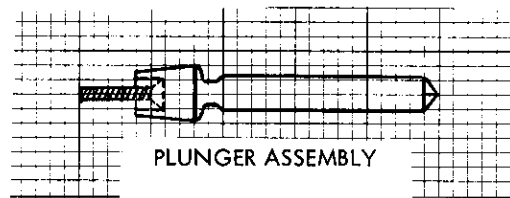
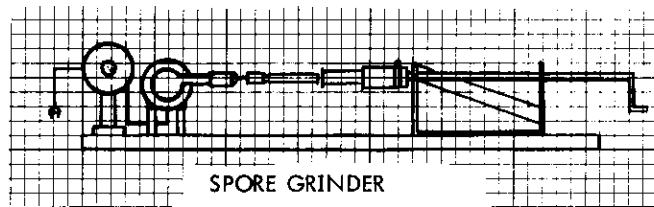


Eilers, F. I. and G. Fischer. An efficient grinder for  
ascospores and mycelium.

In working with *Neurospora* ascospores we have found it necessary  
to develop an efficient method of grinding small samples of spores.  
Arnold and Oppenheimer (1950 *J. Gen. Physiol.* 33:432)

mounted a glass syringe barrel containing a sample of *Chroococcus* in a lathe, and by forcing the plunger into the slowly turning barrel got effective breakage. Using this idea, we have developed an efficient instrument from common and inexpensive materials.

In this machine the syringe plunger is mounted in the chuck of a high torque stirrer motor through a bolt cemented to a rubber stopper with epoxy resin. The end of the plunger is cemented to the other end of the stopper. This is a secure, yet flexible, connection. The tip of the barrel is sealed with epoxy resin and the barrel is mounted in a chuck mode of heavy-walled rubber tubing (13/16 x 3/8") which, in turn, is fastened by a hose clamp to a wooden block on the end of a threaded rod. This arrangement for holding the barrel also is designed to impart flexibility in order to prevent excessive breakage of the plunger. The 3/8" threaded rod is aligned with the plunger by a U-shaped brace of 1/4" steel. A handle at the end of the rod is "red to turn it through the brace, thus advancing the barrel over the plunger. Because of the force necessary to advance the barrel over the plunger, it is necessary to mount the individual parts to a sturdy one-inch plywood board.



In practice the grinder is loaded by tipping it up and pipetting the spore suspension into the barrel. We generally "se 100-200 mg of ascospores in 5 ml of suspending medium in a 10 ml syringe. The barrel is fitted over the plunger, and all the air is forced out. The grinder is then laid flat, the motor turned on, and the barrel advanced over the slowly turning plunger. The homogenate, which drips slowly from the end of the barrel, can easily be caught in a beaker. A 5 ml sample in a 10 ml syringe generally is ground in 15 minutes if the syringe is close-fitting. In the case of syringes with unusually close tolerances it is necessary to reduce the closeness of fit by a few seconds grinding with fine corundum. If the grinder is "red in a cold room, and if the plunger is turned slowly, no serious heating occurs.

By "sing a 50 ml syringe with a conical tip on the plunger, the grinder works well on mycelium that has been pre-ground in a blender. - - - Department of Botany, University of Michigan, Ann Arbor, Michigan.