Dec. 15, 1953 J. T. ARMBRUSTER 2,662,637

CARRYING CASE

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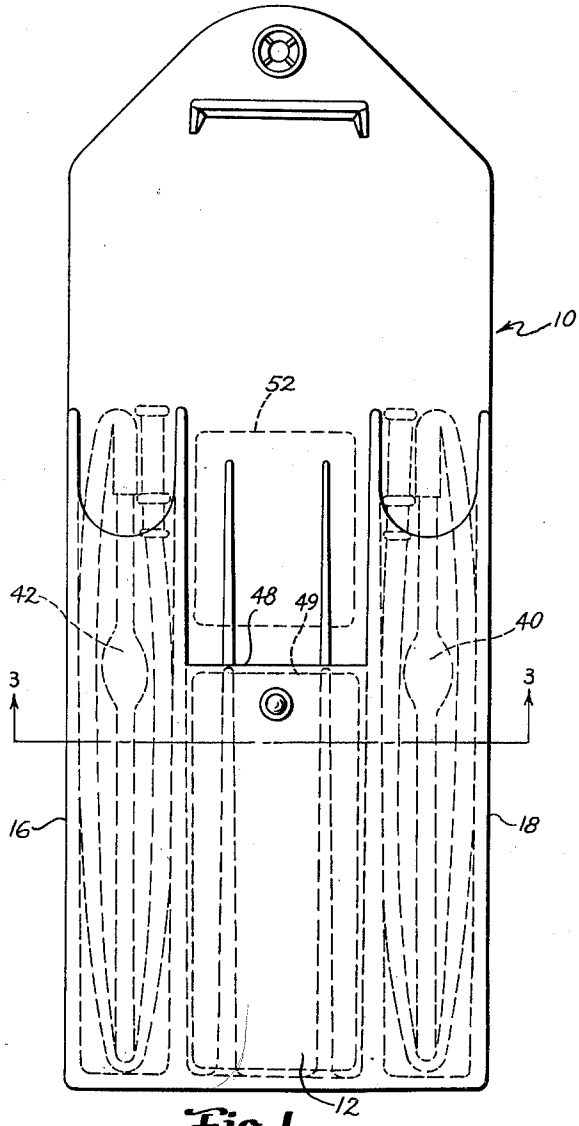



Fig. 1

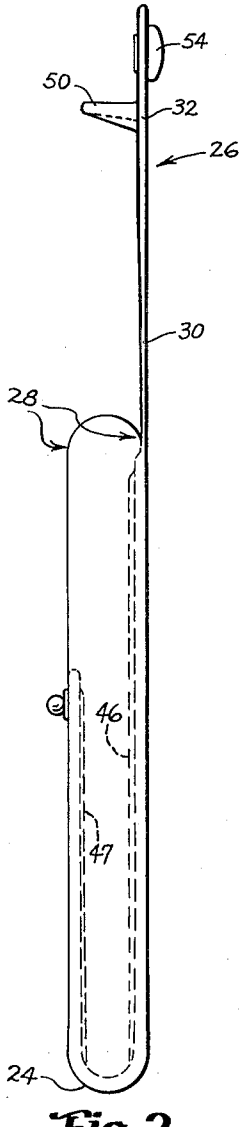



Fig. 2

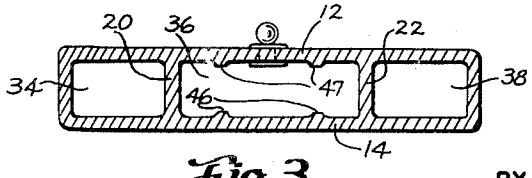



Fig. 3

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## CARRYING CASE

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4 Claims. (Cl. 206—12)

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This invention relates to cases or receptacles for haemacytometer sets and like microscope counting equipment, and more particularly to such a case or receptacle formed of semi-flexible plastic material which may be economically molded as a unitary tough durable onepiece container conveniently reinforced and arranged to receive and protect the several fragile parts of such a set.

A haemacytometer, a pair of cover plates therefor and a pair of pipettes are normally sold as a complete haemacytometer set for various common counting purposes such as yeast counting, dust counting and blood counting as well as for counts in spinal, salivary and other body fluids. These parts of such a haemacytometer set are made of glass and finished to the highest possible standards of accuracy. For example, in one type of haemacytometer in extensive use at the present time in hospitals, schools, etc., uniform semi-transparent metallic coatings are provided for supporting the material to be counted and these coated surfaces are ruled with closely spaced fine lines, with some of said lines as close to each other as five hundredths of a millimeter and with others of these lines even as close as to two or three microns apart. Accordingly, these articles of a haemacytometer set are expensive to manufacture and it is most desirable that any case in which they are to be kept or carried provide complete protection therefor, not only against possible breakage but also against scratches and other injuries. At the same time, such a case or receptacle should be of a durable, compact and convenient arrangement for carrying or storage.

It has been found that an improved carrying case or receptacle of the type forming the subject matter of the present invention may be readily and economically molded as a unitary reinforced plastic container which will provide complete protection for such microscope counting equipment and which will compactly house this equipment so that it may be conveniently carried. In addition, such a onepiece carrying case molded of polyethylene plastic or the like possesses the advantages of being water proof and stain resistant, inert to most acids and solvents, and may be easily washed or cleansed when necessary.

It is, accordingly, an object of the present invention to provide a carrying case or receptacle for a haemacytometer set or the like which is sturdy, compact and economical of construction, which is formed of one piece of pliable or flexible

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plastic material and which is well reinforced and arranged to house and protect the several parts of such a haemacytometer set against scratches, breakage or like injury when not in use.

Other objects and advantages of the invention will become apparent from the detailed description which follows when taken in conjunction with the accompanying drawing, in which:

Fig. 1 is a front elevational view of a haemacytometer set carrying case or receptacle embodying the present invention;

Fig. 2 is a side elevational view of the case of Fig. 1; and

Fig. 3 is a sectional view taken substantially on line 3—3 of Fig. 1, looking in the direction of the arrows.

Referring to the drawing in detail, it will be seen that a carrying case or receptacle 10 embodying the present invention may comprise a front wall 12, a rear wall 14 and side walls 16 and 18, which walls are integrally secured together along their adjacent edges to form an enclosure. Intermediate the sides 16 and 18 are positioned a pair of spaced elongated partitions 20 and 22 which are integrally secured to the front and rear walls 12 and 14 and which extend generally parallel to the side walls 16 and 18 and in spaced relation thereto for purposes which will be presently described. A rounding bottom wall 24 is provided and arranged to integrally merge into the front and rear walls and to meet the round lower ends of the side walls 16, 18 and partitions 20, 22 so as to completely close and seal the lower end of the case. At the upper edge of the rear wall is secured an integral cover flap 26 which is arranged to fold over the upper open end of the receptacle and to overlie the front wall thereof when in closed position. The upper ends of the side walls 16 and 18 and of the partitions 20 and 22 are suitably rounded and arranged to blend or merge substantially tangentially with the front surface of the back wall and the front surface of the front wall, as indicated at 28 in Fig. 2, and a lower or base portion 30 of the cover flap may be formed somewhat thinner than the upper or free end portion 32 thereof so as to provide for the receptacle a flexible hinge connection between the cover flap 26 and the case when the flap is folded over into closed position. The rounded upper ends of the side walls and of the partitions together serve as means to give considerable support to the relative thinner section 30 of the cover flap 26 when the latter is in closed position.

The several parts of the carrying case or re-

ceptacle already described may be readily formed by known methods of molding technique so as to have these parts smoothly blend into each other and provide a unitary sturdy integral member. The partitions **20** and **22** previously mentioned are preferably formed relatively thick in section and thus are relatively stiff for additional support. These partitions and the side walls are tapered somewhat from their lower or base portions adjacent bottom wall **24** to their free upper edge portions as clearly indicated in Fig. 1 in a manner which facilitates removal of the mold core from within the case after the molding operation, whereby pockets or chambers **34**, **36** and **38** are formed. The partitions are so spaced from each other that the side pockets **34** and **38** are relatively long and narrow but of sufficient size to receive a pair of pipettes **40** and **42** of known type, each employing a flexible tube with mouth piece thereon. The size of the central pocket **36** between the elongated tapered partitions **20** and **22** is such as to conveniently loosely receive a standard haemacytometer completely enclosed by said front and rear walls.

In order to insure that the coated and minutely ruled counting surfaces of such a haemacytometer are at all times out of contact with the inner surfaces of the carrying case, whether the haemacytometer be inserted in the pocket **36** facing forwardly or rearwardly, a pair of internal spacing ribs **46** is provided upon the rear wall **14** and arranged to extend from the bottom **24** substantially to the top of the case and a second pair of internal spacing ribs **47** is provided upon the front wall **12** and extends from the bottom **24** substantially to the edge of a central recess **48**. The length of a standard haemacytometer **49**, indicated by dotted lines, is materially less than the pipettes **40** and **42** also provided in such a set. Accordingly, it has been found convenient to make the recess **48** in the front wall **12** extend between the tapered elongated partitions **20** and **22** and extend into the front wall nearly one-half the length of the carrying case. By providing such a wide deep central recess, it is possible to accommodate in this recess a transverse reinforcing tab **50** which is formed integral with the inner surface of the cover flap **26** and which, when the cover flap **26** is folded over to close the upper end of the carrying case, will project into the recess **48** adjacent the transverse edge thereof so as to not only prevent any material movement of the haemacytometer within the pocket **36** but so as to engage the back wall **14** of the case and also serve as a transverse reinforcing element for this part of the closed case. Furthermore, this transverse reinforcing tab **50** will serve to enclose one or a pair of standard 6 or 8 mm. cover plates, as indicated by dotted lines **52**, these cover plates being contained within the free space formed in the upper part of the case above the pocket **36** and between the partitions **20** and **22**. They will be prevented from moving upwardly or downwardly, respectively, by the hinged portions **30** of the cover flap and by the transverse reinforcing tab **50** and thus contact between the edges of the cover plates and the adjacent edge of the haemacytometer **49** will be prevented. A snap fastener or other suitable fastening means **54** may be provided for holding the cover flap in closed position overlying the front wall of the case.

It should be noted that while the carrying case or receptacle **10** is molded as a unitary member of one piece of flexible or pliable plastic material, such as polyethylene or other well-known thermo-plastic, such material has material rigidity and toughness. It is, nevertheless, sufficiently yieldable or flexible, when of thin enough section it may be easily and readily flexed into a folded position, such as at hinge portions **30** of the cover flap **26**. On the other hand, the plastic material employed is such that when used for thicker sections of the receptacle, such as in partitions **20** and **22**, these parts are relatively rigid and will withstand considerable compression. It has been found possible by the use of such plastic material to provide a compact sturdy and inexpensive carrying case for haemacytometer sets and the like, one which will stand considerable usage without injury to the articles within.

Having described my invention, I claim:

1. An elongated molded carrying case formed of semiflexible plastic material and arranged to receive fragile equipment, said carrying case comprising front and rear walls and a pair of side walls integrally joined together along their adjacent edges, a pair of spaced elongated partitions disposed between said side walls and integrally secured to said front and rear walls, a bottom wall integrally secured to said side walls, to said partitions and to said front and rear walls, said side walls terminating in upper rounded end portions of such curvature as to tangentially merge with the front surface of said rear wall and with the front surface of said front wall, a cover flap for closing the upper open end of said case, said cover flap comprising a relatively thin flexible portion molded integrally with said back wall and adapted to bend smoothly around the curved upper edges of said side walls and bear thereagainst when moved to closed position, and a relatively thicker stiffer outer portion molded integrally therewith and adapted to overlie in a relatively flat manner a part of the front wall of said case when in said closed position, and means for securing said cover flap in said closed position, said partitions dividing said case into a pair of elongated side compartments and a relatively wider central compartment, said front wall being recessed between said partitions and adjacent the upper end of the central compartment, and a transverse reinforcing rib integrally secured to the relatively stiffer outer portion of said cover flap and extending outwardly from the inside surface thereof, said transverse rib being of such length as to substantially fill the space between said partitions and extending so as to substantially abut the rear wall of said case at a location within said recess, so as to close the lower portion of said central compartment and so as to serve as transverse strengthening means for the case.

2. An elongated molded carrying case formed of semi-flexible plastic material and arranged to receive a haemacytometer and like fragile microscopical counting equipment, said carrying case comprising front and rear walls and a pair of side walls integrally joined together along their adjacent edges, a pair of spaced elongated partitions disposed between said side walls and integrally secured to said front and rear walls, a bottom wall integrally secured to said side walls, to said partitions and to said front and rear walls, said side walls terminating in upper rounded end portions of such curvature as to tangentially merge with the front surface of said rear wall and with the front surface of said front wall, a cover flap for closing the upper open end of said case, said

cover flap comprising a relatively thin flexible portion molded integrally with said back wall and adapted to bend smoothly around the curved upper edges of said side walls and bear thereagainst when moved to closed position, and a relatively thicker stiffer outer portion molded integrally therewith and adapted to overlie in a relatively flat manner a part of the front wall of said case when in said closed position, and means for securing said cover flap in said closed position, said partitions dividing said case into a pair of elongated side compartments for receiving pipettes or the like and a central compartment, said front wall being recessed adjacent the upper end of the central compartment, and a transverse reinforcing rib integrally secured to the relatively stiffer outer portion of said cover flap and extending outwardly from the inside surface thereof, said transverse rib being of such length as to substantially fill the space between said partitions and extending so as to substantially abut the rear wall of said case at a location within the recess so as to divide said central compartment, when the cover flap is in closed position, into a lower portion for receiving a haemacytometer and an upper portion for receiving a haemacytometer cover plate, said transverse rib serving to strengthen said case against compression at a location intermediate upper and lower portions of said central compartment.

3. An elongated molded carrying case formed of semi-flexible plastic material and arranged to receive fragile equipment, said carrying case comprising front and rear walls and a pair of side walls integrally joined together along their adjacent edges, a pair of spaced elongated partitions disposed between said side walls and integrally secured to said front and rear walls, a bottom wall integrally secured to said side walls, to said partitions and to said front and rear walls, said side walls and said partitions each terminating in an upper rounded end portion of such curvature as to tangentially merge with the front surface of said rear wall and with the front surface of said front wall, a cover flap for closing the upper open end of said case, said cover flap comprising a relatively flexible portion molded integrally with said back wall and adapted to bend smoothly around the curved upper edges of said side walls and said partitions and bear thereagainst when moved to closed position, and a relatively stiffer outer portion molded integrally therewith and adapted to overlie in a relatively flat manner a part of the front wall of said case when in said closed position, and means for securing said cover flap in said closed position, said partitions dividing said case into a pair of elongated side compartments and a relatively wider central compartment, said front wall being recessed adjacent the upper end of the central compartment, and a transverse reinforcing rib integrally secured to the relatively stiffer outer portion of said cover flap and extending outwardly from the inside surface thereof, said transverse rib being of such length as to substantially fill the space between said partitions and extending so as to substantially abut the rear wall of said case at a location within the recess, so as to divide said central compartment, when the cover flap is in closed position, into a lower portion for receiving a fragile article such as a haemacytometer and an upper portion for receiving a second fragile article such as a haemacytometer cover plate, said transverse rib serving to strengthen said case against compression at a location intermediate upper and lower portions of said central compartment.



4. An elongated molded carrying case formed of semi-flexible plastic material and arranged to receive fragile articles, said carrying case comprising front and rear walls and a pair of side walls integrally joined together along their adjacent edges, a pair of spaced elongated partitions disposed between said side walls and integrally secured to said front and rear walls, a bottom wall integrally secured to said side walls, to said partitions and to said front and rear walls, a cover flap for closing the upper open end of said case, said cover flap comprising a relatively thin flexible portion molded integrally with said back wall and adapted to bear against the upper edges of said side walls when moved to closed position, and a relatively thicker stiffer outer portion molded integrally with said flexible portion and adapted to overlie a part of said front wall in close relation thereto when moved to said closed position, said partitions dividing said case into a pair of elongated side compartments and a relatively wider central chamber, said front wall having a relatively deep recess formed in an upper portion thereof and located between said partitions, and a transverse reinforcing rib integrally secured to the relatively stiffer outer portion of said cover flap and extending outwardly from the inside surface thereof, said transverse rib being of such a size as to extend to points closely adjacent both partitions and closely adjacent said rear wall when said cover flap is in its closed position, said transverse rib in closed position dividing said central chamber into an upper compartment and a lower compartment and serving as a closure member for said lower compartment, said transverse rib also serving as strengthening means for intermediate portions of said side walls while in its closed position.

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