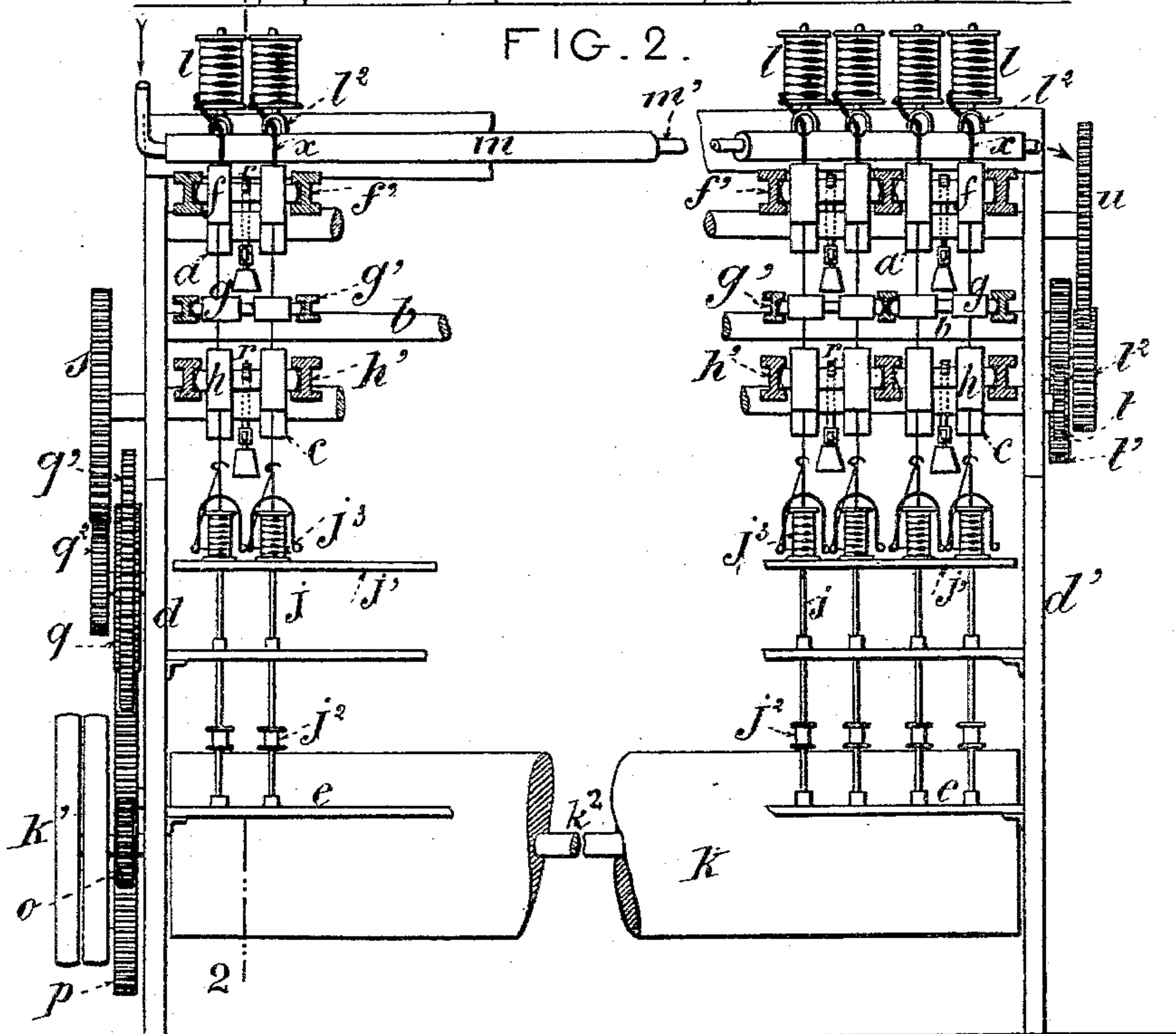
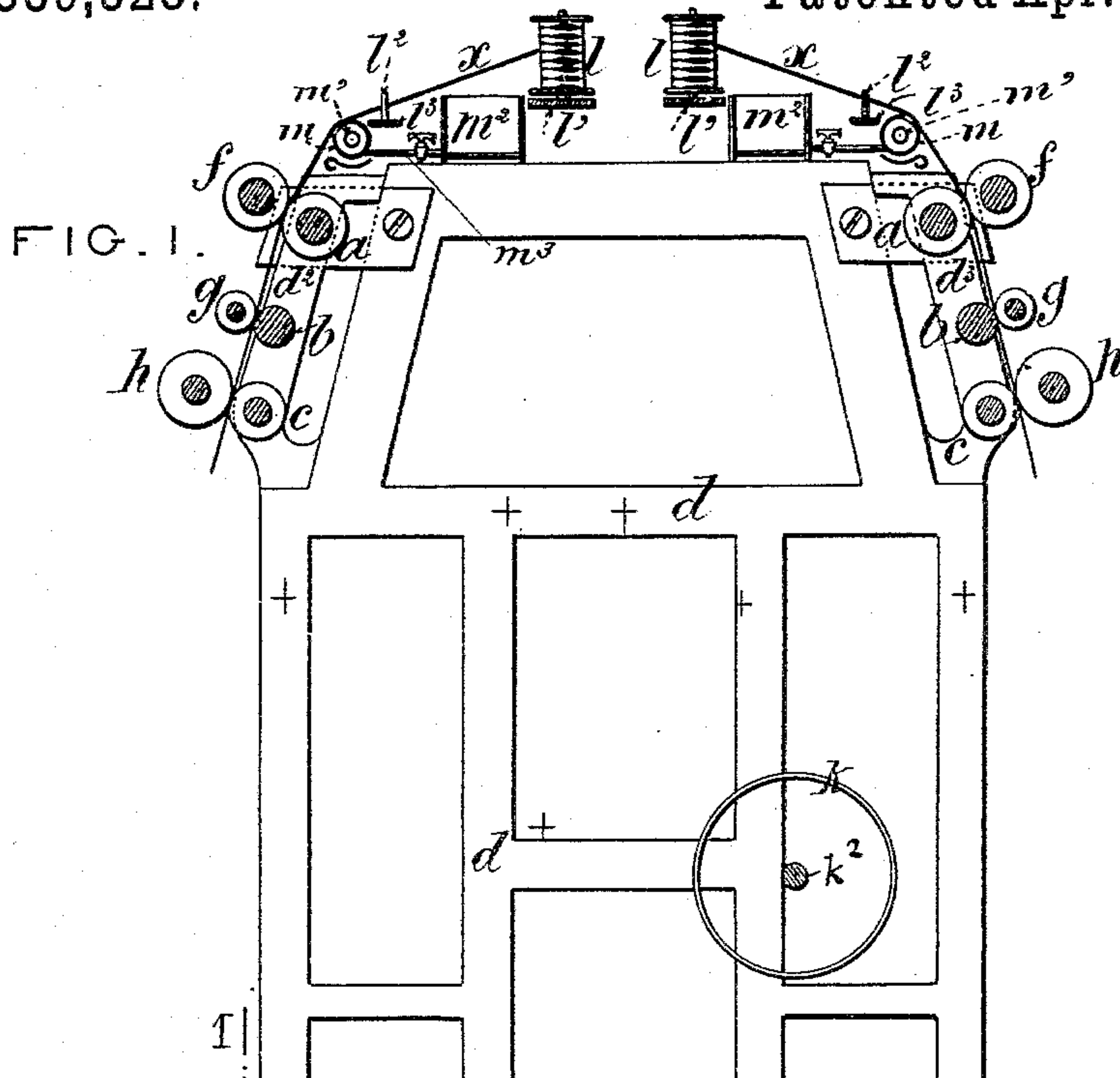


T. E. SCHIEFNER.

MACHINE FOR SPINNING RHEA, &c.

No. 339,328.

Patented Apr. 6, 1886.



Henry Sanford Bergmann.
Alphonse Billet.

Theodore Eugene Schiefner

(No Model.)

2 Sheets—Sheet 2.

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FIG. 3.

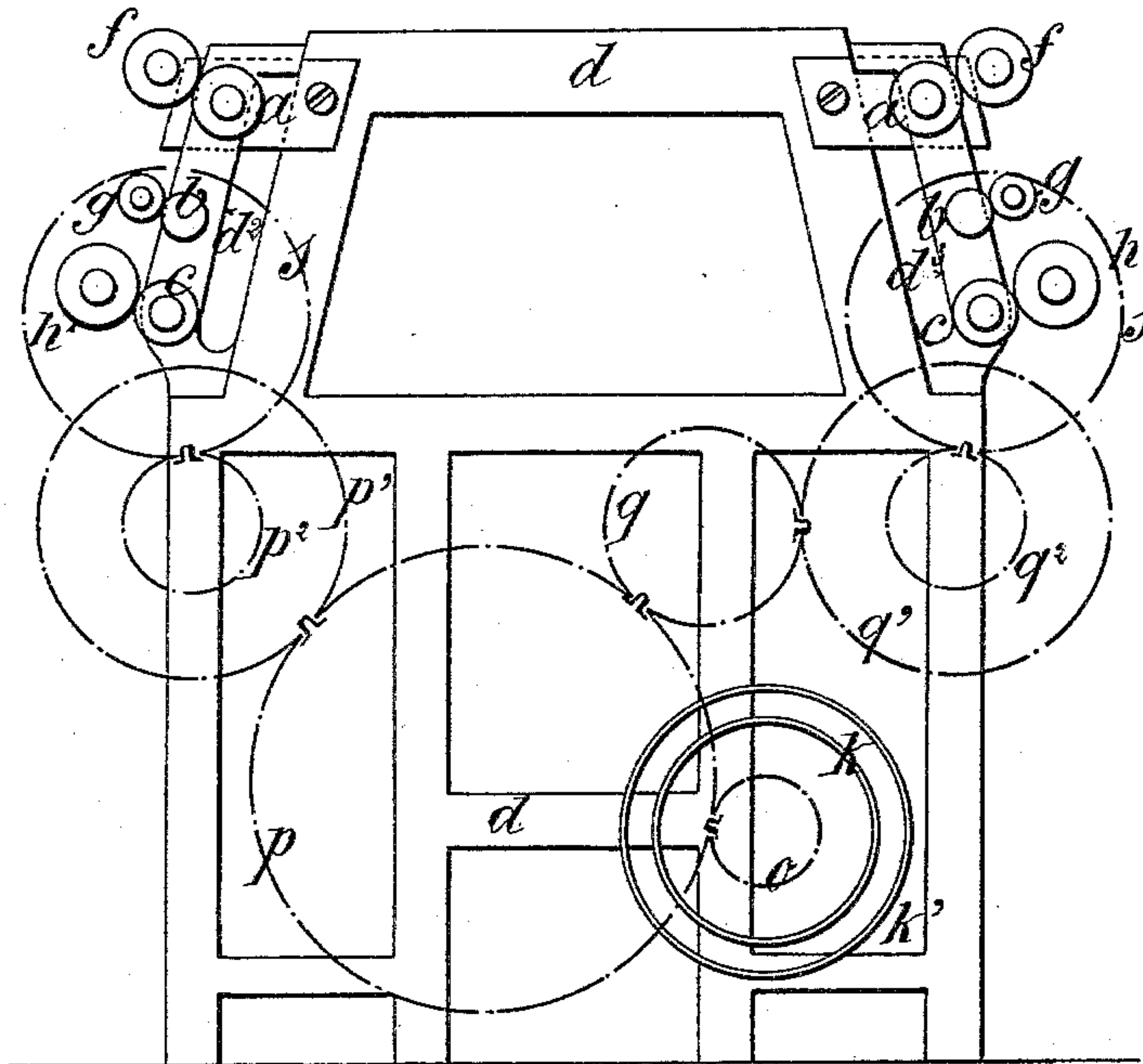
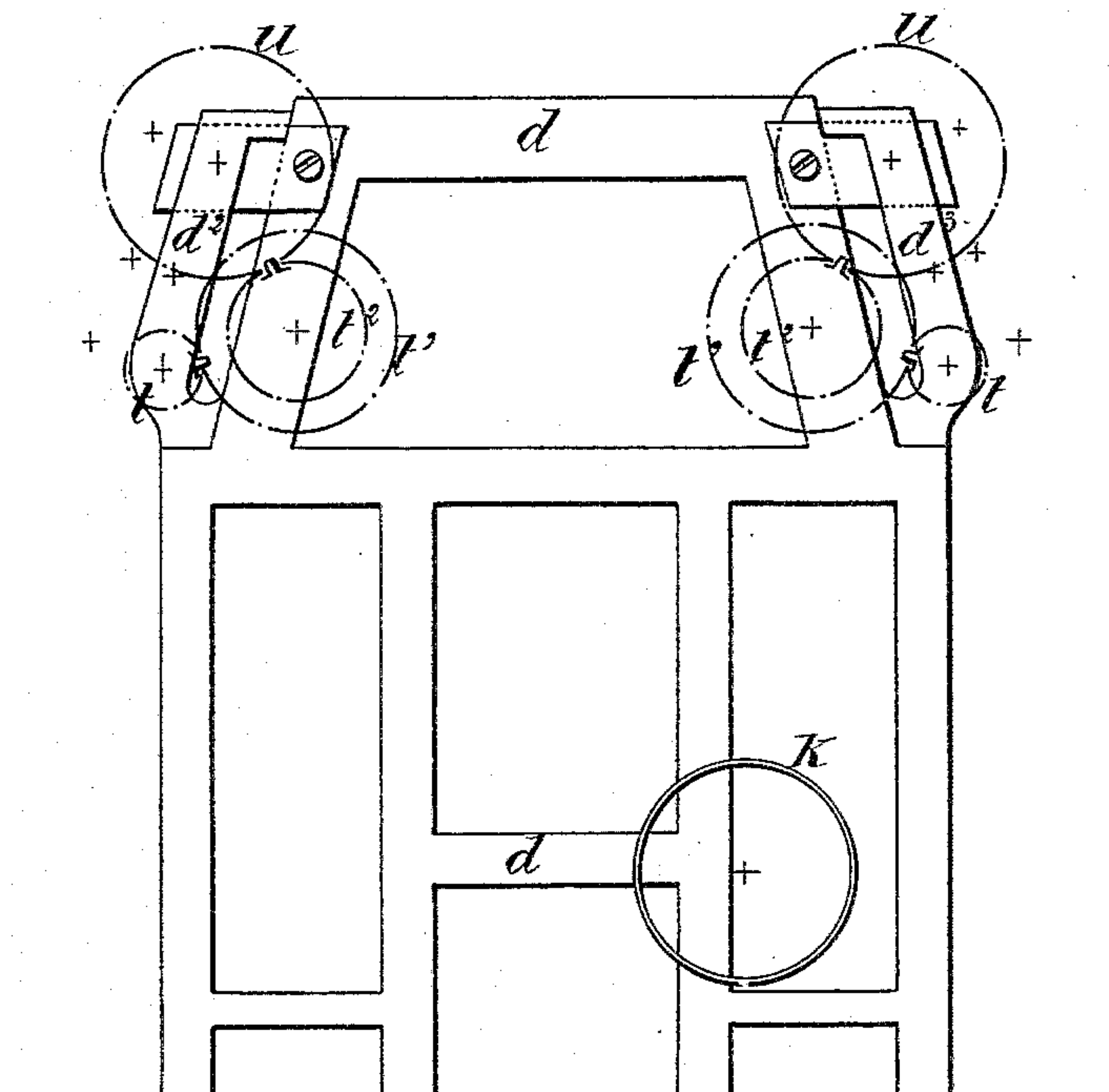


FIG. 4.



Henry Sanford Benson.
 Abbeville Blotter

Madame Eugene Schuyler

UNITED STATES PATENT OFFICE.

THÉODORE EUGÈNE SCHIEFNER, OF ESSONNES, DEPARTMENT OF SEINE-ET-OISE, FRANCE.

MACHINE FOR SPINNING RHEA, &c.

SPECIFICATION forming part of Letters Patent No. 339,328, dated April 6, 1886.

Application filed September 24, 1885. Serial No. 178,058. (No model.)

To all whom it may concern:

Be it known that I, THÉODORE EUGÈNE SCHIEFNER, of Essonnes, Department of Seine-et-Oise, in the Republic of France, have invented certain new and useful Improvements in Machines for Spinning Rhea or Ramie, Nettles, Pita, Yucca, Pine-Apple, Jute, Ananassa, Esparto, Flax, Hemp, and Similar Substances, of which the following is a specification.

My invention is directed to machinery for spinning rhea or ramie or other long-fibered material.

It is my object to facilitate the spinning operation, to obtain finer threads than has heretofore been practicable, so far as I am informed, and to improve the quality of the article produced.

In my improved machine the drawing of the material, which takes place just prior to the spinning operation, is performed by two pairs of rolls, between which I interpose a third pair of rolls having no positive movement of their own, but revolving by contact with the roving that passes between them. These rolls serve to guide and carry or support the fibers, to smooth and condense the roving, and to assist in suppressing the small or short fibers which hitherto have appeared in the operation of spinning ramie. In conjunction with these elements I make use of means for steeping or moistening and softening the fibers prior to their passage between the drawing-rolls, thus rendering them more supple and pliable, and putting them in better condition both for the drawing operation and for the action of the condensing and carrying rolls.

The nature of my improvements and the manner in which the same are or may be carried into effect will be readily understood by reference to the accompanying drawings, in which—

Figure 1 is a transverse vertical section, on line 1 2, Fig. 2, of so much of a double spinning-frame as needed to illustrate my invention, omitting the spindles and fliers and their adjuncts. Fig. 2 is an elevation of one face of the frame, the central portion of said frame being broken away so as to bring the two ends nearer together. Figs. 3 and 4 are elevations of the two ends of the machine, showing dia-

grammatically, by broken lines, the driving-gearing of the drawing-rolls.

The machine shown in the drawings is a double spinning-frame, there being on each of its faces spinning and drawing mechanisms, &c. The driving-shaft is shown at k^2 , provided with the usual fast and loose pulleys, k' , and carrying also the drum k , from which motion is imparted to the spindles j by cords or belts passing from the drum to the respective spindle, whirls, or pulleys j^2 . The spinning mechanism proper is of the usual spindle and flier type, with a vertically-reciprocating rail, j' , for the spools or bobbins j^3 , and a bolster or rail, e , for the spindles.

Devices of this kind are well known in the art, and, forming no part of my improvements, require no further explanation here.

The spinning-frame in the present instance is about ten meters long, one and one-half meters in height, and one and one-fourth meters in width. The spindles make ten revolutions to one revolution of the drum k , which latter make about six hundred revolutions per minute. On each face of the machine are placed the three rolls $a b c$, journaled in brass bearings in arms or supports $d^2 d^3$. The distance between the two drawing-rolls $a c$ is about thirty centimeters. The intermediate carrier and condenser roll b is placed parallel with and about midway between them. Each roll consists of a steel shaft, provided at intervals with brass sleeves or tubes, keyed or otherwise fastened to the rolls. The sleeves are set at intervals apart of from thirty to thirty-five millimeters, and are about thirty millimeters in width. Those on the upper and lower shafts have an external diameter of about ninety millimeters, and those on the intermediate shaft an external diameter of about fifty millimeters. The acting faces of all these rolls are smooth. In connection with these rolls I employ presser-rolls, lettered, respectively, $f g h$, each consisting of a series of iron axles carrying each two rollers or sleeves, each axle being supported in bearings $f' g' h'$, in which it can move to and from its fellow roll, and being held with heavy yielding pressure against the same—a pressure of, say, fifty kilograms or more—by weights r or their equivalent. It is preferred that the sleeves or acting faces of the presser-

roll *g* should be of wood, and those of the presser-roll *h* of vulcanized rubber. The rovings *x* are supplied to the machine from spools *l*, mounted on spindles on the supporting-rail *l'*. The rovings pass from their respective spools through guide-eyes *l''*, supported by a rail, *l'''*, and over and in contact with a tube, *m*, (preferably of copper,) located between the guide-eyes and the first or upper roll, *a*. This tube is in communication with a tank, *m''*, by means of a valve or cock controlled pipe, *m'''*, and it is notched or perforated at the several points where the rovings pass over it. Arranged concentrically within the outer tube, *m*, is an inner tube or pipe, *m'*, which is to be put in communication with a source of steam-supply, for the purpose of heating and vaporizing the liquid supplied to the outer tube from the tank *m''*. This steam-pipe can be provided with perforations to allow the steam to have direct contact with the liquid in the outer tube, and to issue along with the vapor of that liquid from the outer tube, so as to meet and moisten the rovings. The liquid with which the tube *m* is supplied is one consisting, essentially, of water, glycerine, and neutral soap, to which other suitable ingredients may be added. This compound I find to be very efficient for the purpose of putting the rovings in proper condition to be acted on by the rolls hereinbefore described. This particular feature is not here claimed, *per se*, and I desire it to be understood that I reserve the right of making the same the subject of another and separate application for Letters Patent. By the action of the instrumentalities just described the rovings are steeped, softened, and made pliable, and are brought to a condition in which they may be spun into smooth and very fine threads, the fibers of which will have a silken luster. The steeped or moistened and pliable rovings pass to and between the first set of drawing-rolls *a f*, thence through the carrier and condensing-rolls *b g*, thence to the last set of drawing-rolls *ch*, and thence to the spindles and fliers, where they are spun into thread and wound upon bobbins in the customary way. Of the rolls above named the rolls *a* and *c* only are positively driven. Roll *a* makes, say, from six to twelve revolutions per minute, and roll *c* makes from one hundred and twenty to two hundred and forty revolutions during the same time. The gearing by which the parts are thus moved is shown clearly in Figs. 2, 3, and 4.

Referring now to the drawing-rolls on the left of the frame in Figs. 3 and 4, the lower drawing-roll, *c*, is driven from the pinion *o* of one hundred teeth on the driving-shaft through the intermediates *p* of two hundred teeth, and *p'* of one hundred teeth, on the axle of which latter is keyed a wheel, *p''*, of, say, from twenty-five to seventy-five teeth, which gears with the one-hundred-toothed wheel on roll *c*. The roll *c* on the right of the frame is provided with a like wheel, *s*, which is driven from *p* by intermediate *q* of one hundred teeth, *q'* of one hundred teeth, and *q''* of, say, from twenty-five to seventy-five teeth. On each side of the frame the upper drawing-roll, *a*, is driven from the lower drawing-roll, *c*, by a pinion, *t*, of twenty-five teeth on the axle of roll *c*, the intermediate *t'*, of one hundred teeth, and the wheel *t''*, of from twenty-five to sixty teeth, keyed on wheel *u* of one hundred teeth on the axle of roll *a*.

Having described my improvements and the best way known to me of carrying the same into effect, what I claim as new and of my own invention is as follows:

1. The combination of the spinning mechanism, the two power-driven drawing-rolls *a c* and their fellow rolls, and the intermediate condensing and carrier rolls revolved by contact with the roving or fiber which passes between them, substantially as and for the purposes hereinbefore set forth.

2. The combination of the spinning mechanism, the two drawing-rolls and their fellow-rolls, the intermediate condensing and carrier rolls revolved by contact with the roving or fiber which passes between them, and the steeping or vaporizing device, whereby the rovings as they are drawn from their spools are steeped and softened prior to the drawing operation, substantially as and for the purposes hereinbefore set forth.

3. The combination, with two pairs of drawing-rolls between which the drawing takes place, of intermediate condensing and carrier rolls revolved by contact with the roving or fiber which passes between them on its way from one to the other pair of drawing-rolls, substantially as and for the purposes set forth.

THÉODORE EUGÈNE SCHIEFNER.

Witnesses:

HENRY SANFORD BERGMAN,
ALPHONSE BLÉTRY.