

(No Model.)

J. B. CORNWALL.
PACKING AUGER.

No. 604,971.

Patented May 31, 1898.

Fig. 1.

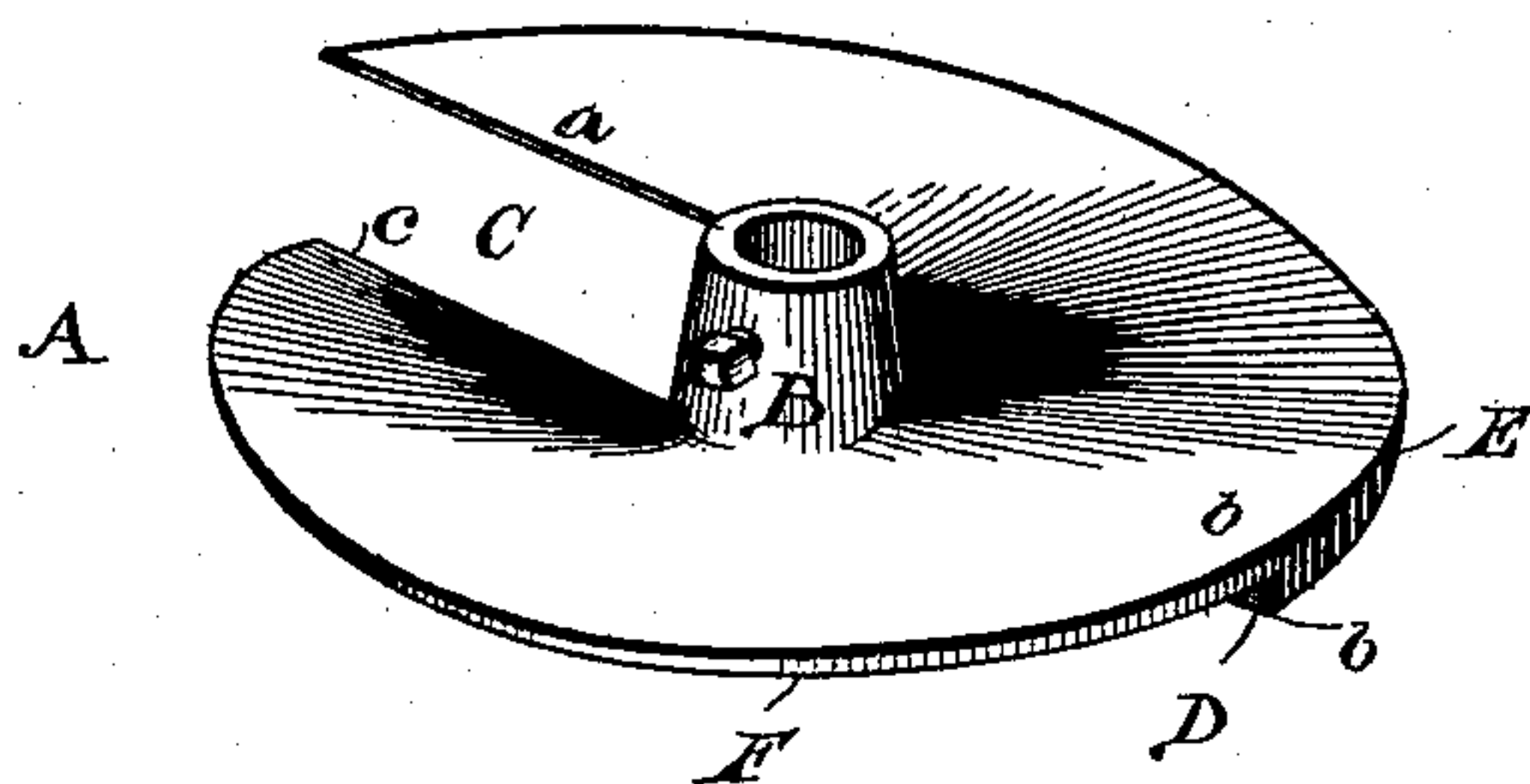


Fig. 2.

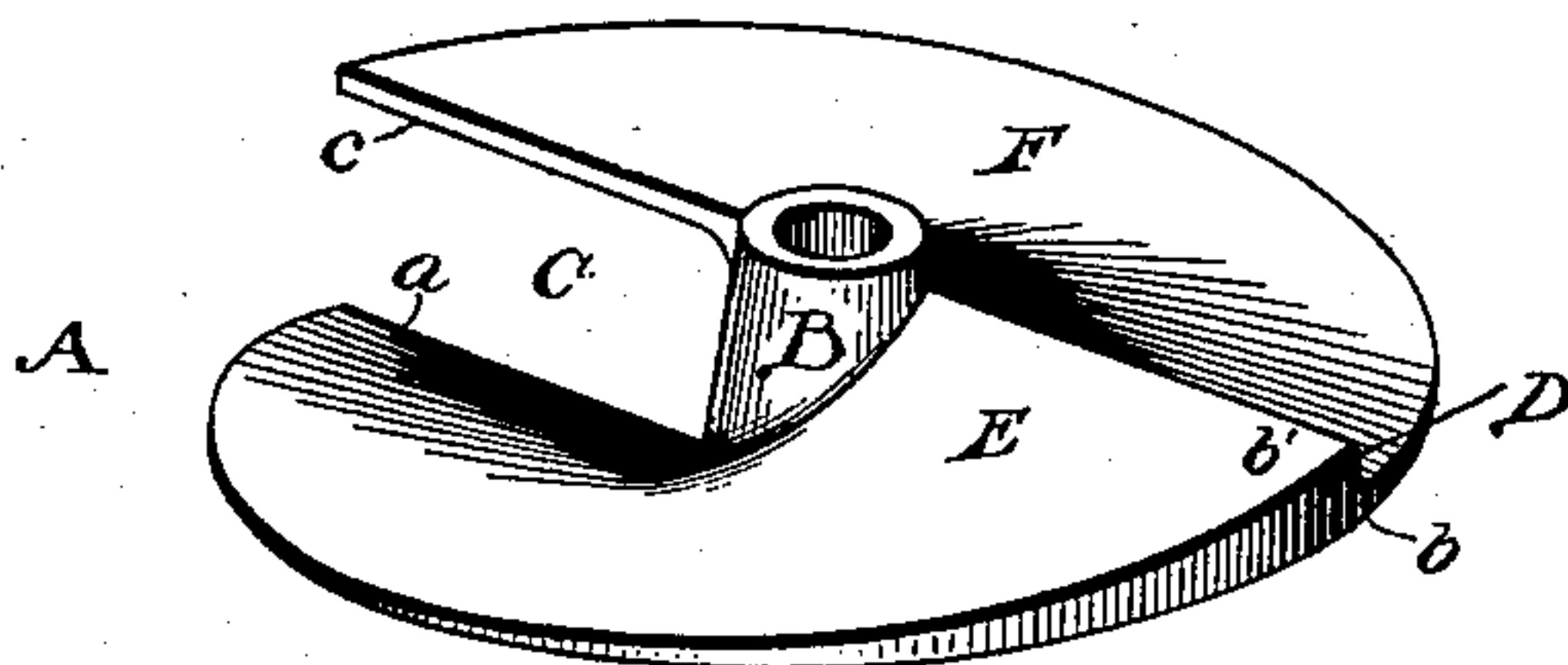
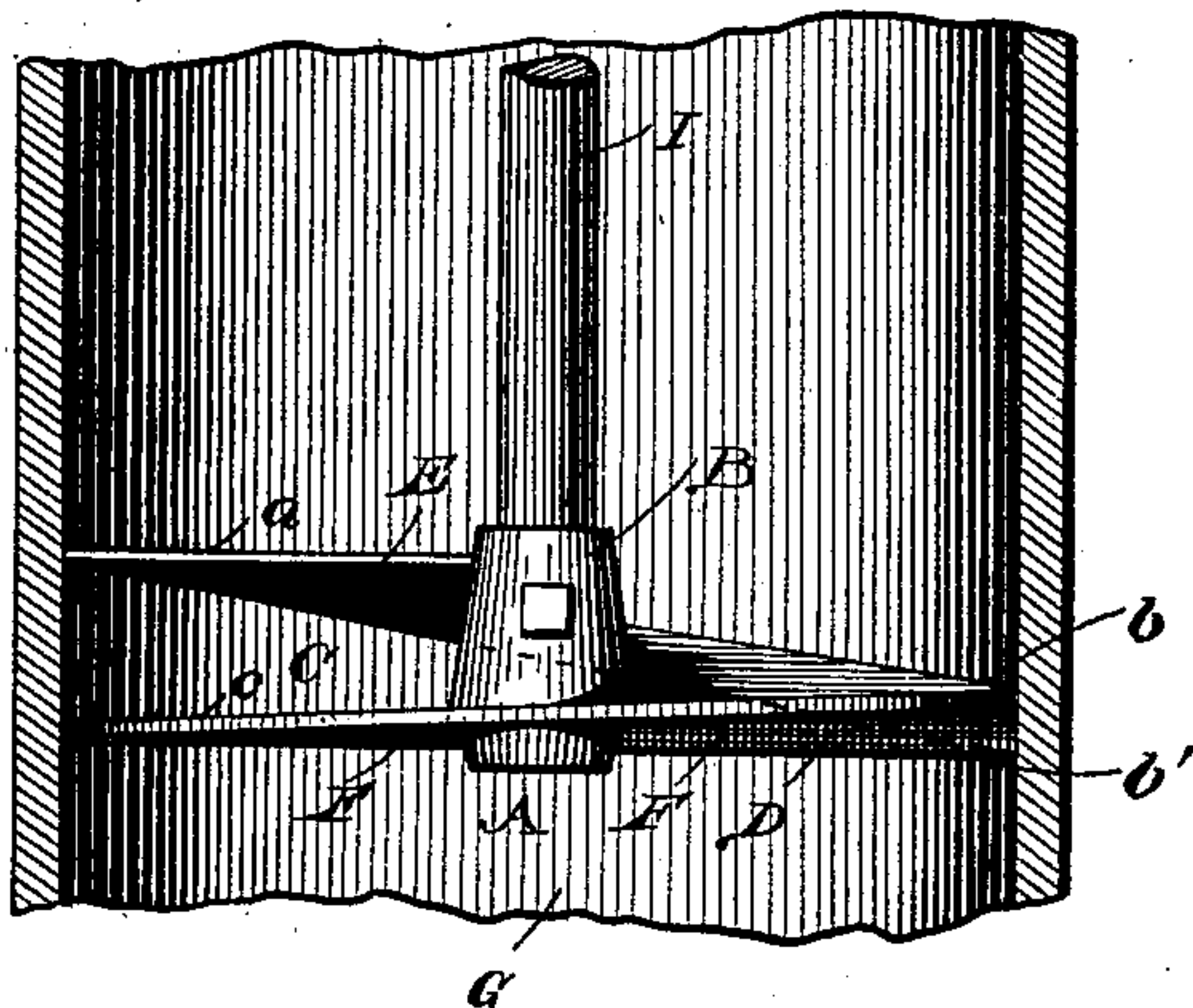


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN B. CORNWALL, OF MOLINE, ILLINOIS, ASSIGNOR TO THE BARNARD & LEAS MANUFACTURING COMPANY, OF SAME PLACE.

PACKING-AUGER.

SPECIFICATION forming part of Letters Patent No. 604,971, dated May 31, 1898.

Application filed January 27, 1898. Serial No. 668,216. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. CORNWALL, of Moline, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Packing-Augers; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

10 This invention is an improved packing screw or auger for machines for packing bran, hulls, and various materials in bags, barrels, &c.; and its objects are to improve the construction of the auger so that the pressure of
15 the compressed material will be equalized on both sides of the auger, and the working capacity of the auger increased so that it will pack faster than the augers heretofore known and will be especially adapted for packing light
20 and fluffy material and which will hold the material more certainly under the auger. These objects are attained by the novel construction of the auger hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

25 Figure 1 is a top perspective view of the auger. Fig. 2 is a bottom perspective view of the same; and Fig. 3 is a detail sectional view of a packer, showing a side view of the
30 auger, looking toward the mouth thereof.

It will be observed that my improved auger, as shown, is of the single spiral type and has but one opening or mouth for the material to feed under it and that the upper side
35 of the auger has preferably but a single incline, the first or upper half of which is preferably of slightly-greater pitch than the second or under half. The packing or under side of the auger, however, has two or more
40 inclines or packing-surfaces, two being shown, and the lower edge of the first incline is diametrically opposite the lower end of the spiral or second incline. Thus the auger, as shown, has two packing-faces, but only one feed-
45 opening. This is the peculiar feature of the invention, to wit: a plurality of packing-surfaces to one feed-opening. Further, it is highly desirable that the packing-surfaces should be so disposed that they counterbalance or counteract each other, and thus prevent lateral displacement of the auger or its

shaft by reason of unequal pressure on one side, as would be the case if the packing-surfaces were so disposed that the compression was wholly or principally at one side of the
55 auger or shaft.

I will now describe the particular auger shown in the drawings.

Referring to the drawings by letters, A designates a packing-auger formed of a single
60 spiral blade, having a central hub B for its attachment to the packing-shaft and a single feed opening or mouth C at one side of the hub between the ends of the spiral. The upper surface of the auger is inclined from
65 the upper edge of the mouth to the bottom thereof, the incline being greater between the points *a* and *b* on the first or upper half of the auger and less between the points *b* and
70 *c* on the lower or second half thereof.

Directly opposite the mouth C on the under side of the auger is a shoulder D, and the under surface of the auger is tapered from the part A to the lower edge *b'* of shoulder D, forming the first packing-surface E, the
75 lower edge of the rib D being in the same plane as the lower edge of mouth C.

The increased pitch of the lower edge of the surface of the auger between the points *a* and
80 *b'* necessitates a thickening of the metal in the auger-blade between these points. The remaining under portion of the blade between the upper edge of shoulder D and the lower edge of mouth C forms a second packing-surface F.

85 It will be observed that the packing-surfaces E and F are diametrically opposed and the upward pressure of the material against the auger is greatest at the lowest termini of the parts E and F, which are also diametrically opposite, so that the tendency of the upward pressure of the compressed material is equalized or counterbalanced and the auger and shaft not displaced laterally.

By having the upper surface of the auger
95 between the points *a b* steeper than the portions between *b* and *c* the material is allowed to settle down slightly in front of the opening C, and by the double inclines E and F on the lower or pressure side of the auger the
100 material is pressed down slightly twice in each revolution, the pressure at all times being per-

fectly counterbalanced. A single spiral facilitates the feeding of light or spongy material.

A single spiral auger without the double packing-surfaces on its lower side would deflect the shaft to which the auger is attached from its central position and cause it to revolve in an eccentric manner on account of the pressure being all on one side of the auger and eccentric to the shaft. This tendency to deflect the shaft is overcome in my invention by reason of the second packing-surface F and the primary packing-surface E on the bottom of the auger.

With the auger constructed as shown about double the amount of material can be packed in a given time than could be packed by the ordinary double-mouth augers, and at the same time I can pack the material more solidly, because with my auger the light and fluffy material which is to be packed will have time to settle down slowly through the tube in which the auger is operated more compactly in front of the mouth C. Thus the auger has a steady and constant feed instead of an interrupted and uncertain feed and holds the material more positively, as there is but one opening in the entire auger through which the material can bulge or spring back.

The material is obviously packed more firmly, because each layer is repeatedly pressed instead of being simply packed down once and then a new layer of material placed thereover. The primary packing-surface E first compresses the material, which is then allowed to slightly expand, and then is a second time compressed by the secondary packing-surface F.

This packing-auger may be used in connection with packing-machines such as are shown in Patent No. 173,882, of February 22, 1876, for example, the packer being attached to the lower end of a rotating shaft I, which is operated by any suitable means, and compressing the material within a tube G, which may be mounted upon a movable platform, as shown in said patent.

Having thus described my invention, what

I therefore claim as new, and desire to secure by Letters Patent thereon, is—

1. A rotary packing-auger having a packing-blade provided with a plurality of packing-surfaces on its under side substantially as described.

2. A packing-auger having a spirally-inclined packing-blade, provided with a secondary packing-surface on its under side intermediate its ends, substantially as described.

3. A rotary packing-auger consisting of a single spiral having a feed-opening at one side only and a plurality of packing-surfaces on its under side substantially as described.

4. A single continuous spiral packing-auger having two packing-surfaces on its under face, the lower edges of said surfaces being diametrically opposed, substantially as described.

5. A packing-auger having a single incline on its upper face and a plurality of packing-surfaces on its under face, substantially as and for the purpose described.

6. A packing-auger having a single incline on its upper face and a plurality of packing-surfaces on its under face and only one feed-mouth, substantially as and for the purpose described.

7. A packing-auger having a single incline on its upper face, diametrically opposite packing-surfaces on its under face, and one feed-mouth, substantially as and for the purpose described.

8. The combination of the packing-tube and a rotary shaft; with a single-mouth spiral packing-auger on said shaft having a single incline on its upper face and two inclines or packing-surfaces on its lower face, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN B. CORNWALL.

Witnesses:

J. SILAS LEAS,

IDA M. MACBETH.