

(No Model.)

T. E. PHILLIPS.
SLIVER FORMING MACHINE.

No. 557,427.

Patented Mar. 31, 1896.

Fig. 1.

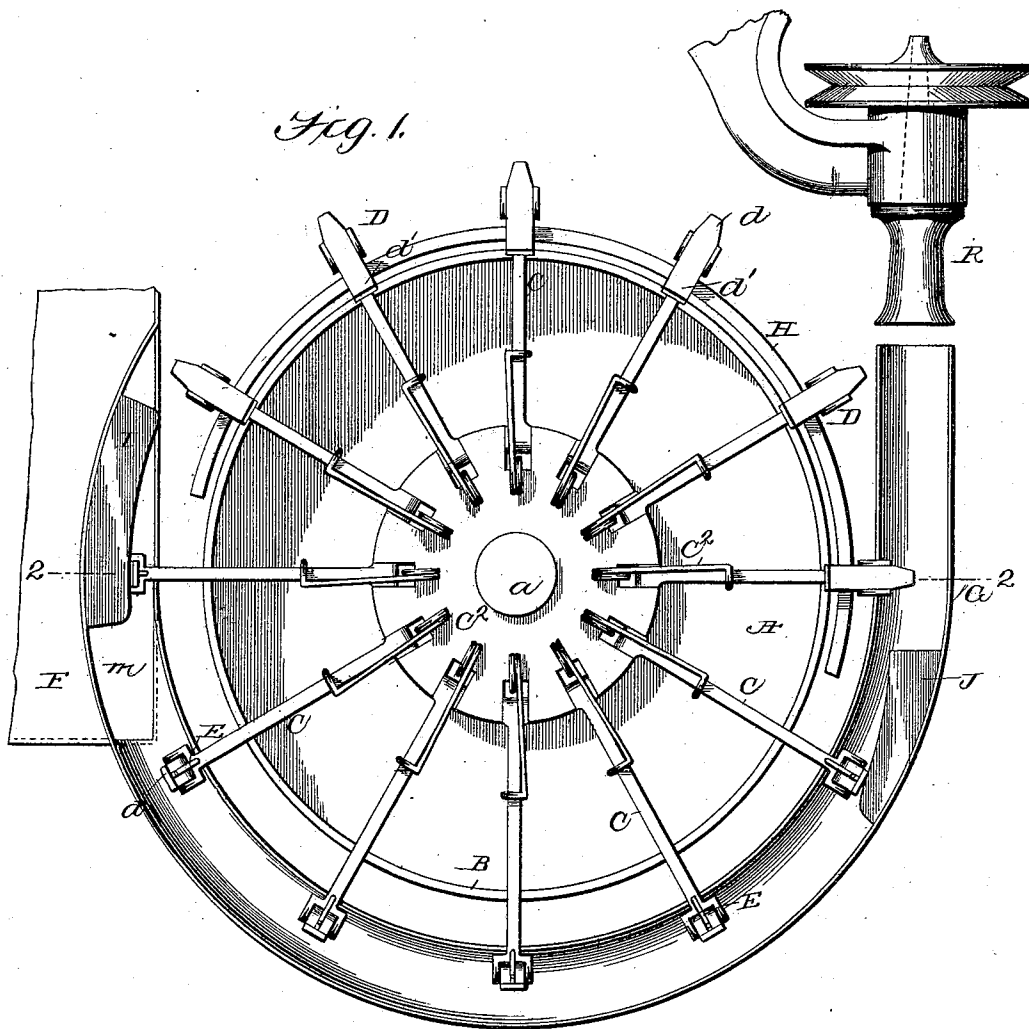
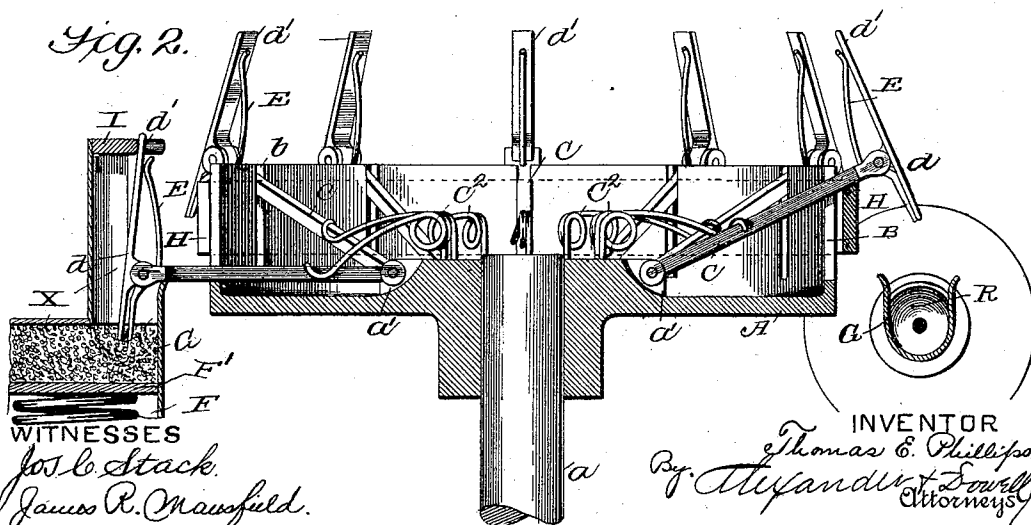


Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

THOMAS E. PHILLIPS, OF BLOOMINGTON, INDIANA, ASSIGNOR OF ONE-HALF
TO WILLIAM J. HAND AND JAS. J. H. HAMILTON, OF SCRANTON, PENN-
SYLVANIA.

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
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-
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
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.

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—

Figure 1 is a top plan view of the sliver-
forming mechanism. Fig. 2 is a transverse
vertical section therethrough on line 22, Fig. 1.

In said drawings, A designates a rotary disk
fixed on the end of a shaft *a*, which can be
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
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
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
held down by springs C², 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
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
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
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-
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
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
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
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
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-
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-
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
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.