June 10, 1941. H. S. OGDEN 2,244,796

REVENUE SEAL STAMP AFFIXING MECHANISM

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Fig. 1

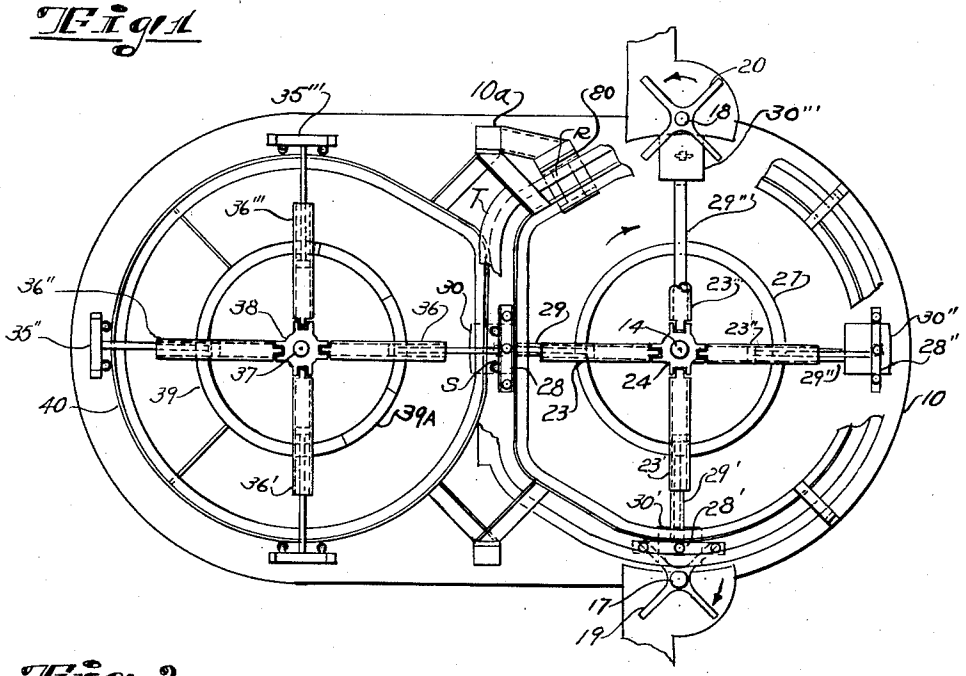
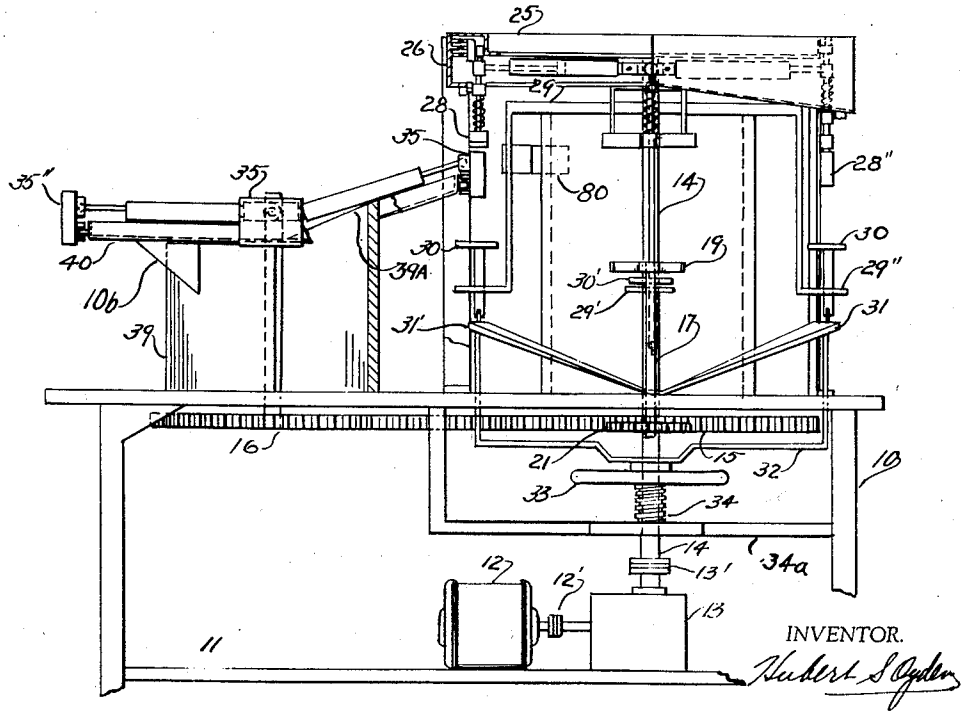


Fig. 2



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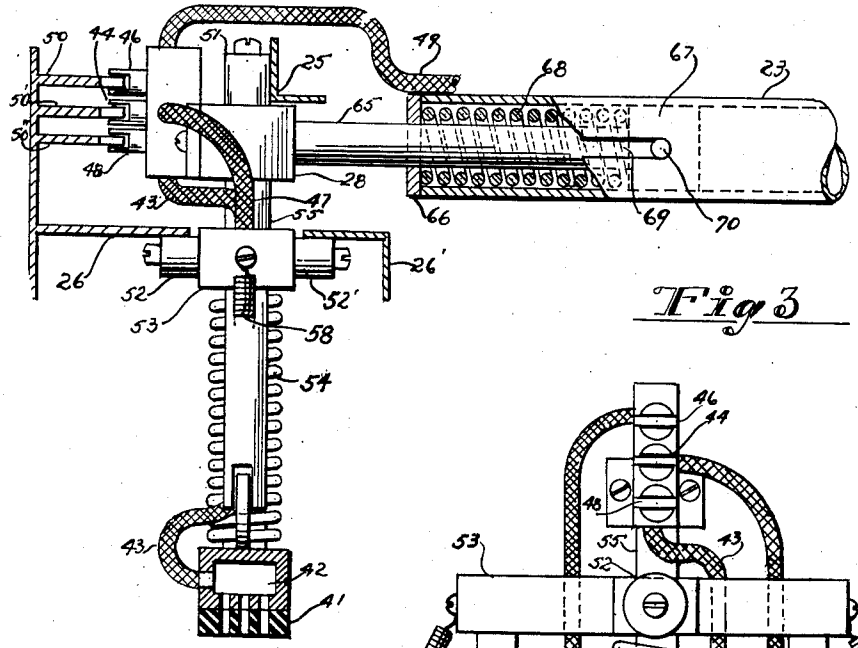


Fig 3

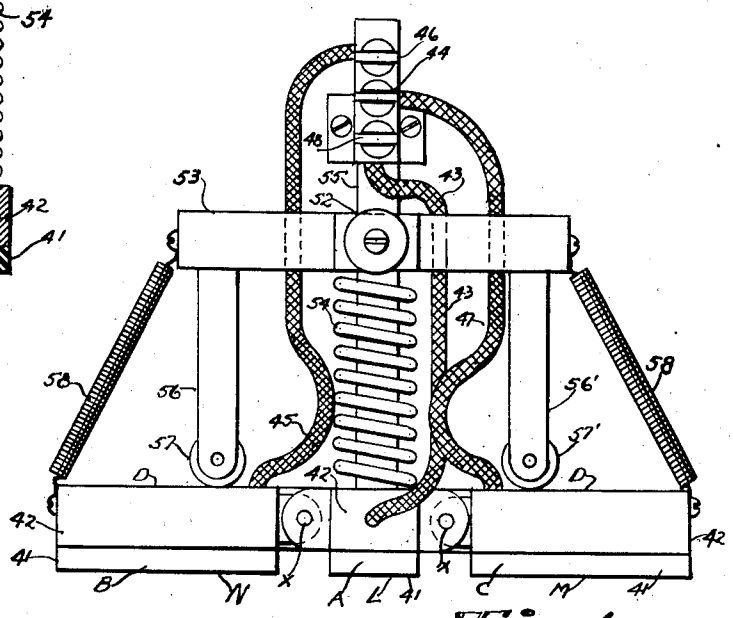


Fig 4

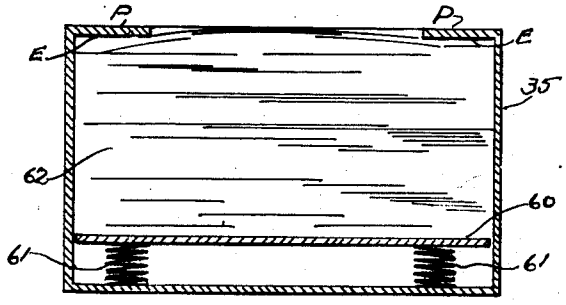


Fig 5

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REVENUE SEAL STAMP AFFIXING MECHANISM

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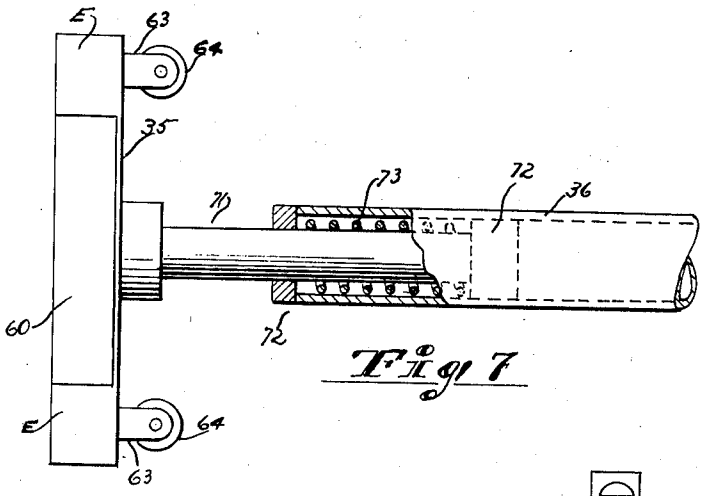


Fig 7

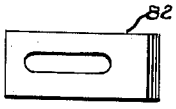


Fig 9

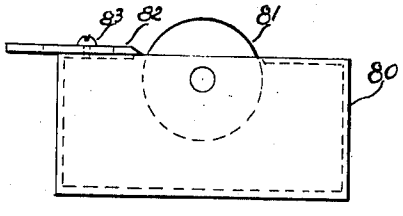


Fig 8

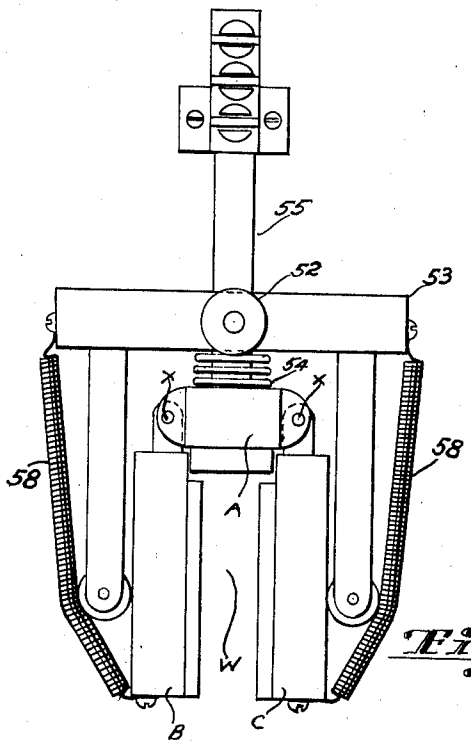


Fig 6

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Patented June 10, 1941 2,244,796

UNITED STATES PATENT OFFICE

2,244,796

REVENUE SEAL STAMP AFFIXING MECHANISM

Hubert S. Ogden, Los Angeles, Calif.

Application November 14, 1939, Serial No. 304,378

5 Claims. (Cl. 216—55)

My invention relates to and has for a purpose the provision of a mechanism to provide a means of depositing about and affixing to the neck of a bottle a revenue seal stamp as provided by law. A further purpose of my invention is to provide a means whereby one and the same mechanism will deposit and affix about the neck of bottles of several sizes a revenue seal stamp. A further purpose of my invention is to provide a means of depositing about and affixing to the neck of a bottle a revenue seal stamp applicable to conventional conveyor systems. A further purpose of my invention is to provide a means of depositing about and affixing to the neck of a bottle a revenue seal stamp, mechanically rather than manually, as is now common in the art, to the end that such revenue seal stamps be affixed to the neck of the bottle more rapidly and with greater ease and accuracy.

I have chosen to show my mechanism with a minimum number of appliers, however, an indefinite number of appliers may be used according to the needs of the user.

Briefly, my invention consists of a number of retractable arms pivotably fixed to a central shaft and moving a like number of magazines or containers of revenue seal stamps and a like number of pivotably fixed retractable arms moving a like number of appliers through a cycle whose principal function consists of the removal of the seal stamp from its magazine, the retention of the seal stamp while passing over and in contact with an adhesive applicator, the depositing of the revenue seal stamp centrally across the cap of a bottle perpendicular to the vertical axis of the bottle, the release of the seal stamp by the applicator, and the compression of the revenue seal stamp longitudinally along the neck of the bottle. My mechanism operates in a continuous rotary cycle, the point of admission of the bottle being diametrically opposite the point of discharge.

In describing the invention in detail references will be made to the accompanying drawings wherein like characters denote like and corresponding parts throughout the several views and in which:

Figure 1 is a plan view of my invention.

Figure 2 is a side elevation of my invention.

Figure 3 is a side elevation of the transfer mechanism partly cut away.

Figure 4 is a front elevation of the transfer mechanism in the open position.

Figure 5 is a longitudinal section through the magazine.

Figure 6 is a front elevation of the transfer mechanism in the closed position.

Figure 7 is a plan view of the magazine and partially cut away retractable arm.

Figure 8 is a side elevation of the adhesive chamber.

Figure 9 is a plan view of the adhesive regulating member.

Referring more particularly to the drawings: 10 is the main frame or base of my invention. 11 is a sub-base. 12 is a driving motor with a motor coupling 12'. 13 is a speed reduction gear and case. 13' is a coupling. 14 is the main driving shaft. 15 is the main driving spur gear. 16 is the driven spur gear. 17 is an auxiliary shaft. 18 is another auxiliary shaft. 19 is a star wheel fixed to auxiliary shaft 17. 20 is a star wheel fixed to auxiliary shaft 18. 21 is a spur gear driven from gear 15 and affixed to shaft 17. 22 (not shown) is a spur gear fixed to shaft 18 and driven from gear 15. 23, 23', 23'', and 23''' are transfer arms, shown in greater detail in Figure 3, and are pivotably fixed to shaft 14 by means of coupling 24. 25 is a horizontal motion guiding cam. 26 and 26' are vertical motion guiding cams. Cams 25, 26 and 26' are supported on base 10 (supports not shown). 27 is a vertical motion cam and supporting cylinder fixed to base 10. 28, 28', 28'' and 28''' are transfer heads carried by retractable transfer arms 23 shown in greater detail in Figure 3. 29, 29', 29'' and 29''' are revolving bracket supports fixed to shaft 14. 30, 30', 30'' and 30''' are platforms journalled in bracket support 29 and resting on variable cams 31 and 31'. 31 and 31' are variable cams supported by yoke 32 resting on internally threaded hand wheel 33 theaded to screw 34. 35, 35', 35'' and 35''' are revenue seal stamp magazines shown in greater detail in Figure 5. 36, 36', 36'' and 36''' are retractable magazine supporting arms pivotally fixed to shaft 37 by means of coupling 38. 39 is a vertical motion cam cylinder. 40 is a horizontal motion guiding cam. 41 is a rubber suction pad attached to vacuum chamber 42 of transfer head 28. 43 is a flexible vacuum hose connecting the intermediate transfer finger A with vacuum control valve 44. 45 is a flexible vacuum hose connecting transfer finger B and vacuum control valve 46. 47 is a flexible vacuum hose connecting transfer finger C with vacuum control valve 48. 49 is a flexible vacuum hose connecting vacuum control valve 44, 46 and 48 with vacuum source not shown. 50, 50' and 50'' are vacuum valve actuating cams and are

fixed to vertical motion guiding cam 26. 51 is a horizontal motion roller journalled to transfer head 28 and contacting horizontal motion guide 25. 52, 52' are vertical motion rollers journalled to yoke 53 of transfer head 28 and contacting vertical motion guides 26 and 26'. 54 is a compression spring on shaft 55 and held between yoke 53 and finger A. 56 and 56' are vertical motion plungers fixed to yoke 53. 57 and 57' are rollers journalled in plungers 56 and 56' and travelling on surface D, D' of vacuum chambers 42—42. 58—58 are tension springs fastened at yoke 53 and vacuum chambers 42 as shown in Figure 4. 60 is the floating bottom of magazine 35 and is actuated by compression spring 61—61. Flanges E—E are integral with magazine 35 and serves as retaining shoulders for revenue seal stamps 62 in compression within magazine 35. 63—63 are brackets fixed to magazine 35 and support rollers 64—64. 65 is a plunger member of transfer head 28 and is retained within transfer arm 23 by cap 66. Plunger end 67, compression spring 68, longitudinal slot 69 in arm 23, together with pin 70 fixed in plunger end 67, serve to limit the movement of transfer head 28. Arm 36 supports and guides magazine 35 by means of plunger 71 retained within arm 36 by means of cap 72, and compression spring 73 as shown in Figure 7. 80 is an adhesive reservoir fixed to base 10 at point R. 81 is an adhesive distributing roller journalled to reservoir 80 and driven from auxiliary shaft 18 (drive not shown). 82 is an adhesive volume adjustment adjustably fastened to reservoir 80 by adjusting screw 83.

In operation, revenue seal stamps 62 are inserted within the magazine 35 and are compressed against surface E—E of magazine 35 by the action of floating bottom 60 and compression springs 61—61. A similar procedure is adopted for magazines 35', 35'' and 35'''. My invention is then set in motion by the introduction of an electric current to motor 12 in the conventional manner. Energy is transmitted from the motor 12 by means of coupling 12' to speed reduction gearing 13 and thence by means of coupling 13' to main drive shaft 14. Fixed to shaft 14 is driving spur gear 15 which meshes driving spur gear 16 and thus produces rotary motion to shaft 37 to which it is fixed. Gears 15 and 16 being of equal size and pitch produce a uniform motion in shafts 14 and 37. Magazines supporting arms 36, 36', 36'' and 36''' are pivotably fixed to shaft 37 by means of coupling 38 and receive a rotary motion from shaft 37. Transfer arms 23, 23', 23'' and 23''' are pivotably fixed to shaft 14 by means of flexible coupling 24 and receive a rotary motion from shaft 14. The rotary motions of supporting arms 36, 36', 36'' and 36''' are equal to the rotary motions of transfer arms 23, 23', 23'' and 23''' and the gears 15 and 16 are so meshed that supporting arm 36 arrives on a common center line simultaneously with transfer arm 23, 36' is on a common center line simultaneously with 23', 36'' arrives on a common center line with 23'', 36''' arrives on a common center line simultaneously with 23''', as they each respectively approach position marked S in Figure 1, thus placing surfaces L, N and M directly over the top P—P of magazine 35. A projection on cam 39 raises arm 36 and magazine 35 so that surfaces P—P are in immediate contact with suction cups 41—41—41 of transfer head 28. As arm 36 advances through its angular motion, magazine 25 follows cam 40 in a straight line to a predetermined point T. This is accomplished by the advancement of plunger 71 in arm 36. As arm 23 advances through its angular motion, transfer fingers 28 follow cams 25 in a straight line to a predetermined point T. During this period of travel, vacuum chambers 42—42—42 and suction pads 41—41—41 have been evacuated through the functioning of flexible tubes 43, 45 and 47 and valves 44, 46 and 48 and the vacuum source not shown, thus a revenue seal stamp 62 is attached to suction pads 41—41—41 and carried by transfer head 28 to the predetermined point T. Transfer arm 36 following cam 40 moves away from transfer finger 28. Transfer head 28 following cam 25 approaches point R. Located directly under point R is adhesive reservoir 80, adhesive distributor roller 81 and adhesive volume adjustment 82. Transfer head 28 carrying revenue seal stamp 62 passes over adhesive distributing roller 81 thus applying an adhesive to a surface of revenue seal stamp 62. As transfer arm 23 approaches star wheel 20, a bottle from the conveyor rack (not shown) is placed by means of star wheel 20 on platform 30 directly under transfer head 28. Platform 30 is slidably engaged in bracket arm 29 which in turn is fixed to shaft 14, thus the bottle on platform 30 maintains a constant relationship to transfer head 28. As transfer head 28 and platform 30 continue through the cycle, yoke 53 is depressed by the action of cams 26 and 26' on rollers 52 and 52'. This in turn depresses plungers 56 and 56' that move over surfaces D, D' of vacuum chambers 42—42 which cause vacuum chambers 42—42 to rotate about pivotal point X—X of intermediate member A with the result that transfer head 28 assumes a position as shown in Figure 6 with the neck of the bottle in the space W and spring 54 is in compression. At this point of the cycle, cams 50, 50' and 50'' release vacuum actuating valve 44, 46, 48 thus releasing seal stamp from transfer finger 28. Transfer head 28 retains the position shown in Figure 6 until it approaches star wheel 19 where, by reason of the action of rollers 52—52 mounted on yoke 53 and cams 26, 26' and spring 54 which is released and by the assistance of tension springs 58—58, transfer head 28 assumes the position shown in Figure 4. Thus by reason of the adhesive on seal stamp 62, seal stamp 62 remains affixed to the neck of the bottle. Star wheel 19 removes the bottle from platform 30 and transfers it to the outgoing conveyor (not shown). This cycle of events is repeated with each and successive arms. Where it is desired to adjust my invention to receive bottles of varying heights, internally threaded hand wheel 33 is turned in the required direction on threaded screw 34, thus raising or lowering yoke 32 and variable cam 31. This varies the height of platforms 30, 30', 30'' and 30''' relative to the transfer heads 28, 28', 28'' and 28'''. In reducing my invention to practice, certain features of construction, combination and arrangement of parts may necessitate alterations to which the patentee is entitled provided such alterations are comprehended within the scope of what is claimed.

What I claim is:

1. In a mechanism to deposit about and affix to the neck of a bottle a revenue seal stamp, a transfer head and means to transport said head over a predetermined path, said head comprising a vacuum chamber fixed to a supporting shaft, a compressible pad fixed to said vacuum chamber and containing orifices leading from the vacuum chamber to the contact surfaces of the pad, other vacuum chambers, with compressible pads

containing orifices leading from the vacuum chambers to the contact surfaces of the pads, pivotally fixed to the longitudinal extremities of the fixed vacuum chamber, roller means of revolving the pivoted vacuum chambers about their pivot points, spring means assisting in the revolving movement, cam and valve means for actuating the several vacuum chambers in a predetermined sequence.

2. In a mechanism to deposit about and affix to the neck of a bottle a revenue seal stamp, a transfer head comprising a fixed vacuum chamber with a compressible pad fixed thereto containing orifices leading from the vacuum chamber to the contact surfaces of the pad, other vacuum chambers with compressible pads containing orifices leading from the vacuum chamber to the contact surfaces of the pads, pivotably fixed to the longitudinal extremities of the fixed vacuum chamber, roller means of revolving the pivoted vacuum chambers about their pivot points, spring means assisting in the revolving movement, the said fixed vacuum chamber fixed to a retractable arm by a slidable engagement, the said arm fixed to a source of rotary motion and engaging a fixed cam imparting horizontal motion to the transfer head.

3. In a mechanism to deposit about and affix to the neck of a bottle comprising a movable container for revenue seal stamps fixed to a retractable arm the said arm fixed to a central source of rotary motion, a fixed cam engaging the container and imparting a horizontal motion thereto and a fixed cam engaging the arm imparting vertical motion to the container arm.

4. In a mechanism to deposit about and affix to the neck of a bottle a revenue seal stamp the combination of a container for revenue seal stamps fixed to a retractable arm the said arm fixed to a source of rotary motion, with fixed cams to impart horizontal and vertical motions to the container, and a transfer head with vacuum attaching means fixed to another retractable arm the said arm fixed to a source of rotary motion, fixed cams to impart horizontal and vertical motion to the transfer head, a gear train linking the two rotary motions to the end that the container and the transfer head approach each other and act synchronously.

5. In a mechanism to deposit about and affix to the neck of a bottle a revenue seal stamp, bottle carrying means comprising a horizontal platform guided by a bracket fixed to a source of rotary motion, and the said platform supported by a rectangular shaft slidably engaged in the bracket and resting on a cam, the said cam being adjustable to different heights by the vertical movement of a screw adjusting means.

HUBERT S. OGDEN.