

GINNING

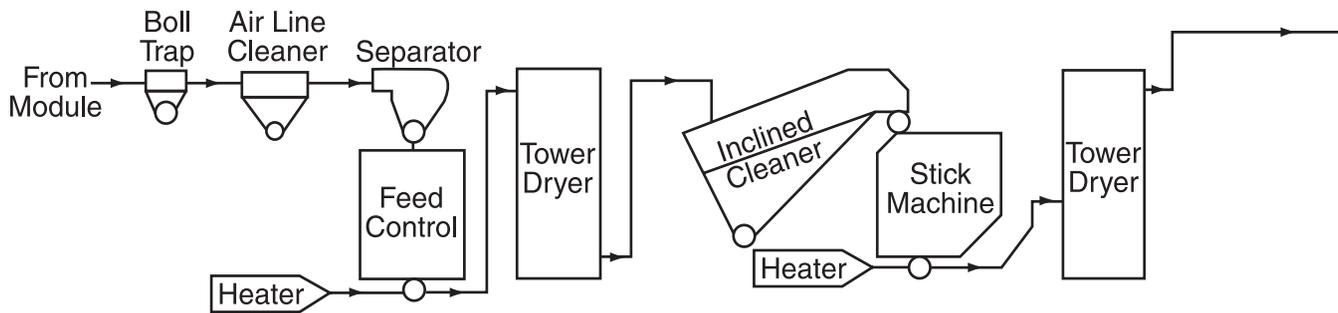
ROY V. BAKER

Harvested cotton is called seed cotton because the fibers are still attached to the seed. The ginning process removes the seeds and cleans the fiber. Clean cotton is important because a bit of trash incorporated into a spun yarn can cause the yarn to break. When the bale of fiber comes out of the bale press, a sample is taken for cotton classing (fiber evaluation).

The principal function of a cotton gin is to convert the farmers' harvested seed cotton into salable commodities, i.e., fiber and seed. Thus,

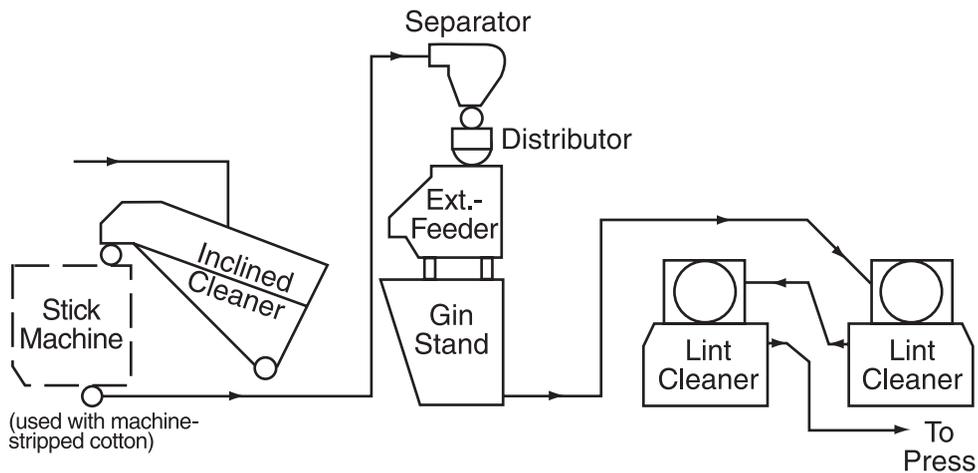
ginning is the bridge between cotton production and cotton textile manufacturing. To satisfactorily convert today's mechanically harvested cotton into salable commodities, gins have to dry and clean the seed cotton, separate the fibers from the seed, further clean the fibers and place the fibers into an acceptable package for commerce. Cottonseed are sold to dairies for feed, to oil mills for production of many valuable products, or saved for planting next year's crop. The fibers are the more valuable product, however, and the design and operation of cotton gins are oriented toward fiber production. In essence, the modern cotton gin (Figure 54) enhances the value of the cotton by separating the fibers from the seed and by removing objectionable non-fiber matter, while preserving as nearly as possible the inherent qualities of the fiber.

FIGURE 54. Recommended gin machinery for machine-stripped and machine-picked cotton



The module of cotton is opened and cotton is moved with an air stream into the gin, first passing through a boll trap that removes green (unopened) bolls and rocks. The airline cleaner takes out fine trash and sand (for stripper harvested cotton). The separator removes the cotton from the air stream, dropping it into the feed control, which regulates the flow of cotton into the ginning stream. The tower dryers dry the cotton, if it is wet or harvested before the plant was completely dry. The inclined cleaners (or cylinder cleaners) are a type of cleaner that removes fine trash. The CBS (combination burr and stick) machine in a stripper cotton gin removes sticks and burrs. In a picker cotton gin, a stick machine, at this location, removes sticks and green leaf. The

cotton then goes through a second dryer, another inclined cleaner, and a second stick machine (in a stripper gin). Another separator takes cotton out of the conveying air stream and drops it into a conveyor distributor. The distributor delivers cotton to each of several extractor-feeders, which feed the gin stands uniformly and at a controlled rate. The gin stand is the heart of the ginning process where the fibers are removed from the seed (Figure 55). Most gins are equipped with two lint cleaners that remove small trash that remains in the lint after ginning. These cleaners are equipped with bypasses to regulate the amount of cleaning required. The fiber then goes into a gin press where it is compressed into a 480-pound bale suitable for commerce.



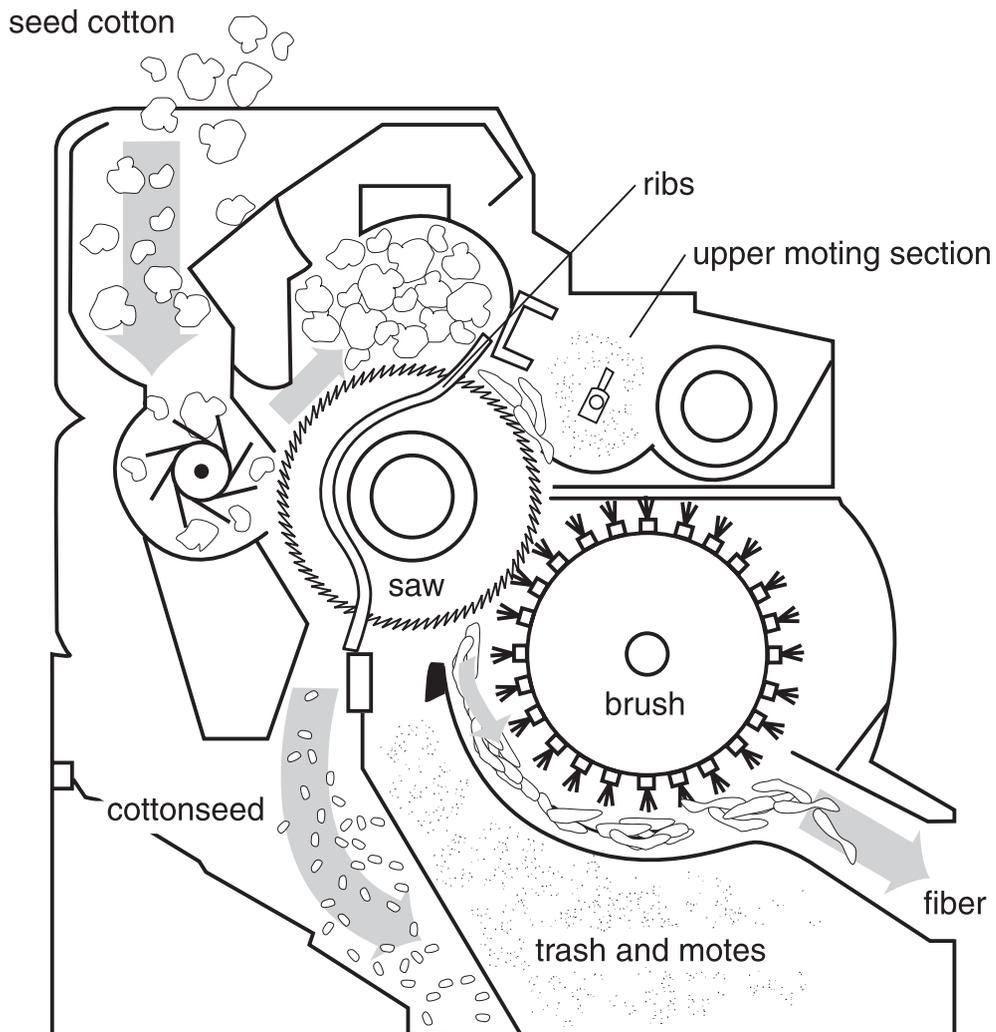


FIGURE 55. Gin stand cross section. A series of ribs are closely spaced (less than the size of the seed) with a saw blade between each rib. The seed cotton falls down on the turning saws and the fiber is pulled between the ribs by the saw teeth, doffed off by a brush, and carried away by an air stream. The seed, which cannot pass between the saw and the ribs, fall down another chute, and are conveyed away.