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KNEADING PUMP

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Fig. 1

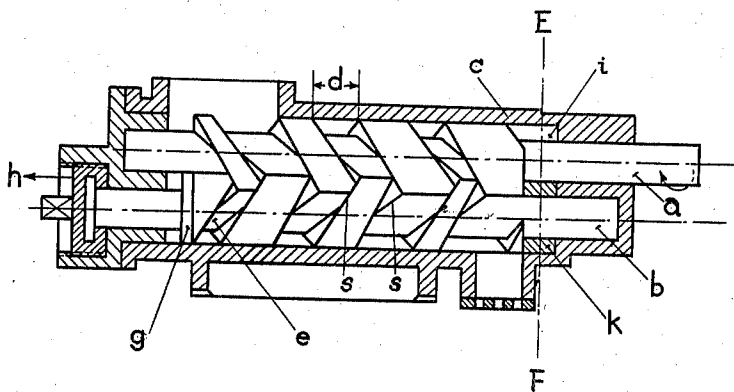
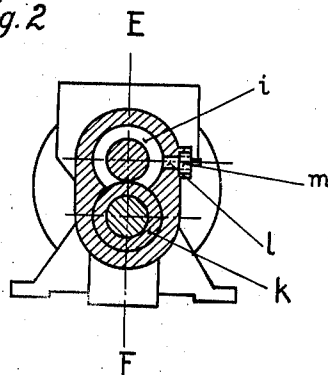


Fig. 2



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KNEADING PUMP

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Application July 23, 1937, Serial No. 155,346
In Germany July 30, 1936

4 Claims. (Cl. 259-6)

The present invention relates to a kneading pump.

In the co-pending U. S. application Serial No. 112,602 filed November 24, 1936, now Patent No. 2,115,096, dated April 26, 1938, in the name of Franz Burghauser there is described a kneading pump consisting of a casing and several right handed and left handed worms (at least one right handed worm and one left handed worm) arranged in the casing and having closely intermeshing threads, the threads of the worms being so formed that the width of the space between adjacent flanks of each thread progressively varies from one end to the other, the main worm to which the material to be kneaded is supplied by an inlet in the casing, having a thread which provides a decreasing passage from the inlet to the outlet side, the secondary worm which closely intermeshes with the main worm having a thread which provides a passage increasing correspondingly towards the outlet of the casing. In this arrangement the casing may be totally closed around the said main worm at the outlet side and around the said secondary worm near the inlet side. The worms may be connected with means for moving them against each other in the axial position.

On further investigations I have found that it may be advantageous for many purposes to construct the casing of the pump so that at the outlet side a hollow space is formed around the axis of the main worm. This hollow space is suitably provided with a boring which is closed by a removable plug.

In the hollow space foreign bodies which enter into the pump together with the material are collected. The foreign bodies cannot then, after being more or less comminuted leave the pump together with the material or the pump be forced to stop, with the possible consequent endangering of other devices connected with the pump.

Figures 1 and 2 of the accompanying drawing diagrammatically illustrate a pump constructed in this manner.

Figure 1 is a longitudinal section, and
Figure 2 is a part section on the line E—F of Figure 1.

The casing of the pump *c* is constructed so that on the pressure side (outlet side) a hollow space *i* is produced at the end of the thread of the main worm *a*. In the case of the secondary worm *b* the hollow space which would otherwise be formed is filled up by an adjusting ring *k* mounted on the secondary worm so that the material cannot leave the hollow space *i* and enter

into the passage of the secondary worm *b*. Furthermore the hollow space *i* is provided with a boring *l* which is closed by a plug *m*.

When the dimensions of the crevices between the flanks *s—s* are adjusted to the smallest value any solid foreign body which enters into the pump together with the material to be kneaded is caused to slide in the passage of the worm *a* to the outlet side and is caused to settle in the hollow space *i*. The foreign bodies which may have collected may be eliminated from time to time by removing the plug *m*.

I claim:

1. A kneading pump consisting of a casing and at least a right handed and a left handed worm arranged in the casing and having closely intermeshing threads, the threads of the worms being so formed that the width of the space between adjacent flanks of each thread progressively varies from one end to the other, each main worm to which the material to be kneaded is supplied by an inlet in the casing, having a thread which provides a decreasing passage from the inlet to the outlet side, each secondary worm which closely intermeshes with the main worm having a thread which provides a passage increasing correspondingly towards the outlet of the casing the casing being entirely closed around the said main worm at the outlet side and around the said secondary worm near the inlet side, the thread of the main worm terminating at a distance from the end wall so as to form a hollow space around the axis of the main worm at the outlet side.

2. A kneading pump consisting of a casing and at least a right handed and a left handed worm arranged in the casing and having closely intermeshing threads and means for moving against each other the worms in the axial position, the threads of the worms being so formed that the width of the space between adjacent flanks of each thread progressively varies from one end to the other, each main worm to which the material to be kneaded is supplied by an inlet in the casing, having a thread which provides a decreasing passage from the inlet to the outlet side, each secondary worm which closely intermeshes with the main worm having a thread which provides a passage increasing correspondingly towards the outlet of the casing, the casing being entirely closed around the said main worm at the outlet side and around the said secondary worm near the inlet side, the thread of the main worm terminating at a distance from the end wall so as to form a hollow space around the axis of the main worm at the outlet side.

3. A kneading pump consisting of a casing and at least a right handed and a left handed worm arranged in the casing and having closely intermeshing threads, the threads of the worms being so formed that the width of the space between adjacent flanks of each thread progressively varies from one end to the other, each main worm to which the material to be kneaded is supplied by an inlet in the casing, having a thread which provides a decreasing passage from the inlet to the outlet side, each secondary worm which closely intermeshes with the main worm having a thread which provides a passage increasing correspondingly towards the outlet of the casing, the casing being entirely closed around the said main worm at the outlet side and around the said secondary worm near the inlet side, the thread of the main worm terminating at a distance from the end wall so as to form a hollow space around the axis of the main worm at the outlet side, said hollow space being provided with a boring closed by a removable plug.

4. A kneading pump consisting of a casing and at least a right handed and a left handed worm

arranged in the casing and having closely intermeshing threads and means for moving against each other the worms in the axial position, the threads of the worms being so formed that the width of the space between adjacent flanks of each thread progressively varies from one end to the other, each main worm to which the material to be kneaded is supplied by an inlet in the casing, having a thread which provides a decreasing passage from the inlet to the outlet side, each secondary worm which closely intermeshes with the main worm having a thread which provides a passage increasing correspondingly towards the outlet of the casing, the casing being entirely closed around the said main worm at the outlet side and around the said secondary worm near the inlet side, the thread of the main worm terminating at a distance from the end wall so as to form a hollow space around the axis of the main worm at the outlet side, said hollow space being provided with a boring closed by a removable plug.

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