

A SAMPLER FOR LIVERS FROZEN IN DRUMS

By Lynn G. McKee* and F. Bruce Sanford*

Under conditions prevailing in the fish liver industry, the cold-storage facilities and the time required to freeze drums of livers "hard" are not always available. It is often desirable to sample livers for vitamin assay while they remain in the drums. The sampler described in this article will be found useful because it functions well in soft-frozen material.

The sampler (Figure 1, p. 4) is similar in principle to the one described earlier for use in unfrozen livers.^{1/} However, a number of minor changes have been made in design. One is the lengthening of the barrel of the sampler.

To obtain an auger spiral long enough for the lengthened barrel, it is necessary to weld two ship augers together. (The augers used by the writers were 1-3/16 inches in diameter and had no leader-screw. The spiral on each auger was 24 inches in length.) When the augers are welded together, they must be perfectly aligned, otherwise undesirable vibration will be encountered when the sampling device is used.

The drum sampler does not operate effectively unless the material to be sampled is at least partially frozen. The livers should be frozen sufficiently so that they are not pushed aside by the passage of the auger into the drum. To facilitate the use of the auger in frozen material, the tip of the auger has been left equal in size to the outside diameter of the tube. No machining is necessary to accomplish this, because the auger furnished by the manufacturer has a tip slightly larger than the spiral portion and equal to the tube's outside diameter. The four handles welded to the tube will be found helpful in removing the sampler from the frozen livers.

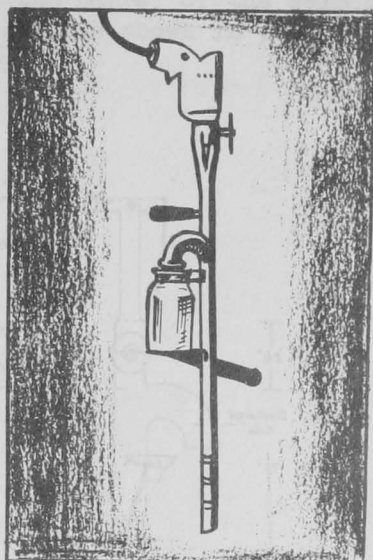
A 1/2-inch drill motor is required to turn the auger. If the sampler is used with livers of low oil content, the motor should be of heavy-duty type.

A No. 10 can is used to receive the sample as it falls from the opening of the discharge tube. This container has a satisfactory capacity (1 gallon), yet it does not interfere greatly with the sampling operation. When the container is replaced, its bottom should rest on the lugs of the lower container bracket. The top should then be pushed back against the latch which snaps over the edge of the container to hold it secure.

When using the sampler, the operator will find it convenient to stand on top of the drums. A satisfactory footing can be obtained by using pieces of wood 2 by 6 inches, 3 inches longer than the diameter of the drum. These small pieces can be shifted as needed.

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^{1/} "Drill Sampling Device for Fish Livers," by L. G. McKee, F. B. Sanford, and G. C. Bucher, published in Fishery Market News, November 1944, pp. 6-11 (formerly Sep. No. 84). Also published as Fishery Leaflet No. 141.

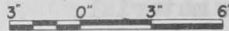


Early Sampler for Fish Livers

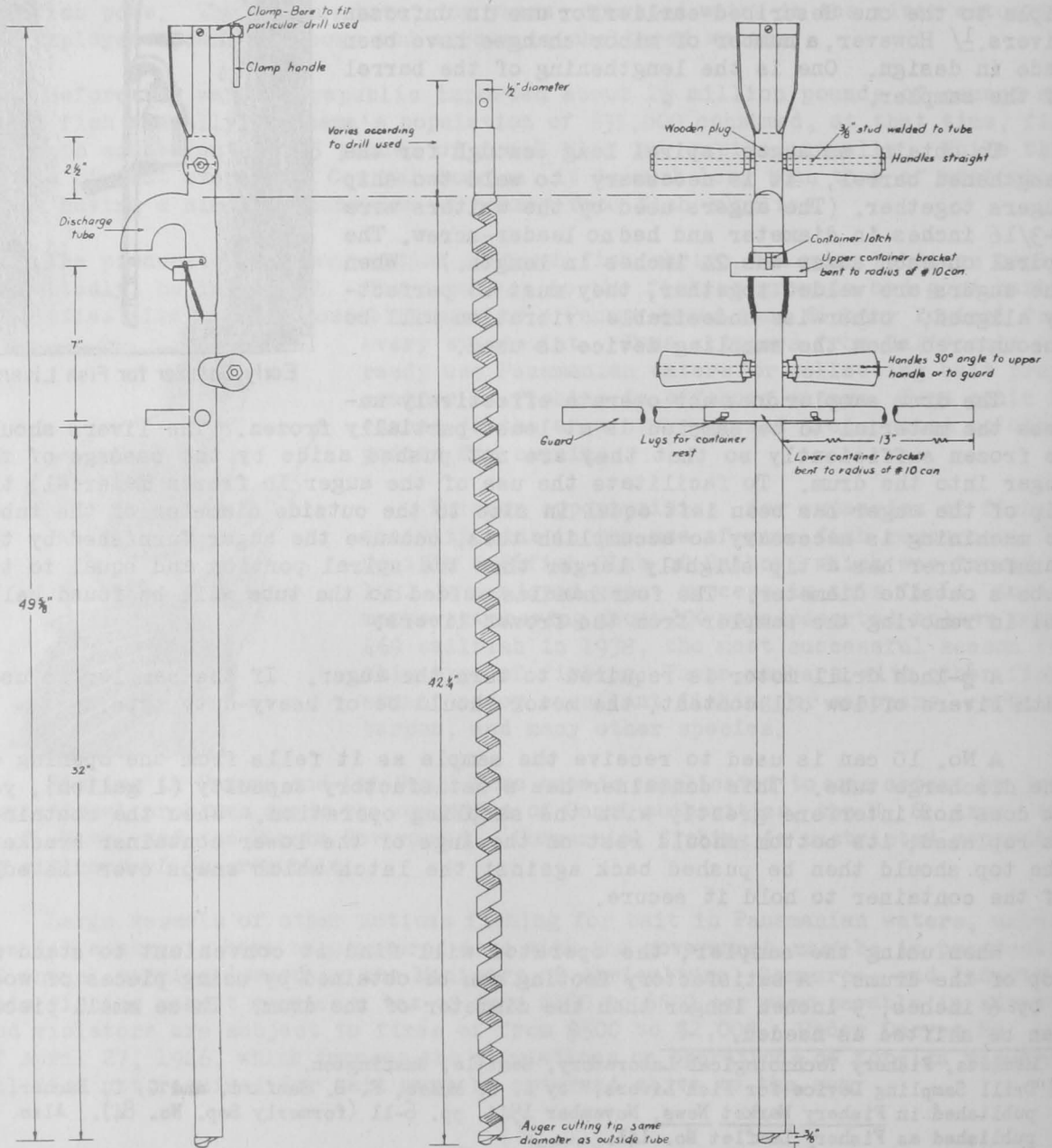
SAMPLING DEVICE FOR FROZEN LIVERS IN DRUMS

Department of Interior
Fish and Wildlife Service
Technological Laboratory

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Drawn by: *M. M. Cantill*



The number of cores to be taken depends upon the kinds of livers to be sampled. It should be kept in mind that the larger the number of cores taken the more representative the sample.

Although the sampler was designed for use in livers frozen in drums, it can also be used in livers frozen in 5-gallon cans. However, if a large number of the smaller containers are to be sampled, a separate sampler should be constructed for this purpose. To adapt the drum sampler for 5-gallon cans, the only alterations needed are the shortening of the guard and that portion of the barrel of the sampler which is inserted into the cans. The recommended dimensions are shown in previously published drawings of the sampler for fresh livers.^{1/}

^{1/}Ibid.

