

(No Model.)

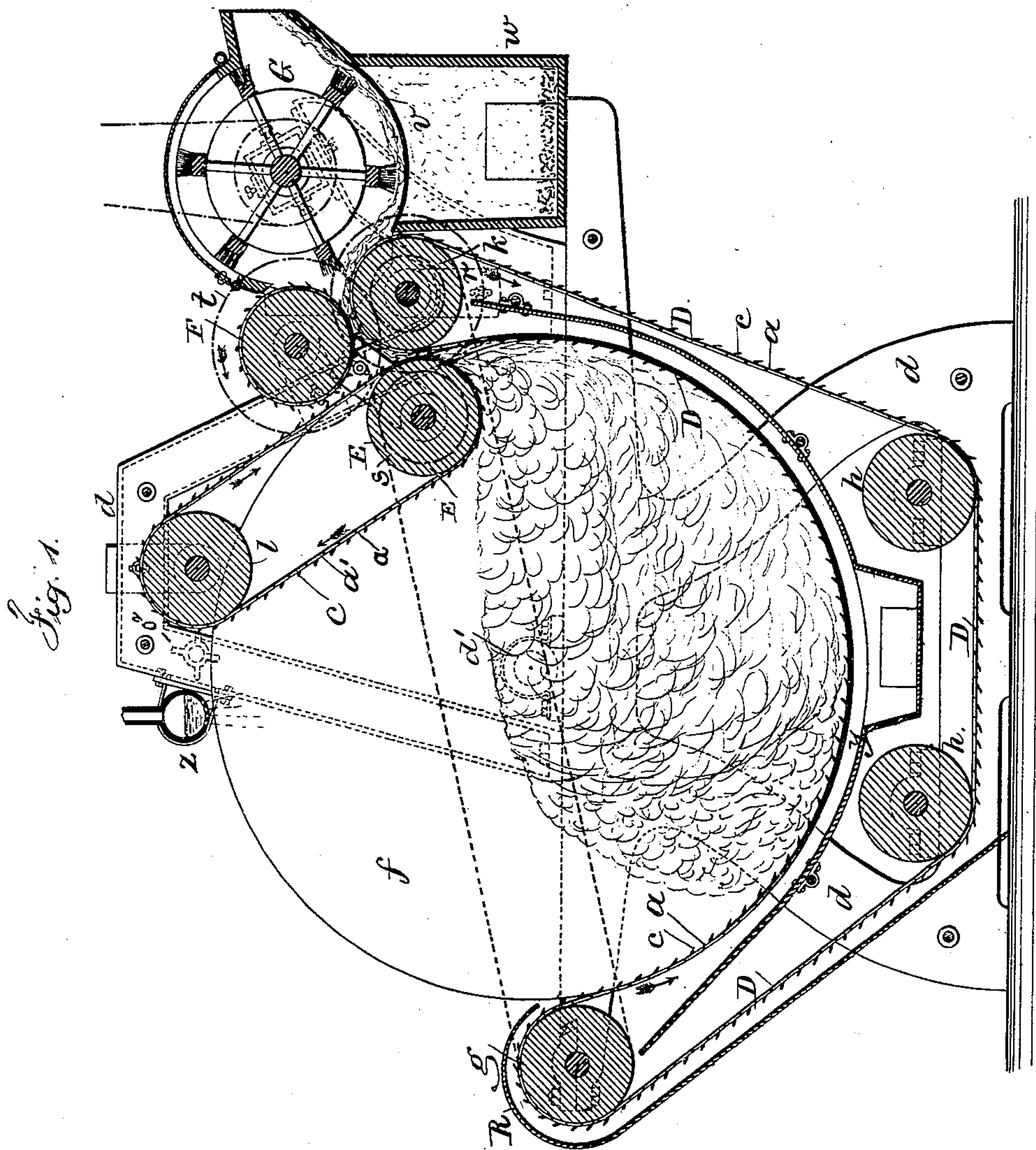
2 Sheets—Sheet 1.

S. R. PARKHURST.

MACHINE FOR PICKING, OPENING, AND MIXING WOOL.

No. 267,454.

Patented Nov. 14, 1882.



Witnesses

Chas H Smith
J. Hail

Inventor

Stephen R. Parkhurst

per Lemuel W. Perrell

att'y

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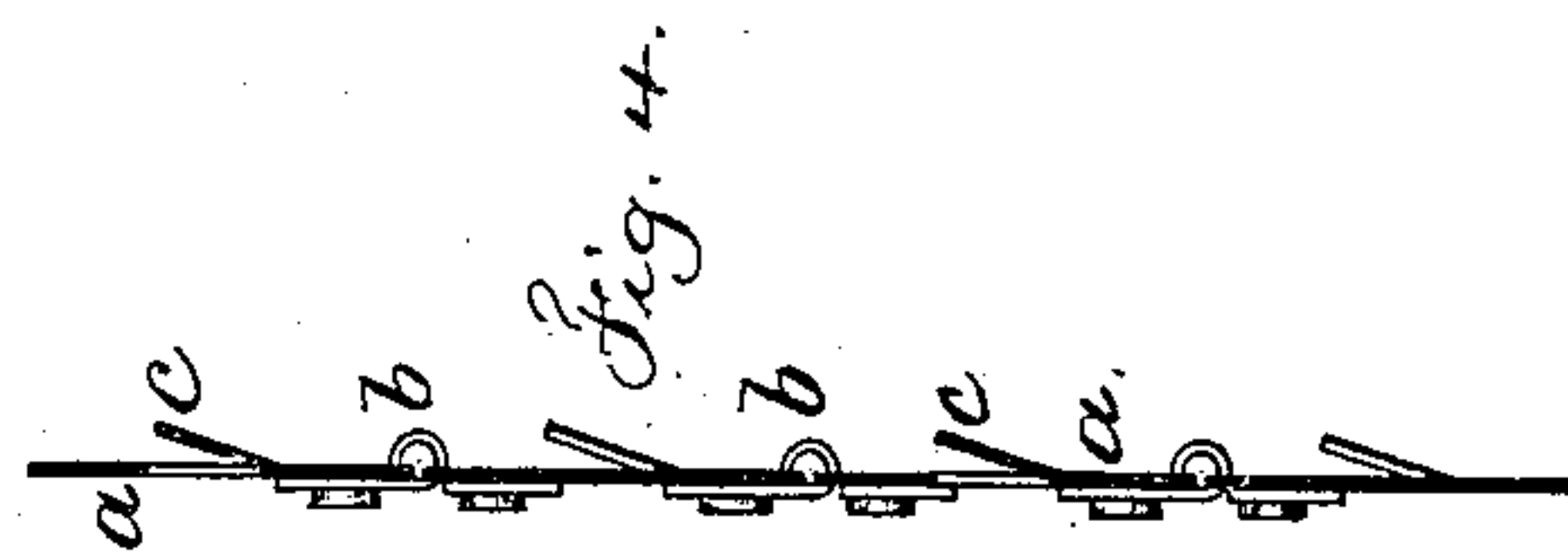
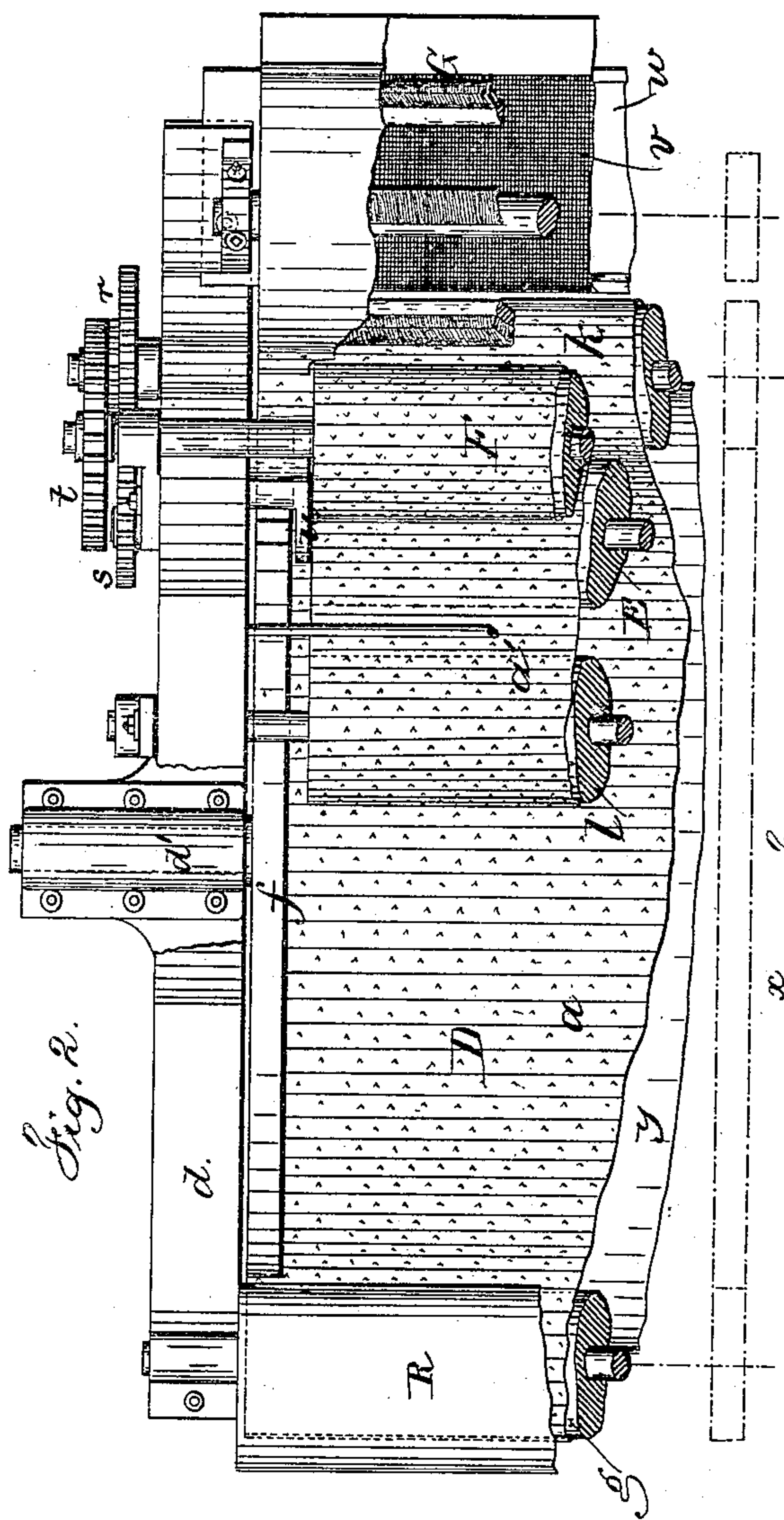
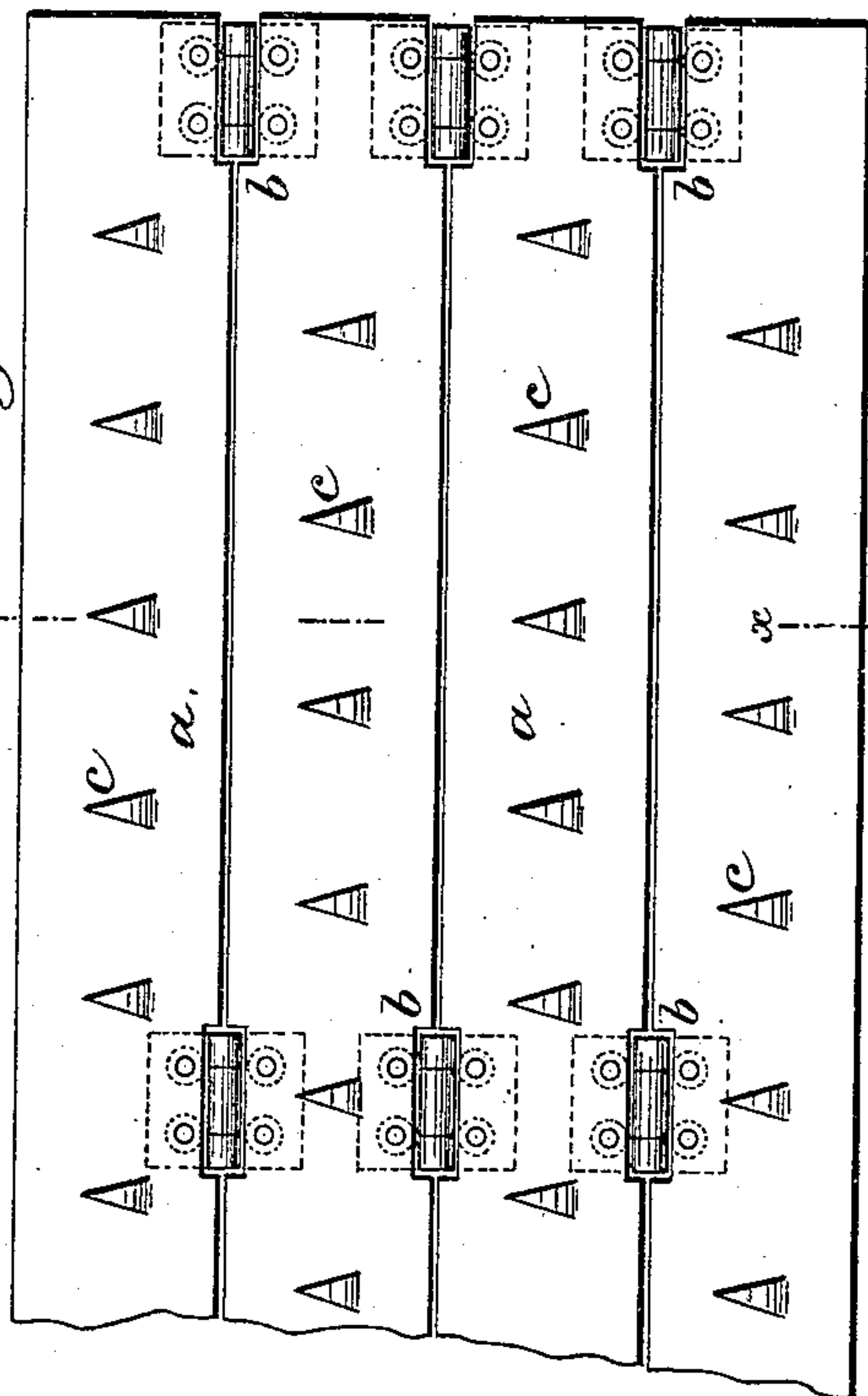


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

STEPHEN R. PARKHURST, OF MONTCLAIR, NEW JERSEY, ASSIGNOR TO
EMILY R. PARKHURST, OF SAME PLACE.

MACHINE FOR PICKING, OPENING, AND MIXING WOOL.

SPECIFICATION forming part of Letters Patent No. 267,454, dated November 14, 1882.

Application filed August 25, 1881. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN R. PARKHURST, of Montclair, in the county of Essex and State of New Jersey, have invented an
5 Improvement in Machines for Picking, Opening, and Mixing Wool, of which the following is a specification.

This machine is designed for opening wool or other fiber and mixing different qualities or
10 colors of wool, and it is designed to take the place of the ordinary picker, which in practice is found to be dangerous in consequence of the risk of fire, and it also is liable to injure the wool by cutting or breaking it by the very
15 rapid motion of the parts. Belts with teeth have been made use of in feeding wool into cleaning-machines, but they are costly, and not adapted to act directly in opening the fiber.

In the drawings, Figure 1 is a vertical section of the improved machine. Fig. 2 is a partial plan of the machine at one side. Fig. 3 is a plan, and Fig. 4 a section at $x x$, of some of the slats of the feeding-belt.

I make use of slats $a a$, of steel or similar
25 material, the same being united together to form an endless belt or apron by means of the hinges $b b$, which are applied at or near the ends of the slats, and also in one or more intermediate lines lengthwise of the belt, so
30 that each slat is hinged to the adjacent slats at or near the ends and at one or more intermediate places. I prefer to unite these slats together by ranges of hinges placed about six inches apart. Each slat has one or more
35 ranges of teeth, $c c$. I prefer and use triangular teeth, each formed by a punch and die that cut through the metal at an acute angle and bend the tooth so that it stands up from the surface of the slat. Slat made in this man-
40 ner are adapted to the feeding-aprons of woolen machinery of various kinds—such as picking, combing, and carding machines—and I have shown an apron of said slats as passing around the cylinder E and forming the surface of teeth
45 for the same, as hereinafter set forth. The teeth point toward one edge of the slat, and are in the body of the slats and not at the edge or edges, as sometimes heretofore made use of.

For the purpose of picking, opening, or mix-
50 ing wool or other fibrous materials I employ the aforesaid toothed slats in the manner next described.

Upon a suitable frame, d , there are journal-boxes d' for the journals of the disks $f f$. These are at a less distance from each other than the
55 length of the slats $a a$, so that the endless feeding-belt D, formed of such hinged slats a , will pass at its edges below such disks f , and such belt D passes around the roller g , beneath the guide-rollers $h h$, and over the feeding-cylinder
60 k . This cylinder k is driven by suitable power applied by a belt or otherwise to a pulley or wheel upon its shaft, and it is preferable to employ two pulleys—one on the shaft of the cylinder k , the other on the shaft of the roller
65 g —and an endless belt around such pulleys, as shown by dotted lines, so that the endless feeding-belt D will be moved with regularity in the direction indicated by the arrow. This feed-
70 ing-belt D, of steel slats a , hinged together and provided with teeth, forms the bottom of a hopper, and the disks f form the ends. Into this hopper the wool or other fiber to be oper-
75 ated upon is placed in mass, and hence it is rolled over and over by the movement of the feeding-belt that forms the bottom of the hopper. The teeth of the belt become full of the
80 fiber and convey such fiber to the place where it is delivered to the picking, opening, burring, cleaning, or carding mechanism.

This improved feeding-hopper mixes thor-
oughly the different qualities or colors of wool or other fiber, and the belt conveys away a
regular or nearly regular quantity of fiber by the teeth, and the movement of the parts is not
85 as rapid as in the ordinary picker-machine. Hence there is little or no risk of fire from friction, or from the steel striking fire against particles of grit or other foreign substances.

I have represented this improved belt of
90 toothed slats and the mixing and feeding hopper as combined with the toothed opening-cylinder F, cylinder E, and brush G. The teeth on the cylinder F act to hold the fibers and draw them off into the teeth c of the belt of
95 slats a , and the fiber is further opened and separated by the teeth of the cylinder E. I have shown the cylinder F as made with a surface of steel slats and teeth, and the cylinder E
100 as having an endless belt of slats a , with teeth c , the said belt passing over the roller l , the shaft of which is supported by bearings on the frame d .

The journal-boxes u of the cylinder E are in

the form of brackets that extend from the frame *d* in between the disks *f*, so that the shaft of this cylinder will be supported within the hopper, and the bracket journal-boxes extending beyond the edges of the disks *f* do not interfere with the rotation of said disks. The slats *a* of the comber *a'* also pass freely in between the disks *f*.

The gear-wheels *r s t* connect the respective cylinders *k E F*, and these are preferably proportioned so that the surface of *F* travels slower than that of *k* and the surface of *E* travels faster than that of *F* or *k*. These relative speeds cause the teeth to open the fiber without unnecessary strain, and the teeth of *k* and *F* are cleaned by the revolving brush-blower that takes away the fiber in the usual manner. A wire screen, *v*, over a box, *w*, allows particles of burrs and foreign substances to fall away from the fiber as it is delivered by the brush. Particles of burrs, sand, and other foreign matters can fall through between the slats *a*, and also through the holes beneath the teeth, and I provide a curved metallic plate or shelf, *y*, between the upper and lower portions of the feeding-belt to form a receptacle or dirt-catcher for receiving these foreign substances and preventing them lodging on the inner surface of the lower portion of the feeding-belt.

The guard at *R* serves to protect the operatives from contact with the feeding-belt when supplying the fiber in mass into the hopper.

In consequence of the combing-belt *a'* being made of slats and standing at an inclination there is time for locks of wool to fall away into the hopper, whereas if only a combing-cylinder were used the locks of wool might be carried up bodily and over such cylinder, instead of remaining in the hopper until the wool is taken off in detail by the teeth of the slats. A brush or doffer may be used, as shown by dotted lines at *o*², to throw back into the hopper wool that may adhere in lumps to the ascending side of the combing-belt *a'*.

It will be apparent that if the cylinder *E* had teeth on its surface it might, under some circumstances, be used in place of the belt *a'*.

If desired, the wool may be oiled while in the hopper by a sprinkler, *z*, to which oil is admitted in the proper quantity.

I am aware that metal slats have been used

for the aprons of carding-machines. They, however, have been fastened upon leather belts. These stretch and the apron becomes loose and unreliable.

I am also aware that a metal band having teeth punched therein has been wrapped around a cylinder to form a picking-surface.

By my improvement I am able to insure great permanence and reliability in the feed-apron. I claim as my invention—

1. A feeding-belt having the slats formed of sheet metal, with teeth in the sheet metal, in combination with metal hinges for uniting the slats, substantially as specified.

2. In a feeding-hopper, the combination of disks that are at the ends of the hopper with an endless belt having teeth that passes beneath the disks, and rollers or cylinders *g k* for moving such belt, and rollers *h* for distending such belt into its proper position, substantially as set forth.

3. The combination, with a feeding-belt having teeth, of rollers or cylinders around which such belt passes, an opening-cylinder, *F*, having teeth, a cylinder, *E*, combing-belt *a a'*, and delivery-brush *G*, and means for operating the several parts, substantially as set forth.

4. The combination, with the feeding-belt having teeth and the disks forming the ends of the hopper, of an opening-cylinder, *F*, cylinders *l* and *E*, and an endless apron forming a comber, *a'*, and means for operating the several parts, substantially as set forth.

5. A feeding-hopper composed of a belt of slats with teeth and disks, in combination with a dirt-catcher introduced between the upper and lower parts of the endless belt, and means for operating such belt, substantially as set forth.

6. The combination, with the feeding and opening cylinders, of a feeding-belt, a belt of toothed slats, *a'*, occupying an inclined position above the feeding-belt and acting as a comber, and the rollers or cylinders around which such belts pass, substantially as set forth.

Signed by me this 23d day of August, A. D. 1881.

S. R. PARKHURST.

Witnesses:

GEO. T. PINCKNEY,
CHAS. H. SMITH.