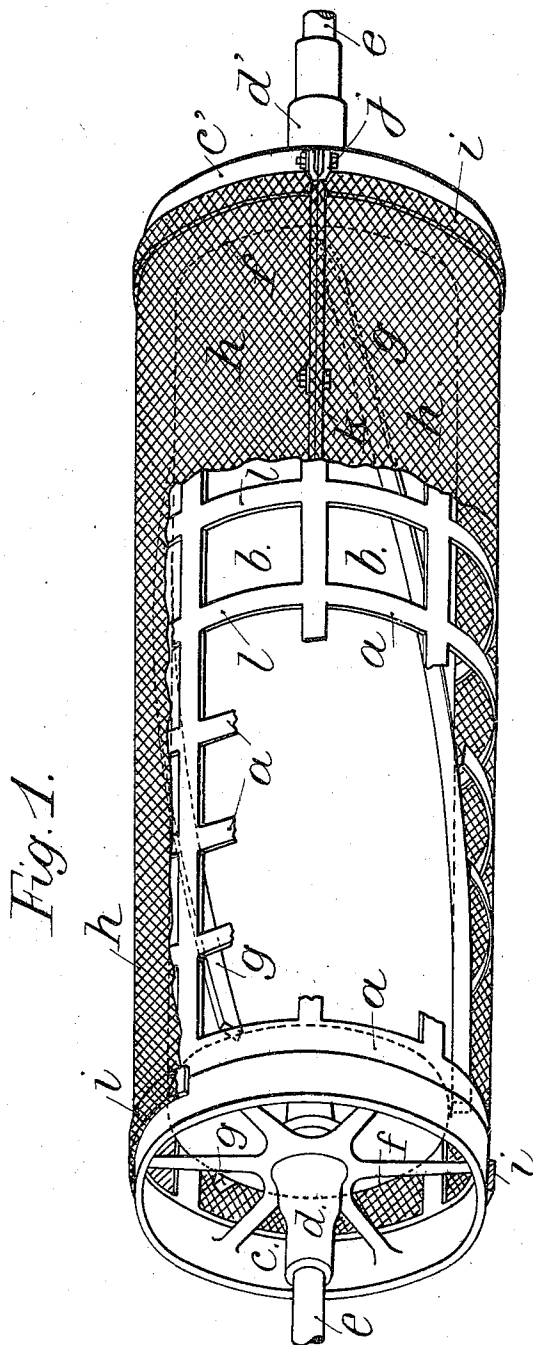


I. A. CHAVANNE & B. OLLAGNIER.
CENTRIFUGAL BOLTING MACHINE.
APPLICATION FILED AUG. 16, 1907.

964,144.

Patented July 12, 1910.

2 SHEETS—SHEET 1.



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Fig. 3.

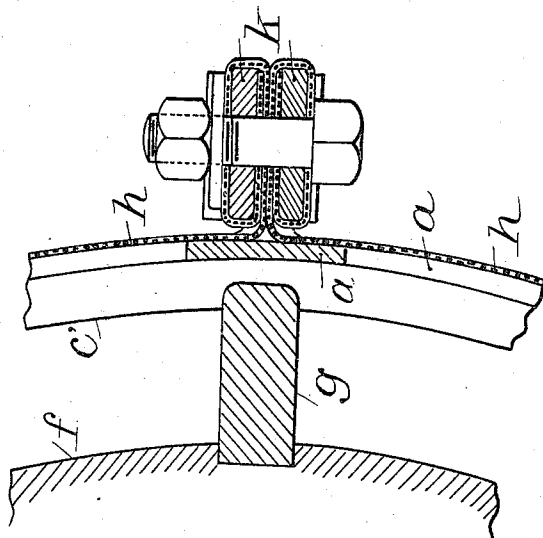
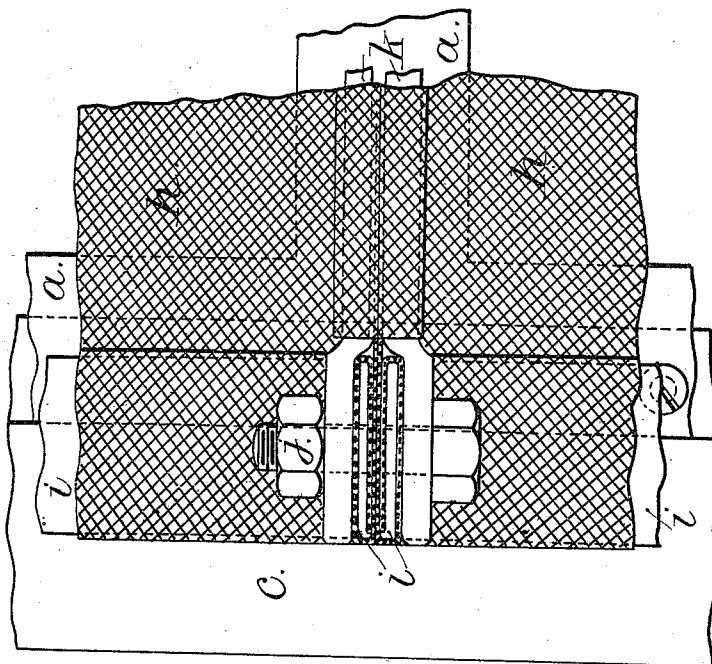


Fig. 2.



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UNITED STATES PATENT OFFICE.

IRENÉE ALEXIS CHAVANNE AND BARTHÉLEMY OLLAGNIER, OF ST. CHAMOND,
FRANCE.

CENTRIFUGAL BOLTING-MACHINE.

964,144.

Specification of Letters Patent.

Patented July 12, 1910.

Application filed August 16, 1907. Serial No. 388,930.

To all whom it may concern:

Be it known that we, IRENÉE ALEXIS CHAVANNE and BARTHÉLEMY OLLAGNIER, both of St. Chamond, Loire, France, have invented
5 a new and useful Improvement in Centrifugal Bolting-Machines, which improvement is fully set forth in the following specification.

This invention has for its object improvements relating to centrifugal bolting machines for the purpose of increasing their efficiency and simplifying their construction. As is known such bolting machines consist of an outer openwork drum upon the
10 circumference of which is stretched wire gauze or silk and of an inner drum or cylinder provided with beaters or brushes.

For the apparatus to work satisfactorily, it is necessary that the gauzes or silks should
20 be uniformly stretched in such a manner that no pockets or portions in which the meshes are enlarged by reason of undue tension are formed; it is also necessary that the ground flour should be uniformly distributed, without local compression, over the
25 bolting surface, in order that no eddies may be set up in the apparatus which would affect the quality and cause a loss of efficiency. For this purpose the outer drum is
30 formed of a single sheet with its edges soldered together and provided with rectangular openings only separated by bars of small size so as to keep the bolting surface as large as possible. This drum has an absolutely smooth and continuous outer surface
35 over which the wire gauzes or silks can be easily wrapped with a uniform tension without lacing, sewing, gluing or nailing, by the mere pull upon bands or hoops upon which their four edges are wound. The inside also of this drum which should
40 be very thin, stands out only slightly and perfectly uniformly from the silk; this allows the brushes usually employed, the bristles of which are frequently found in the bolted material, to be replaced by solid beaters. These beaters, preferably inclined like
45 screws having a very large pitch, may be at a relatively small distance from the silk and insure a good distribution of the ground flour; they must however not be sufficiently
50 near to the inner surface of the drum for the materials introduced to be caught and torn between the drum and the beaters or wings. The pitch of these helicoidal sur-

faces is sufficiently great not to break the material to be bolted by too energetic an agitation; as the inner cylinder which carries these surfaces is closed on all sides, eddying of the materials in the apparatus is
60 avoided. The drum and the inner cylinder rotate in the same direction, but at different speeds, the inner cylinder rotating more rapidly than the drum.

In the accompanying illustrative drawings, Figure 1 is a perspective view of a centrifugal bolting machine with parts removed and Figs. 2 and 3 are detail views to
65 a larger scale.

The outer drum *a* formed of sheet metal
70 and provided with rectangular holes *b* is carried by two ends *c c'* through the hubs *d d'* of which passes freely the shaft *e* of the inner cylinder *f*. This cylinder *f* preferably
75 formed of wood is completely closed and carries wooden beaters or wings *g* (three for example) having rounded edges, arranged as a screw of a large pitch, which extend to within a small distance of the inner circumference of the drum *a*. Upon this drum are
80 fixed wire gauzes or silks *h*, the longitudinal tension on which is obtained by the aid of two spring bands *i* of steel wrapped around the drum and over which the gauze is folded. The ends of these bands are bent up at right
85 angles (Fig. 2) and pierced with holes through which tightening bolts *j* pass. As one of the hoops *i* is fixed, it is easy to understand that by pulling upon the other hoop it will be possible to give the covering *h* the
90 longitudinal tension desirable. Circumferential tension is given, applying the same principle, by means of two flat bars *k* of steel over which the covering is folded; the bars *k* are supported by bolts *k'* placed
95 preferably opposite the bars *l* of the drum *a*. By this process much more regular tension of the bolting surface than is possible by the usual processes is obtained in a very simple and rapid manner.

The material to be bolted is introduced at one end of the drum *a* between it and the cylinder *f*. It is drawn along by the beaters or wings *g* which distributes it over the bolting surface *h*. All the bolted portions are
105 collected below and the rejected material passes out at the end of the drum *a*. The material to be bolted, being never submitted in the drum to too energetic a stirring is neither broken nor damaged; it is always
110

merely pressed by its own weight upon the gauzes or silks without being compressed. It is therefore regularly distributed upon the bolting surface without overcharging it and as the whole bolting surface is effectually utilized, the efficiency is as great as possible for a given useful surface.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:

1. In a centrifugal bolting machine, a drum comprising a sheet metal cylinder cut out to provide a plurality of large openings, and a bolting cloth enveloping the outer surface of the drum, in combination with co-operating interiorly revolving beaters or wings.

2. In a centrifugal bolting machine, a drum comprising a sheet metal cylinder cut out to form rectangular openings separated by narrow integral strips of the sheet metal, and a bolting cloth stretched smoothly on the outer surface of the drum over said openings, in combination with co-operating interiorly revolving beaters or wings.

3. In a centrifugal bolting machine, a drum comprising a piece of sheet metal soldered along its edges to form a smooth cylinder and cut out at intervals to provide openings separated by narrow integral strips of the metal, and a bolting cloth stretched smoothly on the outer surface of the drum over said openings, in combination with co-operating interiorly revolving beaters or wings.

4. In a centrifugal bolting machine, a drum having openings therein, parallel bars extending longitudinally of the drum, hoops encircling the drum near its ends, a bolting cloth folded along its ends upon the hoops and along its sides upon the bars, and means to exert tension upon the hoops and bars to hold the cloth taut.

5. In a centrifugal bolting machine, a drum having openings therein, parallel bars extending longitudinally of the drum, hoops encircling the drum near its ends, a bolting cloth folded along its ends upon the hoops and along its sides upon the bars, and means to exert tension upon the hoops, and bolts connecting the bars.

6. In a centrifugal bolting machine, a drum comprising a sheet metal cylinder cut out to provide a plurality of large openings, and a bolting cloth enveloping the outer surface of the drum, in combination with an inner cylinder provided with helical con-

tinuous wings, and means to hold the cloth taut.

7. In a centrifugal bolting machine, a drum comprising a piece of sheet metal soldered along its edges to form a smooth cylinder and cut out at intervals to provide openings separated by narrow integral strips of the metal, and a bolting cloth stretched smoothly on the outer surface of the drum over said openings, in combination with an inner cylinder provided with helical continuous wings, and means to exert tension to tighten the cloth.

8. In a centrifugal bolting machine, a drum having openings therein, parallel bars extending longitudinally of the cylinder, hoops encircling the cylinder near its ends, a bolting cloth folded along its ends upon the hoops and along its sides upon the bars, in combination with an inner cylinder provided with helical continuous wings, and means to exert tension upon the hoops and bars to hold the cloth taut.

9. In a centrifugal bolting machine, the combination, of a drum comprising a sheet metal cylinder cut out to provide a plurality of large openings bounded by narrow metal strips, a bolting cloth stretched smoothly on the outer surface of the drum over said openings and strips, and an inner cylinder provided with helical wings arranged to revolve closely adjacent to the inner surface of the drum.

10. In a centrifugal bolting machine, the combination, of a drum comprising a sheet metal cylinder cut out to provide a plurality of large openings bounded by narrow metal strips, parallel bars extending longitudinally of the drum, hoops encircling the drum near its ends, bolting cloth enveloping the drum and folded along its ends upon the hoops and along its ends on the bars, bolts connecting the two bars and the ends of the two hoops to tighten and maintain the cloth stretched smoothly over the openings and strips, and an inner cylinder provided with helical wings arranged to revolve closely adjacent to the inner surface of the drum.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

IRENÉE ALEXIS CHAVANNE.
BARTHELEMY OLLAGNIER.

Witnesses:

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