

Nov. 23, 1943.

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BAG SPREADER MECHANISM

Filed April 10, 1940

2 Sheets-Sheet 1

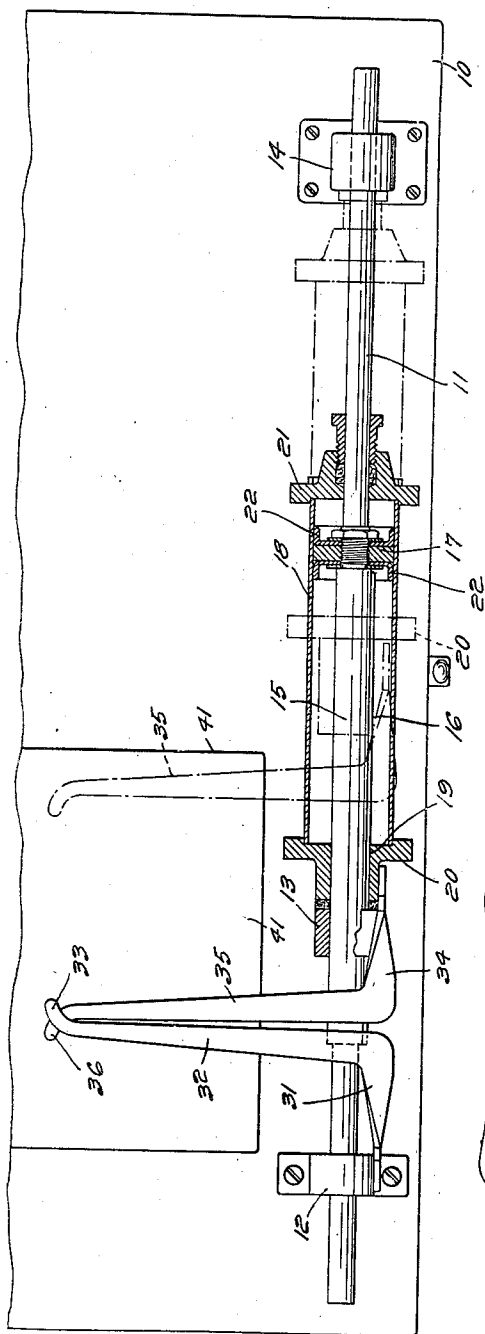


Fig. 1

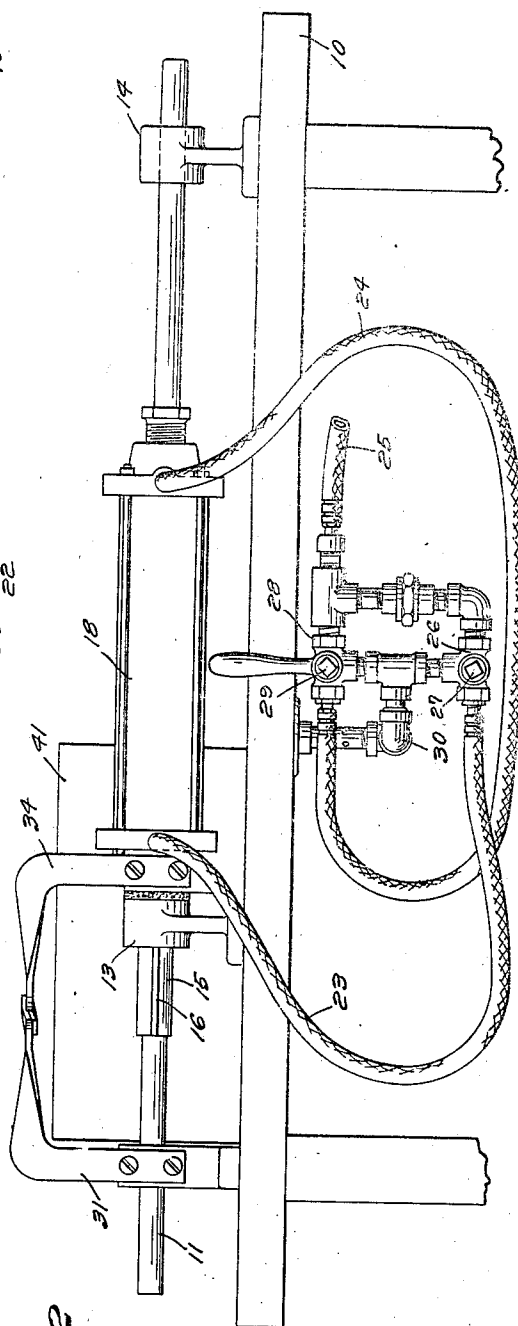


Fig. 2

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2 Sheets-Sheet 2

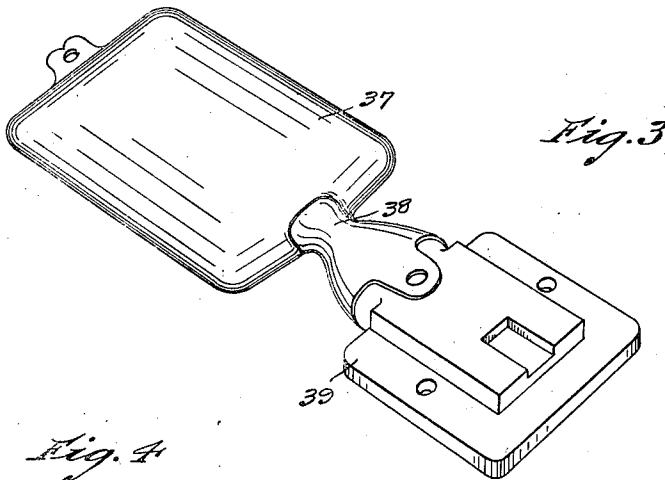


Fig. 4

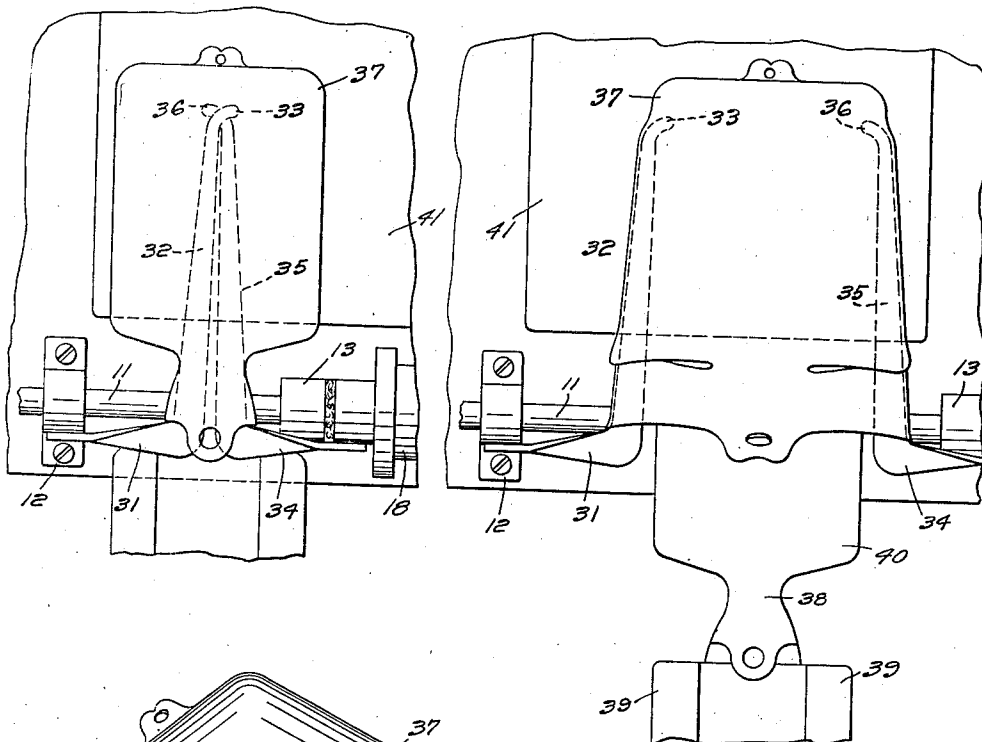


Fig. 5

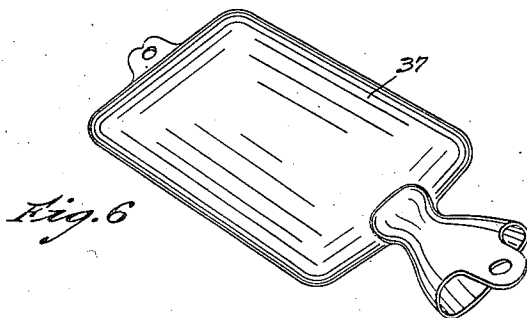


Fig. 6

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BAG SPREADER MECHANISM

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2 Claims. (Cl. 18—2)

The present invention relates to the manufacture of rubber bags, and has particular reference to the stripping of mold cores from hot water bags and the like.

It is the principal object of the invention to provide a power spreader for spreading the neck of a rubber bag sufficiently to permit withdrawal of the mold core therefrom.

Another object of the invention is to provide a control for the power spreader which results in a gradual spreading action.

Further objects of the invention are to provide a spreader mechanism which is positive in action, and which is simple and inexpensive to manufacture and to use.

With the above and other objects and advantageous features in view, the invention consists of a novel arrangement of parts more fully described in the detailed description following, in conjunction with the accompanying drawings, and more specifically defined in the claims appended thereto.

In the drawings:

Fig. 1 is a top plan view of the novel spreader mechanism, parts being in section;

Fig. 2 is a front elevation of the spreader mechanism;

Fig. 3 is a perspective view of a hot water bag and its core, as removed from the molding machine;

Fig. 4 is a detail view showing the spreader arms inserted in the hot water bag;

Fig. 5 is a detail view showing the spreader arms in spread position, and the core in process of removal; and

Fig. 6 is a perspective view of the stripped hot water bag.

It has been found desirable to provide a power spreader for hot water and other molded bags with small necks, which are molded with inner cores which must be removed from the bags after spreading the necks. Spreading of the neck of a hot water bag or bottle of the heavy rubber type by means of the standard hand operated spreader tongs involves a severe physical strain and a relatively large time period, and thus increases the cost of manufacture. I have found it feasible to provide a simple apparatus, operated by a power fluid such as compressed air, which power spreads the bag or bottle neck and thus facilitates removal of the core and decreases the time and the expense heretofore necessary.

Referring to the drawings, I provide a support such as a table 10 on which is mounted a shaft 11 horizontally supported in aligned brackets 12, 13

and 14, the central portion 15 of the shaft having a longitudinal key 16 and a piston 17 threaded therein, see Fig. 1, a movable cylinder 18 being slidably mounted on the shaft and having a longitudinal slot 19 in the forward head 20 of the cylinder for the key 16. The forward head 20 and the rear head 21 are suitably packed, and the piston 17 has standard type cup-shaped resilient washers 22 engaging the inner surface of the movable cylinder.

Each cylinder head is provided with a fluid inlet port, the head 20 receiving pressure fluid through a fluid conduit 23 and the head 21 receiving pressure fluid through a fluid conduit 24, a source of fluid pressure 25 communicating with the conduit 23 through a T 26 having a control valve 27 which is set to greatly reduce the quantity of pressure fluid admitted to the conduit 23, the source 25 also communicating with the conduit 24 through a T 28 and a manually movable control valve 29. Both valves 27 and 29 communicate with a pressure relief outlet 30, the valve 27 being slightly open to the relief outlet to always maintain the fluid in conduit 23 under reduced pressure.

The spreader includes a fixed arm 31 which, as illustrated, has a horizontally extending finger 32 terminating in a bent rounded end 33, the arm being secured to the bracket 12. A movable arm 34 which has a longitudinally extending finger 35 and a bent rounded end 36, the ends 33 and 36 being oppositely directed, see Fig. 1, is secured to the movable cylinder 18.

Referring now to Fig. 3, the bag 37 when removed from the molding machine has a narrow neck 38, and is mounted on a core piece 39 which carries the inner mold core 40, see Fig. 5. The bag and core piece are placed on a suitable support 41, see Figs. 1 and 2, with the neck 38 towards the fingers 32, 35, and is slid forwardly to push the fingers into the bag as shown in dotted lines in Fig. 4. The piston 17, see Fig. 1, is at the extreme right of the cylinder, the pressure fluid entering through valve 27, the valve 29 being open to exhaust or relief. The operator now opens valve 29 and the full fluid pressure enters on the right of the piston through conduit 24, and forces the cylinder to the right, the fluid on the left of the piston being pushed out through the relief exit 30. The movement of cylinder 18 is gradual, due to the effect of the back fluid pressure on the left of the piston, and the bag neck is smoothly distended to the position shown in Fig. 5, whereby the inner core 40 is readily removed. Closing of valve 29 exhausts the fluid pressure on the right

of the piston and permits the fluid pressure on the left of the piston to build up and move the cylinder to the position shown in Fig. 4, with the arms 31 and 34 in adjacency, the bag 37 then being readily removed therefrom.

The above-described apparatus is composed of a small number of parts which are readily manufactured and assembled, and which are simply operated by means of a pressure fluid such as compressed air to spread the necks of hot water bags and bottles and the like, and thus facilitate and expedite the removal of inner bag cores.

Although a specific constructional embodiment of the invention has been described and illustrated, it is obvious that changes in the size and shape of the parts, and in their operation, may be made to suit the requirements for different power spreaders for any spreading purpose, without departing from the spirit and the scope of the invention as defined in the appended claims.

I claim:

1. A core pulling machine comprising a support, a spreader arm fixed to said support, a pressure fluid motor mounted on said support and having a cylinder element closed at both ends and a piston element, one of said elements being movable, a second spreader arm secured to the movable element and normally positioned in adjacency to the first spreader element, a source of fluid pressure, a conduit for conducting pressure fluid from said source to said cylinder on one side of said piston to spread said spreader arms and a second conduit for conducting pressure fluid

from said source to the other side of said piston to bring said spreader arms into adjacency, pressure reduction means in said second conduit for providing a reduced back pressure, pressure relief means in said second conduit for relieving excess pressure therein, and a manually controlled valve in said first conduit for selectively communicating said cylinder on said one side of said piston with the source of fluid pressure or with exhaust.

2. A core pulling machine comprising a support, a spreader arm fixed to said support, a pressure fluid motor mounted on said support and having a cylinder element closed at both ends and a piston element, said cylinder element being movable, a second spreader arm secured to the movable element and normally positioned in adjacency to the first spreader element, a source of fluid pressure, a conduit for conducting pressure fluid from said source to said cylinder on one side of said piston to spread said spreader arms and a second conduit for conducting pressure fluid from said source to the other side of said piston to bring said spreader arms into adjacency, pressure reduction means in said second conduit for providing a reduced back pressure, pressure relief means in said second conduit for relieving excess pressure therein, and a manually controlled valve in said first conduit for selectively communicating said cylinder on said one side of said piston with the source of fluid pressure or with exhaust.

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