

Sheet 1 of 2 Sheets

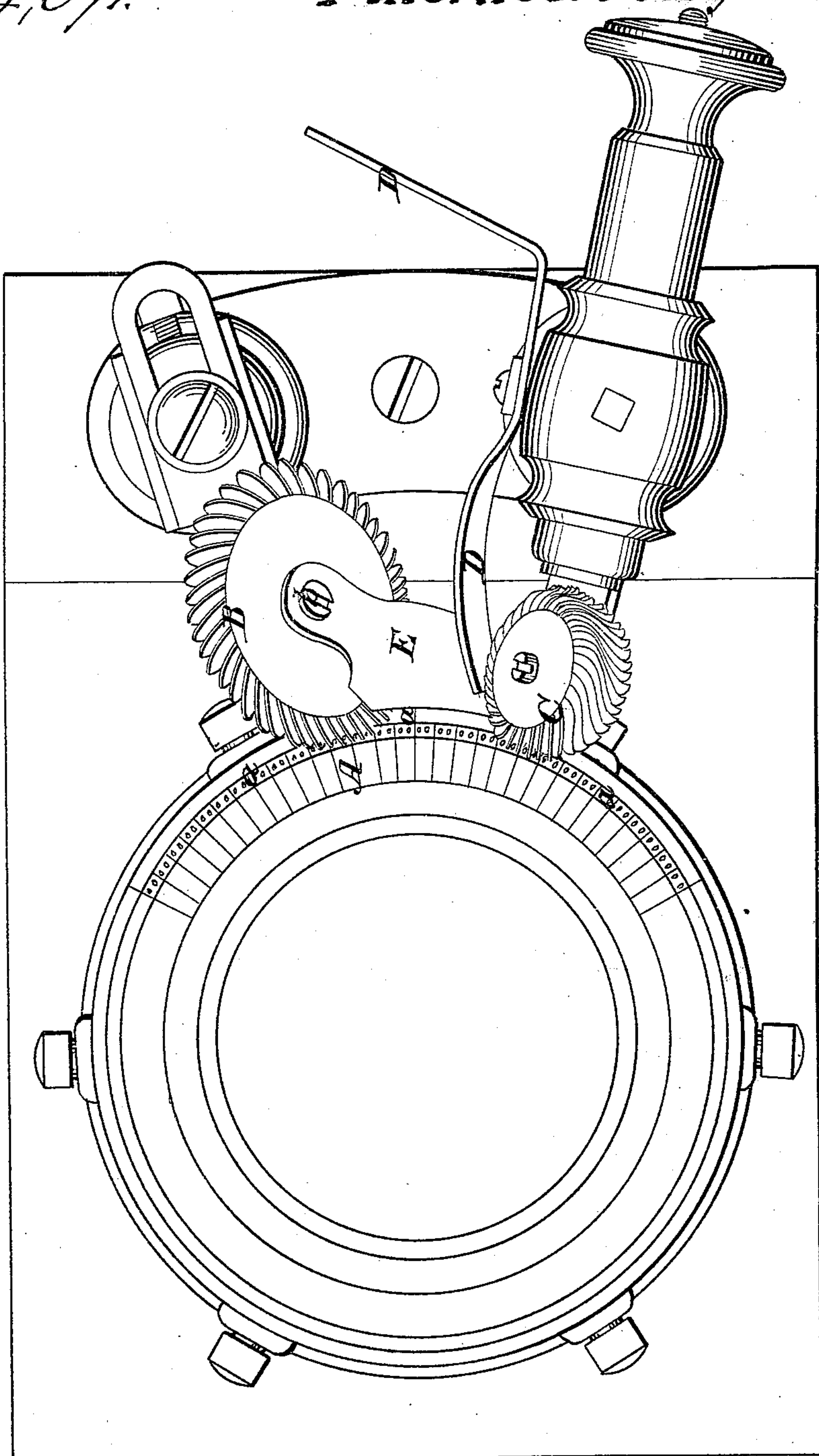
F. Burns.

Circular Knitting.

No 94,071.

Patented Aug. 24, 1869

Fig. 1.



Witnesses-

R. D. Smith
D. Mindell

Inventor.

Frank Burns
By his atty,
J. S. Brown

Sheet 2, 2 Sheets.

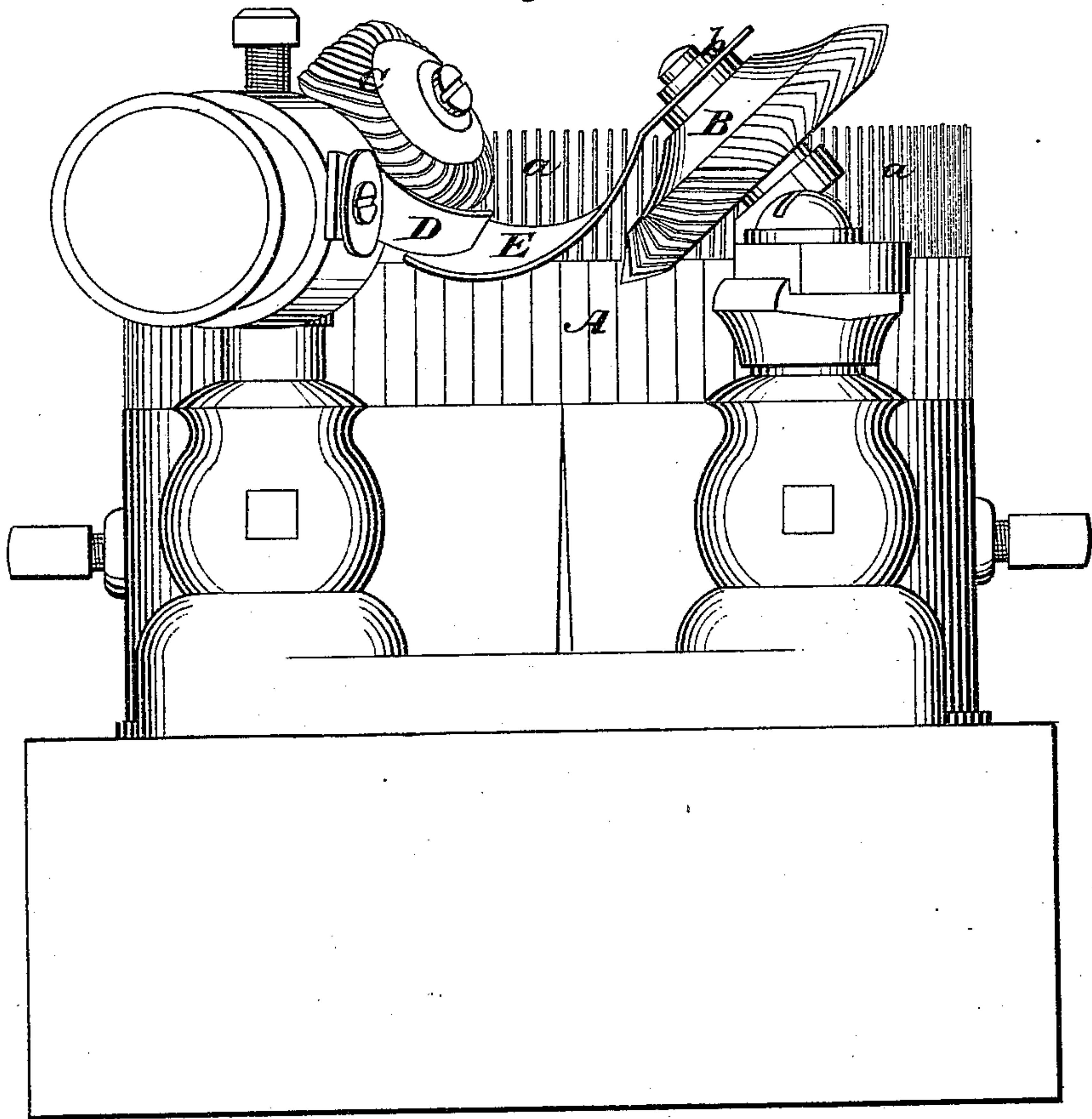
F. Burns.

Circular Knitting.

No 94,071.

Patented Aug. 24, 1869.

Fig. 2.



Witnesses.

R. D. O. Smith

D. Mindeleff

Inventor

Frank Burns

By his atty.

J. S. Brown.

United States Patent Office.

FRANK BURNS, OF UPPER GILMANTON, NEW HAMPSHIRE.

Letters Patent No. 94,071, dated August 24, 1869.

IMPROVEMENT IN KNITTING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, FRANK BURNS, of Upper Gilmanton, in the county of Belknap, and State of New Hampshire, have invented an Improvement in Knitting-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification—

Figure 1 being a top view of a cylinder knitting-machine, provided with my improvement, enough of the machine being represented to show the application of the invention.

Figure 2, a side elevation of the same.

Like letters designate corresponding parts in both figures.

Let A represent the needle-cylinder of the machine, bearing the needles *a a*;

B, the clearing-wheel, or its equivalent;

C, the loop-wheel; and

D, the yarn-carrier.

The nature of my invention consists in what I term a "needle-protector," E, applied in connection with the loop-wheel C, in such a manner as to prevent loose or tangled yarn from getting into the barbs of the needles in passing the said loop-wheel.

When the machine is doing good work, the clearing-wheel B brings all the loops down from the barbs of the needles, and the work keeps down till it passes the loop-wheel C, and nothing more is needed. But if there is any loose or tangled yarn hanging outside of the needles, as is frequently the case, the clearing-wheel fails to bring and keep it down out of the barbs of the needles, and when the leaves of the loop-wheel seize it, it is carried up and tangled in the barbs of

the needles, doing great damage thereto, sometimes even destroying the whole set at once, as the entanglement increases when once begun.

My "needle-protector" E completely obviates this difficulty. It consists of a curved plate, attached at one end to the pivot or stud, *b*, of the clearing-wheel, and continues curving downward, thence below the needle-barbs and under the loop-wheel C, parallel with and a little distance from the needle-cylinder, substantially as represented. This downward curvature is sufficient to force down and keep below the loop-wheel all tangled or loose yarn, after once getting below its upper end, where the clearing-wheel always delivers it.

Thus, with this simple plate, which does not interfere with the action of the machine, except when bad work begins, a machine may be run, and use or destroy not more than twenty-five needles a day, whereas, without it, from one hundred to one hundred and twenty-five needles are ordinarily required each day.

Its value and importance for this kind of knitting-machine are obvious.

What I claim as my invention, and desire to secure by Letters Patent, is—

The "needle-protector" E, formed and arranged upon a knitting-machine, substantially as and for the purpose herein specified.

This specification signed by me, this 29th day of May, 1869.

FRANK BURNS.

Witnesses:

C. P. S. WARDWELL,
JOHN B. HENDLEY.