

the above facilities and appliances, there were generally required: Four mules to operate the gin, (two at each lever under the gin house); two drivers under the gin house; in the story above, a ginner to stand at the gin and feed the cotton into it properly; a ginner's helper to supply the cotton to the ginner at the gin; a helper to push the lint from the gin into the lint room, and a man or a boy to remove the seed from the floor under the gin; two hands to carry cotton from the lint room to the screw; two hands in the box to pack the cotton down to make the box hold a bale; one or two mules to pull the screw and one or two drivers. In all, eleven hands, and frequently as many more were "helping" around the gin house and screw on rainy days. If there was a breakdown, most of the hands loitered about on piles of cotton or seed, while a few would help the carpenter or blacksmith to repair the breaks. To gin and pack two or three bales a day was fair work for the above force. The bales were partially enclosed in jute bagging and bound with rope.

From the time of the invention of the gin to the close of the Civil War, when slavery was abolished, there was no demand for methods and appliances other than those above described. Steam power would have brought responsibility with no commensurate advantages from the planter's point of view. The boiler might explode, and if it did, the smallest part of the loss would have been the engine and boiler. Two or more thousand dollars worth of negroes might be killed, and perhaps many more wounded. This would make large doctor bills, and labor and attention to nurse them. The special care of the sick was the most particular personal care of the humane planter. Then, too, a steam engine would be getting out of order, repairs would have to be obtained from machine shops, which were few and often far distant. In fact, the planter himself would have to give it some attention, even if he had an ordinary overseer; and the planter had little taste for anything that would require his attention except the care and government of the humanity on his plantation.

The most important advances in cotton ginning machinery for the past hundred years consist in modes and material of construction; in the manner of applying the driving power, and in accessory appliances for feeding seed cotton to the gin, and taking the products away.

The frame and most of the other parts of the gin were formerly made of wood, while now, the main parts are all of iron or steel. The original conception of the brush remains nearly the same. It formerly consisted of four cross arms, studded with bristles, while now it is a hollow wooden cylinder carrying 25 to 35 rows of bristles.

Fig. 21 is a section showing the principal working parts of the gin of to-day.

**Saw Gin, Fig. 21, Lettering.**

- A—Seed cotton feeder.
- B—Revolving distributor.
- C—Interior of breast.
- D—Saw cylinder.
- E—Brush.
- F—Flue to condenser.
- G—Condenser.



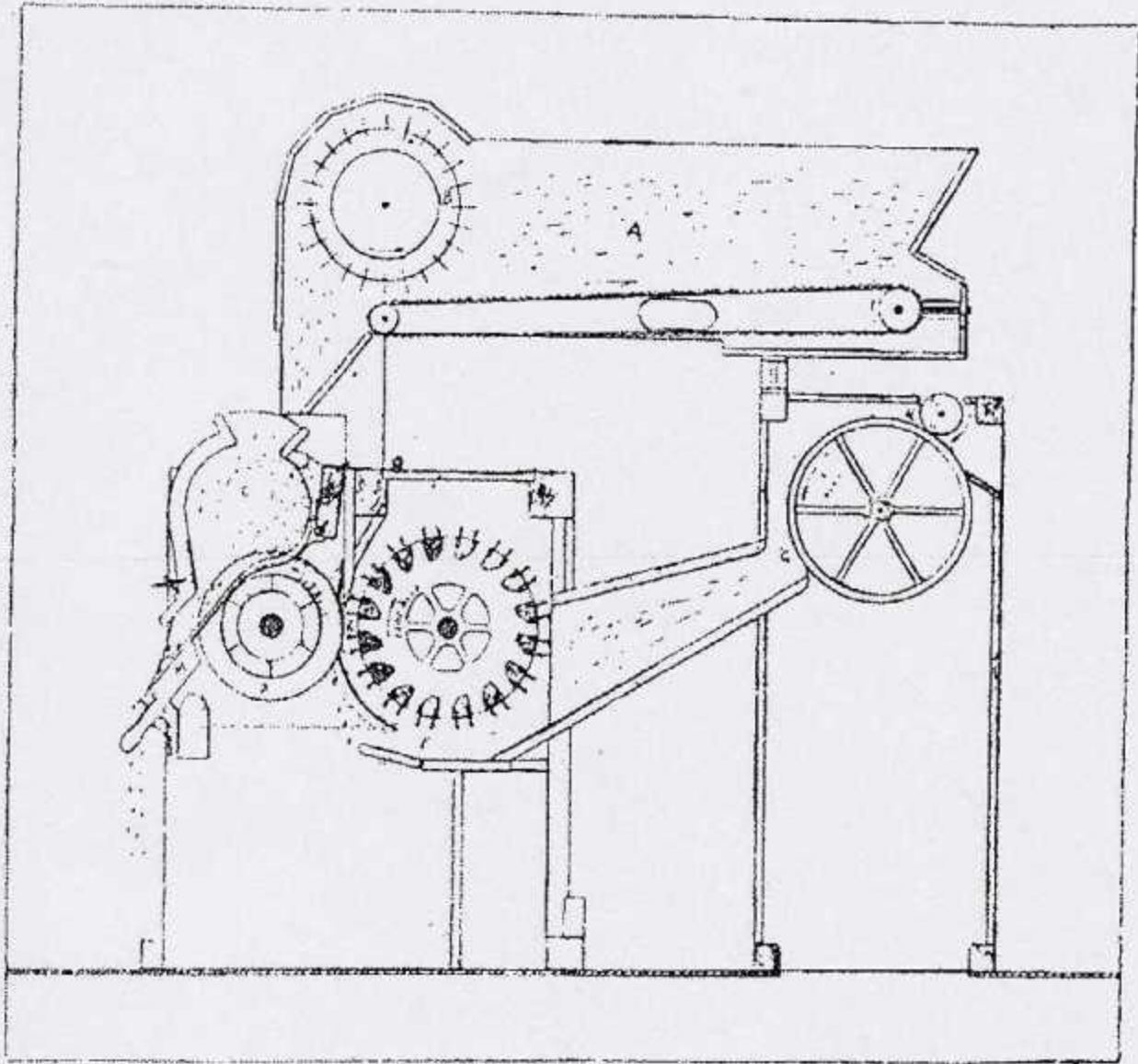


FIG. 21.

Section of Saw Gin.

**Process.**

The feeder A may be filled with seed cotton. It has means of regulation, and it will feed it with proper speed to the gin. The cotton in the space C is acted on by the saws, which pull off the lint cotton and carry it through the spaces between the ribs M, while the seed, which cannot pass through, fall out in the front. The brush E clears lint cotton from the teeth of the saws and blows it through the flue F against the perforated drum of the condenser. The air passes through the perforations and the lint is delivered on the outside of the condenser in a thick compact sheet.

The pull of the saw teeth on the mass of cotton in the breast, causes it to revolve in the breast in a direction opposite to the saws. This prevents the saws from exerting a too sudden pull on the fibres, and it also serves the purpose of bringing fresh lots of cotton into contact with the teeth. It is important to have the breast so shaped that this cotton may revolve with the least friction. There have been some patents granted on various anti-friction devices, for the breast, such as rollers in the front, and revolving heads at the two ends of the breast. The latter has proven to be of permanent merit.

In the gin invented by Whitney it was necessary that the operation of ginning should be intermittent, ginning one breast full at a time, and then letting out the seed. It transpired, however, that when Holmes constructed a gin with saws, the form of breast was improved; it could make and carry a revolving roll of cotton. The breast could be left a little open at the bottom and, when the seeds were sufficiently cleared of lint by the saws, they would drop loose from the roll, having no longer lint enough to keep themselves engaged in the roll.

The Holmes gin works continuously, the seed cotton being fed to it evenly, while the seed drops out as the roll of cotton turns in the breast.



Fig. 22 is a general perspective view of the Holmes saw gin with feeder and condenser.

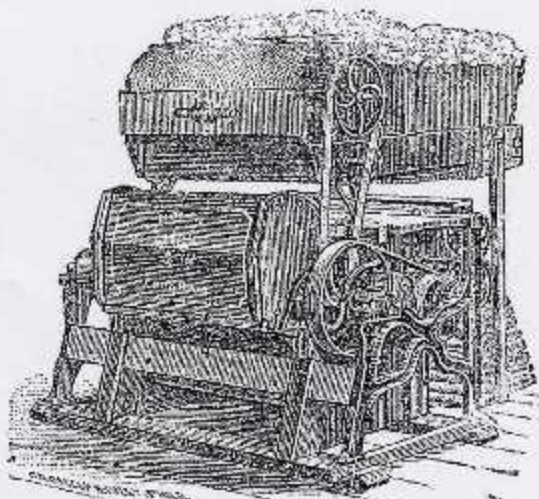


FIG. 22. Perspective of Saw Gin.

Figs. 21 and 22 exhibit practically the same gin as was used in horse power gin houses shown in Fig. 12, except that feeder and condenser are added.

In Fig. 12 the attendant must remain constantly at the gin to evenly feed the cotton to it.

A gin without a condenser blows the loose, fluffy cotton into a separate room, from which it must be carried out in baskets to the press. The addition of the condenser, as in Figs. 21 and 22, greatly reduces the danger from fire, and enables the machinery to be more compactly arranged

### Huller Gin.

In some sections of the country where the cotton plant grows very large and thick, and ripens fast, the cotton pickers are not careful in picking out the locks of cotton, but mix with the cotton some of the dried bolls, or cells in which it grows. These are locally called "hulls," (though the term is apt to be confused with cotton seed hulls, a product of the oil mill). A special gin has been designed to remove these hulls from the seed cotton, at



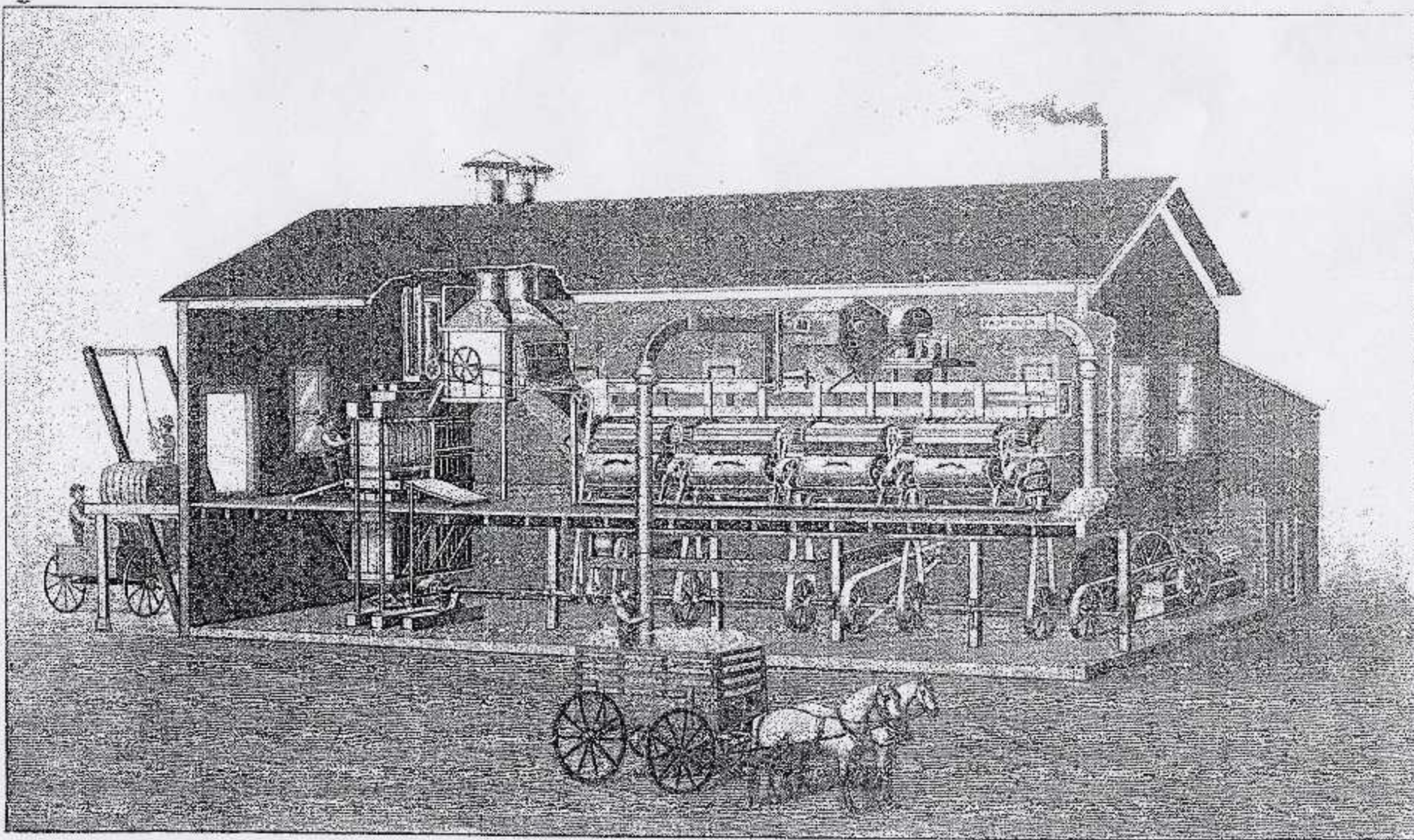


FIG. 26.—Ginnery with Suction Apparatus.