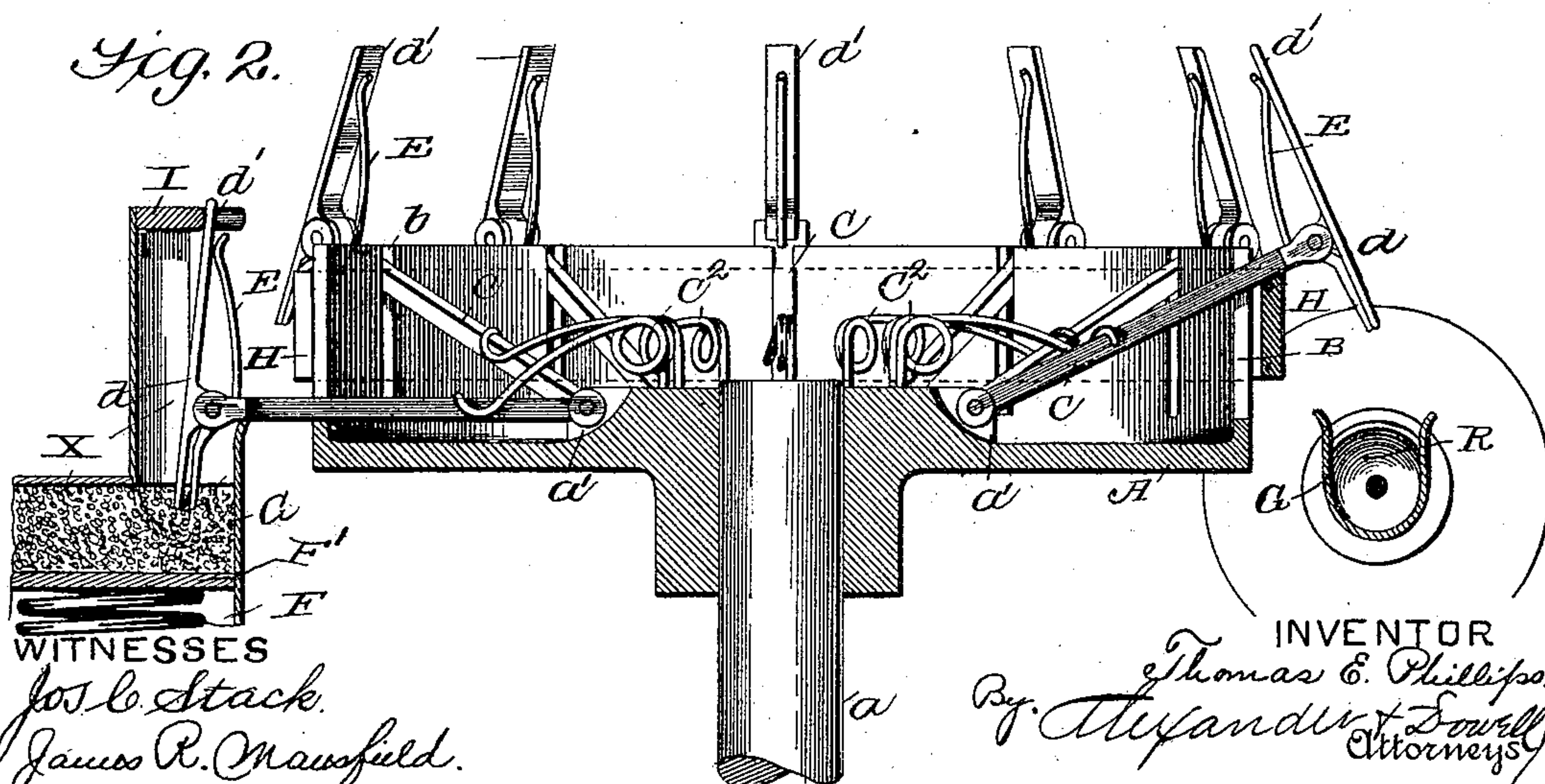
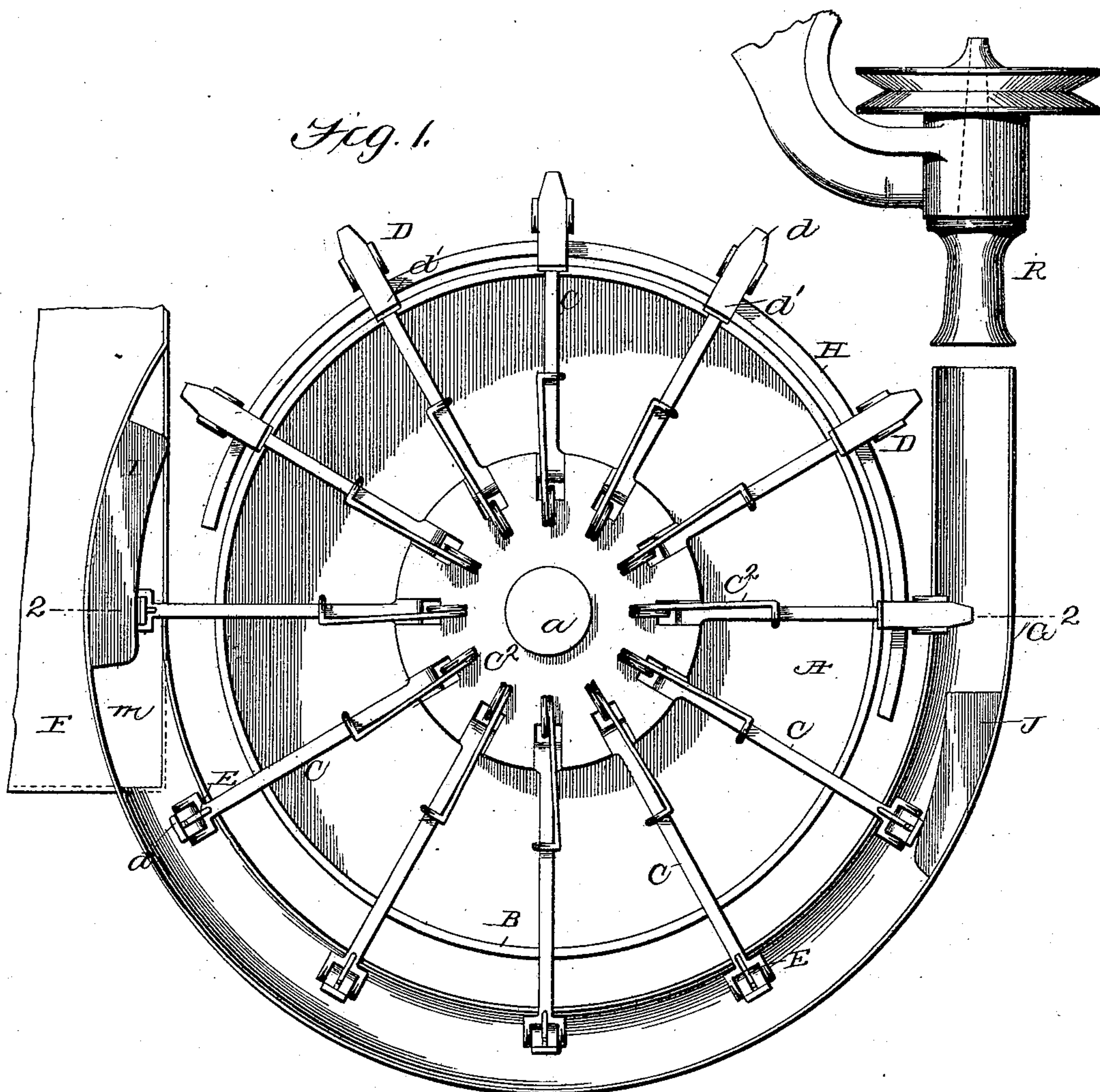


(No Model.)

T. E. PHILLIPS.  
SLIVER FORMING MACHINE.

No. 557,427.

Patented Mar. 31, 1896.





# UNITED STATES PATENT OFFICE.

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TO WILLIAM J. HAND AND JAS. J. H. HAMILTON, OF SCRANTON, PENN-  
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## SLIVER-FORMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 557,427, dated March 31, 1896.

Application filed September 5, 1895. Serial No. 561,570. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS E. PHILLIPS, of  
Bloomington, in the county of Monroe and  
State of Indiana, have invented certain new  
5 and useful Improvements in Sliver-Forming  
Mechanisms; and I do hereby declare that the  
following is a full, clear, and exact descrip-  
tion thereof, reference being had to the accom-  
panying drawings, and to the letters of refer-  
10 ence marked thereon, which form part of this  
specification.

This invention is an improvement in sliver-  
forming mechanisms for twine and rope spin-  
ning machines, its object being to form loose  
15 fibers into a substantially uniform and con-  
tinuous sliver which can be operated on di-  
rectly by the spinning mechanism and which  
will be rapid and reliable in operation and  
economical in construction.

20 The invention therefore consists in the con-  
structions and combinations of parts set forth  
in the claims, and is particularly described as  
follows, reference being had to the accompany-  
ing drawings, in which—

25 Figure 1 is a top plan view of the sliver-  
forming mechanism. Fig. 2 is a transverse  
vertical section therethrough on line 2 2, Fig. 1.

In said drawings, A designates a rotary disk  
fixed on the end of a shaft *a*, which can be  
30 driven by any suitable means. (Not shown.)  
This disk has an upstanding flange B on its  
periphery, vertically slotted at intervals, as at  
*b*, to constitute guides for vibratory levers C,  
which are pivoted at their inner ends between  
35 ears *a'* on the face of the disk. On the outer  
ends of said levers, which project slightly be-  
yond the edge of the disk, are secured nippers  
D, and, as shown, the ends of the levers C may  
be bent down to form the inner jaws of the  
40 nippers, while the outer jaw *d* of each nipper  
is pivoted to the bend of the levers and has  
an upstanding tang *d'*, against which presses  
a spring E, fastened to the lever, as indicated  
in the drawings. The levers C are normally  
45 held down by springs C<sup>2</sup>, as indicated in the  
drawings. At one side of and below the disk  
is a fiber-reservoir F, in which is a follower-  
plate F', that is raised by springs, weights, or  
other suitable means, so as to always press the  
50 fibers X therein upward to an opening *m*, into  
which the nippers dip as they are revolved.

Extending from the hopper around to the op-  
posite side of the disk is a trough G, which is  
supported independently of the disk and does  
not revolve. At the side of the disk opposite 55  
the hopper the trough extends a short distance  
tangential to the disk toward a rotatable cone  
R, which may be constructed and operated in  
the ordinary way. A stationary semicircular  
cam H is supported close to the edge of the 60  
disk on the side opposite trough G, the cam  
being so adjusted that the ends of the levers  
C contact therewith and ride up thereon just  
before they strike the tangential extension of  
the trough and pass off the cam just over open- 65  
ing *m*, so that the nippers can drop into said  
opening and pass in their lowered position  
around trough G.

Just before the nippers drop into the open-  
ing *m* the tangs *d'* contact with a stationary 70  
cam I, which extends partly over opening *m*  
and is so situated and shaped that it will  
cause the nippers to open just before and re-  
main open when they drop into opening *m*  
among the fibers X in the reservoir, and when 75  
clear of the cam I the nippers close upon the  
fibers and pull the nipped fibers out into and  
around trough G until the nippers are again  
opened by a stationary cam J, which is ar-  
ranged above the trough at a suitable point 80  
and is so shaped that the nippers will be  
opened just before they contact with cam H  
and are kept open until they have been raised  
and moved clear of the tangential extension  
85 of the trough.

Operation: The fibers X are pressed upward  
to opening *m* by the follower, and when disk  
A is rotated the nippers successively open,  
drop into the opening *m*, close upon fibers  
therein, and pull them around to the oppo- 90  
site side of the disk, where they are again  
opened, releasing the fibers. As the fibers  
are generally much greater in length than the  
distance between any two nippers, it results  
that the same fiber may be gripped at differ- 95  
ent points by a number of successive nippers,  
and thus when its front end is released it is  
still pushed forward in the trough to the cone  
R, and each nipper is apt to pick up an ad-  
ditional fiber or fibers, so that the result is a 100  
uniform sliver of overlapping fibers, which  
in passing through cone R is condensed in the



manner and for the purpose set forth in my above-mentioned application.

Having thus described my invention, what I therefore claim as new, and desire to secure by Letters Patent thereon, is—

1. In a sliver-forming machine, the combination of the rotary disk, with a series of rising and falling nippers mounted thereon and movable at right angles thereto, and means for opening said nippers at the proper times, substantially as and for the purpose described.

2. In a sliver-forming machine, the combination of a radial series of vibratory levers carrying nippers on their outer ends, means for raising and lowering said levers at the proper times, and means for opening said nippers at the proper times, substantially as and for the purpose set forth.

3. In a sliver-forming machine, the combination of a fiber-holder, a rotary disk, a series of nippers connected to and rotated by the disk and movable perpendicularly to their plane of rotation; with means for opening the nippers as they pass through the holder, and for opening them again at the point of discharge of the fibers, substantially as and for the purpose described.

4. In a sliver-forming machine, the combination of a fiber-holder, having a discharge-opening; a rotary series of radial vibratory levers, nippers on the outer ends thereof, a trough, traversed by the nippers, and means for opening the nippers so as to catch and release fibers at the proper times, substantially as and for the purpose described.

5. The combination of the disk, the radial vibratory levers pivoted thereto, the nippers carried by said levers, the cam for raising said nippers, and the cams for opening them at proper points of their movement, substantially as and for the purpose described.

6. In a sliver-forming machine the combination of the fiber-reservoir, and the curved trough, and curved cam-plate; with the rotary disk lying between the trough and cam-plate, the vibratory levers carried by said disk, the nippers carried by said levers, and the cams for opening said nippers at proper points, substantially as and for the purpose described.

7. The combination of the rotary disk having an upstanding slotted flange, the levers pivoted to said disk and guided by the slots in the flange, the nippers carried by said levers, the springs for closing said nippers, and springs for depressing the levers; all substantially as and for the purpose described.

8. The combination of the rotary disk, the radial levers pivoted thereto, the nippers carried by said levers, the cam for raising said nippers, and the cams for opening them at proper points of their movement, with the fiber-reservoir, the curved trough, and the rotary cone, substantially as and for the purpose described.

9. The combination of the rotary disk having an upstanding slotted flange, the levers pivoted to said disk and guided by the slots in the flange, the nippers carried by said levers, the springs for closing said nippers, and the springs for depressing the levers, with the fiber-reservoir, the curved trough, the curved cam-plate, and the nipper-opening cams, all constructed and arranged substantially as and for the purpose set forth.

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

THOMAS E. PHILLIPS.

Witnesses:

GEO. G. LILLY,  
R. J. MCKINNEY.