of the recess 62 there is positioned a biasing spring 66 which is arranged to act against a packing member consisting of a resilient rubber-like annular ring 68 mounted between two metal washers or rings 70 and 72. A nozzle 74 having an axial discharge orifice 76 is threadedly mounted to engage the threaded portion 64 of the body 40. The nozzle 74 has a coaxial bore 78 of a diameter substantially equal to the diameter of the spray unit 42. The spray unit 42 is shown in Figure 4 in the position when the lever or trigger 28 of Figure 2 has been moved rearwardly against the stop 32 so as to withdraw the sealing member 60 from the orifice 76. Fluid within the conduit 36 passes through a pair of openings 80 arranged just above the internally threaded end of the conduit 36. Fluid passing through the openings 80 then passes past the portion 46 of the spray unit 42 over the flattened areas 48 and 50 thereof. The fluid thereupon circulates in the annular recess 52 and thence passes through the angularly related slits 56 and 58 so as to be discharged within the chamber 78 of the nozzle 74 in two relatively flat streams at angles to each other. This action of the fluid under pressure in the nozzle 74 causes the fluid to be projected through the orifice 76 in the form of a whirling relatively fine mist or fog. In order to cause the apparatus to spray it is only necessary to actuate the lever 28 which reciprocates the longitudinal conduit 36 a sufficient amount to withdraw the sealing member 60 from the orifice 76 of the nozzle 74. From the foregoing it will be appreciated that the mechanism provided is relatively simple to manufacture, is light weight, and yet operates to produce improved results for the purpose intended. In spite of the fact that the number of actuations of the trigger in the apparatus of this kind might be appreciably greater than in other spray gun apparatus, the relatively simple structure is such that a minimum amount of maintenance and repair will be required.

Another form of the present invention is disclosed in Figures 6, 7, and 8 which merely has a body which serves both as a handle and a body. Thus the arrangement in Figure 6 has many of the elements which correspond exactly to the elements in the foregoing figures, and hence corresponding parts will be given similar reference characters. The body 25 is modified slightly to accommodate the trigger 29 which is arranged to have a member 31 pivoted thereon for engagement with the collar 34 on the reciprocable conduit 36. The adjusting screw 32 is directly mounted upon the body 25. The remaining elements are in the same relation and identical to corresponding parts shown in Figures 2 to 4 inclusive. The device is grasped by the hand and pressure applied by a squeezing action to actuate the lever 29 thereupon to reciprocate the conduit 36 sufficiently to open the discharge portion in the nozzle 74.

Another arrangement is illustrated in Figure 9 which shows the invention used in combination with a sad-iron or electric flat-iron 82 having a handle 84. The handle 84 of the conventional structure has a rod extending therethrough

which rod is usually secured to the upright support members 86 and 88. In place of the rod mentioned, there is provided a conduit 90 which is connected to the flexible conduit 18. The conduit 90 serves to retain the handle portion 84 between the upright supports 86 and 88 and extends forwardly to support on an extension thereof the body 23 of a member otherwise generally corresponding to the apparatus shown in the previous embodiments. The principal difference in the construction of the body 23 however is that the lower portion has a fluid conduit 90 which supplies liquid in back of the spray unit 42 whereas in the previous constructions the liquid was supplied through a hollow member or conduit 36 through port openings 80. In the present instance the former conduit is replaced by a solid reciprocable rod 92 which has its uppermost end supported in an adjustably positioned cap-like member 94. A suitable hand lever 96 is pivotally mounted in the body 23 so as to be readily accessible by operation by one finger of the hand which is grasping the handle 84 of the flat iron or goose. From the position shown in Figure 9 it will become apparent that it is possible to project just ahead of the nose of the iron a spray so that for finishing work for example just the adequate amount of moisture may be applied to straighten out difficult wrinkles, and where a similar arrangement is applied to a tailor's goose adequate moisture may be selectively supplied for the pressing and shaping operations.

While for the purpose of illustrating and describing the present invention, certain preferred embodiments have been disclosed in the drawing, it is to be understood that the invention is furthermore susceptible of such variations as may be commensurate with the spirit and scope of the invention defined in the following claims.

The present invention is hereby claimed as follows:

1. In a spraying device, a nozzle body having a chamber formed therein at one end and a spraying orifice formed at the other end, a spray unit slidably mounted in said body, a hollow tube reciprocable in said body and attached to said spray unit within said chamber, said tube having apertures in the walls thereof adjacent said spray unit whereby to discharge fluid into said chamber, said spray unit having a cylindrical portion having diametrically opposite flattened surfaces formed thereon, said spray unit having a cylindrical spray head adapted to slidingly engage the walls of said body, said spray head having grooves formed on the portion thereof adjacent said walls, said grooves being formed at an angle with the axis of said head whereby to impart a swirling motion to fluid passing therethrough from said tube, means to urge said spray unit to a predetermined position to close said orifice, and means to retract said unit to permit passage of fluid from said tube through said grooves and through said orifice.

2. In a spraying device, a nozzle body having a chamber formed therein at one end and a spraying orifice formed at the other end, a spray unit slidably mounted in said body, a hollow tube reciprocable in said body, said spray unit being detachably mounted on said tube within said chamber, said tube having apertures in the walls thereof adjacent said spray unit whereby to discharge fluid into said chamber, said spray unit having a cylindrical portion having diametrically opposite flattened surfaces formed

thereon, said spray unit having a cylindrical spray head adapted to slidingly engage the walls of said body, said spray head having grooves formed on the portion thereof adjacent said walls, said grooves being formed at an angle with the axis of said head whereby to impart a swirling motion to fluid passing therethrough from said tube, a resilient sealing member mounted on said head adjacent said orifice, means to urge said spray unit to a predetermined position whereby to close said orifice, and means to retract said unit to permit passage of fluid from said tube through said grooves and through said orifice.

3. In a spray gun, a body having a bore therein defined by walls, one end of said bore being closed and having an orifice therein, a spray unit slidably mounted in said body and comprising a head, a cylindrical portion of substantially the same diameter as said head and having diametrically opposed flattened portions, said head and said cylindrical portion being adapted slidingly to engage the walls of said body, said spray unit having spray forming passages therein, and a conduit member attached to said head and said cylindrical portion and providing means to conduct a fluid from a source of supply to said spray forming passages, spring means for urging said spray unit forwardly to a predetermined position, said spray unit in said predetermined position being positioned adjacent said end of the body with said head closing said orifice, and means to retract said spray unit to permit passage of fluid through said orifice.

4. In a spray gun, a body having a bore therein defined by walls, one end of said bore being closed and having an orifice therein, a reciprocable spray unit mounted in said body, a conduit adapted to conduct a fluid from a source of supply to said spray unit, said spray unit including a spray head provided with spray forming passages therethrough and a cylindrical portion having substantially the same diameter as said spray head and having flattened opposite sides to provide a passage for the fluid, said cylindrical portion being mounted on said conduit and said spray head being mounted on said cylindrical portion, said spray unit being adapted slidingly to engage the walls of said body when moved relative thereto, means urging said spray unit to a predetermined position to close said orifice, and means to retract said unit through said orifice.

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