

(No Model.)

J. H. MORRISON.

COTTON GIN.

No. 262,684.

Patented Aug. 15, 1882.

Fig. 1.

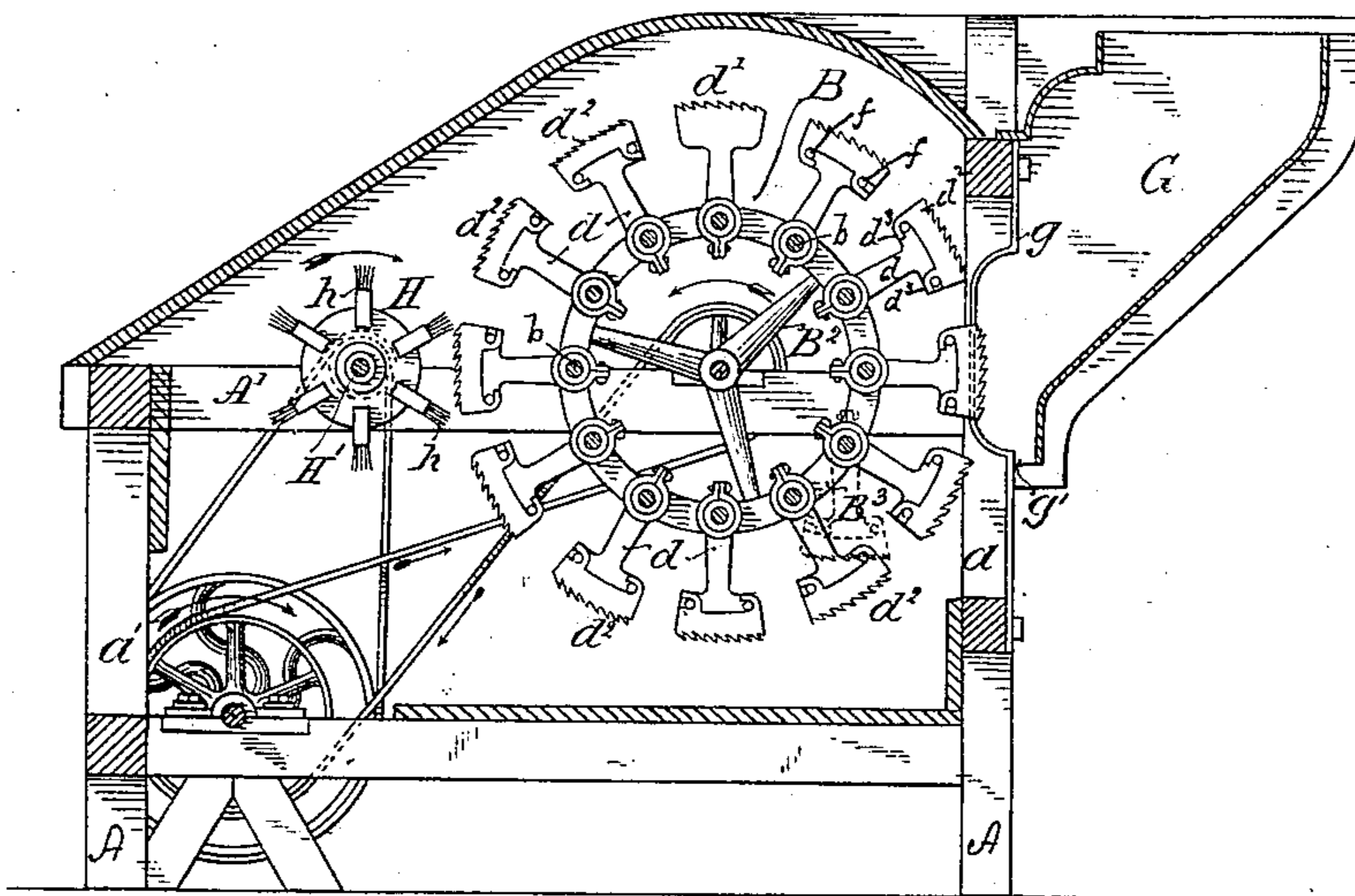


Fig. 2,

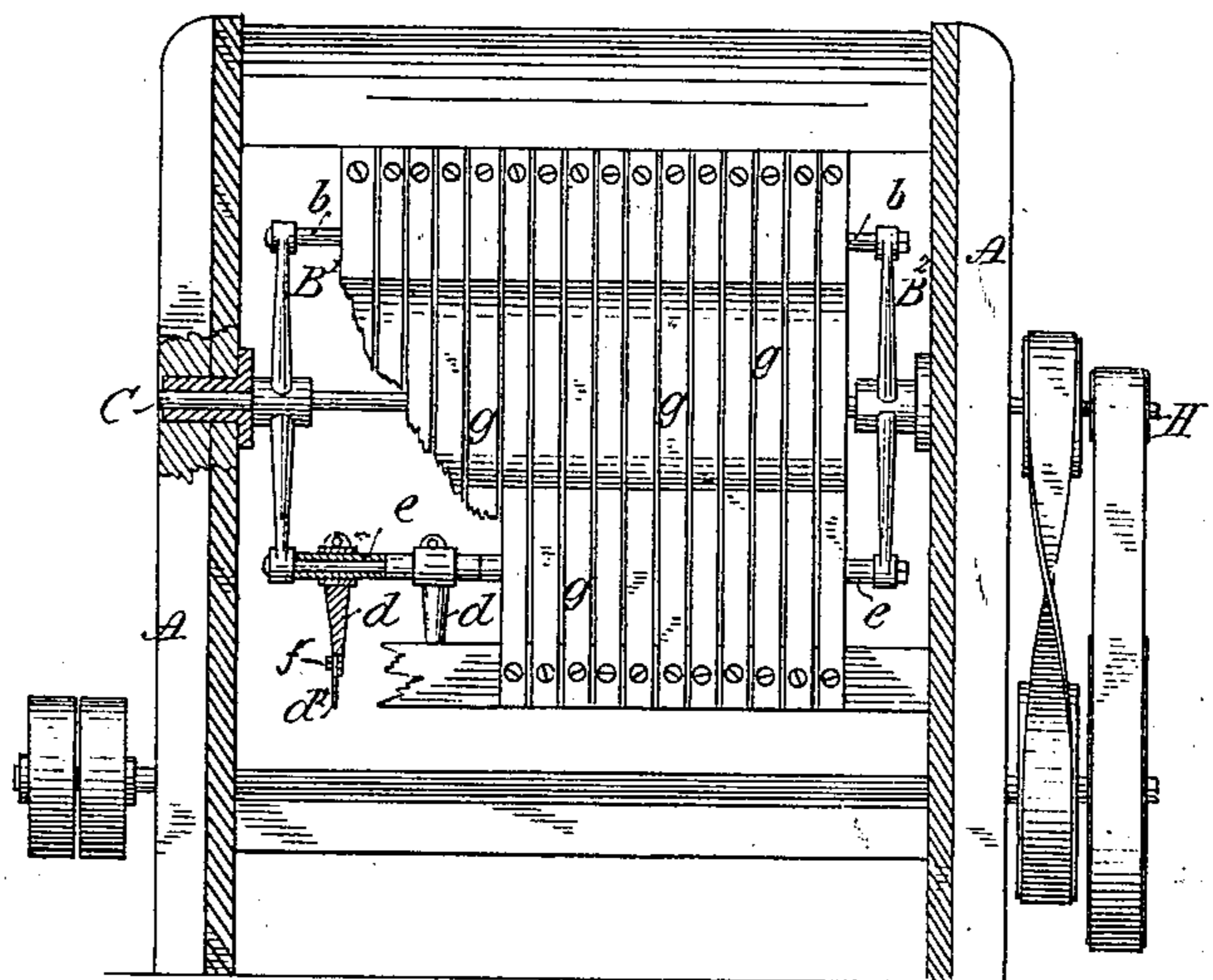
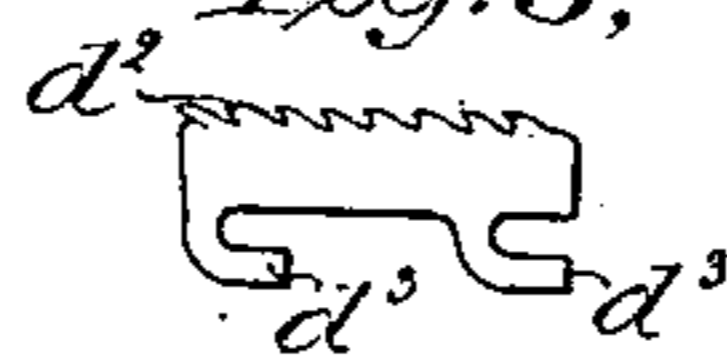


Fig. 3,



WITNESSES

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COTTON-GIN.

SPECIFICATION forming part of Letters Patent No. 262,684, dated August 15, 1882.

Application filed March 21, 1882. (No model.)

To all whom it may concern:

Be it known that I, J. HENRY MORRISON, of Norwich, county of New London, State of Connecticut, have invented new and useful Improvements in Cotton-Gins, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 represents a longitudinal vertical section through a cotton-gin with my improvements applied. Fig. 2 is a front elevation of the same, partly in section, for the purpose of better showing the construction and arrangement of parts; and Fig. 3 is a side elevation of one of the removable saws or strippers.

My invention relates to a novel construction and arrangement of the strippers or saws employed in cotton-gins for separating the fiber from the seed and for analogous purposes; and it consists in the combination, with a rotating shaft or cylinder, of saws formed in sections of a disk or annulus and hinged to said shaft, in certain details of construction of said sectional saws and of the arms connecting them with the carrying-cylinder, and to the combination of said hinged sectional saws with a slotted hopper, all as hereinafter explained.

In the accompanying drawings, A represents a frame or casing of any suitable construction, inclosing the stripping or ginning cylinder B, the shaft C of which is mounted in suitable bearings applied to the longitudinal frame-timbers A'. The ginning-cylinder is made by preference in skeleton form, composed of end disks or hubs, B¹ B², keyed or otherwise secured to the axle at the sides of the inclosing case or frame, and provided with radial arms connected at their outer ends by circular rims B³. These rims are perforated at regular intervals to receive the transverse rods b, connecting the two disks or "spiders," completing the cylinder, and giving it the skeleton form referred to. To the rods b arms d are hinged, said arms being expanded in width on their outer swinging ends, and provided with short strippers or saws d¹ or d², formed in the arc of a circle, conforming on their toothed or serrated faces to the path in which they move when the arms upon which they are formed or

to which they are attached are thrown out into lines radial to the shaft by the rotation of the cylinder, as shown.

The arms d may be hinged to the rods b in any suitable manner; but it is preferred to provide them with sleeves at their pivoted ends, surrounding and secured to bushing-sleeve e, mounted and turning freely on the rods b, said sleeves serving also to space the arms and their saws on their pivoted rods or shafts b. These sleeves are made to snugly fill the bars b from end to end for preventing lateral play, and by preference are so arranged that the saws upon one rod will move in different longitudinal vertical planes from those on the rod in advance. In the drawings, by reference to Fig. 2, it will be seen that provision is made in the arrangement of the slots or openings between the rack-bars of the hopper, hereinafter described, through which the cotton is fed to the saws for three series of the latter, arranged each in different planes from the others.

The saw-teeth, as above explained, may be formed directly on the expanded swinging ends of the arms d; but for the purpose of facilitating repairs or renewal thereof it is preferred to make them separate, and to provide the saw-plates d², on which the teeth are formed, with open slots or hooks d³ at their backs, through which they can be secured to the arms d by set-screws f or other convenient fastening device, adapting them to be easily and quickly removed and replaced or renewed, as required.

The casing A has openings a and a' at its ends, the former covered by slats or rack-bars g, of a width conforming to the arrangement of the saws on the cylinder B, with slots or openings between them, through which the saw-teeth may pass. If desired, this covering to opening a may be made in a single piece or sheet of metal, provided with vertical slits or openings for the passage of the saw-teeth; but the slats or bars g are preferred, as being more economical of renewal. They are arched inward toward the cylinder, at or near midway of their length, so as to reach for a short portion of their length within the circle described by the moving saw-teeth, and form the discharge end or side of the hopper G, through

which the material operated upon is fed to said saws or strippers. The hopper has an inclined bottom terminating in an opening at g' , adjacent to the vertical bars g , through which opening the seed divested of its fiber, together with any foreign matter, escapes to the ground. The opening a' at the rear end of the casing serves for the discharge of the cotton after it has been acted upon by the cylinder B.

10 In rear of cylinder B is a second cylinder, H, secured to a transverse shaft, H', mounted in suitable bearings in the casing-frame, and provided with radial arms carrying brushes h , to which motion is imparted by the rotation of cylinder H for stripping or removing the cotton from the saws d' or d^2 . The cylinders B and H rotate in opposite directions, and, under the arrangement shown, both move from top inward toward each other, and a rapid movement being given to the cylinder H, as compared with cylinder B, the brushes move downward, passing rapidly by the saw-teeth, stripping the material therefrom, and discharging it at or near the outlet-opening a' , where it may be disposed of in any usual or preferred way.

25 Any suitable means may be employed for driving the cylinders, the arrangement of band-pulleys and of endless belts indicated in the drawings being a convenient one for that purpose.

30 From the foregoing description it will be seen that the ginning-saws or strippers, instead of being made rigid and unyielding, as in the ordinary construction of cotton-gin saws, by being made in short sections and connected by swinging arms to the revolving cylinder, are adapted to yield to obstructions sufficient to overcome their momentum, and thus to prevent injury not only to the fiber, but to the saws themselves; also, that by being made in sections, instead of forming a complete circle, as in the usual form, they can be given a zigzag

arrangement, such as has been described, adapting them to act alternately or in rapid succession in different planes, thereby reducing the amount of power required for actuating them as compared with that required where all the saws arranged in parallel planes in the same close proximity act continuously.

When the cylinder B is at rest the arms d drop into the pendent position indicated by dotted lines, Fig. 1, resuming their operative or radial relation when the driving-shaft or cylinder is set in motion.

Having now described my invention, I claim as new—

1. In a machine for ginning cotton and for analogous purposes, a shaft or cylinder, in combination with saws made in sections and hinged to said shaft or cylinder, substantially as and for the purpose described.

2. The stripping or ginning cylinder provided with hinged arms, in combination with removable stripping-saws, substantially as described.

3. The hinged arms provided with stripping saws or teeth, in combination with bushing sleeves or boxes and their pivotal rod or shaft, substantially as described.

4. The stripping-saws made in sections and hinged to the carrying drum or shaft, in combination with the rack-bars, substantially as described.

5. The combination, in a machine for ginning cotton and for analogous purposes, of a cylinder, removable strippers or saws made in sections, hinged arms, and rack-bars, arranged and operating substantially as described.

In testimony whereof I have hereunto set my hand this 18th day of March, A. D. 1882.

J. HENRY MORRISON.

Witnesses:

CHAS. WEBB,

CHAS. H. PHELPS.