

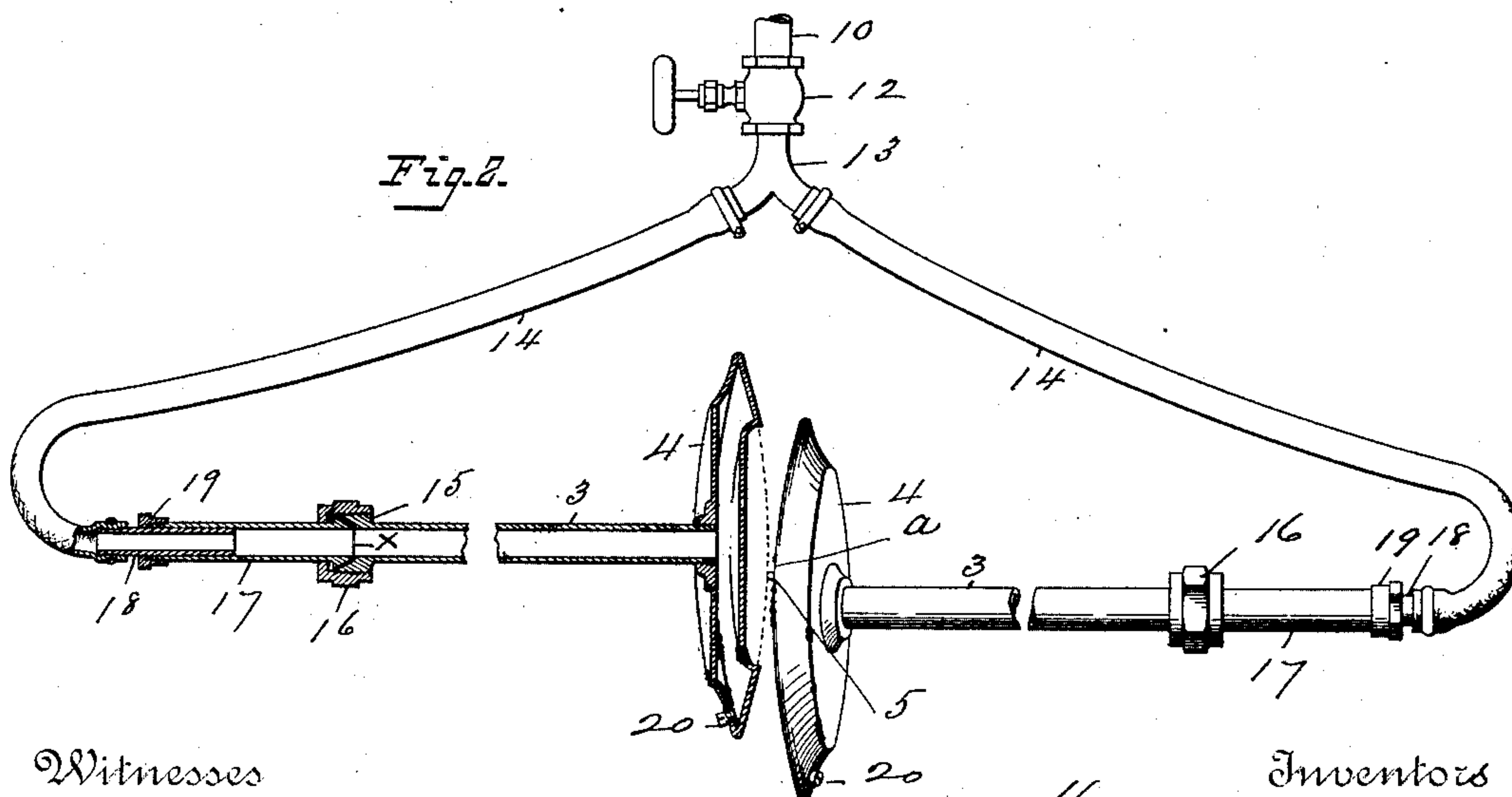
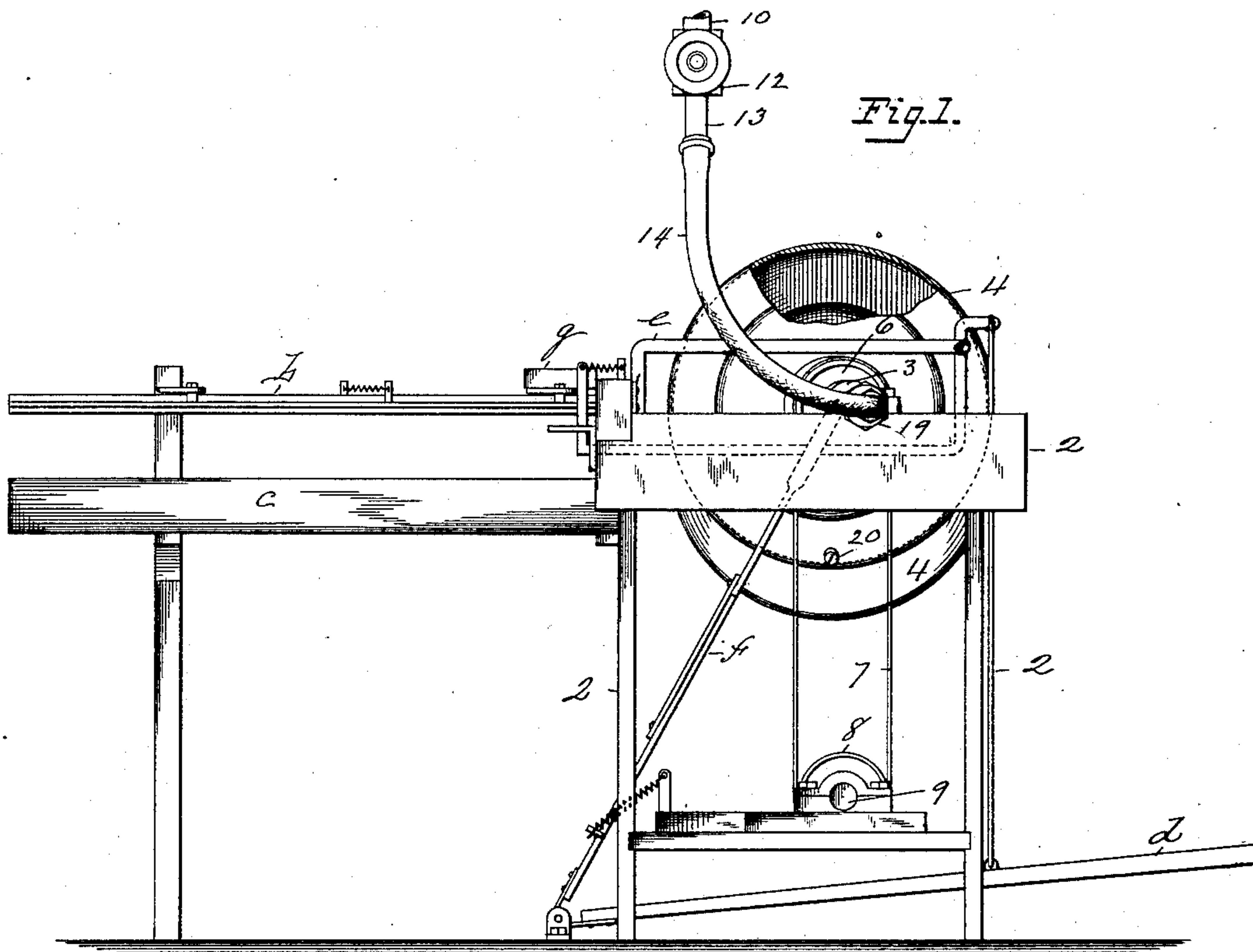
(No Model.)

H. MULLEN & J. NOBLE, Jr.

WHIP ROLLING MACHINE.

No. 367,761.

Patented Aug. 2, 1887.



Witnesses  
Court A. Cooper,  
G. M. Chamberlain

Inventors  
Henry Mullen  
James Noble Jr.  
By their Attorneys  
Chapin & Co.



# UNITED STATES PATENT OFFICE.

HENRY MULLEN AND JAMES NOBLE, JR., OF WESTFIELD, MASSACHUSETTS.

## WHIP-ROLLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 367,761, dated August 2, 1887.

Application filed April 11, 1887. Serial No. 234,329. (No model.)

*To all whom it may concern:*

Be it known that we, HENRY MULLEN and JAMES NOBLE, Jr., citizens of the United States, residing at Westfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Whip-Rolling Machines, of which the following is a specification.

This invention relates to machines for rolling whips, the object being to improve such machines by providing means for heating the rollers thereof, whereby the finish imparted to the whips by rolling, after they have been plaited and sized, is greatly improved; and the invention consists in constructing the rolling-disks of the machine hollow and providing means for heating the same, all as hereinafter fully described, and pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a side elevation of a whip-rolling machine embodying our improvements. Fig. 2 is a perspective view of the whip-rolling disks of the machine, together with their shafts and connections for conveying steam through the latter to said disks, said figure showing one of said disks and its shaft in section, and Fig. 1 showing the side of one of said disks broken away.

This invention is in the nature of an improvement upon whip-rolling machines in which are employed rotating disks or rollers, between which the whip is passed to roll down its sized surface, after the latter has been plaited, to make the surface smooth and hard. A machine of this class is described and shown in Letters Patent No. 212,891, of 1879, to which reference may be had. Certain sizes or finishing substances that are applied to the surface of plaited whips are subject more or less to the action of the atmosphere, so that in damp or very cold weather it is sometimes difficult to properly roll the whips, and particularly in damp warm weather, as under such atmospheric conditions the whips absorb so much moisture that it is with great difficulty that they can be manipulated with cold rolls; but we have discovered that by warming or heating the rolls or disks of the rolling-machine, either by steam admitted to the interior thereof or communicated thereto by jets of gas allowed to burn against them, the above-men-

tioned inconveniences and difficulties are overcome.

In the drawings, 2 indicates parts of a suitable frame of the whip-rolling machine, in which are mounted in suitable bearings two hollow shafts, 3, on the adjoining ends of which are secured two hollow whip-rolling disks, 4, whose faces at a certain point meet, as at *a*, and between which a whip (indicated by 5, Fig. 2) is held and rolled, said whip passing endwise between said rollers, whereby it is pressed and rolled as it moves through. The parts in the drawings indicated by the letters *b*, *c*, *d*, *e*, *f*, and *g* are detail parts of the machine, which do not constitute the subject-matter of this application. The said hollow shafts 3, on which are fixed said hollow rolling-disks 4, are so hung in their bearings in the frame of the machine that they are capable of a sliding movement therein, whereby the faces of said disk are moved toward and from each other in the manner described and shown in said patent, or by any other suitable means, and each of said shafts 3 has fixed thereon a pulley, 6, with which connection is made by a belt, 7, which engages with a pulley, 8, on a driving-shaft, 9, substantially as shown in Fig. 1.

10, Fig. 2, indicates the end of a steam-pipe, which is connected with any suitable boiler; 12, a stop-valve to which said steam-pipe is connected, and 13 a double-branch connection attached to said valve. Two flexible tubes, 14, of rubber or other suitable material, are connected by one end to said branch connection 13, and their opposite ends are each connected to one end of said hollow shafts 3, as follows: whereby said shafts are free to have imparted to them the above-referred-to sliding or endwise motions and the requisite rotary motions while steam is conducted through them into the hollow disks 4.

Each disk-shaft 3 has thereon a collar, 15, on which a nut, 16, is screwed, said nut being of cup shape, or in the form of a common stuffing-box nut, such as is used on the hubs and spindles of stop-valves. The end of the shaft 3 is interiorly beveled or tapered, as at *x*, Fig. 2, and into said tapered end of the shaft 3 is fitted the end of a tube, 17, having a collar thereon with which the nut 16 engages.



The bearing-surfaces between the end of the tube 17 and the shaft 3 are ground to a tight fit, and the nut 16 serves to hold those surfaces in a sufficiently close contact to prevent any considerable escape of steam and at the same time permitting the shaft 3 and the nut 16 to rotate at and around the end of the tube 17, the said pulley 6 being located on said shaft between the collar 15 and the disk 4. The tube 17 is in practice held in a position in the frame 2 of the machine, whereby it is not permitted to rotate, but may have a longitudinal movement corresponding to the shaft 3. Connection is made between the end of the flexible tube 14 and said tube 17 by a tube, 18, which enters said tube 17, and has its outer end connected to said flexible tube, as clearly shown in Fig. 2, the tube 18 being so fitted to the interior of the tube 17 that one may slide on the other, if need be, when the end of the flexible tube is fixed to the frame of the machine; but, if preferred, the end of tube 14 may be left free to adjust itself to the endwise movements of the shaft 3 and tube 17. A stuffing-box nut, 19, serves to prevent the escape of steam at the joint between tube 18 and tube 17, said nut being screwed onto the end of the latter and containing any well-known suitable packing substance. Each of said hollow disks 4 is provided with a plug, 20, near its periphery on the rear side of the disk, or with other suitable means for drawing the water of condensation from said disks, which plugs may be screwed in tightly or loosely to permit a slight escape of steam, thereby keeping a suitable circulation of steam through the disks 4, whereby substantially an even heat is maintained in the latter.

In using the within-described disk-warming devices with a whip-rolling machine such an amount of steam is admitted to the disks 4 by operating the stop-valve 12, as may be desirable. In practice an excessive pressure and consequent high degree of heat is not found to be necessary to the proper effect of the heat in finishing a whip, as above described; but said heat is regulated according to the judgment of the operator.

It is obvious that the rolls or disks of a whip-rolling machine may be heated by jets of gas directed in a well-known way against said rolls or disks with nearly the same effect as by admitting steam into them, as herein described, and we do not intend herein to limit ourselves to the use of steam only for heating said disks or rollers of whip-rolling machines.

What we claim as our invention is—

1. In a whip-rolling machine substantially such as is herein described, a frame, two hollow shafts supported in bearings in the frame, and two hollow disks on the ends of the shafts facing each other, all in combination, substantially as described.

2. In a whip-rolling machine, the combination of a frame, a pair of hollow shafts supported in said frame, substantially as described, so as to have longitudinal movement, a pair of hollow disks on the ends of said shafts and facing each other, and a flexible tube connected with each of the hollow shafts, the combination being and operating substantially as described.

3. In a whip-rolling machine, a pair of hollow disks facing each other, two hollow shafts to which said disks are attached, a frame on which the shafts are supported, a double-branch pipe and flexible tubes connecting the branches of the pipe with the hollow shafts, all combined and arranged substantially as stated.

4. In a whip-rolling machine, a pair of hollow disks facing each other, a hollow shaft attached to each of said disks, a tube forming an extension of each hollow shaft and connected thereto by a stuffing-box joint, substantially as described, and a flexible tubular attachment to each of said tubular extensions of the shafts, the whole in combination, as set forth.

HENRY MULLEN.  
JAMES NOBLE, JR.

Witnesses:

G. M. CHAMBERLAIN,  
H. A. CHAPIN.